FORSYTH BARR

NEW ZEALAND EQUITY RESEARCH

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Power Points
Volatile Start to 2021 — February 2021

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2021 has started with a bang with huge ETF induced share price movements, Rio Tinto (RIO) announcing NZAS will stay open for longer, the Climate Change Commission (CCC) releasing its draft report, a flurry of quarterly reports and hydro conditions starting to tighten. 2021 is set to be an eventful year, with ETF influence likely to continue and the CCC finalising its report in May 2021 before the politicians have their say at the end of the year. And who knows what will happen with hydrology. We continue to prefer Genesis Energy (GNE) as it offers good value, a good dividend yield and we believe its decarbonisation strategy will payoff in time. At the other end of the spectrum, Mercury (MCY) and Meridian (MEL) remain expensive.

Figure 1. Summary company valuation metrics

					FY21			
Company	Price	Target price	Target return	Rating	EV/EBITDA	PE	Gross Yld	EBITDAF
CEN	$8.28	$9.10	14.3%	NEUTRAL	15.3	24.5	5.5%	456
GNE	$3.87	$4.00	8.0%	OUTPERFORM	15.3	27.7	6.1%	408
MCY	$6.98	$6.00	-11.5%	UNDERPERFORM	19.8	32.8	3.4%	538
MEL	$6.96	$5.55	-17.8%	UNDERPERFORM	27.2	44.2	3.1%	714
TLT	$6.30	$5.00	-20.6%	NEUTRAL	32.3	46.1	0.0%	78
TPW	$8.85	n/a	n/a	RESTRICTED	18.0	33.6	5.3%	190

Source: IRESS, Forsyth Barr analysis

ETF flows cause huge share price volatility

MEL and MCY have long benefitted from being part of the MSCI, providing a steady demand for their shares. December and January saw the attention firmly switch to the iShares Global Clean Energy ETFs, of which MEL and Contact Energy (CEN) are members. January ended up being a volatile month for these stocks, rising +26% and +20% respectively early in the month, before ending January down -4% and -5%. Whilst the S&P Global Clean Energy Index appears likely to undergo changes in April 2021, we expect ETFs to continue to be a strong, volatile influence on the electricity stocks.

NZAS and CCC announcements generally positive for the sector

RIO and the CCC provided January's key announcements. NZAS staying open until at least 2024 provides near-term certainty and we expect CEN and MEL to shortly commit to building new generation. With NZAS a very profitable smelter (we estimate ~NZ$200m EBITDA less capex) we expect RIO will seek an extension to its contract. The CCC announcement confirmed that electricity is the fuel of choice to decarbonise the economy, which will support wholesale electricity prices, the sector's key value driver.

Wholesale market tightens, resulting in firming wholesale electricity prices

Wholesale electricity prices firmed in January due to a tightening hydro situation (January 2021 inflows were 74% of average) and the ongoing gas issues limiting backup thermal generation. The average Otahuhu (OTA) price was NZ$137/MWh, up +14% on December 2020. The NZAS decision and hydro situation has also seen a big increase in electricity futures prices. The short-dated OTA price increased +14% to NZ$159/MWh and the long-dated price increased +20% to NZ$122/MWh on December 2020. We expect these prices to benefit sector profitability in the medium-term, and they are also sending a strong signal that new generation is required. MEL is currently most exposed to a dry 2021 and MCY stands to benefit the most if North Island hydro conditions remain average.

Forsyth Barr Limited is Trustpower's Financial Advisor on the strategic review of its retail business and will receive fees in connection with this role.

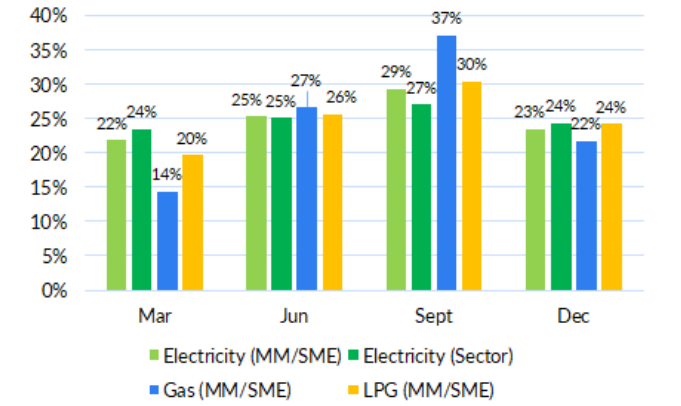
CCC report — generally positive for electricity, but more analysis is needed

The CCC report, released 31 January, contained generally positive news for the electricity sector as it reaffirmed that electricity is the low-carbon energy of choice going forward. Increased electricity demand will help ensure wholesale electricity prices (the key sector value driver) remain firm. The CCC estimates 2035 electricity demand will increase ~+27% (~+1.6% per annum) under its reference case. This is more aggressive than Transpower's assumed demand increase of ~+17% (~+1.0% per annum). Both forecasts assume NZAS closes.

Whilst the demand story is positive, there are several challenges for the sector as well. Noted below are our key take-outs (and questions):

- **CCC pushes for a 60% renewable energy target by 2035, not a 100% renewable electricity goal by 2030.** Whilst the CCC's statement will be welcomed by the sector, the current political policy of a 100% renewable electricity sector by 2030 was made after the Productivity Commission and Interim Climate Change Commission had made the same observations as the CCC. In pushing for a 60% renewable energy target, the CCC assumes gas-fired generation will continue to play an important role meeting peak electricity demand through to 2035 and beyond.
- **Banning new gas and LPG connections.** This recommendation is a double-edged sword for the sector. Whilst most of the retailers also sell gas and LPG, that will be offset by increased electricity demand. The generation side of the business benefits the most from increased electricity demand, hence, a ban on gas/LPG connections would be a net benefit. However, gas/LPG consumption is more weighted towards peak times than electricity as it is most commonly used for space heating/water heating and cooking. The implications are, switching households to electricity will increase peak electricity demand (think winter mornings and evenings), requiring more peak electricity generation and distribution/transmission investment. This marginal investment is expensive to build and it is unclear from the CCC report whether these costs have been factored into its analysis.

Figure 2. Energy seasonality



Source: Company reports, Forsyth Barr analysis

- **CCC assumes NZAS closes in 2026.** In our view this is not a forgone conclusion and we expect Rio Tinto to try to extend the life of the smelter beyond 2024 (refer below for more details why). If NZAS does close, it is helpful from an NZ emissions perspective, but in our view will be counter-productive in terms of reducing global emissions.
- One of the more interesting assumptions is that **high carbon emitting geothermal fields will have closed by 2030.** There are two high emitting fields, the CEN owned Ohaaki field and the Top Energy owned Ngawha field, the expansion of which started generating electricity in late 2020. It appears the CCC assumes these geothermal plants will close because carbon prices will be ~NZ$140/tonne by 2030 (there is no clear statement in its draft report). Our analysis suggests the carbon price would have to be materially higher — closer to NZ$200/tonne.
- The CCC report **recommends setting a date by which the Huntly Rankine Units can no longer operate on coal** and in its reference case assumes this will be 2030. We do not foresee any particular issue with this recommendation, as GNE is already working towards that goal.

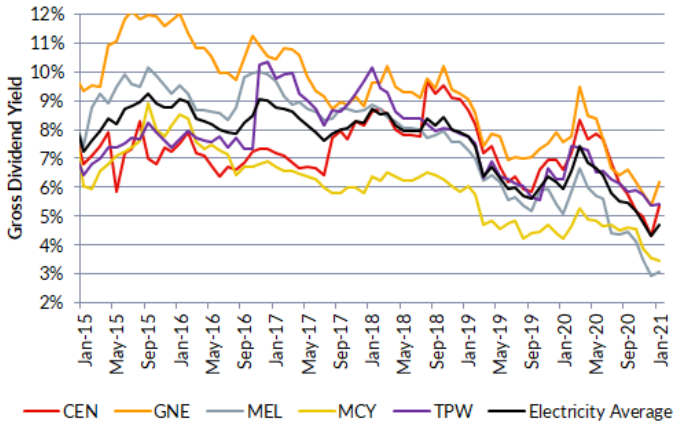
Dividend yields still suppressed

Electricity dividends were particularly volatile during January due to large share price movements and NZAS announcing it will stay open for longer, lifting our dividend forecasts for CEN and GNE in particular. At the end of January, the average electricity gross

dividend yield was 4.65%, up +0.34% on a month earlier. All of the electricity stock dividend yields remain close to all-time lows (although we note CEN and GNE have had a bounce).

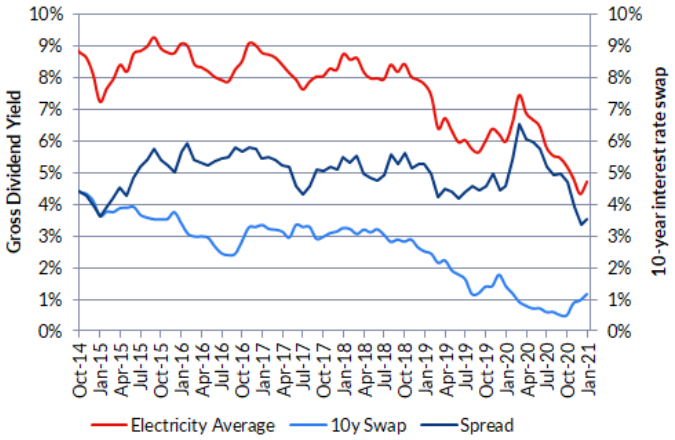
Relative to the 10-year swap rate, the spread has increased +0.18% over the past month to 3.53%, but that is still the second lowest on record by a significant margin. The swap-rate itself has continued to increase, lifting a further +0.20% in January to end the month at 1.17%.

Figure 3. Electricity sector yields



Source: Forsyth Barr analysis

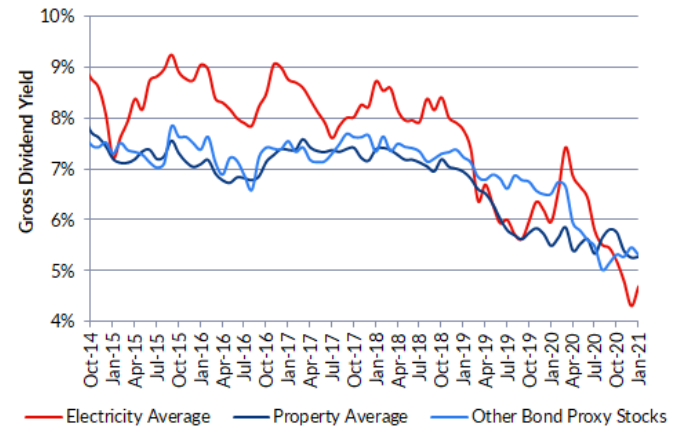
Figure 4. Electricity sector yield vs. 10 year swap rate



Source: Forsyth Barr analysis

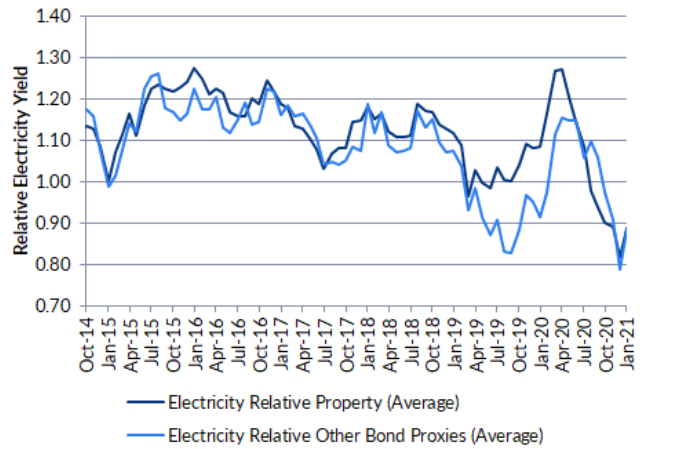
Relative to the property sector and other high quality high yield stocks, the electricity sector remains expensive. The average yield of property stocks and high quality yield stocks has not changed significantly, so the gap to electricity has closed, but not materially so.

