

ACTA

Vivek Dhar

Mining and Energy Economist

Global Economic & Markets Research

www.commbankresearch.com.au

Prepared on 22 August 2022



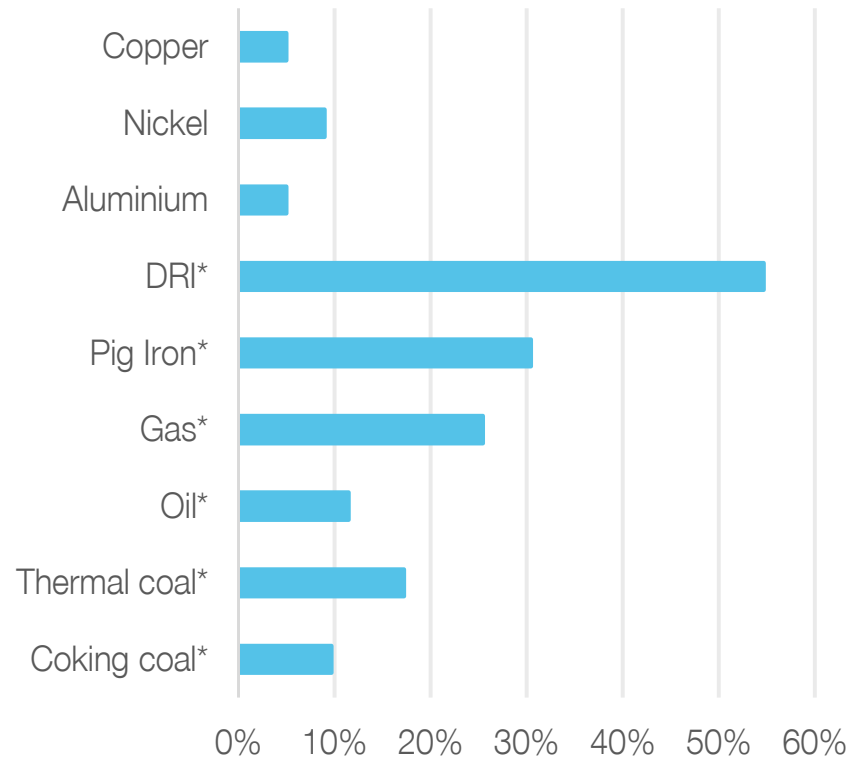
Macro update



Global

Russian supply disruption and inflation

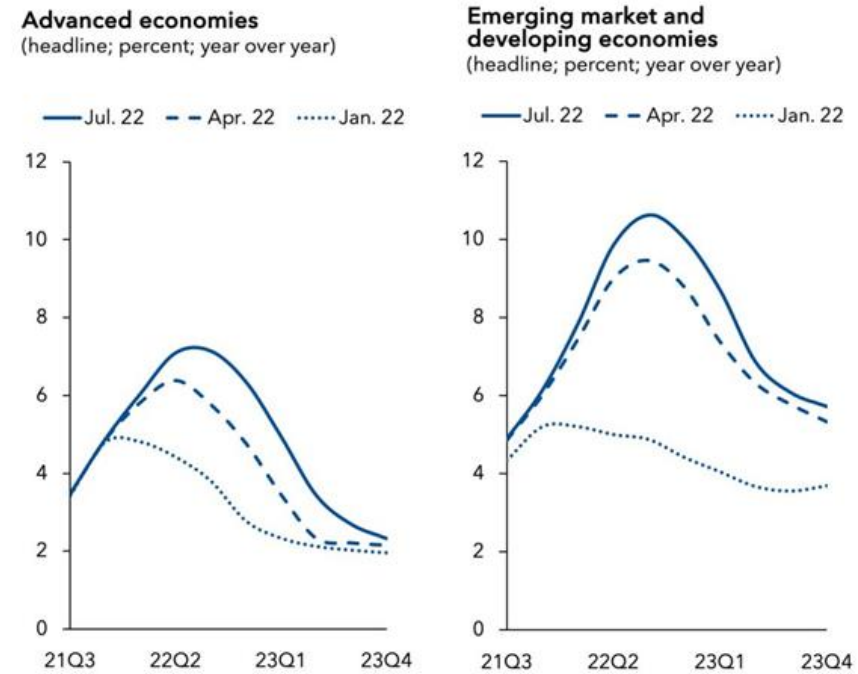
Russia's supply or export share of different markets



** Export share

Source: AME, CBA estimates

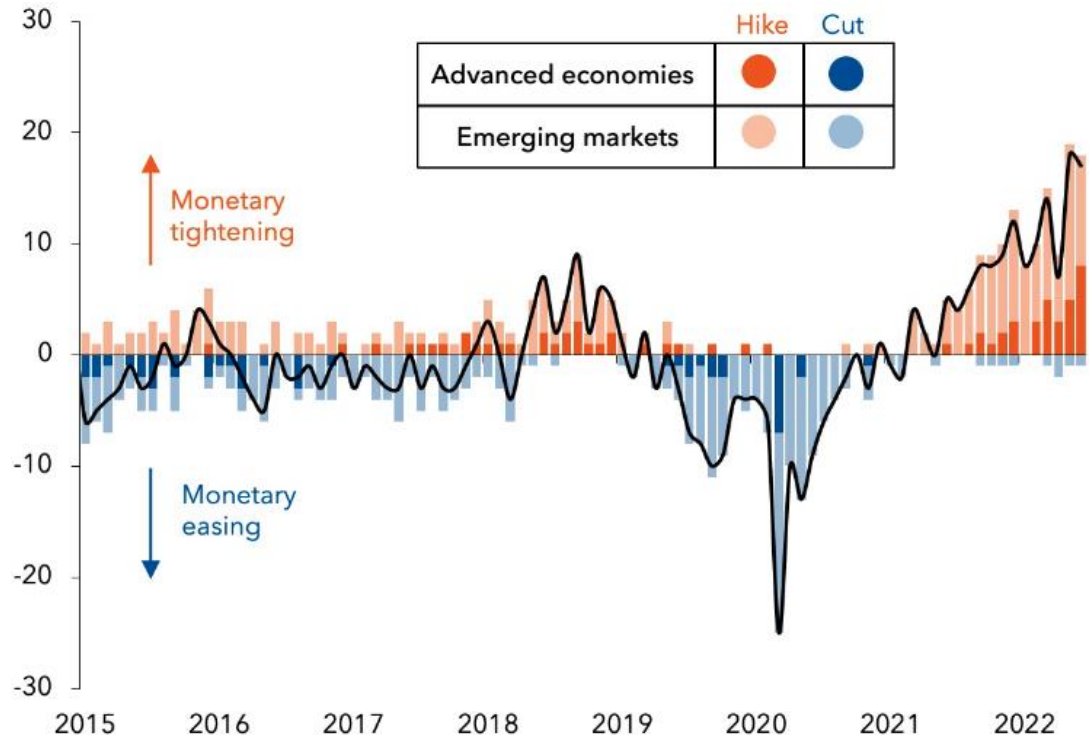
Headline inflation in advanced and emerging market economies



Source: IMF

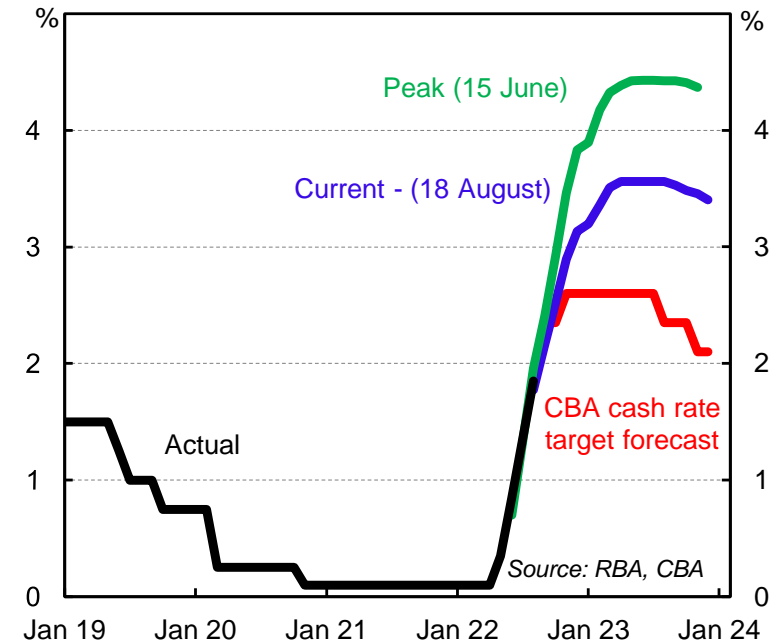
Global Rate hikes

Number of central banks hiking or cutting interest rates



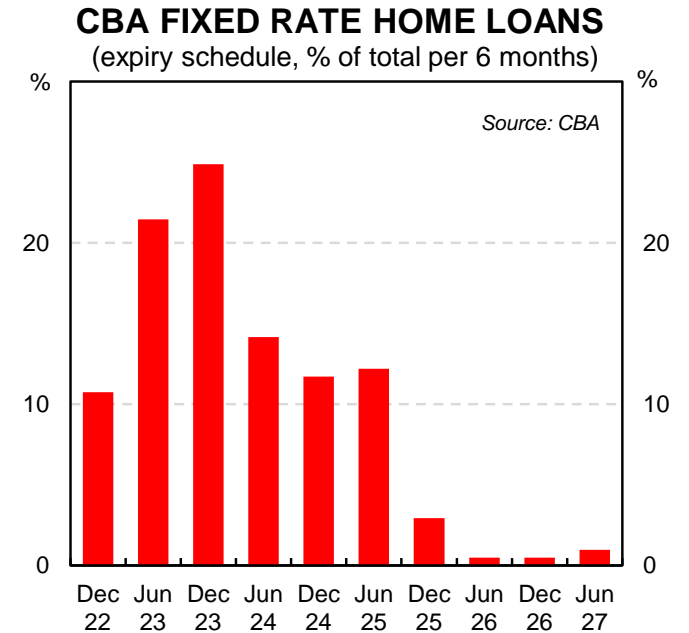
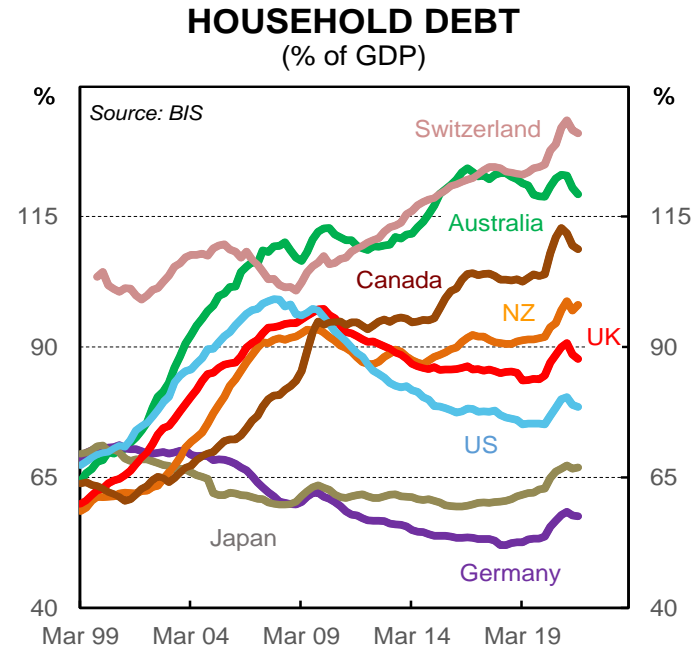
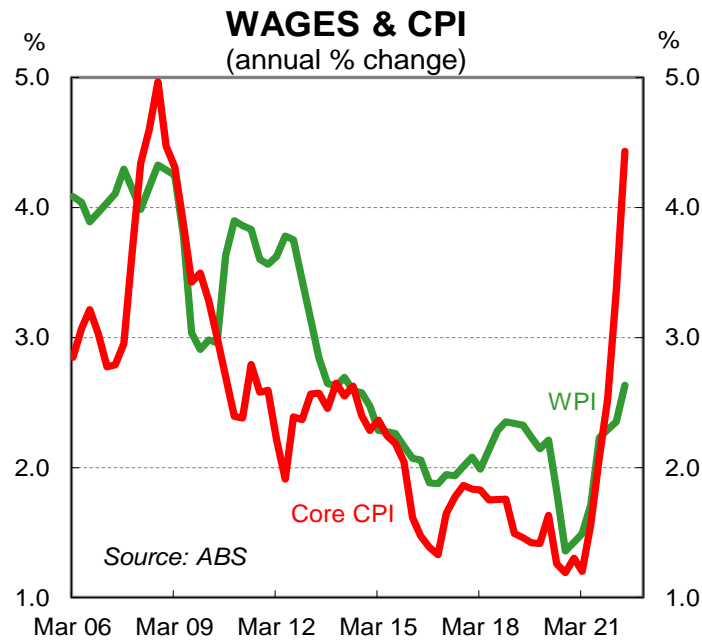
Source: IMF

RBA CASH RATE FORECAST



Australia

Wages and property sector likely mean rate hikes will be lower than market



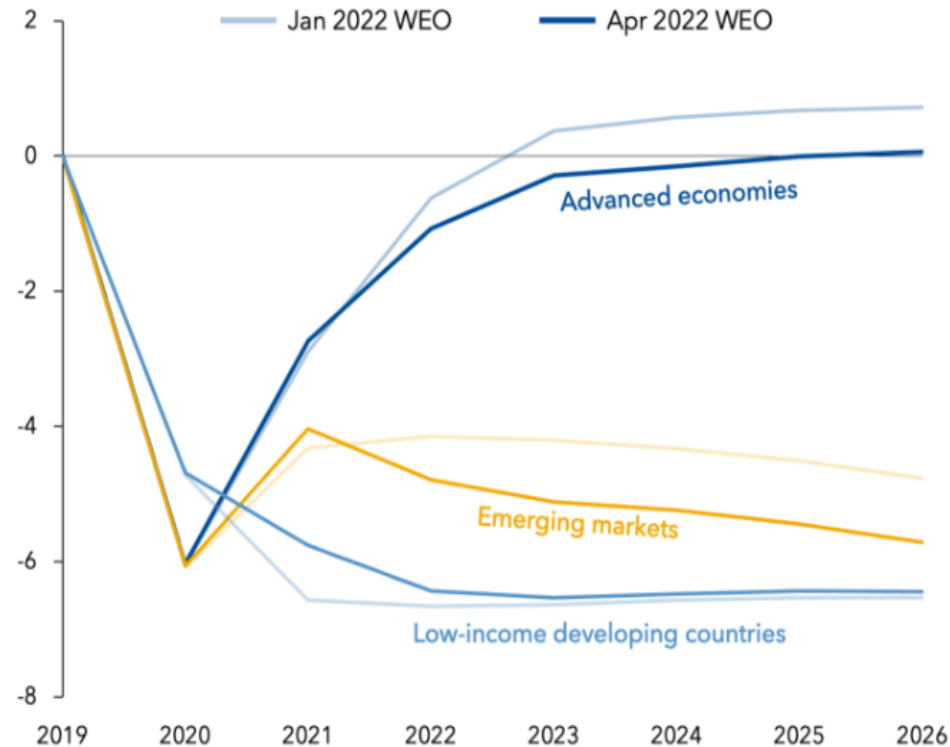
Energy market



Demand destruction

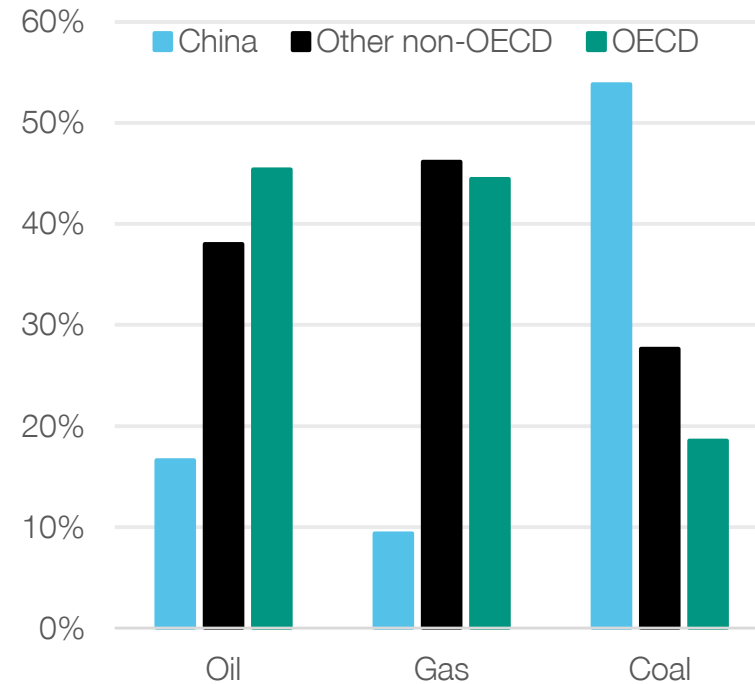
Emerging markets remain a key concern

Advanced economy and emerging market growth projections – percent deviation from January 2020 WEO forecast levels



