BULLETIN

7 June 2022

Energy prices driving an outsized price shock but state energy rebates means the full impact is delayed until the end of the year.

- The Australian energy market has been hit by a perfect story of rising demand, a reduction in output from coal fired base load generation plus record high coal and gas prices. There has been a surge in renewable energy supply but it has not been enough to offset the loss of coal fired generation nor the rise in gas and coal prices.
- As a result Default Market Offers (DMO) for electricity bills have been lifted between 5% (in WA) and 14% (in NSW) so far this year with a clear risk that if wholesale electricity prices don't come down soon they will have to be increased further. To offset this increase state government energy rebates have been announced with various terms and conditions for application. Western Australia is the most generous offering a $400 rebate, the Victorian rebate is $250 while New South Wales and Queensland are offering $180 and $175 respectively.
- These price rises and rebates means electricity bills are going to be pushed (price rises) and pulled (rebates lowering power bills) through the remainder of 2022. Westpac has forecast that electricity bills are set to fall 28% in September (due to the rebates) lift 65% in December (not a full bounce back as some rebates are still being applied) then a further lift 11% in March 2023.
- This volatility can be illustrated in the annual pace of electricity price inflation with a low of -27%yr in September 2022, a peak of 99%yr in September 2023 before settling back to a 5%yr pace at December 2024.
- We have also updated the June quarter estimates to incorporate the latest rise in fuel prices as well as stronger fruit & vegetable prices. These update have lifted our June quarter CPI forecast to 1.5%qtr/5.8%yr from 0.9%qtr/5.2%yr currently.
- Due to the rebate volatility in power bills the September quarter forecast is now 0.6%qtr/5.7%yr (was 1.0%qtr/5.4%yr) and the December quarter forecast is now 2.2%qtr/6.6%yr (was 1.5%qtr/5.6%yr), a new higher peak in the annual inflation rate.
- These changes also had an impact on our estimates of core inflation. The trimmed mean is now forecast to rise 1.3%qtr/4.5%yr in June (was 1.0%qtr/4.2%yr), 1.0%qtr/4.8%yr in September (was 1.0%qtr/4.5%yr) and 1.0%qtr/4.8%yr in December (was 1.0%qtr/4.4%yr). As noted, the peak in core inflation has lifted from 4.5%yr in September to 4.8%yr in December.

June & September Quarter 2022 CPI

	March 2022		June 2022 f/c	
Item	**% qtr**	**contrib**	**% qtr**	**contrib**
Food	2.8	0.46	1.1	0.19
of which, fruit & vegetables	5.8	0.13	2.6	0.06
Alcohol & tobacco	1.1	0.10	1.3	0.11
of which, tobacco	1.2	0.04	1.9	0.07
Clothing & footwear	–0.6	–0.02	1.2	0.04
Housing	2.7	0.63	2.2	0.53
of which, rents	0.6	0.04	0.6	0.04
of which, house purchases	5.7	0.51	4.6	0.41
of which, utilities	1.1	0.05	0.9	0.04
H/hold contents & services	1.1	0.10	1.3	0.12
Health	2.3	0.14	2.5	0.16
of which, pharmaceuticals	5.7	0.06	–0.6	-0.01
Transportation	4.2	0.45	2.0	0.22
of which , car prices	1.0	0.03	1.0	0.03
of which, auto fuel	11.0	0.38	4.4	0.15
Communication	0.3	0.01	0.1	0.00
Recreation	0.6	0.05	0.7	0.06
of which, audio vis & comp	–0.4	–0.01	0.7	0.01
of which, holiday travel	–0.6	–0.01	1.0	0.02
Education	4.5	0.21	0.1	0.00
Financial & insurance services	0.5	0.03	0.5	0.03
CPI: All groups	2.1	–	1.5	–
CPI: All groups % year	5.1	–	5.8	–

Sources: ABS, RBA, Westpac Banking Corporation.

