Introduction

2024 has been the year of change. Central banks have pivoted sharply, declaring victory on the war on inflation and prioritising growth and employment. The re-election of Donald Trump as the 47th President of the United States has sent ripples through global markets. With the return of tariffs and potential policy upheavals, the world watches closely to see what's rhetoric and what's reality. Lastly for us, energy nerds at Infradebt, 2024 marked a big change in Large Generation Certificate (LGC) prices and the political rhetoric surrounding the future of Australia's energy policy. Whether the change is structural or trading/election volatility, we wait and see. We investigate these changes in four articles for our final newsletter of the year:

- Settling into a higher inflation world
- LGC Prices – structural change or trading volatility?
- Trump and Climate Change
- Lags

As always, we are grateful for the trust and support that our clients place in us. At Infradebt, we believe change brings opportunity and we will continue to find opportunities that deliver superior risk-adjusted returns for our clients. To everybody, thanks for continuing to read our newsletter. We hope you and your families all have a safe Christmas/New Years, and we look forward to engaging with you again in 2025.

Markets Update

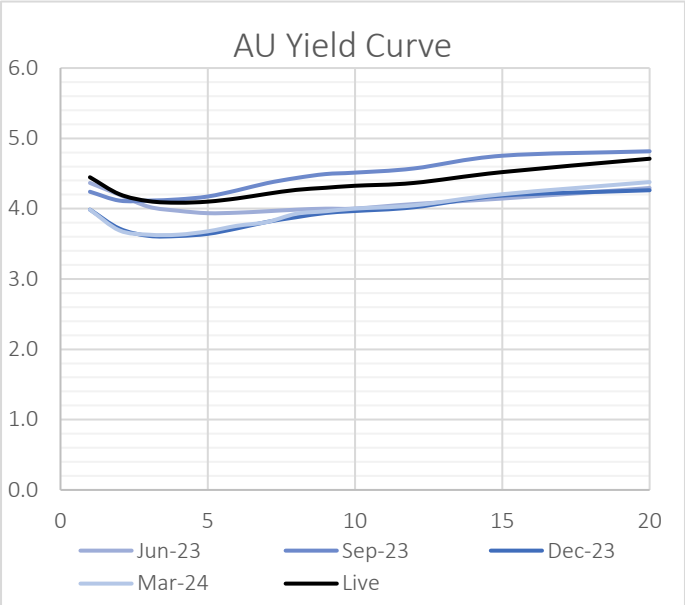
Central banks in most advanced economies have started easing monetary policy, with the notable exception of Australia. Concerns about slowing GDP growth and softening labour markets have prompted many central banks to reduce interest rates in an effort to stimulate their economies. However, there is a cautious approach to these measures, as fears of an inflation resurgence remain a significant consideration.

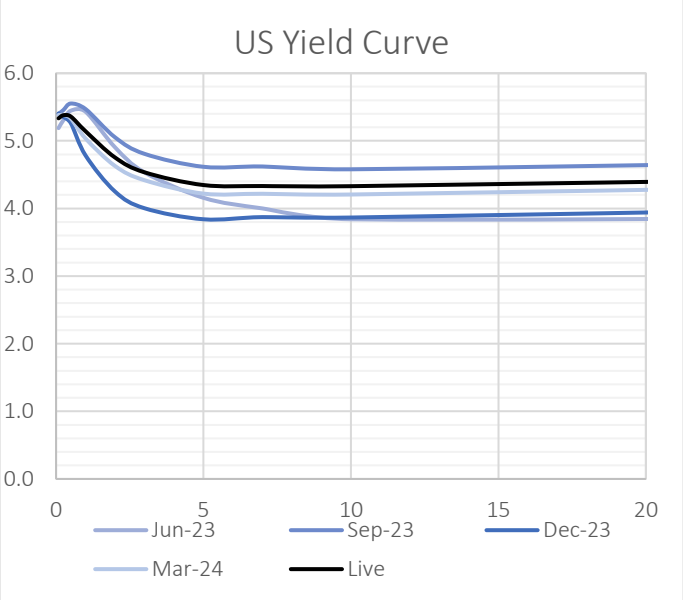
The Federal Open Market Committee (FOMC) has implemented two rate cuts this year, bringing the official policy rate target to 4.50% to 4.75%, citing sustained progress in bringing inflation to the target 2% band. Participants in the latest meeting noted that there has been drop-in job vacancy rates but not a big deterioration in the labour market and, hence, the policy response is expected to be gradual.

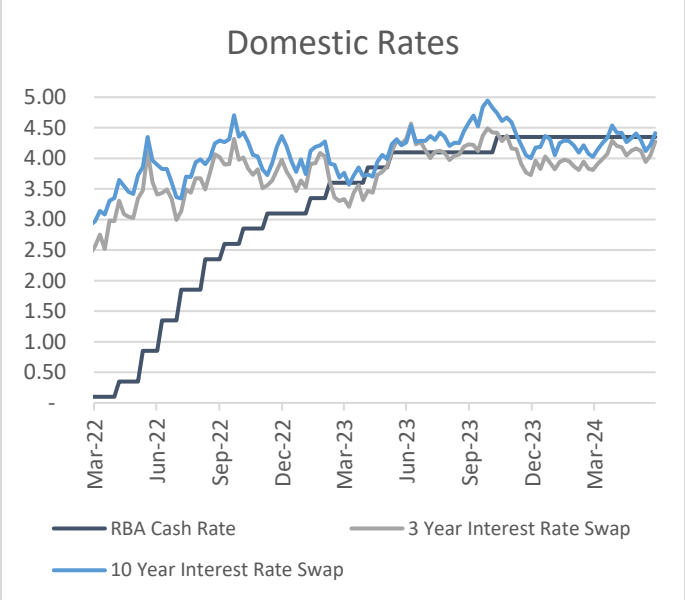
During the quarter, 3-year Treasury yields fell to a low of 3.5% and 10-year Treasury yields fell to 3.8%, but markets have since recalibrated expectations regarding the number of future rate cuts. As a result, yields on the three-year and ten-year Treasuries have rebounded to 4.1% and 4.2% respectively. The FOMC has emphasised caution on the future path of rates particularly given the potential impact of fiscal policy initiatives from the Trump administration, including tax cuts and renewed tariff policies that could reignite inflation. With core CPI still stuck around 3.3% for several months and uncertainty surrounding the delivery of election promises, the future trajectory of interest rates in the US remains uncertain.