Source: IMF

Consumption – oil, gas and coal – China, other non-OECD and OECD

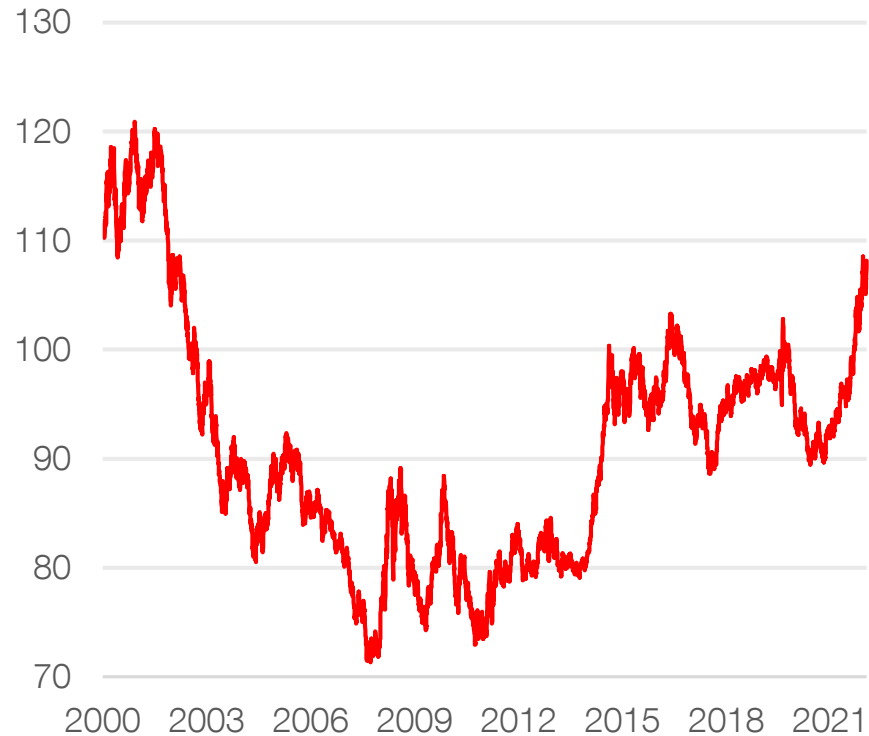


Source: BP Statistical Review

Demand destruction

Financial market linkages

US Dollar Index



Source: Bloomberg

Correlation between commodity prices and US 10 year real yields

	Correlation with US dollar	Correlation with 10 year real yields
Copper	-0.29	-0.56
Aluminium	0.06	-0.33
Nickel	-0.15	-0.45
Lead	-0.23	-0.06
Zinc	0.37	-0.08
Gold	-0.02	-0.85
Silver	-0.54	-0.80
Iron ore	-0.23	-0.70
Thermal coal	0.27	-0.13
Coking coal**	0.24	-0.10
WTI crude oil	-0.63	-0.08
Brent crude oil	-0.68	-0.09

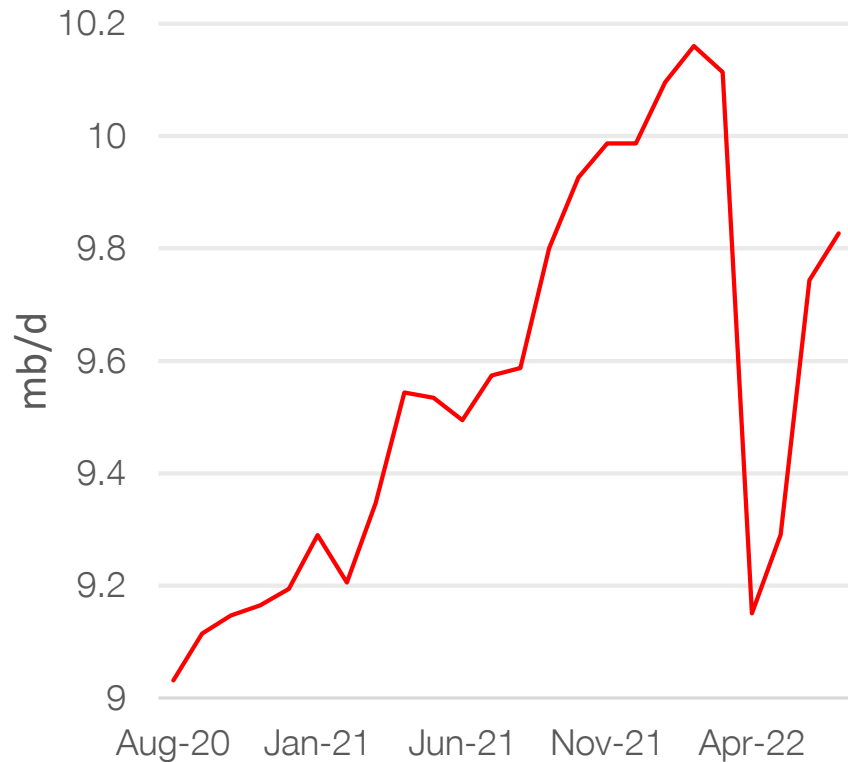
**qtrly assessments from before 2013

Source: Bloomberg, CBA estimates

Oil

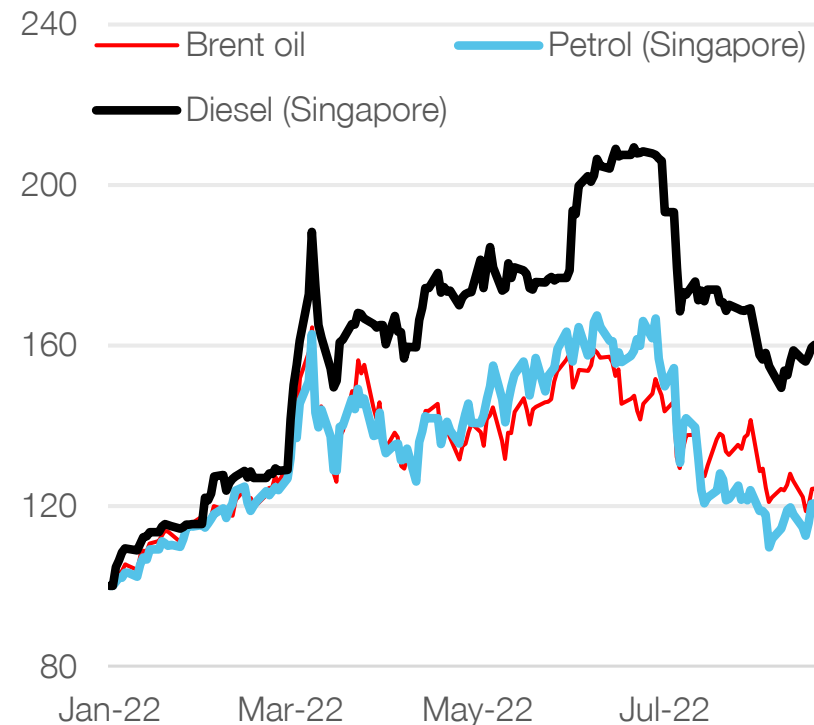
Russia's supply is down ~10%. Refined product markets are even tighter.

Russia's oil supply – monthly



Source: RYSTAD, Bloomberg

Diesel (Singapore), Gasoline (Singapore) and Brent oil prices (1 January 2022 = 100)

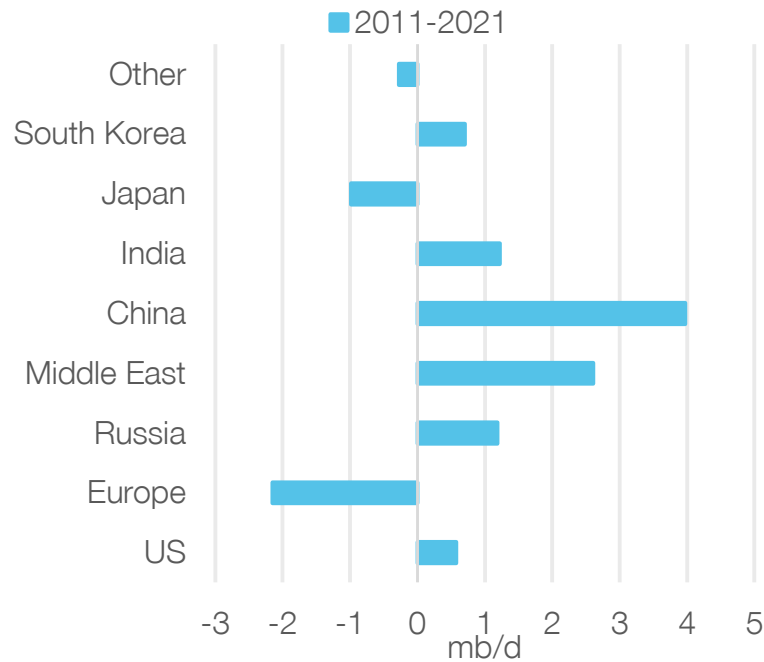


Source: ICE, Platts, Bloomberg

Oil

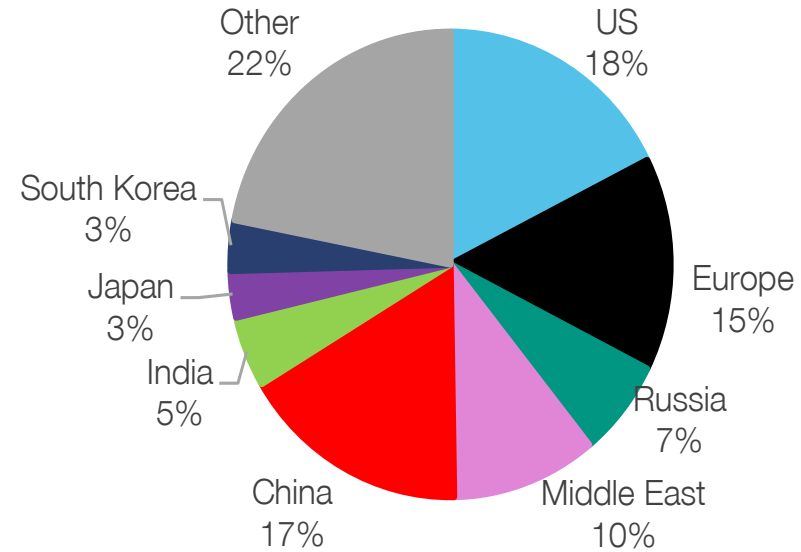
Global refining sector

Refining capacity growth – mb/d, 2011 to 2021



Source: BP Statistical Review

Global refining capacity – by share - 2021

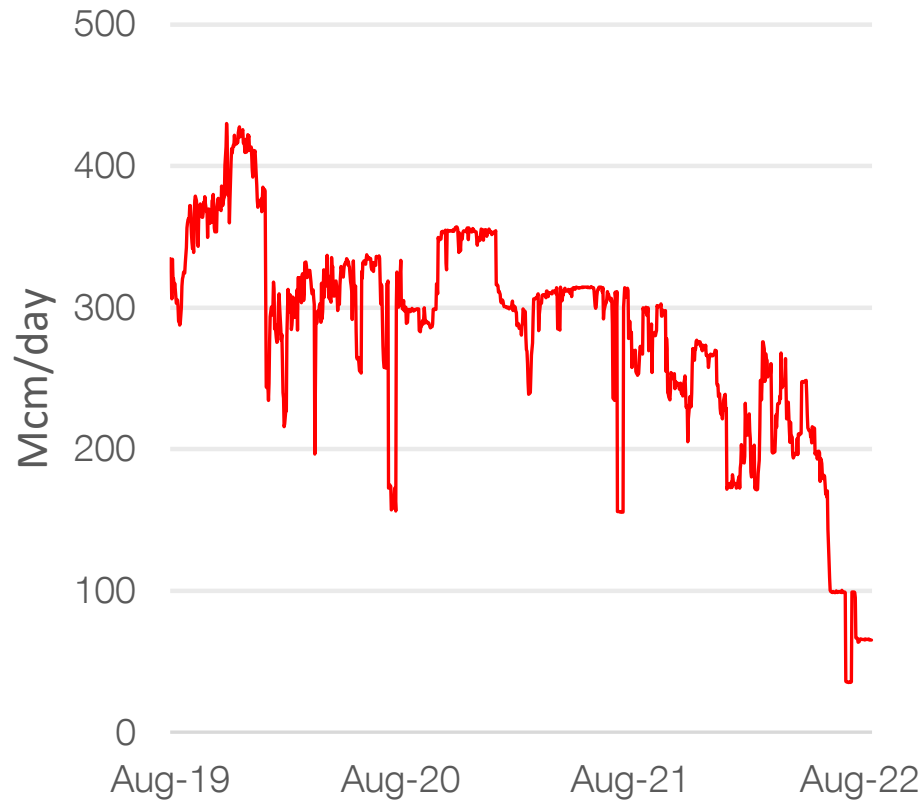


Source: BP Statistical Review

Gas

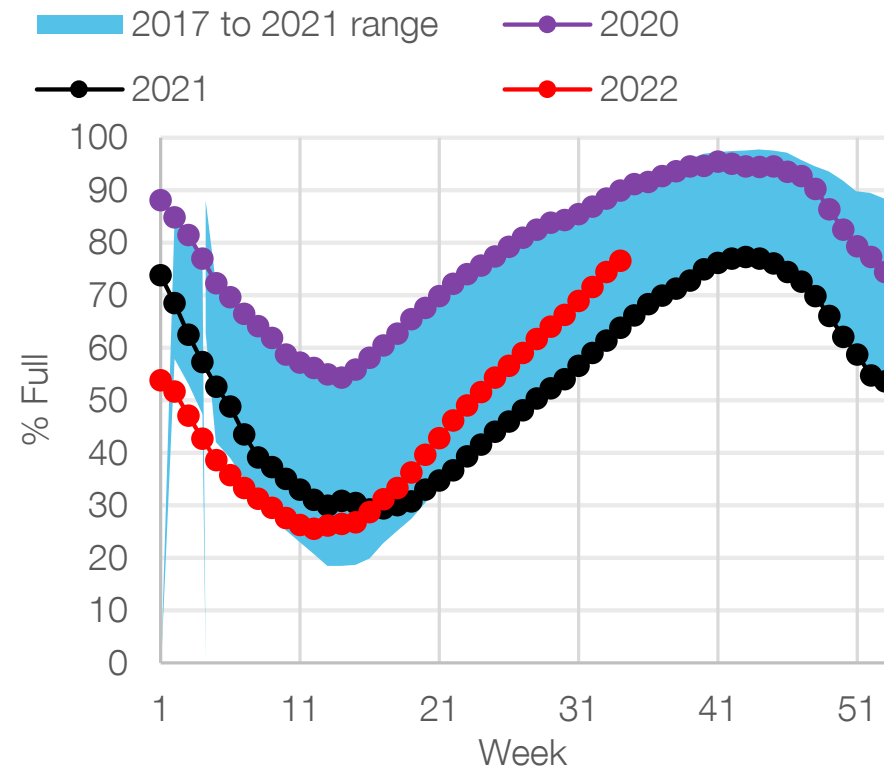
Russia pipes 70% of its gas to Europe. Europe dependent on Russia for ~40% of its gas.

