Rating the Raters: Accountability and Transparency of Standards

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Rating the Raters: Accountability and Transparency of Standards

Outcomes of the "Rating the Raters: Accountability and Transparency of Standards" project (2025) by Transparency International Malaysia (TI-M) and Prof Dato' Rajah Rasiah, Distinguished Professor of Economics and Executive Director, Asia-Europe Institute, University of Malaya and Dr. Puvanesvaran Sanjivee, Economist, Asia-Europe Institute, University of Malaya

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TABLE OF CONTENTS

PART 1
INTRODUCTION

Climate change and global warming has become a growing global concern with serious consequences on environmental temperatures, sea levels, economies, and communities. In response, countries have come together through the United Nations Convention for Climate Change summits known as the Conference of the Parties (COP) to set shared goals for reducing greenhouse gas emissions. These efforts are guided by the Paris Agreement of 2015, which aims to limit global warming to 1.5°C. As the world looks toward 2040, there is increasing pressure to accelerate climate action by shifting to renewable energy, protecting forests, and reducing carbon emissions. A key part of this effort is carbon governance, which refers to the systems and rules that manage how carbon is measured, reduced, and traded. As with natural resource rich countries, this is especially important for Malaysia, which has long relied on oil and gas exports. Its rainforests, which are among the oldest and most biodiverse in the world, play a vital role in regulating the climate, supporting unique ecosystems, and maintaining water systems that millions depend on. Protecting these natural resources is not only essential for meeting climate goals, but also a responsibility to future generations. Also, given the negative externalities associated with carbon emissions it also a responsibility Malaysia owes the world.

Developments since 2020 have highlighted the need for stronger scrutiny. The Verra scandal revealed that over 90 percent of rainforest carbon offsets by the biggest certifier are worthless as many forest-based carbon credits do not represent actual emissions reductions (Greenfield, 2023). This has raised serious concerns about the credibility of carbon markets. Without improvements in transparency and accountability, trust in these systems could erode, making it harder to attract investment and meet global climate targets. For Malaysia, this issue is especially important. Climate policies must be designed in a way that supports not undermines—economic growth, employment, and ongoing development projects. Several publications have subsequently been published calling for the deployment of more rigorous methodologies (e.g., West et al, 2023; Sasaki, 2025; Fu et al, 2025). A sustainable approach to carbon governance should help Malaysia transition to a low-carbon future while protecting jobs, supporting local communities, and aligning with national development goals; these goals need not be mutually exclusive.

PART 2
CRITICAL ISSUES IN CARBON GOVERNANCE

The importance considerations to deal with when addressing carbon governance include carbon emissions, inclusivity when addressing the indigenous communities, caron pricing, carbon offsetting, and the electric vehicle policy thrust, and challenges facing equitable allocation initiative. These issues are addressed in this section.

2.1 Carbon emissions

Carbon emissions refer to the release of greenhouse gases (GHGs), primarily carbon dioxide (CO_2), into the atmosphere because of human activities. These emissions contribute to global warming and climate change by enhancing the greenhouse effect. A carbon footprint is the total amount of GHGs emitted directly and indirectly by an individual, organisation, product, or activity, typically expressed in equivalent tons of CO_2 (UNFCCC, 2018; CCS-UMICH, 2025).

The GHG Protocol is the most widely used international accounting tool for government and business leaders to understand, quantify and measure greenhouse gas emissions (GHG) (Ecochain, 2025; World Business Council for Sustainable Development & World Resources Institute, 2004). Emissions are categorised within the GHG Protocol into following three scopes: Scope 1 (direct emissions) come from sources owned or controlled by an entity, such as fuel combustion and industrial processes. Scope 2 (indirect emissions) result from the use of purchased energy like electricity and heating and are attributed to the end user despite occurring off-site. Scope 3 (other indirect emissions) includes emissions across the value chain, such as those from goods production, transportation, and business travel. The latter often represents the largest share of a company's carbon footprint, though it is the hardest to measure. Efforts to reduce carbon emissions across all scopes are essential for achieving climate goals. While Scope 1 and 2 emissions are increasingly well-documented and regulated, Scope 3 emissions require greater transparency and collaboration among outfits across supply chains (Ecochain, 2025).

2.2 Integrating Indigenous Communities into Carbon Governance

Effective carbon governance requires inclusive frameworks that recognise and empower all stakeholders, particularly those most affected by climate change. In Malaysia, Orang Asli (Peninsular Malaysia) and Orang Asal (Sabah and Sarawak) communities are among the most climate-vulnerable populations due to their reliance on forest ecosystems for food, medicine, and cultural practices (Baharudin et al, 2023). Climate-induced disruptions, such as altered rainfall patterns, biodiversity loss, and increased flooding have significantly impacted their livelihoods and well-being.

Ecotourism has been growing in Malaysia and gaining in popularity, with Batu Puteh in Sabah being recognised by United Nations World Tourism Organization (UNWTO) as one of the best tourism villages in the world. While tourism may generate income to these communities, it is important to ensure that such activities are conducted with minimal risk to local ecosystems, while revitalising local culture and improving the livelihoods of local peoples (Mason et. al, 2025).

Despite their minimal contribution to global emissions, the United Nations recognises that Indigenous peoples offer vital climate solutions through organic practices using traditional sources of knowledge like sustainable agriculture and water management, while also safeguarding ecosystems that serve as carbon sinks and biodiversity reserves (UNDP, 2024; Rasiah, Anter & Annizah, 2025). To achieve the goals of both the Sustainable Development Goals (SDGs) of the United Nations and the Paris Agreement, governments need to solicit their full participation, recognise their rights, and integrate of Indigenous knowledge into climate policy and finance frameworks.

2.3 Carbon Pricing

Carbon offsetting is a climate mitigation strategy that allows individuals, corporations, and governments to compensate for their greenhouse gas emissions by investing in projects that reduce or remove emissions elsewhere, which arises following the recommendations of Stern (2007) and Nordhaus (2008) that was adopted by the United Nations Convention for Climate Change after the 2015 Paris Agreement (UNFCCC, 2018).. These projects span a wide range of activities, including reforestation, afforestation, renewable energy deployment, methane capture, and improvements in energy efficiency. The underlying principle is that emissions produced in one location can be balanced by reductions made elsewhere, thereby contributing to global climate goals. To facilitate this, carbon credits are issued with each credit representing one metric ton of carbon dioxide (or its equivalent) that has been reduced or removed from the atmosphere. These credits are traded in two primary markets: compliance markets, which are regulated by national or international laws (such as the EU Emissions Trading System),

and voluntary markets, where entities purchase credits to meet internal sustainability targets or demonstrate environmental responsibility. The effectiveness of carbon offsetting depends heavily on the integrity of these credits, which must be verified to ensure they represent real, additional, and permanent emissions reductions. Robust methodologies, third-party audits, and transparent reporting are essential to maintaining trust in the system.