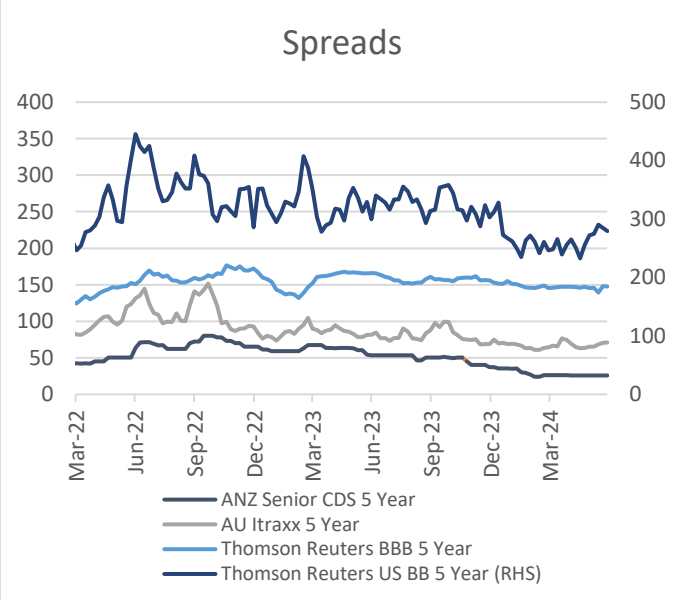
In Australia, Reserve Bank Governor Michelle Bullock has yet to signal a shift in monetary policy. Speculation about an early rate cut had emerged in the bond markets, driven by a sluggish economy. The September quarter GDP growth came in at 0.3%, falling short of market expectations of 0.4%. Annual growth of 1.1% also remains well below the Reserve Bank of Australia's (RBA) forecast of 1.5% by year-end, despite expectations that tax cuts would boost household consumption. However, RBA is faced with a conundrum of either stimulating the economy or risking spiralling inflation. Services inflation continues to be in the sixes, and the RBA does not expect headline inflation to return to 2-3% until 2026. The latest unemployment numbers of 3.9% have hosed down hopes of an early rate cut in the new year. With a fresh board, the RBA is unlikely to change stance and continue to be data driven before it marks

a change in the interest rates. The Australian forward curve has not changed shape for almost entirety of the year and continues to be forward sloping.









Source: Refinitiv Eikon

New issuance and refinancing

Detailed below is publicly available infrastructure debt issuance for the quarter:

Date	Borrower	Instrument	Size ($m)	Term (Yrs)	Pricing (bp above BBSY)
3/12/24	NextDC Ltd	Loan	2,900	5, 7	160, 175
29/11/24	Global Power Generation Finco Pty Ltd	Loan	1,855	5	
29/11/24	LACP Finance Co Pty Ltd	Loan	495	5, 3	
19/11/24	Alinta Energy Finance Pty Ltd	Loan	340	7	175
7/11/24	Megawatt Financing Pty Ltd	Loan	750	4	
6/11/24	Williamsdale Battery	Loan	400		
1/11/24	Roads Corp	Loan	750	12	100
29/10/24	SDP Finco Pty Ltd	Loan	368		
25/1024	Canberra Airport Pty Ltd	Loan	450	7, 5	
8/10/24	MidOcean Energy Holdings Pty Ltd	Loan	962	5	
1/10/24	Aula Energy	Loan	740		

Source: LoanConnector, Refinitiv Eikon (Infrastructure 360), PFI

Equity and other news

- HMC Capital is closing in on a $2 billion purchase of data centre group Global Switch Australia. Global Switch's two developments would form part of a $2.6 billion REIT to be listed soon.
- UniSuper has completely sold out of APA Group over two block trades totalling $840 million.
- 100% of North Queensland Airports is up for sale, expected to sell for $3 billion.
- OX2 has acquired a 1GW wind farm + 100MW BESS development in WA.
- The Auckland Council is preparing to sell its remaining 11.03% stake in the dual-listed Auckland Airport, worth $1.3 billion, after selling $735 million of stock in August 2023.
- Pacific Equity Partners and OPTrust are selling a stake in Zenith Energy, a remote power solutions provider to mining companies. Interested buyers include APA Group and KKR.
- Dexus group is selling its 9.7% stake in Melbourne and Launceston Airports.
- Commonwealth Super Corporation is selling a 12.5% stake in CDC Data Centres. Interested parties include Australian Retirement Trust, IFM investors and CDPQ.
- BP is selling a 51% stake in the Australian assets of Lightsource BP to wipe 100% of Lightsource BP's debt off its balance sheet.
- IFM investors has picked up $168 million worth of shares in Atlas Arteria, now owning over 30% of the company.
- Iberdrola has secured a PPA with 13 regional NSW councils to power 163 council sites and streetlighting. Power will be supplied from the 190MW Avonlie solar farm, the 140MW Capital wind farm and the 113MW Bodangora wind farm, all located in NSW.
- A consortium led by Palisade Impact has acquired Energy Locals from Quinbrook Infrastructure Partners. The consortium includes the Clean Energy Finance Corporation, which has acquired a minority stake for $25 million. Energy Locals has 260,000 customers across embedded networks, retailing and strata energy services.
- Eku Energy has reached financial close on the 250MW/500MWh Williamsdale BESS in the ACT.
- Singapore's sovereign wealth fund, GIC has acquired a 5% stake in Brisbane Airport from a client of Igneo Infrastructure Partners.

- HMC Capital has acquired Neoen's Victorian portfolio of operating and development projects for $950 million in a sale required by the ACCC. Brookfield, which is currently in the process of acquiring Neoen, also owns Victorian transmission and distribution operator AusNet.
- The Victorian State Electricity Commission has acquired the Horsham Solar Farm from OX2, a 118.8MWac solar + 50MW/100MWh BESS for $370 million. The project will be the first 100% government owned generator in the State since 1994.
- GPG has reached financial close on a $2.3 billion portfolio facility for 1.8GW of solar, wind and BESS projects in Australia.
- Dexus has lobbed a bid for Campus Living Villages' Australian Student Accommodation Portfolio of 27,000 beds.
- The successful renewable generation projects for CIS Tender 1 - NEM Generation (Tender 1) were announced on 11 December 2024. A total of 19 new projects across New South Wales, Victoria, South Australia, and Queensland have been named the winners with a cumulative combined capacity of 6.4 gigawatts of new generation and 3.6 gigawatt hours of storage.

Source: AFR, PV Magazine

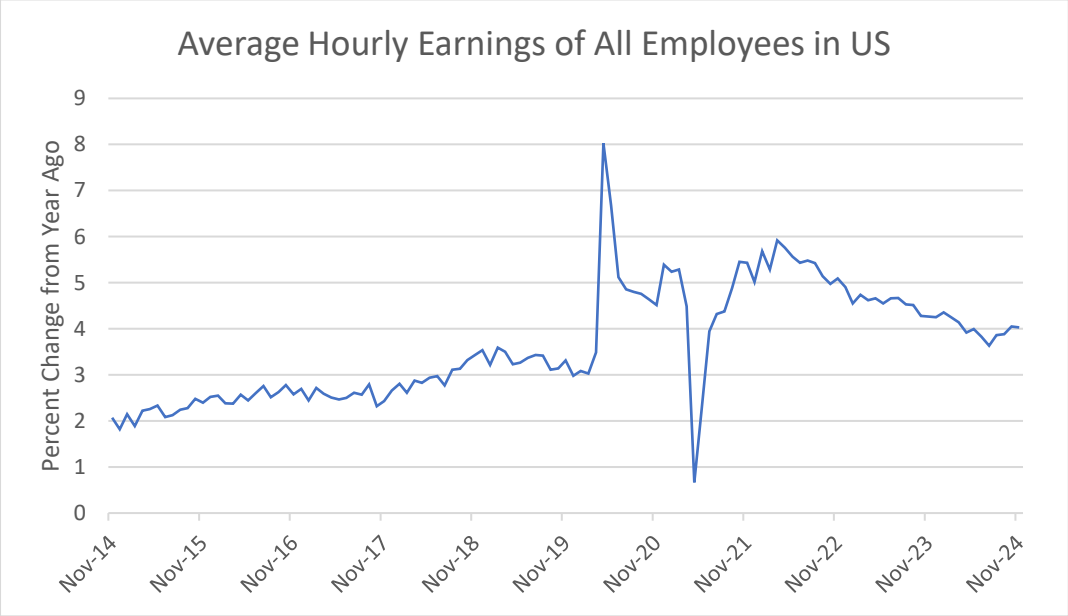
Settling into a higher inflation world

It might be peak economic complacency, but the world seems to be settling into a period of "medium high" inflation. To be clear, I am not talking about a 1970s style inflation explosion, or a Venezuelan hyperinflation, but rather a period where inflation persistently runs at 3% or 4% rather than nicely in the 2-3% target RBA band.

