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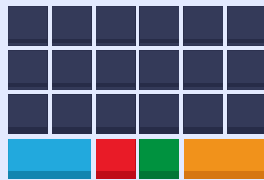
REGIONAL THEMATIC | AUGUST 2024

Net Zero In a Consumer World

RECEIPT
EFFICIENT
TRANSPORTATION



CARBON
NET ZERO



RECEIPT
PACKAGING
INNOVATION



RECEIPT
REDUCTION OF
EMISSIONS



RECEIPT
SUSTAINABLE
FARMING



Consumer Products

Net Zero In a Consumer World

"We are the first generation to feel the impact of climate change and the last generation that can do something about it."

Former US President Barack Obama at the UN Climate Change Summit 2014

- With food production estimated to account for a significant portion of the global greenhouse emissions**, we believe the consumer sector has a significant role in the decarbonisation initiatives. In this report, we identify the key enablers and challenges on the path to sector net zero. We also zoom in on the regional markets to examine the decarbonisation progress and highlight each country's policies. The featured stocks are chosen based on their exceptional commitment to net zero efforts. The stock picks include AEON Co M, Berli Jucker, CP ALL, DFI Retail Group, Heineken Malaysia, Mitra Adiperkasa, Nestle (M), Sheng Siong, and Unilever Indonesia.
- Malaysia aims for net-zero emissions by 2050**, with the consumer sector playing a key role. Malaysian consumer companies are working on enhancing energy efficiency, utilising renewable energy sources and waste, and opting for biodegradable materials. Government programmes, including the National Energy Transition Roadmap (NETR), Green Investment Tax Allowance (GITA), and Green Income Tax Exemption (GITE), provide support for these efforts. However, the sector encounters challenges such as regulatory implementation issues, financial constraints, and supply chain complexity when striving to meet sustainability goals.
- Singapore aims for net-zero emissions by 2050** as outlined in The Singapore Green Plan 2030 which aims to tackle climate change with five pillars, including strengthening food security for sustainable living. Agriculture and food production remain small in Singapore, where most of the food supply is imported. As reducing reliance on food imports would safeguard Singapore's food security, the country is incentivising increase in local food production, diversification of its import sources, and growth and cultivation of food overseas. Immediate beneficiaries would be local urban farms, while listed F&B players would be limited beneficiaries since most will practice more sustainable resources management.
- Indonesia aims to achieve net-zero emissions by 2060**, with its Government conducting a number of roadmaps along with multiple initiatives. Consumer companies in Indonesia contribute to emissions through various operations and supply chain segments, ranging from waste management policies to efforts in preserving biodiversity. Nevertheless, challenges remain around, ie policy implementation, financial resources, affordability of green products, and consumer awareness.
- Thailand aims to achieve net-zero emissions by 2065**. Thailand consumer companies under our coverage had aggregated direct GHG emission, accounting for 1.5% of the country's total GHG emission in 2022. The operators have raised environmental issues related to utilities consumption, inventory management, raw material sourcing, packaging, logistics, etc. As such, they are committed to supporting operations based on corporate projects that focus on improving quality and care for the environment.

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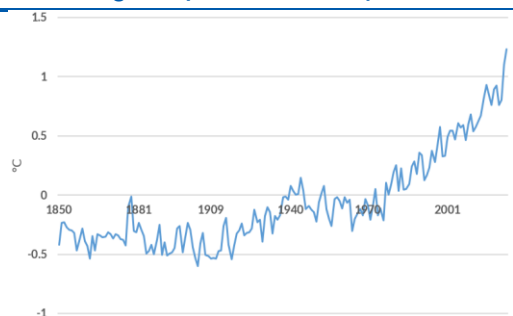


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Global average temperature anomaly



Source: Our World in Data

Company Name	Rating	Target	% Upside (Downside)	P/E (x) Dec-25F	P/B (x) Dec-25F	ROAE (%) Dec-25F	Yield (%) Dec-25F
AEON Co M	Neutral	MYR1.35	(9.2)	14.4	1.0	7.4	3.5
Berli Jucker	Buy	THB31.00	50.5	15.6	0.7	4.3	3.8
CP ALL	Buy	THB75.50	28.0	20.4	3.9	20.0	2.5
DFI Retail Group	Buy	USD2.61	37.2	11.0	2.2	20.6	5.5
Heineken Malaysia	Buy	MYR29.60	26.2	16.1	15.2	94.8	6.2
Mitra Adiperkasa	Buy	IDR1,800	18.4	9.7	2.1	22.6	1.5
Nestle (M)	Neutral	MYR119.00	14.4	33.2	35.4	107.3	3.0
Sheng Siong	Buy	SGD1.86	21.8	16.6	4.0	25.0	4.2
Unilever Indonesia	Neutral	IDR2,500	5.5	18.8	22.6	126.6	4.7

Source: Company data, RHB

Featured Stock Ideas

The stocks featured in this section are selected based on their exceptional commitment to achieving net zero objectives. These companies are recognised for their significant efforts in implementing sustainable practices and aligning their operations with net zero goals. They have demonstrated notable reductions in carbon emissions and have adopted innovative energy-saving measures, such as transitioning to RE sources and improving production efficiency.

Figure 1: Featured stock ideas

Company	Call	TP	Key efforts
AEON Co M	NEUTRAL	MYR1.35	<ul style="list-style-type: none"> Installed solar PV systems at malls, contributing to Malaysia's net zero target, and implemented waste management initiatives, ie converting organic waste into compost. Made progress towards carbon neutrality by 2040, with solar PV installations at multiple malls and a 51% reduction in emission intensity compared to the 2019 baseline.
Berli Jucker	BUY	THB31	<ul style="list-style-type: none"> Reduced emissions by installing solar panels at Starbucks Cipondoh and planting 1,353 trees, leading to significant CO2 sequestration and reduction. Implemented circular economy initiatives like waste management and take-back programmes, enhancing sustainability and community impact.
CP ALL	BUY	THB75.50	<ul style="list-style-type: none"> Reduced its carbon footprint significantly by integrating RE sources across a large portion of its retail outlets. Enhanced its supply chain sustainability by increasing the use of eco-friendly materials in its products, supporting environmental goals.
DFI Retail Group	BUY	USD2.61	<ul style="list-style-type: none"> DFI aims for net zero emissions by 2050, with short-term goals by 2025 to retrofit stores, educate teams, address fridge leaks, use low GWP refrigerants, electrify delivery vehicles, and increase waste diversion. Its medium-term goals by 2030 are to electrify its fleet, source low-carbon products, increase recyclable packaging, and achieve a 50% reduction in Scope 1 and 2 emissions and a 25% reduction in Scope 3 emissions.
Heineken Malaysia	BUY	MYR29.60	<ul style="list-style-type: none"> Achieved a 49% reduction in carbon emissions since 2018 by transitioning to 100% renewable electricity and upgrading cooling and CO2 plants. Zero Scope 2 emissions due to the Green Electricity Tariff (GET) programme and significant energy-saving measures, aligning with Malaysia's net zero GHG emissions goal by 2050.
Mitra Adiperkasa	BUY	IDR1,800	<ul style="list-style-type: none"> Reduced GHG emissions by 2,962 tCO2e in 2022 and increased RE consumption by 10%, aligning with its goal to achieve net zero by 2050. Implemented various sustainability measures, including planting 9,140 trees, installing solar rooftops at 45 Big C stores, and using recycled materials in its packaging and production processes.
Nestle (M)	NEUTRAL	MYR119	<ul style="list-style-type: none"> Achieved a 25% carbon footprint reduction in 2023 compared to the 2018 baseline, driven by 100% renewable electricity and biomass boiler projects. Implemented energy-saving initiatives resulting in a 3.8% reduction in energy consumption in 2023, with all facilities powered by renewable electricity through the Green Electricity Tariff Programme.
Sheng Siong	BUY	SGD1.86	<ul style="list-style-type: none"> Focuses on sustainability topics like energy, GHG emissions, water use, and affordable food, implementing supplier diversification, strong partnerships, market research, and engagement with Government and NGOs to ensure sustainable sourcing and resource conservation.
Unilever Indonesia	NEUTRAL	IDR2,500	<ul style="list-style-type: none"> Reduced waste to landfill by a substantial percentage through extensive recycling and waste reduction programmes. Implemented water stewardship initiatives that have significantly decreased water usage in production processes.

Source: RHB

The Road To Net Zero Emissions (NZE)

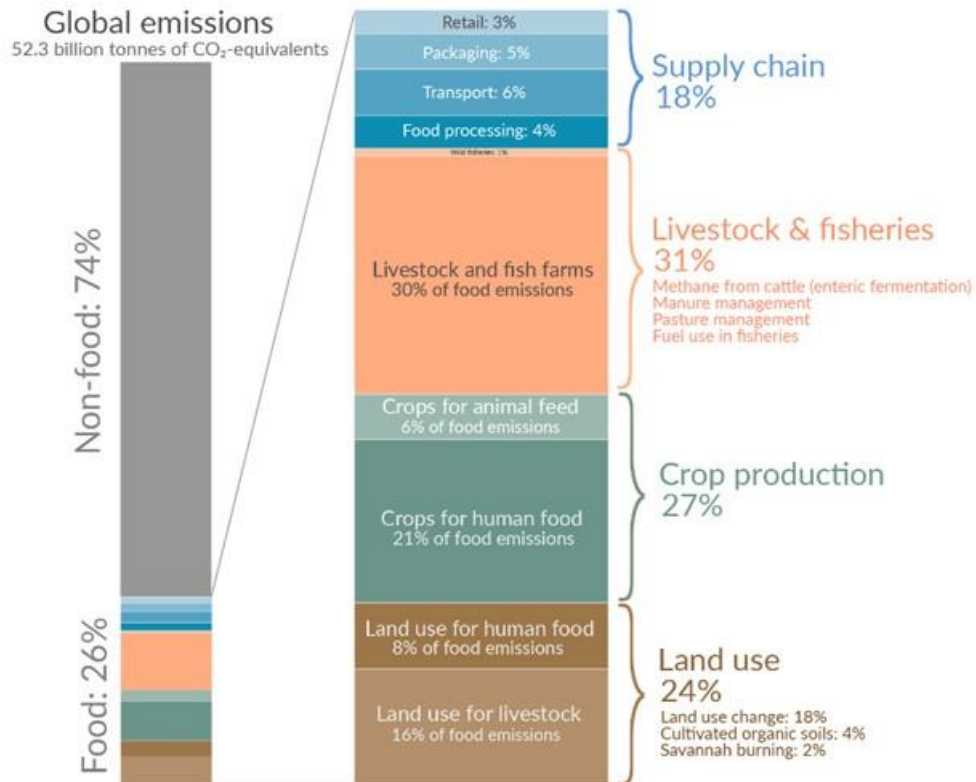
Overview

While no single industry bears sole responsibility for the climate crisis, it's evident that consumer companies, given their widespread presence and influence, play a significant role in greenhouse gas emissions. According to a comprehensive meta-analysis of global food systems by Joseph Poore and Thomas Nemecek, published in Science (2018), the consumer sector, encompassing a wide range of activities and products, accounts for 26% (figure 1) of global greenhouse gas emissions across its value chain.

Encouragingly, consumer companies worldwide are increasingly embracing ambitious decarbonisation initiatives. According to the [2021 UNGC-Accenture CEO Study](#), a substantial 78% of consumer goods and retail companies have set climate targets of varying levels of maturity. Moreover, the study highlights that 81% of CEOs surveyed are actively engaged in the development of new sustainable products and services.

Once companies have pledged to prioritise sustainability, the subsequent crucial step is to fulfil these commitments. Across various fronts, including land use, food and packaging waste, and transportation, the consumer sector has significant influence and bears substantial responsibility for driving the transition toward net zero emissions.

Figure 2: Global greenhouse gas emissions from food production



Source: Joseph Poore & Thomas Nemecek

Key enablers

Sustainable farming

Traditional farming practices significantly contribute to deforestation and greenhouse gas emissions, leading to climate change and environmental harm. This is a major concern for the food and beverage industry, where agriculture is a key driver of emissions.

To tackle these issues, companies in the consumer sector need to adopt sustainable farming methods that can fulfil food production needs while reducing environmental impact, conserving resources, and addressing climate change. New approaches, both nature-based and technological, offer ways to boost farming efficiency, decrease land and resource use, and potentially convert agriculture into a carbon-absorbing process.

Key strategies for sustainable farming include:

- i. Precision agriculture: Leveraging analytics and data inputs to make informed farming decisions, optimizing productivity per acre while minimising waste.
- ii. Vertical farming: Cultivating crops in controlled environments with fewer resources, reducing land use and waste while improving supply chain efficiency.
- iii. Deforestation-free production: Preserving biodiversity and carbon sinks by avoiding forest conversion for agriculture, promoting sustainable land management practices.
- iv. Regenerative agriculture: Prioritising soil health, biodiversity, and carbon sequestration to enhance ecosystem resilience and mitigate climate change.
- v. Alternative proteins: Offering sustainable alternatives to conventional livestock farming, such as plant-based and cultured meat options, to reduce emissions and resource consumption in the food system.

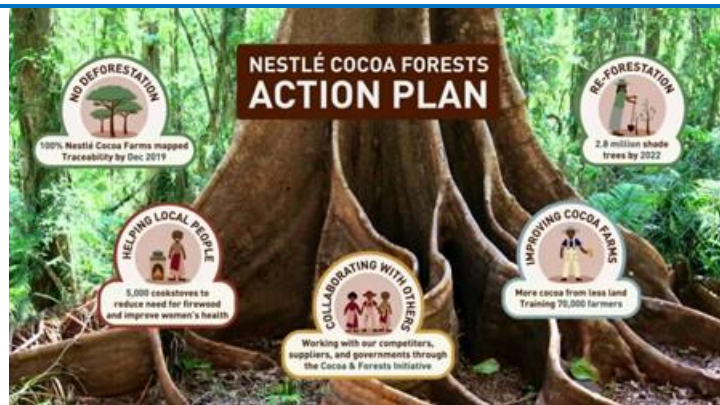
Consumers increasingly demand higher ethical and environmental standards, making sustainable agriculture a strategic opportunity for farmers and companies to future-proof their supply chains. By embracing sustainable practices and sourcing ingredients responsibly, businesses can not only meet consumer expectations but also enhance product quality and nutritional value.

Figure 3: Through its GC&B Programme, Guan Chong assesses deforestation risks and collaborates with suppliers and farmers to promote sustainable land use and conservation



Source: Guan Chong

Figure 4: Nestlé lays out action plan to help end deforestation and restore forests in the cocoa supply chain



Source: Nestlé

Product carbon labelling

Consumer companies face a notable disparity between consumer intentions and actions when it comes to sustainable purchasing behaviour. According to a survey done by [Branding Strategy Insider](#), while 65% of consumers express a desire to buy sustainably, only 26% follow through. However, there's a significant opportunity for companies to bridge this gap by making sustainable options more visible and appealing to consumers. Product carbon labels emerge as a powerful tool in this regard, offering transparency on the emissions associated with a product's entire value chain. By providing this information, carbon labels can help consumers make informed decisions and understand the climate impact of their purchases. According to [Carbon Trust](#), consumer sentiment is shifting positively towards carbon labelling, with two-thirds expressing support for such initiatives.

To effectively implement carbon labelling, collaboration across industries is crucial to establish standardised, user-friendly labels. Additionally, manufacturers need to gather comprehensive data from their supply chains to accurately measure product carbon footprints. Retailers, as key market influencers, can play a role in encouraging suppliers to adopt carbon labelling. Lastly, engagement with policymakers is essential to establish clear standards and regulations that support the adoption of carbon labelling initiatives. Drawing lessons from the success of nutrition labelling can aid the approach to implementing carbon labels effectively.

Figure 5: Walmart launches Built for Better campaign to help customers shop with purpose



Source: Walmart

Sustainable plastics and packaging

Plastics and packaging are major contributors to greenhouse gas emissions, particularly when virgin plastics are used or when packaging ends up in landfills, incinerators, or the ocean. With the vast amount of fast-moving consumer goods sold each day, this contributes significantly to emissions, accounting for an estimated 5% (Figure 2) of the total emissions from consumer companies. To address these impacts, companies can adopt various strategies ie shifting to more sustainable materials like recycled plastics (rPET), HDPE, and innovative bio-based materials like seaweed and mycelium. Implementing sustainable design principles, such as design for disassembly, reusable packaging, and mono-material designs, can also help in reducing emissions. Additionally, improving labelling to help consumers distinguish recyclables from non-recyclables is a vital step.

Innovations in packaging focus on two key areas – finding sustainable material alternatives and reducing unnecessary packaging. This includes replacing non-recyclable plastics with recyclable ones, using renewable feedstocks, and increasing the content of post-consumer recycled plastics in packaging materials. Additionally, reducing excess packaging and creating "packaging-free" products can significantly minimise waste. Simple yet effective changes, such as eliminating unnecessary materials like films and tear-offs, can have a significant impact. Replacing fossil fuel-based materials with renewable alternatives or rethinking packaging design and usage not only cut down on waste but also improve the consumer experience and reduce transportation and logistics impacts.

Integrating recycled plastics into packaging offers another avenue for reductions of emissions and waste by lowering the need for virgin plastics and incorporating post-consumer materials back into the supply chain. Highlighting the use of recycled materials can also create a positive perception among consumers. Overall, incorporating recycled plastic content into packaging presents an opportunity for companies to reduce emissions and contribute to a more sustainable future.

Figure 6: Carlsberg introduced new Snap Pack which reduces plastic usage through innovative glue technology



Source: Carlsberg

Figure 7: Procter & Gamble signs deal for recycled plastic supply



Source: Procter & Gamble

Collaboration and partnership

Scope 3 emissions, originating from activities beyond a company's direct control, represent a significant portion of a consumer company's carbon footprint. These emissions underscore the interconnectedness of the supply chain and consumer behaviour in shaping environmental impact, whether upstream (eg ingredient sourcing) or downstream (eg product use by consumers).

Collaboration among stakeholders, including businesses, Governments, NGOs, and research institutions, is essential for driving collective action towards reducing emissions. Partnerships can facilitate knowledge sharing, technology transfer, and the development of scalable solutions to address emissions across the consumer sector.

Working closely with suppliers is pivotal in enabling brands and retailers to identify areas for improvement and jointly pursue decarbonisation goals. Besides, collaboration must transcend supplier relationships to include Governments, which can enact supportive policies and regulatory frameworks, NGOs that provide expertise and advocacy, and research institutions driving innovation and technological advancements.

Efficient transportation and logistic

Transportation and logistics play a significant role, accounting for 6% (Figure 2) of greenhouse gas emissions for consumer companies. To mitigate these emissions, various strategies can be implemented. One approach is to shorten supply chains by manufacturing products closer to their destination, thereby reducing transportation distances. Improving transportation efficiencies involves minimising empty or partially empty cargo trips and opting for more efficient modes of transportation, such as trains over air transport. Additionally, transitioning to lower-carbon energy sources like renewable fuels and electrification can further reduce emissions.