In 2023, the credibility of voluntary carbon markets was significantly undermined by a major investigation into Verra, the leading certifier of carbon credits (Greenfield, 2023; Sasaki, 2025), which suggested that over 90% of Verra's "avoided deforestation" credits were based on inflated or unverifiable claims, raising serious doubts about their actual environmental impact. The controversy exposed systemic issues within the certification process, including the use of speculative baselines and a lack of transparency, which led to widespread criticism of companies that had relied on these credits to support their climate commitments. Indeed, this exposure called back into question the typical problems associated with of patron-client collusion. While most studies show that there has not been significant reductions in deforestation, some highlight problems of measurement that need correction to strengthen the robustness of such findings. For example, West et al (2023) argue that the methodologies used to construct deforestation baselines for carbon offset interventions need urgent revisions. They argue that there needs to be methodological rigour to attribute reduced deforestation to the projects, which can then assure that the incentives for forest conservation and the integrity of global carbon accounting can be preserved.

The incident triggered a wave of scepticism and accusations of greenwashing, prompting calls for reform across the carbon offsetting industry. Verra responded by pledging to improve its methodologies and increase transparency, but the damage to public trust and its contagion on such verification systems has already been done. The case underscored the urgent need for higher-integrity standards and more rigorous oversight to ensure that carbon markets can play a meaningful role in global climate mitigation efforts.

In Malaysia, carbon pricing is emerging as a market-based instrument designed to influence corporate behaviour by attaching a financial cost to greenhouse gas (GHG) emissions. Rooted in the 'polluter pays' principle, this approach incentivises businesses to reduce their carbon footprint by internalising the environmental costs of their emissions. By making emissions financially accountable, carbon pricing encourages companies to adopt cleaner technologies and more sustainable practices. Malaysia's commitment to achieving net-zero emissions by 2050 and reducing carbon intensity by 45% against GDP by 2030 has spurred interest in such mechanisms (see also Rasiah and Gopi Krishnan, 2025). The launch of the Bursa Carbon Exchange (BCX) in 2022 marked a significant step, enabling the trading of carbon credits and renewable energy certificates to promote industry participation in the carbon market (Rasiah, Gopi Krishnan & Azleen, 2022; Allen & Gledhill, 2024). While Malaysia has yet to implement a formal carbon tax or cap-and-trade system, policy discussions and pilot programs are underway

to explore these options as part of the National Energy Transition Roadmap (NETR).

Carbon pricing in Malaysia is not just a climate tool; it is also a strategic economic lever (Findley et al, 2024). By correcting market failures associated with unchecked emissions and underinvestment in natural capital, it strengthens the business case for low-carbon investments and the conservation of nature. As the country moves toward more robust climate governance, carbon pricing is expected to play a central role in aligning economic growth with environmental sustainability.

2.3.1 The Carbon Offsetting Business in Malaysia: Growth, Greenwashing, and Governance

Malaysia's carbon offsetting industry has expanded in recent years, driven by both domestic policy initiatives and international pressure for ESG compliance. The BCX was earmarked as a significant step towards establishing Malaysia as a regional hub for voluntary carbon markets. This exchange facilitates the trade of carbon credits, particularly from nature-based solutions such as forest conservation. Notable projects include Sabah's Kuamut Rainforest Conservation initiative, Central Forest Spine (CFS) aimed at reconnecting fragmented forest habitats across Peninsular Malaysia, and active participation in the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) programme to mitigate climate change through forest conservation and sustainable management (ADB, 2024; Fairatmos, 2024).Companies like Petronas, Shell, Grab, Malaysia Airlines, and AirAsia have all made carbon-neutral claims based on offset purchases, using these initiatives to enhance their sustainability branding while maintaining their core business operations. However, during the trading week of 30th June to 4th July 2025, there were no transactions recorded on BCX's Continuous Trading Platform. One possible reason could be that there were a limited number of carbon credits available for trading,

Carbon offsetting offers Malaysian firms a cost-effective way to meet environmental expectations without undergoing major operational changes. It allows companies to preserve profitability, access global markets, and appeal to environmentally conscious stakeholders. However, this commodification of climate responsibility has led to growing concerns about greenwashing

where firms exaggerate or misrepresent their environmental impact. The independent watchdog conducting research and analysis on climate-related issues, Rimbawatch has listed numerous companies in Malaysia, Singapore and Brunei, including Chevron, Grab, Shah Alam City Council, Shell, Maybank, Mercedes Benz, Petronas and Singapore Airlines of being involved in greenwashing (Rimbawatch, 2025). Rimbawatch has also flagged the 2024 BCX auctioning of renewable energy certificates (RECs) issued by the 275,000 hectares Murum Dam for overstating reduction in emissions.

Most of the companies flagged were from the automotive and oil and gas sectors, and these companies were accused of making misleading sustainability claims, including the use of carbon offsets to assert carbon neutrality without sufficient evidence. Grab was specifically cited for promoting its services as carbon neutral through offsets, a practice banned under advertising standards in several jurisdictions. In response, Grab cited the lack of globally aligned standards in the carbon market and defended the legitimacy of carbon credits, emphasising its due diligence and reliance on top-rated carbon rating agencies and regional exchanges. Petronas was also highlighted for similar offset-based claims and for omitting key information in its net-zero disclosures. The company reiterated its commitment to supporting a lower-carbon future in response to the allegations (TheEdge, 2025). These exposures, nevertheless, does reveal a need for tightening the regulations on carbon credit reporting.

The credibility of Malaysia's offsetting projects has also come under scrutiny due to BCX's association with the Verified Carbon Standard (VCS) of Verra. Public scrutiny intensified following a gas pipeline explosion in Putra Heights in April 2025, which led RimbaWatch to call for an independent investigation into Petronas Gas Berhad. The watchdog cited environmental negligence and inadequate oversight, raising broader concerns about the integrity of environmental impact assessments and land-use planning (NADMA, 2025). These developments underscore the tension between capitalist growth and environmental accountability in Malaysia's carbon offsetting sector. Without robust regulation and transparency, carbon offsetting risks becoming a tool for corporate greenwashing rather than a genuine climate solution.

Despite these controversies, Malaysia currently still lacks specific legislation targeting greenwashing. Also important is the need to follow on the imposition of stringent enforcement so that the enforces are also made equally responsible for ensuring the observance of climate standards, though regulatory momentum has been building in recent times. The Carbon Capture, Utilisation and Storage Bill 2025 and Sarawak's Environment (Reduction of Greenhouse Gases Emission) Ordinance 2023 were successfully passed. Furthermore, the National Sustainability Reporting Framework (NSRF) was launched in 2024 to require large non-listed companies, with revenue above RM2 billion, to disclose sustainability information in line with IFRS S1 and S2 standards, including Scope 3 emissions (Securities Commission, 2024).