The key driver of this is that both Australian and the US share the following economic conditions:

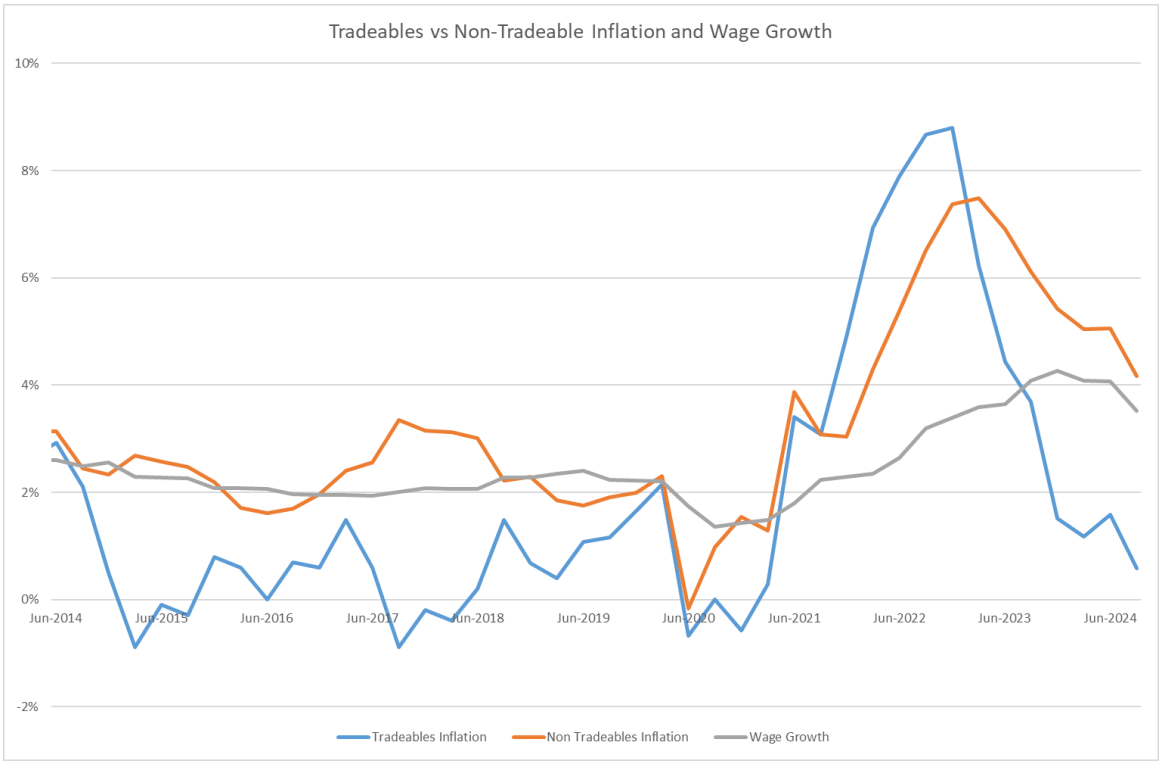
- Unemployment is low – that is, employees seeking a wage rise have high confidence of being able to find an alternative job
- Historic inflation is high – that is, wages have fallen in real terms and, hence, workers are motivated to seek higher wages; and
- Economic growth is positive, and businesses seem, in the main, able to push through cost-based price rises.

In this environment, wages are likely to keep growing reasonably strongly. For example, the chart below shows nominal wage growth in the US over the last decade. Pre Covid, wage growth was typically 2-3%. Since, while decelerating in 2024, it has still been running at 4-5%.



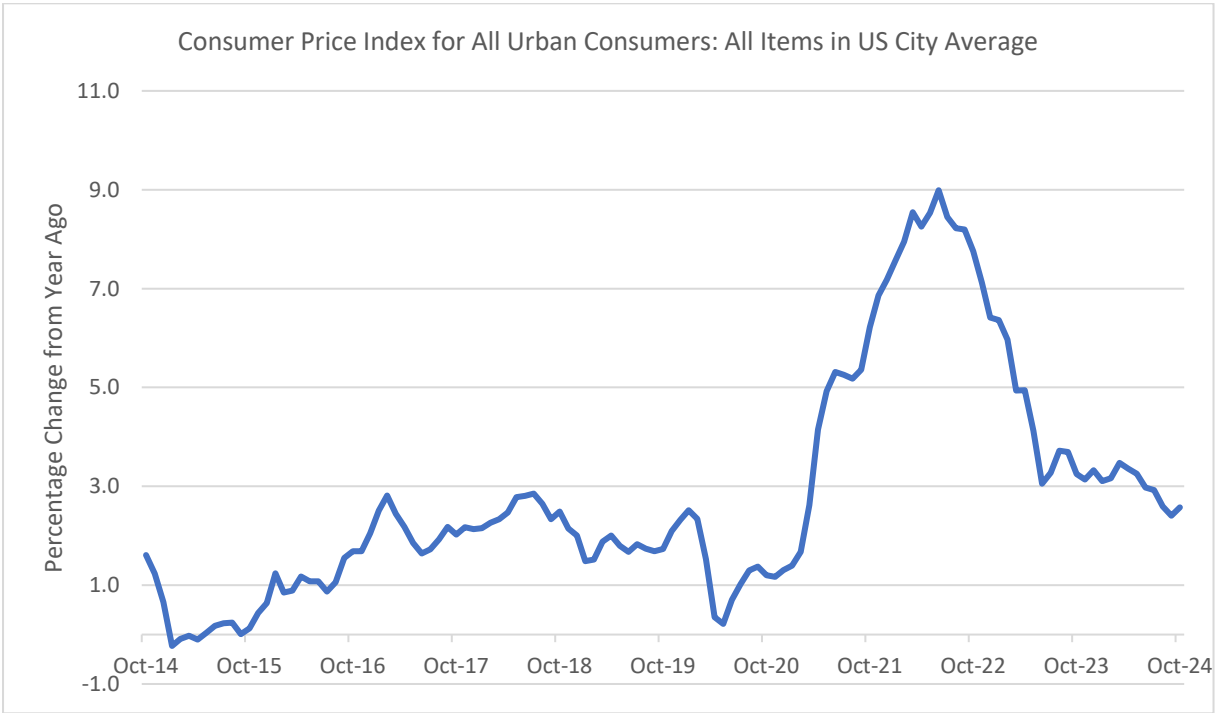
Source: US Bureau of Labor Statistics

Once you have wages growing at 4-5%, the maths for inflation is pretty simple. For the services component of inflation – where the biggest cost input is wages – inflation is going to grow at wages less productivity growth. The chart below shows tradeables (eg basically goods) vs non-tradeables (eg basically services) over the past 10 years. Pre Covid, non-tradeables inflation was basically equal to wage growth (ie not much productivity). Post Covid, wages have being playing catchup with prices. It is also important to note that non-tradeables inflation has been significantly suppressed (around 0.8%) by the state and federal electricity bill rebates. On an underlying basis, services inflation is running at more like 5%.



If you take 4-5% wage growth as a given and optimistically assume 1% productivity growth (ie much better than recent history), then this is likely to spit out 3-4% inflation growth. It is possible that goods inflation can deduct from overall inflation – such is the case at the moment – but if Trump is true to his word on tariffs it is hard to see goods detracting from inflation going forward.