Russia's gas flows to Europe



Source: Bloomberg

Europe's gas storage levels

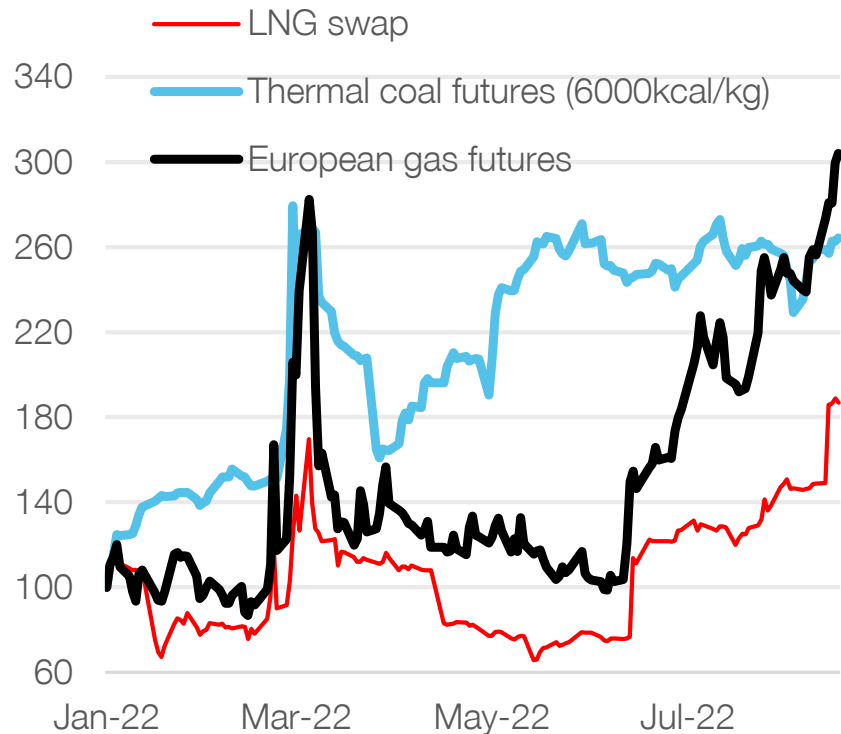


Source: GIE, Bloomberg

Gas

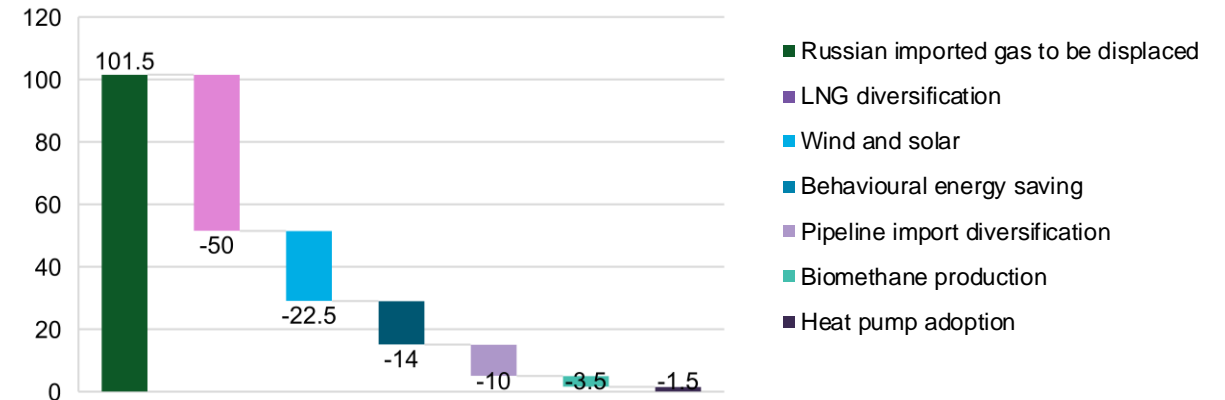
Prices have surged as a result. Europe's medium term strategy

Gas and thermal coal prices



Source: Bloomberg

EU targets for Russian gas imports to be displaced in 2022 by sectoral targets



Source: BNEF, European Commission

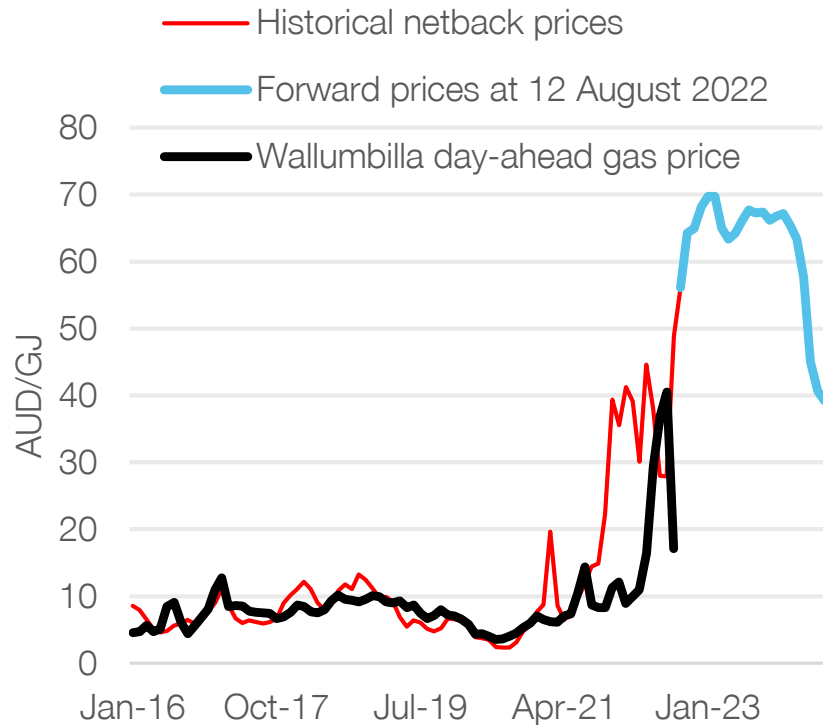
Domestic market



Domestic energy woes

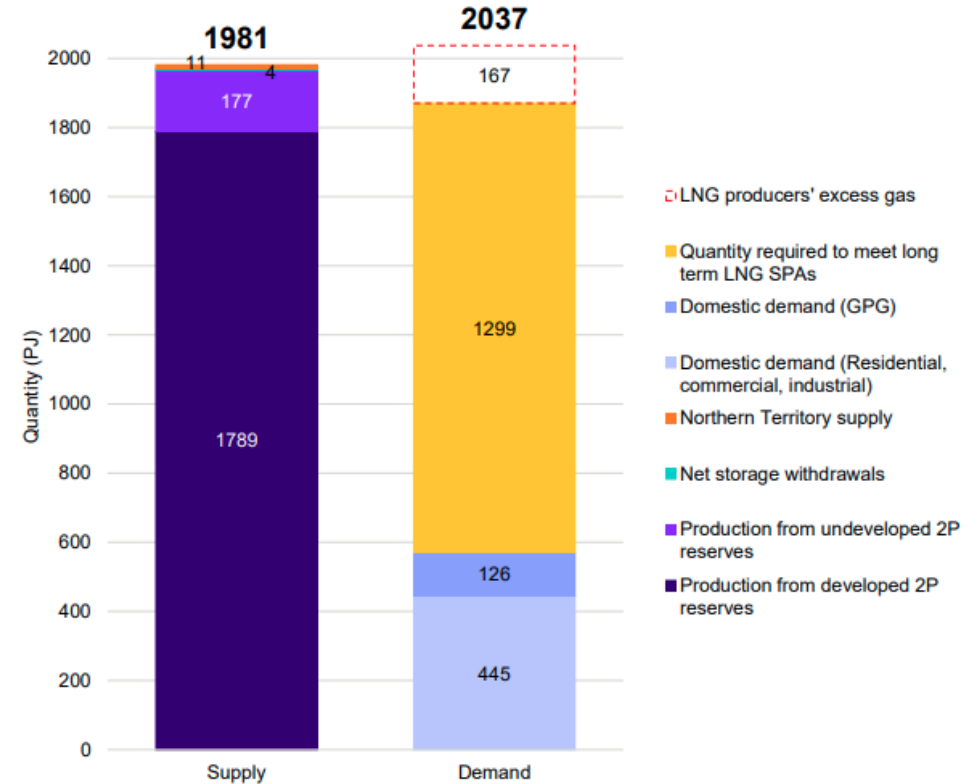
Gas prices surge

LNG netback prices and Wallumbilla Day-ahead benchmark price



Source: AEMO, ACCC, Bloomberg, CBA estimates

Forecast supply-demand balance in the east-coast in 2023



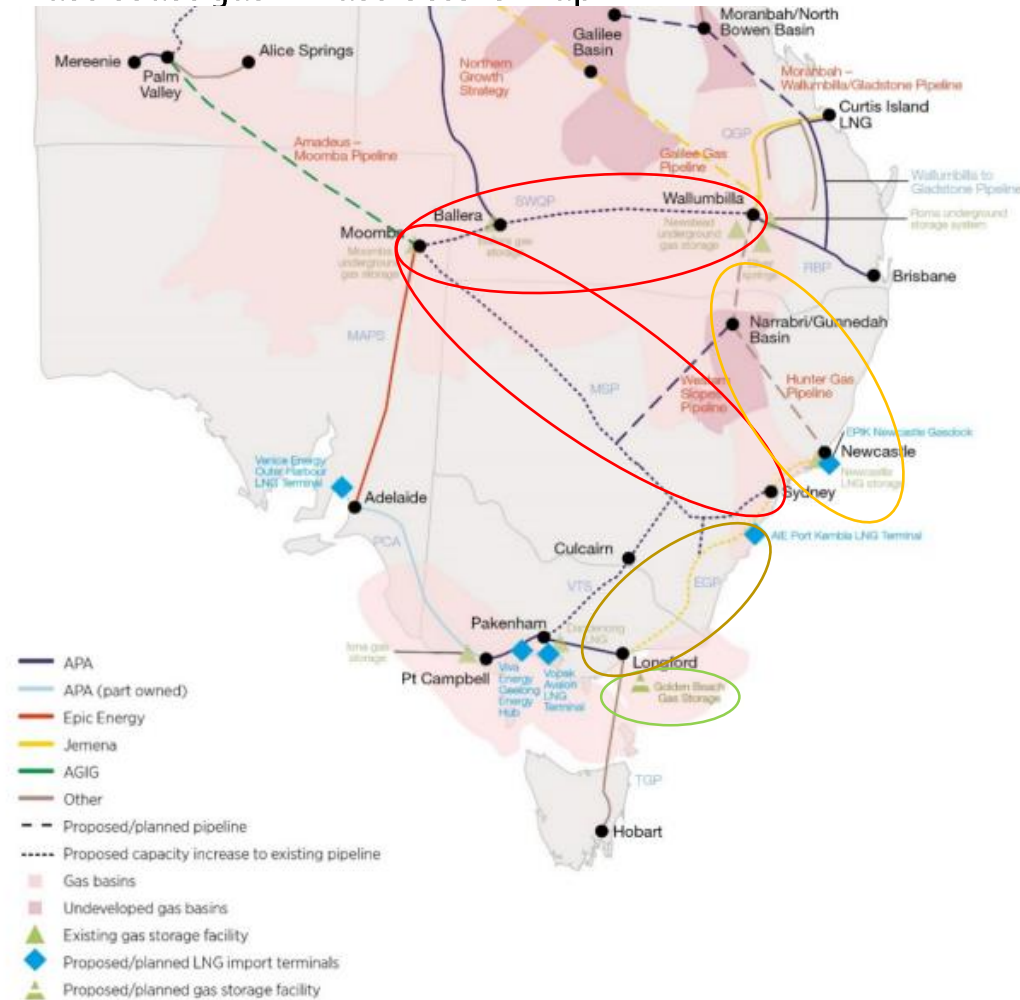
Source: ACCC (July 2022)

Domestic energy woes

Can domestic gas be disconnected from LNG spot prices in North Asia?

- Infrastructure required to address east-coast gas shortfalls in southern states
 - SWQP and MSP (Red) capacity increases
 - EGP and Port Kembla Import Terminal (Olive)
 - Golden Beach gas storage (Green)
 - Narrabri/Hunter Gas Pipeline (Orange)
 - Senex (Surat gas basin)

East-coast gas infrastructure map



Source: AEMO, Bloomberg, CBA estimates

Domestic energy woes

End-user exposure to petrol, diesel, natural gas and electricity – 2019-20 – Australia excluding Western Australia and Northern Territory