2.4 Malaysia's Electric Vehicle Market: Growth, Incentives, and Opportunities

Malaysia's automotive industry is the third largest in Southeast Asia with almost 30 producers and more than 600 parts and component manufacturers (MIDA, 2024a). This sector contributes approximately RM40 billion to the national economy, while supporting over 700,000 jobs across manufacturing, distribution, and after-sales services (MIDA, 2023; MIDA, 2024b). Although the electric vehicle (EV) segment remains relatively small, it is expanding rapidly. EV sales grew by 65% between 2020 and 2021, and this upward trend is expected to continue as Malaysia advances its National Energy Transition Roadmap (NETR). The Malaysian Automobile Association (MAA) expects the demand for xEV to continue to grow, with 7,400 xEV units sales forecast for 2024 representing a 10 percent of total industry volume (TIV), thanks to government support to promote the use of these 'greener' cars, as well as the introduction of a greater number of new xEV models (paultan.org, 2024a).

The NETR outlines Malaysia's goal of EVs accounting for 15 percent of all vehicles sold by the year 2030, rising to 80 per cent by 2050 (MIDA, 2024c). To support this transition, the government has introduced a comprehensive set of incentives for both consumers and industry stakeholders. For consumers, completely built-up (CBU) EVs are exempt from import and excise duties from January 1, 2022, to December 31, 2025. Locally assembled EVs enjoy full exemptions from import duties, excise duties, and sales tax until December 31, 2027. EV owners are also exempt from road tax until the end of 2025, after which a lower annual road tax rate will be charged for EV when compared to internal combustion engine (ICE) vehicles. Additionally, individuals can claim up to RM2,500 per year in income tax relief for the installation, rental, or purchase of EV charging equipment, valid through 2027. For electric motorcycles, tax rebates of up to RM2,400 was available until 2024 for individuals earning less than RM120,000 annually (MIDA, 2024c).

On the infrastructure and industry side, Malaysia had aimed to install 10,000 EV charging stations nationwide by 2025. Charging Point Operators are eligible for a 100 percent investment tax allowance over five years, while manufacturers of EVs and related components can benefit from Pioneer Status, which offers income tax exemptions of 70–100 percent for up to 10 years. These companies may also qualify for an investment tax allowance of up to 100 percent on eligible capital expenditures (MGTC, 2024).

The green mobility push by the government will require a huge infrastructural investment spanning two and a half decades. Central to Malaysia's energy transition are the Green Investment Strategy (GIS) of 2024 and the National Energy Transition Roadmap (NETR) of 2023. The GIS targets seven key areas of investment potential, including renewable energy, green hydrogen, bioenergy, green mobility, and carbon capture, utilisation, and storage (CCUS), while the NETR is the country's strategic plan to facilitate transition to a low-carbon economy to achieve net-zero greenhouse gas emissions by 2050. The GIS for targeted efforts in green mobility, renewable energy, and hydrogen is aiming for RM300 billion in investments by 2030, with PV panels and

EVs leading the way (MIDA, 2025). The NETR estimates a combined investment of RM1.2 to RM1.3 trillion by 2050, to support renewable energy expansion, particularly solar PV, hydropower, and grid upgrades, and to advance green mobility through enhanced public transport, domestic EV production, and EV charging infrastructure development (NETR, 2023).

2.5 Challenges to equitable allocation of carbon emissions across supply chain

The EV supply chain covers raw minerals, processed minerals, battery materials, battery packs, and electric vehicles (Rasiah, 2024; Tham, 2025). Besides EVs, lithium, cobalt, graphite, manganese, and others are essential for producing clean energy technologies, including solar panels, wind turbines and grid battery storage (UNCTAD, 2023). The supply chain is international in nature, and international agencies need to address how emissions can be shared across boundaries in a more equitable manner. Also important are efforts by governments to impose export tariffs on minerals, (such as Indonesia on nickel), to raise processing value added domestically.

Rare earth mining, while critical to the global shift toward green technologies, presents profound environmental, social, and health challenges. The extraction process, particularly in countries like Myanmar and China, involves topsoil removal, chemical leaching, and drilling with PVC pipes, which severely contaminate soil and water (Global Witness, 2024). For every ton of rare earths produced, approximately 13 kilograms of dust, 9,600 to 12,000 cubic meters of waste gas, 75 cubic meters of wastewater, and one ton of radioactive residue are generated (Harvard International Review. 2021). These emissions contribute to widespread air and water pollution, radioactive contamination, and ecosystem degradation. Creeks and rivers have been left dangerously contaminated with heavy metals and radioactive elements, and tests showed that even after 10 years of a mine being put out of use, the sites continued to emit toxic heavy metals such as arsenic and cadmium far above safe levels for human exposure (Earthright International, 2025; Phenrat, 2025). Communities near rare earth mining sites in Myanmar reported severe environmental degradation, including water contamination that causes skin infections and kills livestock, indicating serious health risks associated with exposure to mining runoff and chemicals used in extraction (Global Witness, 2024).

Rare earth mining in Kachin State, Myanmar, has contributed to environmental destruction and human rights violations in a region already affected by a bloody armed conflict. Indigenous communities and ethnic minorities living in these biodiverse areas face exclusion from decision-making, while mining activities often controlled by militia groups aligned with the military junta have disrupted local governance and contributed to instability (Global Witness, 2024; Earthright International, 2025). With hundreds of mining sites in the region, the mountains have now become dismembered with open patches heavily prone to soil erosion, and the river has turned red as some of the chemicals used in the mining pools are being dumped into

the stream; these pose a huge risk to both the environment and local villagers who work with neither gloves nor masks (DW, 2025). While not reaching the destructive level of mining in Myanmar, Malaysia too is endowed with economically viable deposits of rare earth but both the regulations and protection measures remain loosely governed.

Although the economic benefits of rare earth is substantial and driven by demand for electric vehicles (EVs), wind turbines, and solar panels, the profits are largely concentrated in manufacturing nations, and in particular China (Depraiter, Goutte, & Porcher, 2025; Cuadros-Muñoz et al, 2024), while mining countries bear the brunt of environmental and health costs and, in the case of Myanmar, also high political instability (Earthright International, 2025). In this regard, while China is also a leading supplier of the minerals, other important suppliers, such as Kazakhstan and Indonesia have little participation in the mining country Consumer nations like Malaysia benefit from clean energy products without taking responsibility for the upstream emissions and degradation associated with their production. This global supply chain disconnect highlights the inadequacy of current emissions accounting frameworks. The Greenhouse Gas (GHG) Protocol, while widely adopted, fails to fully capture the indirect and cross-border impacts of rare earth mining. Scope 3 emissions, which include supply chain activities, are often underreported or excluded, and there is no mechanism to allocate emissions responsibility across the countries involved in mining, manufacturing, and consumption. As a result, nations may appear environmentally responsible while indirectly contributing to significant harm abroad.

