# **TDB** ADVISORY

# The Financial Impacts of the Tiwai Point Closure

# Summary

This paper examines the financial impacts of the announced closure of the Tiwai Point aluminium smelter. The paper looks at the impacts on electricity generator/retailers' (gentailers) share prices and on electricity prices faced by consumers. The key findings of this paper are:

- 1. Following the announcement on 9<sup>th</sup> July 2020 by New Zealand Aluminium Smelters Ltd that Tiwai would be closed in August 2021, wholesale electricity futures prices for 2023 decreased on average by 25% at the Benmore node and by 18% at the Otahuhu node.
- Subsequent announcements by the National and Labour parties committing to keep Tiwai Point open for around three to five years saw these wholesale electricity futures prices increase by between 16% and 36%. Overall, as at 28<sup>th</sup> September 2020, futures prices had returned to their pre-Tiwai closure announcement levels.
- 3. Generation costs account for around a third of the final retail price of electricity. All other things equal, the 18% to 25% reductions in futures wholesale electricity prices following the initial announcement that Tiwai would close in August 2021 indicate a likely reduction of average retail electricity prices in 2023 of around 6% to 8%. The price reduction would have been somewhat smaller because of an increase in transmission costs and the reduction in prices would be expected to have diminished over time as the initial large surplus of electricity resulting from the closure declined with demand elsewhere in the economy growing over time.
- 4. Immediately following the initial closure announcement on 9<sup>th</sup> July 2020, the share prices of the five major gentailers decreased by between 3% and 14%.
- 5. The subsequent announcements by the National and Labour parties were associated with changes in the gentailers' share prices ranging between -8% and 4%.
- 6. Overall, the market capitalisation of Meridian, which has the greater exposure of the gentailers to Tiwai, decreased by \$782 million over the period of the three announcements. The market capitalisations of Mercury and Trustpower rose by \$336 million and \$25 million respectively.
- 7. The infrastructure to move the freed-up hydro-electric electricity at Manapouri with the closure of Tiwai is not in place to transport the electricity to the North Island where the bulk of demand is. Even at an accelerated rate, Transpower predicts the earliest completion date to allow the additional supply to flow north would be May 2022.

# Background

The Tiwai Point aluminium smelter is an aluminium smelter owned by Rio Tinto Group (79.36%) and the Sumitomo Group (20.64%), via a joint venture called New Zealand Aluminium Smelters (NZAS) Limited. The aluminium smelter is located on the Bluff Harbour on the southern coast of the South Island of New Zealand.

On 9<sup>th</sup> July 2020 NZAS announced that the Tiwai Point smelter would close in August 2021. The reasons for the closure included low global aluminium prices, increasing competition from Chinese aluminium smelters and high transmission prices. NZAS claimed the \$46 million loss it experienced in 2019 largely arose from high transmission charges. The closure of the aluminium smelter would have a significant impact on the Southland community with 1,000 people directly employed by the smelter and another 1,600 employed indirectly.

The Manapōuri Power Station is an underground hydroelectric power station located on Lake Manapōuri in the South Island of New Zealand. Completed in 1971, Manapōuri was built with the purpose of supplying electricity to the Tiwai Point aluminium smelter located approximately 160 km to the southeast. To facilitate the transmission of electricity between Manapōuri and Tiwai two 220 kilovolt power lines, owned and run by Transpower, were built. Since April 1999, the Manapōuri power station has been owned and operated by Meridian Energy Ltd.

A contract between NZAS and Meridian that expires in 2030 provides price certainty for the smelter and a guarantee of 572MWh per hour (5,000 GWh per year) of electricity. Meridian, Contact and Genesis have contracts and deals between them for risk management and hedging purposes. All these financial contracts serve the purpose of ensuring the Tiwai aluminium smelter receives the annual 572MWh of electricity. The agreement between NZAS and Meridian allows for the smelter to cut back its consumption to 400MWh or terminate its supply of electricity with a year's notice to Meridian. When it announced its planned closure, NZAS gave Meridian Energy notice it would terminate its power contract in August 2021.

The announcement of the closure of the Tiwai aluminium smelter had a significant impact on New Zealand electricity futures prices and the share prices of the five gentailers (entities that have generation and retail operations in the New Zealand electricity market). The price impacts however were offset considerably by subsequent public commitments by the National party (on 28<sup>th</sup> August 2020) and the Labour party (on 28<sup>th</sup> September 2020) to extend the life of the smelter by between three and five years. The impacts of the different announcements are examined below.

# NZ electricity hedge market reaction to Tiwai announcements

New Zealand wholesale electricity futures are centrally cleared financial contracts traded on the Australian stock exchange (ASX). The futures contracts on baseload commodities refer to 0.1 MW of electricity per hour for every hour of the contract's duration. In this paper we consider futures contracts that expire in March, June, September and December of 2023 (the latest expiry date for futures contracts recorded on the Electricity Authority's EMI database).

The futures curves are based on prices at two reference nodes:

- 1. Otahuhu (OTA2201) in Auckland; and
- 2. Benmore (BEN2201) in the southern Canterbury region.

