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Incentivising Green Transition in ASEAN

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Authorship and Acknowledgements

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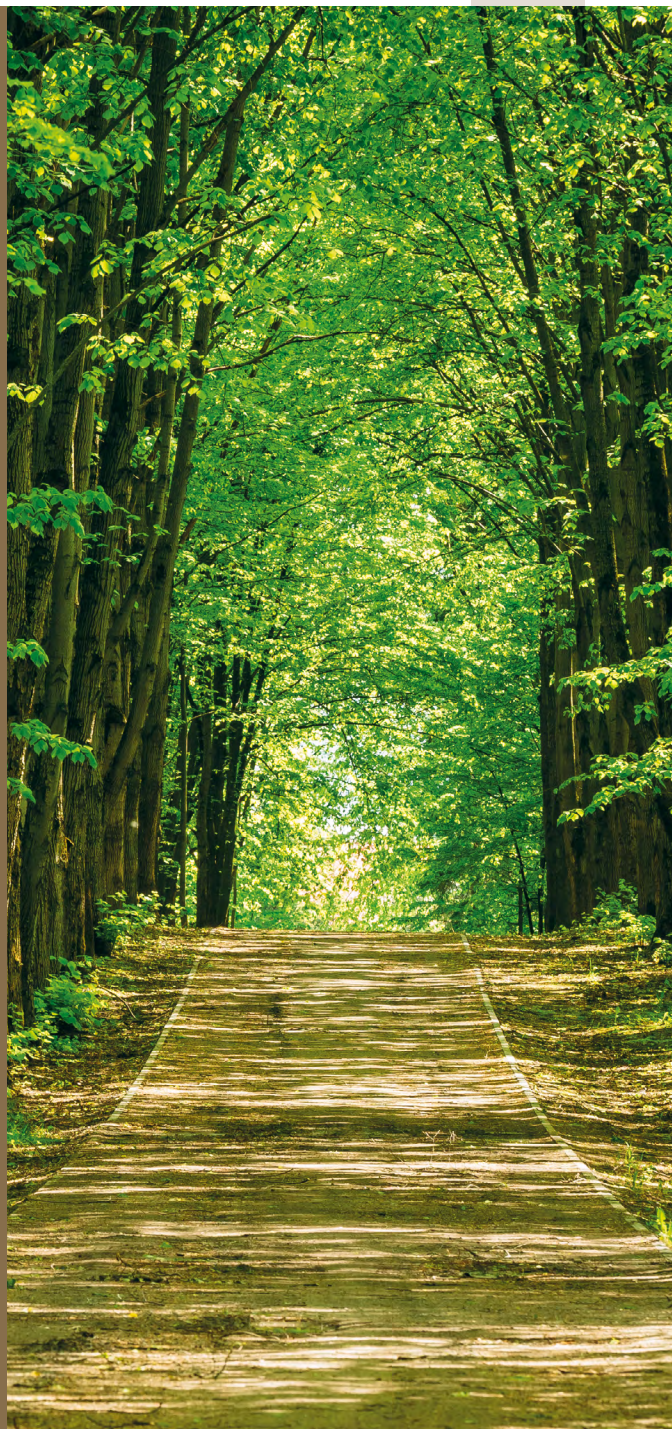

Executive Summary

Southeast Asia (SEA) faces a pivotal challenge: it needs to balance the economic growth agenda to deliver on material progress to uplift its society while also reducing its overall greenhouse gas (GHG) footprint. ASEAN economies are primarily export-driven and many of its current industries are carbon-intensive. To continue sustainably along this growth model, ASEAN countries must reduce the carbon footprint of its resources sectors while also transitioning to cleaner sources of energy to power its industrial base. It needs to provide incentives for this change without crippling the governments' finances or opening the door to misuse.

ASEAN needs to execute its green transition well to maintain its competitive edge, especially as major markets around the world are adopting regulations and trade rules that require sustainability metrics to be reported, with the aim of reducing emissions in supply chains. Most ASEAN countries have already committed to net zero or carbon neutral goals. However, at present, vested interests are holding back the region's green transition. While support for green initiatives is increasing, it remains nascent. Fossil fuel and polluting industries are often still receiving government subsidies. There is therefore a need for a paradigm shift in incentive structures to bring about real change.

For ASEAN, three areas stand out as priorities for government and corporate action. Transformation in the Agribusiness, the Energy sector and Carbon markets can have a positive downstream impact. These are also areas where regional collaboration is much needed.

