



OceanaGold's Submission  
to Electricity Authority on the  
**Consultation on the Market Monitoring  
Review of structure, conduct and  
performance in the wholesale electricity  
market**

22 December 2021

Submitted by:

**OceanaGold Corporation/Oceana Gold (New Zealand) Limited**

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## ABOUT OCEANAGOLD

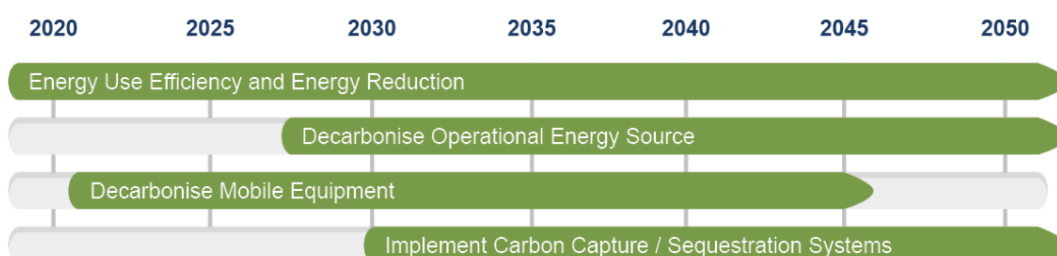
1. OceanaGold (New Zealand) Ltd is a publicly listed company on the Australian and Toronto stock exchanges, and is classed as a mid-tier, multinational gold producer with a portfolio of high-quality assets located in the Philippines, the United States of America and New Zealand. OceanaGold is internationally recognised as a responsible miner and a leader in sustainability.
2. OceanaGold has over 30 years' experience of exploring, developing, operating and closing mines within New Zealand. We have operating gold mines at Macraes and Waihi and a closed mine on public conservation land near Reefton, which is under rehabilitation.



*Figure 1 - our rehabilitation work at Reefton*

3. OceanaGold is supportive of the Government's commitment to transitioning New Zealand to a low emissions economy. We have been committed to responsible mining for over 30 years and are already on the journey to further reducing our carbon footprint. In 2020 we released an updated statement of position on climate change, energy use and greenhouse gas, with a goal to achieve net zero greenhouse gas emissions from our operations by 2050. Our pathway to net zero is identified in the diagram below.

### OceanaGold's net zero emissions pathway



4. OceanaGold operates its mines 24 hours a day and 7 days a week. Together, the mines put OceanaGold in the top ten electricity consumers in New Zealand. Macraes Mine is the single biggest consumer of electricity in the South Island, after Tiwai Aluminium Smelter, and is well positioned to make efficient use of renewable power generated out of the lower South Island hydroelectric schemes. We are already a low carbon intensity gold producer based on peer averages, largely due to New Zealand's electrical energy being sourced from a high proportion of renewable sources.
5. Together, the Macraes and Waihi mines employ close to 1000 people and generate value-add (GVA) to New Zealand's economy of about \$200 million annually.

## CASE STUDY

6. Electricity is one of the highest single costs of continuing to mine, associated mainly with powering the large mills that reduce gold-bearing rock to the sand-sized particles that are needed to access the gold. These mills operate 24 hours and 365 days a year. Electricity is hedged using fixed price contracts to provide protection against volatility in the spot market.
7. Diesel, which is used to power our fleet of haul trucks, excavators and other mobile mining equipment, contributes to the cost of mining on a similar scale to electricity. Decisions on the replacement of mobile fleet depend on the ages of the different units and are typically made off the back of 7+ years of economic life, meaning electrification of the mining fleet is likely to happen progressively over time and dependant on sufficient remaining years of mining at each of our operations.
8. To reduce emissions from our operations, OceanaGold will look for ways to increase the renewable component of our energy use, both in the mobile fleet and the electricity-powered mills. In both cases, the economic modelling for any large-scale investments will depend on access to reliable and stable wholesale electricity pricing.
9. In particular, given the capital costs of switching to new technologies and the associated infrastructure required in order to transition from diesel to electric mobile fleet, a key consideration will be the savings in operating costs that electrification can offer, in turn dependant on forecasting wholesale electricity costs over time.
10. For example, the following photo depicts an electric shovel (powered via a trailing cable) as an illustration of a unit that might be used in some applications in place of a diesel-operated excavator. The exercise of making this switch, while it is not without precedent, could be likened to the use of an electric mower, plugged into an electric socket, on a lifestyle block! The switch can be modelled to make sense, but only in a wholesale electricity market that

delivers futures pricing that is both reasonable and forecastable over the economic life of the unit.



