Implications of EU's carbon border adjustment mechanism for Mozal

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- The projected impacts of the EU CBAM on Mozal's global competitiveness offer relevant insights for the ongoing negotiations between Mozal and the Government of Mozambique linked to the HCB-Eskom Energy Contract.
- This analysis examines whether Mozal can remain competitive in global aluminium markets under higher electricity costs. It evaluates the implications of Hidroeléctrica de Cahora Bassa's (HCB) proposed USD 60/MWh price and Mozal's counteroffer of USD 50/MWh.
- The results indicate Mozal will remain cost-competitive relative to other aluminium producers worldwide under the European Union's Carbon Border Adjustment Mechanism (CBAM), which begins to come into effect at the beginning of 2026. Its advantage comes from Mozal's lower carbon intensity compared with competitor firms.
- Data on production costs, production, and emissions for primary aluminium is from the Wood Mackenzie Smelter Report and includes 153 smelters producing in 2023.
- Data on secondary production is from the World Bureau of Metal Statistics. Carbon prices are sourced from individual country regulatory documents and the World Bank Carbon Pricing Dashboard.

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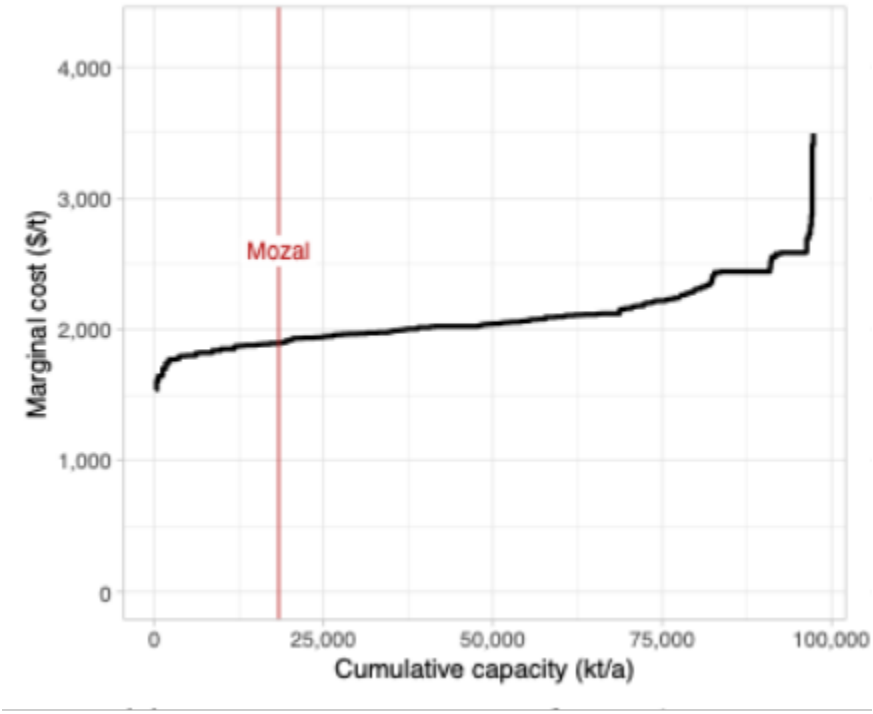
Mozal's cost position compared to other smelters in 2023

Figure 1 shows Mozal's cost position compared to other smelters in 2023, where it ranked at the 18th percentile in production cost with an average electricity price of USD 38/MWh.

Figure 1: Mozal is at the 18th percentile for aluminium production cost in 2023



Looking ahead to 2026, this analysis considers electricity costs of USD 50/MWh (32% higher than 2023) and USD 60/MWh (58% higher than 2023). It presents Mozal's relative cost competitiveness compared to other smelters under two situations:

i. Other smelters increase electricity costs by 3% annually (roughly 9% higher than 2023), in line with the World Bank's global energy price index inflation in 2023 and 2024.

ii. Other smelters face the same electricity cost increases as in (i), and all smelters pay a USD 75/t CO2 carbon price. This situation reflects the EU CBAM, which begins to come into effect in 2026 and applies a carbon price on aluminium exports to the EU. The situation assumes that both direct emissions (from fuel combustion and chemical processes during production) and indirect emissions (from electricity used in production) are covered by the carbon price. In practice, the CBAM will be phased in gradually. Initial implementation in 2026 will cover only direct emissions from aluminium production, and only a

growing share of those emissions will be subject to the carbon price until free allowances are fully phased out in the EU's Emissions Trading System (EU ETS) in 2034. Therefore, this situation should be interpreted as an upper bound and long-run outcome of potential carbon cost exposure, rather than a projection of actual conditions in 2026.