Figure 8: IKEA piloted an inaugural sponsorship model to meet its goal of 100% zero-emissions home deliveries by 2025



Source: IKEA

Policy support for effective carbon offsetting

Effective policy is pivotal in leveraging carbon offsetting as a climate mitigation strategy. Governments must establish stringent standards for offset projects, ensuring credibility and genuine emissions reductions. Driving additionality is crucial, prioritising projects that go beyond business as usual. Transparency mandates fostering accountability and trust, while international collaboration addresses global complexities. Incentivising innovation accelerates offsetting solutions. By fostering an enabling environment through robust policy, Governments can maximise the environmental impact of carbon offsetting – advancing towards net-zero emissions.

Risks and challenges in achieving net zero for the consumer industry

Technological barriers. Many decarbonisation technologies require substantial capital expenditures with uncertain returns in the short-to-medium term. Promising technologies, such as sustainable aviation fuel, are not yet fully scaled or developed, creating uncertainty for companies strategising net zero pathways.

Deforestation and land use change. Industries reliant on natural resources must address deforestation and land use changes, which significantly contribute to greenhouse gas emissions. Implementing sustainable land management practices is crucial to mitigate this issue.

Reliance on fossil fuels. Many countries' energy sectors are heavily dependent on fossil fuels. Transitioning to renewable energy sources, improving energy efficiency, and reducing fossil fuel subsidies are essential steps to decarbonise the economy.

Infrastructure development. Rapid urbanisation and infrastructure expansion pose challenges for sustainable development. New projects must incorporate low-carbon and climate-resilient principles to reduce emissions.

Policy implementation and governance. Inconsistent or inadequate policy frameworks can hinder progress towards net zero. Effective implementation and enforcement of climate policies, along with clear regulations and incentives, are necessary for businesses to implement emission reduction strategies.

Financial resources and investment. Mobilising financial resources for climate mitigation and adaptation is challenging. Accessing international climate finance, leveraging private sector investment, and enhancing domestic financing mechanisms are needed to support the transition to a low-carbon economy.

Affordability of green products and consumers' willingness to pay. Green products often come at premium prices. Ensuring affordability and increasing consumer awareness of the long-term benefits of sustainable choices are key to driving demand for eco-friendly products.

Consumer awareness and adoption of sustainable practices. Despite growing awareness, many consumers may still lack understanding of sustainable practices. Education campaigns, public outreach, and community engagement are essential to promote environmentally-friendly behaviours.

ESG data measurement. Measuring environmental, social, and governance (ESG) data across the value chain is complex. The consumer industry's diverse product portfolios and extensive value chains make consistent and accurate ESG data collection challenging.

Natural disasters and climate risks. Increasing frequency and severity of natural disasters due to climate change can disrupt operations, supply chains, and logistics, affecting product availability and pricing.

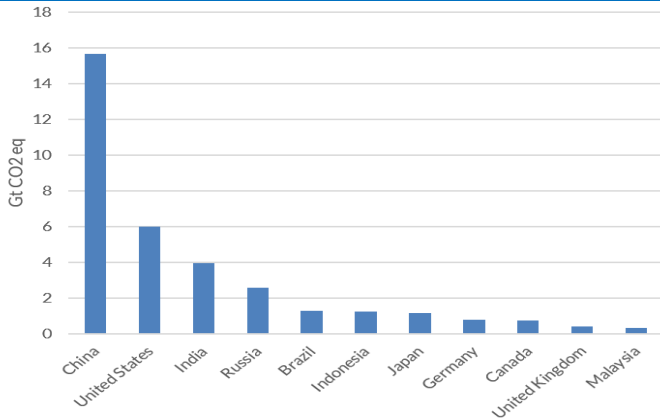
Regulatory hurdles. Non-tariff barriers like the Carbon Border Adjustment Mechanism (CBAM) and other regulations can affect exports and compliance, particularly for small and medium-sized enterprises (SMEs). Supporting these businesses in adapting to new regulations is crucial.

MALAYSIA

Overview

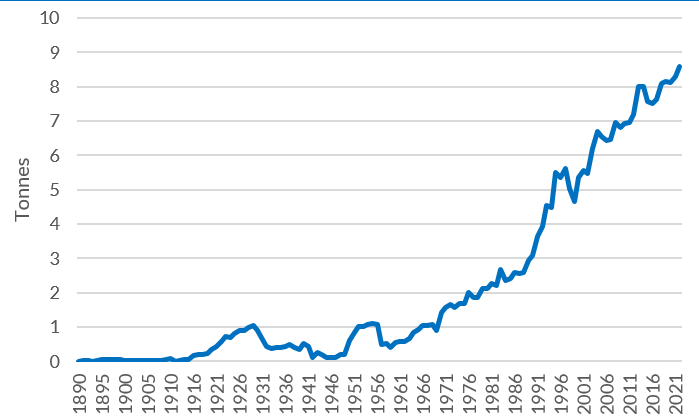
According to Wikipedia, Malaysia produces 0.7% of global emissions and was ranked the world's 28th largest emitter of greenhouse gases in 2022. In 2021, Malaysia's CO2 emissions per capita reached 7.6 metric tonnes, according to Our World In Data, more than doubling since 1990. This increase is fuelled by rapid industrialisation, urban expansion, energy-intensive sectors, population growth, and practices like deforestation.

Figure 9: GHG emissions by country (2022)



Source: Wikipedia

Figure 10: Per capita CO2 emissions in Malaysia



Source: Our World in Data

Country Policies

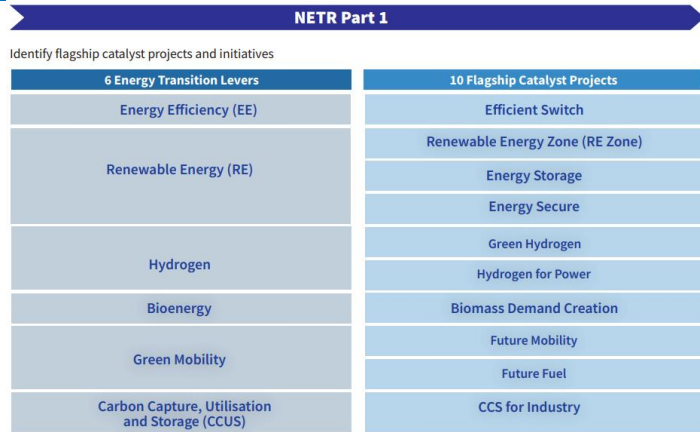
NETR: National Energy Transition Roadmap

After announcing its [2050 net zero emissions](#) target in 2021, the National Energy Transition Roadmap ([NETR](#)) emerges as a crucial instrument in propelling Malaysia's sustainable development objectives. Representing a significant milestone, the NETR delineates Malaysia's path towards a cleaner and more resilient future. Aligned with the *Ekonomi Madani* framework, it underscores Malaysia's commitment to future generations and its determination to tackle contemporary challenges effectively.

The Twelfth Malaysia Plan (2021-2025) and the National Energy Policy (2022-2040) have laid the groundwork for this transformative journey. Against the backdrop of a rapidly evolving global energy landscape, characterised by the trilemma of security, affordability, and sustainability, Malaysia is actively seeking solutions. The NETR signifies Malaysia's steadfast resolve in addressing these challenges and reducing its carbon footprint.

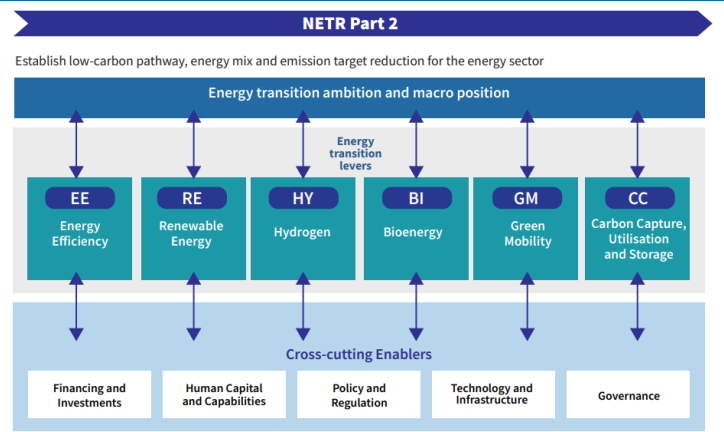
Phase 1 of the NETR introduces ten flagship catalyst projects and initiatives focused on six energy transition levers: Energy efficiency, renewable energy (RE), hydrogen, bio-energy, green mobility, and carbon capture, utilisation, and storage. Phase 2 of the NETR emphasises the low-carbon pathway, the national energy mix, emission reduction targets, and the necessary enablers for the energy transition. (Refer to [RHB Research NETR thematic](#)).

Figure 11: Phase 1 of NETR



Source: NETR

Figure 12: Phase 2 of NETR



Source: NETR

National Agrofood Policy 2.0

[National Agrofood Policy \(NAP\) 2.0](#) represents Malaysia's strategic framework for advancing the agricultural sector towards greater sustainability, efficiency, and productivity. This policy builds upon the foundations laid by its predecessor NAP1.0, and addresses contemporary challenges and opportunities facing the agriculture industry.

While the primary objectives of NAP2.0 encompass enhancing food security, increasing farmers' income, and promoting rural development, it also includes provisions aimed at mitigating environmental impacts, including greenhouse gas emissions. By advocating for the adoption of sustainable farming practices, the efficient use of resources, and the deployment of innovative technologies, NAP2.0 indirectly contributes to the reduction of greenhouse gas emissions associated with agricultural activities.

Through initiatives such as promoting precision agriculture, supporting organic farming, and incentivising the adoption of renewable energy solutions on farms, NAP2.0 seeks to foster a more environmentally sustainable agricultural sector. Additionally, by emphasising the importance of soil conservation, water management, and biodiversity conservation, the policy endeavours to minimise the carbon footprint of agricultural production while enhancing its overall resilience to climate change.

Figure 13: 5 key policy thrust for NAP2.0



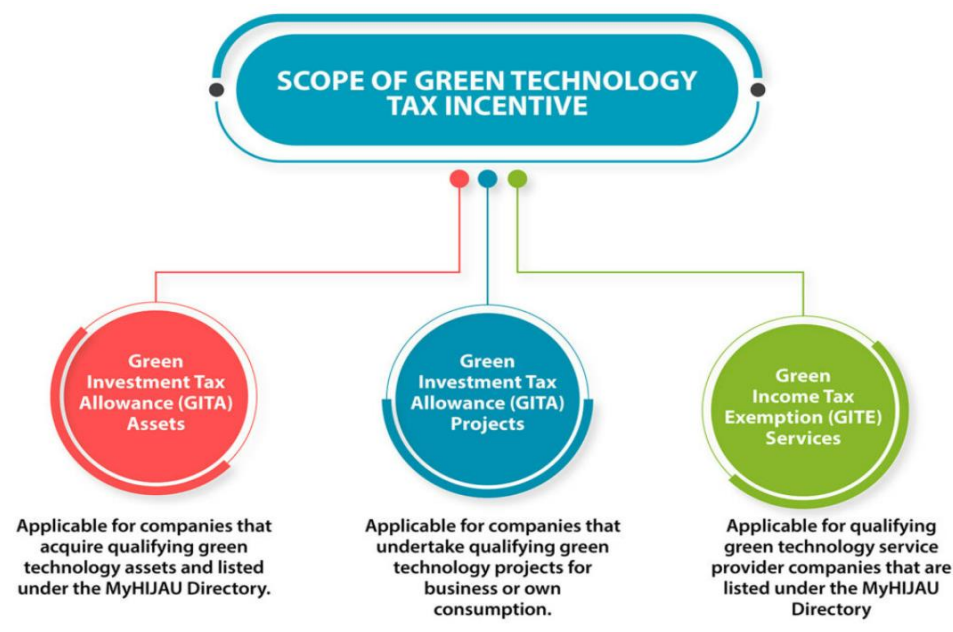
Source: NAP2.0

Green Technology Tax Incentive

The Green Technology Tax Incentive (GITA) and Green Income Tax Exemption (GITE) initiatives are integral parts of Malaysia's strategy to promote eco-friendly practices and technologies across industries. These incentives aim to stimulate investments in sustainable solutions by providing tax relief and income tax exemptions to eligible businesses. GITA encourages companies to invest in green technology assets, while GITE offers income tax exemptions for entities engaged in green technology activities.

In the consumer sector, GITA and GITE are crucial for boosting efforts to enhance sustainability and reduce carbon emissions. These incentives enable businesses, including those in retail and consumer products, to invest in projects ie energy-efficient lighting, sustainable production processes, or renewable energy solutions. Utilising these tax benefits help companies cut operational expenses and support Malaysia's transition to a more environmentally friendly and sustainable economy.

Figure 14: Scope of green technology tax incentive



Source: MGTC

Renewable Energy Act 2011

[The Renewable Energy Act 2011](#) marks a significant step forward in Malaysia's energy policy framework, aiming to facilitate the integration of renewable energy sources into the country's energy mix. This legislation provides a regulatory structure to govern the development, deployment, and utilisation of renewable energy technologies across various sectors.

Within the consumer sector, the Renewable Energy Act 2011 serves as a pivotal tool for promoting sustainability and curbing carbon emissions. By offering incentives for the adoption of renewable energy technologies like solar panels and wind turbines, businesses in these sectors can proactively address their environmental impact and contribute to Malaysia's transition towards a low-carbon economy.

A key feature of the Renewable Energy Act 2011 is the implementation of the [Feed-in Tariff \(FiT\) scheme](#), which incentivises businesses to generate renewable energy and supply it to the national grid. This scheme empowers consumer companies to invest in renewable energy infrastructure, such as rooftop solar installations on retail stores or warehouses, thereby reducing their reliance on fossil fuels and shrinking their carbon footprint.

Voluntary Carbon Markets

[Voluntary Carbon Markets](#) (VCM) offer a practical mechanism for companies to address their carbon footprint by investing in projects that mitigate greenhouse gas emissions. These markets facilitate the trading of carbon credits between green asset owners and others, with the goal of promoting low-carbon practices. While VCMs are not a direct policy for the consumer sector, they provide an avenue for companies to offset emissions generated across various aspects of their operations and supply chains, including manufacturing, transportation, and packaging. Participation in VCMs is voluntary but allows companies to demonstrate their commitment to emission reduction and align with net zero objectives without being bound by regulatory mandates. (for further information, please refer to our [Carbon Trading Thematic](#))

Net zero initiatives by Malaysian companies

Pollution and wastage. Conventional plastics have significantly impacted the environment, causing pollution and damaging ecosystems. In response to the pressing global plastic pollution issue, many consumer companies have adopted biodegradable plastics to mitigate their environmental impact. These eco-friendly materials decompose naturally, providing a greener alternative to traditional plastics. However, the shift to biodegradable plastics is just the beginning. Consumer companies recognise the importance of continuously exploring and adopting sustainable packaging solutions. They are dedicated to ongoing innovation and investigating new technologies and materials that support their environmental objectives.

Energy-efficient practices. Most consumer companies, especially retailers, are implementing measures such as optimising air conditioning systems to operate only during business hours, and transitioning to LED lighting to reduce power consumption. LED lighting is significantly more energy-efficient and has a longer lifespan than ceramic metal halide or CDMT lighting. This dual benefit not only reduces energy usage and electricity costs, but also lowers maintenance expenses.

Renewable energy. As climate change remains a pressing issue, businesses are working to lower their carbon footprints and implement sustainable solutions. In the consumer sector, companies are increasingly installing solar panels at their offices and production sites. This approach helps reduce reliance on conventional energy sources and promotes energy self-sufficiency. By generating renewable energy on-site, the companies lower their environmental impact and support sustainability goals.

Responsible sourcing and sustainable farming. Consumer companies in Malaysia are focusing on improving the traceability of their raw materials to enhance supply chain transparency. The companies are also investing in efforts to protect and restore forests, ie tree planting initiatives and the creation of wildlife corridors. These measures help reduce conflicts between humans and wildlife, and protect biodiversity. Additionally, these companies support farmers by encouraging sustainable farming methods, diversifying income sources, and promoting conservation practices.

Key risks for Malaysia's consumer industry in achieving net zero

Regulatory challenges. Malaysia's evolving regulatory landscape may pose challenges for companies aiming to achieve net zero targets. Changes in environmental laws and standards can increase compliance costs and require significant operational adjustments.

Economic factors. Economic instability, such as fluctuations in commodity prices or economic downturns, could impact the financial capability of companies to invest in sustainable technologies and practices. Limited access to green financing is also a potential constraint.

Technological barriers. The adoption of new technologies necessary for achieving net zero goals may be hindered by high costs and limited expertise. Companies may face difficulties in integrating advanced technologies into their existing operations.

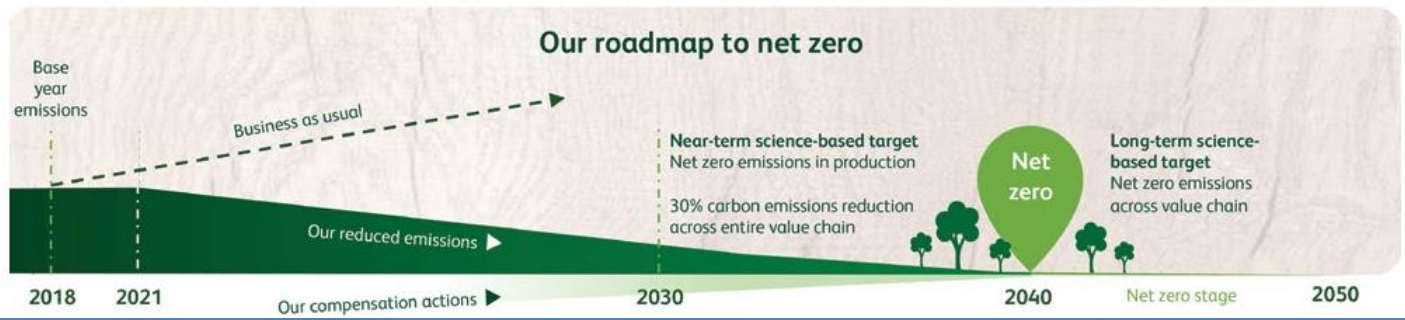
Market demand. While there is growing consumer demand for sustainable products, the market for these products is still developing. Companies may encounter challenges in balancing sustainability initiatives with profitability, especially if the demand is not at the anticipated level.

Featured Stock Ideas – Malaysia

Heineken Malaysia (HEIM MK, BUY, TP: MYR29.60)

Heineken Malaysia has developed its roadmap towards net zero emissions as the foundation of its decarbonisation initiatives across its production and value chains. Its 2018 emissions serve as the baseline against which future emission reductions will be measured. To expedite this journey, Heineken Malaysia has set production innovation and efficiency as focal points to reduce total energy demand and consumption.