Agribusiness

Efforts are needed to ensure forest and land fires do not lead to deforestation and the corresponding release of carbon and loss of biodiversity. Ecosystem conservation and restoration in nature-based projects can help carbon sequestration and put carbon credits on the market – turning emissions risk into a carbon sink. Biofuels and biomass from the agribusiness sector can also play a major role in ASEAN's renewable energy mix.

Energy Sector

Electricity generation needs to shift from carbon-intensive fossil fuel power plants to greater use of renewables, including from a wider range of small and medium-sized producers rather than only from large power plants. Grid linkages and cross-border trading of electricity will allow countries with spare capacity to monetise their excess, while increasing energy security and resilience for all ASEAN states.

Carbon Markets

ASEAN economies should establish a regional framework for cross-border carbon trading, fostering the growth of a robust carbon trading and carbon services ecosystem. To support carbon trading, competitive carbon pricing at the national and regional level is needed, both as a disincentive for emitters and to improve liquidity in carbon markets.

In this report, we layout some of the changes in these areas that ASEAN countries should focus on to help move ASEAN towards the path of sustainability and meeting its climate goals. Through cross-border cooperation and building interoperability into energy and carbon markets, ASEAN economies can achieve greater resilience and competitiveness in the global value chains.

1. Introduction: Towards a Sustainable Growth Path

Global supply chains are going through a period of decarbonisation as large multi-nationals move to reduce their carbon footprint. Carbon regulations and other sustainability due diligence requirements are becoming an increasing part of international trade. The European Union is at the forefront of this trend with its Carbon Border Adjustment Mechanism (CBAM) and the EU Regulation on Deforestation-Free Products (EUDR), but other major markets such as the United States are considering similar measures. ASEAN, which is the home for many intermediate and final goods suppliers, needs to decarbonise to remain relevant and competitive in the global supply chain.

Digitalisation in the global supply chain is also a reality. ASEAN has been quick in adopting digitalisation and its digital economy is fast growing. While digitalisation can help sustainability, it has its own carbon costs. Emissions from digital sources account for 20 million tons of CO_2 equivalent in ASEAN.[1] With the digital economy projected to grow exponentially its carbon footprint will continue to expand. Energy demand in ASEAN is also expected to grow, tripling or quadrupling, between 2020 and 2050.

Current projections indicate that 88 per cent of that energy will come from fossil fuels if no clear plan to change the energy mix happens.[2] Many ASEAN economies are locked into long-term contracts with fossil fuel plants, and face both legal issues as well as stranded asset risks in shutting down fossil fuel fleets early. Further compounding the problem, ASEAN countries spend 4.4 per cent of GDP on petroleum subsidies and 2.2 per cent on coal subsidies, which makes the transition away from these energy sources harder as they have been made artificially cheaper. But ending the subsidies could be hugely unpopular if this translates into higher living costs for citizens.[3] Hence, ASEAN need to find innovative ways to decarbonise.

For ASEAN to maintain its competitive edge and achieve its sustainable growth potential, there is an urgent need for ASEAN economies to rethink existing incentive structures and develop mechanisms to encourage green and transition activities rather than business-as-usual.

Additionally, ASEAN countries have also committed to emissions reduction. However, gaps remain in translating pledges into concrete commitments and roadmaps. Nine out of ten ASEAN member states have committed to carbon neutrality or net zero.[i] In August 2023 the grouping adopted an ASEAN Strategy for Carbon Neutrality, designed to complement their respective Nationally Determined Contributions under the Paris Agreement. Most in ASEAN are working towards net zero from 2050 and onwards. In the near term, most are also aiming for 30 to 40 per cent emissions reduction by 2030.[4]

However, the means in which each ASEAN member state will achieve its NDC targets are quite diverse. For example, Singapore is concentrating on decarbonisation in manufacturing and power generation[5] while Indonesia is looking to reduce emissions from forestry and other land use.[6] These different approaches reflect the diversities of ASEAN economies, which vary widely in size, degree of development, and endowment of natural resources. National approaches and targets will drive most decarbonisation in the region. That said, there is potential to reap additional rewards from cross-border solutions and regional cooperation.

Regional approaches will allow countries with different endowments to leverage the skills, resources and frameworks that would not have been available to them if countries only operated independently. By tapping on the comparative strengths and resources of different ASEAN economies, ASEAN could move more effectively towards decarbonisation and increase its competitiveness in the global supply chains.

[i] *Carbon neutrality refers to balancing out emissions via offsets, while net zero is the cutting of greenhouse gas emissions to as close as zero as possible, with any remaining emissions to be re-absorbed from the atmosphere (e.g. by forests).*

This report covers three areas for regional action, in the **agribusiness sector** (referring to agricultural production and processing); in **energy** (including both electricity generation and markets) sectors, as well as in **carbon markets** (referring to carbon projects and carbon trading).