The case of Myanmar's rare earth boom exemplifies this imbalance. Mining operations in Kachin State have expanded rapidly to meet global demand for EVs and wind turbines, yet they operate with minimal regulation, leaving behind toxic landscapes and sick communities. Water sampling in mining zones revealed highly acidic conditions and elevated arsenic levels, threatening biodiversity and public health (Global Witness, 2025). Meanwhile, the rare earth concentrate is exported to China for processing, and the final products, such as EVs and other green technologies, are manufactured and sold in countries like Malaysia, which remain disconnected from the environmental costs of their consumption. Similar controversies have previously emerged in Malaysia itself, where the Australian Stock Exchange listed Lynas' Advanced Materials Plant (LAMP) in Kuantan and an earlier rare earths refinery partly owned by Mitsubishi Chemical near the town of Bukit Merah had faced public backlash over radioactive waste and environmental risks (Tengku Ismail et al, 2016).

End-of-life management of EVs, lithium-ion batteries, and solar panels presents countries with growing sustainability challenges. According to the U.S. Department of Energy's (2021) National Blueprint for Lithium Batteries (2021–2030), the rapid growth of EVs and stationary energy storage will generate significant battery waste, requiring robust recycling infrastructure and domestic supply chain development. The U.S. Environmental Protection Agency (EPA) has clarified that most end-of-life lithium-ion batteries are considered hazardous waste under the

Resource Conservation and Recovery Act (RCRA), due to risks like ignitability and reactivity. These batteries must be managed under universal waste regulations to prevent fire hazards and environmental contamination (Webb et al, 2023).

In conclusion, rare earth mining reveals a troubling paradox: on the one hand, it enables the development and diffusion of green technologies while on the other hand it causes severe degradation in vulnerable regions. The economic benefits are unevenly distributed, and current emissions accounting frameworks like the GHG Protocol are not adequately equipped to address the transnational nature of harm that rare earth causes to both environment and local communities. A more transparent and equitable approach to emissions tracking and ethical sourcing is urgently needed to ensure that green transition does not come at the expense of marginalised communities and ecosystems. These issues also underscore the need for coordinated environmental and social governance policies with implications for recycling infrastructure, and circular economy strategies to ensure that green technologies, including EVs and their batteries, remain sustainable throughout their lifecycle.

PART 3

CRITICAL ISSUES TO ADDRESS TOWARDS DEVELOPING A FRAMEWORK OF ANALYSIS

In this section we address some of the critical elements towards developing a framework of analysis for Malaysia. Table 1 shows some of the major carbon rating agencies (CCRA) operating globally in voluntary carbon markets.

The methodologies adopted by these CCRAs are shown in Table 2.

Table 1: Characteristics of Selected CCRAs Operating in Voluntary carbon markets

Name	Country	Year Formed	Primary Funding Type	Key Institutional Investors	Total Funding (US$ Est.)
BeZero Carbon	United Kingdom	2020	Venture Capital & Strategic Investments	GenZero (Founded by Temasek), Translink Innovation Fund, EDF Pulse Ventures, Japan Airlines, Hitachi Ventures, Quantum Capital, Illuminate Financial and Contrarian Ventures and James Scott.	$109 Million (over 5 rounds)
Sylvera	United Kingdom	2020	Venture Capital	Index Ventures, Insight Partners, Balderton Capital, Salesforce Ventures, Innovate UK and Seedcamp	$99.6 Million (over 6 rounds)
Calyx Global	United States	2017 (VCM focus: 2021)	Venture Capital & Impact Funds	Surge, Time Zero Capital and GOOSE Capital.	$7 Million (seed)
MSCI /Trove Research	United States / United Kingdom	2015 (Trove formed)	Acquisition (Corporate M&A)	MSCI Inc. acquired Trove Research in late 2023. Trove has since been a part of the ESG and Climate operating segment of MSCI.	Unstated
Renoster	United States	2019	Venture Capital	Seraphim	$3.92M (Incubator/ Accelerator stage)

Source: tracxn.com (2025); pitchbook.com (2025); cbinsights.com (2025); company website

Table 2: Methodology of Selected CCRAs

Name	Core Focus	Methodology	Rating System	Notes
BeZero Carbon	Risk based assessment: Assesses the likelihood that a credit achieves 1 tonne of CO2e avoided or removed.	Hybrid Analytical Framework combining financial, scientific, and policy analysis. Uses proprietary data (satellite imagery, ML) and publicly available documentation.	Eight Letter Scale (AAA to D)	BeZero's parent, GenZero, has invested in a diverse portfolio of nature and technology-based solutions and ecosystem enablers.
Sylvera	Holistic Project Quality: highest likelihood of removing GHGs, that is highly additional, and that has low permanence risks	Data and tools-Driven. Uses a combination of three scoring pillars: carbon, additionality and permanence.	Letter Scale (AAA to D)	A project's co-benefits are thought of as additional benefits beyond carbon avoidance or removal, and provided a separate rating in line with SDG.
Calyx Global	Rigorous, peer reviewed frameworks for carbon credit ratings	Risk-Based Expert Assessment. Aligns GHG risk factors (Additionality, Permanence, Over-crediting and overlapping claims) with ICVCM's Core Carbon Principles (CCPs). Separately monitors the impact on UN SDG goals.	Dual Ratings (GHG Risk and SDG Impact)	Strong focus on Environmental and Social (E&S) risks and the detailed, rigorous assessment of co-benefits and SDG claims.
MSCI / Trove Research	Provide investor-grade data, analytics and insights across the carbon market ecosystem.	Apply robust, transparent methodologies for carbon price indexes and integrity assessments, enhanced by advanced analytics, geospatial tools and science-driven frameworks for clear, actionable insights.	Seven Letter Scale (AAA to CCC)	Comprehensive climate solutions and transparent, credible insights on VCM for corporate and institutional investors. Drive clarity through high quality, innovative data and insights.
Renoster	Specialises in providing deep transparency for carbon projects within the environmental sector.	Offers rigorous reviews and pre-issuance analysis of nature-based carbon projects, leveraging remote sensing technology to assess and forecast project quality.	N/A	Transitioned from a rating agency to a project developer/supplier ("Apollo" programme) leveraging on its scientific expertise to generate high-quality forest carbon removal.