Inflation indicactors

		Jun-22	Sep-22	Dec-22	Mar-23	Jun-23
AUD/USD	(index)	0.72	0.73	0.75	0.77	0.78
AUD/USD %yr	(%yr)	–6.4	–0.2	3.4	5.8	7.8
TWI	(index)	64.0	64.0	64.0	64.1	64.3
TWI %yr	(%yr)	0.8	4.6	4.2	4.8	0.4
Brent US$bbl	(index)	112	117	112	107	102
Brent %yr	(%yr)	62.8	60.9	41.3	11.7	-8.9
Output gap t-3	(index)	1.6	1.6	1.3	0.9	0.6

Inflation forecasts

		Jun-22	Sep-22	Dec-22	Mar-23	Jun-23
CPI	(index)	125.7	126.5	129.3	130.8	131.6
	(%qtr)	1.5	0.6	2.2	1.2	0.6
	(%yr)	5.8	5.7	6.6	5.6	4.7
Trimmed mean	(%qtr)	1.3	1.0	1.0	0.8	0.8
	(%yr)	4.5	4.8	4.8	4.2	3.7

An unprecedented rise in electricity prices

This year has seen an unprecedented surge in Australian wholesale electricity prices. Depending on which contract you use the increases in electricity prices so far this year range from a low of 281% in Victoria to a high of 602% in Queensland. To give this increase some perspective the introduction of the carbon tax by the Gillard government on July 1 2012 saw wholesale electricity prices rise 31% by mid 2013. Even the major drought of 2007, which saw a significant limit on power generation in Qld and parts of NSW due to a lack of water for the boilers and condensers lifted wholesale prices 89% while in 2016/2017 a spike in gas prices, just as some of the old coal fired power plants were retired, saw a 141% lift in electricity prices by May 2017.

A short history on Australian gas and electricity prices

For a long time up to 2016, and outside of the introduction of the carbon tax, the electricity market was in over capacity so electricity prices tended to approximate the short run marginal cost of generation from the large, old, coal fired power plants. That changed in 2016 and 2017 when power companies made the decision to retire a number of older, more marginal coal fired power plants sooner than expected. While renewable power generation was expanding rapidly there was not enough to fill in the hole in supply with the shortages being made up gas fired generators. As such gas became the fuel that set the marginal price of generation capacity needed to fill the gap.

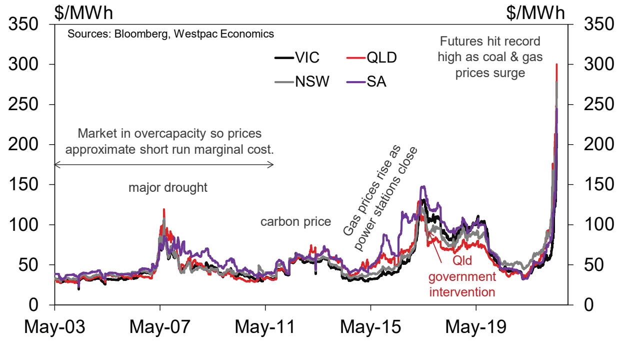
At the same time the Australian gas industry was rapidly expanding its export market resulting in it drawing on the local market for supplies forcing Australian gas prices into alignment with global market prices. Global demand for LNG was very solid during this period of time pushing prices higher in the Asian market and thus in the Australian market as well. So a combination of a more expensive fuel having a greater share of supply, as well rising prices for that fuel, drove Australian electricity prices higher during this time. Queensland was the first state to react forcing state owned generators to reduce prices (which would have cut margins and dividends to the state government) and was followed by a lift in generation from other states just as global gas prices started to ease.

From 2019 renewable energy increased its share of power generation and with a marginal cost of zero renewables continue to supply power (when they can) even when prices fall below the cost of production for thermal generators. Combined with falling global gas prices the growing share of renewable generation saw prices fall back to the short-run marginal cost of electricity generation. This new equilibrium lasted till the energy shock of 2022.

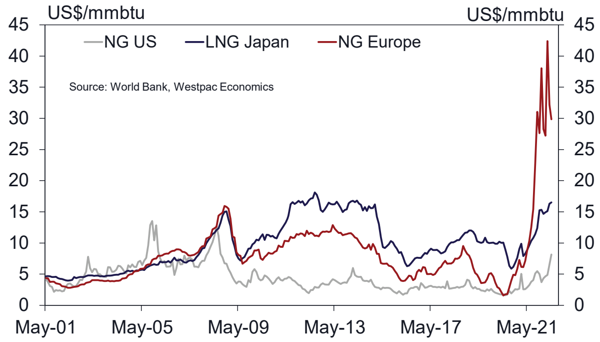
A perfect storm hits Australian energy prices