These are priority areas where regional cooperation and changes in national governments' regulations, industry action, and finance can move the needle towards decarbonisation. Achieving change in these three areas will create benefits throughout the economy. In particular, the agribusiness and energy sector suffer from legacy policies that could hinder an effective green transition which makes it an imperative that they should be prioritised and the polices should evolve.

The momentum towards net zero and carbon neutrality already exists in the region. The next step for policymakers and the private sector is to accelerate and target the green transition in the areas that can make the most impact.

2. Priority Areas for the Green Transition

2.1. Agribusiness: Lowering Carbon Footprints and Supporting Energy Transition

Agriculture is a major economic driver and source of livelihoods across eight of the 10 ASEAN countries[ii] accounting for between 8.5 to 22.8 per cent of total GDP and between 12.4 to 35.7 per cent of employment.[7] For ASEAN's growth, livelihoods, and food security, continued development of the region's export-driven agribusiness is crucial. At the same time, land use is also a significant contributor to carbon emissions and climate change. Deforestation results in loss of biodiversity, and forest and land fires result in major carbon emissions. Agriculture is in turn extremely vulnerable to the effects of climate change, with extreme weather damaging yields and potentially leading to loss of arable land.

In the present global context, issues with deforestation may also lead to economic consequences such as loss of market access for trade. The EU has implemented the EU Deforestation Regulation (EUDR), requiring importers and exporters to show that their products are not linked to any deforestation that took place before 31 December 2020. Other markets such as the United States are considering similar legislation. Even if businesses are not exporting directly to these developed markets, MNCs are introducing similar or even stricter sourcing requirements for their own supply chains.

What Agribusiness Can Do for the Green Transition

Emissions Reduction

- Major agribusinesses are adopting emissions reduction commitments, including targets under the Science Based Targets initiative (SBTi) net zero standard
- Reporting of carbon emissions is required for certification by major industry standards such as the Roundtable on Sustainable Palm Oil (RSPO)
- Many agribusinesses are already net zero in their land use, they are focusing on emissions reduction at mills, in transport, and in supply chains

Carbon Credits

- Agribusinesses in ASEAN could potentially play a greater role in operating carbon credit projects, though currently most do not generate carbon credits certified by voluntary market standards or by national carbon registries
- The firms that do produce carbon credits currently use credits to offset their own hard-to-abate emissions, rather than selling them

Renewable Energy

- Indonesia and Malaysia have adopted strong biodiesel targets for use in transport; Indonesia is now on B30, using diesel with 30 per cent palm oil-based fuel, the highest such mix in the world, while Malaysia is rolling out B20
- There is increasing interest in the use of biomass from the plantation sector for electricity generation; currently agribusinesses use methane released from agricultural waste as biogas to generate power on-site at mills, and the aim is to either pipe gas out from mills or supply surplus electricity to the grid

[ii] *With only Brunei and Singapore having small agricultural sectors.*

The ASEAN Taxonomy for Sustainable Finance identifies agriculture, forestry, and fishing as the top priority sector in achieving climate change mitigation for the region, both through its own performance, and in enabling the climate mitigation contribution of other sectors.[8] Green taxonomies are intended to serve as a guideline for business and investment, and the ASEAN Taxonomy reflects prevailing sentiment in the financial sector. Financial institutions are increasingly operating their loan portfolio within a carbon budget, using data providers to make more accurate decisions on their portfolio, and agribusinesses are under increasingly scrutiny. It is therefore important for ASEAN's agribusinesses to intensify the sector's climate contributions, while minimising or eliminating climate risks.

Generating Carbon Credits from Nature-Based Solutions (NBS)

There is a potential transition pathway for agribusinesses to move beyond their core business interests to explore carbon credit generation from forest carbon projects as potential new revenue. The carbon credits could also be used to offset emissions from land use change by the agribusiness sector, which is a significant contributor of emissions for several ASEAN countries. Government policymakers are also keen on these prospects, as a means of achieving national emissions reduction.

That said, currently agribusinesses are still taking a wait-and-see attitude regarding the selling of carbon credits. Businesses also note that existing carbon credit schemes only recognise avoided emissions or carbon sequestration from the conservation of primary forest area, referring to natural ecosystems. Existing schemes do not recognise carbon sequestration from plantation crops themselves, and any move to do so would be controversial. Additionally, there is ambiguity in using plantation land partially or wholly for carbon projects, due to land-use zoning rules.