Source: Company website and technical documents

3.1 Conflict of Interest

It can be observed that most of the CCRAs were formed in recent years, and much of this can be attributed to the major spike in corporate Net-Zero commitments following the Paris Agreement in 2015. CCRAs are primarily funded by Venture Capital (VC) and holding companies such as Temasek. These introduce significant implications regarding their operational focus, stability, and/or independence:

- Funding from VC indicates that the CCRAs' core operational focus is maximising market share and revenue growth to satisfy investor demands for high returns, potentially prioritising speed and scale over the meticulous, slow-paced rigor typically required for scientific auditing.
- The presence of major carbon credit buyers, such as airlines and energy firms, among the strategic investment holdings creates a perceived conflict of interest, raising questions about whether the agencies' ratings could be consciously or subconsciously influenced to favour project types commonly held or sought by their own corporate investors.
- As young, private entities, CCRAs lack the long history of independence and public scrutiny that traditional financial rating agencies (like Moody's or S&P) possess, meaning their reliance on proprietary AI/ML models supported by satellite and other data, without sufficient site audits, is likely to be treated with greater market scepticism regarding transparency and potential "black box" bias.
- While the VC funding model ensures that CCRAs are driven to rapidly develop the financial infrastructure (data/ratings) necessary to scale the VCM, but it also ties the firm's success to the success of a market they are meant to be independently scrutinising.

3.2 The "Black Box" methodology challenge

While the Integrity Council for the Voluntary Carbon Market (ICVCM, 2025) has introduced the Core Carbon Principles (CCPs) to phase out legacy methodologies deemed insufficiently rigorous and demand stricter verification processes with the hope of establishing a minimum integrity threshold. It should be noted that the major funding partners of ICVCM include significant carbon producers such as Google, Jeff Bezos and Sequoia Capital.

A review of the carbon offsets literature by Romm et al. (2025) concludes that many of the most popular offset project types face intractable quality problems and that the current system is fundamentally flawed. The problems include:

a. Additionality: The difficulty in proving that emissions reductions from a project would not have occurred without the offset funding, a core requirement for valid offsets.

b. Leakage: The phenomenon where emissions reductions in one area lead to increased emissions elsewhere, such as when forest protection in one region causes deforestation to shift to another.

c. Permanence: The risk that carbon stored through projects, such as forests, may be released back into the atmosphere due to fire, disease, logging, or other disturbances, especially as climate change intensifies.

d. Double Counting: The risk that a single emissions reduction is claimed by more than one entity, leading to inflated or misleading credit claims.

e. Nonadditionality: The generation of carbon credits without actual emissions reductions, meaning the project would have occurred regardless of offset funding.

f. Impermanence: The failure of many projects to ensure long-term carbon storage, with nature-based solutions often not promising durability over centuries.

g. Perverse Incentives: Situations where offset systems inadvertently encourage behaviours that increase emissions or harm ecosystems.

h. Gameability: The ability of bad actors to exploit weaknesses in crediting systems to generate credits fraudulently, even under well-designed rules.

i. Environmental Injustice and Neocolonial Patterns: Documented cases of weak accountability and harm to communities, particularly in the Global South, with benefits from carbon-credit income often disproportionately favouring project developers over local populations.

j. Overcrediting: A widespread issue where offset programs significantly overestimate their climate impact, often by a factor of five to ten or more, a problem that has persisted for over two decades.

The term “black box” in used to refer to the lack of transparency and accountability in carbon offset programmes, specifically in relation to how offset credits are generated, verified, and used. As inputs (emissions reductions) and processes (verification, crediting) are opaque, it becomes difficult to independently assess the true environmental integrity of these credits. This is because the methodologies and data behind many offset projects are not fully disclosed or independently auditable, buyers and regulators cannot easily detect flaws or fraud. The “black box” nature of carbon markets shields weak or deceptive practices from public view, allowing companies to appear climate-friendly without delivering actual climate benefits. This affects both the producers and buyers of carbon credits. For instance, the questions surrounding Verra Verified Carbon Standard (VCS) has led to doubts over the projected savings from Sabah origin Kuamut Rainforest Conservation Project. Companies too could become more hesitant to utilise, especially nature-based, carbon credits to meet their climate commitments or as part of their decarbonisation plans.

3.3 The Parallel with Carbon Credit Ratings

The parallel between the conflicts of interest in the CCRAs and the major failures of the credit rating agencies (CRAs) during the 2008 Subprime Mortgage Crisis is highly relevant and stems directly from their revenue models. While CRAs are paid by securities issuers, CCRAs are paid by the project developer. The three CRAs, Moody's, Standard & Poor's, and Fitch "were essential cogs in the wheel of financial destruction" through "including the flawed computer models, the pressure from financial firms that paid for the ratings, the relentless drive for market share, the lack of resources to do the job despite record profits, and the absence of meaningful public oversight" (Financial Crisis Inquiry Commission, 2010).

3.4 Comparison between Subprime Mortgage Crisis and Carbon Credit Market

The primary criticism of the "black box" methodology in carbon credit systems centres on the lack of transparency and the potential for manipulation on how emission reductions are calculated and verified. As during the subprime crisis, when the entity being rated pays for the assessment, it opens the possibility for the resulting opinion to be structurally biased, leading to the systemic overvaluation of assets, whether they are toxic debt instruments or non-additional carbon credits (see Table 3).

Table 3: Comparing the Subprime Mortgage Crisis and Carbon Credit Market

Subprime Mortgage Crisis (2008)	Carbon Credit Market (Present)
Rated Entity Pays: Investment banks/issuers paid CRAs to rate their derivatives and collateralised debt obligations (CDOs).	The Developer-Pays Model: Project developers or verifiers often pay the Registries (e.g. Verra, Gold Standard) to certify and issue their credits.
CDOs were rated AAA despite being filled with junk (subprime mortgages) due to complex, opaque models.	It may be possible for credits to are issued for projects whose baselines are highly inflated creating "phantom emission credits" (Greenpeace, 2024) that do not represent real emission reductions.
Lack of Transparency: CRAs' proprietary models were non-public, making it impossible for investors to assess the true risk of the mortgages inside the CDOs.	While methodologies are made public, the specific AI/ML algorithms and proprietary data used by CCRAs to generate the final rating remain opaque, preventing independent scrutiny and replication.

Since carbon markets are here to stay, as affirmed by Glasgow COP 26 climate negotiations in Glasgow, as being an important means toward reaching the Paris Climate Agreement goals on limiting global temperature increase, solutions are required to mitigate the associated risks while building confidence in carbon markets.

3.5 Testing, Inspection, and Certification Framework

The Testing, Inspection, and Certification (TIC) business is a multi-billion-dollar global industry that provides impartial, third-party verification that ensure products, services, systems, and processes meet mandated safety, quality, and performance standards. It functions as the crucial trust infrastructure that underpins global trade, consumer safety, and regulatory compliance. A TIC certification is trusted due to a foundation built on rigorous accreditation, demonstrated competence, and enforced impartiality that minimises the risk of bias or error. The strict adherence to international standards and a multi-layered system of oversight is key.