Australian LNG export prices have traditionally been indexed to crude oil prices - that is the average price of Brent three months earlier sets the price of current Australian LNG exports. As such with the Russian invasion of Ukraine in February, and the resulting sanctions imposed on Russian crude exports, the price of crude has surged to be just under US$120/bbl. Therefore, it is not surprising that Australian LNG export prices have followed Brent higher and are likely to go even higher through the next few months. As Australian domestic gas prices are in parity with export prices the rise in global gas prices have been driving domestic prices higher. But it is important to note that the global gas market was tightening before the Ukraine invasion with demand running ahead of supply. European gas prices started to surge in early 2021 as Russian gas flows were reduced against the backdrop of rising Asian demand with prices there back to around 2013 highs. By early 2022 US gas prices hit the highest

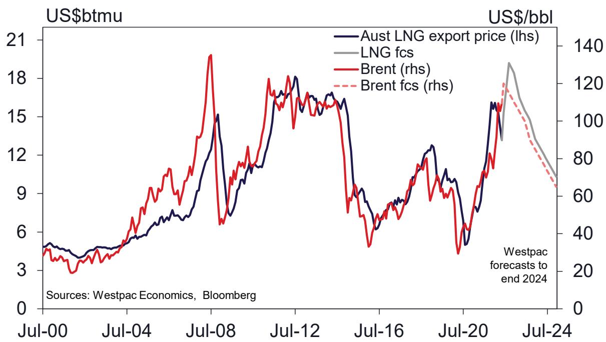
Electricity futures



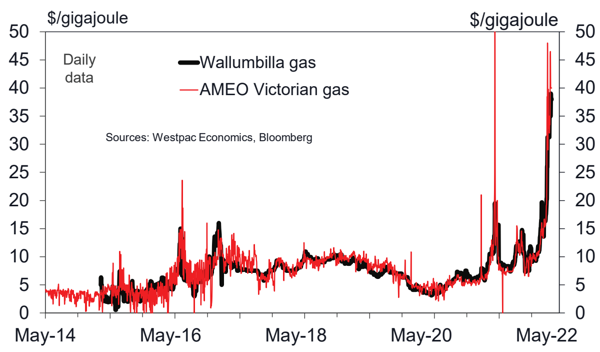
EU gas prices surging before Ukraine



Japanese LNG & Brent crude oil



Gas has surged to a record high



levels seen since late 2008. As a result, Australian gas prices lifted from around $5/gigajoule at 2020 Q3 to $10/gigajoule in early 2022 (a 100% increase) then saw prices surge 290% to a peak of $39/gigajoule in late May, a record high for a sustained price (previous highs were due to extreme daily volatility).

But it is not just rising gas prices. The resulting sanctions applied to Russian exports due to the invasion of Ukraine hit not just hit crude oil exports but also coal exports. At the same time Australian exports have been less than usual due to weather and maintenance disruptions to production. As such, Australian thermal (used for power generation) coal prices exported from Newcastle have lifted 143% so far this year from US$143/t at the end of December to a peak of US$432/t in late May.

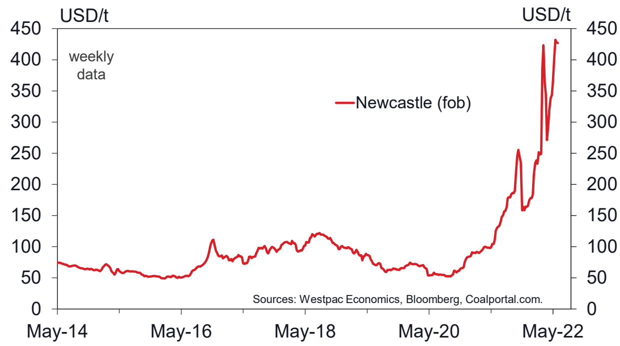
Historically, Australian generators have used long term indexed contract of supply for pricing coal but over the last few years an increasing share of supply has come from the spot market. As such the recent surge in thermal coal export prices is having a larger impact on generators than usual. We can see this in some of the impact of coal prices in the variation in electricity prices by state. Victoria, which uses brown (lignite) coal for its generation does not facing the same international price pressure that black (bituminous) thermal coal because only very small quantities of brown coal are exported. Since the September quarter of 2022 we have seen a much smaller rise in wholesale electricity prices in Victoria (+254%) than in NSW (+277%), Qld (+502%), and even SA (+288%) which is the state that has the largest share of renewable power generation.