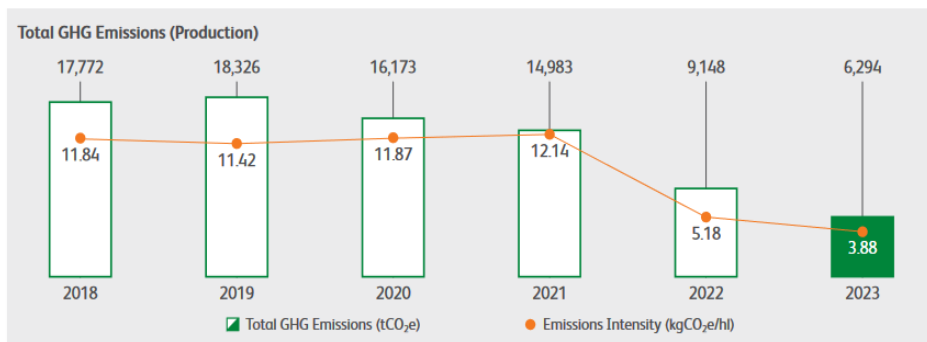
Figure 15: Scope of green technology tax incentives



Source: Company data

Since 2018, Heineken Malaysia has undertaken various initiatives to achieve carbon neutrality in its production. Key energy-saving measures include utility upgrades, production process improvements, and upgrades to cooling and CO₂ plants. These efforts have resulted in significant improvements, such as a 1kwh/hl reduction in cooling plant electricity consumption. The company has also installed insulation for various brewery components to reduce energy consumption. The group procures energy-efficient refrigeration equipment and has transitioned to 100% RE through the GET programme in partnership with TNB. These actions align with Malaysia's goal of achieving net zero GHG emissions by 2050. Heineken Malaysia has surpassed its targets with a 49% decrease in carbon emissions since 2018.

Figure 16: Total CO₂ emissions in production (tCO₂e)



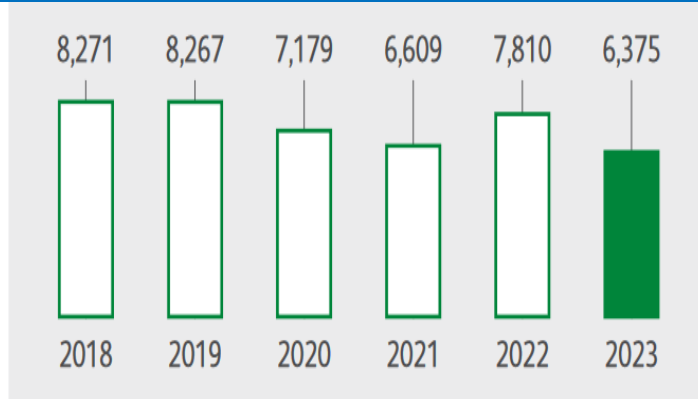
Note: The CO₂ emissions offset recorded in FY2022 and FY2023 is attributed to our subscription to the GET programme.

Source: Company data

The company's absolute Scope 1 emissions primarily stem from the use of natural gas and refrigerants in production processes. In 2022, Heineken also began reporting on the Scope 1 emissions attributed to its fleet of company-owned vehicles.

Heineken has also managed to zerorise its Scope 2 emissions, which arise mainly from the electricity consumed in both its brewery production and non-production activities at the headquarters office in Sungei Way. This was achieved through its subscription to the GET programme. As a result, 100% of its electricity came from renewable sources.

Figure 17: Scope 1 emissions from natural gas (tCO₂e)



Source: Company data

Figure 18: Scope 2 emissions from purchased electricity (tCO₂e)

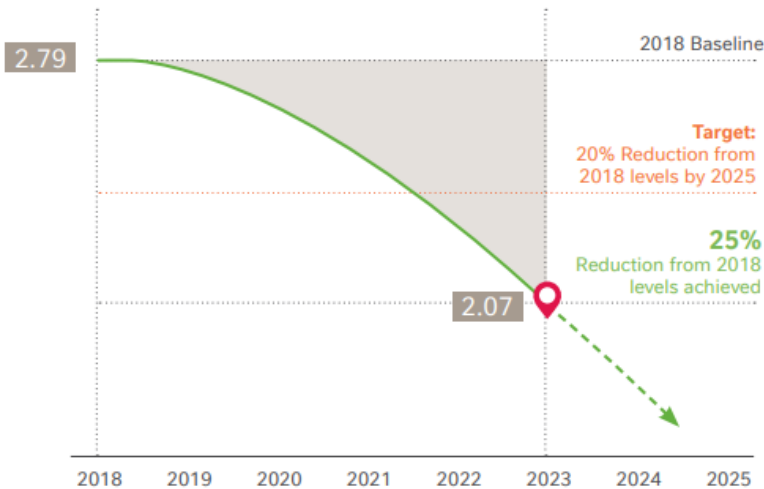


Source: Company data

Nestlé (M) (NESZ MK, NEUTRAL, TP: MYR119)

As a result of the progress of GHG reduction projects across its operations and supply chain, Nestlé achieved a significant 25% carbon footprint reduction in 2023 compared to its 2018 baseline, advancing its ambition to reduce emissions by 20% by 2025 despite higher sales volumes. Key initiatives integral to this reduction include transitioning to 100% RE across its operations since Jan 2022 via the GET Programme and Renewable Energy Certificate (REC), as well as the adoption of various environmental efficiency projects at its manufacturing sites. The Nestlé Global supply chain's efforts to minimise the environmental impact of farming and agricultural activities also contributed to this achievement.

Figure 19: Absolute CO₂ emissions in production (tCO₂e)



Source: Company data

In 2023, Nestlé achieved a commendable reduction in its Scope 1 (direct) and Scope 2 (indirect) GHG emissions, amounting to a 13% decrease compared to 2022, totaling 7,769 tCO₂e. This reduction was primarily attributed to its improved carbon footprint resulting from the installation of new biomass boilers in Chembong and Kuching, along with the implementation of various energy-saving projects.

Figure 20: Emissions data

Description	2021	2022	2023
a. Total direct and indirect GHG emissions (Scope 1 & 2) (tonnes CO ₂ e) [#]	122,485 ^A	59,428 ^B	51,659
b. Total direct GHG emissions (Scope 1) (tonnes CO ₂ e) ^{1, #}	60,180 ^A	59,428 ^B	51,659
c. Total indirect GHG emissions (Scope 2) (tonnes CO ₂ e) ^{2, #}	62,305 ^A	-	-
d. Other indirect GHG emissions (Scope 3) (tonnes CO ₂ e) ³	11,489	10,913	19,211 ^C

Source: Company data

Its Energy and Water Network, which comprises representatives or “champions” appointed at its factories, has been established to implement, track, and review energy and water projects, including the optimisation of utilities, steam supply-pressure reduction, flash steam recovery, and LED lighting installation.

In 2023, biomass boiler projects were launched at its Chembong and Kuching factories, utilising renewable biogenic materials from palm oil to reduce reliance on fossil fuels. Equipped with electrostatic precipitators, these boilers ensure environmentally safe air release, with biomass ash converted into fertiliser.

Nestlé Malaysia is also committed to transitioning to 100% natural refrigerants by the end of 2025. Monthly tracking of refrigerant consumption and regular replacement of refrigeration equipment are part of its efforts to optimise efficiency.

Energy-saving initiatives resulted in a 3.8% reduction in energy consumption in 2023 compared to 2022. These include condensate recovery, heat pump implementation, heat loss reduction, and efficiency improvements in boilers and electrical motors. A commendable 211% increase in energy savings compared to last year was achieved.

Furthermore, the shift from non-renewable to renewable fuel sources has led to an 11% decrease in non-renewable energy usage in 2023, with a 106% increase in renewable fuel consumption. Despite a 1% rise in electricity consumption due to product mix shifts towards energy-intensive lines, overall energy sustainability has significantly improved.

Since Jan 2022, all Nestlé’s facilities in Malaysia have been powered by 100% RE sourced via TNB’s GET programme and the REC by Sarawak Energy (SEB). These RE sources, including solar power plants and hydropower stations, align with the group’s commitment to minimising carbon emissions and promoting the use of RE.

Figure 21: Energy consumption data

Description	2021	2022	2023
a. Total energy consumption (GJ)¹	1,401,829 ^A	1,435,995 ^B	1,381,943
b. Total fuel consumption within the organisation from non-renewable sources (GJ)²	960,634 ^A	964,454 ^B	853,969
c. Total fuel consumption within the organisation from renewable sources (GJ)³	44,292 ^A	49,885	102,991
d. Electricity consumption (in GJ)	396,903 ^A	421,656 ^B	424,982
e. Energy consumption outside the organisation (GJ)⁴	87,660 ^H	89,438	-^C

Source: Company data

AEON Co M (AEON MK, NEUTRAL, TP: MYR1.35)

AEON has embraced RE by installing solar photovoltaic (PV) systems at its malls, contributing to Malaysia’s NETR and net-zero target by 2050. AEON’s waste management efforts include a waste disposal system at AEON Alpha Angle that converts organic waste into compost and the 'Say No To Plastic Bags' campaign, aligning with Malaysia’s Single-Use Plastic Roadmap 2018-2030. AEON also operates recycling centres and partners with organisations such as Coca-Cola, Trash4Cash, and Hiroyuki Industries to promote recycling in Malaysia.

Figure 22: Progressively installing more solar PV panels across AEON malls



Source: RHB

In 2023, AEON advanced its biodiversity conservation efforts by completing the final phase of the Malaysia-Japan Friendship Forest Programme in Bidor, Perak. This reforestation project, initiated in 2014 with the Forest Research Institute of Malaysia, aims to restore a former tin mine area by planting 30,000 trees by 2024. Conducting the project in three phases, AEON planted the final 12,000 trees in 2023. Overall, the group has planted over 550,000 trees through various initiatives.

Figure 23: Number of trees planted at the Malaysia-Japan Friendship Forest in Perak

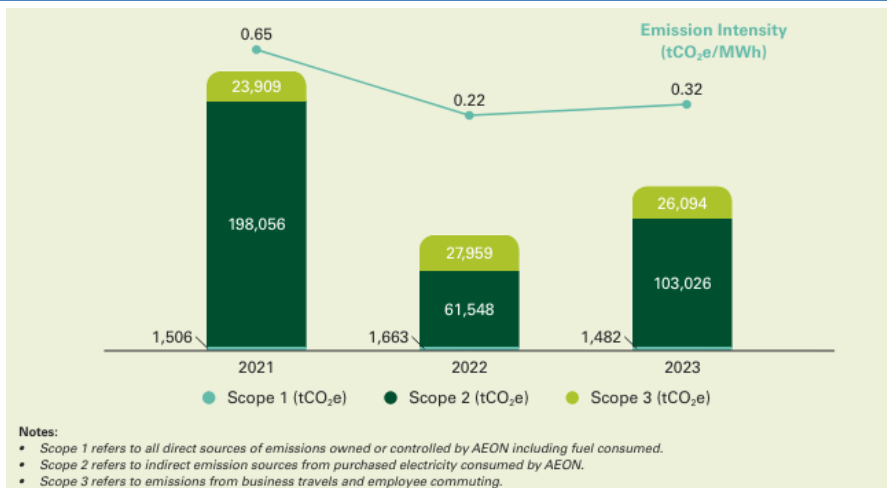


Source: RHB

In 2023, AEON made significant progress towards its goal to be carbon neutral by 2040. The company conducted internal assessments of Scope 1 and 2 emissions and evaluated two categories of Scope 3 emissions. Significant steps include the installation of solar PV systems at AEON Taman Maluri Shopping Centre and AEON Alpha Angle in 2022, and at seven additional malls in 2023. AEON aims to equip 13 malls with solar PV systems by 2024. It also subscribed to the GET programme to enhance its RE usage, achieving a 51% reduction in emission intensity compared to the 2019 baseline.

Despite an increase in total emissions to 130,602 tCO₂e in 2023 – primarily due to a 67% rise in Scope 2 emissions as AEON reduces its reliance on GET, and shifts towards solar PV generation – the group continues to focus on reducing its emissions intensity. AEON has also installed EV charging stations at selected malls, with plans to expand this initiative in 2024 to support the adoption of EVs and encourage sustainable practices among its customers.

Figure 24: Total emissions (tCO₂e) and emissions intensity (tCO₂e/MWh)



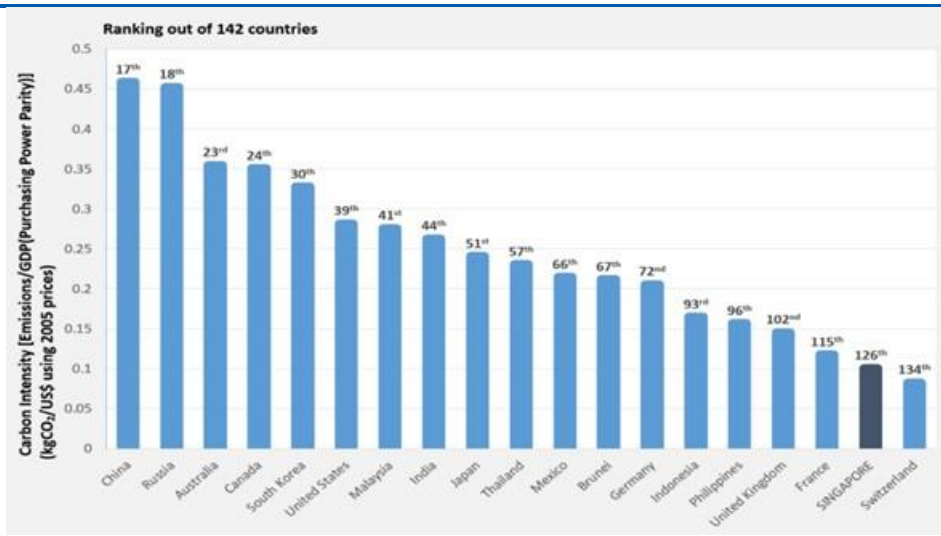
Source: RHB

SINGAPORE

Overview

One of the top carbon intensity performers globally. Singapore is one of the top global performers in terms of carbon intensity. According to the International Energy Agency (IEA) World CO2 Indicators 2022, Singapore is [among the 20 best-performing countries](#) in terms of emissions intensity, despite its small share of the global GDP (0.4%). Out of 142 countries, Singapore ranks 126th in terms of CO2 emissions per dollar GDP (\$GDP).

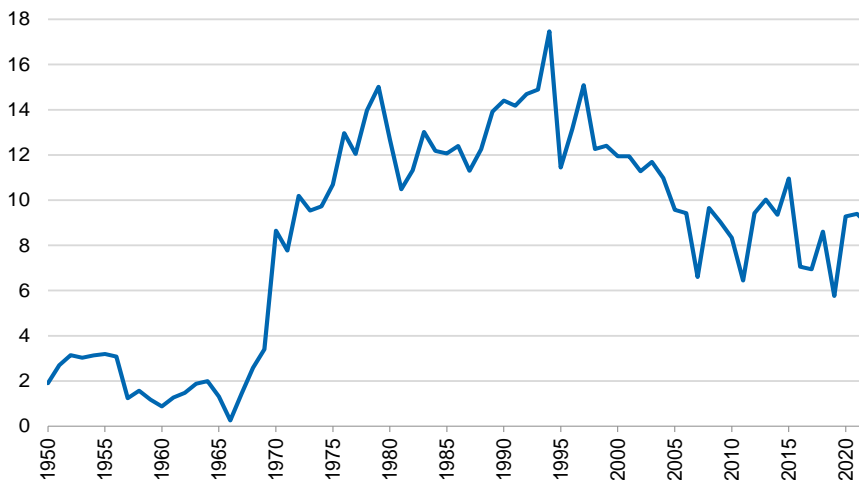
Figure 25: Carbon intensity (emissions per \$GDP) – Singapore ranks 126th of 142 countries in terms of CO2 emissions per \$GDP



Source: NCCS, CO2 Emissions from Fuel Combustion - 2018 Highlights © OECD/International Energy Agency, 2018

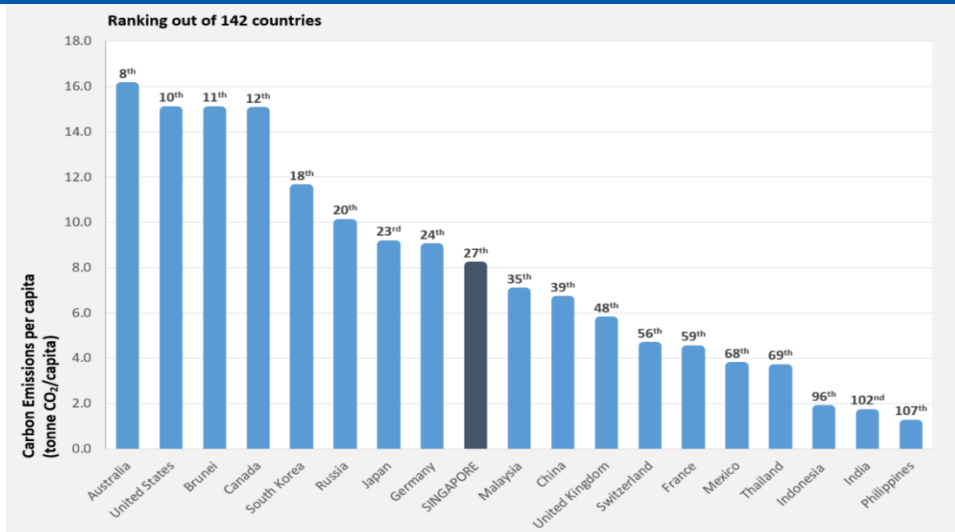
As Singapore underwent industrialisation over the years since its independence, CO2 emissions per capita soared, and peaked in 1994 at 17.5trn tonnes. The metric then declined to 8.9trn tonnes in 2022, after the UN Framework Convention on Climate Change was adopted by the UN, which required governments to develop policies and strategies to reduce GHG emissions in 1992. In terms of global ranking, [Singapore ranks 27th out of 142 countries](#) in CO2 emissions per capita.

Figure 26: CO2 emissions per capita in Singapore (trn tonnes)



Source: Our World In Data

Figure 27: Per capita emissions – Singapore ranks 27th out of 142 countries

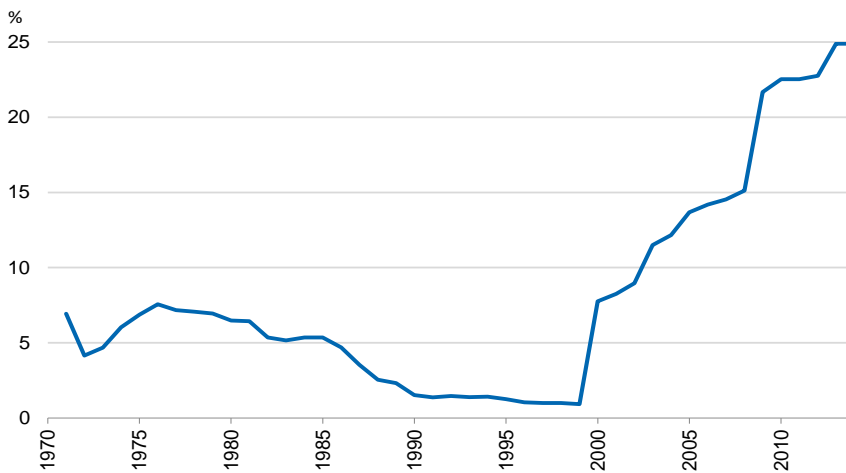


Source: NCCS, CO2 Emissions from Fuel Combustion - 2018 Highlights © OECD/International Energy Agency, 2018

Net-zero target by 2050

Despite reducing CO2 emissions per capita and ranking favourably in recent years, Singapore now aims to achieve net zero emissions by 2050, targeting emissions at around 60m tonnes of CO2 equivalent (MtCO2e) in 2030 after peaking earlier, and from 52.8 MtCO2e in 2020, based on the addendum to the long-term Low-Emissions Development Strategy (LEDS) 2022.