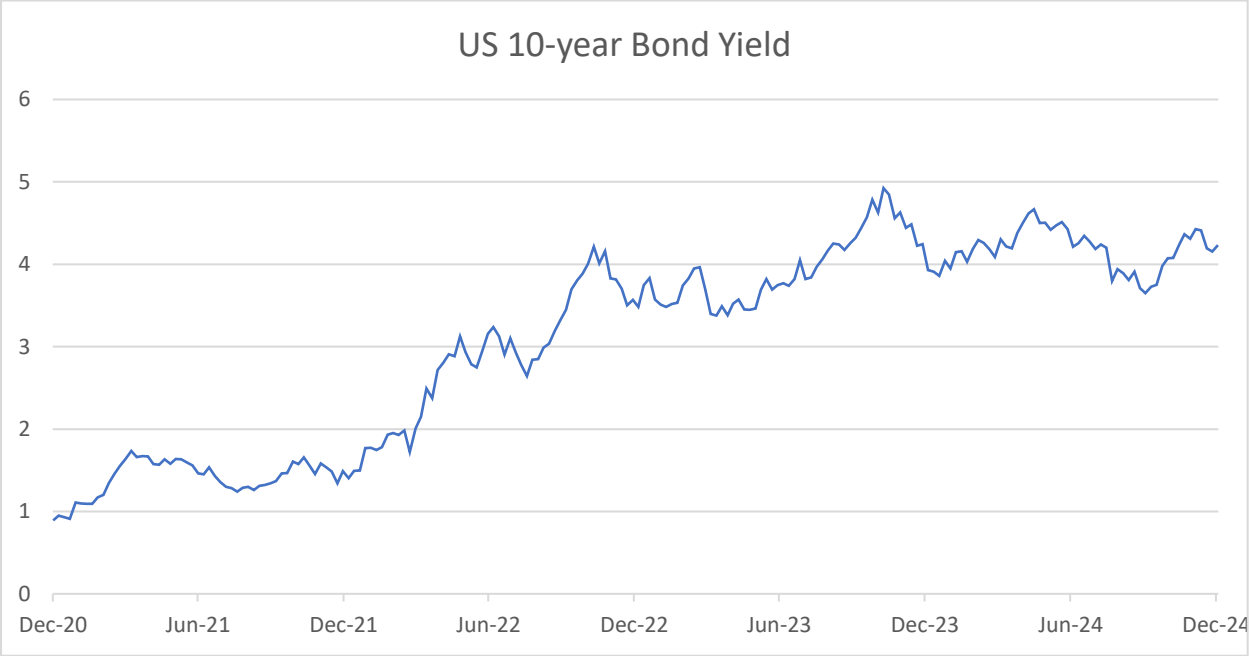
In the US in particular, it is quite possible that headline inflation troughed in Q3 2024 and will re-accelerate from here.



Source: US Bureau of Labor Statistics

What does this mean for investors?

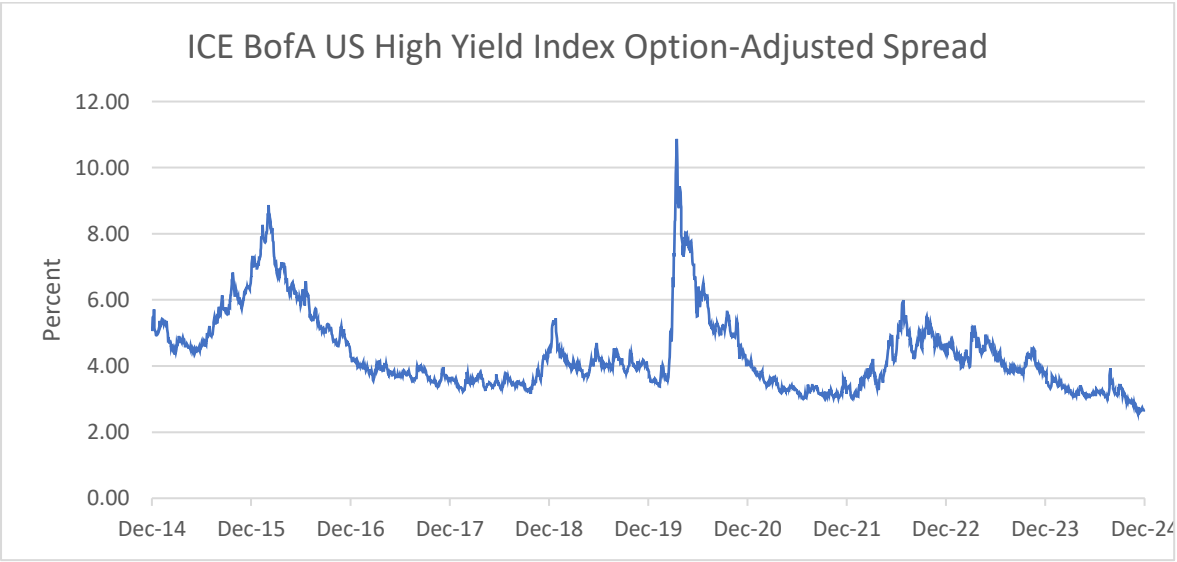
The first implication of 3-4% inflation is that it is pretty tough environment for government bonds. The market is already pricing this in, with US 10 year bond rates back up near the top end of their recent trading range.



Source: Refinitiv Eikon

The second implication is that a high inflation environment favours real assets (eg equities, infrastructure, commodities and property) over nominal assets (cash and bonds). This is reflected in markets, with US equities near all-time highs.

Third, high inflation is good for credit. That is, in a high inflation environment businesses cash flows are growing relative to their nominal debts and so defaults tend to be below average. Again, this is priced in by markets, with credit spreads relatively tight compared to their long-term averages.

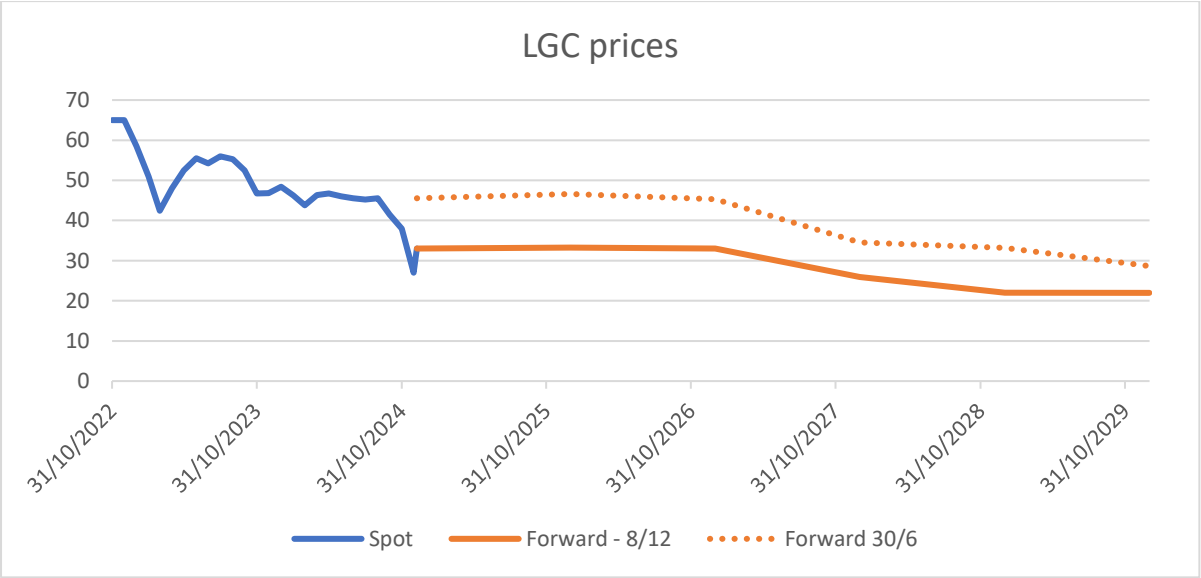


Source: Ice Data Indices, LLC

Finally, investors seem to be banking on further rate cuts in the US in 2025 and the start of rate cuts in Australia. For example, forward curves in Australian and the US predict an average of couple of rate cuts in 2025. If inflation proves stubbornly high – or re-accelerates – these cuts may not materialise.