A perfect storm hits Australian energy prices

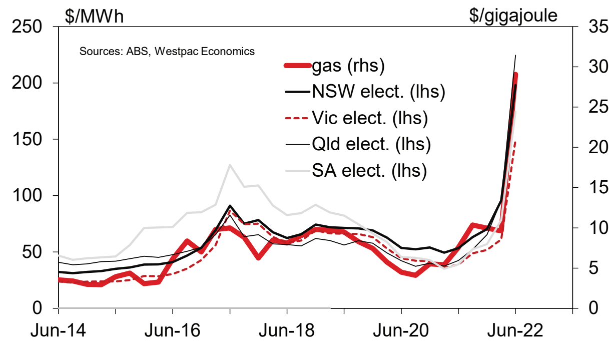
In the latest Quarterly Energy Dynamics Q1 2022 the AMEO noted four keys issues for the early 2022 spike in power prices.

- **Thermal generation reduction and price rises:** Since 2018 there has been a steady decline in output from black coal power generator. The availability of thermal generators was significantly lower this March quarter than in 2021, with generation availability down by an average of 456 MW (3%), its lowest level for March since at least 2002. The significant increase in prices for traded fuels over the last year have influenced thermal generators' bidding. Black coal generators have repriced into higher price bands since March 2021. As we noted earlier gas prices are up significantly from March 2021 and are reflected in gas-fired generators' offers.
- **Higher operational demand:** Relative to March 2021, operational demand was up 314 MW across the NEM (National Energy Market), driven by a strong increase of 774 MW (3.3%) in underlying demand due to a return of warmer conditions following a very mild March 2021 and increased economic activity as the economy continues to open from Covid lockdowns.
- **Increased price volatility:** Price volatility, largely in Queensland, added $13/MWh to the NEM price average for March, compared to $5/MWh in March 2021 and $8/MWh in the December quarter.
- **Price separation by region:** Energy prices were again substantially higher in Queensland and New South Wales than in the southern NEM regions. Transmission constraints contributed significantly to holding back flows of lower-priced energy from south to north, particularly during daytime hours.

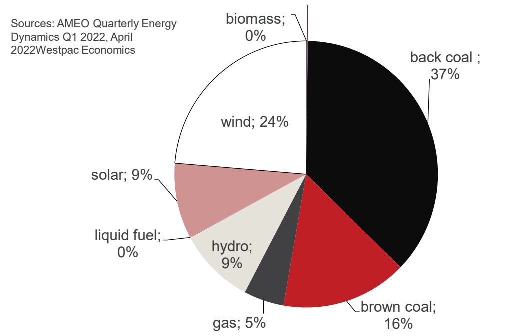
Thermal coal is trading at a record high



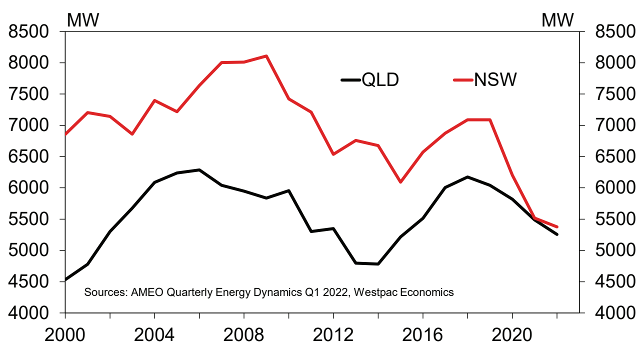
Wholesale gas vs. electricity prices



Fuel mix in Australian National Energy Market



Decline in black coal output



Impact of wholesale price inflation to be delayed by rebates

What does all this mean for our CPI forecasts. For the June quarter we note the lags of wholesale prices feeding into retail prices but have pencilled in a 1% rise in for the June quarter.

Looking forward we have a guide for electricity prices in the CPI provided by the announced changes in Default Market Offers (DMO) that set the benchmark price for those that don't shop around for better offers and sit on a retailer's default offer. But this year there is the additional complexity of various state government energy rebates that have been offered to households and due to be available from the 30th of June. To do this in any meaningful way you have to estimate average power bill for each capital city, apply the DMO increase then the relevant state government rebate.

For Sydney we have estimated the power bill to be $1,621 per annum or $405 per quarter. We know the average DMO increase was 14% taking the quarterly power bill to $462. There is the Low Income Household Rebate that offers up to $285 per year but you have to hold a Pensioner Concession Card, Health Care Card or a DVA Gold Card. This has a limited focus so a greater impact will come from the $175 per household Energy Rebate on the condition being a recipient of the Family Tax Benefit (FTB) for the previous financial year. If the full amount was applied to all power bills in the September quarter after the 14% increase in DMO this would result in a 39% fall in the quarter. We think it will be somewhat smaller that this as not all will apply as many won't qualify so have pencilled in a 10% fall. The is then followed by a 21% bounce in December (as we saw in WA when a similar rebate was issued in 2020 that they is some delay in the use of the rebates) followed by a 6% lift in March.