Figure 5. Electricity yields vs. property and other bond proxies



Source: Forsyth Barr analysis

Figure 6. Relative yields

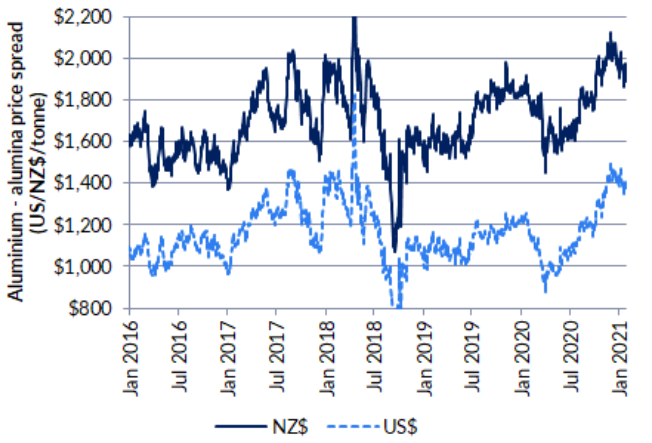


Source: Forsyth Barr analysis

NZAS new deal — now a very profitable smelter

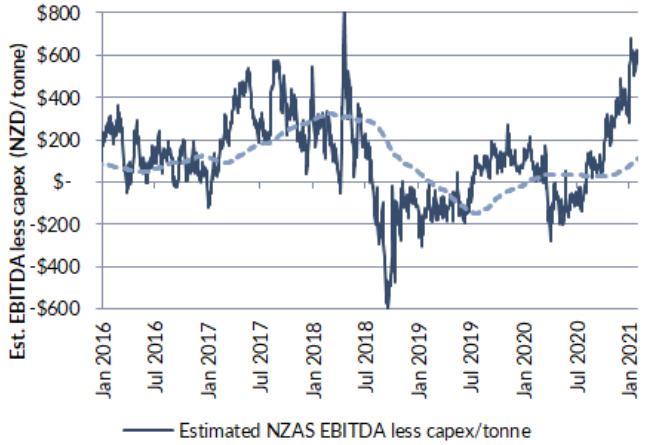
On 14 January, RioTinto (RIO) accepted MEL's electricity offer, which lifted NZAS's profitability ~NZ$300/tonne at the stroke of a pen. We estimate that under the new electricity contract, and at current aluminium & alumina prices, NZAS is making close to NZ$600/tonne (EBITDA less capex). On an annual basis, NZAS has increased EBITDA less capex ~+NZ$100m to ~NZ$200m. If the aluminium market holds up and a reasonable premium is placed on low carbon aluminium (which NZAS produces) NZAS will remain very profitable. We expect RIO will seek to extend its contract with MEL beyond 2024.

Figure 7. Aluminium/alumina spread



Source: Bloomberg, IRESS, Forsyth Barr analysis

Figure 8. Est. NZAS profitability (EBITDA less capex/tonne)



Source: Bloomberg, IRESS, Company reports, Forsyth Barr analysis

December 2020 quarter and 2020 in review

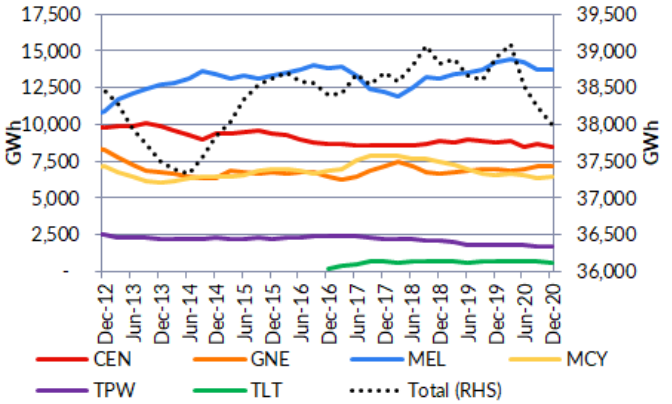
The key points from the December 2020 quarter:

- Generation volumes were -2% lower than the prior year, and the mix was remarkably similar with renewable generation 88% of total generation. CEN generation volumes were softer, down -9%, with MCY the only generator to increase volumes, up +4% vs. the December 2019 quarter.
- Wholesale electricity prices again averaged above NZ$100/MWh, with the average generation price NZ$107/MWh, +12% higher than the prior year. However, the December 2019 quarter was dominated by heavy lower South Island rain in November and December, suppressing prices slightly.
- Total retail sales volumes increased +2%, with commercial volumes up +5%. We suspect the commercial volume increase is due to businesses no longer wanting to be exposed to spot prices as opposed to underlying electricity demand growth. GNE, MEL and MCY were all very active in the commercial market, with CEN and TPW continuing to lose market share.
- Mass market volumes fell -1%, consistent with the big five retailers continuing to gradually cede market share to the Tier 2 retailers. MEL was the only retailer to lift market share, with sales volumes growing +12%, faster than connection growth of +6%, due mainly to strong irrigation demand. MEL is very close to overtaking MCY as the third largest mass market retailer (by connections).
- Fixed price variable volume prices continue to increase for all the retailers. However, a mix change in favour of commercial and lower lines charges means GNE is showing a modest decrease in retail prices. Whilst MCY has a similar mix change, its operating statistics exclude lines charges, meaning the mix change effect is muted (due to lines charges being a greater proportion of mass market prices).

Key points from 2020:

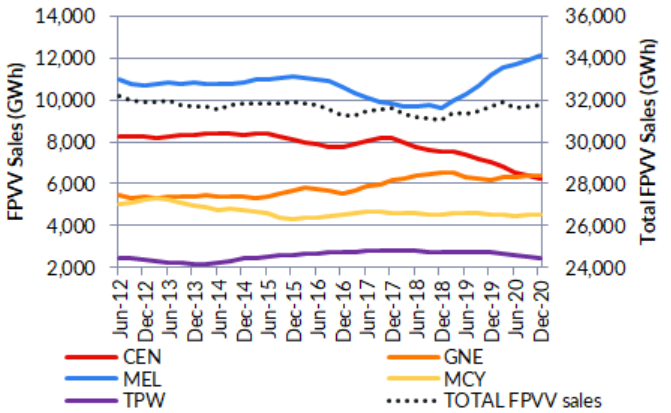
- Total generation in 2020 fell -2.3%, with COVID-19 related lockdowns impacting on electricity demand. Generation market share and the split between technologies was almost the same from 2019 to 2020. 84% of total generation was renewable, down from 85% in 2019.
- The average generation price received was NZ$107m, down -NZ$11/MWh.
- 2020 total fixed price sales volumes for the big five retailers was flat at 31.8TWh. However, CEN and TPW both saw sales volumes fall -11% (due mainly to lower commercial sales), with GNE and MEL increasing sales volumes +4% and +8% respectively.

Figure 9. Rolling 12 month generation



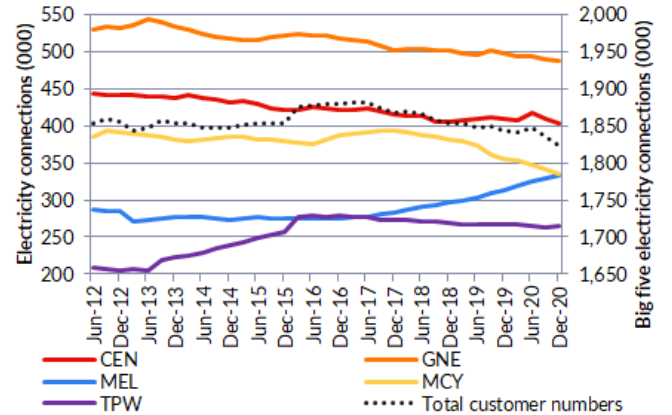
Source: Company reports, Forsyth Barr analysis

Figure 10. FPVV Sales



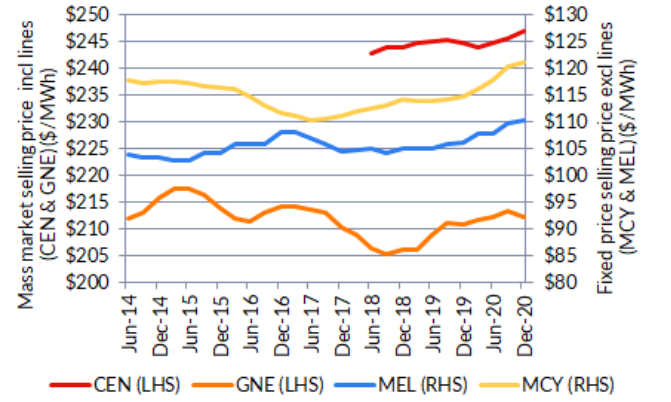
Source: Company reports, Forsyth Barr analysis