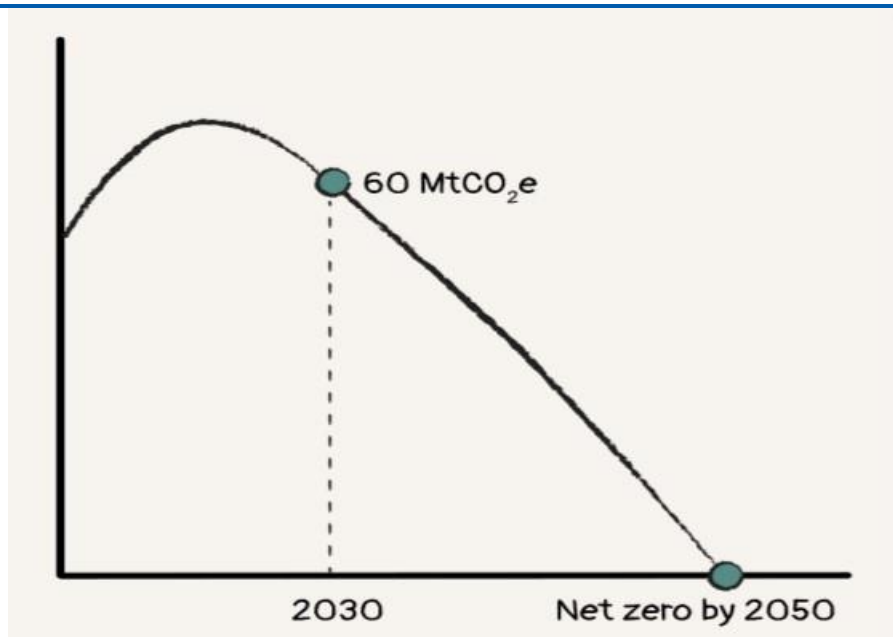
Figure 28: Singapore's CO2 emissions from manufacturing industries and construction (% of total fuel combustion)



Source: Worldbank, IEA

A key strategy to reduce emissions is energy efficiency, as Singapore is also an advanced manufacturing hub. The objective is to be energy- and carbon-efficient through the adoption of energy efficiency and emissions reduction technologies. This will be aided by grants and other policy tools, which help subsidise high upfront capital investments and other non-market barriers. Currently, [energy is not subsidised](#) – this incentivises companies to use energy prudently and to adopt more energy-efficient methods. Strong pollution laws are in place to move industries to cleaner fuel sources, including natural gas. Singapore is proactive in targeting net zero emissions by 2050, and has outlined its plans under the long-term LEDS 2022.

Figure 29: Illustrative diagramme of Singapore’s net zero emissions trajectory



Source: Addendum to Singapore’s Long-Term Low-Emissions Development Strategy 2022

The use of alternative energy in Singapore is limited due to its small land area, high population density, low-lying and relatively flat land, low wind speeds, and lack of high-quality hydrothermal resources. These characteristics make alternative energy – such as wind, hydro, and nuclear energy – challenging. Even with high average annual solar irradiation, solar PV is limited by the availability of land to deploy solar panels on a large scale, and high cloud cover. Some of these circumstances are outlined in the UN’s Framework Convention on Climate Change, which recognises the circumstances of countries with “serious difficulties in switching to alternatives”. Despite being unable to generate sufficient baseload electricity from renewable sources reliably, Singapore aims to deploy [at least 2 gigawatt-peak \(GWp\) of solar energy by 2030](#), which would be capable of powering about 350,000 households for a year.

As part of its LEDS to achieve net zero emissions by 2050, Singapore will accelerate the low-carbon transition for industry, economy, and society through four key thrusts (see Figure 30).

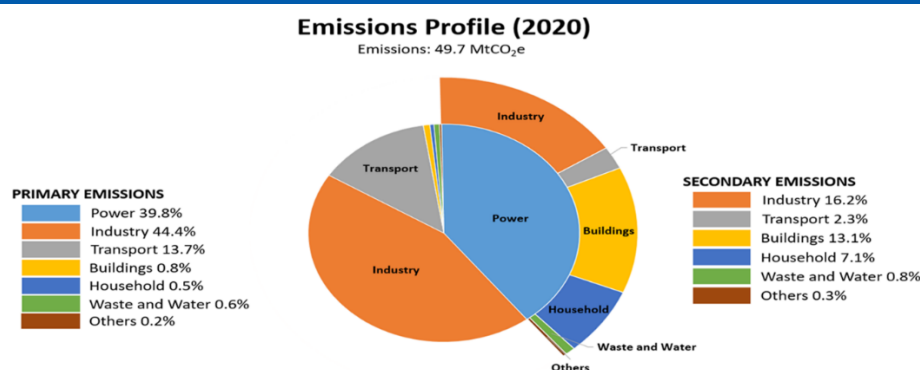
Figure 30: Four key thrusts to accelerate low-carbon transition for industry, economy, and society to reach net zero by 2050

Plans and policies	Note
1 Catalysing business transformation	Improving energy efficiency, shifting towards a more sustainable energy and chemicals sector
2 Investing in low-carbon technologies	Carbon capture, utilisation and storage (CCUS), and use of low-carbon fuels
3 Pursuing effective international cooperation	International climate action, regional power grids, market-based mechanisms
4 Adopting low-carbon practices	Greener commutes with cleaner vehicles and Walk-Cycle-Ride

Source: NCCS, Addendum to Singapore’s Long-Term Low-Emissions Development Strategy 2022

As Singapore is highly urbanised, primary emissions stem from transport, industry, and power. Due to Singapore’s uniqueness and challenges, carbon mitigation efforts targeting Singapore’s net zero future are largely centered around energy. Reducing emissions from power will depend on more environmentally friendly means, such as solar, regional power grids, emerging low-carbon alternatives, and natural gas. The industry and buildings will focus on more energy efficient measures as a means to reduce carbon emissions. Finally, transport will aim to use cleaner energy vehicles and increase reliance on walk-cycle-ride to achieve the 2050 net zero target.

Figure 31: Emissions profile



The emissions profile above excludes estimated hydrofluorocarbons (HFCs) emissions of around 3.1 MtCO₂e from the Refrigeration and Air-conditioning (RAC) sector in 2020. When more robust estimates are established, the national emissions profile will be updated in accordance with the United Nations Framework Convention on Climate Change (UNFCCC) and Intergovernmental Panel on Climate Change (IPCC) guidelines on continual improvement of national GHG inventories.

Source: NCCS

In contribution to its net zero goal by 2050, Singapore's unique position has led the government to gear towards cleaner purchase and use of energy. While this has a minimal impact on the food products sector (where there is little agriculture production and limited manufacturing in the food industries, compared to the tech and pharmaceutical sectors), the food sector has turned towards achieving more sustainable supply of food sources via its 30-by-30 strategy under the Singapore Green Plan 2030's sustainable living pillar. This mitigates reliance on food imports and supply disruptions due to climate change while strengthening food security. As Singapore builds up its sustainable farming capability, direct beneficiaries would be local urban farms. Meanwhile, we see listed F&B players in Singapore as limited beneficiaries, as most would be undertaking more sustainable resources management practices (such as energy, water, waste management, and sustainable procurement) in support of climate change for now.

Country Policies

Singapore Green Plan 2030 to tackle climate change. The Singapore Green Plan is part of the country's plan to challenge climate change by implementing actions to build a sustainable future. It is a nationwide movement to advance Singapore's national agenda on sustainable development. The Green Plan outlines targets set out for the next 10 years, to achieve its long-term net zero emissions target by 2050. The five pillars to achieving its targets include establishing a city in nature, energy reset, sustainable living, green economy, and building a resilient future.

While the energy reset pillar will contribute greatly to reducing Singapore's emissions profile, sustainable living will help reduce its reliance on food imports and mitigate potential supply disruptions from climate change.

Strengthening Singapore's food security to enhance sustainable living. In line with its aim to strengthen Singapore's food security and reduce reliance on food imports, as well as to mitigate the impact of supply disruptions, the Singapore Food Agency (SFA) has adopted a multi-pronged approach to safeguard the country's food security. The strategy is to grow three "food baskets" of:

- i. Diversifying food import sources,
- ii. increasing local food production, and
- iii. growing food overseas to help local companies expand abroad

Diversifying food import sources ensures that Singapore reduces its reliance on any single supply source, thereby reducing the risk of food disruption. On 1 Jun 2022, Malaysia banned fresh chicken exports to Singapore. At that time, more than one third of Singapore's chicken supply was from Malaysia. This led to consumers switching to frozen chicken and other meat and protein products as substitutes. Singapore then moved swiftly to add Indonesia as a new supply source for chilled, frozen, and processed chicken. The list of imports from Indonesia

today includes live chicken as well. Sources of food supply to Singapore have increased from 172 countries and regions in 2019 to 183 in 2022.

Increasing local food production will help to buffer international supply chain disruptions and reduce reliance on food imports. The SFA’s “30 by 30” goal aims to build up the agri-food industry’s capability and capacity to sustainably produce 30% of Singapore’s nutritional needs by 2030. It is part of the Singapore Green Plan 2030 to help establish a more resilient food future.s

SFA will support Singapore companies’ efforts to grow and expand overseas, overcoming land and manpower limitations, and to export food back to Singapore after reaping economies of scale. Local farms that have already ventured overseas include Barramundi Asia, (Australia and Brunei), Apollo Aquaculture (Brunei), Sustenir (Hong Kong), and Sky Greens (Thailand and China).

SFA’s 30 by 30 goal

The 30 by 30 goal was announced in 2019, and aims to develop Singapore’s agri-food industry to sustainably produce 30% of Singapore’s nutritional needs locally by 2030, to potentially mitigate the impact of supply disruptions. The 30 by 30 goal is part of SFA’s multi-pronged approach to grow one of the three “food baskets”, which is to “grow local” or increase local food production.

Figure 32: 30-by-30 plan under three food baskets to mitigate climate change



Source: sfa.gov.sg

In growing local, which is the second food basket, SFA’s strategy is to raise local production, increase production yield sustainably, and provide funding support for local farms.

Figure 33: Growing Singapore’s local food basket to achieve food security and secure supply

- 1 Raise local production
- 2 Increase productivity
- 3 Fund and support growth of local farms

Source: sfa.gov.sg

Raising local production as part of the 30 by 30 Goal

Singapore’s local production of its nutritional needs is currently less than 10%. The 30 by 30 goal is to produce 30% by 2030. Singapore already produces some fresh food locally. Local farms’ food production contributed between 3.9% and 29% of total food consumption for eggs, seafood, and vegetables in 2022 and local food production should continue to increase despite land constraints (less than 1% designated for agricultural use). This will enhance Singapore’s local production and provide a buffer supply if import sources are disrupted.

Figure 34: Growing Singapore's local food basket to achieve food security and secure supply

Produce	Annual production 2022	Local production as % of consumption
Hen shell eggs	609.1m pieces	28.9%
Seafood	4,400 tonnes	3.9%
Vegetables	19,900 tonnes	4.4%

Source: Singapore Food Statistics 2022, Singapore Food Agency

Increase productivity – Grow more with less, sustainably

Due to tight land constraints, Singapore's challenge is to yield more production sustainably. To do this, the agri-food industry has to be highly productive, climate-resilient, and resource-efficient. Employing sustainable technologies will help farms yield more produce with less resources. One example, is the use of indoor multi-storey LED lighting vegetable farms and indoor multi-storey Recirculating Aquaculture Systems. These technologies and facilities can yield 10-15 times more vegetables and fish per hectare than traditional vegetable and land-based fish farms. These facilities can also be resilient to climate change.

Another strategy is the allocation of more land and sea spaces for farms to scale up production. There has been more tendering of agricultural land to agri-food companies that compete based on technology, productivity, and track record by SFA to expand local food production since 2017. There are also plans to redevelop the larger Lim Chu Kang area for centralised farm production facilities and services to reduce the cost of food production.

The deeper southern waters are also being explored to boost local fish production. The SFA plans to conduct assessments on the potential environmental impact of farming activities there, with the goal of raising local fish production without serious adverse impact on the marine environment.

Other alternative spaces include vacant interim state properties and rooftops. There are already pilot projects and tenders launched for commercial urban farming on HDB multi-storey carpark rooftops. These can potentially be increased in the future. The establishment of commercial urban farms will bring agriculture closer to the locals as they engage in individual and community farming of edibles.

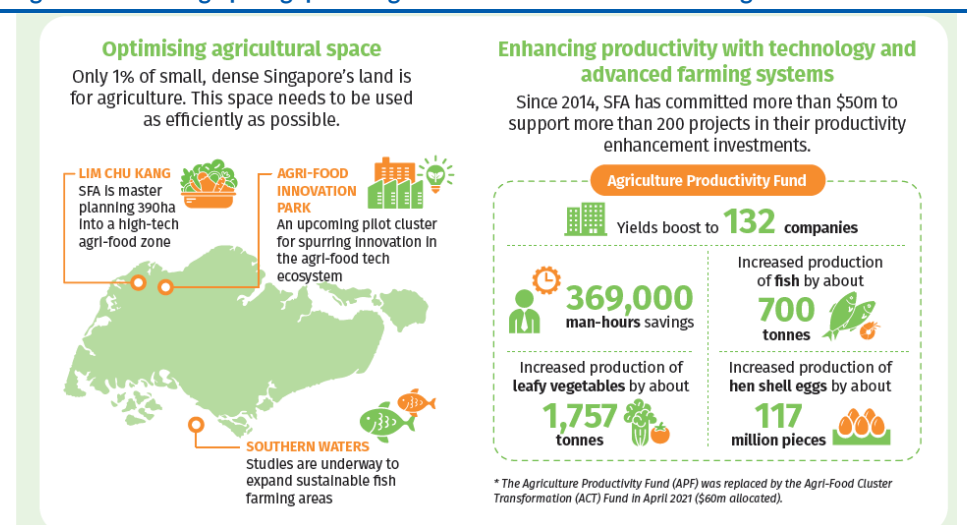
The SFA is helping locals to appreciate food from "farm to fork". It has a Farm to Table (FTT) Recognition programme that recognises food businesses in the Hotel, Restaurant and Catering (HoReCa) sectors that procure at least 15% of hen shell eggs, leafy vegetables, beansprouts, and fish from local farms, which consumers can choose to support.

There is also a SGD30m "30x30 Express" grant established in April 2020 to support productivity to fund local agri-food industry companies to expand capacities and production ramp up of local eggs, leafy vegetables and fish, and to enhance technological systems.

Fund and support growth of local farms

Growing licensed food farms towards 30 by 30. According to Singstat, c.1% of Singapore's land area is used for agricultural purposes. The sector mainly produces eggs, seafood (mainly aquaculture products from sea farms), and vegetables for local consumption. There were around 150 land farms and 110 sea farms (mainly at the Straits of Johor, and three deep sea farms in the southern waters) in 2021. The number of licensed food farms increased from 221 in 2019 to 257 in 2022.

Figure 35: Building up Singapore's agriculture and sustainable farming sector



Source: sfa.gov.sg

As Singapore has only 1% of land set aside for farming, productivity will need to improve via the use of technology and innovation to achieve its 30 by 30 goal. The SFA's strategy to transform the agri-food sector into one that is highly productive, climate-resilient, and sustainable includes space optimisation and productivity enhancements, such as:

- Master planning 390ha in Lim Chu Kang into a high-tech agri-food zone to optimise food production, developing an agri-food innovation park to spur innovation in the agri-food tech ecosystem, and to grow sustainable fish farming in Singapore's southern waters;
- Using the Agri-Cluster Transformation (ACT) fund to help transform the agri-food sector into a high productivity, climate-resilient, and resource-efficient sector. The ACT fund supports farms in different aspects including capability upgrades, innovation and test-bedding, as well as tech upscaling;
- Providing funding to support innovative research projects in sustainable urban food production, future foods, and food safety science and innovation, through the Singapore Food Story R&D Programme (which was allocated over SGD309m). The programme made available SGD144m in research funding to enable R&D in sustainable urban food production, future foods, and food safety science and innovation.
- Helping local farms to grow their businesses sustainably by educating and encouraging citizens to support local produce;
- Promoting courses with institutes of higher learning to develop a skilled workforce in the agri-food sector.

Prior to the ACT, innovative farming technologies and R&D were funded and supported by the Agriculture Productivity Fund (APF) from 2014 to 2020. The APF co-funded high tech, productive farming systems with better environmental control and to boost production capabilities and capacity. The APF has supported cumulative farm production of:

- About 1,631 tonnes of leafy vegetables (c.13% of 2019 local production);
- Over 528 tonnes of food fish (c.11% of 2019 local production);
- More than 46m pieces of hen shell eggs (c.9% of 2019 local production).

Beneficiaries included coastal fish farm Singapore Aquaculture Technologies and N&N Agriculture. Singapore Aquaculture Technologies adopted a closed-containment aquaculture system that separates water used to culture fishes from sea water, to enable resilience to fluctuations in external environmental conditions in fish production, while N&N Agriculture implemented a fully automated system for crate washing, egg production and wrapping of egg trays which helped the farm achieve savings in manpower and water.

Figure 36: APF-supported farms: Singapore Aquaculture Technologies and N&N Agriculture



Source: sfa.gov.sg

Beneficiaries of Singapore's 30 by 30 plan

Singapore's 30 by 30 plan aims to produce 30% of the country's nutritional needs domestically by 2030. Support measures are targeted at establishing new urban farms while helping existing farms produce more.

Direct beneficiaries of this plan are companies already operating local farms. These companies are already contributing to Singapore's nutritional needs. The government grants will help them to expand and increase production, and directly contribute to Singapore's 30 by 30 target.

Figure 37: Beneficiaries of Singapore's 30 by 30 plan

Company	Production type
Chew's Agriculture	Eggs
Hay Dairies	Eggs
N&N Agriculture	Eggs
Seng Choon	Eggs
Ace Farm	Fish
Blue Aqua International	Fish
Blue Ocean Aqua Technology	Fish
Prime Aqua Sea Farm	Fish
Rong Yao Fisheries	Fish
The Fish Farmer	Fish
Singapore Aquaculture Technologies	Fish
ComCrop	Vegetables
Kin Yan Agrotech	Vegetables
MEOD	Vegetables
Netatech	Vegetables
Yili Farm	Vegetables
Sustenir Agriculture	Vegetables

Source: <https://www.sfa.gov.sg/fromSGtoSG/farms>

Featured Stock Ideas – Singapore

The impact on Singapore's listed F&B players is minimal as none of the companies are involved in farming, which means they will not benefit from the 30 by 30 plan. While most F&B companies have ESG strategies, they are mainly focused on reducing their carbon footprint by cutting down waste and adopting more efficient energy and water usage. Environmental sustainability is also a focus for their products, with many companies also adopting biodegradable packaging. While it is possible to source for inputs sustainably, Singapore's farms produce only a small fraction of the country's domestic needs. Most of the companies are helping to diversify their input sources by increasing their supply sources, which is part of SFA's multi-pronged approach to grow one of Singapore's three food baskets, but falls outside the scope of the 30 by 30 plan.