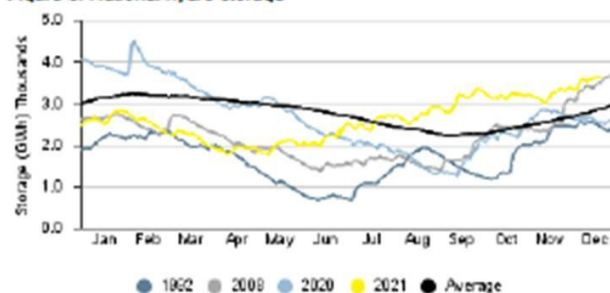
11. Recent wholesale market behaviour has not been conducive to investment decisions of this kind. Participants in the market appear to be driven largely off short-term information, with no obvious bearing on prices even a year into the future. Within a week we see that pricing can move from \$0.01 to \$384.81/MWh, making this significant input cost into our business model very difficult to price. The main mechanism is the ASX which offers little transparency as to the volume and type of customers. And futures pricing reacts to highs and lows in hydrology, wind and sun that appear to have no lasting relevance beyond the short-term. The price in December this year at Benmore was \$43.82/MWh and last year was \$119.17/MWh. It is very difficult to look to decarbonise, based on modelled operating cost savings, with this level of volatility.

#### HYDRO STORAGE

Inflows were 102% of average across the country over the past week. North Island inflows were 172% of average and South Island inflows were 81% of average.

Hydro storage is at 127% of average for this time of year (down 1% from last week) and is at 82% of maximum storage. The chart below shows the national storage position as at 19 December.

Figure 3: National hydro storage



**SPOT MARKET COMMENTARY**

Last week, the spot market averaged \$56.79/MWh at Otahuhu, down from \$99.24/MWh the week before. Half hourly prices ranged between \$0.01 and \$354.81/MWh.

Table 1: Spot Price Summary

Node	Last 7 Days	Last 28 Days	Same Week'20	YTD 2021	Last 12 Months
Benmore	\$43.82	\$67.16	\$119.17	\$165.93	\$163.07
Otahuhu	\$56.79	\$88.79	\$130.55	\$181.58	\$178.43
Whakamaru	\$51.99	\$81.14	\$120.92	\$173.05	\$169.96
Haywards	\$48.36	\$76.26	\$121.54	\$172.64	\$169.61

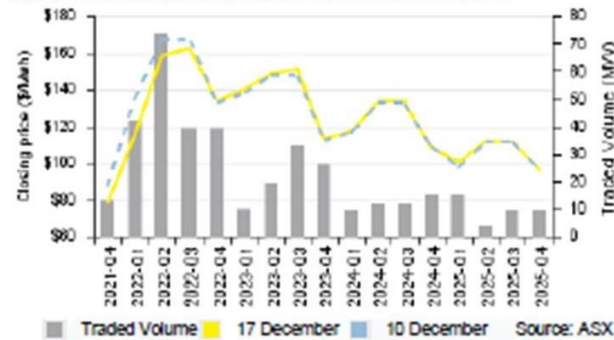
**FUTURES MARKET PRICES**

Low spot prices on the back above average hydrology is weighing down the front of the market, while the back end remains quiet.

Table 2: Change from previous week, in futures pricing for contracts starting 1 April 2022.

		1 Year	2 Year	3 Year
OTA2201	Settlement	\$148.48	\$140.37	\$133.17
	Change	-\$2.86	-\$0.74	-\$0.13
BEN2201	Settlement	\$124.94	\$116.66	\$109.26
	Change	-\$2.13	\$0.27	\$0.94

Figure 4: Otahuhu ASX futures prices and traded volumes



**SUBMISSION**

12. In our view the most critical enabling factor on New Zealand’s decarbonisation pathway is a well-functioning wholesale electricity market. For us, electrification of vehicles, plants and machinery that currently depend on fossil fuels to operate lies at the heart of decarbonisation for the heavy industrial and transport sectors. Investment in this new technology as it becomes available will not be achieved without government intervention to restructure the way electricity is priced.



Figure 2 - mining requires specialised vehicles

13. High and volatile wholesale electricity prices increasingly resist reliable long-term forecasting or hedging to provide the basis for investment and the behaviour of electricity prices is likely to change further as renewables become an increasing slice of the portfolio.
14. Emerging technologies and associated business models require pricing that is rational and, if not entirely predictable, at least “rationally unpredictable” and capable of being sensibly hedged.
15. It is therefore essential to resolve the issues with the electricity market. If the private sector can forecast future electricity prices with a reasonable degree of certainty or at least comfort, then reasonably forecastable operating cost savings of using renewable electrical energy as a substitute for fossil fuels can provide the basis for the new capital investment required to decarbonise. Investment in off-grid generation (such as wind or solar generation) will also become more accessible where the wholesale electricity market supplements or complements the modelling.
16. The Electricity Authority’s analysis shows that the drivers of wholesale prices remain substantially unexplained and counter-intuitive. Further investigation into this is important. There is unlikely to be a single solution that will address the problems with the market, but resolving this issue will be a critical factor in enabling New Zealand’s decarbonisation targets.

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