As such, policymakers in ASEAN economies must prioritise the development of the permit and licensing regimes for carbon credit projects, rollout of national carbon registries and establish certification bodies. Ideally these should be interoperable with counterpart programmes and markets in other ASEAN economies and beyond. Many industry experts believe that having a single ASEAN registry for carbon credits, through an ASEAN wide agreement, would generate increased trust in registered credits and potentially unlock more carbon trading opportunities.

Using Biomass for Renewable Energy

There is increasing interest in the prospect of turning agricultural waste to biomass and biogas from the plantation sector to meet electricity needs. But regulatory questions also apply to the production of renewable energy by the plantation sector. In particular, there is a need to develop more attractive feed-in tariff schemes for smaller-scale power producers.

In Malaysia, biomass from the plantation sector features in Phase 2 of the National Energy Transition Roadmap (NETR), announced in August 2023. But further scoping or mapping is needed at the national level to determine how much of a role agribusiness can play in the region's future energy mix.

Besides regulatory questions, operational issues must be addressed. Plantations and mills are in rural areas, far from the energy infrastructure. Piping biogas out of mills is no easy feat, and it is difficult to supply electricity to the grid over long distances. While selling raw biomass is possible, and is already done to a limited degree, it is not economically viable in most cases. Additionally, the largest mills are already using most available biomass for their own power needs. There is a great deal of potential in this area, but more research and investment are needed to realise said potential.

Collaboration Between Government and Private Sector

In Indonesia, the forestry and other land use (FOLU) sector is set to become a net carbon sink under the country's Enhanced NDC under the Paris Agreement. Such ambitions are positive, but targets set at the

policymaking level must be carried out in partnership with the private sector, and it will be necessary to mobilise both public and private capital to achieve these aims.

2.2. Energy Industries: Deploying Renewables and Regional Integration

ASEAN's current power generation capacity is largely fossil fuel based. As of 2020 fossil fuels constituted around 81.2 per cent of the region's energy mix.[9] A distinctive feature of ASEAN's energy landscape is that many coal power plants are of a relatively young age, particularly in Vietnam where the youngest plants are less than 10 years old.[10] This makes it costly and impractical for ASEAN economies to move too swiftly on phasing down coal, unless properly incentivised and compensated. There is a need for a careful and gradual transition.

In 2022, Indonesia and Vietnam agreed on an ambitious Just Energy Transition Partnership (JET-P) with the International Partners Group (IPG)[iii] for a coal to clean energy transition. ASEAN economies may also be able to leverage other financing mechanisms such as the Asian Development Bank's Energy Transition Mechanism (ETM) announced at the COP26 climate summit in Glasgow. As one expert in the field pointed out, governments need to take a stronger position to get firms to decarbonise, and while it may not all require special financing, governments need to create suitable incentives for companies to take action.

Given that ASEAN's phase down of coal power will be gradual, emphasis must be placed on the concurrent deployment of renewable energy. Under ASEAN's Plan of Action for Energy Cooperation (APAEC) Phase 2, the region aims to achieve a 23 per cent share of renewable energy in the total primary energy supply and a 35 per cent share of installed power capacity[iv] by 2025.[11] However, current reports suggest that the grouping might miss this 2025 target. In interviews conducted for this study, businesses expressed a clear desire for access to green electricity and a willingness to pay a green premium for it, so the onus is on governments to act swiftly.

Tapping into Renewable Solutions

ASEAN has vast renewable energy potential and needs to start tapping renewable resources more aggressively and in an accelerated timeframe. ASEAN countries have over the years invested and built-up large power generation potential based on the utilisation of solar, wind, and hydro power, but it is crucial for ASEAN economies to develop supportive ecosystems for emerging technologies like geothermal and hydrogen power.

ASEAN's Geothermal Potential

Indonesia

- **Installed Capacity:** 2.28 GW
- **Global Ranking:** Second-largest geothermal energy producer (behind the United States)
- **2030 Target:** Installed capacity to reach 6.2 GW by 2030
- Geothermal potential of Indonesia is estimated at 10 times the current base across 300 possible sites – possibly the world's largest geothermal reserves[12]

Philippines

- **Installed Capacity:** 1.93 GW
- **Ranking:** Third-largest geothermal energy producer in the world[13]
- **2030 Target:** Installed capacity to reach 3.2 GW by 2030

[iii] *The IPG includes Canada, the European Union, Denmark, France, Germany, Italy, Japan, Norway, the United Kingdom, and the United States.*

[iv] *Installed maximum capacity is not the same as total supply, as plants do not operate around the clock.*

Geothermal power is extremely promising for certain ASEAN nations, but the cost of identifying where geothermal plants can be built and energy can be extracted is not a straightforward process. A technical expert noted that while Indonesia's geothermal potential is promising, even in Indonesia's case it is more practical for the country to tap its huge solar potential first, as this is far less difficult to access.