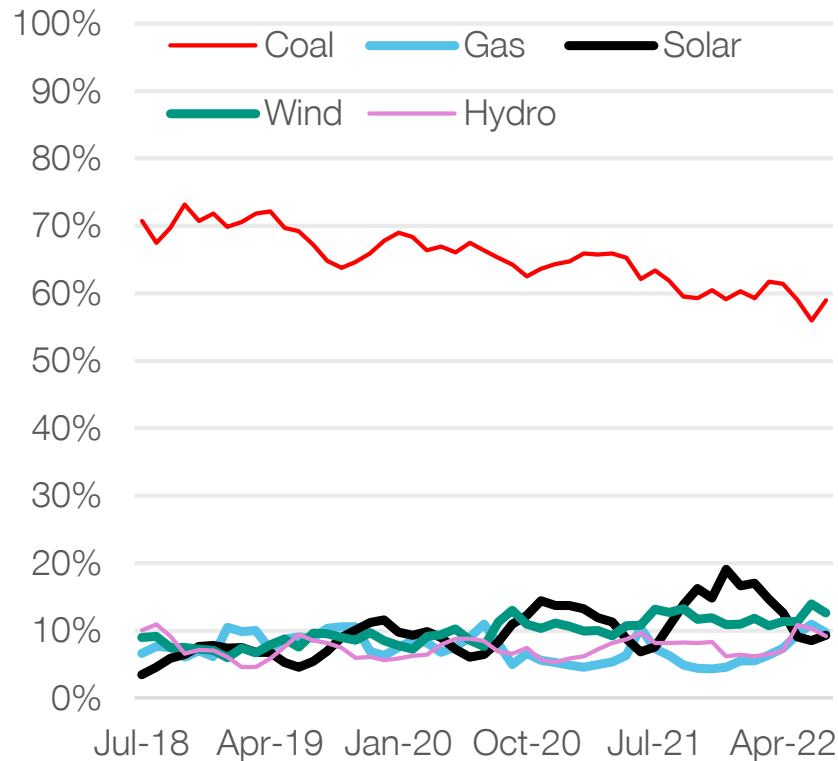
End user (excluding gas supply, electricity supply and refining)	Net Consumption (PJ)				Share of industry's energy demand				Share of fuel demand				Share of total energy demand					
	Petrol	Diesel	Natural gas	Electricity	Petrol	Diesel	Natural gas	Electricity	Petrol	Diesel	Natural gas	Electricity	Petrol	Diesel	Natural gas	Electricity	Other	Total
Agriculture, forestry and fishing	4	55	1	6	6%	81%	2%	9%	1%	7%	0%	1%	0%	1%	0%	0%	0%	2%
Air transport	2	0	0	0	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	6%
Basic Chemical and Chemical, Polymer and Rubber Product Manufacturing	0	1	118	10	0%	1%	62%	5%	0%	0%	14%	1%	0%	0%	3%	0%	2%	5%
Basic non-ferrous metals	0	1	128	111	0%	0%	39%	34%	0%	0%	15%	15%	0%	0%	3%	3%	2%	9%
Cement, lime, plaster and concrete	0	0	19	4	0%	1%	38%	9%	0%	0%	2%	1%	0%	0%	0%	0%	1%	1%
Ceramics	0	1	15	1	0%	3%	81%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Coal mining	0	134	0	23	0%	85%	0%	15%	0%	16%	0%	3%	0%	3%	0%	1%	0%	4%
Commercial and services	0	19	51	211	0%	7%	18%	75%	0%	2%	6%	29%	0%	1%	1%	5%	0%	7%
Construction	0	27	3	7	0%	71%	7%	20%	0%	3%	0%	1%	0%	1%	0%	0%	0%	1%
Fabricated metal products	0	0	2	4	0%	0%	27%	60%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Food, beverages and tobacco	0	2	31	21	0%	1%	23%	15%	0%	0%	4%	3%	0%	0%	1%	1%	2%	4%
Furniture and other manufacturing	0	0	0	1	0%	12%	14%	70%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Glass and glass products	0	0	9	2	0%	0%	78%	21%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Iron and steel	0	1	14	13	0%	0%	13%	11%	0%	0%	2%	2%	0%	0%	0%	0%	2%	3%
Machinery and equipment	0	0	1	5	0%	0%	10%	85%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Non-metallic mineral products	0	1	36	10	0%	1%	51%	14%	0%	0%	4%	1%	0%	0%	1%	0%	1%	2%
Oil and gas extraction	0	2	206	36	0%	1%	81%	14%	0%	0%	24%	5%	0%	0%	5%	1%	0%	7%
Other mining	0	24	1	30	0%	11%	0%	14%	0%	3%	0%	4%	0%	1%	0%	1%	4%	6%
Other non-metallic mineral products	0	0	6	2	0%	0%	70%	29%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Other petroleum and coal product manufacturing	0	1	12	1	0%	6%	71%	5%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Other transport, services and storage	0	5	13	6	1%	23%	61%	29%	0%	1%	2%	1%	0%	0%	0%	0%	0%	1%
Pulp, paper and printing	0	0	10	12	0%	1%	29%	35%	0%	0%	1%	2%	0%	0%	0%	0%	0%	1%
Rail transport	0	25	0	10	0%	71%	0%	29%	0%	3%	0%	1%	0%	1%	0%	0%	0%	1%
Residential	0	0	164	189	0%	0%	39%	45%	0%	0%	19%	26%	0%	0%	4%	5%	2%	11%
Road transport	459	513	2	0	46%	52%	0%	0%	96%	62%	0%	0%	12%	13%	0%	0%	0%	26%
Solvents, lubricants, greases and bitumen	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Textile, clothing, footwear and leather	0	0	5	1	0%	1%	80%	9%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Water supply, sewerage and drainage services	0	1	2	17	0%	7%	8%	83%	0%	0%	0%	2%	0%	0%	0%	0%	0%	1%
Water transport	10	15	0	0	25%	37%	0%	0%	2%	2%	0%	0%	0%	0%	0%	0%	0%	1%
Wood and wood products	0	0	2	3	0%	1%	14%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