Figure 11. Electricity connections



Source: Company reports, Forsyth Barr analysis

Figure 12. FPVV sales price



Source: Company reports, Forsyth Barr analysis

Figure 13. December quarterly stats summary

	Quarter ending Dec-19						Quarter ending Dec-20						% Change					
	CEN	GNE	MEL	MCY	TPW *	Total	CEN	GNE	MEL	MCY	TPW *	Total	CEN	GNE	MEL	MCY	TPW *	Total
Generation (GWh)																		
Hydro	1,064	693	3,176	928	482	**6,343**	953	674	3,154	930	449	**6,160**	-10%	-3%	-1%	0%	-7%	-3%
Geothermal	795			648		**1,443**	726			707		**1,433**	-9%			9%		-1%
Wind		7	401		183	**591**		5	378		193	**576**		-29%	-6%		5%	-3%
Total renewable	*1,859*	*700*	*3,577*	*1,576*	*665*	**8,377**	*1,679*	*679*	*3,532*	*1,637*	*642*	**8,169**	*-10%*	*-3%*	*-1%*	*4%*	*-3%*	*-2%*
Thermal generation	156	994				**1,150**	162	1,003				**1,165**	4%	1%				1%
Total generation	**2,015**	**1,694**	**3,577**	**1,576**	**665**	**9,527**	**1,841**	**1,682**	**3,532**	**1,637**	**642**	**9,334**	**-9%**	**-1%**	**-1%**	**4%**	**-3%**	**-2%**
% Renewable	92%	41%	100%	100%	100%	**88%**	91%	40%	100%	100%	100%	**88%**	-1%	-2%	0%	0%	0%	0%
GWAP ($/MWh)	**94**	**108**	**87**	**104**	**103**	**96**	**103**	**116**	**101**	**114**	**112**	**107**	**10%**	**7%**	**16%**	**11%**	**9%**	**12%**
Electricity sales (GWh)																		
Mass market	802	948	1,111	663	421	3,945	749	914	1,248	606	402	3,919	-7%	-4%	12%	-9%	-5%	-1%
Commercial	599	507	738	339	223	2,406	520	597	854	433	125	2,529	-13%	18%	16%	28%	-44%	5%
Total FPVV sales	**1,401**	**1,455**	**1,849**	**1,002**	**644**	**6,351**	**1,269**	**1,511**	**2,102**	**1,039**	**527**	**6,448**	**-9%**	**4%**	**14%**	**4%**	**-18%**	**2%**
Gas sales (PJ)	0.69	1.73			0.20	**2.62**	0.65	1.70			0.18	**2.53**	-6%	-2%			-7%	-3%
LPG sales (000 tonnes)		10.35				**10.35**		10.04				**10.04**		-3%				-3%
Customers added (000)																		
Electricity	-1	-5	4	-5	0	**-6**	-7	-4	4	-6	1	**-11**						
Gas	-1	-1		0	0	**-1**	-1	0		-1	1	**0**						
LPG		1				**1**		2				**2**						
Customer numbers (000)																		
Electricity	410	497	314	356	266	**1,843**	404	487	333	336	264	**1,824**	-1%	-2%	6%	-6%	-1%	-1%
Gas	66	106		47	40	**258**	64	105		45	43	**257**	-2%	0%		-4%	8%	0%
LPG		71				**71**		77				**77**		8%				8%
MM volume/customer																		
Electricity (MWh/customer)	2.0	1.9	3.6	1.8	1.6	**2.1**	1.8	1.9	3.8	1.8	1.5	**2.1**	-6%	-1%	6%	-3%	-4%	0%
Gas (GJ/customer)	10.5	16.3			4.9	**10.1**	10.1	16.1			4.3	**9.8**	-4%	-1%			-12%	-3%
LPG (kg/customer)		146.1				**146.1**		132.1				**132.1**		-10%				-10%
FPVV prices ($/MWh)	246.4	204.9	100.8	112.6			252.2	200.1	104.5	117.2			2.4%	-2.3%	3.6%	4.1%		
LWAP ($/MWh)	**99.4**	**104.2**	**93.1**	**109.5**	**105.5**	**100.9**	**110.9**	**115.8**	**107.5**	**120.2**	**116.6**	**112.9**	**12%**	**11%**	**15%**	**10%**	**11%**	**12%**
LWAP/GWAP	**1.061**	**0.963**	**1.066**	**1.058**	**1.024**	**1.050**	**1.076**	**0.998**	**1.062**	**1.050**	**1.041**	**1.053**	**1%**	**4%**	**0%**	**-1%**	**2%**	**0%**

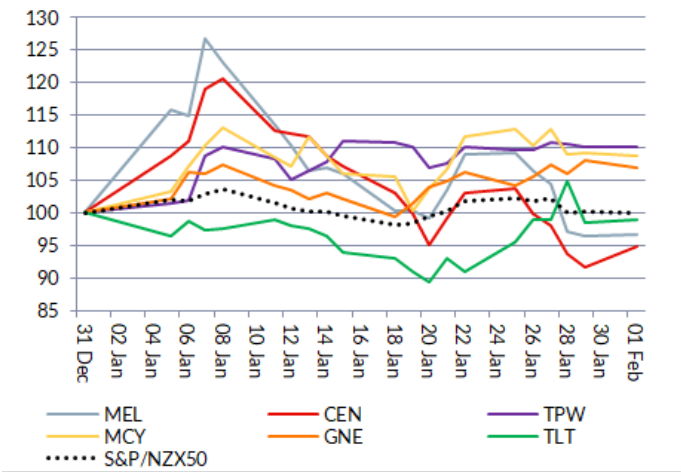
Source: Company reports, Forsyth Barr analysis

Note: TPW wind generation is Tilt Renewables generation

Share market performance: January 2021

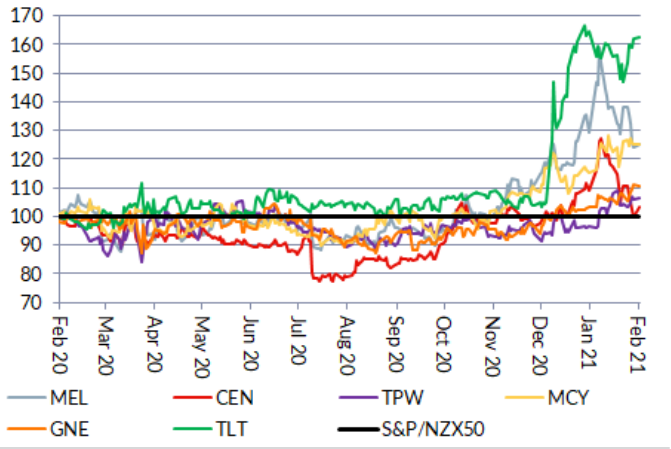
January 2021, much like December 2020, saw large share price movements in both CEN and MEL as a result of iShares Global Clean Energy ETF funds flow. After an early rally, MEL and CEN were the worst performers of the sector in January, down -3.2% and -5.2% respectively. TLT was the only other company to fall during the month, down -1.1% compared to the S&P/NZX50C which was flat. However, this comes after a strong December rally for TLT after Infratil (IFT) announced a strategic review of its 65% stake in the business. GNE, MCY and TPW all had strong share price performances, up +7%, +8.7% and +10.1% respectively.

Figure 14. Stock performance vs. S&P/NZX50C



Source: Thomson Reuters, Forsyth Barr analysis

Figure 15. 12 month performance relative to S&P/NZX50C



Source: Thomson Reuters, Forsyth Barr analysis

Market multiples and target returns

- Our electricity target prices are based on a combination of our DCF valuation (30%), market multiples (30%) and gross dividend yield (40%). We focus on year two earnings to avoid short-term hydrological conditions impacting the multiples. Our preferred stock is GNE (OUTPERFORM), whilst we rate TLT & CEN NEUTRAL and MEL & MCY UNDERPERFORM

Figure 16. EBITDAF multiples

			Target	Target		Mkt Cap	EBITDAF (x)		EBITDAF - capex (x)	
Company	Code	Price	Price	Return	Rating	$m	FY21	FY22	FY21	FY22
Contact Energy	CEN	$8.28	$9.10	14.3%	NEUTRAL	5,925	15.3	15.2	18.3	18.1
Genesis Energy (excl Kupe)	GNE	$3.89	$4.00	7.3%	OUTPERFORM	3,676	15.4	14.8	18.3	17.5
Mercury	MCY	$6.98	$6.00	-11.5%	UNDERPERFORM	9,499	19.8	18.7	23.0	21.5
Meridian Energy	MEL	$6.93	$5.55	-17.4%	UNDERPERFORM	17,749	27.1	26.1	29.6	28.4
Trustpower	TPW	$8.85	n/a	n/a	RESTRICTED	2,770	18.0	16.0	20.7	18.2
Sector average							**18.7**	**17.7**	**21.6**	**20.4**
Tilt Renewables	TLT	$6.30	$5.00	-20.6%	NEUTRAL	2,370	32.3	23.2	37.1	25.5
Genesis Energy (incl Kupe)	GNE	$3.87	$4.00	8.0%	OUTPERFORM	4,033	12.9	12.1	14.9	13.8

Source: IRESS, Forsyth Barr analysis

Figure 17. PE multiples and dividend yields

	PE (x)		Adjusted PE (x)		Cash Div Yield		Gross Div Yield		Free Cash Flow Yield	
Company	FY21	FY22	FY21	FY22	FY21	FY22	FY21	FY22	FY21	FY22
Contact Energy	52.5	46.7	24.6	24.6	4.3%	4.3%	5.5%	5.1%	3.5%	1.4%
Genesis Energy (excl Kupe)	87.1	59.0	27.9	24.1	3.4%	3.4%	4.6%	4.7%	0.9%	1.5%
Mercury	52.0	50.2	32.8	31.5	2.4%	2.7%	3.4%	3.6%	1.0%	2.3%
Meridian Energy	78.6	75.3	43.9	43.0	2.4%	2.5%	3.2%	3.2%	2.0%	1.5%
Trustpower	40.8	33.8	33.6	28.4	3.8%	3.8%	5.3%	5.3%	3.4%	3.5%
Sector average	**59.8**	**51.2**	**31.9**	**29.6**	**3.3%**	**3.3%**	**4.4%**	**4.4%**	**2.2%**	**2.0%**
Tilt Renewables	124.6	-688.6	46.1	40.3	0.0%	0.0%	0.0%	0.0%	1.4%	5.9%
Genesis Energy (incl Kupe)	51.1	38.4	20.9	17.9	4.5%	4.6%	6.1%	6.4%	5.4%	6.9%

Source: IRESS, Forsyth Barr analysis

Note: In calculating the GNE excl Kupe multiples, the value of Kupe is assumed to be $225m. Debt and interest has been apportioned 5% to Kupe and 95% to Energy (in line with EV proportion) and dividend in line with adjusted NPAT.

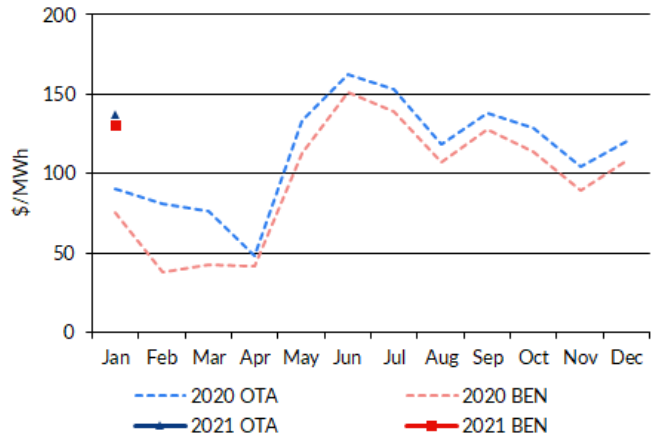
Wholesale electricity market: January 2021

Spot wholesale electricity prices and ASX futures

Wholesale prices increase

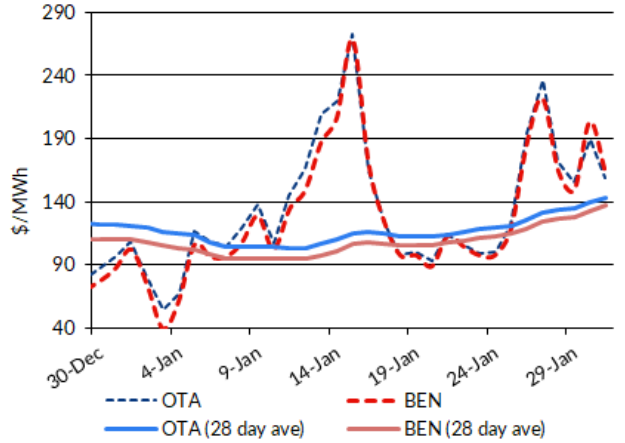
- Benmore (BEN) wholesale electricity prices averaged $131/MWh in January 2021, up +73% on the pcp and +22% on the prior month. Otahuhu (OTA) prices also increased, up +51% on the pcp and +14% on the prior month to average $137/MWh.
- The price gap between the North Island (OTA) and South Island (BEN) of $6/MWh is the lowest it has been since April 2020.
- Volatility in wholesale electricity prices increased in January, with daily OTA prices fluctuating between $54/MWh and $273/MWh, while BEN daily prices were between $40/MWh and $268/MWh throughout the month.