Hydrogen in Industrial Processes and Energy Mix

Hydrogen is increasingly being introduced into the energy mix of several ASEAN countries and subregions. For instance, the state of Sarawak in Malaysia aims to produce hydrogen on a commercial scale for domestic use by 2025, and for export purposes by 2027 – Sarawak aims to produce 1.5 million tonnes of hydrogen by 2027, primarily targeting the South Korean market.[14]

Hydrogen has promise as a transition fuel in the shift away from natural gas and coal. Several newer combined cycle gas turbines (CCGTs) in existing power plants are already able to accept a small percentage of hydrogen in the mix, potentially able to take more if some retrofits are conducted. Hydrogen provides a solution to delay retirement and eke out as much value out of these fixed power plant assets as possible.

Hydrogen also has several industrial applications. For example, in sectors with hard to abate emissions, such as iron and steel production, it has been shown to be able to reduce the amount of carbon dioxide that is produced. ASEAN economies have been actively setting the stage for hydrogen supply chains throughout the region, especially where excess renewable energy production from other sources such as hydropower can be utilised to extract hydrogen.

The critical drawback of hydrogen is that conversion and transport of hydrogen consumes a lot of energy. An expert consulted on the matter hence argued that hydrogen should be more a of backup power source rather than a main source of power generation. While hydrogen may be a necessary part of a suite of energy solutions for countries, it ultimately should play a secondary role to more efficient methods of energy exports and imports, such as transferring electricity via undersea cable or inter-grid connectors.

ASEAN Power Grid: A Vision of the Future

For ASEAN, reducing the carbon intensity of electricity generation is a pressing concern as the power generation primarily utilises fossil fuels. The transition away from these forms of energy sources is ultimately critical for the region in maintaining its breakneck growth rates, ensuring energy security, and improving quality of life while also being able to achieve a carbon-neutral future. However, each ASEAN country is not endowed with the same level of access to renewable energy. This is when leaning on your neighbour through integrated grids can allow countries that are renewable energy deficient to decarbonise as well.

The integration of grids across ASEAN nations has the potential to unlock a range of benefits. Firstly, it can enhance energy security by reducing the dependency on a single energy source or supplier. Secondly, it promotes the efficient cross-border utilisation of renewable resources, such as solar, wind and hydropower power outside national borders, by enabling sustainable surplus production to be sold to neighbouring countries.

One of the most significant steps towards a sustainable energy future in the ASEAN region would be the development of an integrated grid system, the long-anticipated ASEAN Power Grid (APG). However, to date progress on linking national grids in ASEAN has been relatively slow. As one expert pointed out, the Laos-Thailand-Malaysia grid is the strongest example of what the ASEAN grid could potentially achieve, with Singapore being the latest addition.

A fully integrated ASEAN grid would allow for the seamless transfer of electricity across borders, optimising the use of the diverse energy resources available to ASEAN states. This vision of an interconnected grid for ASEAN has become increasingly feasible due to the digitalisation of power generation and grid management, enabling real-time monitoring, control, and optimisation of energy flows, making it possible to balance loads from variable and stable sources efficiently across multiple states.

However, achieving this goal is impeded by infrastructural funding rather than engineering constraints. Public funding is essential for the development of the grid as it would provide a level of certainty to power companies participating in the plan that the countries on both sides of the deal are interested in its success. According to conversations with insiders, multilateral development banks could provide credit enhancements through insurance, which has shown to increase banks' willingness to lend to projects in countries where the risks appear higher.

An ASEAN Common Energy Market: Accelerating Change

To accelerate the energy transition in ASEAN and encourage the development of grid connections and integration, one possible solution is to establish an ASEAN Common Energy Market – a regional energy market that would allow for the buying, selling, and trading of electricity across national jurisdictions. There is also the potential to explore virtual grids in ASEAN as national grids are not integrated. In such isolated markets, virtual markets can be used to manage risk, and establish reference prices, even without a physical electricity market.

Some ASEAN member states have already established such a market on a subregional scale, such as the Greater Mekong Subregion (GMS) grid in 1992. Mekong countries can sell electricity across borders, enabled by the creation of cross-border transmission lines and interconnections, increases investment in the region's hydropower capacity, and improves efficiency, overall price stability, and competitiveness in the power sector.