The importance of the TIC market is recognized as vital in 2025 because:

- it helps businesses navigate complex global and local regulations (e.g., product safety, environmental standards).
- It identifies potential defects or failures before they lead to product recalls, legal issues, or accidents.
- Provide certifications (like the CE Mark or ISO standards) that are often mandatory for accessing international markets.

The major companies in this market include SGS S.A. (Switzerland),, Bureau Veritas (France), Intertek Group plc (UK), TÜV SÜD AG (Germany) and Eurofins Scientific (Luxembourg). These companies are now also participating in carbon footprint verification and credit auditing.

3.6 How TIC companies can be used to increase transparency and trust in VCM

TIC firms are experts in physical auditing and compliance, whereas CCRAs' competency includes financial risk modelling and data science. A successful strategy could consider using TICs to leverage their established trust and auditing procedures to validate the inputs and governance of the VCM system. For instance, satellite data can provide the required scale and coverage, but with physical measurements and local knowledge one can improve the accuracy and validate models. TIC companies have global presence, including in Malaysia, to provide year-round support. Furthermore, TICs can also enhance trust by certifying the technology and methodology of Digital Measurement, Reporting, and Verification (dMRV) systems, assuring that

the high-tech sensors and AI used for remote sensing are accurate, reliable, and consistently calibrated according to established international standards.

TICs can be employed to mitigate weaknesses inherent to CCRAs by focusing on their core strength: impartial, physical and procedural auditing. While CCRAs excel at complex financial risk modelling and using proprietary AI to rate credits, TICs can bridge the "black box" gap by providing accredited, third-party assurance of the raw data inputs and governance systems used by raters, thereby certifying the foundation of the ratings.

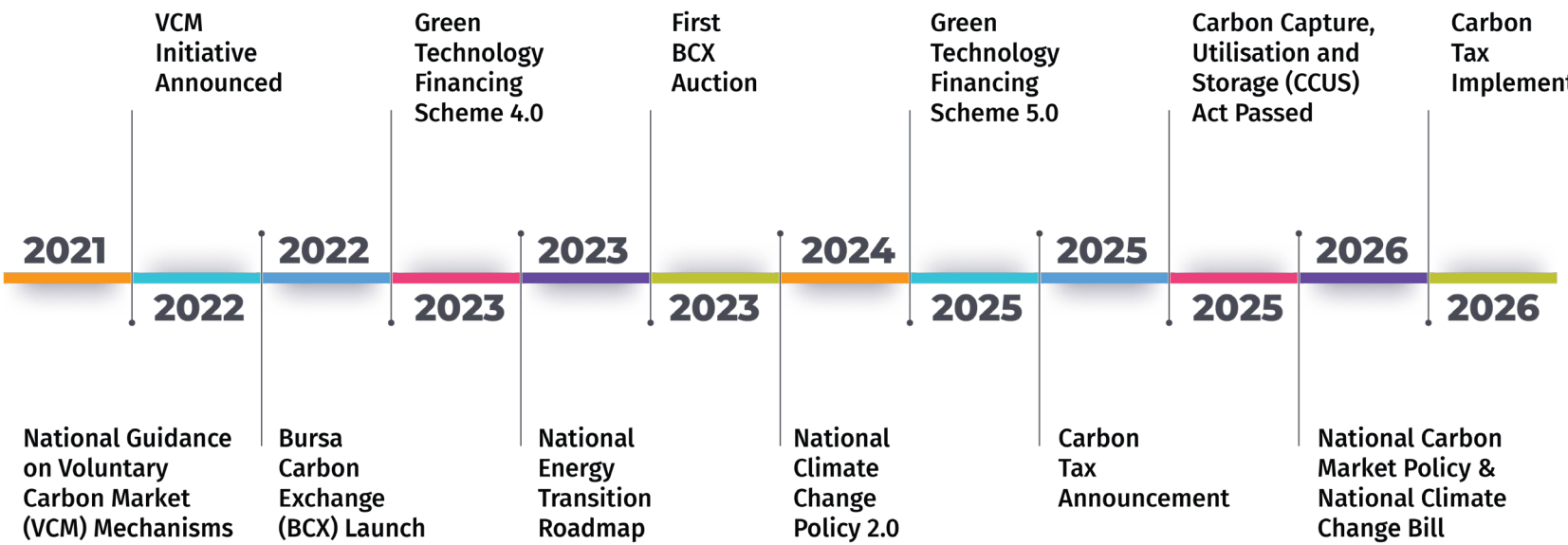
The resulting comprehensive assurance, which includes TIC validation of ground-truthing, certification of dMRV technology, and auditing of CCRA conflict-of-interest controls, will increase the overall cost of issuing and retiring credits, the latter being essential for preventing double-counting. Ultimately, this higher cost has to be weighed against the utility of significant enhancement in market trust, integrity, and transparency that can be achieved.

PART 4
MALAYSIA'S CARBON MARKET FRAMEWORK

Malaysia has developed and is in the process of implementing a comprehensive national framework to transition to a low-carbon economy, beginning with policy signals that lead to statutorily mandated market mechanism (Malaysia, 2024). The process began with the National Guidance on VCM Mechanisms in 2021, which formally indicated the nation's commitment to engaging with international voluntary carbon markets. This foundation rapidly led to the 2022 establishment of the Bursa Carbon Exchange (BCX), a pioneering Shariah-compliant regulated platform for voluntary trading, serving as a critical pilot for market infrastructure and liquidity. This market architecture is strategically supported by the National Energy Transition Roadmap (NETR) (2023) and sustained financial schemes like the Green Technology Financing Scheme (GTFS), all of which are unified under the overarching National Climate Change Policy 2.0 (2024). The policy agenda is now firmly shifting towards compliance obligations, evidenced by the Carbon Tax Announcement, slated for 2026 implementation and initially targeting heavy emitters, and the forthcoming CCUS Act (2025). This ambitious legislative program will culminate in the National Carbon Market Policy and Climate Change Bill (2026), which is set to formalise a mandatory Domestic Emissions Trading Scheme (DETS) and institutionalise climate finance. This is expected to bolster governance and adherence to international climate obligations.

Figure 1 presents the milestones initiated by the government to prepare for the expected implementation of Carbon Tax for selected industries, namely, iron, steel, and energy, in 2026.

