IDEAS
INSTITUTE FOR DEMOCRACY AND ECONOMIC AFFAIRS

Executive Summary

Asserting Climate Change Leadership in ASEAN: Carbon Pricing for the Malaysian Steel Industry

The energy system is the biggest contributor to man-made greenhouse gas emissions (GHG) and de
In recent years, Malaysia has attracted significant investment in its steel sector. While the inflow of capital and technology are welcome, they are also accompanied by large increases in greenhouse gas (GHG) emissions. By 2030, Malaysia is projected to triple its steel production capacity and to quadruple GHG emissions from the steel sector. This increase in total emissions and in emissions intensity run counter to global trends, and make it more difficult for Malaysia to reach its GHG reduction commitments under the Paris Agreement. To address this concern, the government has implemented a moratorium on new steel production capacity expansion, but it has yet to announce a comprehensive policy to address the rapid emissions growth of the sector.

There is a global consensus that carbon pricing is one of the most effective tools to reduce carbon emissions. Carbon pricing provides economic incentives for businesses to reduce their carbon emissions by internalising the costs of GHG emissions, which encourages investment in cleaner technologies, energy efficiency measures, and renewable energy sources. Additionally, carbon pricing can generate revenue for governments, which can be used to fund climate adaptation and mitigation efforts, investment in renewable energy infrastructure, or providing rebates to low-income groups.

Presently, Malaysia has no carbon pricing framework and no binding laws on climate change or decarbonisation, which limits the government's abilities to reduce the national GHG emissions. While implementation of carbon pricing has been announced in the Twelfth Malaysia Plan (12MP) 2021-2025, currently there are no concrete public plans for its implementation. A study on the impact of carbon pricing in Malaysia is currently being carried out with the support from the World Bank and will likely be released sometime in 2025.

While the reduction of carbon emissions is a societal imperative and should be adopted by all segments, some industries are more intensive in emissions than others. One case in point is the steel industry. In Malaysia, as well as globally, the steel industry plays an important role in the transition to a low-carbon economy. Steel is both a significant and hard-to-abate source of GHG emissions. Additionally, it is a crucial material for manufacturing wind turbines, electric vehicles, bioenergy refineries, and green buildings, all of which contribute to a low-emissions economy. The rapid growth of GHG emissions from the steel sector is a matter of great concerns, as these emissions are very difficult and costly to reduce.

While a number of policy documents have been presented to the public, the Malaysian government has yet to present a climate change law that would create legally binding targets or basic carbon pricing infrastructure, such as a national carbon register and compliance rules. Due to the urgency of this issue, this report aims to: a) understand current trends and future drivers of investment and GHG emissions in the Malaysian steel industry; b) examine the needs of carbon pricing for the manufacturing sector and the steel sub-sector specifically and the available types of carbon pricing that are feasible to be implemented in the Malaysian context, including a Carbon Border Adjustment Mechanism (CBAM); and c) recommend policies that can ensure that the Malaysian steel industry supports national GHG

emission reduction targets.

The study employs secondary data sources collated from Malaysia Steel Institute (MSI) and other publicly available data sources and publications. Additionally, interviews with key stakeholders in Malaysia and abroad were also undertaken to ensure that a comprehensive understanding of the research focus can be achieved. The list of interviewees is highlighted in the Appendix.

Firstly, the study highlighted that the construction of new large-scale blast furnace steel mills has exacerbated overcapacity concerns and led to a rapid increase in GHG emissions. The increase in production capacity in Malaysia has led to some technological upgrading, as well as increased exports, but is primarily being driven by foreign investment from China. Chinese steel producers have been increasing their investments in ASEAN due to excess capacity and falling demand inside China (Tham & Yeoh, 2020).

Secondly, the study highlighted the different technological options for reducing emissions in the sector. The Malaysian steel industry has two primary production processes: Blast Furnace-Basic Oxygen Furnace (BF-BOF) and Electric Arc Furnace (EAF). The GHG emissions from BF-BOF are roughly 240% higher than those from EAF (World Steel Association, 2021). While Carbon Capture Utilisation and Storage (CCUS) has been suggested as a way to reduce BF-BOF emissions, this is not deemed to be technologically or economically feasible. Instead, solutions may be found in coupling EAF technology to new electrolysis or hydrogen steel making technologies. In theory, provided that these plants are fed with renewable energy, this can enable the production of zero-emissions steel.

Thirdly, the study emphasised that the key market mechanisms to curb emissions rely either on setting a price for carbon and allowing the total emissions to vary, or establishing the total quantity of emissions, and letting the price fluctuate according to transactions between economic actors. The first approach is a carbon tax and the second is a cap-and-trade or emissions trading system (ETS).

While a carbon tax directly sets a price on carbon by levying a fee on GHG emissions, charged by a given government, a cap-and-trade introduces a limit for firms on overall emissions and market participants trade unused emission allowances as credits, thereby creating a carbon market. A comparison between a carbon tax and cap-and-trade system is presented below. Presently, most countries choose to adopt a hybrid approach, combining a tax and cap-and-trade system.

	Carbon Tax	Cap-and-Trade
Advantages	• Predictable carbon price • Simpler implementation	• Predictable emissions volume • Allows sale of excess emissions rights • Politically less controversial
Disadvantages	• Emissions volume uncertain • Politically unpopular	• Carbon price uncertainty • Difficult implementation

A carbon import tax (CBAM) mechanism should be considered alongside the imposition of carbon pricing, as it would avoid carbon leakages and protect Malaysian producers from foreign producers who are not subject to carbon taxes.

Fourth, the study notes that Malaysia's major trading partners, along with most of its ASEAN neighbours, are all in the process of implementing carbon pricing. Singapore and Indonesia have already imposed carbon pricing, Brunei, Thailand and Vietnam are expected to do so before 2028. Malaysia is therefore facing the risk of lagging behind regional peers.

Lastly, based on the examination of the pros and cons of the carbon tax and the cap-and-trade models, coupled with the examination of existing policies implemented by the ASEAN peers and the international community, the authors propose a timeline and a step-by-step implementation plan for carbon pricing measures for the local steel industry. The timeline emphasises the need for urgent action, given the increase in high emissions steel production capacity in Malaysia, by suggesting a temporary tax on coking coal. This policy measure buys time to develop the necessary regulatory infrastructure for carbon pricing and carbon import taxes (MY-CBAM). By 2026, Malaysia could impose mandatory measurement, by 2027 Malaysia could introduce carbon pricing (and remove the temporary coking coal tax). In 2030, assuming a national carbon pricing scheme is operational, the steel pricing scheme can become part of a national scheme.

Proposed Timeline for Policy Implementation

Year	Actions
2025	Impose a temporary tax on coking coal to account for the implicit high GHG emissions of blast furnace steel production.
	Prepare regulatory infrastructure needed for carbon pricing.
	Prepare regulatory infrastructure needed for a Malaysian carbon import tax (MY-CBAM).
2026	Require at-source measurement of GHG emissions and reporting of GHG emissions for imported steel products
2027	Impose carbon pricing and MY-CBAM, and remove the temporary coking coal tax. The government's excess emissions charge could be based on a trade-weighted basket of carbon prices from major trading partners.
2030	Creation of a national carbon pricing framework which would absorb the steel sector carbon pricing pilot scheme.