An ASEAN wide grid and common market would have the potential to multiply the benefits across a much larger area and population. It would also create opportunities to scale for new investments into renewable energy projects such as geothermal, solar and wind projects or more conventional low carbon energy solutions like nuclear. Having an integrated market of the size of ASEAN and with the variability of electricity sources allows for both energy security as well as reducing the intermittency risk from the dependency on only one form of renewable energy within a member state.

Singapore has been quite active in terms of making new connections and opening Singapore's electricity market to new players and competitors. Such national-level reforms can incentivise the development of the integrated grids in ASEAN by connecting potential buyers with renewable energy companies in the region looking for purchasers who are willing to pay a green premium. As demand for green electricity increases, companies that initially entered the market for the green premium will additionally benefit from volume. This pent-up demand could be leveraged through power purchase agreements or other legal instruments to assure investors building renewable energy and grid infrastructure that there is sufficient early demand to justify their capital costs.

Paving the Way to a Sustainable ASEAN Energy Landscape

The transition to a low-carbon and sustainable energy future is imperative for ASEAN countries. Efforts to support an integrated ASEAN grid and the establishment of the ASEAN Energy Transition Fund, in conjunction with the JET-P and other financing mechanisms, are promising steps toward achieving this low-carbon goal. The digitalisation of power generation and grid management offers new opportunities to balance variable and stable energy sources efficiently. By working together and pooling resources through initiatives like the ASEAN Common Energy Market, ASEAN nations can accelerate the energy transition, reduce carbon emissions, and build a cleaner, more resilient electricity system that is still

able to keep up with the demands of a growing population. This will help meet national energy targets, ensure that the green energy requirements of MNCs operating in the region are met, and keep ASEAN competitive in an increasingly carbon-conscious global economy.

2.3. Carbon Markets: Infrastructure and Incentives for Carbon Reduction

The Two Types of Carbon Market

Voluntary Market

- Businesses are not required to use carbon credits, but can buy and sell them on a voluntary basis
- Credits are created by projects that **avoid the release** of emissions or **remove carbon** from the atmosphere, these can be **nature-based** or **tech-based**
- Internationally recognised **voluntary standards** have been created to certify credits
- Companies can buy credits from exchanges, retailers, brokers, or direct from projects

Compliance Market

- Governments set limits on emissions and run an Emissions Trading Scheme (ETS)
- Most ETS systems are based on **cap-and-trade**, where businesses are given emissions allowances and if they exceed their limits they must buy more from other firms
- In some compliance systems, companies can buy credits from the voluntary market to meet their obligations; some systems also allow compliance market credits to be sold to voluntary buyers
- Aside from the primary market of businesses exchanging allowances, an ETS may also give rise to a secondary market of futures and options for allowances, supported by banks and traders

Between 2022 and 2023, several ASEAN economies – Malaysia, Singapore and Thailand - had voluntary carbon markets established within their jurisdiction. While voluntary carbon markets are relatively newer in Asia, compliance markets have been trialled and tested for a number of years. Thailand first introduced an Emissions Trading Scheme (ETS) in 2015 as a pilot. In September 2023, Indonesia launched a cap-and-trade ETS, initially covering its coal-fired power sector. Vietnam is expected to begin piloting its own cap-and-trade ETS by 2025 with an eye towards full operation in 2028. Whether it is a compliance or voluntary, carbon markets are beginning to grow in the ASEAN region as a tool to manage GHG emissions.

The creation of a robust carbon trading ecosystem could be crucial for ASEAN's green transition. Such an ecosystem would include building a carbon pricing policy or a robust national ETS frameworks, as well as supporting the creation of privately operated carbon projects to supply credits to the voluntary market. Industry experts and observers interviewed for this report agreed that Singapore has grown its carbon services market exponentially over the last two years, including a full suite of services from carbon trading to project finance. However, this growth in carbon services has not happened evenly throughout ASEAN.

One major challenge of creating a carbon market is the issue of trust. In January 2023, British newspaper The Guardian published an article accusing Verra, the world's leading certifier of credits for the voluntary market, of overstating the emissions reductions associated with its "avoided deforestation" credits.[15] The carbon credits from these forest projects are based on the amount of carbon emissions avoided by the project's existence – assuming that the forests would be cut down in the project's absence. This is a distinction that industry insiders have long been familiar with, but as carbon trading enters the mainstream, market operators will need to convince the public that carbon trading is both necessary and effective rather than "greenwashing".