Figure 18. Average monthly wholesale electricity prices



Source: NZX Energy, Forsyth Barr analysis

Figure 19. Average daily wholesale electricity prices

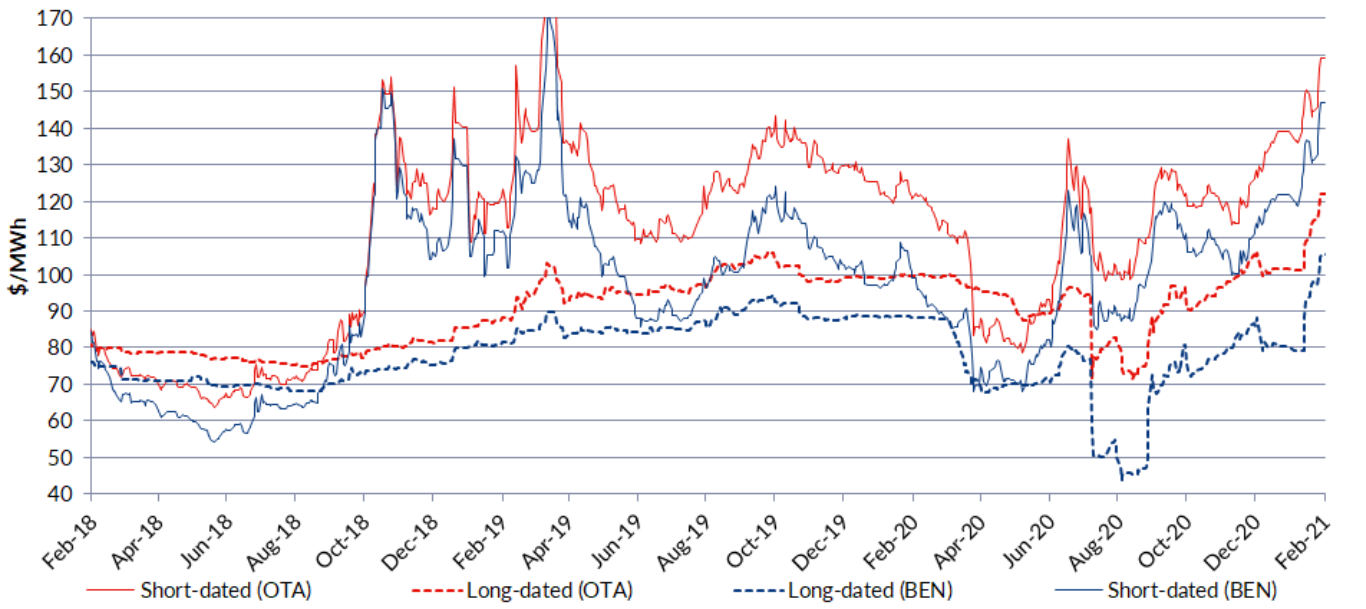


Source: NZX Energy, Forsyth Barr analysis

Futures up sharply in January

- Long dated BEN futures were up +31% following a sharp increase in the second half of the month, to set a new record of $105/MWh. Long-dated OTA futures also set a new record of $122/MWh in January.
- Short-dated BEN and OTA futures were up +21% and +14% to finish the month at $147/MWh and $159/MWh respectively.

Figure 20. ASX futures prices (last three years)



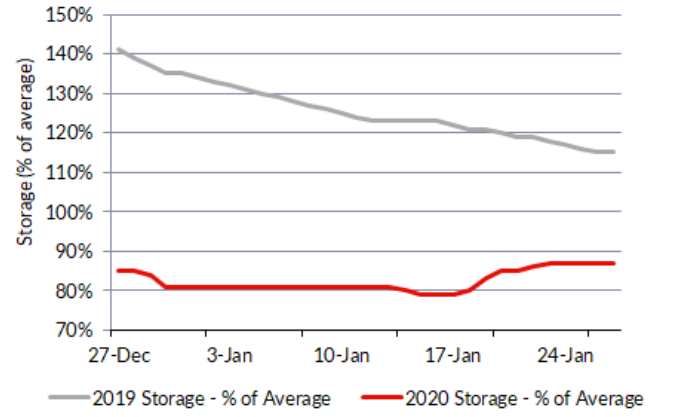
Source: Electricity Authority, Forsyth Barr analysis

Hydro storage volumes

Lack of rain causes storage volumes to fall

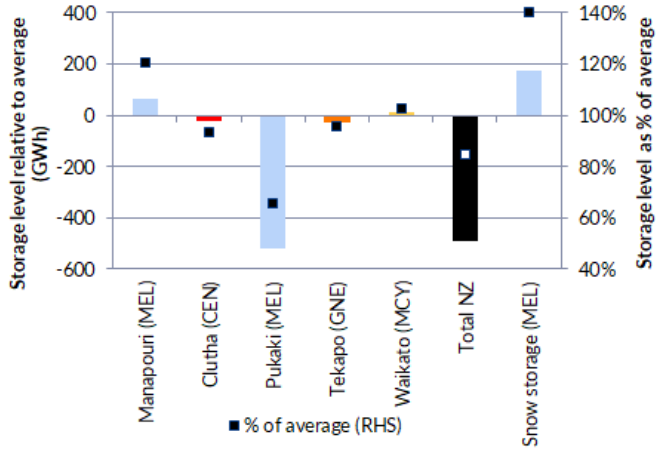
- Current national hydro storage is at ~85% of average, nearly 500GWh below normal. MEL's Lake Pukaki (New Zealand's largest storage lake) is the lowest at 66% of average, whilst MEL's Manapouri is the highest at 121%.
- MEL's estimate of its current snow storage is 600GWh, ~+174GWh above average for this time of year.

Figure 21. Average lake storage levels



Source: NZX Energy, Forsyth Barr analysis

Figure 22. Key storage lake levels relative to avg (as at 28 Jan)



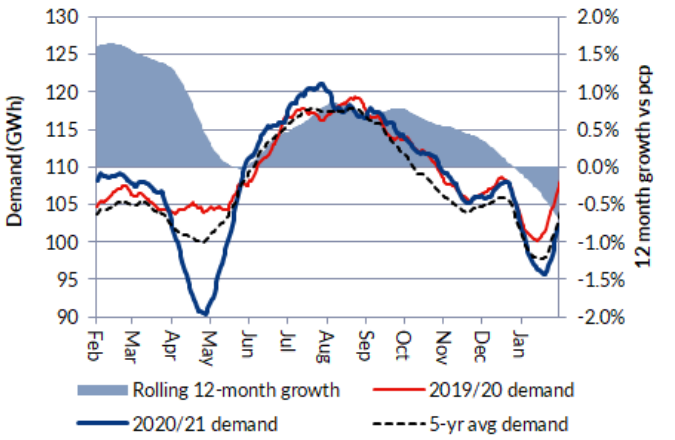
Source: EnergyLink, MEL, Forsyth Barr analysis

Demand and generation analysis

Demand down on prior year

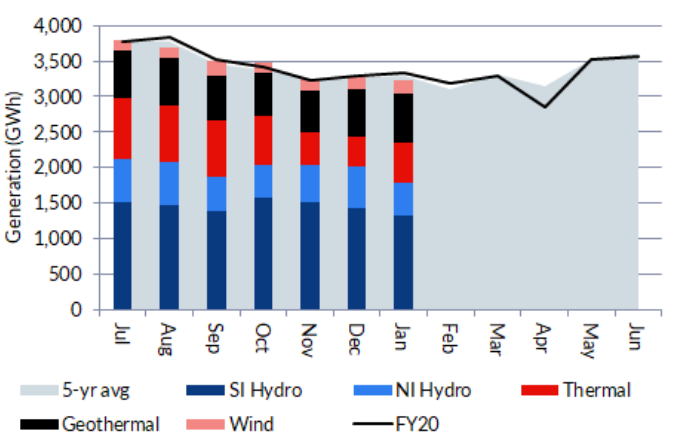
- New Zealand electricity demand averaged 100.8GWh/day in January, down -5.2% on the pcp despite temperatures being +3.3% warmer. This reduction in demand likely comes as a result of decreased irrigation. Tiwai demand was down -5.4% as Potline 4 remains suspended.
- New Zealand generation totalled 3,230GWh in January 2021. This is a decline of -3.3% on the pcp. Generation from North and South Island hydro as a percentage of total fell due to low hydro storage volumes, and as a result both geothermal and thermal generation market share increased. Top Energy's Ngawha geothermal plant came online in January, generating 19GWh.
- Renewable generation as percentage of total was 82%, down from 87% in December 2020.

Figure 23. Rolling 28-day avg demand & rolling 12-m growth



Source: NZX energy, Forsyth Barr analysis

Figure 24. NZ generation (by technology) — fiscal year to June



Source: NZX energy, Forsyth Barr analysis

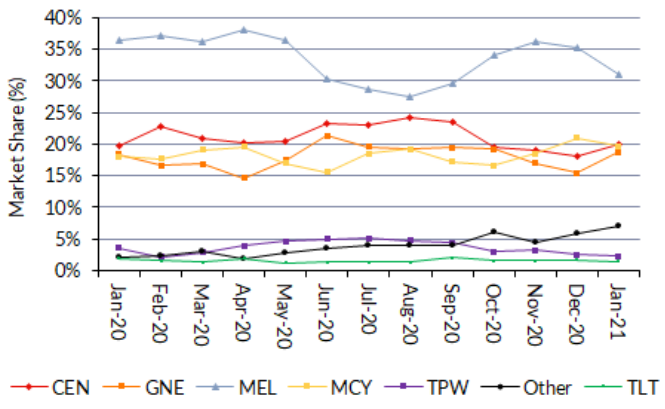
Generation market share — MEL down as a result of hydro conditions

- Low hydro storage conditions has led to MEL's generation market share falling -4.3% to 31.0%. GNE gained the most market share as a result of its thermal generation, gaining +3.2% market share to total 18.7%. CEN, MCY, TPW and TLT were 20.0%, 19.7%, 3.3% and 2.5% respectively.

CEN — Hydro generation resilient

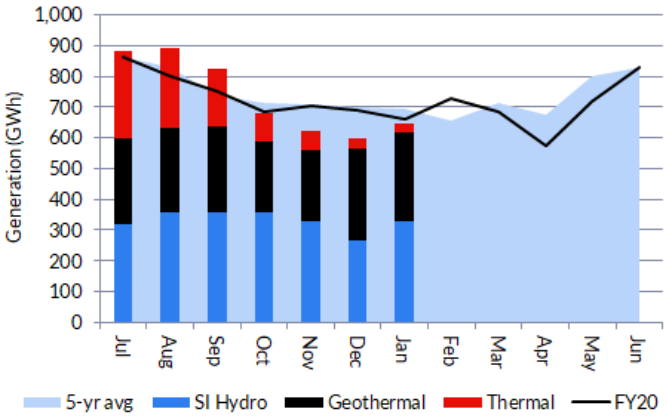
- Total CEN generation was down -7% on average as there was little thermal generation running (which will be in part due to the ongoing gas shortage). CEN hydro generation of 327GWh, was largely flat compared to average for January (-1.7%) and an increase on both the pcp and the prior month — this is a stark difference from MEL which saw a sharp decline in hydro generation.