Figure 1: Timeline for Implementation of Carbon Tax, Malaysia, 2021-2026



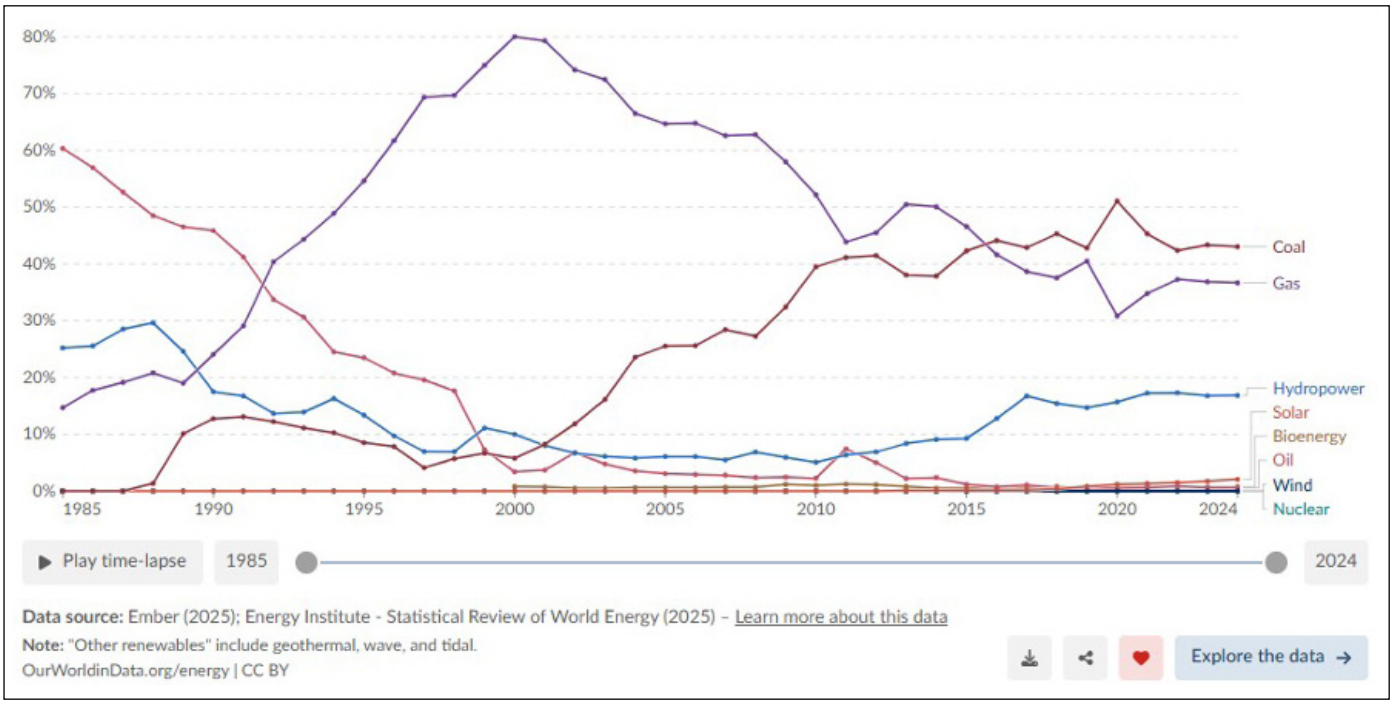
Source: Prepared by Authors

4.1 Carbon Net Zero Target and Substitution Timeline

The Ministry of Natural Resources, Environment and Climate Change (NRECC) set in 2021 a target of 31% of renewable energy (RE) share in the national installed capacity mix by 2025 towards achieving Malaysia's global climate commitment economy-wide (carbon intensity against GDP) of 45% by 2030 and eventually carbon net zero by 2050. The Malaysia Renewable Energy (RE) Roadmap (MyRER) has been commissioned to support further decarbonization of the electricity sector and a further reduction to 60% by 2035 (SEDA, 2025).

The scope of MyRER includes three workstreams; assessing the baseline installed capacity and RE resources potential, developing technology-specific RE targets and scenarios, and developing a strategic roadmap. Fossil fuels accounted for over 91% of Malaysia's energy consumption with increasing reliance on imported coal since 2015 to generate electricity (Asia Natural Gas & Energy Association, 2025). While Malaysia's domestic coal industry is small, over 43% of electricity of Malaysia was generated from coal, while natural gas contributed at 37% and hydropower at nearly 17% in 2023. As Figure 2 shows, the trend over the period shows a rise since 1997 while that from solar and wind remains small. These statistics leaves much to be desired on Malaysia's capacity to meet the carbon net zero target by 2050. It shows a paradox: on the one hand aggressive promotion has driven a rise in electric vehicles in the country, while on the other hand the electricity converted largely come from fossil fuels.

Figure 2: Share of Electricity Production by Source, Malaysia, 1985-2024



4.2 Interviewees/Observers:

The insights of the following individuals were sought through interviews to provide expert context, highlight practical limitations, and suggest enhancements to the government's carbon tax initiative.:

O1. Dr Shanta Chenayah, Economist at University of Malaya;

O2. Ms. Elizabeth Wong, Former Member of the Selangor State Executive Council;

O3. Mr. Bruno Periera, General Secretary of Electronics Industry Employees' Union (EIEU) Western region;

O4. Mr. Chin Jit Sin, Managing Director of New Hoong Fatt Bhd, a Bursa main board automotive replacement parts manufacturer;

4.3 Political and Governance Barriers to Integrity

Albeit the field study only involved representatives from four (4) stakeholders, the responses are sufficiently telling for discussion here.

One observer (O1) viewed vested-interest captured by emissions-intensive industries, amplified by federal–state fragmentation and limited regulatory capacity as the single biggest political barrier to the integrity and effectiveness of the policy. She observed that the government's decision to start the carbon tax with the iron/steel and energy sectors in 2026 highlights political sensitivity, as these major, trade-exposed industries can lobby for exemptions or slow implementation.

Another observer (O2) mentioned that while the project checks all the right boxes for carbon credits, but the very idea of being table to trade carbon is problematic in the first place. For instance, the forest in Kuamut was first exploited and logged. It only qualified as a carbon project after the damage was already done. Money was transacted at every stage, and without possibly any real benefit to the local communities and biodiversity from either the deforestation or the rehabilitation.

The third (O3) finds it contradictory to introduce sophisticated mechanisms to combat climate change when, over decades, the government has not introduced any scheme for the management of E-waste, which incidentally WHO (2024) considers as "one of the fastest growing solid waste streams in the world" putting "millions of women and child labourers working in the informal recycling sector globally" at risk. The observer added that that even household waste is not properly handled in Malaysia; there is no application of the 3Rs: Reduce, Reuse, and Recycle.

At the same time as Malaysian companies are going to be penalised for emissions, another observer (O4) was disappointed that importers of "green" products such as EVs and solar panels receive benefits from Malaysian government programmes. In agreement with another

observer (O3), he stated that there are no end-of-life policies for such imports. He questions on who will be responsible for the handling of degraded panels and batteries as they pile up beginning a decade from now.

As forests (and related carbon rights) are largely state-managed observer (O1) notes that the lack of a unified federal carbon-trading law and differing state rules (like Sarawak's vs. others) creates legal and governance gaps that vested interests can exploit and complicate national market development. Despite there being a large potential, only a handful of active projects exist, indicating limited domestic capacity to scale Monitoring, Reporting, and Verification (MRV), verify projects, and police market integrity.