Given the scope of Singapore's listed F&B companies (which are either packaged food manufacturers, grocery retailers, or chain foodservice outlets), we see limited upside from the 30 by 30 plan for these companies. However, these companies can help Singapore to achieve the 30 by 30 plan by procuring more from local farms when production from urban farms eventually ramps up. Top picks are SSG and DFI.

Figure 38: Beneficiaries of Singapore's 30 by 30 plan

Company	F&B type	Note	Sustainable practices
Khong Guan			
YHS	Packaged food manufacturer	Food manufacturing businesses are more focused on efficient energy and water management	All can contribute to Singapore's food sustainability strategy by expanding and diversifying their food input supply sources.
QAF			
Thai Beverage			
Sheng Siong	Grocery retailer	Scope to procure inputs from Singapore's urban farms in support of 30 by 30 plan, but not a beneficiary of it	
DFI Retail			
Japan Foods	F&B foodservice	Scope to procure inputs from Singapore's urban farms in support of 30 by 30 plan, but not a beneficiary of it	
Kimly			
Old Chang Kee			
Jumbo			
YKGI			
Katrina			

Source: RHB

Sheng Siong (SSG SP, BUY, TP: SGD1.86)

Like other supermarkets, SSG faces an increasingly vulnerable supply chain with frequent disruptions relating to global geopolitical instability. Important sustainability topics which are relevant to SSG include energy, GHG emissions and water use, sustainable supply chain management, and affordable food. It constantly monitors and measures the use of its resources including water and electricity and improves its disclosures, using this to formulate strategies to strengthen its resource conservation. SSG has implemented processes such as supplier diversification, and develops and maintains strong relationships with its partners, enabling it to consistently provide affordable and quality products to its consumers. It regularly conducts market research to ensure its products are affordable and competitively priced and practises diversification in its sourcing to ensure sustainable food supply at stable prices. It also engages with the Government, NGOs and voluntary welfare organisations (VWOs) to discuss its role in sustainable sourcing. The company aims to keep its products and fresh foods affordable while exploring ways source more sustainably.

DFI Retail Group (DFI SP, BUY, TP: USD2.61)

DFI has a long-term net zero emissions target by 2050. It aims to achieve decarbonisation in remaining gaps beyond the short-term, and purchase RECs or carbon offset as a last resort to meet the net zero target, as it also anticipates technological advancements for net zero solutions. In the short term, it aims to accelerate decarbonisation across its operations in 2025 by retrofitting its stores with Water Loop technology fridges, educating team members, installing lead detectors to address fridge leakages, using low GWP refrigerant gas, electrifying delivery vehicles, and increasing the waste diversion rate. Over the medium term, it aims to extend decarbonisation across the value chain by 2030 by fully electrifying its own fleet and sourcing for low carbon products from suppliers, and increasing its recyclable OB plastic packaging. Its plans include 50% absolute Scope 1 and 2 emission reduction and 25% Scope 3 emission reduction across targeted categories.

Key risks for Singapore in achieving net zero for the consumer industry

Singapore's plan to achieve net zero lies in the reduction of energy via more efficient buildings, amongst other initiatives. Hence, we see Singapore's 30 by 30 food sustainability plan having minimal risks towards Singapore achieving its net zero targets, as food plays a small part in Singapore net zero targets going forward.

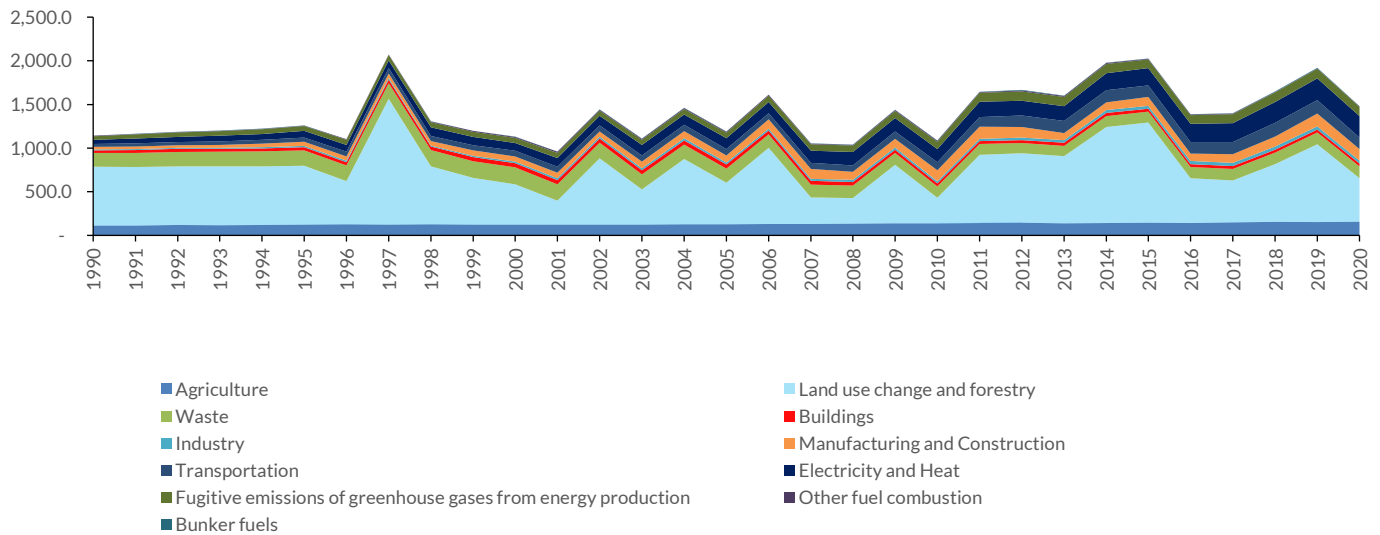
INDONESIA

Overview

In Indonesia, like many other countries, consumer companies contribute to emissions through various segments of their operations and supply chains. The key contributors of emissions in these companies often include:

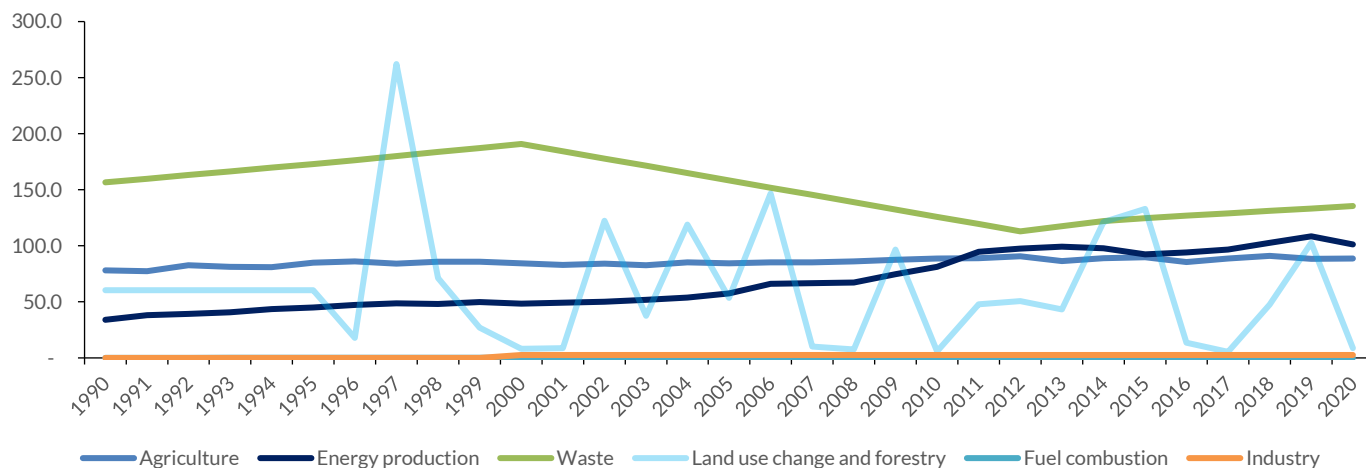
- i. **Energy use:** This is a significant source of emissions, especially in manufacturing processes, retail operations, and logistics. Companies reliant on fossil fuels for electricity and transportation contribute notably to GHG emissions.
- ii. **Supply chain operations:** The production and transportation of raw materials and finished goods can be highly energy-intensive, especially in industries like textiles, palm oil, and consumer electronics. Emissions can occur at every stage, from extraction of raw materials to delivery of the final product to consumers.
- iii. **Waste production:** Consumer companies, especially in food, beverage, and packaging, generate substantial waste. Improper disposal and treatment of waste can lead to emissions of methane, a potent greenhouse gas, especially in landfills.
- iv. **Deforestation and land use changes:** In Indonesia, companies involved in palm oil production, paper, and wood products can have a significant impact due to deforestation and peatland burning, releasing large amounts of carbon dioxide. Land use changes for agriculture or plantations are also critical contributors to emissions.
- v. **Product use:** The emissions do not stop at the purchase point – the use of products can also contribute to overall emissions. For example, the energy consumption of electronic goods or the disposal and degradation of such products in the environment can add to a company's indirect emissions.
- vi. **Agricultural practices:** For companies involved in the F&B sector, emissions can stem from agricultural practices, including the use of fertilisers that release nitrous oxide, a potent greenhouse gas, and methane emissions from rice paddies.

Figure 39: GHG emissions across sectors – total sectoral GHG emissions (m tCO₂e/year)



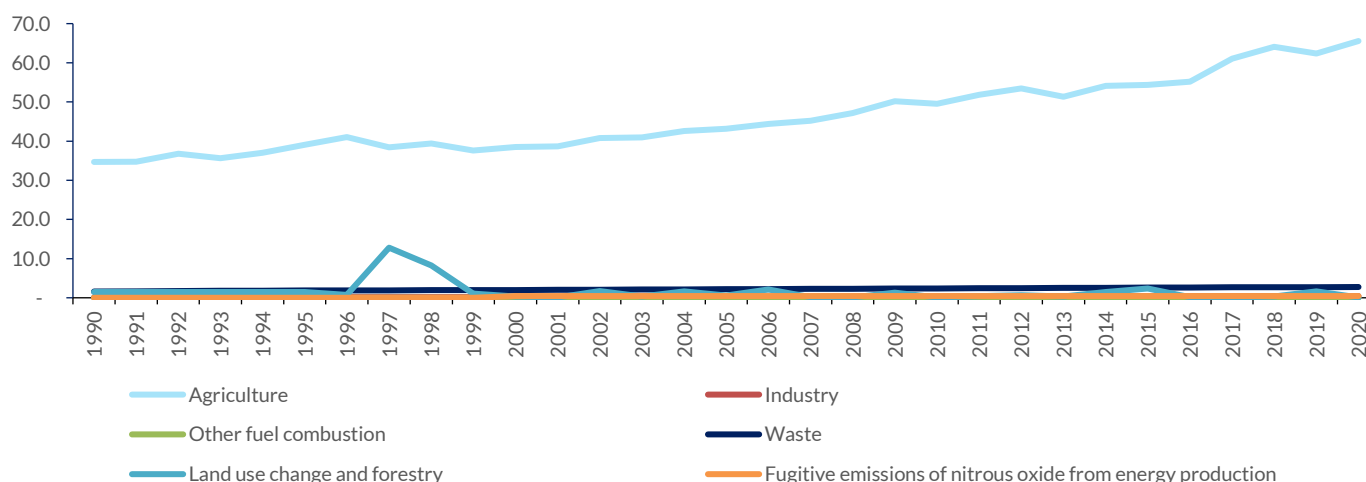
Source: ourworldindata.org

Figure 40: Methane emissions across sectors (m tCO2eq/year)



Source: ourworldindata.org

Figure 41: Nitrous oxide emissions across sectors (m tCO2eq/year)



Source: ourworldindata.org

Indonesia has been aggressively raising its nationally determined contribution (NDC) target to achieve net zero by 2060. On 23 Sep 2022, the Government raised its NDC target to reduce GHG emissions by 31.89% from 29% (unconditionally), and 43.2% from 41% (conditionally) by 2030. Based on the NDC, GHG emissions are projected to more than double, from 1,334m tCO2e in 2010 to 2,869m tCO2e in 2030.

Figure 42: Indonesia’s latest NDC targets (mtCO2e)

Sector	GHG emission level (2010)	GHG emission level (2030)	Annual average growth BaU (2010-2030)	GHG emission reduction			
				mtCO2e		% of total BaU	
				CM1	CM2	CM1	CM2
FOLU	647	714	0.5%	500	729	17.4%	25.4%
Energy	453.2	1,669	6.7%	358	446	12.5%	15.5%
Waste	88	296	6.3%	40	44	1.4%	1.5%
IPPU	36	70	0.3%	7	9	0.2%	0.3%
Agriculture	110.5	119.7	0.4%	10	12	30.0%	0.4%
Total	1,334	2,869	3.9%	915	1,240	31.9%	43.2%

Source: Note: CM1 – unconditional; CM2: conditional; BaU: business as usual; FOLU: Forestry and Other Land Uses; IPPU: Industrial Processes and Product Use Source: Enhanced Nationally Determined Contribution Indonesia 2022

To that end, achieving net zero emissions in Indonesia requires a comprehensive and multi-faceted approach involving various sectors of society and the economy. The roadmap outlining key steps toward achieving this goal:

- i. **Setting ambitious targets:** Establish clear and ambitious targets to achieve net zero emissions, including interim goals to track progress. These targets should be aligned with international agreements like the Paris Agreement and reflect Indonesia's commitment to addressing climate change.
- ii. **Transition to RE:** Accelerate the transition to RE sources such as solar, wind, hydroelectric, and geothermal power. This involves investing in RE infrastructure, incentivising RE deployment, and phasing out reliance on fossil fuels for electricity generation.
- iii. **Enhancing energy efficiency:** Improve energy efficiency across industries, transportation, buildings, and households to reduce energy consumption and emissions. Implement energy efficiency standards, promote energy-efficient technologies, and encourage behavioral changes to minimise energy waste.
- iv. **Protecting and restoring natural ecosystems:** Prioritise conservation and restoration of forests, peatlands, and coastal ecosystems to enhance carbon sequestration and biodiversity. Strengthen enforcement of forest protection laws, support community-based conservation efforts, and invest in reforestation and ecosystem restoration projects.
- v. **Sustainable land use and agriculture:** Promote sustainable land use and agricultural practices to reduce emissions from deforestation, land degradation, and agricultural activities. Implement land-use planning strategies, promote agroforestry and sustainable farming methods, and support smallholder farmers in adopting climate-smart practices.
- vi. **Decarbonising transportation:** Transition to low-carbon transportation systems by promoting public transit, EVs, and alternative fuels. Invest in EV infrastructure, incentivise the adoption of EVs through subsidies and tax incentives, and improve public transportation systems to reduce reliance on fossil fuel-powered vehicles.
- vii. **Industry decarbonisation:** Implement measures to decarbonise industrial processes and reduce emissions from manufacturing, mining, and other industrial activities. This includes adopting cleaner production technologies, improving energy efficiency in industrial processes, and transitioning to RE sources for industrial operations.
- viii. **Carbon pricing and financial incentives:** Implement carbon pricing mechanisms such as carbon taxes or cap-and-trade systems to internalise the cost of carbon emissions and incentivise emission reductions. Provide financial incentives, grants, and subsidies for low-carbon technologies, RE projects, and sustainable practices.
- ix. **Technology innovation and research:** Invest in research, development, and deployment of innovative technologies and solutions to mitigate emissions across sectors. Support collaboration between academia, industry, and Government to develop and scale up low-carbon technologies and solutions tailored to Indonesia's specific needs and challenges.
- x. **Strengthening governance and institutional capacity:** Strengthen governance frameworks, institutional capacity, and policy coordination mechanisms to facilitate the implementation of climate mitigation and adaptation measures. Enhance transparency, accountability, and stakeholder engagement in climate decision-making processes to ensure effective and inclusive climate action.
- xi. **Education and public awareness:** Raise awareness and build capacity among policymakers, businesses, communities, and the public on the importance of achieving net-zero emissions and the benefits of climate action. Promote climate literacy, environmental education, and sustainable lifestyle choices to foster a culture of sustainability and resilience.
- xii. **International collaboration and partnerships:** Engage in international collaboration and partnerships to access funding, technical expertise, and knowledge-sharing opportunities for climate mitigation and adaptation efforts. Collaborate with other countries, international organisations, and the private sector to mobilise resources and leverage best practices for achieving net-zero emissions.

By implementing these strategies and mobilising collective action across sectors, Indonesia can work towards achieving net-zero emissions and contributing to global efforts to combat climate change while promoting sustainable development and resilience.

Relevant Country Policies

Indonesia has taken several steps toward achieving net-zero emissions, although achieving this goal involves ongoing efforts and collaboration across various sectors. Some of the actions and initiatives undertaken include:

RE expansion: Indonesia has been working to increase its RE capacity, which includes solar, wind, hydroelectric, and geothermal power. Investments and policies aim to reduce the country's reliance on fossil fuels and transition to cleaner energy sources.

Initiatives:

- i. Indonesia implemented the RE Feed-in Tariff (FIT) programme in 2017, offering incentives for the development of solar, wind, hydroelectric, and geothermal power projects.
- ii. The Government has set a target to achieve 23% of its energy mix from renewable sources by 2025 and is investing in infrastructure to support this goal.

Forest conservation and restoration as well as peatland restoration: Indonesia has committed to reducing deforestation and forest degradation through initiatives such as the REDD+ (reducing emissions from deforestation and forest degradation) programme. Efforts to protect and restore forests contribute to carbon sequestration, helping to offset emissions. Furthermore, peatlands are significant carbon sinks, and efforts to restore degraded peatlands can help reduce emissions. Indonesia has initiated projects to rehabilitate and protect peatland areas, which are prone to degradation and fires.

Initiatives:

- i. The Kalimantan Peatland Restoration Project was initiated in 2016 by the Indonesian Peatland Restoration Agency (BRG) in collaboration with local communities and international organisations. It focuses on restoring degraded peatlands in several provinces across Kalimantan, which is the Indonesian portion of the island of Borneo. Specific areas targeted for restoration efforts within Kalimantan include provinces such as Central, South, West, and East Kalimantan. These provinces have been heavily affected by peatland degradation and fires due to activities such as drainage, land clearing, and conversion for agriculture, particularly oil palm and pulpwood plantations.

Climate policy and regulations: Indonesia has developed climate policies and regulations to address emissions across various sectors. This includes setting emission reduction targets, implementing carbon pricing mechanisms, and promoting sustainable practices in industries such as forestry, agriculture, and energy.