Another issue is the problem of cross-border sales. Existing forest carbon projects in ASEAN, which were operating before state governments moved to regulate the sector, were selling on the voluntary market to multinational corporations (MNCs). Governments are now understandably wary about carbon credits being sold overseas as they would rather than have these credits at home to meet their Paris Agreement commitments.

Finally, carbon trading also faces problems of liquidity and pricing. Current carbon prices in ASEAN are low, which limits the impact of carbon markets and ETS platforms. It also means that the generation of carbon credits as a business model is less viable. Producers need to see economic reasons to keep forests intact for carbon projects rather than clearing them in order to grow agricultural commodities.

Carbon Taxes to Strengthen Liquidity in Carbon Markets

ASEAN economies need to establish competitive carbon pricing to place a cost on emissions and to offer incentives for emitting less. There are two main forms of carbon pricing: carbon taxes and market-based approaches. The two methods can go hand-in-hand, with carbon taxes helping to drive liquidity in carbon markets. This is possible if carbon taxes are sufficiently high enough that there is an incentive for companies to enter carbon markets in search of carbon credits that are relatively cheaper per tonne than the carbon tax they would be otherwise forced to pay. A combination of carbon markets and carbon tax policies could potentially address misaligned incentives as well as issues around carbon leakage. However, they could become a considerable barrier to interregional trade as countries consider the fairness and equity of their own carbon tax vis-à-vis the carbon tax paid in a neighbouring jurisdiction.

Thus far, Singapore is the only ASEAN country to introduce a carbon tax, currently at S$5 per tonne, but set to increase gradually to S$50 to S$80 per tonne by 2030. Indonesia has also passed legislation to introduce a carbon tax, though its implementation has been delayed and the rollout is now expected in 2024 or 2025. Malaysia and the Philippines are considering carbon tax policies, and Brunei may do so as well. The momentum in the region to appropriately price carbon is a step in the right direction to make sure that companies use carbon more appropriately and efficiently. It will also help companies in the region better re-structure and prepare to be part of global supply chains that are looking to decarbonise.

Nature-Based Solutions beyond Agribusinesses

While the agribusiness sector may have some first mover advantage in establishing NBS projects on their concessions in the region and generating carbon credits, NBS projects extend beyond the plantation sector. In the context of carbon markets, NBS refers to the generation of carbon credits from ecosystem conservation and restoration projects, including reversing land-use changes, as opposed to carbon credits that may be generated from the emissions savings provided by renewable energy projects, carbon capture, or other methods of mitigation.[v]

[v] *NBS is an umbrella term that refers to any use of natural ecosystems to achieve both economic and environmental outcomes. Besides carbon credit generation, economic benefits may include sustainable tourism and the creation of jobs in natural resource management.*

While ASEAN economies have a great deal of potential in NBS, there are practical challenges that project operators need to address. Most projects aim to work with local communities and indigenous groups, but thus far it has been hard for operators to build locals' capacity in measuring, reporting, and verification (MRV) for projects. Additionally, many local communities are becoming more hesitant about NBS projects as they feel left out of the process. This hesitancy is mirrored in the actions of investors, who fear that projects might be labelled as greenwashing – this concern has not been helped by the fact that voluntary market carbon prices have recently been declining.

ASEAN Best Practices and Interoperable Carbon Markets to Build Trust

ASEAN cooperation in developing rules and best practices for carbon credit projects and carbon markets, and in connecting carbon markets between ASEAN countries, could address many of the above issues.

While there is a natural preference to develop national carbon markets, especially for countries that host some of the larger carbon projects, the incentive for interoperable markets is access to better price transparency and increased liquidity. Interoperable carbon markets would also reduce the likelihood of price arbitrage of carbon credits across different markets, as prices would be discoverable across all platforms simultaneously. This would allow carbon projects to get the best possible prices for their carbon credits regardless of the market in which they choose to list in.

The creation of regional trading hubs that are seamlessly integrated with one another would facilitate the trade of credits, particularly Internationally Traded Mitigation Options (ITMOs) under Article 6 of the Paris Agreement, across jurisdictions while upholding the integrity of credit registries. This regional cooperation could extend beyond ASEAN, connecting with other markets like China or Australia, fostering broader global efforts to combat climate change.

A crucial step in ASEAN's decarbonisation journey involves building a comprehensive infrastructure that spans the entire carbon spectrum, from downstream aspects like carbon projects, including nature-based solutions, to upstream elements such as carbon markets and exchanges. When cultivated in a verified and sustainable manner, carbon offsets offer a potentially longer runway for the emergence of other carbon mitigation options.