Figure 25. Monthly generation market share



Source: EnergyLink, Forsyth Barr analysis

Figure 26. CEN monthly generation mix (current, pcp & 5y avg)



Source: EnergyLink, Forsyth Barr analysis

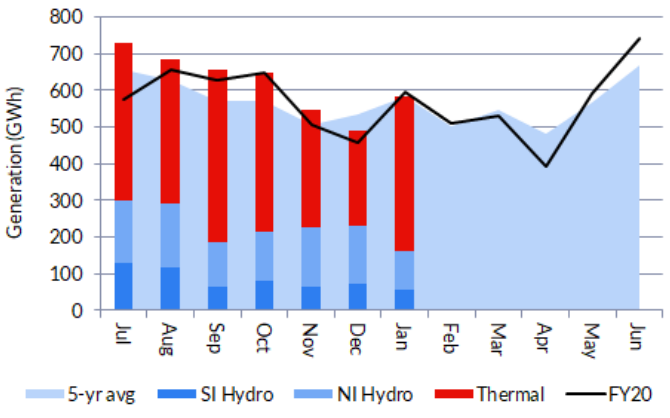
GNE — Thermal up to cover hydro generation decline

- GNE generation was close to average in January 2021, however, there was a strong mix change in favour of its thermal generation. GNE increased its thermal output by +14% to cover the reduced hydro generation. GNE ran the Huntly Rankine Units +53% harder than normal and +118% more than the prior month. GNE's North and South Island generation hydro fell by -32% and -23% on the pcp respectively.

MCY — Above average generation continues

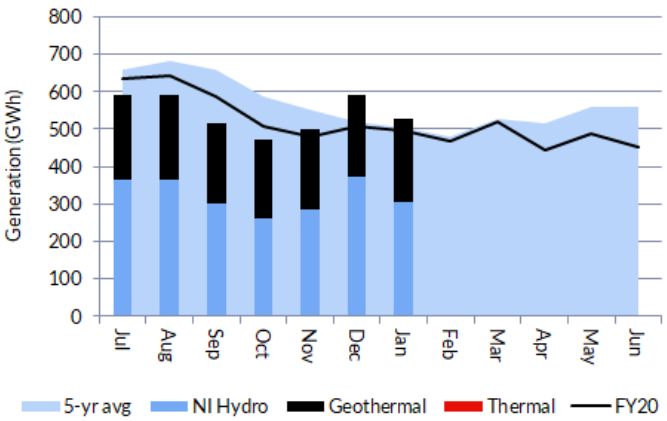
- MCY's January average daily generation of 17GWh was normal. MCY upgraded FY21 EBITDAF guidance +NZ$30m due to improved hydro earnings. MCY now expects a +200GWh increase in hydro generation for the year to total 3,900GWh.

Figure 27. GNE monthly generation mix (current, pcp & 5y avg)



Source: EnergyLink, Forsyth Barr analysis

Figure 28. MCY monthly generation mix (current, pcp & 5y avg)



Source: EnergyLink, Forsyth Barr analysis

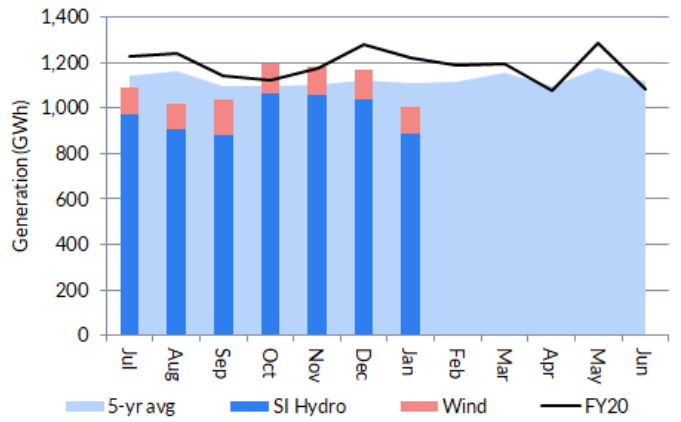
MEL — Hydro down as storage levels drop

- MEL generation of 1,002GWh in January was down -18% on the prior month and -14% below average. This decline was largely a result of tough hydro storage conditions leading to a sharp reduction in hydro generation of -16%. Waitaki generation had the largest decline down -25% on average.
- MEL's hydro storage has improved slightly in January, up from 65% in the middle of the month to 75% as at 28 January. This improvement came primarily from Manapouri which increased by +50% over a two week period at the end of January.

TPW — North Island hydro generation falls

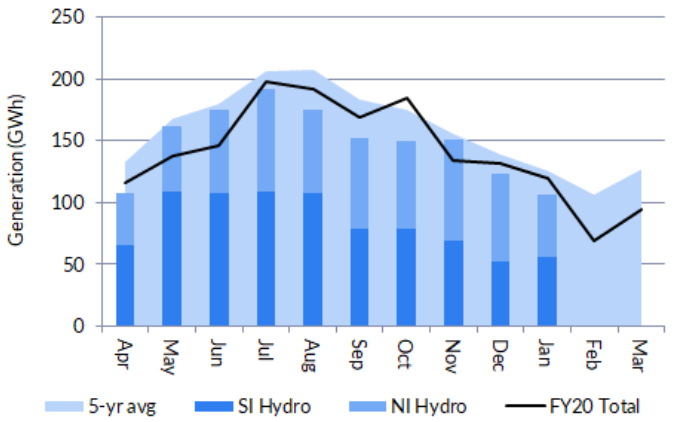
- We estimate that TPW generation was 106GWh in January, down -14% on December. Hydro generation was low due to an ongoing Waipori outage as well as reduced North island hydro generation volumes

Figure 29. MEL monthly generation mix (current, pcp & 5y avg)



Source: EnergyLink, Forsyth Barr analysis

Figure 30. TPW monthly generation mix (current, pcp & 5y avg)



Source: EnergyLink, Forsyth Barr analysis

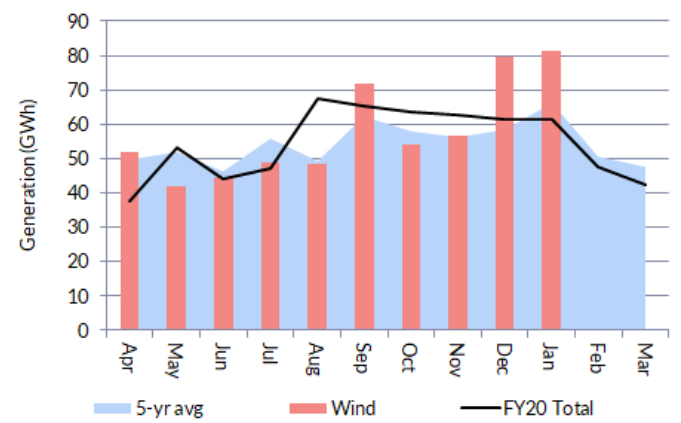
TLT — Waipipi online

- Our estimate of TLT's NZ generation is 81GWh in January 2021. TLT has experienced an increase in generation in the past three months as Waipipi has come online.

Generation prices — GWAPs up across the board

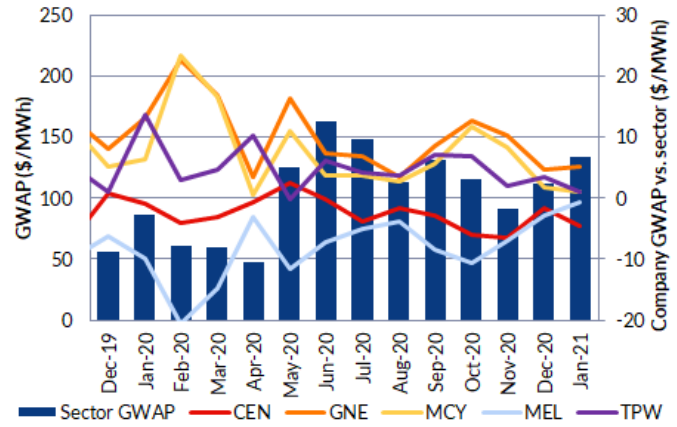
- The average generation weighted average price (GWAP) was $135/Wh in January, a +17% increase from December. GNE had the highest GWAP at $139/MWh, while CEN received the lowest GWAP over the month of $129/MWh. TPW, MEL and MCY received $135/MWh, $133/MWh and $135/MWh respectively.

Figure 31. TLT monthly generation mix (current, pcp & 5y avg)



Source: EnergyLink, Forsyth Barr analysis

Figure 32. Avg generation weighted average price (GWAP)



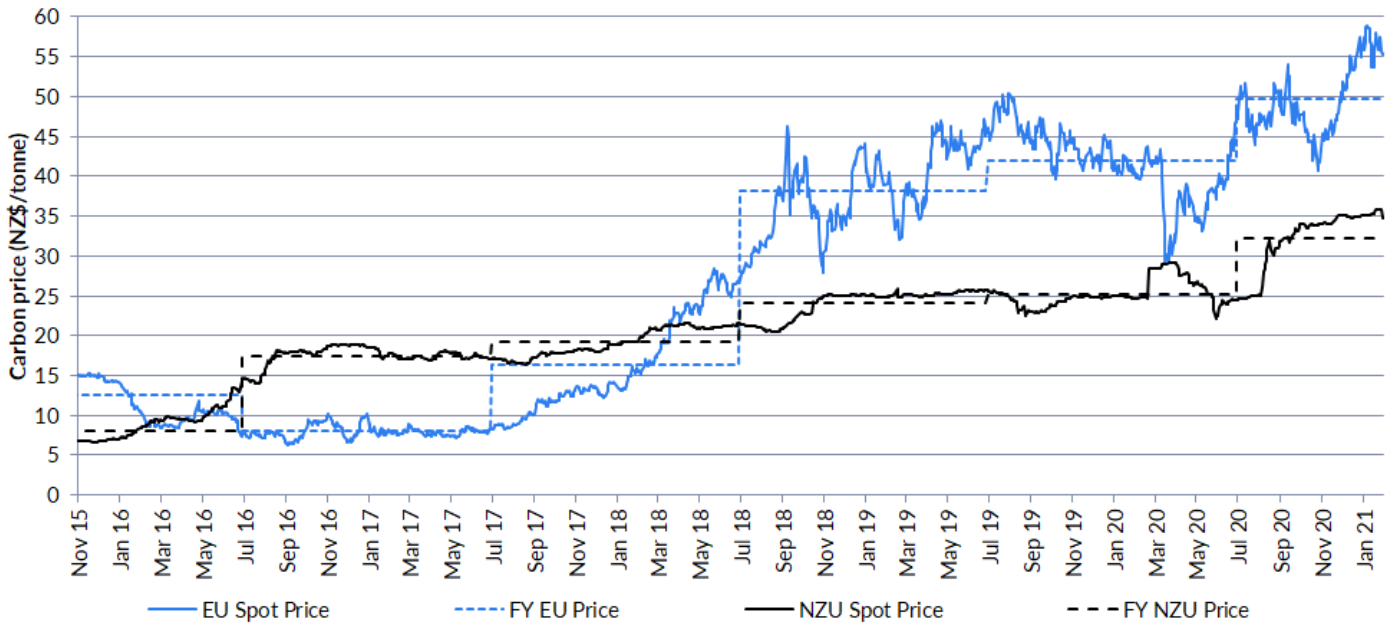
Source: EnergyLink, Forsyth Barr analysis

Carbon prices

NZ carbon prices — Unit prices continue to rise

- NZ carbon units ended January 2021 above $35/unit after reaching $35.8/unit multiple times in the month. This is the highest unit price recorded, and was above the new Fixed Price Option (FPO) of $35 that was raised from $25 in June 2020.
- EU carbon units were €33/unit (~NZ$55.7/unit) at the end of January, flat from the end of December 2020.