— Gas
— Diesel
— Petrol
— Electricity

Domestic energy woes

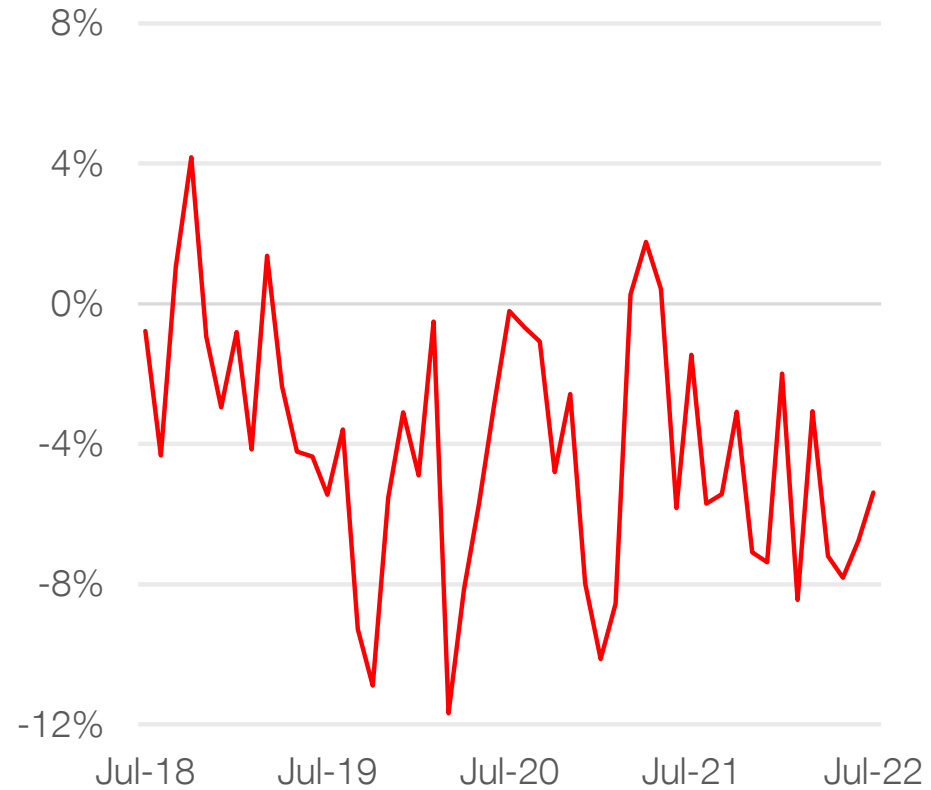
Coal power underperforming

NEM electricity generation – by major source – monthly share



Source: openNEM, AEMO, CBA estimates

Coal power generation – y/y% growth

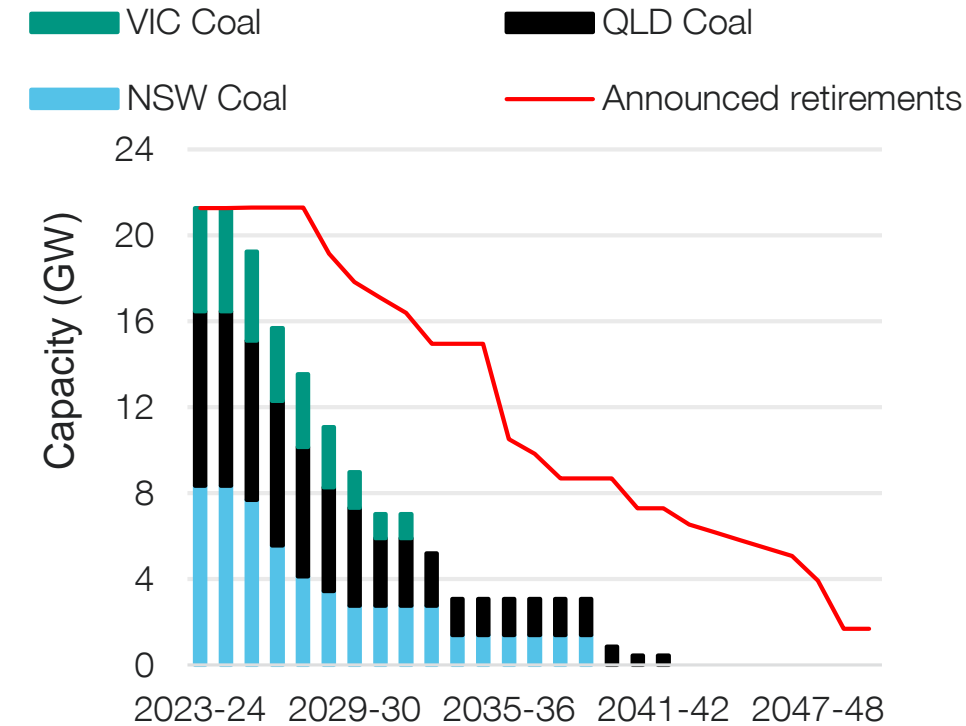


Source: openNEM, AEMO, CBA estimates

Domestic energy woes

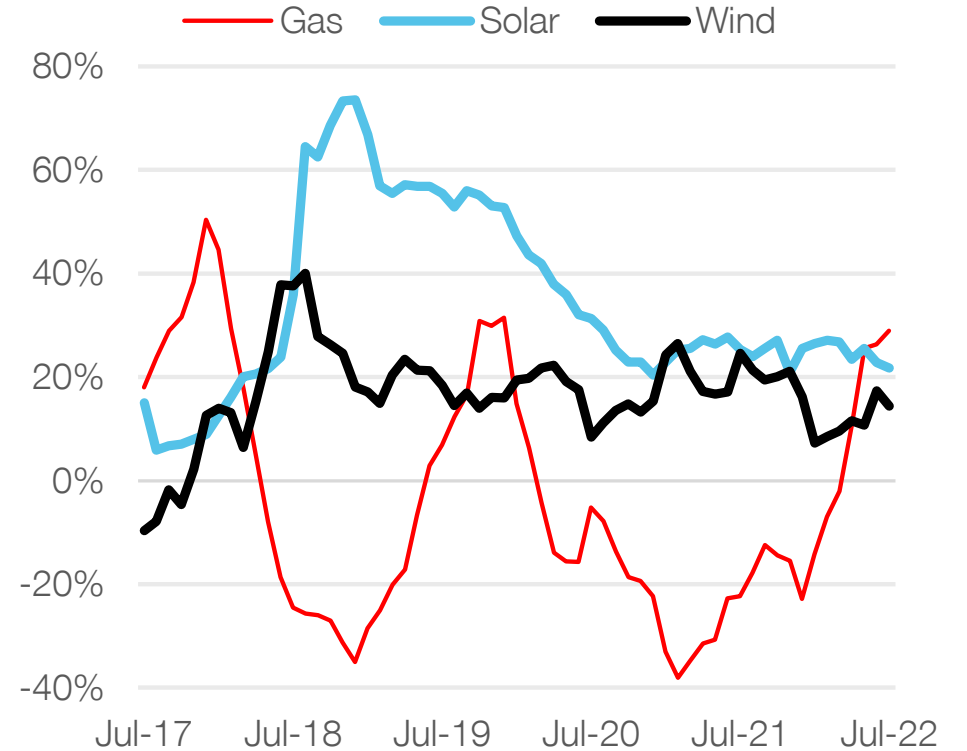
Coal power underperforming

Forecast coal retirements, Step Change technology and regional outlook



Source: Open NEM

Gas, Solar and Wind power growth – 6m y/y%

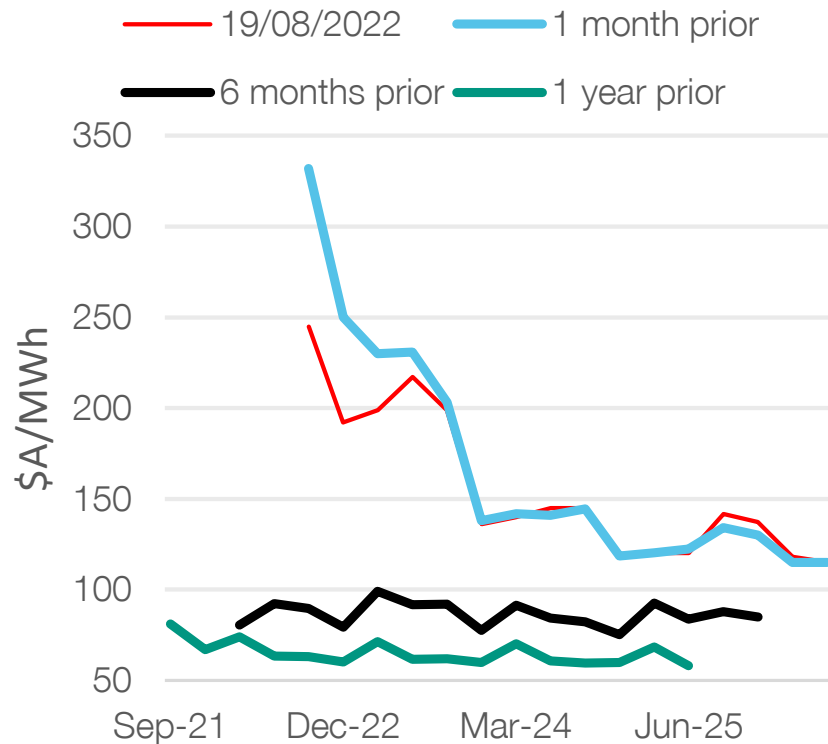


Source: openNEM, AEMO, CBA estimates

Domestic energy woes

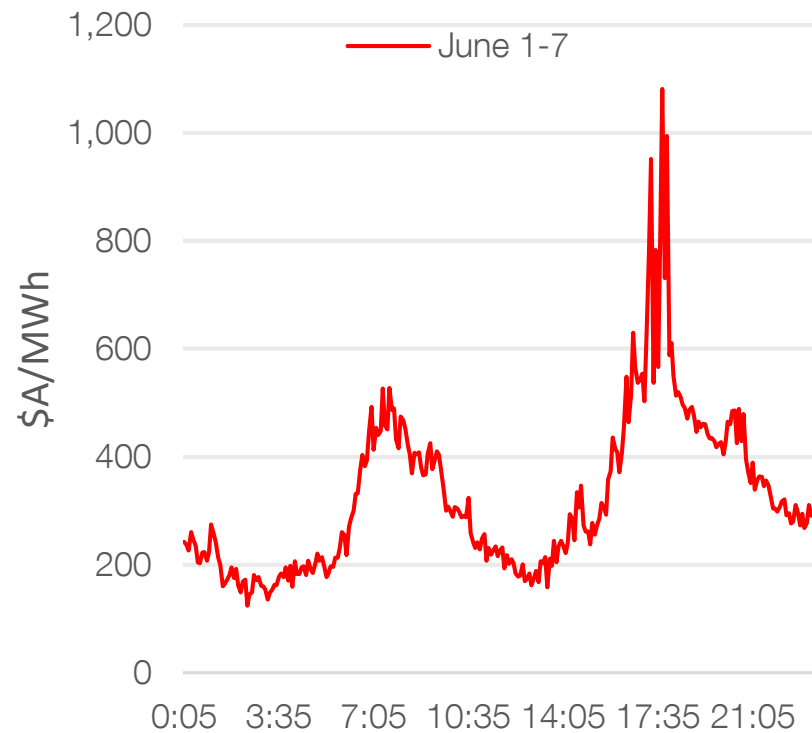
Prices – futures and intraday

NSW base load futures



Source: openNEM, AEMO, CBA estimates

Victoria – intra-day electricity prices – 1-7 June

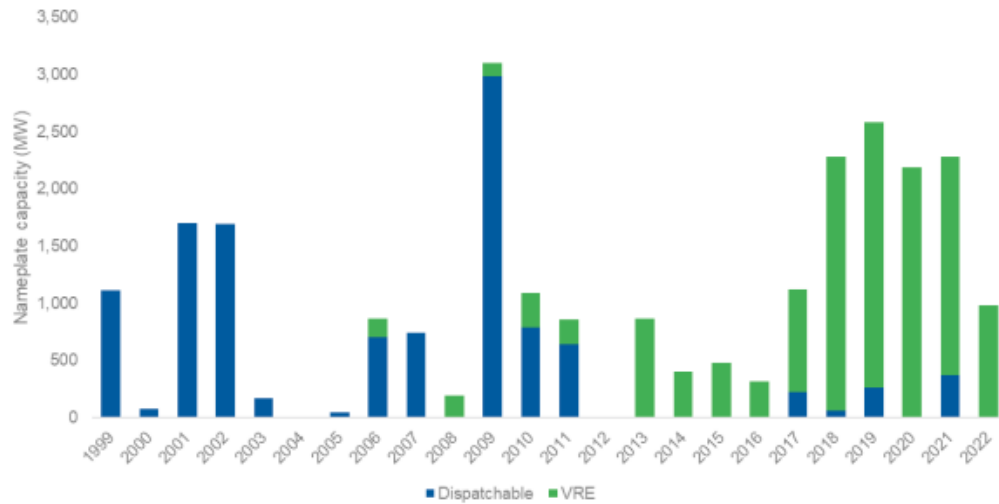


Source: AEMO, CBA estimates

Domestic energy woes

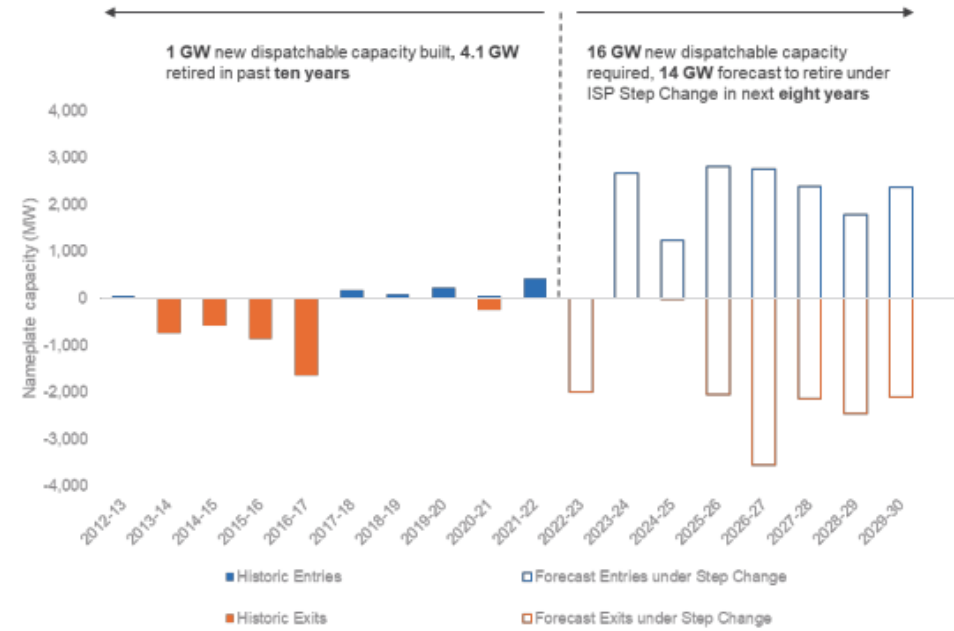
Reform

New scheduled and semi-scheduled capacity since NEM commencement



Source: ESB

Dispatchable capacity entry and exit – historic and forecast under ISP Step Change scenario

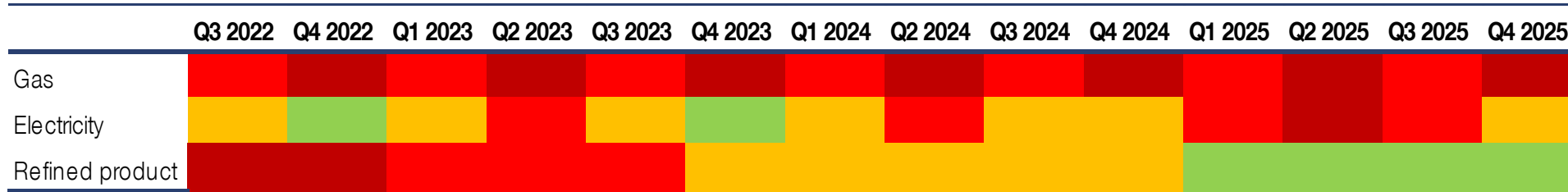






Source: ESB, AEMO

Domestic energy woes

Summary

Refined product, natural gas and electricity price outlook risks



Key	Risk of high prices
	Very high
	High
	Medium
	Low

Source: AEMO, Bloomberg, BNEF, CBA estimates

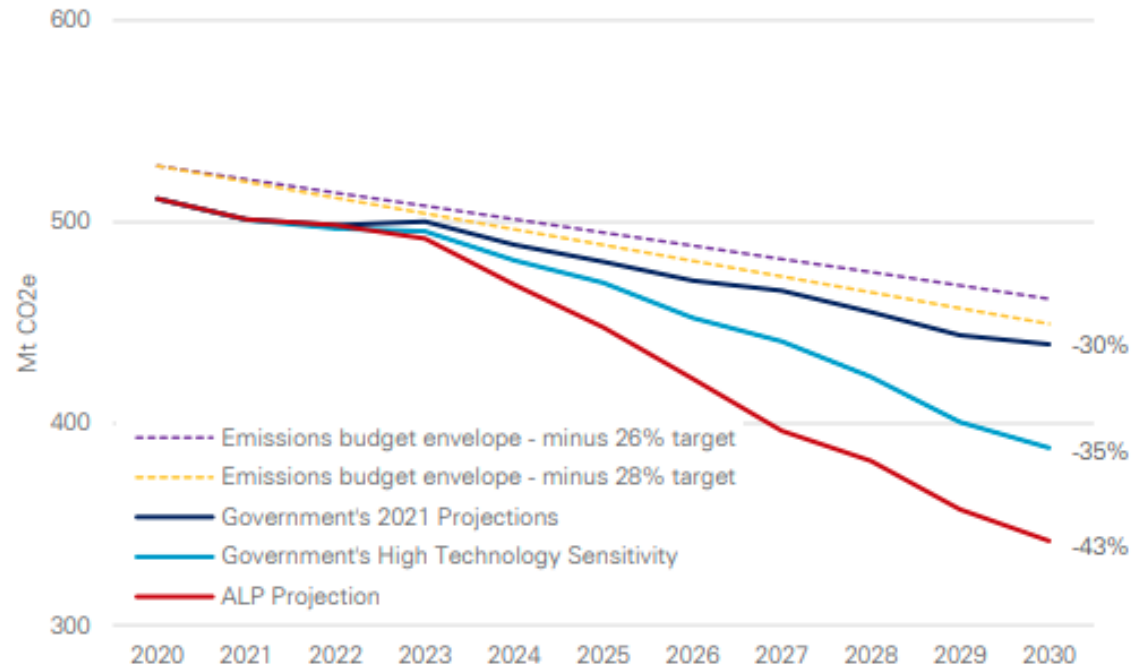
Government policy and carbon markets



How the government reach its emission reduction goal?

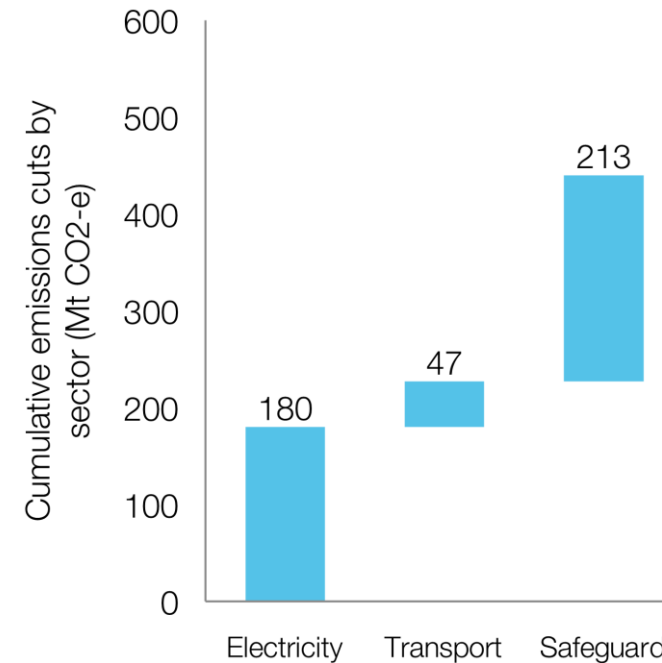
Modelling Labor's target

Labor policy to cut emissions relative to 2021 projections



Source: Reputex

Labor policy to cut emissions to reach 43% reduction

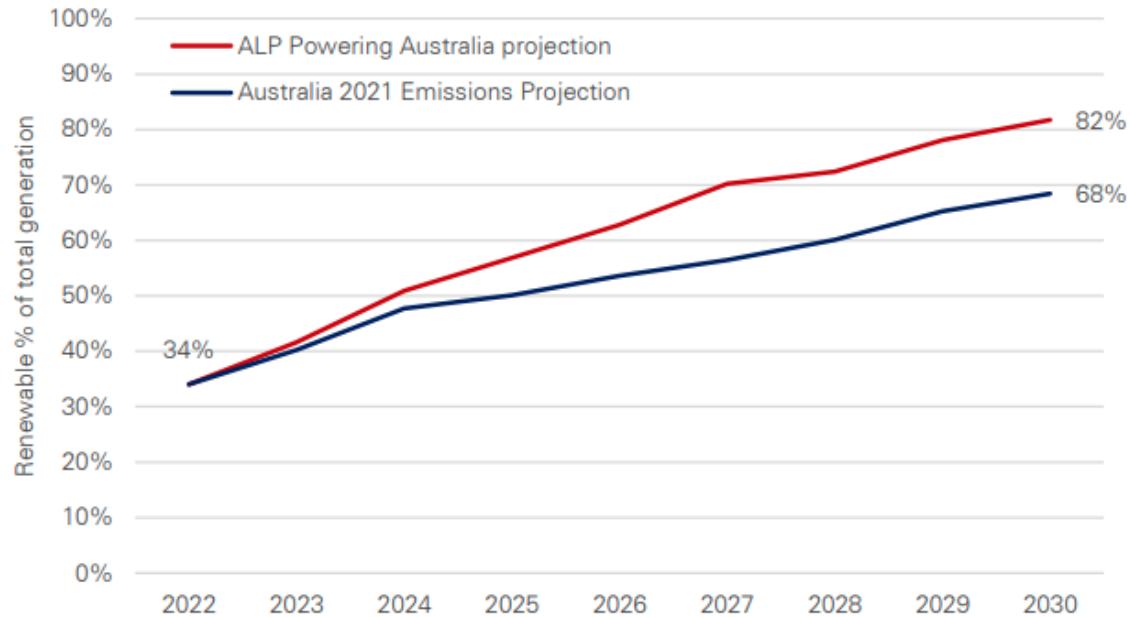


Source: Reputex, MAG, Labor Climate Policy

How will the government reach its emission reduction goal?

Electricity and transport sector

Forecast generation of renewable energy in the NEM



Source: Reputex

Price-parity point for different sized EVs with ICEs in different regions

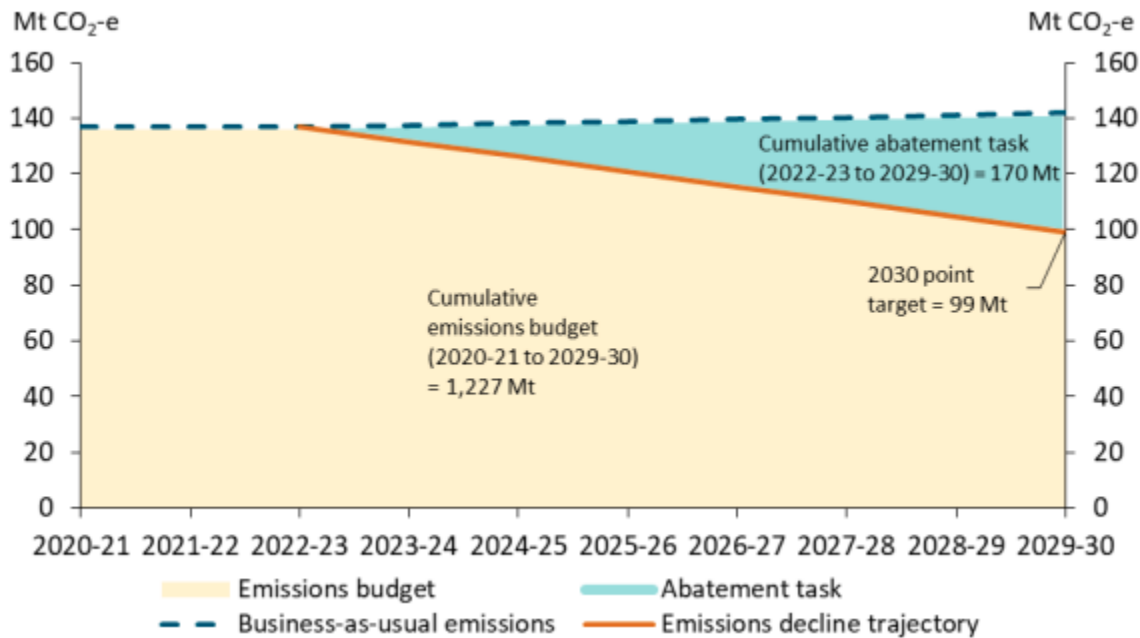
	Small	Medium	Large	SUV
South Korea	2026	2024	2025	2023
Japan	2030	2028	2026	2025
China	2026	2023	2026	2028
Europe	2027	2023	2023	2024
US	2024	2024	2023	2023

Source: BNEF

How will the government reach its emission reduction goal?

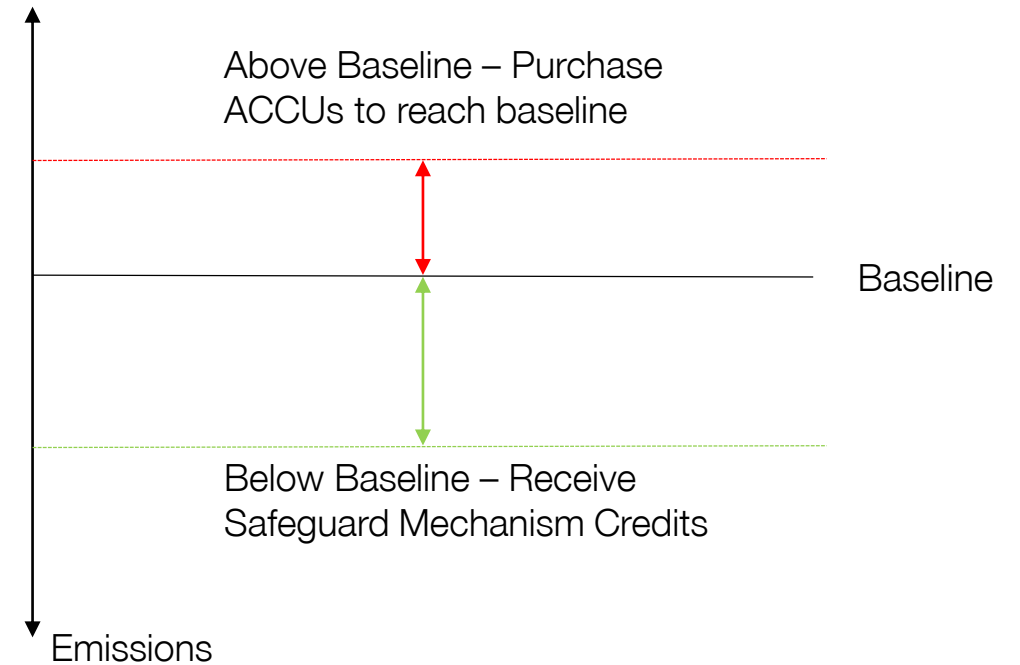
Safeguard Mechanism

Proposed Emissions Budget and indicative abatement task for ~215 Safeguard Facilities



Source: Department of Climate Change

Safeguard Mechanism Credits vs ACCUs

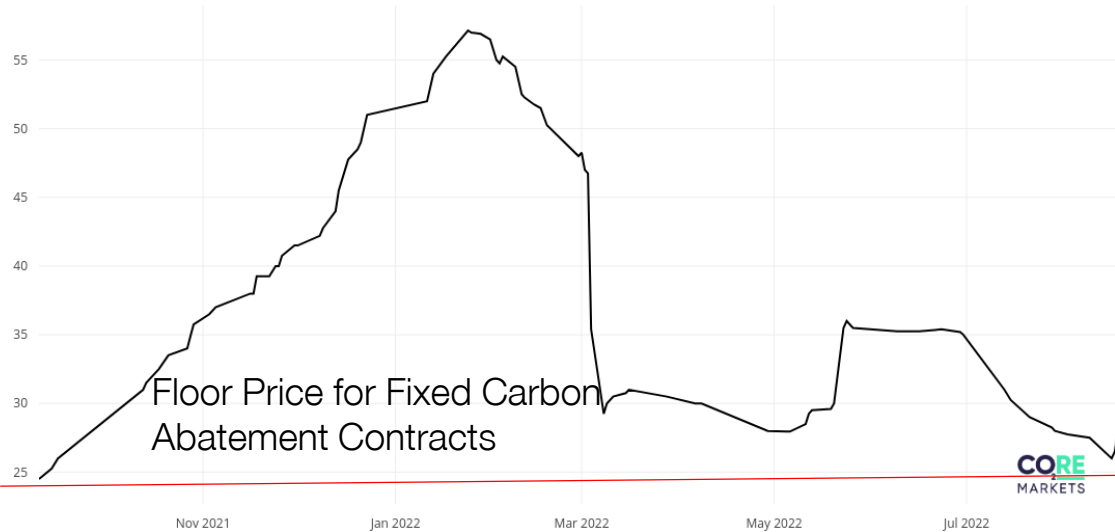


Source: CBA estimates

How will the government reach its emission reduction goal?