Initiatives:

- i. Indonesia has introduced various policies and regulations to address emissions, including the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK) and the Low Carbon Development Initiative in 2011.
- ii. The Government has set emission reduction targets, implemented carbon pricing mechanisms, and established regulations to promote sustainable practices in industries such as forestry, agriculture, and energy.
- iii. The Jakarta Government began implementing restrictions on the use of plastic bags by retailers in 2020.
- iv. In Feb 2023, the Ministry of Energy and Mineral Resources (MEMR) launched the first phase of mandatory carbon trading, specifically for coal-fired power plants that are connected directly to state-owned Perusahaan Listrik Negara's (PLN) utilities – covering 99 power plants with total installed capacity of 33.6GW. As the mechanism used is cap and trade, coal-fired power plants that emit below the quota can trade their carbon credits locally or internationally for USD2-18/tCO₂e. In 2025-2027, the Government will begin the second and third phases for coal-fired power plants not connected to PLN.

International cooperation: Indonesia engages in international partnerships and agreements to address climate change and achieve net-zero emissions. Collaboration with other countries

and organisations allows for the sharing of knowledge, technology, and resources to accelerate progress toward its climate goals.

Initiatives:

- i. Indonesia actively participates in international agreements such as the Paris Agreement and collaborates with organisations like the United Nations Framework Convention on Climate Change (UNFCCC) and the World Bank to access funding, technical assistance, and knowledge-sharing opportunities.
- ii. Through its partnerships with other countries, Indonesia has received support for its forest conservation and emissions reduction efforts. Indonesia received a total of USD1,571m worth of financial support in 2016-2019 from bilateral agreements, with the highest contribution from Japan International Cooperation Agency (JICA) Japan, followed by Agence Française de Développement (AFD) France, and KfW Germany.

Community engagement and education: Raising awareness and engaging local communities in climate action is crucial. Indonesia has been working to educate the public about the importance of reducing emissions, promoting sustainable practices, and building resilience to climate impacts.

Initiatives:

- i. Programmes like the Community-Based Forest Management (CBFM) and Social Forestry Programme (*Program Hutan Kemasyarakatan*) engage local communities in sustainable forest management practices and provide alternative livelihoods to reduce pressure on forests in various locations in Indonesia.
- ii. Educational campaigns raise awareness about the importance of biodiversity conservation, climate change mitigation, and sustainable development among communities, schools, and local organisations (such as the Green School programme in Bali).

Green finance and investment: Encouraging investments in low-carbon infrastructure and sustainable development is essential for achieving net-zero emissions. Indonesia has been seeking green finance opportunities and integrating climate considerations into its financial decision-making processes.

Initiatives:

- i. In 2018, the President issued Regulation No. 77 of 2018 to form the Indonesia Environmental Fund Agency (BPDLH) as a service delivery unit under the Ministry of Finance.
- ii. The Government is working to integrate ESG criteria into investment decisions, with the establishment of stock indexes related to ESG, such as the SRI Kehati ESG Leaders.
- iii. Indonesia has been issuing green bonds to finance projects with environmental benefits. Green bonds are debt securities where the proceeds are used exclusively to fund green projects, such as RE, sustainable agriculture, and clean transportation. These bonds attract investors who are interested in supporting environmentally responsible initiatives while generating financial returns.
- iv. In 2023, several issuers introduced green bonds. These include Bank Mandiri (BMRI IJ, BUY, TP: IDR8,100), with IDR5trn in Jun 2023; Arkora Hydro (ARKO IJ, NR), with a value of IDR339.89bn in Aug 2023; and Bank Rakyat Indonesia (BBRI IJ, BUY, TP: IDR5.900), with IDR6trn in Oct 2023.

These efforts reflect Indonesia's commitment to addressing climate change and transitioning to a low-carbon economy. However, achieving net-zero emissions will require sustained commitment, innovation, and collaboration at all levels of society and government.

Net zero initiatives of Indonesia companies

Consumer companies in Indonesia play a crucial role in the pursuit of net-zero emissions through the adoption of sustainable practices throughout their operations, supply chains, and product offerings. Positioned at the forefront, these companies hold substantial influence in facilitating the nation's shift toward a low-carbon economy and realising the objective of net-zero emissions, thanks to their direct engagement with consumers. Leveraging their products and services, we note that consumer companies have the capacity to educate their consumers and drive broader awareness on sustainable practices.

Within this sector, we focus on two primary segments: Consumer staples and consumer discretionary. Within the environmental pillar, companies operating in both these sub-sectors have undertaken a variety of initiatives aimed at reducing carbon emissions and making positive contributions to the environment. Most of the initiatives are focused on utilising environmentally-friendly raw materials, promoting sustainable sourcing, reducing carbon footprint throughout their business chain, reducing plastic waste in products, conserving forests, enhancing biodiversity as well as promoting waste processing and utilisation both in their operations and in the wider community.

Following Government initiatives – the PROPER programme

Among the efforts undertaken by Indonesian consumer companies is the participation in the Government's Company Performance Rating Programme or PROPER. The programme is an initiative by the Ministry of Environment and Maritime Affairs. Companies appointed by the Ministry of Environment and Forestry participate in the programme. It serves as an environmental management framework implemented to evaluate and rate the environmental performance of companies across various sectors, including those in the consumer staples space.

Within the PROPER programme, consumer companies undergo assessments based on their efforts and achievements in environmental management, sustainability practices, and compliance with environmental regulations. Evaluation criteria cover areas such as waste management, energy efficiency, water conservation, emissions reduction, and other measures aimed at mitigating environmental impacts.

Consumer companies enrolled in the PROPER programme are motivated to enhance their environmental performance through acknowledgment, incentives, and support offered by the Indonesian government. By actively engaging in and adhering to the benchmarks established by the PROPER programme, these companies can showcase their dedication to environmental stewardship and contribute to the nation's sustainability objectives.

For example, both Unilever Indonesia (UNVR IJ, NEUTRAL, TP: IDR2,500) factories in Cikarang and Rungkut earned BLUE ratings, signifying complete adherence to all relevant regulations. Similarly, Mayora Indah (MYOR IJ, BUY, TP: IDR3,300) factories have consistently received BLUE ratings from 2020 to 2022. In 2022, 34 out of Indofood CBP's (ICBP IJ, BUY, TP: IDR13,800) 60 operational units were evaluated under PROPER and were granted the BLUE rating for achieving full compliance with the Government's environmental regulations.

Figure 43: MYOR's production facilities' PROPER status

No	Company	2022	2021	2020
1	Mayora Indah	Blue	Blue	Blue
2	Torabika Eka Semesta	Blue	Blue	Blue
3	Kakao Mas Gemilang	Blue	Blue	Blue

Source: Company

Sustainable and responsible sourcing initiatives

Consumer staples companies use raw materials taken from natural resources. These companies acknowledge their responsibility to uphold ethical practices in sourcing raw materials, aiming to safeguard the environment by collaborating with suppliers committed to avoiding deforestation or open burning across the entire supply chain. These efforts are vital for ensuring the long-term sustainability of supply chains and maintaining strong relationships with suppliers. Recognising the heightened risk of climate change, which exacerbates pressure on agriculture and natural resources, these companies understand the importance of securing raw materials critical to their consumer staples operations.

Consumer companies are dedicated to environmental improvement during their sourcing practices. For instance, Unilever Indonesia (UNVR) demonstrates proactive efforts through the implementation of its No Deforestation, No Peat, No Exploitation (NDPE) Policy for palm oil procurements. The company prioritises protection of nature and promotion of sustainable sourcing, ensuring that its products are responsibly obtained. Within its Personal Care Business Unit, UNVR attained 97% NDPE compliance in 2022, actively seeks suppliers committed to NDPE to achieve full compliance.

In Indofood Agribusiness Group, 75% of its refined crude palm oil (CPO) is certified by the Indonesian Sustainable Palm Oil (ISPO) standard – indicating compliance with sustainable palm oil principles, encompassing human rights respect, environmental protection, and zero deforestation. Indofood Consumer Branded Products (ICBP) aims to ensure that by 2025, 100% of the cooking oils it sources from Indofood Agribusiness Group are derived from ISPO-certified CPO.

As a supplier of cooking oil to ICBP, Indofood's Agribusiness Group adheres to a sustainable agriculture policy throughout its operations and supply chain, extending from nucleus and plasma estates to all third-party CPO suppliers. This policy encompasses various commitments, including:

- i. Preservation of natural habitats, and refraining from activities in high conservation value (HCV) and high carbon stock (HCS) areas.
- ii. Prohibition of planting on peatlands, regardless of depth.
- iii. Prevention of burning practices.
- iv. Upholding labour and human rights, ensuring freedom of association and non-discrimination.
- v. Obtaining free prior and informed consent (FPIC) from relevant stakeholders.

Initiatives aimed at energy management and conservation

Consumer companies have explored methods to manage energy consumption by adopting more environmentally-friendly appliances and incorporating renewable energy sources. For example, MYOR utilises hydro energy sources for its Cikupa factory in collaboration with state-owned electricity provider Perusahaan Listrik Negara (PLN), acquiring RE certificates equivalent to 10,000MWh to mitigate the impact of GHG Scope 2 emissions. Additionally, the company also utilises coffee grounds for boiler fuel.

ICBP's noodles factory in Semarang is a successful example of transitioning to clean energy within the company's operational units. Since 2017, it has completely replaced coal with oil palm shells, a sustainable energy source. This switch has significantly reduced air pollutants released and minimised handling costs by eliminating the disposal of hazardous wastes (FABA) generated from coal combustion. In addition to pollution reduction and energy source diversification, the factory has implemented ISO 50001 to manage energy consumption, resulting in a saving of over 132,000GJ of energy and avoiding 144,000 tCO₂-e of GHG emissions from 2017-2022.

Aspirasi Hidup Indonesia (ACES IJ, TRADING BUY, TP: IDR815) endeavours to enhance energy efficiency by employing LED lamps that are both eco-friendly and energy-saving. Moreover, lights and air conditioning in workrooms are automatically switched off after 6.30pm as part of an energy-saving initiative at its Kawan Lama Building.

Throughout 2022, Mitra Adiperkasa (MAPI IJ, BUY, TP: IDR1,800) continued its utilisation of renewable energy from solar panels at its Starbucks Cipondoh outlet in Tangerang City. These 23 solar panels each has a peak capacity of 440W, generating a total of 10,120W under optimal sunlight conditions, which fulfills 13% of the store's total electricity requirement. The use of solar panels in this context contributes to a reduction of 5,769kg CO₂ emissions per year.

Waste Management Policies

In the waste management system, consumer companies handle waste generated from business processes, including organic waste that are non-harmful to the environment and plastic packaging waste. Equipment categorised as reusable waste undergoes efforts for repair, recycling, and proper reuse. If it is not repairable or recyclable, companies ensure the waste is processed by certified waste management partners. Continuous efforts are made to enhance product innovations, particularly in packaging, to support plastic reduction initiatives through redesign strategies.

For instance, within UNVR's personal care unit, initiatives include the introduction of 100% recyclable body wash and deodorant bottles, a mouthwash bottle made from 100% post-consumer recycled (PCR) materials, and a toothbrush blister containing 80% PCR materials. Its Pepsodent brand also introduced the first toothpaste with a recyclable packaging tube. In the nutrition unit, UNVR promotes the use of 100% recycled polyethylene terephthalate

(PET) bottles for Bango and 100% recycled packaging for SariWangi black tea sachets. Waste from the nutrition and ice cream factories is repurposed as fertiliser and maggot feed through collaboration with third parties. Additionally, the home care unit pioneered the use of 100% recyclable sachets through Rinso, amounting to a reduction of 1,700 tonnes of plastic footprint (17% of total flexible waste).

At ICBP, its 2022 sustainability report states that 100% of food waste (over 41,000 tonnes) from production processes is utilised as animal feed, and 100% of recyclable carton packaging waste (over 26,000 tonnes) is recycled in collaboration with third parties. In 2022, the company also managed 100% of recyclable post-production plastic waste (over 11,500 tonnes), with 72% managed in collaboration with waste collectors for delivery to recycling industries and 28% recycled internally in flexible packaging factories. Furthermore, ICBP reduces packaging weights and sizes through innovative designs, and aseptic filling technology in bottling facilities allows for lighter packaging materials, thereby reducing the use of virgin plastic. Efforts are ongoing to produce more environmentally friendly flexible packaging, such as monolayer packaging, with product development and trials conducted in 2022.

MAPI's Greener Nusantara Programme aims to replace various F&B segment materials with more eco-friendly and sustainable alternatives. The programme has shown significant progress in increasing the use of eco-friendly materials from 2021.

Figure 44: MAPI's Greener Nusantara Programme results

Greener Nusantara Programme outputs by type	Unit	2022	2021	2020
Paper straws in place of plastic wraps		29,700,000	22,600,000	14,000,000
Paper stirrers in place of plastic stirrers		184,000	125,000	140,000
Biodegradable utensils in place of plastic utensils		1,100	36,700	120,000
Glass bottles in place of plastic bottles	Unit	1,300,000	730,000	290,000
Use of rPET glasses		28,700,000	23,500,000	3,400,000
Use of tissues from recycled materials		63,100,000	37,500,000	33,000,000

Source: Company

Programmes for waste collection

Companies remain steadfast in their commitment to environmental stewardship, striving to foster a better world for future generations. Many consumer companies go the extra mile by incorporating recyclable materials into product designs and offering drop-off locations where consumers can return product packaging for recycling and reuse. Collection is a critical aspect of the waste management process, presenting both a challenge and a pivotal stage in post-consumer packaging recycling. Consumer companies employ various strategies and collaborate with stakeholders, ie consumers and community organisations, to enhance the quantity and quality of recycled waste collection points in Indonesia.

UNVR's initiatives include the establishment of waste banks, introduction of refill stations in partnership with Saruga Indonesia, QYOS, and Siklus, as well as the installation of 100 U-Refill stations in waste banks. Additionally, digital innovations like the Smart Drop Box – equipped with a barcode scanner system to track the deposit of both Unilever and non-Unilever brand plastic bottle packaging, is introduced. Collaborating with PlasticPay, UNVR has implemented a reverse vending machine (RVM) with each PET bottle deposited into the machine earning a monetary reward.

Figure 45: Unilever established refill stations in collaboration with Saruga Indonesia, QYOS, and Siklus; and 100 U-Refill stations in waste banks as well as a digital-based innovation called Smart Drop Box



Source: Company

Figure 46: Unilever's reverse vending machine and conventional drop boxes



Source: Company

ICBP implemented the Green Warmindo programme in collaboration with Warmindo entrepreneurs to manage its post-consumer packaging waste. Through this partnership, it educates entrepreneurs and their employees on waste segregation, collect their segregated post-consumer packaging waste, and deliver it to the nearest Waste Bank or waste collectors. Additionally, ICBP partners with several companies and NGOs for the Drop Box programme, aimed at educating the community on proper waste sorting and recycling. This partnership initiative involves educating the public on waste segregation and depositing it in Drop Boxes installed at various locations in the Jabodetabek and Solo areas. The collected waste, including paper, plastic, and glass packaging waste, is then delivered to partnered Waste Banks. This initiative not only benefits the community but also contributes to the development of a circular economy.

Similarly, Matahari Department Store (LPPF IJ, NEUTRAL, TP: IDR1,950) has launched an engaging initiative to encourage customers to participate in its in-store garment collecting programme. This programme's aim is to extend the lifecycle of unused clothing. In 2023, LPPF established 47 collection points at stores and the support centre office in Menara Matahari, and collected 1,759kg of clothing from customers. The collected clothes were recycled in collaboration with a recycling partner and processed into raw materials for apparel production.

Figure 47: Matahari Department Store's campaign with one of the viscose rayon producers, and its Denim Trade-in Programme



Source: Company

Efforts for preserving biodiversity

Several companies also implemented biodiversity preservation programmes to engage in environmental conservation and biodiversity efforts through diverse initiatives. For example, mangrove conservation is a focal point due to its critical role in supporting biodiversity in ecosystems by offering shelter and nutrients. ICBP is one of the companies which conducts mangrove tree planting initiative across its operating units, and has planted 91,900 mangroves since 2016. Mangroves are recognised as potent carbon sinks, capable of storing three to five times more carbon than inland tropical forests.

MAPI also undertook emissions reduction initiatives in 2022, including the planting of 353 trees at Pantai Indah Kapuk and 1,000 trees at Bahagia Beach Bekasi. The planting of these 1,353 trees has the potential to sequester 261.2kg of CO₂. Additionally, MAPI contributed to biodiversity efforts by donating 48,000 coffee saplings and 50 fruit trees during the year.

Nippon Indosari (ROTI IJ, NEUTRAL, TP: IDR1,150) operates 14 plants across various regions in Indonesia. None of these plants are situated near forest or protected areas, or regions with high biodiversity values outside of protected areas. Therefore, the company's operations have no significant adverse impact on biodiversity, and its activities are not associated with deforestation.

Other initiatives

Much effort has been taken by consumer companies to reduce the usage of harmful plastics or cut down on GHG emissions. Most companies have taken the easy route – by implementing environmental awareness programmes and reducing costs through activities like:

- i. Issuing electronic receipts to reduce paper usage during transactions.
- ii. Cutting down on energy usage by switching to low-energy appliances or increasing the downtime for office air-conditioning across operation areas.
- iii. Using reusable/non-plastic shopping bags at retail and shopping outlets.
- iv. Implement technology to improve inventory management to manage the waste better as well as enhancing the working capital.

Key risks for Indonesia in achieving net zero for the consumer industry

Indonesia faces several risks that could derail its efforts to achieve net zero emissions. The country's economic reliance on coal and palm oil, both significant sources of greenhouse gas emissions, complicates the transition to cleaner energy and sustainable practices. Additionally, Indonesia's vast archipelago and diverse geography present logistical challenges for developing and deploying renewable energy infrastructure. Political instability and policy inconsistencies (especially with during the transition period to the new Government) provide uncertainty regarding the previous commitments, while social and economic inequalities may limit access to green technologies and sustainable practices.

Featured Stock Ideas – Indonesia

Unilever Indonesia (UNVR IJ, NEUTRAL, TP: IDR2,500)

We discovered Unilever Indonesia is deeply committed to fostering a positive environmental impact. Compared to other consumer companies, UNVR stands out by providing comprehensive data on its efforts and outcomes – setting specific targets to translate these efforts into policies aimed at enhancing the planet's health, accompanied by a clear roadmap. UNVR aims to achieve zero net emissions from both its upstream and downstream products by 2039, reducing the 2050 target in the Paris Agreement on climate change by 11 years.

The company also aims to halve the greenhouse gas impact of its products throughout their lifecycle by 2030. To accomplish these objectives, UNVR is striving for zero net emissions in its operations by 2030 and intends to replace fossil fuel-derived carbon with renewable or recycled carbon in all its cleaning and laundry product formulations by 2030. Additionally, it plans to disclose the carbon footprint of every product sold to enable consumers make informed choices. The company also aims to source 100% of its electricity from renewable sources by 2030.