4.4 Policy Design, Efficacy, and Leakage Mitigation

An observer (O1) opined that while Carbon Tax is a necessary first step for Malaysia's journey toward Net Zero, the programme is insufficient on its own, primarily due to key design elements being missing. In the observer's opinion. Even though a series of government programmes offer varying degrees of benefit, the policy lacks crucial details. Specifically, the tax requires a clear, multi-year price path, robust Measurement, Reporting, and Verification (MRV) to ensure accuracy, transparency, and credibility, which will be supplemented with registry clarity, effective revenue-recycling mechanisms, and strict limits on low-quality offsets. The key misalignment remains the current announced carbon pricing versus the public uncertainty surrounding the tax rate, its escalation, and the intended use of revenue, which significantly hinders long-term investment decisions. Another observer (O4) agreed that details have not been offered by government leading to a wait and see attitude by industry.

4.5 Market Reality and the Role of Ratings

The emissions trading scheme Integration is, according to observer (O2), the better option today as it can ensure that emission targets can be achieved. However, another observer (O1) finds that there is a significant misalignment between Malaysia's estimated carbon credit potential and the current on-the-ground reality, where the overall project pipeline remains small and credit issuance is tiny. The quality-based price curve is hindered by thin market liquidity and a lack of formal regulatory recognition of rating tiers. This observer also suggested that independent

ratings currently function mainly as a due-diligence tool for large buyers, allowing high-quality domestic credits, such as Kuamut auction, to command a premium.

Another observer (O4) was, instead, concerned that firms' international reputation may be adversely impacted if they bought Kuamat-like credits that carry reputational risks. Although they prefer to support the local carbon credits market, exporters cannot risk reputational risk. Manufacturing firms in Malaysia are increasingly being required to report their climate-related risks and opportunities annually, which will then have to be verified by their financial auditors.

PLCs with market capitalisation exceeding RM2 billion were already required to comply from 1st January 2025. Other Main Board companies are required to comply from 1st January 2026, while ACE and non-listed large capitalisation companies are required to comply with this ISSB's IFRS S2 standard beginning 1st January 2027 onwards. As observer (O4) expects regulatory pressure and auditor scrutiny to steadily increase over the coming years, the demand from companies for high-integrity carbon credits will only increase.

4.6 Impact on Competitiveness and Labour

While one observer (O2) felt that there is not much information available to the public at this time to access the economic impact of carbon tax, another observer (O4) noted that it will become more difficult for local manufacturers to compete with other ASEAN countries and China, the latter enjoying zero-tariff benefits on their exports via Regional Comprehensive Economic Partnership (RCEP). Chinese exporters are also able to reclaim this input VAT from their government while Malaysian firms receive no such incentive. This observer also stated that Malaysian manufacturers do not receive any incentive to consume "green" factor inputs especially since their buyers are price sensitive.

An observer (O3) pointed out that the carbon tax scheme will affect workers in two significant ways. Firstly, a rise in inflation will reduce workers' real wages. Secondly, as manufacturers experience increased input costs, they could opt to replaced experienced workers with lower-waged younger workers.

PART 5
RECOMMENDATIONS

Based on the systemic issues identified in this report, particularly those related to political fragmentation, methodological opacity, and market integrity concerns, we recommend the prioritisation for establishing an effective governance framework, leveraging third-party assurance, and correcting policy design flaws.

5.1 Strengthening Governance and Legal Framework

One of the primary barriers to scaling the market in Malaysia is the lack of a unified, clear legal structure that insulates the policy from vested interests. The following can be considered:

- The Federal Government needs to enact a unified carbon-trading law that supersedes fragmented state regulations (e.g., Sarawak vs. other states). This would eliminate legal ambiguity, prevent jurisdictional exploitation by vested interests (O1), and provide the predictability required for large-scale investment.
- To counter the "wait-and-see attitude" (O4) and political sensitivity, the government can announce a clear, multi-year carbon price path (O1) and escalation schedule for the Carbon Tax. This price path should be overseen by an independent regulatory body to ensure long-term stability and enforce the necessary price signals for Net-Zero investments (O1).
- To address public uncertainty, the government should provide a transparent mechanism for carbon tax revenue recycling. This revenue can be demonstrably earmarked for green initiatives, R&D in decarbonisation technologies, and incentives for manufacturers consuming "green" factor inputs (O4).

5.2 Implementing Third-Party Assurance

To address the lack of domestic capacity for verification (O1) and the reputational risks associated with low-quality credits (O4), Malaysia should weigh the cost-benefit of integrating the high-integrity framework of TIC companies into the VCM programme:

- The government and the national registry can accredit major TICs as independent assurance providers to validate project data. TICs can immediately scale the capacity for Monitoring, Reporting, and Verification (MRV), which is currently limited, by leveraging their existing

networks in Malaysia and Singapore.

- To enhance transparency without displacing existing CCRAs (Verra, Gold Standard), TICs should be used to perform process audits on the CCRAs. Specifically, TICs could certify the governance controls and anti-conflict-of-interest measures within the CCRAs and validate the integrity of the raw data inputs before they enter the CCRAs' proprietary AI/ML models.
- By recognising a TIC-validated audit trail for carbon credits for ISSB's IFRS S2 reporting requirements (O4), Malaysia can build a quality floor that protects exporters from adverse international reputation impacts. Such best-in-class credits would also interest foreign buyers seeking quality carbon credits.

5.3 Addressing Policy Design and Systemic Leakage

Policy should also aim at addressing climate-related challenges to prevent systemic market failures, like the "exploited forest" scenario (O2) and the e-waste problem (O3), to ensure the carbon mechanism delivers real environmental justice:

- The policy must impose strict limits on non-additional avoidance credits to ensure compliance with the "additionality" principle. This stops the rewarding of projects like the "exploited forest" (O2) that only qualify after damage has occurred.
- To rectify the contradiction of sophisticated climate policies alongside poor general waste management (O3), the government must simultaneously introduce mandatory Extended Producer Responsibility (EPR) and End-of-Life (EOL) policies for imported green products like EV batteries and solar panels. This pre-emptively addresses the mounting environmental and social risk posed by future e-waste streams (O4, O3).
- To ensure the market delivers real benefit, all government-related forest carbon projects must be verified not only for carbon integrity but also for socio-economic impact and equity for local and indigenous communities (O2), preventing financial transactions from bypassing the project's true purpose.

5.4 Quickening the Substitution of fossil sources of fuel with renewable energy

- Solar power and wind energy only contributed 2 percent to electricity generation in Malaysia in 2024, which well below the global average (Ember, 2025). This share must be quickly raised. The government should set a timeline to undertake this.
- The carbon tax should play a significant role in stimulate the substitution of fossil fuel with renewable energy. The revenue can become a powerful instrument for promoting abatement technologies.

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