The analysis holds all other costs (labour, raw materials, maintenance, etc.) constant at 2023 levels. The two situations serve as bounds: one with no CBAM and one with full CBAM. In practice, Mozal's position in 2026 will fall between these bounds, likely closer to the no-CBAM case given the phased implementation schedule.

Mozal's production cost percentile

Table 1 shows Mozal's production cost percentile for each situation.

Table 1: Mozal's cost position under higher electricity price scenarios (USD 50/MWh and USD 60/MWh, with and without the EU CBAM

Electricity Cost	**Production Cost Percentile**	
	Other smelters have inflation-adjusted electricity costs.	*Other smelters have inflation-adjusted electricity costs, and all smelters have USD 75/t CO2 carbon price.*
USD 50/MWh	39th	15th
USD 60/MWh	69th	26th

Figure 2: Mozal's cost position under USD 50/MWh electricity price. Figure 2(ii) reflects full CBAM implementation

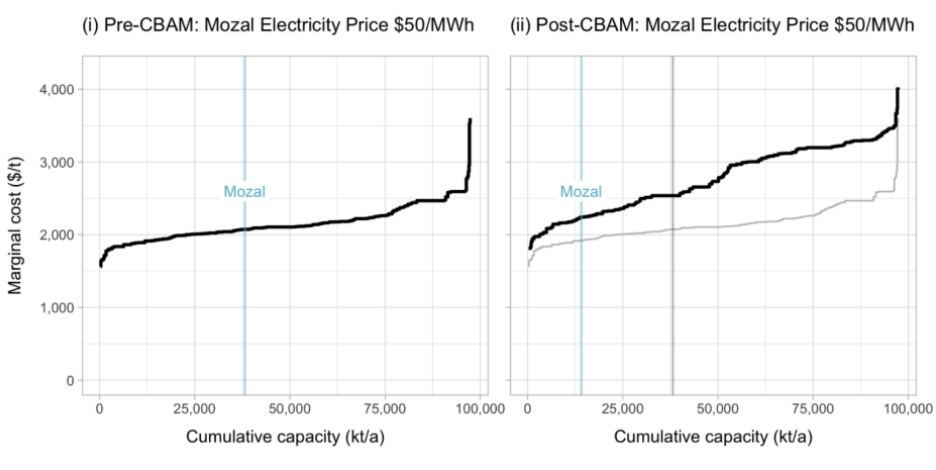
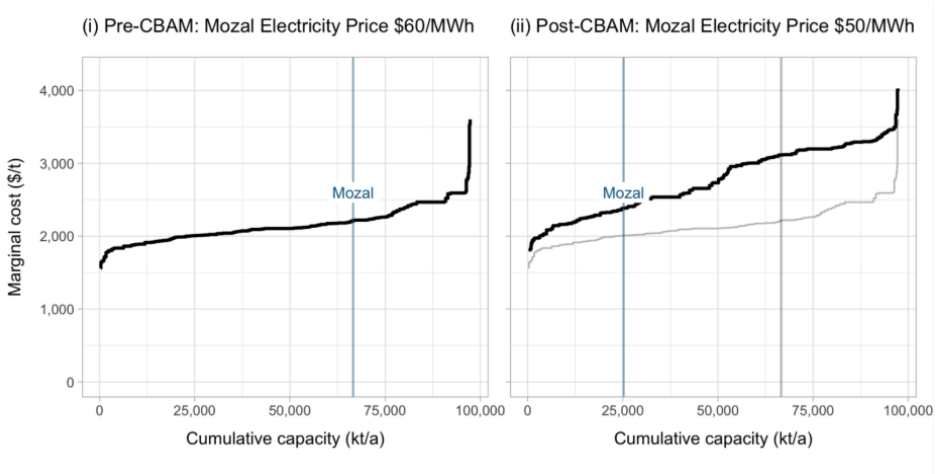


Figure 3: Mozal's cost position under USD 60/MWh electricity price. Figure 3(ii) reflects full CBAM implementation



In all situations, Mozal strengthens its competitive position when the EU CBAM takes effect. Because Mozal emits less carbon per ton of aluminium than most competitors, it faces lower carbon costs under the CBAM, enabling lower production costs and potentially higher profits than other firms.

The key policy question is whether these carbon tax revenues flow to the EU or remain in Mozambique. If the Mozambican government implements its own carbon tax on aluminium production in response to the CBAM, the revenue would accrue domestically rather than being transferred to the EU. Since an estimated 97% to 99.8% of Mozal's aluminium output is exported, domestic consumers would be largely unaffected. Based on Mozal's 2023 emissions, a USD 75/tCO2 tax could generate roughly USD 87 million, equivalent to 2% of total 2023 government tax receipts.