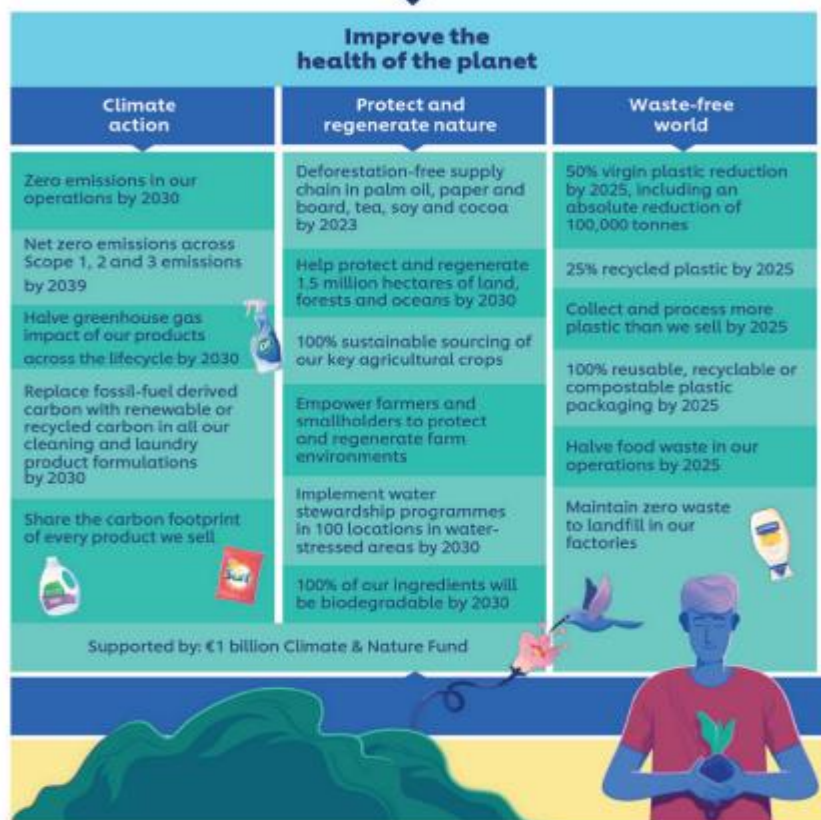
By 2025, UNVR aims to achieve several milestones, including:

- i. A 50% reduction in virgin plastic, including an absolute reduction of 100,000 tonnes of plastic and an accelerated use of recycled plastic by up to 25%.
- ii. Ensuring 100% of its plastic packaging can be reused, recycled, or composted.
- iii. Collecting and processing more plastic than the amount sold.
- iv. Increasing the utilisation of recycled plastic content (PCR) in packaging by at least 25%.

Additionally, the company aims to reduce plastic waste that ends up in the ocean by 70%, decrease indifference to waste, increase waste sorting awareness by 50%, and raise the recycling rate to 50% by 2025.

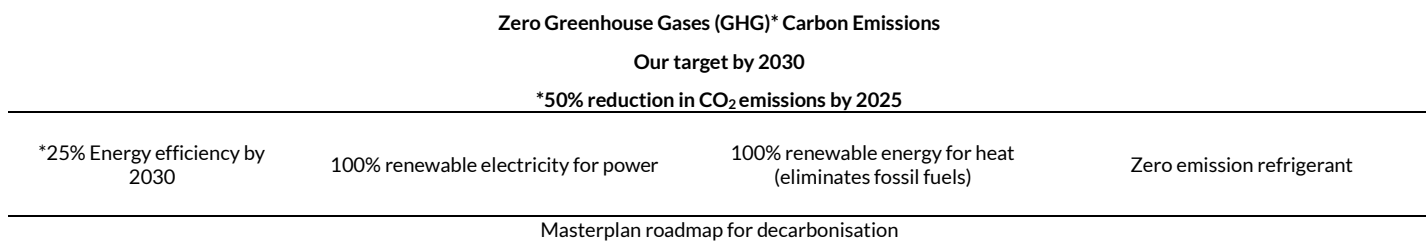
Between 2015 and 2022, UNVR made significant strides in reducing its carbon emissions by 88.12%. Furthermore, from 2021 to 2022, the company further reduced its carbon emissions by 20.82% compared to the previous year.

Figure 48: Unilever’s environmental guidelines



Source: Company

Figure 49: UNVR’s target on reducing GHG by 2030



Source: Company data

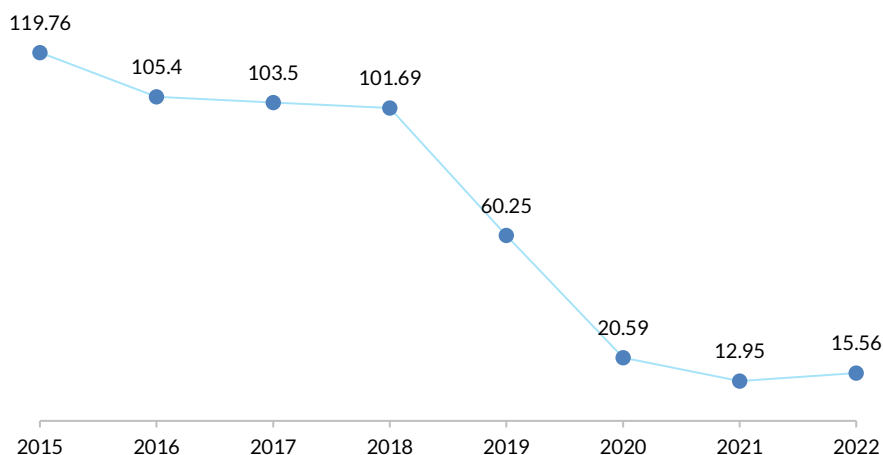
Figure 50: Amount and intensity of emissions produced by type

Emission sources	2022	2021	2020
Unilever operations (Scope 1 and 2)	16,516.70	20,858.40	29,343.58*
Scope 1 (tonnes CO₂e)	16,516.70	20,858.40	16,518.17*
Renewable energy (CO ₂ emission from biomass and PV solar) market based	-	-	-
Non-renewable energy (CO ₂ emission from gas and light fuel)	15,994.39	20,626.82	16,254.62
Refrigerants	522.31	231.58	263.60
Scope 2 (tonnes CO₂e)	-	-	12,825.41
Purchased renewable electricity	-	-	-
Non-renewable electricity (electricity grid)	-	-	12,825.41

Source: Company data

Note: The data covers scope 1 and 2 emissions from production manufacturing, logistics, and office. * Unilever operations and Scope 1 in 2020 have been recalculated.

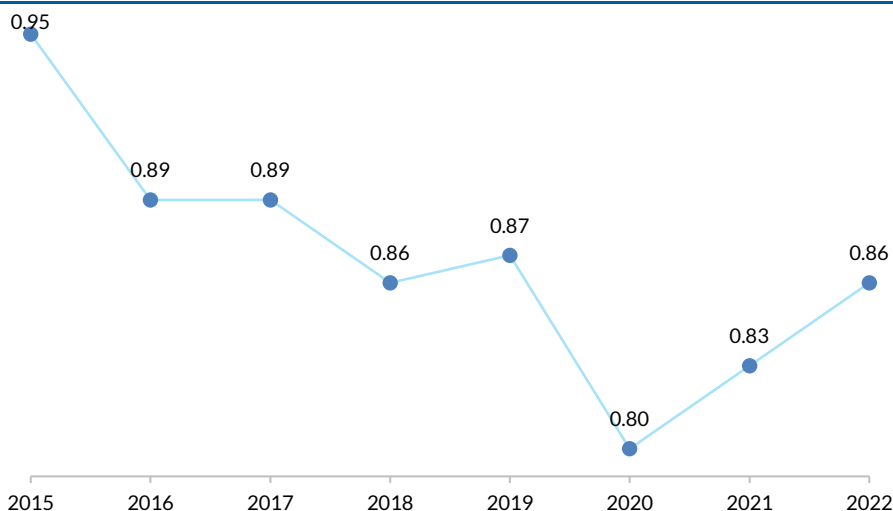
Figure 51: Emission intensity (KgCO2eq/tonne)



Source: Company

Note: The emission intensity data only covers Unilever’s manufacturing activities, excluding logistic and office activities

Figure 52: Energy intensity (GJ/tonne)



Source: Company

Note: The emission intensity data only covers Unilever’s manufacturing activities, excluding logistic and office activities

Figure 53: Reduction in CO2 emission from baseline

Emission	Unit	2022	2021	2020	2015 (baseline year)
CO2 emission Scope 1	Tonnes	16,516.70	20,858.40	16,518.17	31,731.73
CO2 emission Scope 2	Tonnes	-	-	12,825.41	107,262.47
Total CO2 emission	Tonnes	16,516.70	20,858.40	29,343.58	138,994.20
Reduction in CO2 emission from baseline (2015)	%	88.12	84.99	78.89	

Source: Company

Note: The emission intensity data only covers Unilever’s manufacturing activities, exclude logistic and office activities

The company has implemented various measures to enhance energy efficiency in both its production process and supporting facilities. These include the adoption of new RE sources and the modernisation of production facilities, such as replacing less efficient machines. Here are some of the energy efficiency initiatives carried out in 2022, along with their environmental benefits:

- i. Warm brine improvement project: This involves redesigning hot water pipes and implementing heat recovery to achieve optimal energy savings and improve production line performance, resulting in a reduction of 18,000 GJ per year.
- ii. Expansion of solar panel capacity: Increasing the solar panel capacity to 253.4 kWp, which can meet 10% of the Grha Unilever project's electricity requirements.
- iii. Harmonic filters: Harmonic filters have been installed on all distribution panels to decrease electricity losses, potentially saving up to 26,506 kWh per month.
- iv. Water heat pump: Installation of a water heat pump that can save up to 75% of energy, equivalent to 19,656 kWh per month.
- v. Enhancement of cooling equipment: Improvements in cooling equipment installation led to an 8.4% reduction in the company's total electricity consumption.
- vi. Productivity increase and energy reduction in spray drying tower: By optimising the spray drying tower operation through the installation of silo buffers and digitalisation, the running time has been reduced from 6 to 3 days, resulting in a 40% decrease in energy consumption.
- vii. Truck transport management optimisation tool: A truck transport management optimisation tool has been fully implemented, covering approximately 90% of shipments in Java and outer islands to enable the company to design optimal routes and loads for logistics.
- viii. Introduction of 100% recyclable flexible packaging: The company introduced 100% recyclable flexible packaging for its Rinso & Molto products – made from materials ie paper, cardboard, and certain types of plastic, reducing the plastic footprint and negative environmental impact caused by traditional packaging materials.
- ix. Introduction of crude oil-free formulation: Sunlight Dishwash now features a new petrochemical formulation that entirely eliminates crude oil from its ingredients.

Mitra Adiperkasa (MAPI IJ, BUY, TP: IDR1,800)

Mitra Adiperkasa contributes to climate change mitigation by reducing indirect greenhouse gas emissions. Its efforts include enhancing energy efficiency, minimising the use of single-use plastics, implementing circular economy initiatives like take-back programmes and waste management, and promoting biodiversity through mangrove planting. Additionally, it works to improve community access to clean water.

MAPI's energy efficiency initiatives include using LED lights and monitors at the head office and retail stores, along with implementing robotic process automation to enhance efficiency. Additional energy-saving practices involve turning off lights and adjusting room temperatures during lunch hours and after office hours. The integration of offline and online channels also allows customers to make online purchases, reducing emissions from physical visits to shopping centres.

Throughout 2022, MAPI continued utilising RE from solar panels installed at the Starbucks Cipondoh outlet in Tangerang City. The 23 solar panels, with a total capacity of 440W, can produce 10,120W under optimal sunlight, fulfilling 13% of the store's total electricity needs. This solar energy use reduces emissions by 5,769 kg pf CO₂ per year. In 2022, MAPI further reduced emissions by planting 353 trees at Pantai Indah Kapuk and 1,000 trees at Bahagia Beach Bekasi. These 1,353 trees have the potential to sequester 261.2 kg of CO₂. Additionally, MAPI donated 48,000 coffee saplings and 50 fruit trees during the year.

As a modern retail business offering a wide range of consumer products, MAPI generates various types of waste from its operations. Waste management at its retail stores is integrated

with the processes of building or administering shopping centres. Additionally, the company independently undertakes waste management initiatives using a circular economy approach tailored to different types and forms of waste. Through this initiative, generated waste is converted into raw materials through recycling, minimising waste, emissions, and energy consumption. This approach provides two key benefits – reducing the amount of waste disposed and decreasing the resources consumed. By the end of 2022, several waste management measures had been implemented under this circular economy approach.

Moreover, the company ensured that no waste or effluent spills causing environmental pollution occurred during the year. This programme is conducted in collaboration with Tjatra Yasa, operator of the waste management application DUITIN, and Wahana Anugerah Energi, operator of Rapel. The two companies collect recyclable waste from MAPI stores and distribute it to recycling factories to process it. MAPI monitors the volume of waste through regular reports provided by its partners.

The company also partnered with Sekolah Relawan, a local NGO, to operate this initiative. Customers can contribute used clothing of any brand by depositing them in designated boxes at fashion outlets. Sekolah Relawan manages the collection, sorting, and subsequent actions such as donating, up and downcycling, or resale in the second-hand market. All proceeds generated are directed towards supporting the NGO's programmes.

Figure 54: MAPI's Take Back Programme at fashion outlets



Source: Company

Figure 55: MAPI's Take Back Programme progress

Take Back Programme at fashion outlets	Unit	2022	2021	2020
Number of participating stores		66	66	17
Total clothing collected	Kg	5,382	3,148	358
Total clothing donated	Kg	1,531	407	57
Total clothing sold on the second-hand market	Kg	2,273	871	38
Downcycled (turned into cushions of sofas)	Kg	924	1,246	76
Upcycled (turned into tote bags/bandanas)	Kg	654	624	187

Source: Company data

Aligned with government directives to minimise single-use plastics, as stipulated in Jakarta Governor Regulation No. 142 of 2019, Bali Governor Regulation No. 97 of 2018, Bandung Regional Regulation No. 17 of 2012, and other local ordinances, MAPI has set out to promote the adoption of eco-friendly bags. The company actively engages in the National Plastic Action Plan (NPAP) forum and has taken proactive steps to reduce single-use plastics.

MAPI's headquarters and retail outlets are situated within pre-existing buildings and shopping centres located in commercial zones, which also extend to suburban areas. These establishments are surrounded by a mix of commercial and residential zones and are not situated near or adjacent to areas of high biodiversity value. Consequently, there is no notable impact on the local ecosystem or protected species in the vicinity of MAPI's operational areas.

Figure 56: MAPI's mangrove planting programme

No	Location	Planting date	Total planted (trees)	Tree age (days)	Average sequestered CO2 emissions (kg)
1	Pantai Indah Kapuk, Jakarta	9 Sep 2022	353	94	74.51
2	Pantai Bahagia Bekasi	22 Oct 2022	1000	109	186.69

Source: Company data

Figure 57: MAPI's other tree donations initiatives

Tree type	Date of seedling planting/donation	Planting location	Total
Coffee seeds	12 Oct 2022	Lebak Muncang Village, Ciwidey, West Java	48,000
Fruit trees	19 Jan 2023*	Situ Citongtut, Cicadas Village, Gunung Putri	50

Source: Company data

Note: *As a component of the 2022 programme, but executed in January 2023.

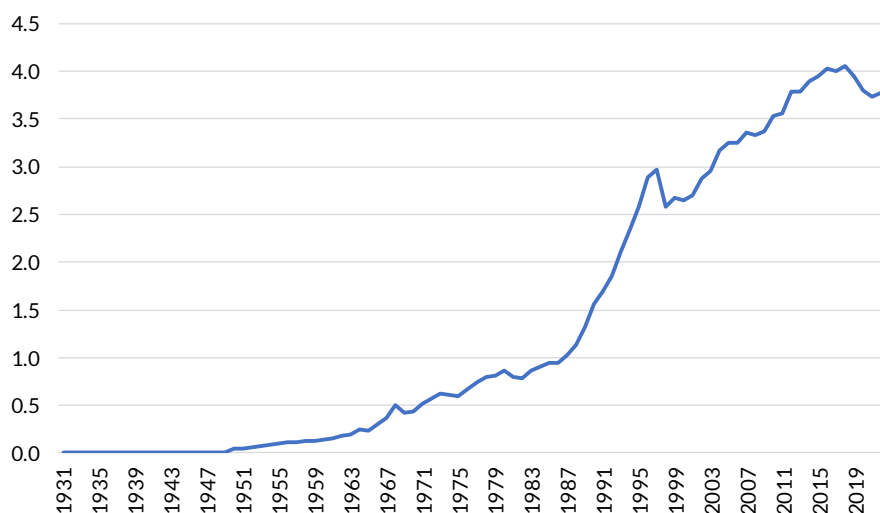
THAILAND

Overview

In 2022, Thailand recorded 3.8 tonnes of CO2 emissions per capita – pointing to an overall decline since 2018 when there were 4.1 tonnes of CO2 emissions per capita, according to the time-series data from Our World In Data.

Meanwhile, Thailand’s consumer companies under our coverage had aggregated direct GHG emissions of 5.45m tCO2e in 2022 or 1.5% of the country’s total GHG emission of 358.4m tCO2e – excluding land use, land-use change, and forestry (LULUCF) – for the year. This includes 3.94m tCO2e for six retailers and 1.51m tCO2e for three consumer staples.

Figure 58: CO2 emissions per capita in Thailand (tonnes)

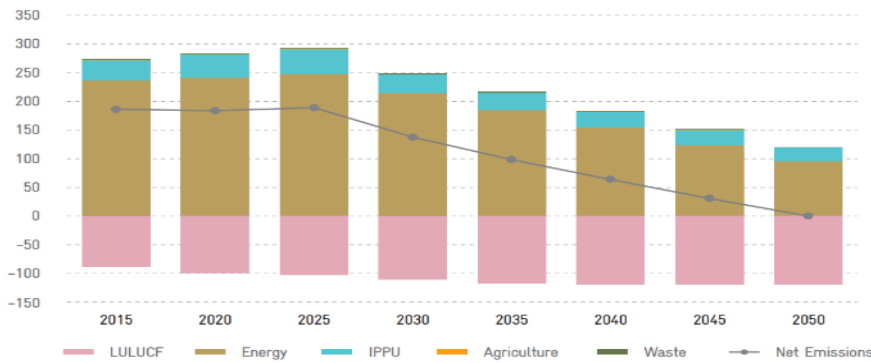


Source: Our World In Data

To attain carbon neutrality by 2050 and net zero GHG emissions by 2065, Thailand has focused its attention on minimising CO2 emissions in the energy sector, which contributes the most towards GHG emissions in the country. As outlined under Thailand’s Long-Term Low GHG Emission Development Strategy published by Ministry of Natural Resources and Environment, Thailand has drafted the National Energy Plan 2022 to guide related agencies in their transition towards clean energy systems. The share of RE in new power generation capacity will be at least 50% by 2050, and EVs are expected to account for 69% of new vehicles by 2035. Most of CO2 emissions are expected to come from the industrial processes and product use (IPPU) sector, with carbon capture, utilisation and storage (CCUS) being used to reduce emissions. Meanwhile, the LULUCF sector is expected to remove carbon emissions by as much as 120 MtCO2e by 2037. Further ahead, Thailand’s net nationwide CO2 emissions are expected to be at 137.3m tonnes of CO2 (MtCO2) in 2030 and 63.1 MtCO2 in 2040.