3. Conclusion

As ASEAN embarks on its green transition journey, the region needs to strengthen incentives for an inclusive transition, ensuring that the region's key sectors are sustainable while creating new opportunities.

This journey goes beyond mere climate change mitigation; it is about stewarding resources, fostering growth, strengthening resilience, and generating wealth for future generations. ASEAN's export-dependent nations must align with evolving global MNC priorities and demands from major trading partners focused on reducing carbon footprints.

Agribusiness, energy, and carbon markets are the three areas where the right policy and practices from governments and businesses can achieve major outcomes across ASEAN. Coordinated regional action paired with actions taken at the national level, will accelerate the green transition overall. If acted on appropriately success in these areas will provide the catalyst for other sectors to decarbonise as well.

In conclusion, Southeast Asia's critical role in global supply chains can be coupled with proactive stances towards decarbonisation and sustainability at the regional level. Besides the positive climate outcomes, strengthening the green transition in ASEAN could give the region more economic clout in an increasingly competitive global marketplace. If done correctly, achieving sustainability need not be an additional cost of doing business, but an opportunity for the ASEAN region to further cement its position in the global economy and shape the future of international trade.

References

[1] Digital Transformation - Issue 23. (2022). https://asean.org/wp-content/uploads/2022/11/Issue-23-Digital-Transformation-digital-version.pdf

[2] The 7th ASEAN Energy Outlook. (2022). ASEAN Centre for Energy. https://aseanenergy.org/the-7th-asean-energy-outlook/

[3] Turning the Tide: Policy Measures to Drive Clean Energy Investments in ASEAN. (2023). ASEAN Centre for Energy. https://aseanenergy.org/turning-the-tide-policy-measures-to-drive-clean-energy-investments-in-asean/

[4] ASEAN Charts Course for a Sustainable Future with Ambitious ASEAN Strategy for Carbon Neutrality. (2023). ASEAN. https://asean.org/asean-charts-course-for-a-sustainable-future-with-ambitious-asean-strategy-for-carbon-neutrality/

[5] Charting Singapore's Low-Carbon and Climate Resilient Future. (2020). National Climate Change Secretariat. https://www.nccs.gov.sg/files/docs/default-source/publications/nccsleds.pdf

[6] Enhanced Nationally Determined Contribution. (2022). Republic of Indonesia. https://unfccc.int/sites/default/files/NDC/2022-09/23.09.2022_Enhanced%20NDC%20Indonesia.pdf

[7] ASEAN Statistical Yearbook 2022. (2022). ASEAN Secretariat. https://www.aseanstats.org/wp-content/uploads/2023/04/ASYB_2022_423.pdf

[8] ASEAN Taxonomy for Sustainable Finance. (2021) ASEAN Taxonomy Board. https://asean.org/book/asean-taxonomy-for-sustainable-finance/

[9] ASEAN Energy in 2022: Key Insights About the ASEAN Energy Landscape in 2022. (2021). ASEAN Centre for Energy. https://aseanenergy.org/asean-energy-in-2022/

[10] Heo, Vince. (2021, November 26). Asia's pledge on coal phaseout: a thorny problem of retiring young fleets. S&P Global Commodity insights. https://www.spglobal.com/commodityinsights/en/ci/research-analysis/asias-pledge-on-coal-phaseout-a-thorny-problem-of-retiring-you.html

[11] (2021-2025) ASEAN Plan of Action For Energy Cooperation (APAEC) 2016-2025 Phase II. (2022). ASEAN Centre for Energy. https://aseanenergy.org/asean-plan-of-action-for-energy-cooperation-apaec-phase-ii-2021-2025/

[12] Maulia, Erwida. (2022, April 29). Indonesia's Pertamina to double down on geothermal energy. Nikkei Asia. https://asia.nikkei.com/Business/Markets/Commodities/Indonesia-s-Pertamina-to-double-down-on-geothermal-energy

[13] Rubrico, Jennee. (2022, September 28). Amid shifting winds, geothermal maintains shaky dominance in Philippine renewables sector. Eco-Business. https://www.eco-business.com/news/amid-shifting-winds-geothermal-maintains-shaky-dominance-in-philippine-renewables-sector/

[14] Sarawak to supply South Korea 1.5 mln tonnes of hydrogen by 2027, says deputy premier. (2023, July 8). Malaysian Investment Development Authority. https://www.mida.gov.my/mida-news/sarawak-to-supply-south-korea-1-5-mln-tonnes-of-hydrogen-by-2027-says-deputy-premier/

[15] Greenfield, Patrick. (2023, January 18). Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows. Guardian. https://www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe

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