Figure 33. Price of carbon (NZ$/tonne)



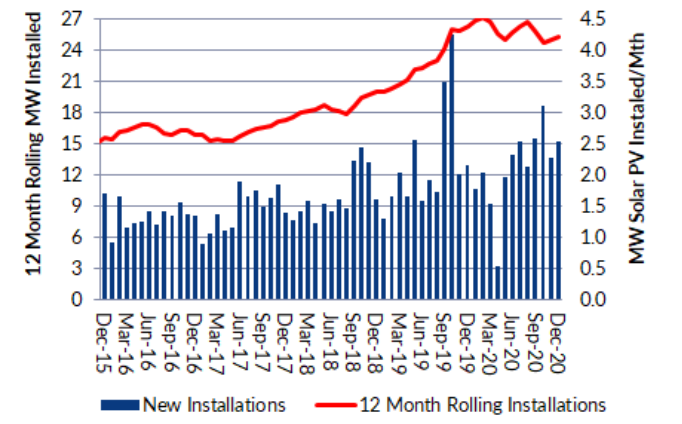
Source: Bloomberg, Forsyth Barr analysis

Solar PV installations

Rate of installation flat

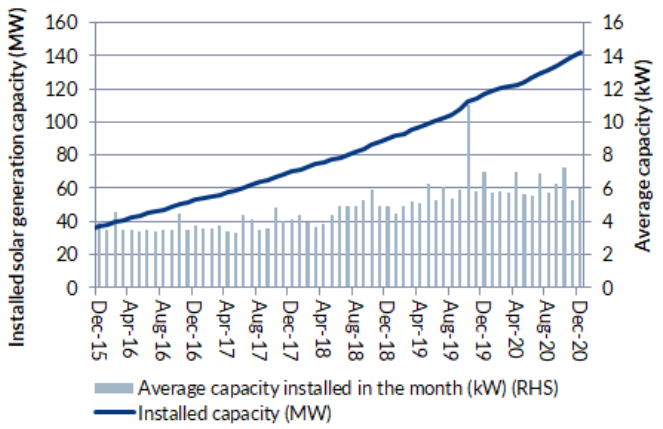
- There was 2.54MW of new solar capacity installed in December 2020, with 397 new connections. This is largely flat on the past 18 months as the rate of installation appears to have plateaued. Total installed capacity is now ~142MW with 30,441 solar ICPs.

Figure 34. Solar PV capacity installed



Source: Electricity Authority, Forsyth Barr analysis

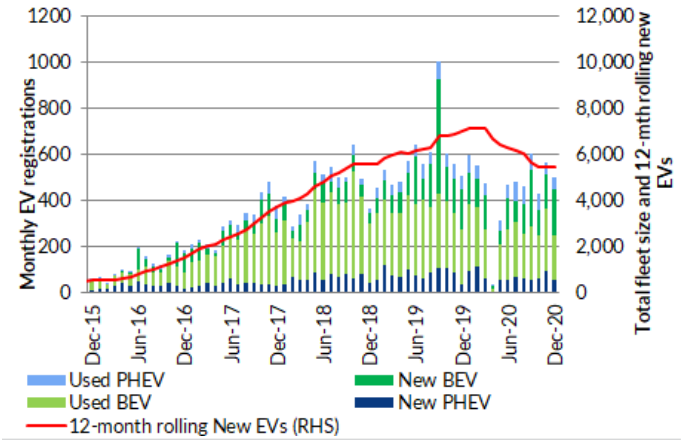
Figure 35. Average size of system and total capacity installed



Source: Electricity Authority, Forsyth Barr analysis

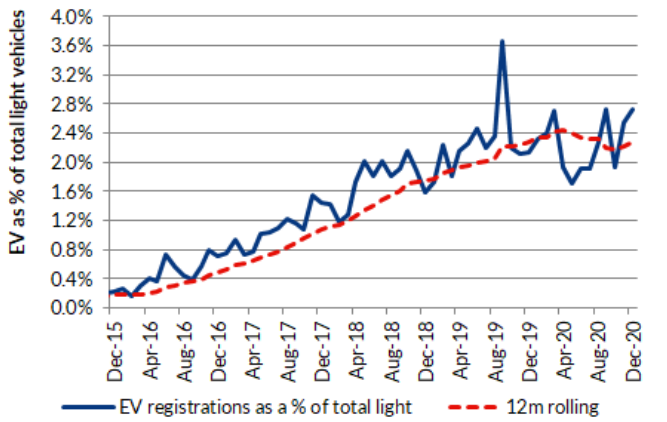
Electric vehicle (EV) registrations

Figure 36. EV registrations



Source: Ministry of Transport, Forsyth Barr analysis

Figure 37. EV registrations % of total light vehicle registrations

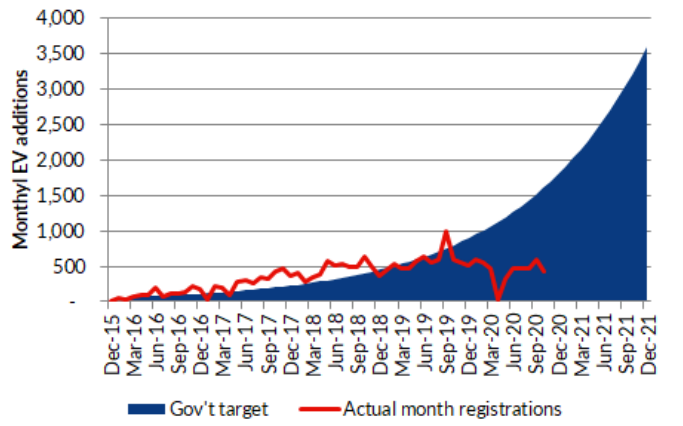


Source: Ministry of Transport, Forsyth Barr analysis

Proportion of new EV registrations increases

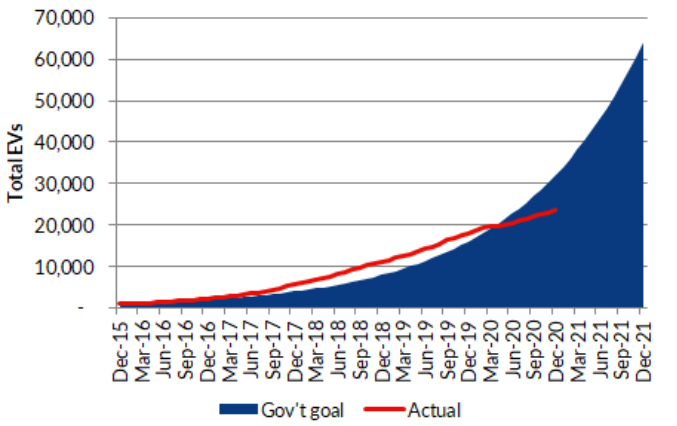
- The overall number of EVs registered per light vehicle registered (including used vehicles) was 2.7%, the highest percentage since September 2019. New EVs made up ~3.1% of total new light vehicles registered in January 2021, up from 2.0% in December 2020 and the highest level over the same period.
- There were 497 EVs registered in January 2021, of which 254 were new. The total number of EVs registered is 23,561, -8,439 below the government target number of EVs to have been registered by now. Monthly EV registrations have averaged ~500 per month since May 2018.
- On 28 January the Government released a clean fuel standard on imported vehicles which will be come in to effect next year but with penalties beginning in 2025 to give importers time to adjust.
- On 31 January the Climate Change Commission's (CCC) draft report recommended banning the import of petrol/diesel fuelled light vehicles,

Figure 38. Monthly EV registrations vs. govt target



Source: Ministry of Transport, Forsyth Barr analysis

Figure 39. Total EVs registered vs. govt target



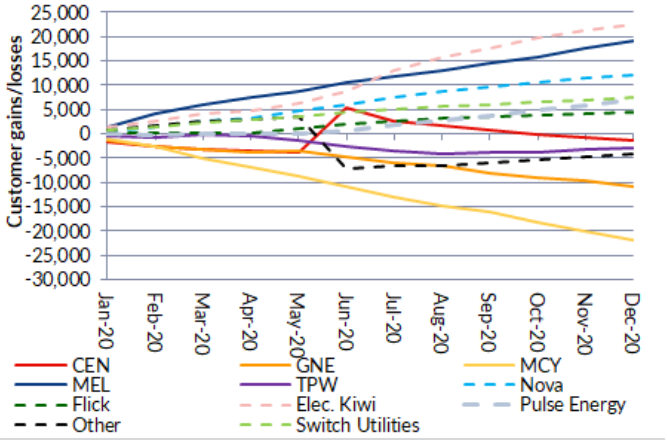
Source: Ministry of Transport, Forsyth Barr analysis

Retail electricity customers

Electric Kiwi growth continues

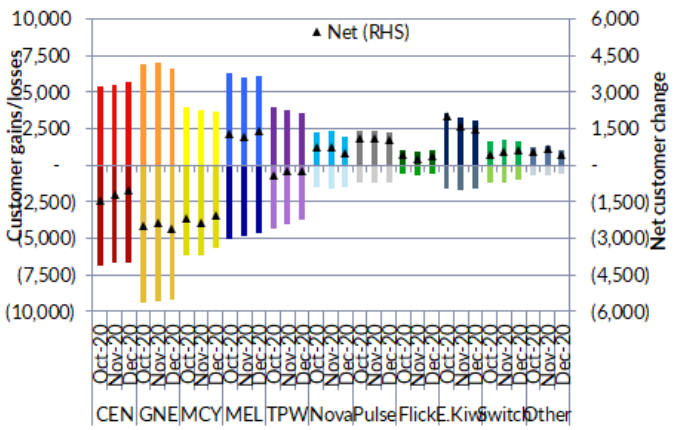
- MCY lost -1,895 customer connections in December 2020, and had the worst month of the large generator/retailers. MEL had the best month of all retailers, gaining +1,564 connections, and TPW was the only other large generator retailer to grow, gaining +417. CEN and GNE lost -600 and -418 connections respectively.
- Electric Kiwi continued its growth, gaining +1,516 connections, and all tier 2 retailers added customer connections in December.
- MEL gained the most customers through switching (which excludes market growth), gaining +1,414 connections.