LGC Prices – structural change or trading volatility?

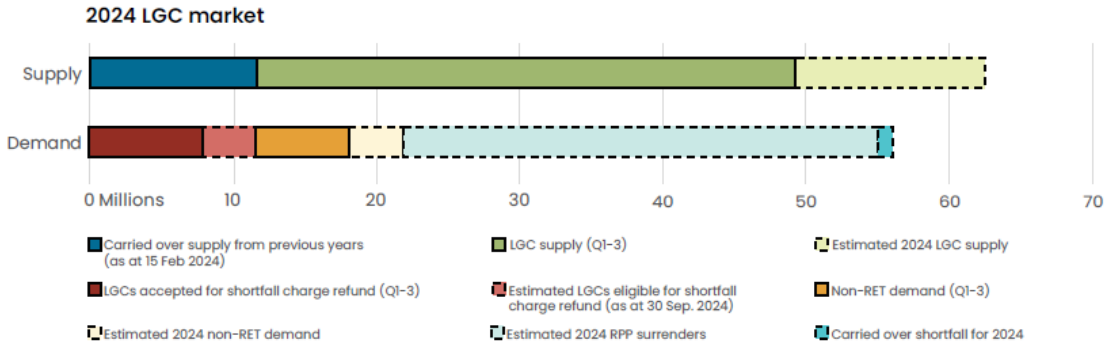
LGC prices have (finally) fallen below $30 per unit for the first time since the COVID era. At one point, prices actually dipped below $26 per LGC, almost halving from the $40s level a month ago. While rumours suggest the plunge was triggered by forced position closures from trading activities, it certainly raises alarm bells for those who believed high LGC prices would last forever. With just five years remaining until the end of the RET scheme, are prices finally heading to zero?



LGC recap

For those unfamiliar, an LGC (Large-scale Generation Certificate) is a tradeable green certificate legislated under the Renewable Energy Target (RET) scheme, awarded to a green generator for every one MWh of green energy supplied to the grid. The RET scheme targets 33,000 GWh of renewable energy by 2030 by incentivising new renewable projects through additional LGC revenue. Despite the achievement of the renewable target in January 2021, it did not stop the building of new renewables, nor are LGC prices anywhere near zero.

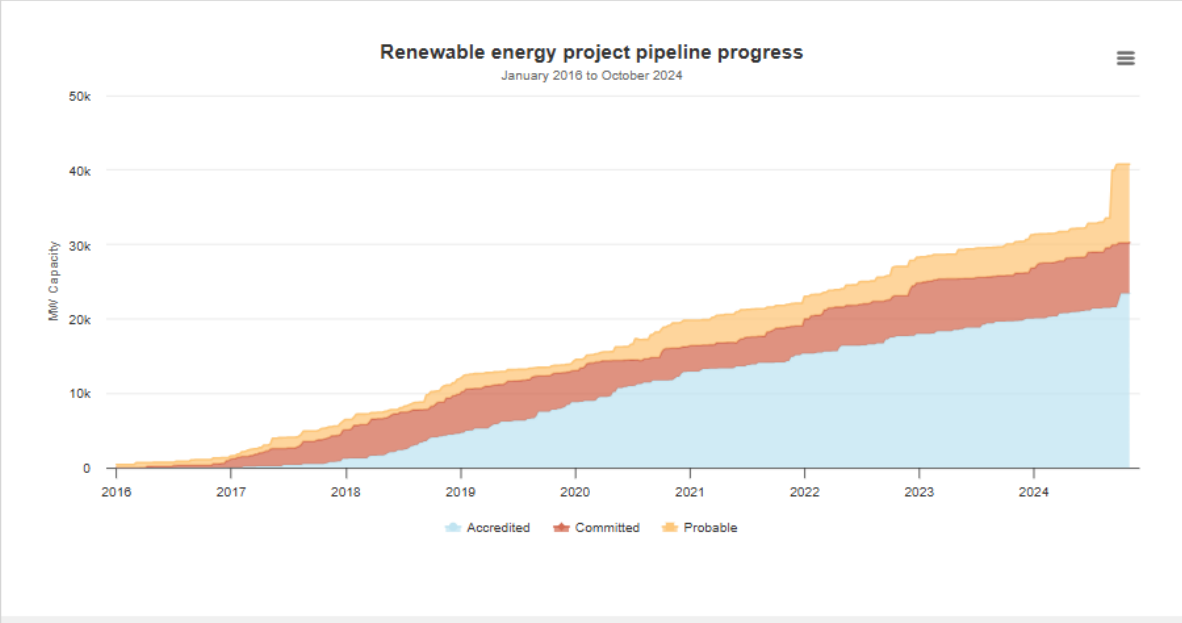
Supply and Demand



LIST OF ACRONYMS				
	GW	GIGAWATTS	RET	RENEWABLE ENERGY TARGET
	LGC	LARGE-SCALE GENERATION CERTIFICATE	RPP	RENEWABLE POWER PERCENTAGE
	mill	MILLION		

Source: CER Quarterly Carbon Market Report September 2024

Incremental LGC supply is essentially the MWh of renewable generation in a period, a function of renewable capacity and weather conditions like wind and sunshine. This has been expanding rapidly at 2–3 GW a year thanks to the ever-expanding renewable pipeline.



Source: CER Quarterly Carbon Market Report September 2024

The demand side has three main components:

- RET demand (~60% of annual demand): Under the RET scheme, retailers comply with their mandated targets by acquiring and surrendering the required number of LGCs, calculated as their load multiplied by the RPP (Renewable Power Percentage), which is currently 19% for 2024 and will effectively remain flat until 2030 given the fixed 33,000 GWh target.
- Non-RET demand (~20% of annual demand):
    - Government surrenders. Government entities receive and surrenders LGC on a voluntary basis, under their respective government offtakes schemes. The biggest component are ACT and Victoria government offtakes. Recently, government surrender demand has been largely static as the corresponding projects have been built and are steadily providing LGCs.
    - Private sector voluntary surrenders. Businesses who are surrendering LGCs over and above RET obligation, as a part of their carbon neutral goals or renewable electricity usage claims. The growth has been strong over the past years but has slowed. This is expected to step up in 2025 with corporates now subject to the mandatory climate disclosure scheme.
- Shortfall charge refund (~20% of annual demand): Retailers can defer up to 10% of LGC obligations for up to three years by paying shortfall charges of $65 per LGC in the liable year, which can be refunded if the required LGCs are surrendered within a three year window. This effectively creates additional roll-forward LGC demand at any point in time. This component is shrinking as retailers work off past surrenders (see chart below).