Prices at the Otahuhu node can be used as an indicator of prices in the upper North Island. Benmore is the southern end of the HVDC inter-island link. The prices at the Benmore node generally reflect the half-hourly prices across the South Island.





This paper focuses on Benmore prices but a similar pattern is evident in Otahuhu futures prices.<sup>1</sup> Otahuhu prices were impacted less by the Tiwai announcements because of the Otahuhu node's proximity to a large demand centre (Auckland) and is less subject to transmission constraints.

Figure 2 presents the percentage change in average quarterly 2023 wholesale electricity futures prices at the Benmore node following the three Tiwai announcements:

- the announcement on 9<sup>th</sup> July 2020 by New Zealand Aluminium Smelters Ltd that Tiwai would be closed in August 2021;
- the subsequent public announcement by the National party on 28<sup>th</sup> August 2020 to extend the life of the smelter by between three and five years; and
- a similar commitment by the Labour party on 28<sup>th</sup> September 2020.

The figure on the following page highlights the price impacts of the three announcements.

<sup>&</sup>lt;sup>1</sup> The Annex of this paper considers the effects on Benmore and Otahuhu futures prices for each of the four quarters in 2023.



#### Figure 2: Daily percentage change in average settlement prices for 2023 electricity futures

Table 1 expands on the analysis in Figure 2 by presenting the percentage changes in the average New Zealand electricity futures prices at the Benmore node for 2023. These percentage changes reflect the difference in prices of futures contracts following the announcement relative to the day before the announcement was made.

#### Table 1: Changes in average futures prices before and after the three announcements

Benmore electricity futures (expiring 2023) price changes				
Daily percentage change following announcement:				
Tiwai closure announcement (9th July)	-25.0%			
National party announcement (28th August)	35.5%			
Labour party announcement (28th September)	15.5%			
Changes in futures prices over the period:				
Difference between 8th July and 28th September	6.4%			

Figure 2 shows how volatile the expectation of electricity spot prices in the future was following the announcement that the Tiwai Point smelter would close. Whilst the daily changes in average futures prices were initially more on the negative side, the announcements from political parties committing to supporting the smelter's continuing operations resulted in increases for the futures prices.

Figure 2 provides an indication of the amount of noise in the daily estimation of electricity futures prices in 2023. While the market will also be reacting to other announcements that will affect electricity futures prices, we focus on the three announcements that are associated with the greatest daily change in electricity futures prices.

The announcement of the Tiwai aluminium smelter closing on the 9<sup>th</sup> July 2020 saw the average 2023 futures price at the Benmore node dropping by 25%. This reduction in expected future prices reflects the market's expectations that the closure would lead to a period of considerable oversupply in the electricity market. as the Tiwai aluminium smelter accounts for nearly 13% of total electricity consumption in New Zealand.

The subsequent announcement by the National party on 28<sup>th</sup> August 2020 that the life of the plant would be extended by three to five years was associated with an increase in the Benmore node's 2023 average futures prices of 36%. A similar announcement by the Labour party on 28<sup>th</sup> September was associated with a further increase of 16%.

The net effect of the Tiwai closure and political parties announcements over the period as a whole (comparing the 8<sup>th</sup> July futures price with the 28<sup>th</sup> September futures price and taking account of other

fluctuations in the prices over the period) was an increase of 6% in the average 2023 Benmore futures price. Overall, the hedge market for New Zealand electricity had, by 28<sup>th</sup> September 2020, broadly returned to pre-Tiwai closure announcement futures price levels.

Futures prices are in general a good (unbiased) predictor of future spot prices. According to the Electricity Authority generation costs make up around a third of retail power bills. All other things equal, the 18% to 25% reduction in wholesale electricity futures prices following the announcement that Tiwai would close in August 2021 indicate a likely reduction of average retail electricity prices in 2023 of around 6% to 8%. The price reduction would have been somewhat smaller because of an increase in transmission costs. The reduction in prices would be expected to have diminished over time as the initial large surplus of electricity resulting from the closure declined with demand elsewhere in the economy growing over time.

# Impacts on New Zealand gentailers' share prices

In the New Zealand electricity market there are five main generator/retailers (gentailers):

- 1. Contact Energy;
- 2. Genesis Energy;
- 3. Mercury Energy;
- 4. Meridian Energy; and
- 5. TrustPower.

These five generators produce about 95% of New Zealand's electricity. All five gentailers are publicly traded companies listed on the NZX.<sup>2</sup>

Figure 3 below shows the daily share price and volume of trades for Meridian over 2020. The shaded region of the diagram shows the period following the Tiwai closure announcement on 9<sup>th</sup> July 2020.

#### Figure 3: Meridian share price and daily volume of shares traded, 2020



<sup>&</sup>lt;sup>2</sup> Meridian Energy, Genesis Energy and Mercury Energy are 51% owned by the New Zealand government.

Immediately following the Tiwai closure announcement Meridian's share price fell by 10.9% and the number of shares traded surged (with over 9 million shares traded on 9<sup>th</sup> July). Meridian's share price has since partly recovered following the two political parties' commitment to extend the life of the smelter for three to five years.