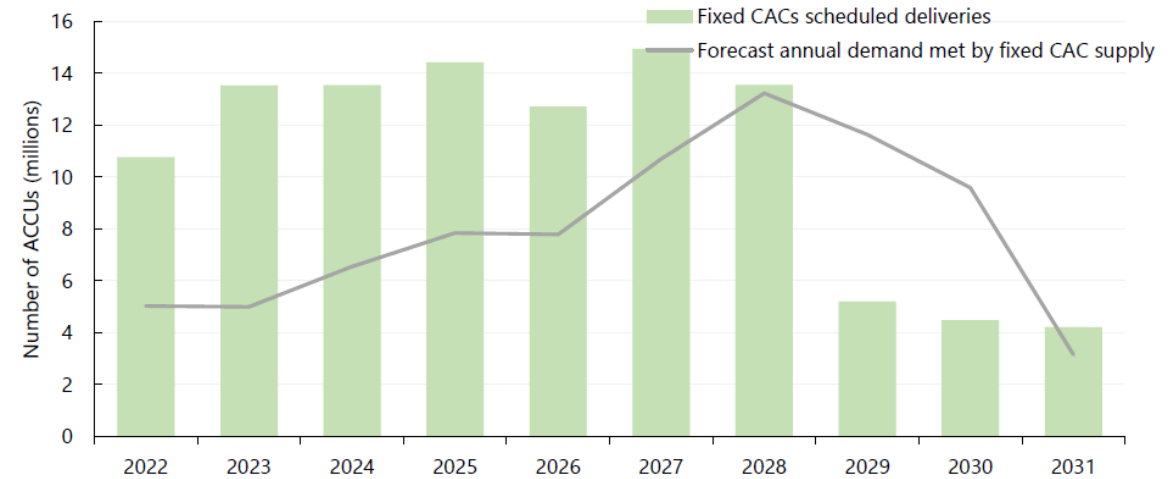
Fixed Carbon Abatement Contract (CACs)

ACCU spot price



Source: Core Markets

ERF scheduled fixed CAC deliveries



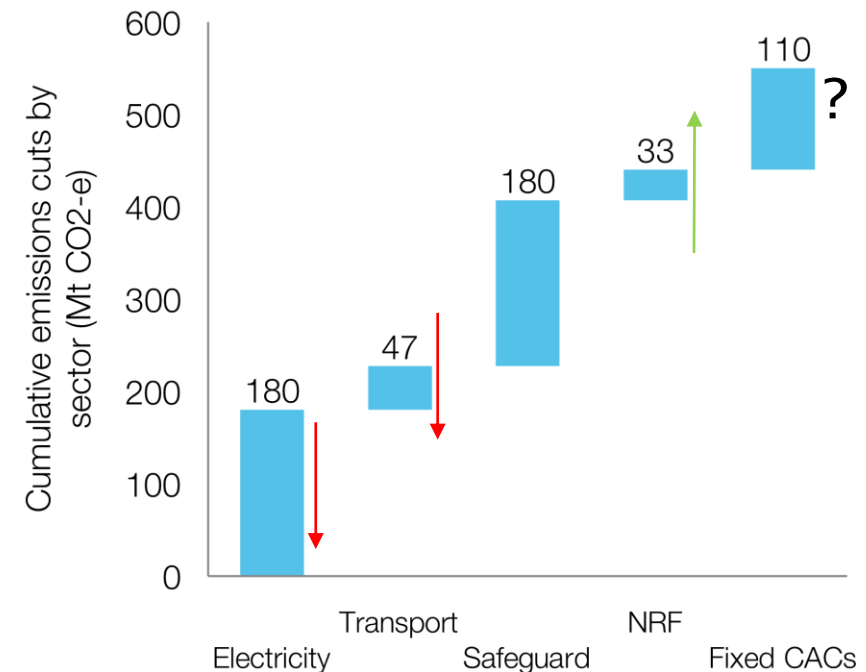
Source: MAG, CER

How will Labor reach its emission reduction goal?

Conclusion

- Downside risks to Labor's emission reduction projections for the electricity and transport sectors
- Safeguard mechanism to be crucial for 43% emission reduction goal. Baseline determination will be key
- Upside risks to our National Reconstruction Fund (NRF) – understated deliberately given risks around new technology
- Key unknown will be how fixed CACs are treated. How will this contribute to Australia's NDC, but not hinder new ACCU supply?

Labor policy to cut emissions to reach 43% reduction



Source: Reputex, MAG, Labor Climate Policy

Thank you

Vivek Dhar

Director Mining and Energy Economist

August 2022

vivek.dhar@cba.com.au

+613 9675 6183

www.commbankresearch.com.au



Commonwealth
Bank

Price outlook

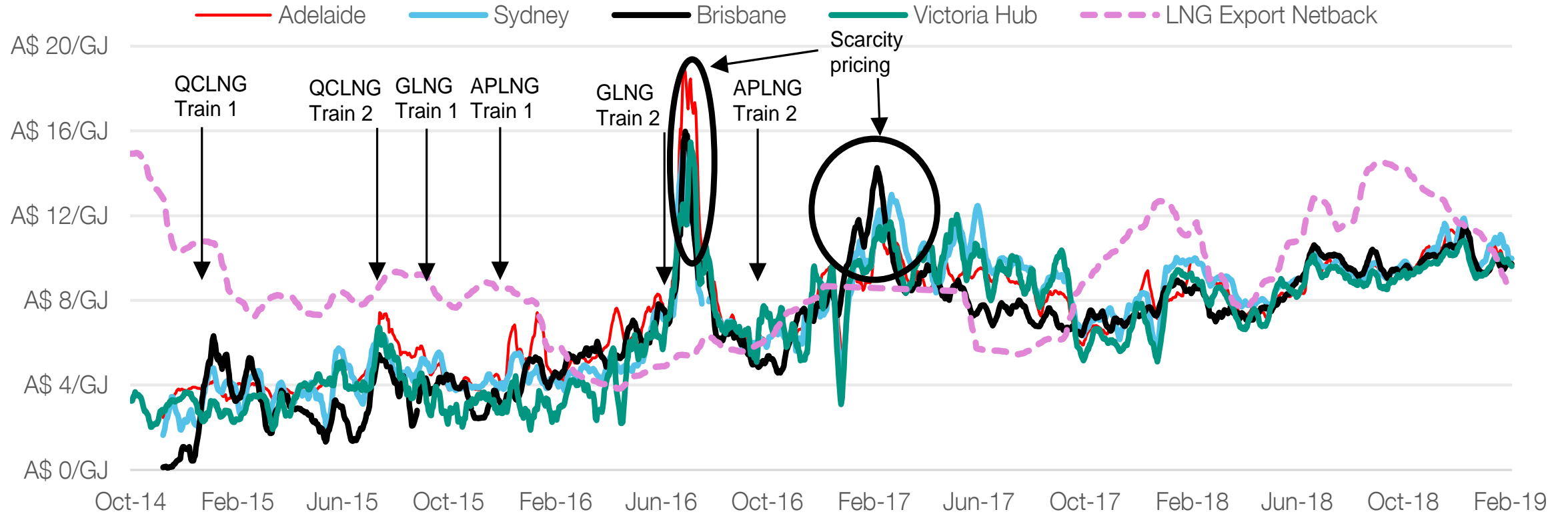
Period average		Spot	Forecast	Jun-22	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24	Mar-25	Jun-25	Sep-25	Dec-25
Industrial metals																		
Aluminium	USc/lb	109		141	135	140	140	135	135	140	142	143	144	145	146	146	147	148
Copper	USc/lb	367		440	430	440	420	400	380	360	352	354	356	358	360	362	364	366
Zinc	USc/lb	161		185	170	175	170	165	160	155	150	145	145	140	135	130	125	126
Lead	USc/lb	92		105	95	100	96	94	92	93	92	93	93	94	93	94	94	95
Nickel	USc/lb	1006		1440	1200	1200	1100	1000	950	950	950	950	950	950	950	950	950	950
Precious metals																		
Gold	USD/oz	1747		1915	1875	1925	1920	1915	1910	1900	1900	1900	1900	1900	1900	1900	1900	1900
Silver	USD/oz	19.0		23.7	22.5	23.5	24.0	24.5	24.8	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7
Bulks																		
Iron ore (62%Fe cfr China)	USD/t	100		140	120	100	100	110	100	80	80	79	79	78	78	77	77	76
Hard coking coal	USD/t	271		485	450	350	300	250	217	218	219	220	221	223	224	225	226	228
Thermal coal	USD/t	416		370	340	280	220	180	160	140	120	110	111	111	106	101	96	91
Energy																		
Oil (WTI)	USD/bbl	91		105	107	97	92	87	87	82	77	77	77	77	77	77	77	77
Oil (Brent)	USD/bbl	97		110	110	100	95	90	90	85	80	80	80	80	80	80	80	80
LNG (contract) (DES Asia)	USD/mmbtu	13.3		12.8	14.9	15.6	14.9	13.9	13.2	12.9	12.6	11.9	11.6	11.6	11.6	11.6	11.6	11.6
LNG (spot) (DES Asia)	USD/mmbtu	57.0		25.0	20.0	15.0	12.0	10.8	10.8	10.9	10.9	11.0	11.1	11.1	11.2	11.3	11.3	11.4



Domestic energy woes

- Can domestic gas be disconnected from LNG spot prices in North Asia?

Domestic gas and LNG export netback prices



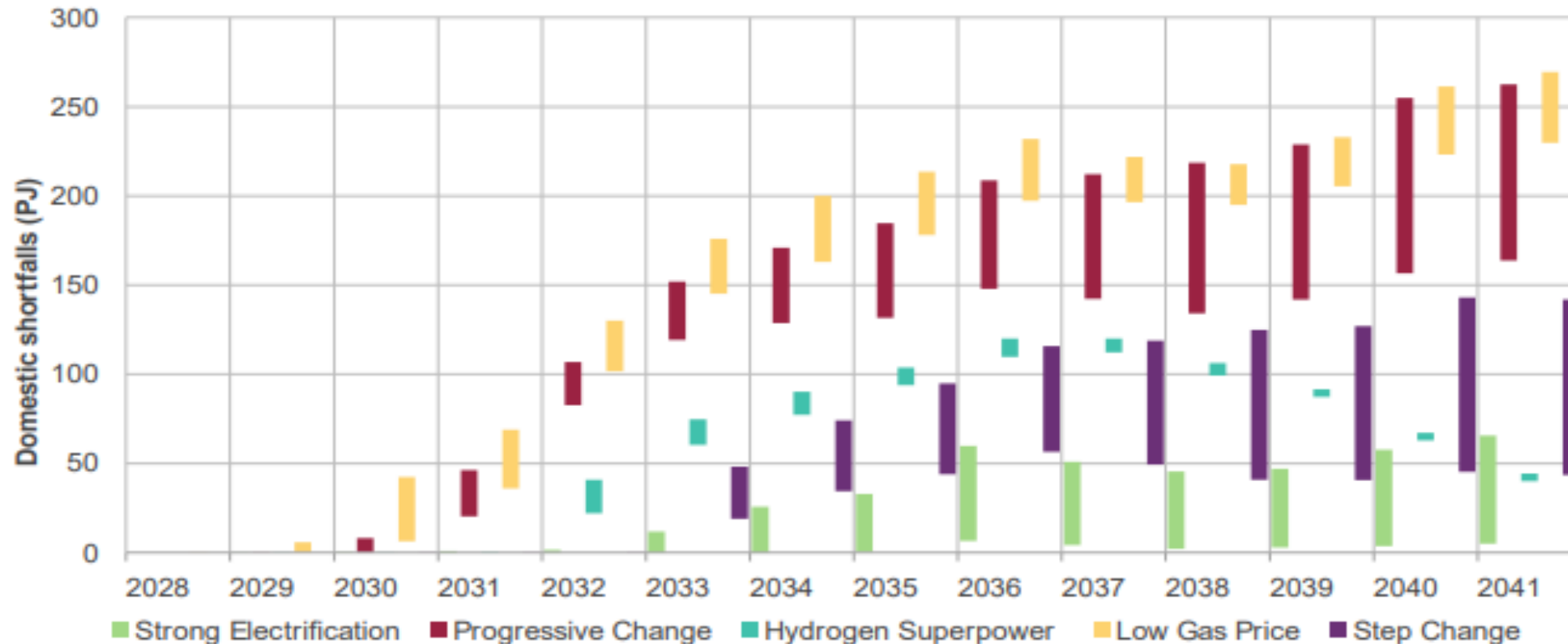
Source: AEMO, Bloomberg, BNEF, CBA estimates



Domestic energy woes

- Can domestic gas be disconnected from LNG spot prices in North Asia?