Source: CER Quarterly Carbon Market Report September 2024

LGC dynamics

LGC prices have fallen steadily but remained elevated between 2022 and 2024 in the $40–$50 range. The forces keeping LGC prices elevated had been the growth of voluntary surrenders from corporate and government entities and delays in projects reaching completion. These delays forced retailers with offtakes to go to the market to plug the shortfalls. La Nina years also reduced LGC supply altogether.

Over time, these upward forces have weakened, while renewable generators have entered the market at an ever-stronger pace. The equilibrium seems to be shifting with supply growth outpacing demand, in particular, the clearing of the LGC backlog. Finally, in November 2024, the price decline accelerated, dipping below $30 for the first time since 2021.

Year	New Capacity approved for LGC by CER	Capacity reaching FID
2021	2.32 GW	3.30 GW
2022	2.43 GW	4.56 GW
2023	2.20 GW	1.66 GW
2024 Q1-Q3	2.67 GW	3.00 GW

The future renewable pipeline also does not appear to have slowed, with a record pipeline of projects reaching financial close. RET demand and shortfall demand have plateaued, as incentives to defer shortfalls decrease with lower prices and more opportunities to secure LGCs under offtakes. While voluntary surrenders are expected to grow due to new corporate disclosure requirements next year, the magnitude of this growth seems unlikely to outpace supply. This suggests prices could slowly converge to the low $10–$20 range without further demand growth.

Key implications.

So what does it mean for existing renewable projects?

Lower revenue. The most immediate impact is on revenue, as LGCs currently account for almost half of a merchant project's revenue stack. However, projects have been quick to adjust their bidding strategies from the -$40 range to -

$26 during the price dip event, which has somewhat marginally improved spot energy prices. Though, the bidding adjustment is unlikely to fully offset LGC revenue losses.

PPA slow down. The second impact is the potential slowdown in demand for Power Purchase Agreements (PPAs) – particularly for solar, where LGCs have been a significant portion of the value proposition. This particularly true in the low solar dispatch weighted energy price environment such has prevailed over 2023 and 2024.

Overall, this dynamic doesn't look good for renewables, but the outcome is somewhat expected. The RET was designed for LGC 'subsidy' to eventually converge to near zero. The high prices were never supposed to last forever, and they certainly have lasted longer than we thought it would. As Australia transitions to a renewable-dominated grid, renewable generators will continue to adjust their strategies to achieve their required return on capital.

Trump and Climate Change

Much ink has already been spilled on the US election result and the implications for renewables and climate action. Much of this is focused on the immediate impacts briefly summarised below:

1. *Drill, baby drill* – intention to increase oil production in US
2. Inflation Reduction Act – cancelling or redirecting funding from renewables to other activities
3. US pulling out of Paris Climate Accord
4. Environmental Protection laws being substantially weakened or abolished

Whether some, or all, of the above will or will not happen requires a deeper knowledge of the US political system (separation of powers, powers of the state versus the federal government etc) than I have. But what I think we can say is that we will be shifting back to more of a more multipolar world as it relates to addressing the worst effects of climate change. Like it or not, the US through its sheer market dominance drives global policy narratives. For those countries that have been holding out on substantive change, Trump's election makes it easier.

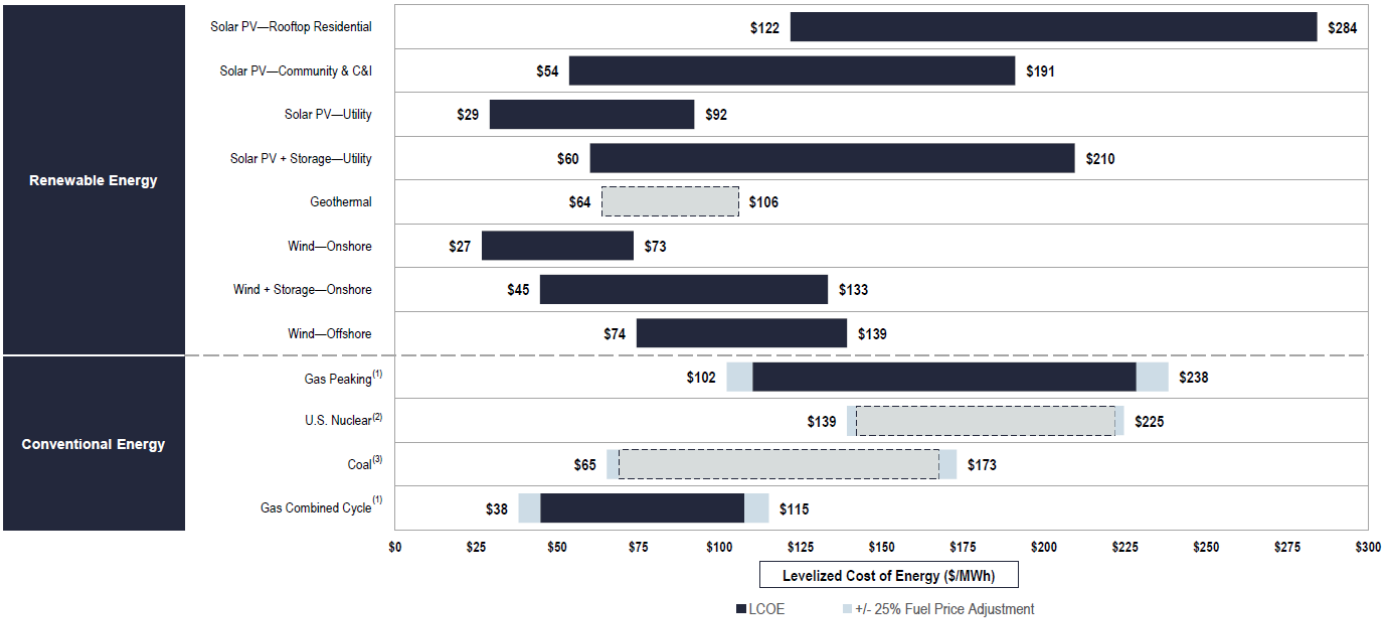
However, to take a hopeful view, despite the shift in political narrative, the economic incentives of low emissions technology remain.

Renewables are cheaper

On a long-term levelised cost basis, solar, wind and batteries are simply cheaper than conventional fossil fuel alternatives. Trump can drill all he wants, but the economic incentives for business and households remains unchanged – for example, see analysis below from Lazard's annual levelised cost of energy

Levelized Cost of Energy Comparison—Sensitivity to Fuel Prices

Variations in fuel prices can materially affect the LCOE of conventional generation technologies, but direct comparisons to "competing" renewable energy generation technologies must take into account issues such as dispatch characteristics (e.g., baseload and/or dispatchable intermediate capacity vs. peaking or intermittent technologies)