Table 2 shows the effects of the Tiwai closure announcements on the share prices and the changes in the market capitalisations of each of the five gentailers over the period from 8<sup>th</sup> July to 28<sup>th</sup> September as a whole.

	Contact	Genesis	Meridian	Mercury	Trustpower
Daily percentage change following announcement:					
Tiwai closure announcement (9th July)	-13.9%	-7.9%	-10.8%	-3.5%	-3.0%
National party announcement (28th August)	0.5%	-1.7%	1.1%	4.1%	-0.3%
Labour party announcement (28th September)	-7.8%	-3.1%	-2.6%	0.0%	-5.5%
Market capitalisation (\$ million):					
8th July 2020	\$4,837	\$3,243	\$13,481	\$6,790	\$2,194
28th September 2020	\$4,772	\$3,042	\$12,700	\$7,126	\$2,219
Difference in value	-\$65	-\$201	-\$782	\$336	\$25

#### Table 2: Changes in gentailers' share prices and market capitalisations

As Table 2 shows, each of the five gentailers experienced negative shocks to their share prices following the Tiwai closure announcement. Contact, Meridian and Genesis experienced the greatest price shocks, dropping between 8% and 14% while Mercury and Trustpower were less exposed with their share prices dropping between 3% and 4% respectively.

Share prices, and subsequently market capitalisations, fluctuate constantly as a result of market forces. The three announcements we focus on in this paper are by no means the only events affecting the gentailers' share prices over the period from 8<sup>th</sup> July to 28<sup>th</sup> September but the announcements had a marked impact on the values of the companies over the period. Over the period as a whole (ie, from 8<sup>th</sup> July to 28<sup>th</sup> September) the market capitalisations of Mercury and Trustpower increased while Contact, Genesis and Meridian decreased in value. While Contact's initial share price reaction to the Tiwai closure announcement was the greatest, Meridian is a much a larger company and it experienced the greatest reduction in market capitalisation. Over the period as a whole, Meridian has lost \$782m in value, more than three times that of the next gentailer, Genesis, that experienced a loss in value of \$201 million over the same period.

# Annex 1: Detailed analysis of the Tiwai announcement impacts on electricity futures prices

The prices for 2023 wholesale electricity futures contracts for the Benmore and Otahuhu nodes over the last year are shown in Figure 4 and Figure 5 below. The futures prices in these graphs represent the market's expectation of the price of electricity in New Zealand for each of the four quarters in 2023. These forecasts reflect factors such as the expectations of demand and supply and storage levels.





Figure 5: Otahuhu futures contracts, \$/MWh, 2023



The two diagrams above show that both Benmore and Otahuhu futures prices dropped significantly on 9<sup>th</sup> July 2020 following the Tiwai closure announcement. This reduction in prices was to be expected as the Tiwai aluminium smelter accounts for nearly 13% of total electricity consumption in New Zealand and the closure would lead to a period of considerable oversupply in the electricity market.

There is a noticeable difference in the prices at the Benmore futures and Otahuhu futures nodes. Benmore futures are typically priced lower than the Otahuhu contracts because of the relative location of the nodes. As noted above, the Benmore node is at the southern end of the HVDC link in the South Island while the Otahuhu node is located near Auckland in the North Island. With the majority of the demand in the North Island and the HVDC acting as a bottleneck for transporting electricity north, the Otahuhu contracts are typically priced higher than the Benmore contracts.

The impact on futures prices of each of the three announcements at both the Benmore and Otahuhu nodes across each of the four quarters in 2023 is presented in Table 3 below.

Benmore	Mar-23	Jun-23	Sep-23	Dec-23
Daily percentage change following announcement:				
Tiwai closure announcement (9th July)	-24.6%	-22.6%	-24.1%	-29.5%
National party announcement (28th August)	36.7%	34.3%	34.3%	37.8%
Labour party announcement (28th September)	14.1%	12.6%	12.9%	24.3%
Changes in futures prices over the period:				
Difference between 8th July and 28th September	2.8%	7.9%	8.5%	6.3%
Otahuhu	Mar-23	Jun-23	Sep-23	Dec-23
Daily percentage change following announcement:				
Tiwai closure announcement (9th July)	-11.4%	-25.1%	-23.9%	-11.0%
National party announcement (28th August)	7.9%	3.3%	3.0%	15.0%
Labour party announcement (28th September)	3.5%	4.2%	4.2%	4.2%
Changes in futures prices over the period:				
Difference between 8th July and 28th September	1.3%	1.3%	0.5%	-4.3%

#### Table 3: Changes in New Zealand electricity futures prices, 2023

The effects of the three announcements were more pronounced at the Benmore node than the Otahuhu node for almost all of announcements and all the four quarters (the only exception being the June 2023 quarter for the initial announcement).

Of the four expiry dates and two different nodes only the Otahuhu futures contract expiring in December 2023 has not recovered to pre-Tiwai announcement levels, while the 2023 futures prices at Benmore have increased overall by between 3% and 8%.