Range of domestic annual supply gaps forecast under different scenarios, with existing, committed and anticipated developments – all scenarios – 2028-41



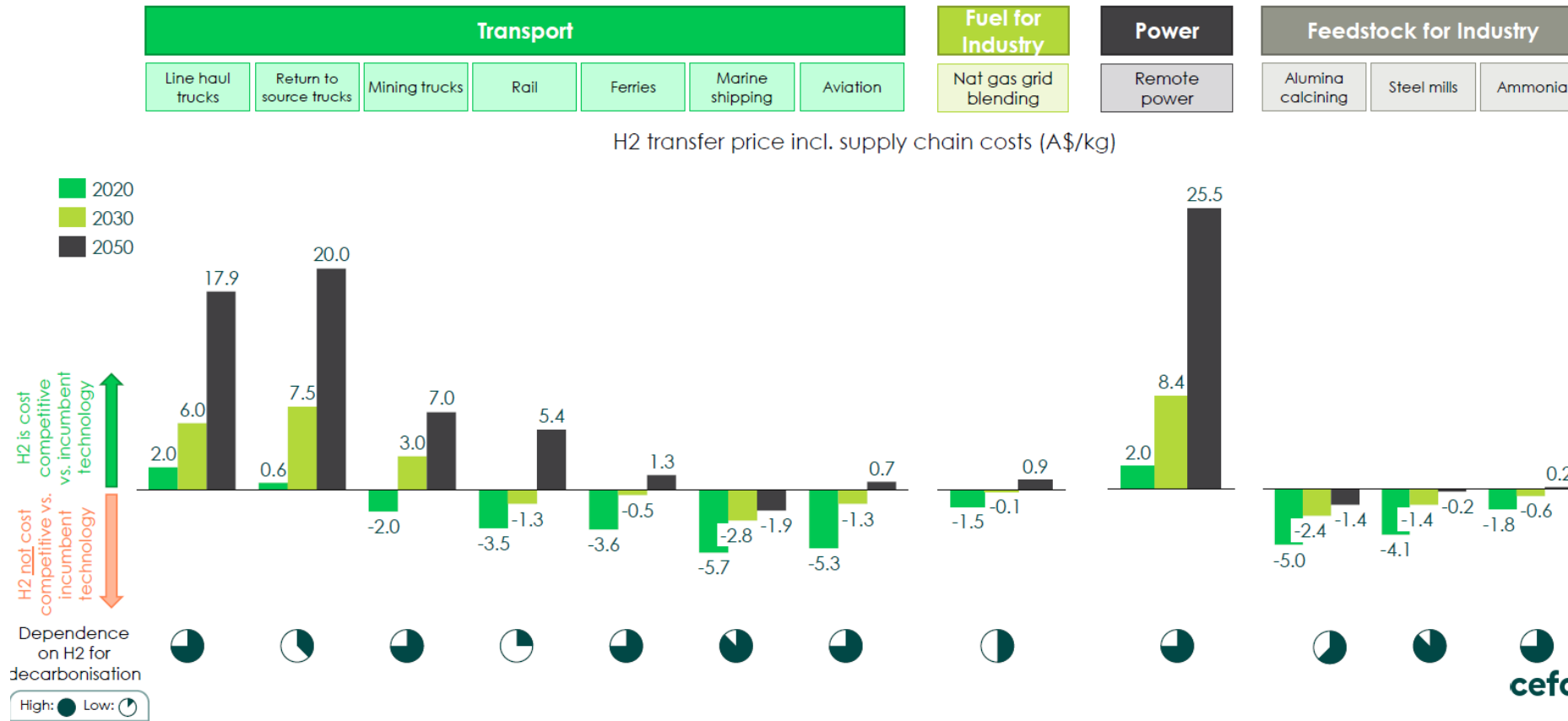
Source: AEMO (Gas Statement of Opportunities 2022)



Hydrogen

Diesel replacement already economic

Hydrogen transfer price including supply chain costs (\$A/kg)

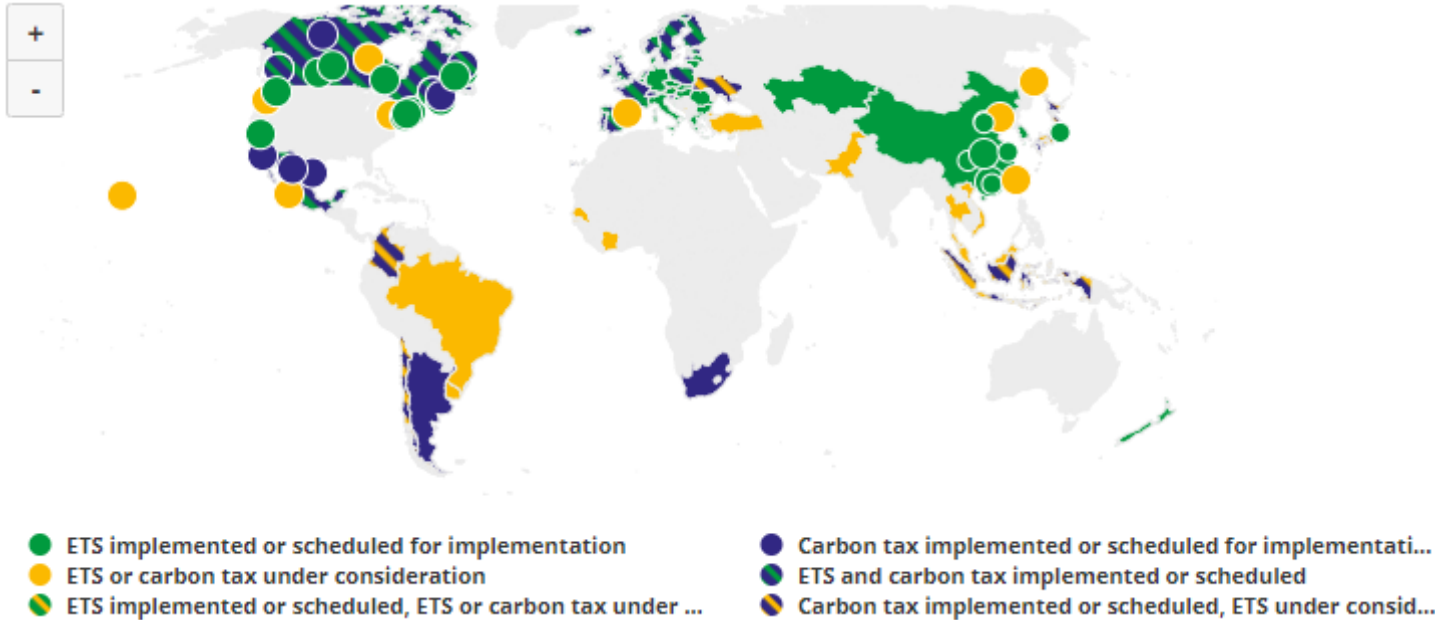


Source: Clean Energy Finance Corporation (CEFC)

Carbon markets

Key role in facilitating transition

Summary map of regional, national and subnational carbon pricing schemes (21.5% of global emissions covered)



Source: World Bank

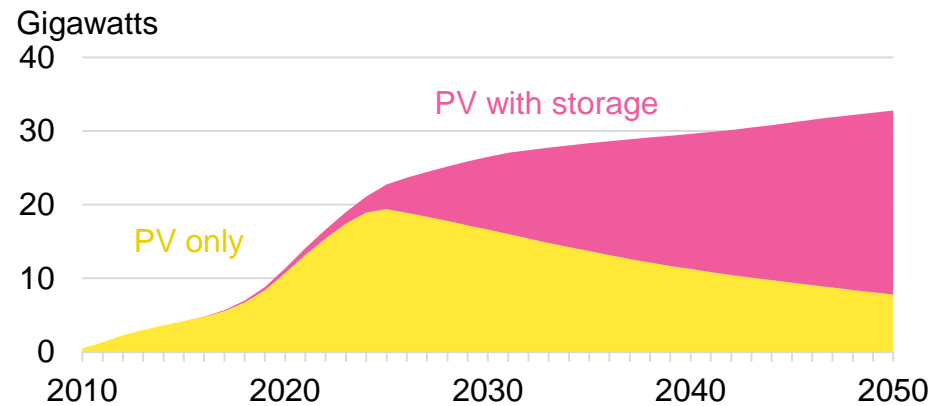
Carbon pricing scenarios (\$US/t)

	1.5°C (1 in 2 chance)			2°C (2 in 3 chance)		
	Low	High	Average	Low	High	Average
2030	170	290	220	60	120	90
2050	430	990	630	140	340	210

Source: IPCC

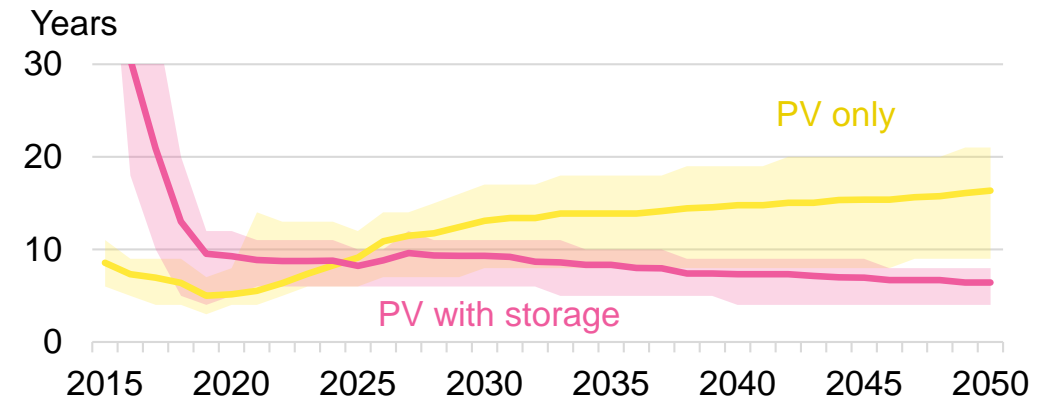
Behind-the-meter economics - Residential

Residential capacity additions – PV only and PV with storage



Source: Bloomberg New Energy Finance (September 2021)

Residential payback periods

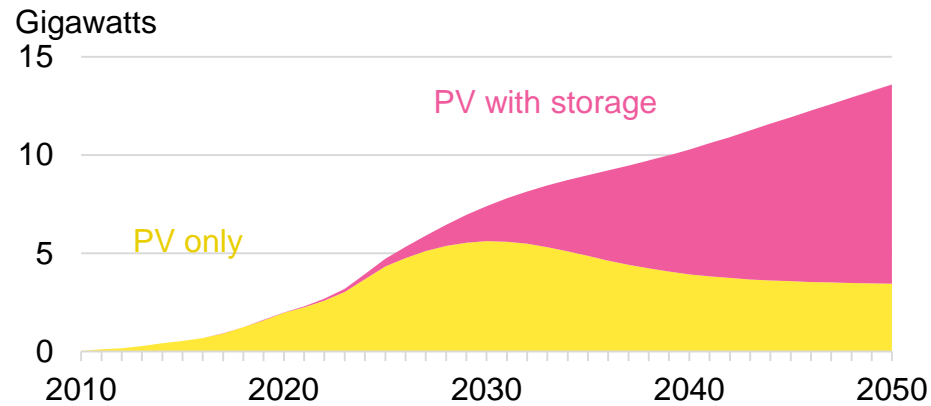


Source: Bloomberg New Energy Finance (September 2021)

- The economics of PV (<15kW) with storage likely become increasingly more appealing with middle-of-day to evening peak prices so elevated.
- Time-of-use tariffs and the lower value of solar export tariffs are key in accelerating the uptake of PV with storage.

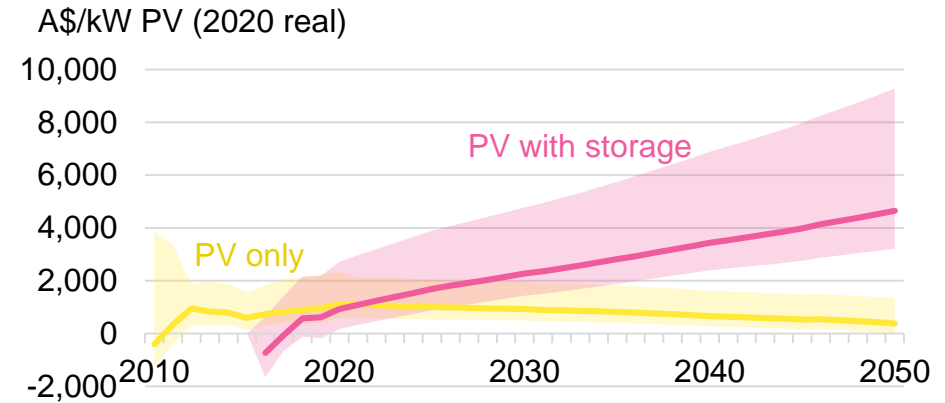
Behind-the-meter economics - Commercial

Commercial capacity additions – PV only and PV with storage



Source: Bloomberg New Energy Finance (September 2021)

Commercial payback periods

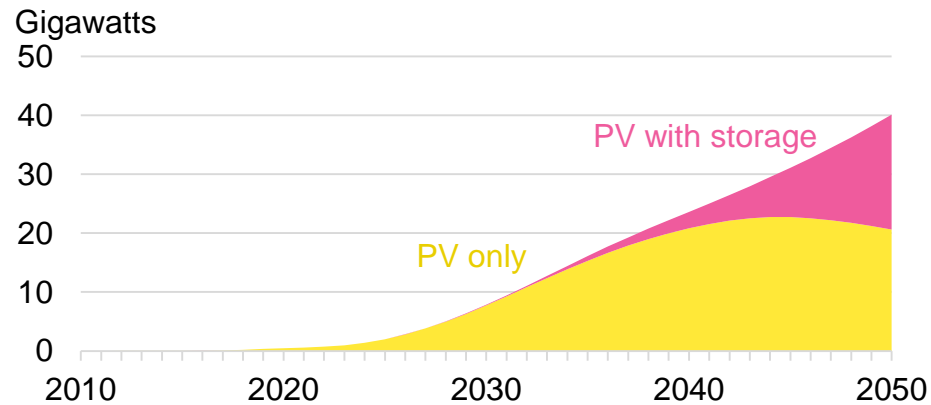


Source: Bloomberg New Energy Finance (September 2021)

- Commercial sized rooftop solar (15-100kW) and storage is a smaller market than residential and industrial.
- Solar uptake likely to increase first, before the economics of solar with storage become more appealing. Tipping points likely accelerated given rise in evening peak prices.

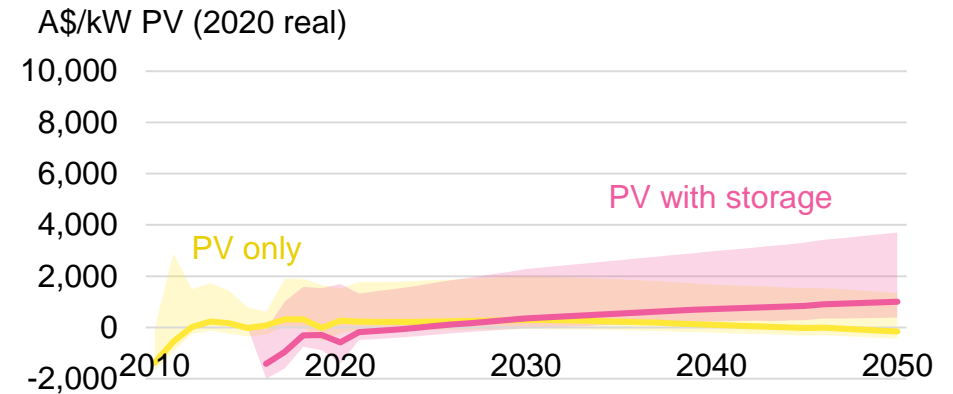
Behind-the-meter economics – Industrial

Industrial capacity additions – PV only and PV with storage



Source: Bloomberg New Energy Finance (September 2021)

Industrial payback periods



Source: Bloomberg New Energy Finance (September 2021)

- NPVs for industrial users (300-600kW) are particularly low given limits on exports (10kW threshold before permission is needed) and a lower realised power price compared to other user sectors.
- NPVs have likely improved given developments in the NEM over the last few months

Professional Investors Disclaimer

For information on relevant disclosures regarding the substantial shareholdings, recent deal roles or beneficial interests of the Commonwealth Bank of Australia ABN 48 123 123 124 AFSL 234945 (Bank), please access the [Disclosures tab](#) within the Global Economic & Markets Research (GEMR) Portal.

IMPORTANT INFORMATION AND DISCLAIMER FOR ALL INVESTORS

GEMR has prepared this report. GEMR is a business unit of the Bank. References to the “Group” are to the Bank and its subsidiaries (including Commonwealth Securities Limited ABN 60 067 254 300 AFSL 238814, Commonwealth Australia Securities LLC and CBA Europe Ltd) and includes the directors, employees and representatives of the Bank and its subsidiaries.

The information contained in this report is made available only for persons who are sophisticated or professional investors and should not to be construed as providing investment advice. Reliance should not be placed on the information contained in this report to make an investment decision.