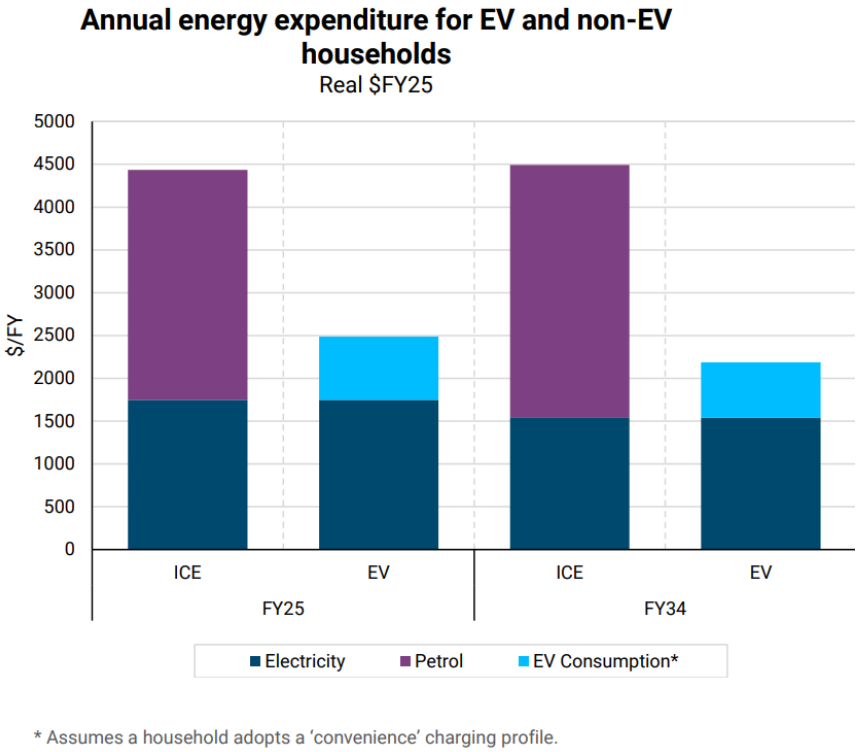
Source: *Lazard and Roland Berger estimates and publicly available information.*
Note: Unless otherwise noted, the assumptions used in this sensitivity correspond to those used in the LCOE analysis as presented on the page titled "Levelized Cost of Energy Comparison—Version 17.0".
(1) Assumes a fuel cost range for gas-fired generation resources of $2.59/MMBTU – $4.31/MMBTU (representing a sensitivity range of ± 25% of the $3.45/MMBTU used in the LCOE).
(2) Assumes a fuel cost range for nuclear generation resources of $0.64/MMBTU – $1.06/MMBTU (representing a sensitivity range of ± 25% of the $0.85/MMBTU used in the LCOE).
(3) Assumes a fuel cost range for coal-fired generation resources of $1.10/MMBTU – $1.84/MMBTU (representing a sensitivity range of ± 25% of the $1.47/MMBTU used in the LCOE).

LAZARD

Source: Lazard

Countries like China, with limited oil resources, have huge geopolitical and domestic incentives to reduce oil demand (and to more broadly reduce their importation of all fossil fuels – such as coal and gas)

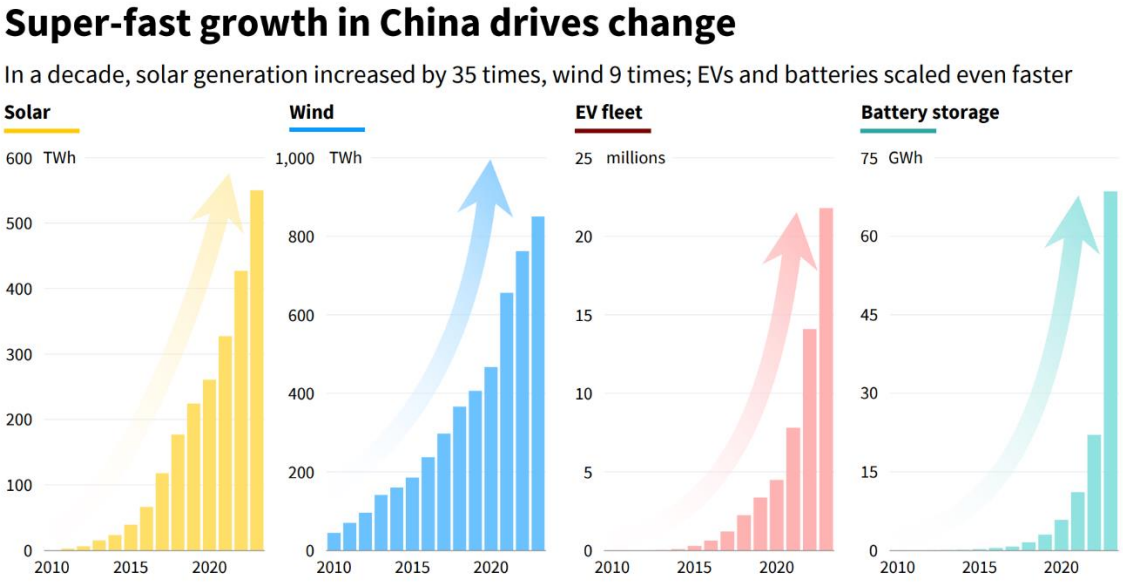
The chart below shows the AEMC's estimate of the impact of electrification on household transportation in Australia. Switching from an ICE to an EV delivers substantial fuel cost savings. While Trump can change the narrative re global efforts re climate change, each individual facing a choice to buy a new car, will need to form their own views about the long-term running costs (and re-sale value) of each. I suspect quite a few will choose to buy an EV – including even if subsidies to encourage EV adoption are reduced. Politicians can change incentives at the margin – but there are limits to the extent short-term changes in subsidies can change underlying cost differences. Trump risks being King Canute if he thinks he can stop the adoption of EVs.