In Victoria the average power bill is $1,220 per annum or $305 per quarter. The DMO has been lifted by 5% to $320 per quarter. Victoria has a $250 energy rebate which represents a 72% fall in the September quarter if applied in full. Again we see it being somewhat less so have pencilled in a 58% fall in September, a 112% rise in December and a 24% rise in March.

In Queensland the average power bill is $1,500 per annum or $375 per quarter. The DMO has been lifted by 11% to $416 per quarter. Queensland has a $175 energy rebate which represents a 42% fall in the September quarter if applied in full. Again we see it being somewhat less so have pencilled in a 28% fall in September, a 45% rise in December and a 10% rise in March.

WA has set its own path in regards to power with a gas reservation programme which sees it have the cheapest gas in the nation. Nevertheless it does have the country's higher power bill at $1,992 per annum or $498 per quarter. The DMO was lifted by 5% to $523 per quarter. WA also has the most generous rebate of $400 which represents a 76% fall in applied in full. As seen in 2020 the application will be drawn out over two quarters so we have pencilled in a 68% fall in September, a 208% rise in December and a 9% rise in March.

In total we expect power bills to fall 28% in September, bounce 65% in December then a further 11% in March.

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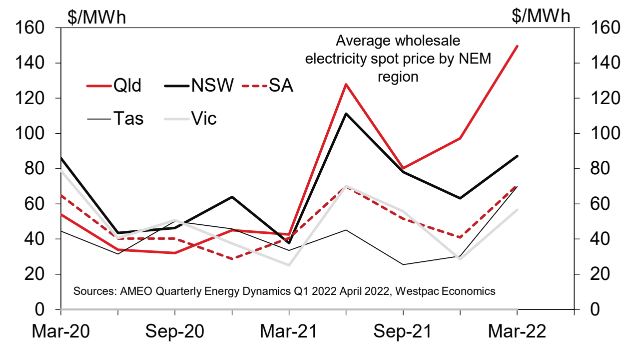
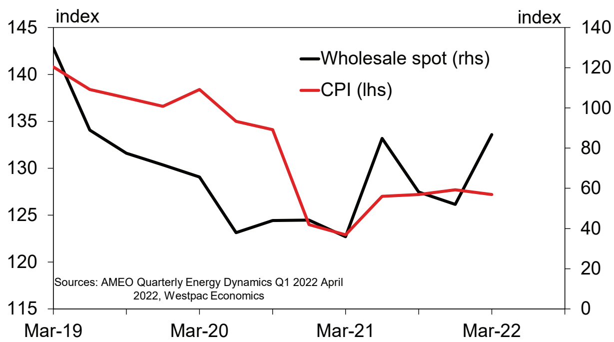
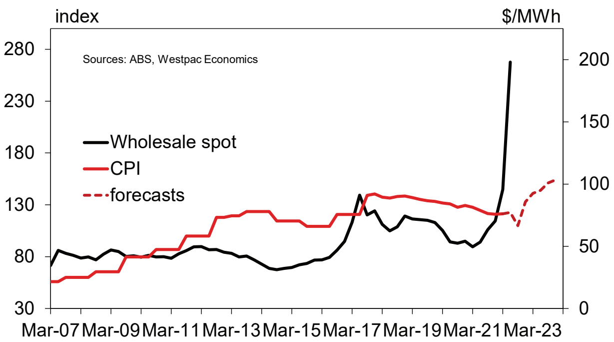
Quarterly energy dynamics



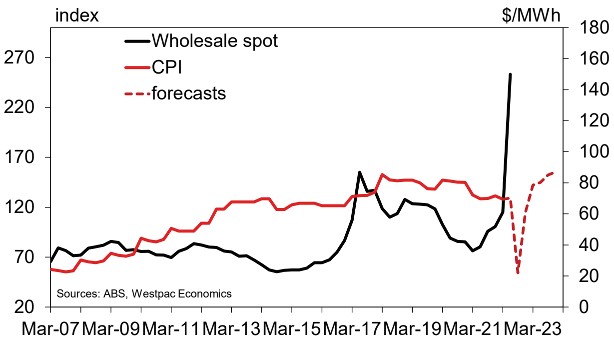
Wholesale electricity vs CPI electricity



Sydney – wholesale vs. CPI electricity



Melbourne – wholesale vs. CPI electricity



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