Figure 40. Cumulative 12-mth electricity customer gains/losses



Source: EA, Forsyth Barr analysis

Figure 41. Customer switches (excludes market growth)

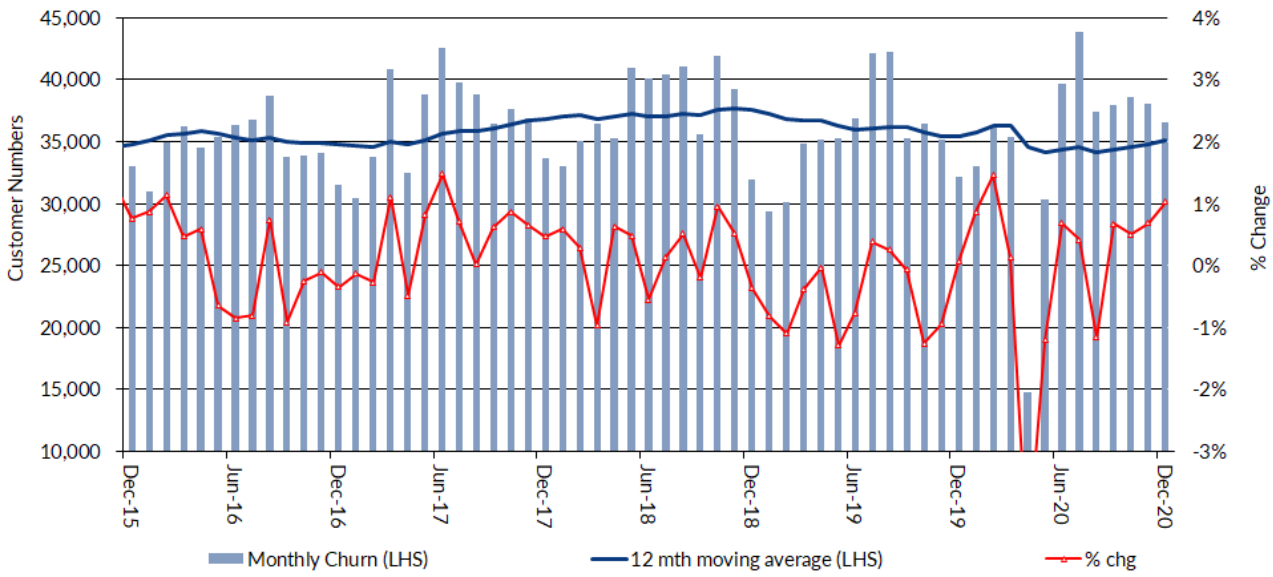


Source: EA, Forsyth Barr analysis

Connection churn

- There were ~36,500 customer switches in December 2020. This is a -4% reduction on the prior month but an increase of +13% on the pcp.
- The percentage of switches from traders decreased by -6% to 26% of total churn, the lowest since January 2017, whilst moving changes increased to 74% in December.

Figure 42. Electricity connection churn



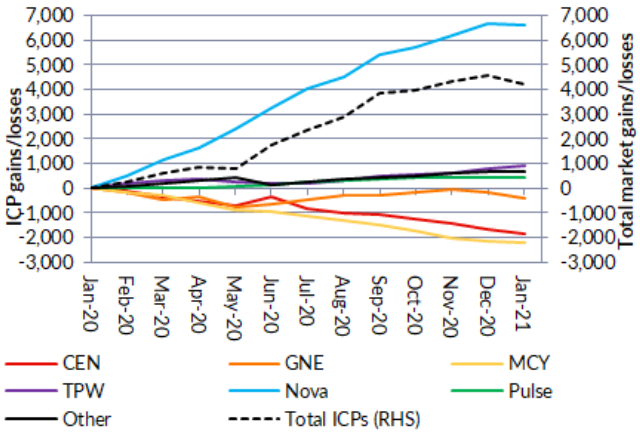
Source: EA, Forsyth Barr analysis

Retail gas customers

Rare customer losses for Nova

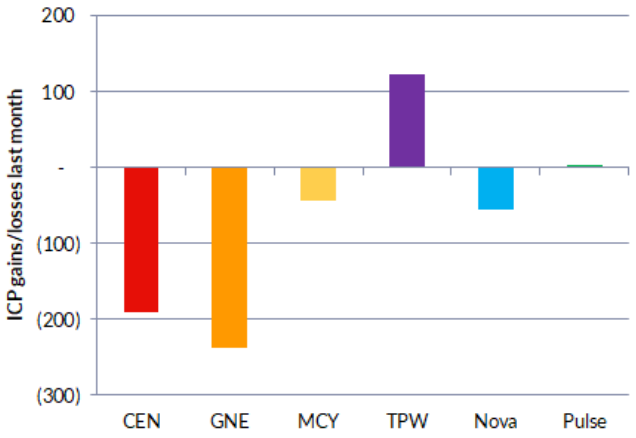
- TPW gained +123 connections in January, and was the only large retailer to gain gas connections as CEN and GNE lost -190 and -238 respectively. Nova lost -56 connections, after gaining connections every month since early 2018.
- In the past 12 months TPW is the only listed retailer to gain connections, adding +921. Nova has added the most overall, gaining +6,631 gas customers since January 2020.

Figure 43. Gas connection gains/losses over the past 12-months



Source: Gas Industry Co, Forsyth Barr analysis

Figure 44. Gas connection gains/losses in January 2021



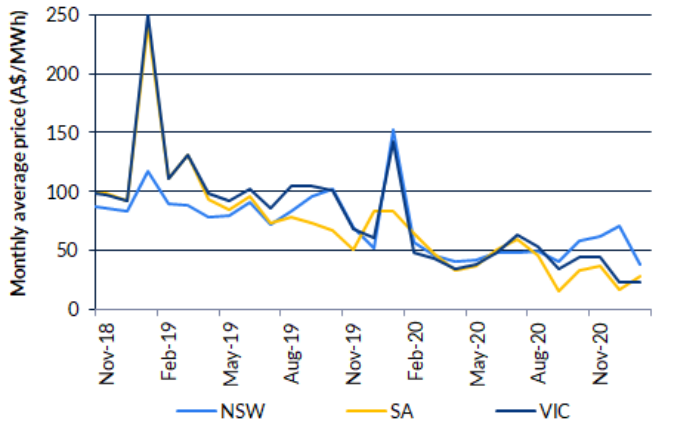
Source: Gas Industry Co, Forsyth Barr analysis

Australian electricity market

Wholesale electricity prices continue to decline

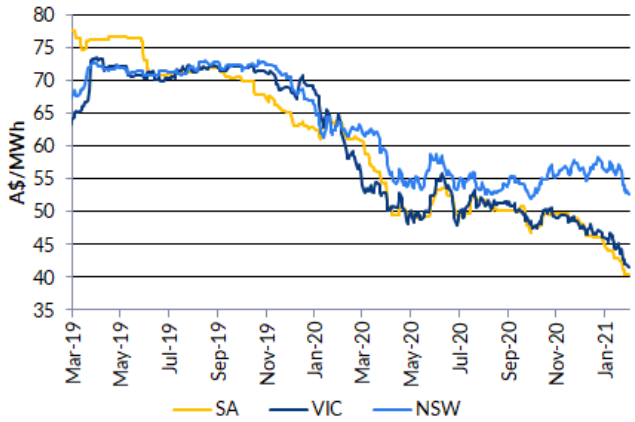
- NSW, VIC and SA prices were all down materially on the pcp in January. VIC experienced the sharpest decline, down -84% on January 2020 to average A$23/MWh. SA and NSW were down -66% and -75% on the pcp respectively to average A$29/MWh and A$39/MWh.
- 2021 futures were also down in January. SA had the largest decline, down -10% compared to the end of December 2020 to finish the month at A$40/MWh. NSW and VIC futures were down -7% and -10% to end the month at A$53/MWh and A$42/MWh respectively.

Figure 45. Australian wholesale electricity price (A$/MWh)



Source: AEMO, Forsyth Barr analysis

Figure 46. Australian 2021 futures prices (A$/MWh)

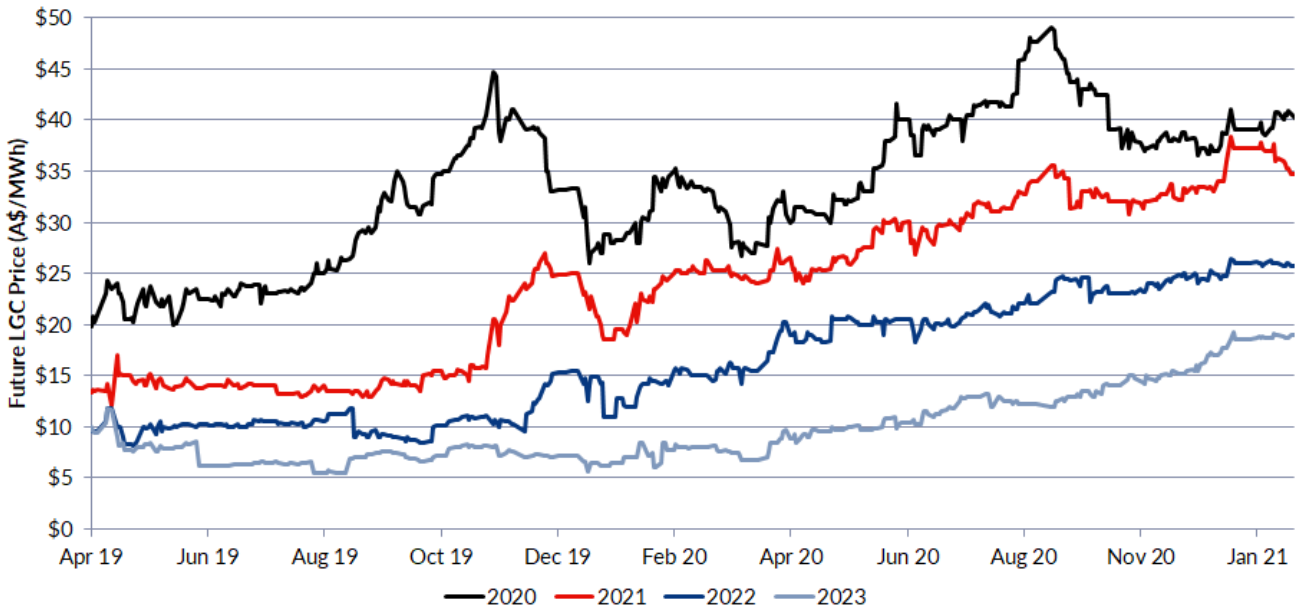


Source: Thomson Reuters, Forsyth Barr analysis

Renewable energy certificates (LGC) spot prices up

- Spot LGC prices rose by +3.8% in January 2021. 2021 and 2022 LGC prices both declined over the month, down -9% and -1% to currently be trading at A$34.0MWh and A$26.0MWh respectively.