Source: AEMC

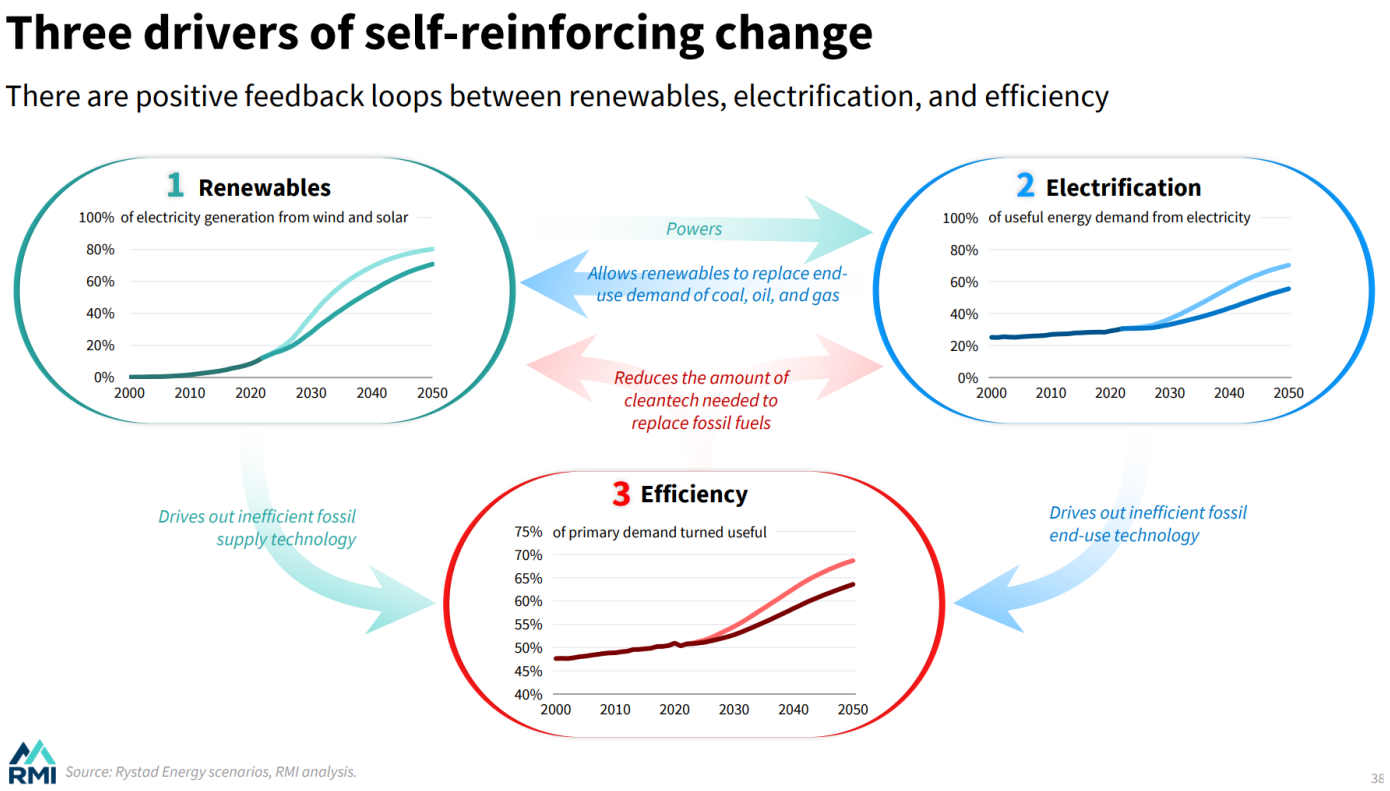
Investment incentives

The Inflation Reduction Act (IRA) has a vast scheme of incentives supporting the manufacturing and deployment of low emission technologies. It would seem unlikely that these schemes will be unwound, especially because much of the allocation (78%/USD346b) has gone to Republican congressional districts. Many countries (including Australia) are following a similar policy strategy with the domestication of key industries. The amount of manufacturing capacity coming online globally in renewables is eyewatering – China for example has provide support to low emissions manufacturers for almost a decade.



Source: Rocky Mountain Institute

All this production has to go somewhere. Solar, wind and batteries will just get cheaper as more manufacturing capacity comes online together with advancement in design, reinforcing the incentives that exist today. This creates a positive feedback loop as clearly articulated by the Rocky Mountain Institute:



Source: Rocky Mountain Institute

Longer term and within a particular view (yes you might need to squint) I can actually see the Trump administration being a net positive on climate action because of the very thing President Trump says he loves: Tariffs!

Tariffs could be a potential force for good. Yes, the neoclassical economists will rally against this, but this has been a clear statement of intent throughout the election, and nothing has changed since. If implemented, other countries may respond in a beggar thy neighbor' approach, in doing so, this would 'normalise' tariffs as part of the trade environment.

So why could tariffs be good for climate change?

One of the key challenges of getting a global CO2 trading in place is a lack of consistency in terms of the determination and application of carbon credits across jurisdictions. Put simply, it is challenging for one country to enforce carbon pricing on its domestic producers when competing against another economy that doesn't.

Tariffs related to high-embedded emissions is a possible way to level the playing field. The imposition of tariffs would be avoided if the country of origin either had low embedded emissions or a carbon price for emissions, and hence there would be a greater incentive to have a global emissions trading system (ETS). Today an Australian Carbon Credit Unit (ACCU) cannot be used by a European steel producer to meet emissions targets.

I'm not suggesting we'll have an ETS in place in the next four years, all I am saying is the advent of tariffs creates a trade environment that might more readily tackle emissions (recognising that it is a global problem) and this would be a net positive for zero emissions technologies (not to mention carbon capture). The EU Carbon Border Adjustment Mechanism is an example. It only started last year and applies to a few select sectors and it will be interesting to see how it plays out.

It's also important to keep in mind that events can shift political narrative exceptionally quickly (think Covid). We are presently at 421 parts per million of CO2 in the atmosphere, to have a 50% chance of limiting warming to two degrees the UN Framework Convention on Climate Change estimates we need to limit emissions to 450ppm. Put simply, this is a razor thin budget (excess CO2 emissions beyond what the Earth can naturally absorb is cumulative). 2023 was the hottest year on record, 2024 will likely beat it. We are seeing more and more events that align with the climate science. These events are having, and will continue to have, an economic impact. Sure, it doesn't look like the plot of the *Day After Tomorrow,* it's more insidious and the impacts are not evenly distributed. Trump is an excellent retail politician – if events demand that he shift, he will.

The election of Trump does not reverse climate change or make it less of a problem, it simply alters today's narrative, but I would argue that it doesn't change the investment opportunity over the medium to long-term.

Lags

We generally try to be apolitical in the articles and insights we share in our newsletter. However, given our focus on renewable energy and the energy transition, and the fraught nature of the political debate around this issue, it is impossible not to be drawn in on occasion.

With that health warning, as thoughts turn to 2025, I wanted to share a few thoughts on how lagged are the impacts, if any, of our politicians.

The reality of energy markets is that prices are determined via a computer controlled five minutely auction run by AEMO. Politicians don't set wholesale prices. Markets and physics do. These markets are driven by supply and demand.

In the short term, demand is largely driven by the calendar and the weather. Demand is higher on weekdays than on weekends. It is higher at 7 o'clock at night when we all want to cook dinner, than at 3am when we are all (hopefully) asleep. Demand is higher when it is unusually hot or cold. While there are a range of longer-term influences on demand such as electrification or the establishment (or shutting down) of heavy electrical industries (such as aluminum smelting or data centers) the reality is that these effects largely occur gradually over years or decades.

In the short term, supply is also heavily constrained. You can't build a new gas plant today because electricity demand is expected to be high this afternoon. There is a merit order, in that some plants, such as wind and solar are essentially free to operate, while others burn fuel (or use up dam water) that has a value.

Furthermore, for both renewables and baseload generators, there are also availability considerations that have material impacts on supply. For wind and solar, this depends on whether the sun is shining (or, on some days, generation might be much lower than expected because of cloud or rain).

For traditional baseload, an established reality is that these projects break down. They are not available 100% of the time. Plants break – sometimes with no notice – and can be offline for extended periods during repairs. Uncertainty regarding plant availability existed before there were renewables and has been built into the design of the system. The very design of the NEM has been formulated to pay peak prices to those plant who are able to dispatch during periods of peak demand (and those plant who cant, earn lower average prices, "penalising" them for not generating).

The point of all this, is that in the short term the price of electricity is not determined by the munificence of the energy minister of the day, but by luck. Was the weather favourable? Did we have the right amount and the right types of supply to be able to meet demand? Did break downs (of generating plant or transmission lines) occur more or less frequently than usual? Did they occur at inconvenient times?

The reality is that if a minister did have an impact, it was the minister 3-10 years before. It takes 2-3 years to build a wind/solar/gas generator. It takes 5-10 years to get a new transmission line approved (both in environmental and regulatory approvals) and then designed and constructed. It was the minister 3-10 years before who will have helped

shape the investment and regulatory environment that will have underpinned the investment decisions by a wide range of, largely private sector, counterparties whether to build new generation or not.

I make these points in the context of looking to 2025 and beyond, which is inherently looking beyond the next Federal election.

I think that the next energy minister – that is the minister after the next election – whether that is a returned Labor minister or a member of the LNP – is likely to be able to claim credit for a fall in wholesale electricity prices. 4.2 GW of new generation has been commissioned in the last two years and a further 12 GW is currently under construction or due to start construction soon and will start generating over the next year or two. Given that no coal plants are scheduled to close in the next three years, this means there will be a meaningful net increase in supply over the next three years.

The laws of supply and demand suggest that this will, with luck, lead to lower prices. That's a good thing for consumers and energy users.

The note of caution in this note, is that when we get to the next election and beyond, politicians are likely to claim they have much greater influence over electricity prices than they do. Sure, they can provide short term subsidies – but that money has to come from somewhere.

To have a real effect on electricity prices, politicians need to create a regulatory and investment environment that allows new supply to come online at low cost.

This takes time.