This report is published solely for informational purposes and is not to be construed as an act of solicitation, or an offer, to buy or sell any securities or other financial instruments. The information in this report does not constitute a personal recommendation, nor does it take into account your particular investment objectives, financial situations, or needs. You should consider whether any advice or recommendation in this report is suitable for your particular circumstances, and if appropriate, seek professional advice, including independent financial, tax and legal advice.

The Bank believes that the information contained in this report is correct and any opinions, conclusions or recommendations made are reasonably held, and are based on the information available at the time of its compilation. The Bank does not make, nor provide, any representation or warranty, either expressed or implied, as to the accuracy, reliability or completeness of any statement made in this report. Any opinions, conclusions or recommendations made by the Bank are subject to change without notice and may differ, or be contrary, to the opinions, conclusions or recommendations expressed by other business units within the Group. The Bank is under no obligation to update, or keep current, the information in this report.

Liability Disclaimer

The Group does not accept any liability for any loss or damage arising out of the use of all, or any part, of this report.

Forward-Looking Statements, Valuations, Projections and Forecasts

Any valuations, projections and/or forecasts contained in this report are based on a number of assumptions and estimates that are subject to contingencies and uncertainties. The inclusion of any such valuations, projections and/or forecasts in this report should not be regarded as a representation or warranty by, or on behalf of, the Group or any person or entity within the Group that such valuations, projections and forecasts, or their underlying assumptions and estimates, will be met or realised. Past performance is not a reliable indicator of future performance.

Financial Markets Product Risk

Foreign currency rates of exchange may adversely affect the value, price or income of any security or other financial instrument mentioned in this report. In addition, investors in securities whose values are influenced by the currency of the underlying security, effectively assume currency risk.

Financial markets products have an element of risk. The level of risk is dependent on the product's specific attributes and how it is used. Potential investors should note that the financial product/s discussed in this report may be sophisticated financial products that involves dealing in derivatives. The Bank will enter into transactions on the understanding that the customer has:

- i. Made their own independent decision to enter into the transaction;
- ii. Determined that the transaction is appropriate;
- iii. Ensured they have the knowledge to evaluate and capacity to accept the terms, conditions and risks; and
- iv. Is not relying on any communication (including this report) from the Bank as advice.

Foreign exchange market pricing ranges in the Bank's GEMR reports are indicative ranges only and not a guarantee of actual foreign exchange prices being executed by the Bank.

Data of the Bank

Any reference made to the term 'CBA data' means the proprietary data of the Bank that is sourced from the Bank's internal systems and may include, but is not limited to, credit card transaction data, merchant facility transaction data and applications for credit. The Bank takes reasonable steps to ensure that its proprietary data is accurate and any opinions, conclusions or recommendations made in reliance of its data are reasonably held, or are made, as at the time of compilation of this report.

The statistics contained in this report only take into account CBA data. The Bank makes no representation or warranty as to the completeness of the data as it may not reflect all trends in the market.

All customer data used, or represented, in this report is anonymised and aggregated before analysis and is used, and disclosed, in accordance with the [Group's Privacy Policy](#).

Analyst Certification and Disclaimer

Each GEMR Analyst primarily responsible for the content of this report, in whole or in part, confirms that with respect to each security or issuer that the GEMR Analyst covered in this report:

- i. All of the views expressed accurately reflect his/her personal views about those securities or issuers; and
- ii. No part of his/her compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that GEMR Analyst in the report.

Each GEMR Analyst responsible for the preparation of this report may interact with trading desk personnel, sales personnel and other constituents for the purpose of gathering, synthesizing, and interpreting market information to form an independent view. Each GEMR Analyst responsible for the preparation of this report may not hold, or trade in, securities that are the subject of this report or where they have offered a recommendation. Each GEMR Analyst must disclose, and receive approval, for all outside business interests from Compliance and the Head of GEMR prior to commencing the activity or within a week of joining the Group. The compensation of each GEMR Analyst involved in the preparation of this report is determined exclusively by GEMR management.

Conflicts of Interest

The Group may from time to time, have long or short positions in, and buy or sell, securities or derivatives that are referred to in this report. The Group may also engage in transactions in a manner that is inconsistent with recommendations, if any, contained in this report.

Relevant disclosures relating to the Bank's relevant holdings, positions and roles may be accessed on the [GEMR Website](#).

Directors or employees of the Group may serve, or may have served, as officers or directors of any company mentioned within this report.

Fees

Unless otherwise required and agreed to separately, we do not charge any fees for any information provided in this report. You may be charged fees in relation to the financial products or services the Bank provides. These fees are set out in the relevant Financial Services Guide (FSG), relevant Product Disclosure Statements (PDS), relevant Terms & Conditions, and/or relevant contract.

Employees of the Bank's GEMR team receive a salary but do not receive any commissions or fees. However, employees of the GEMR team may be eligible for a bonus payment from the Bank. The payment made to employees of the GEMR team is based on a number of factors relating to their overall performance during the year, which includes how well they meet client service standards. Employees of the GEMR team may also receive benefits from clients, which may include but is not limited to tickets to sporting and cultural events, corporate promotional merchandise and other similar benefits.

Complaints

If you have a complaint, the Bank's dispute resolution process can be accessed in Australia on 13 22 21 or internationally on +61 2 9841 7000.

ADDITIONAL INFORMATION FOR CLIENTS INSIDE AUSTRALIA

This report is made available for informational purposes only. It is not a prospectus or other disclosure document (as defined in the Corporations Act 2001 (Cth), Australia (**Corporations Act**)) that has been, or will be filed, with the Australian Securities & Investments Commission. This report is only made available for persons who are sophisticated investors or professional investors (as those terms are defined by section 708(8) or (10) and (11) of the Corporations Act or who otherwise is not a retail investor (as defined in sections 761G and 761GA of the Corporations Act).

ADDITIONAL INFORMATION FOR CLIENTS OUTSIDE OF AUSTRALIA

This report is not directed to, nor is intended for distribution to or use by, any person or entity, who is a citizen or resident of, or located in, any locality, state, country or jurisdiction where such distribution, publication availability or use would be contrary to any applicable law/s or regulation/s or would subject any entity within the Group to any registration or licencing requirement within such jurisdiction.

Canadian Investors

The information contained herein is not, and under no circumstances is to be construed as, a prospectus, an advertisement, a public offering, an offer to sell securities described herein, or solicitation of an offer to buy securities described herein, in Canada or any province or territory thereof.

In Canada, the information contained herein is intended solely for distribution to **Permitted Clients** (as such term is defined in National Instrument 31-103) with whom Commonwealth Australia Securities LLC (**the US Broker-Dealer**), a broker-dealer registered with the US Securities and Exchange Commission and a member of the Financial Industry Regulatory Authority (FINRA) (CRD# 136321), deals pursuant to the international dealer exemption. To the extent that the information contained herein references securities of an issuer incorporated, formed or created under the laws of Canada or a province or territory of Canada, any trades in such securities may not be conducted through the US Broker-Dealer.

[Notice of Negative Consent to counterparties that are Permitted Clients to receive Fixed Income Research](#)

Counterparties that are Permitted Clients but are not registered under the securities legislation of a jurisdiction in Canada as an advisor or dealer, must acknowledge:

- i. The US Broker–Dealer is not registered in the local jurisdiction of the counterparty;
- ii. The US Broker–Dealer is a US Broker–Dealer registered with the US Securities and Exchange Commission;
- iii. Substantially all of the assets of the US Broker–Dealer are outside of Canada; and
- iv. There may be difficulty enforcing legal rights against the US Broker–Dealer because of the above.

European Investors

This report is made available in the United Kingdom and Europe only for persons who are Eligible Counterparties or Professional Clients, and not Retail Clients as defined by the Financial Conduct Authority (FCA) rules and by MiFID II (Directive 2014/65/EU). The Bank is registered in England (No. BR250 and FRN 139185) and is authorised by the Prudential Regulatory Authority and is subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of the Bank’s regulation by the Regulation Authority are available from the Bank on request. CBA Europe Ltd is registered in England (No. 05687023 and FRN 454330) and is authorised and regulated by the Financial Conduct Authority.

Under MiFID II and FCA rules, the Bank may be required to charge fees for the information provided in this report.

Hong Kong Investors

The contents of this report have not been reviewed by any regulatory authority in Hong Kong. This report has been approved for distribution in Hong Kong by the Bank, Hong Kong branch office, which is a registered institution with the Hong Kong Monetary Authority to carry out Type 1 (Dealing in securities) and Type 4 (Advising on securities) regulated activities under the Securities & Futures Ordinance.

You are advised to exercise caution in relation to the report. If you are in any doubt about any of the contents of this report, you should obtain independent professional advice. This report is only being made available to persons who are:

- i. Professional Investors as defined in the Securities and Futures Ordinance (cap 571) of Hong Kong; or
- ii. To whom an offer of securities may be made in Hong Kong without the need for a prospectus under section 2 and the Seventeenth Schedule of the Companies Ordinance (Cap. 32 of the Laws of Hong Kong) (**Companies Ordinance**) pursuant to the exemptions for offers in respect of which the minimum consideration payable by any person is not less than HK\$500,000 or its equivalent in another currency.

Under no circumstances is this report, nor any part of it, to be construed as, a prospectus (as defined in the Companies Ordinance) or an advertisement of securities in Hong Kong. The securities referred to in the report have not been, nor will they be, qualified for sale to the public under applicable Hong Kong securities laws except on a basis that is exempt from the prospectus requirements of those securities laws.

Japanese Investors

This report is made available only for institutional customers. The Bank, Tokyo Branch is a licensed banking business authorised by the Japan Financial Services Agency.

Korean Investors

The Bank is not licensed to engage in a financial investment business in Korea and nothing in this report shall constitute a recommendation of, offer to sell or marketing of any financial investment product in Korea and is only provided to the addressee at its request.

Malaysian Investors

This report is intended only for the addressee and is provided to the addressee at its request. This report is not to be distributed or circulated to the public nor should copies of this report be made or distributed or circulated, nor should information in this report be used in any way or quoted or published in any publication or in the media. The information contained in this report should not be considered as constituting investment advice or a proposal to make available, or to offer for subscription or purchase, or an invitation to apply or subscribe for or purchase any security or enter into any derivative described herein. The addressee must inform themselves about, seek appropriate advice regarding, and observe any restrictions or prohibitions imposed under the relevant laws of Malaysia.

New Zealand Investors

The information contained in this report is made available in New Zealand only for persons who are wholesale investors as defined in the Financial Markets Conduct Act 2013 (New Zealand).

People's Republic of China Investors

This report is not an offer to buy or sell financial products or services, nor the solicitation of any offer to buy or sell financial products or services. The financial products referenced in this material may not be offered or sold to any person in the People's Republic of China (**PRC**), excluding the Hong Kong Special Administrative Region, Macau Special Administrative Region and Taiwan to whom it is unlawful to make the offer or solicitation. Such products are not and will not be registered with, authorised by, nor approved by any PRC authorities. It shall be the sole responsibility of the recipient of this report to verify his/her eligibility to get access to this report, to purchase any financial products, to obtain any required approval, quota and/or registration and to comply with all applicable regulatory requirements under all applicable legal or regulatory regimes. This report is for the intended recipients only and may not be forwarded or presented to any other persons without the prior consent of the Bank.

Singaporean Investors

The Bank's, Singapore Branch is established in Singapore as a branch of the Australian incorporated legal entity, and operates as a Wholesale Bank with a Banking Licence under the Banking Act, issued by the Monetary Authority of Singapore. The information in any Communication is made available only to persons who are Accredited Investors, Institutional Investors or Expert Investors as defined in the Securities and Futures Act (Singapore), and has not been prepared for, and must not be distributed to or replicated in any form to, anyone who is not an Accredited Investor, Institutional Investor or Expert Investor. If you are an Accredited Investor or Expert Investor as defined in Regulation 2(1) of the Financial Advisers Regulations (**FAR**), the Bank is obliged to disclose to you that in the provision of any financial advisory services to you, it is exempted under Regulations 28, 34 and 35 of the FAR from complying with the business conduct provisions of 26 (False and misleading statement by licensed financial advisers), 27 (Recommendations by licensed financial advisers), 29 (Obligations to furnish information to the Authority) and 36 (Licensed financial adviser to disclose certain interests in specified products) of the Financial Advisers Act.

Taiwanese Investors

The Bank is not licensed to engage in a security or financial services business in Taiwan and nothing in this report shall constitute a recommendation of, offer to sell or marketing of any investment product within Taiwan.

Thailand Investors

This report is only available to institutional investors.

US Investors

This report is made available for informational purposes only. The products described herein are not available to retail investors. General macro research may be distributed in the United States by the Bank's New York Branch. The information contained herein is not intended to be an exhaustive discussion of the strategies or concepts mentioned herein or tax or legal advice. Investments and strategies are discussed in this report only in general terms and not with respect to any particular security, derivative or transaction, and any specific investments may entail significant risks including exchange rate risk, interest rate risk, credit risk and prepayment risk among others. There also may be risks relating to lack of liquidity, volatility of returns and lack of certain valuation and pricing information. International investing entails risks that may be presented by economic uncertainties of foreign countries as well as the risk of currency fluctuations. Investors interested in the strategies or concepts described in this report should consult their tax, legal or other adviser, as appropriate.

In the United States, securities products and services are provided solely by or through the US Broker-Dealer a broker-dealer registered with the US Securities and Exchange Commission and a member of FINRA. The US Broker-Dealer is a wholly-owned, but non-guaranteed, subsidiary of the Bank. The US Broker-Dealer does not make markets or otherwise engage in any trading in the securities of the subject companies described in our reports. In the United States, research covering debt securities is only made available to persons who qualify as Qualified Institutional Buyers as defined under Rule 144A of the US Securities Act of 1933, as amended (the **Act**) and otherwise abide by the terms of the Notice of Negative Consent below.

[Notice of Negative Consent to Qualified Institutional Buyer to Receive Institutional Debt Research](#)

FINRA adopted Rule 2242, "Debt Research Analysts and Debt Research Reports," to address conflicts of interest relating to the publication and distribution of debt research reports. Rule 2242(j) exempts debt research distributed solely to eligible institutional investors (**Institutional Debt Research**) from most of the Rule's provisions regarding supervision, coverage determinations, budget and compensation determinations and all of the disclosure requirements applicable to debt research reports distributed to retail investors.

This notice serves to inform you of the US Broker-Dealer's intent to distribute Institutional Debt Research to you while relying on the exemption provided under FINRA Rule 2242. You have separately certified that:

- i. You are, or you are authorized to act on behalf of, a Qualified Institutional Buyer (as defined under Rule 144A of the Act).
- ii. You:
 - (1) are capable of evaluating investment risks independently, both in general and with regard to particular transactions and investment strategies involving a security or securities (including a debt security or debt securities); and
 - (2) are exercising independent judgment in evaluating the recommendations of the US Broker-Dealer pursuant to FINRA Rule 2111.
- i. You agree to promptly advise the US Broker-Dealer if any of the representations or warranties referred to in this notice ceases to be true. Based on the aforementioned certifications by you, the US Broker-Dealer is permitted to provide Institutional Debt Research to you under the exemptions provided by FINRA 2242(j). Unless notified by you in writing to the contrary prior to your receipt of our Institutional Debt Research, the Bank will consider you to have given your consent to the receipt of such Institutional Debt Research.

The Bank is a swap dealer provisionally registered with the US Commodity Futures Trading Commission and is a member of the National Futures Association in such capacity (NFA ID 0249150). In the United States, swaps, and products and strategies involving swaps are not suitable for investment by counterparties that are not "eligible contract participants" (as defined in the US Commodity Exchange Act (CEA)) and the regulations adopted thereunder; or (ii) entities that have any investors who are not "eligible contract participants." Each hedge fund or other investment vehicle that purchases the products must be operated by a registered commodity pool operator as defined under the CEA and the regulations adopted thereunder or a person who has qualified as being exempt from such registration requirement.