Figure 47. Renewable energy certificate prices (LGC)



Source: Bloomberg, Forsyth Barr analysis

Key statistics

New Zealand electricity market statistics

Figure 48. Key statistics — New Zealand

	Jan-20	Dec-20	Jan-21	% Chg pcp	% Chg mom
Average Monthly Prices					
OTA avg ($/MWh)	$ 90.5	$ 120.2	$ 136.7	51.0%	13.7%
HAY avg ($/MWh)	$ 87.0	$ 110.6	$ 132.9	52.7%	20.2%
BEN avg ($/MWh)	$ 75.8	$ 107.7	$ 130.8	72.7%	21.5%
Avg Daily Generation (GWh)					
CEN	21.2	19.3	20.9	-1.7%	8.0%
% of NZ Generation	19.7%	18.1%	20.0%	1.7%	10.4%
GNE	19.8	16.5	19.5	-1.6%	18.4%
% of NZ Generation	18.4%	15.5%	18.7%	1.8%	21.0%
MCY	16.0	19.0	17.1	6.5%	-10.2%
% of NZ Generation	14.9%	17.9%	16.4%	10.1%	-8.2%
MEL	39.3	37.6	32.3	-17.7%	-14.2%
% of NZ Generation	36.4%	35.4%	31.0%	-14.9%	-12.3%
TPW	5.8	6.5	6.0	3.9%	-7.5%
% of NZ Generation	5.4%	6.1%	5.8%	7.5%	-5.4%
Daily Demand (GWh)					
Demand (excl Tiwai)	92.1	89.5	87.3	-5.2%	-2.4%
NZAS demand	14.3	13.6	13.5	-5.4%	-0.7%
Total NZ Demand	106.4	103.1	100.8	-5.2%	-2.2%
Hydrology (% of average)					
Average hydro inflows	66%	72%	74%	11.8%	3.1%
Average hydro storage	122%	90%	83%	-32.3%	-7.8%
Month end hydro storage	113%	81%	86%	-23.9%	6.2%
ASX futures as at:	**31-Jan-20**	**29-Dec-20**	**1-Feb-21**		
Short-dated OTA	$ 120.8	$ 139.2	$ 158.9	31.6%	14.1%
Long-dated OTA	$ 99.5	$ 101.7	$ 122.2	22.7%	20.1%
Short-dated BEN	$ 99.1	$ 122.0	$ 147.0	48.4%	20.5%
Long-dated BEN	$ 88.3	$ 80.2	$ 105.4	19.4%	31.3%

Source: NZX Energy, EnergyLink, Thomson Reuters, Forsyth Barr analysis

Australian electricity market statistics

Figure 49. Key statistics Australia

	Jan-20	Dec-20	Jan-21	% Chg pcp	% Chg mom
Average Monthly Prices					
NSW avg (A$/MWh)	$ 152.3	$ 71.4	$ 38.8	-74.5%	-45.6%
SA avg (A$/MWh)	$ 83.2	$ 16.7	$ 28.7	-65.5%	71.7%
VIC avg (A$/MWh)	$ 143.0	$ 23.8	$ 22.8	-84.0%	-4.1%
Electricity Futures for 2021:	**31-Jan-20**	**31-Dec-20**	**1-Feb-21**		
NSW avg (A$/MWh)	$ 63.8	$ 56.5	$ 52.6	-17.5%	-6.8%
SA avg (A$/MWh)	$ 63.7	$ 45.1	$ 40.4	-36.5%	-10.3%
VIC avg (A$/MWh)	$ 64.8	$ 46.0	$ 41.6	-35.9%	-9.7%
Spot and Future LGC Prices	**31-Jan-20**	**1-Jan-21**	**31-Jan-21**		
Spot (A$/MWh)	$ 36.0	$ 39.0	$ 40.5	12.5%	3.8%
2021 (A$/MWh)	$ 19.8	$ 37.3	$ 34.0	72.2%	-8.8%
2022 (A$/MWh)	$ 12.0	$ 26.2	$ 26.0	116.7%	-0.6%

Source: Bloomberg, AEMO. Thomson Reuters, Forsyth Barr analysis

Industry news — December 2020 & January 2021

Listed sector company news

Contact (CEN)

- CEN has been fined NZ$162,500 by the Environment Court as a result of a spill at its Wairakei geothermal project in February 2019. The spill led to 15,000 cubic metres of geothermal fluid flowing into the Waikato River due to the overloading of a holding pond. It is estimated CEN has spent NZ$2.5m on making amends for the discharge as well as nearly NZ$2.3m in opportunity cost from lost generation at its Te Mihi plant.

Genesis (GNE)

- GNE has announced it will remove 1.2m tonnes of carbon emissions over the next five years in order to help limit global warming to below 1.5% by 2025. This would be a -36% reduction in generation emissions and a -21% reduction from the use of products it sells compared to 2020. The emissions reductions are aligned with GNE's FutureGen strategy which the company has implemented in order to secure 2,560GWh of renewable generation by 2030.

Meridian (MEL)

- MEL and Japanese based Chiyoda Corporation are considering a renewable energy hydrogen operation in New Zealand, although neither party has confirmed they are working together. MEL CEO Neal Barclay has said that Southland is well suited for hydrogen given large-capacity transmission network, deep water ports, access to fresh water and the NZAS industrial site. Barclay also indicated that a hydrogen plant could operate more flexibly than NZAS, scaling down or even temporarily shutting down during dry periods. Chiyoda has said New Zealand has the potential to export green hydrogen to Japan.
- MEL, along with CEN, have also announced an NZ$2m study into the feasibility of a large-scale green hydrogen production plant in the lower South Island. The study is expected to be completed in the second half of 2021.
- MEL has appointed Guy Waipara as General Manager of Development, with Mat Bayliss and Richard Griffiths to cover the acting General Manager of Generation role that Waipara will leave. MEL has also announced that Jason Stein will step down from CEO of Meridian Australia due to COVID-19, meaning he was unable to relocate to Australia from New Zealand. Stein will remain in the role until mid-2021.

Mercury (MCY)

- MCY is looking to combine carbon capture and reinjection at some of its steamfields. MCY is currently undertaking a feasibility study on capturing non-condensable gases, extracting oxygen from the non-condensable gases and then putting those gases put into the injection fluid.
- MCY has announced it will invest a further NZ$6m to boost its EV subscription service. The company says it needs to add more vehicles to its fleet due to growing demand, and plans to add +50 EVs per month to its fleet to reach ~450 vehicles.
- MCY has revised its FY21 earnings guidance, with an +NZ$30m EBITDAF upgrade to NZ$535m as a result of increased hydro expectations. The company now expects to generate 3,900GWh for the year, up +200GWh from prior forecasts.
- MCY CEO Vince Hawksworth has announced a new executive structure which will see three current senior executives leave the company. The new structure has disestablished four roles and created three new ones. The new structure will see seven executives report directly to the CEO. CFO William Meek, Chief Market Office Julia Jack and General Manager of People and Performance Marlene Strawson will retain their roles.

Tilt Renewables (TLT)

- Infratil (IFT) has announced a strategic review of its 65% stake in TLT. The strategic review comes after a number of buyer inquiries following TLT's recent strong performance. The result of the strategic review is expected to be completed by early June 2021.
- TLT has agreed upon an offtake agreement with Newcrest Mining for its 400MW Rye Park wind farm in New South Wales. The offtake is for 55 percent of generation for 15 years and will move the project from development to financing. Newcrest expects the generation to contribute more than 40% of its Cadia mines energy demand from 2024. Construction is expected to begin on the wind farm within the next nine months.

Trustpower (TPW)

- TPW has announced a strategic review of its retail arm in order to test market demand for the business as well as review the case for a stand alone generation business. The review is expected to take several months.

Vector (VCT)

- VCT and GNE have started to roll out smart gas meters for residential and small business customers. The roll out has begun in Auckland and Hamilton but GNE has said it intends for all customers to be on the new meters within two to three years.
- VCT's Auckland electricity connections increased by +1.8% and gas customer numbers rose by +2.1% in 1H21. VCT said that ongoing population growth in Auckland has supported the increased connections. The company also saw an uplift in its smart metering business, however, its electricity and gas distribution volumes fell -1.6% and -3.8% respectively due to COVID-19 restrictions impacting industry activity.

Political/regulatory news

- The Climate Change Commission (CCC) has released its draft report, outlining steps New Zealand can take to meet its 2050 climate change obligations. Recommendations include the shift away from household LPG and gas consumption suggesting a ban on new connections from 2025, a move to electric vehicles and the banning of internal combustion engines by 2032 as well as a number of industry specific targets. The CCC will provide a final report by 31 May 2021.
- The Government has released a new Clean Car Standard that aims to reduce the carbon emissions from the national fleet by putting restrictions on vehicle imports. The standard, which will be introduced next year, will be different for all importers depending on what type of vehicles they import. Punitive measures will only begin in 2025 to allow importers time to adopt.
- The Electricity Authority (EA) has determined that market behaviour in December 2019 constituted an Undesirable Trading Situation (UTS). The EA said there was a confluence of factors such as extreme weather that led to the UTS, upholding its original finding from June 2020. The EA will consult on proposed corrective measures in February 2021.
- MBIE has asked for nominations to a technical advisory panel overseeing the Lake Onslow dry year project as well as other dry-year storage solutions. The project is called the NZ Battery Project, however, will not assess the use of grid-scale batteries.
- Transpower has said that MBIE's 2019 Electricity Demand and Generation Scenarios may already be out of date, and that new forecasts are required to guide Transpower's own long term plans. It has appointed a panel to develop variations to the scenarios, with submissions open until 26 February 2021.
- Transpower has said that RIO's decision to delay the closure of NZAS will not impact the Transmission Pricing Methodology (TPM) or the Clutha Upper Waitaki Lines Project (CUWLP) projects. The CUWLP is set to be completed in May 2022.
- CEN, MEL, MCY and GNE have indicated they are wary of the EA adding a mandatory market making backstop to the industry code. The EA says that the backstop will enhance the transition to a fully commercial market making arrangement, however, the big four generator/retailers have all outlined issues in responses to the proposal. Consultation on the backstop closed on 18 January and the EA intends to make a final decision in April, with commercial market making to start in early 2022.

Other industry news

- Rio Energy (RIO) has announced the New Zealand Aluminium Smelter (NZAS) will remain open until at least 2024, accepting a deal with MEL for discounted electricity. We estimate the price cut that MEL will take to be ~-35%. RIO has also announced that it has reached a deal with the Government to remove aluminium byproduct from a site in Mataura. Both the Government and RIO will pay NZ$500k, shifting the waste to the Tiwai point smelter. The negotiations around transmission pricing are ongoing.
- MBIE has found that the average annual household power bill has fallen by NZ$126 (-6%) since 2015 in real terms to NZ$2,113 in 2020. Cameron Burrows, CEO of Electricity Retailers' Association has said that strong competition amongst electricity retailers has helped to keep prices down. However, Electricity Networks Association has said bills should be less still, but that reduced lines charges from distribution networks have not been passed on to consumers.
- Firstgas, Fonterra, The Energy Efficiency & Conservation Authority and Beca are co-funding a study of the potential of a New Zealand biogas sector to produce methane for existing gas pipelines. The sponsors expect the results of the study to be released before the end of June 2021.
- Methanex has idled its Waitara Valley plant, and delayed a maintenance shutdown that was intended to improve the plants efficiency and extend its lifespan. Methanex has said to invest in a Witara Valley turnaround they would need confidence that there is enough gas for three plant operation for a sustained period of time.
- Hiringa Energy has confirmed it will roll out its hydrogen fuel station network in three stages. The first will see eight stations come online in 2021, the second will see 24 stations by 2025 and the third stage is for over 100 stations installed by 2030. Hiringa will import heavy vehicle trucks from Hyzon Motors that can be refuelled in under 15 minutes. The first stage will see 20 trucks on Hiringa's network.
- Origin Energy and Neoen are planning to build the world's two largest batteries in New South Wales. Neoen's battery will be 500MW/1000MWh and is to be built on a decommissioned coal plant site, with commissioning of the battery expected in 2023. Origin's battery will be even larger at 700MW, with a four-hour dispatch array allowing it to have 2,800MWh of storage. The

battery is to be built at Eraring power station, Australia's largest coal-fired plant, with the first stage (of three) to be commissioned in 2022.

Source: Energy News, Company reports, Forsyth Barr analysis

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