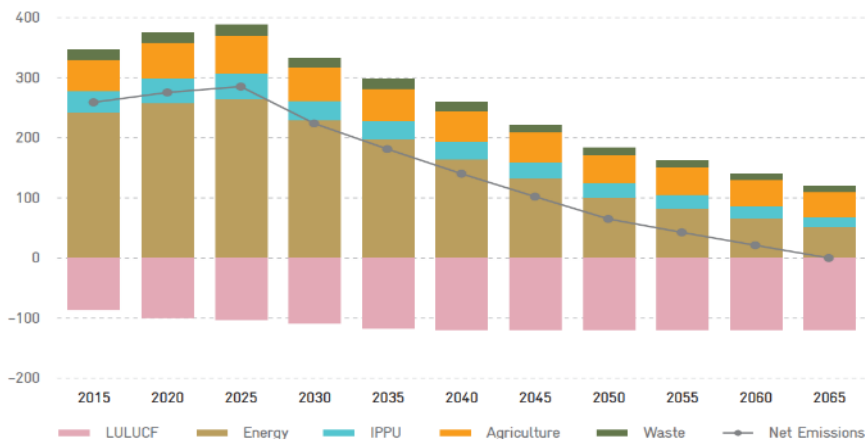
From the 2065 net zero GHG emissions scenario, Thailand is expected to record net GHG emissions of 64.1 MtCO2e in 2050. Total GHG emissions from sources (waste, agriculture, LULUCF, etc.) are expected to peak at 388 MtCO2e by 2025, with the energy sector being a key player in mitigating GHG emissions after 2025. Coal phase-out and negative emission technologies in the energy sector, eg bioenergy with carbon capture and storage (BECCS) or direct air capture and storage, will be essential in facilitating the journey to net zero.

Figure 59: Thailand's 2050 carbon neutrality pathway (MtCO2)



Source: Ministry of Natural Resources and Environment

Figure 60: Thailand's 2065 net zero GHG emission pathway (m tonnes of CO2 equivalent (MtCO2e))



Source: Ministry of Natural Resources and Environment

The Thai consumer industry's path to net zero

Unlike the energy and transportation sectors, the retailing and consumer product sectors may have smaller environmental risks. But, if we combine the retailing sector with consumer products, transportations, and related supply chains, retailers could have significant responsibilities.

We believe the concept of going green is vital for the Thai consumer sector, as a path to achieve net zero. It sticks with the sustainable, environmental-friendly business operations, focusing on developments, improving production and distribution process, and environmental management – as responsibilities over both internal and external parties. This could help enhance customers' perceptions towards companies. Key implementations include:

- i. **Not providing plastic bags** and promoting reusable packaging/containers to customers, to reduce plastic waste.
- ii. **Introducing eco-friendly packaging**, ie lightweight plastic packaging, replacing plastic straws, and using materials from sustainable sources.
- iii. **Minimising food loss and reduction of food waste.** Consumers may be urged to reduce food hoardings, while retailers could lower excess food by offering discounts or donations. The leftover food can be turned into fertiliser, animal feed, or biofuel.
- iv. **Energy savings.** Retail stores, distribution centres, and production facilities can be retrofitted for energy efficiency. For example, installations of solar rooftop panels

– at lower price and higher efficiency – for commercial usage would strongly promote savings.

- v. **Reducing water wastage**, as energy and natural resource conservations.
- vi. **Distribution of environmental-friendly products**. Certifications of green products or low-carbon products are required and can be added into manufacturers' and retailers' portfolio. This is to ensure the products on shelves have limited environmental impact throughout their life cycles, ie decorative wood, insulations, paintings, and electrical appliances.
- vii. **Applying clean energy**. Retailers and consumer product manufacturers need to upgrade their logistic and distribution fleets with eco-friendly or electric vehicles.

Advantages of going green for retailers and consumer product manufacturers include:

- i. **Revenue enhancement and cost reduction**. Companies' opex can be enhanced in the short-term from installations of "Go Green" devices, and it could also gain cost savings for the longer-term.
- ii. **Improving brand/store image**, as an attraction for customers who care about preserving the country's environmental conditions.
- iii. **Reducing wastes and disposals**. Effective energy consumption may lead to less pollutions and waste disposals. Hence, there could be more extensive raw materials for production of goods and services for consumers.
- iv. **Enhancing competitiveness**. There are attempts to carry out trade barriers for high-CO2 emission products, like the EU's Carbon Border Adjustment Mechanism (CBAM), which is a tool to put a fair price on carbon emitted during the production of carbon-intensive goods. It may alert product exporters, manufacturers, and their supply chains, to upgrade themselves to protect competitiveness.
- v. Support from the government agencies. For instance, the Metropolitan Electricity Authority's (MEA) advisory for installations of energy-saving equipment or applying the usage of alternative energy among business operators, Thailand Board of Investment's (BOI) privileges ie the corporate tax exemption for 8 years for producing solar power, and the Thai Environmental Institute's promotion of "Go Green" producers for state procurement.

What Thai companies are doing to achieve net zero

Climate change. The large number of modern retail outlets in Thailand has raised environmental issues like utilities consumption, inventory management, packaging, etc. As such, the retailers are committed to supporting operations based on corporate projects that focus on improving quality and care for the environment. Examples of this include CP All's "7 Go Green" initiatives, Central Retail Corp's "Central Love The Earth" campaign, and Berli Jucker's 1 + 5 (one build and five curbs) strategy. The Thai retailers are working to reduce their GHG emissions continuously. Their key action to lower the usage of plastic bags were ramped up to putting a stop to giving free plastic bags since 1 Jan 2020 onwards. Logistics could be another part of operations that retailers have focused on, in enhancing product distribution effectiveness and reducing fuel usage. They are on a move of transition from diesel trucks to EVs to transport goods, and improving distribution centres to become environmentally-friendly buildings.

Meanwhile, on the F&B side, the companies are heavy consumers of water. The advent of climate change and global warming has increased the threat of drought acceleration across the globe. Food producers have adopted sustainable water management practices to optimise water consumption and reduce wastewater, eg recycling water for utility purposes in production facilities. They have also launched various conservation projects for upstream water source areas. Companies also continued to implement low-carbon technology eg solar energy and biomass, increasing the number of EVs, and neutralise residual emissions or further mitigate emissions beyond their value chain.

Pollution and waste. Retailers aim to decrease and discontinue the usage of plastic materials. They have been encouraged to improve packaging used in stores, and moving ahead to use packaging made of natural and biodegradable materials. Some have developed their own or use private-label product container designs to lower plastic consumption, and have stopped distributing food packaging made from foam. They also encourage suppliers to opt for more eco-friendly packaging. Retailers also managed waste (ie food waste) with efficiency by

integrating the Circular Economy principles. For instance, Central Retail Corp targets to use 100% eco-friendly packaging, 30% waste diversion, and 30% reduction in food loss and waste by the year 2030.

Many listed Thai food companies have extensively considered the impact of their businesses on the environment, in various aspects. As such, they have set policies and guidelines and applied them as a framework for running their businesses in all countries they have a presence in. Some of these policies have been certified by independent third-party agencies, which ensure that the policies and practices conform with other international standards. The majority of their targets are related to reducing GHG emissions, decreasing energy consumption, cutting down on water withdrawal, and reducing waste disposal to landfills and incinerators. For instance, Charoen Pokphand Group's (CP Group) key sustainability goals are i) Circular economy - zero waste to landfill by 2030, and ii) climate resilience – carbon neutral (scope 1 & 2) by 2030 and net zero by 2050. In 2022, CP Group only had 10% of total waste for landfills, while 51% of total waste were transformed into fertilisers, 28% for product reuse and recycling, and 9% were transformed to animal feeds.

Conservation of natural resources. Modern retailers have continuously improve the efficiency of electrical systems in their stores, by transitioning to energy-saving equipment and supporting renewable and alternative energy usage to reduce GHG emissions. Some examples include improving the efficiency of cooling coils for large cooling vaults, replacing inverter air conditioners, installing LED lightbulbs, monitoring the in-store climate, boosting solar energy usage, improving the display shelf cooling system, and providing EV charging stations. These actions may help cut down total electricity consumption and boost the usage of renewable energy. We believe that a handful of corporates' opex savings may gradually increase in the long run from these projects. In addition, retailers also promote responsible consumption on the part of customers, by supporting eco-friendly products and putting them on shop shelves. This could be a consumer trend going forward, and may lead to retailers enjoying incremental sales and higher profit margins. Home Product Centre (HMPRO TB, BUY, TP: THB15) could be a good example, as it achieved the targeted 47.6% sales mix of eco-products in 2023, and has set a new target to raise the proportion to 50% by 2025.

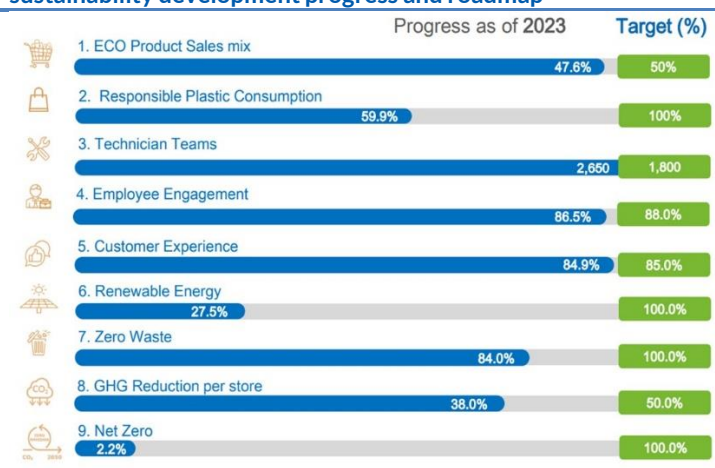
Food producers are committed to mitigating their environmental impact by setting sustainable packaging goals and policies throughout the value chain. Companies have laid out their operational framework and business conduct guidelines, while aiming to preserve natural biodiversity. They have also avoided setting up production facilities in environmental conservation areas in compliance with regulations, and refrain from purchasing agricultural raw materials produced on land without legal title deeds, or from endangered species. These companies have also set up procurement procedures to purchase only raw materials that can be traced back to the source, to ensure the sustainability of natural resources.

Figure 61: Solar rooftops at Central Retail Corp's stores



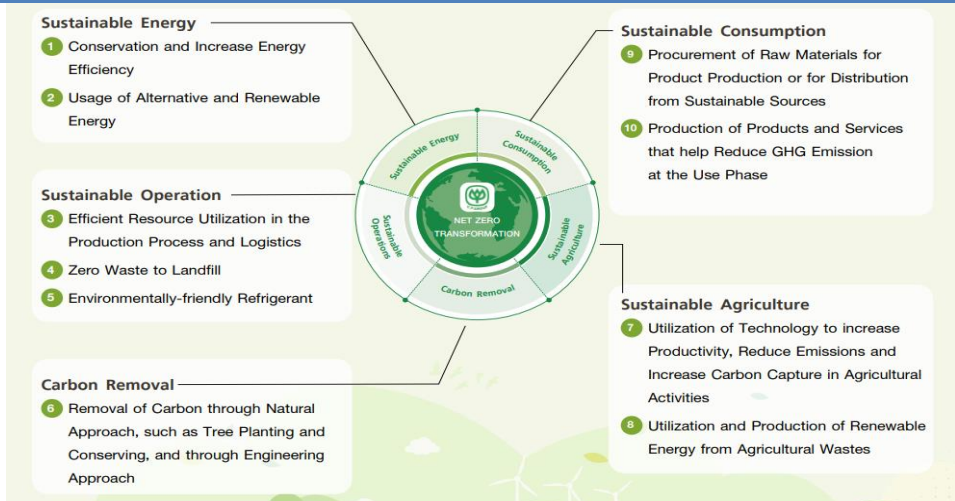
Source: Company

Figure 62: Home Product Centre's annualised update on its sustainability development progress and roadmap



Source: Company data

Figure 63: CP Group's climate change management framework



Source: Company data

Figure 64: Thai Union Group's Sea Change corporate sustainability strategy



Source: Company data

Key risks for Thailand in achieving net zero for the consumer industry

- i) Rise in frequency and severity of natural disasters caused by climate changes (ie floodings) are risks to operations of retail stores, distribution centres, and production facilities. It also affects the supply chain management, ie product scarcity in a short-term, fluctuations of raw material or inventory prices, and logistics/deliveries.
- ii) Implementation of non-tariff barriers like CBAM and the EU Deforestation-free Regulation (EUDR) may cover agricultural/food products and may affect exports, particularly from small-and-medium entrepreneurs. Hence, related agencies may have to encourage and support them for adaptation.
- iii) Green financing is having higher costs, ie 20-30bps ahead of conventional loans or debentures. Businesses may eventually pass through the hikes to consumers. It may still need higher demand to make green financing to achieve economies of scale.
- iv) Possible delays in the implementations of measures to meet net zero criterias, ie to reduce high carbon emission activities.

Featured Stock Ideas – Thailand

CP ALL (CPALL TB, BUY, TP: THB75.50)

In 2023, CPALL and its subsidiaries' aggregated scope 1 and 2 GHG emissions increased by 82,637 tonnes of CO₂ equivalent (tCO₂e) or +4.3% YoY to 2.02m tCO₂e. Still, its GHG emission intensity (scope 1 and 2) per unit of revenue declined 3.5% YoY to 2.19 tCO₂e per million baht. Its implementation of strategic projects also reduced GHG emissions by a total of 311,724 tCO₂e last year.

By 2030, CPALL aims: i) To achieve carbon neutral, ii) to reduce the final energy consumption compared with the business-as-usual case by 25% (2023: 2.53%), iii) 100% implementation of reusable, recyclable, and compostable plastic packaging for its private label products (2023: 97.7%), iv) 100% reduction in excess food or leftover food requiring disposals and in waste from the company's operations (2023: 65.6%), and v) 100% collaboration in all areas of business operations with local and national stakeholders or independent third parties on ecosystem and biodiversity protections (2023: 100%).

CPALL has implemented plans to lower GHG emissions under the "7 Go Green" strategy and create environmental sustainability in communities. Some of these initiatives include the reduction of energy consumption, as well as the reduction and elimination of plastic bags at its 7-Eleven convenience stores. All actions could be tracked under the Carbon Disclosures Projects (CDP), which applies four key approaches:

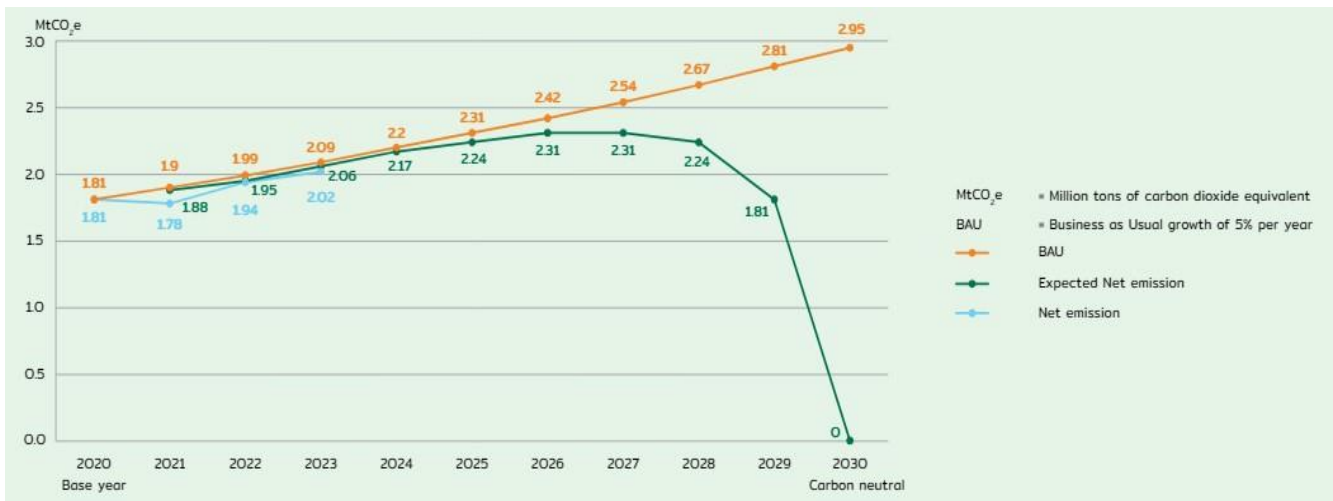
Green store. The green store approach focuses on sustainable management and utilisation of energy. It incorporates the green building concept – designing stores and energy usage to reduce GHG emissions. The drive for environmentally-friendly strategies encompass operating areas at 7-Eleven stores, Makro and Lotus's distribution centres, and production facilities, through four types of operations – energy efficiency management, renewal energy utilisation, refrigeration and refrigerant system improvement, and instill awareness and change employees' behaviour. Some of its actions included the installation of solar rooftop panels at 2,671 convenience stores (CVS), 115 Makro wholesale stores, three Lotus's hypermarkets, 135 Lotus's mini supermarkets, and seven of its subsidiary CPRAM's food processing facilities, and applying a building energy management system in 446 Lotus's stores.

Green logistics. It aims to develop green distribution centres in terms of design, transportation, and distribution of products to 7-Eleven stores and consumers. This include an improvement in energy management efficiency, increasing the proportion of EVs in its fleets (ie DC transportations and product delivery services), and green logistics promotion. Its recent key initiatives include the solar rooftop panel installations at 20 CVS distribution centres, replacing 14 vehicles with 4-wheel electric trucks for transporting inventories from distribution centres to 120 CVS, utilising 1,749 electric motorcycles for its CVS' delivery service to end-customers, and setting up 22 EV charging stations at 7-Eleven stores.

Green packaging. The company oversees its packaging process, considering designs, functional usages, distributions, disposals, and recycling. It is to provide convenience to customers, enhance sales, and foster engagements in the preservation of natural resources across its supply chains. This dimension aims at lowering plastic consumption at source, reducing and replacing single-use plastic at consumption point, and minimising both plastic and non-plastic packaging post-consumption. Various projects were implemented in 2023, such as plastic thickness reduction for its private label ready-to-eat meal trays and product film rolls, packaging format modifications with suppliers, paper reductions (ie electronics receipts), and packaging with reusable, compostable, and recyclable materials.

Green living. CPALL has carried out collaborations with its business partners, communities, NGOs, state authorities, as well as international and local organisations, on projects to strengthen awareness and consciousness over sustainable environment. This is to create awareness to shift consumption behaviours, reduce food surplus and waste, enhance benefits of waste segregation and recycling, and increase green space as an ecosystem restoration.

Figure 65: CPALL's GHG emissions: Progress and goals



Source: Company data

Central Retail Corp (CRC TB, BUY, TP: THB44)

In 2023, Central Retail Corp’s aggregated scope 1 and 2 GHG emissions decreased by 40,678 tonnes of CO₂ equivalent (tCO₂e) or 8% YoY to 468,206 tCO₂e. The company has progressed the commitment of a green and sustainable retail business through the “ReNEW” strategy, as a key driving business growth towards the 2030 targets and the goal of net zero emission in 2050.

By 2030, CRC aims at: i) Reducing greenhouse gases by 30%, ii) navigating society wellbeing by generating an income of THB5,400m per year for local communities, iii) eco-friendly packaging with 100% implementation across its businesses, and iv) waste management and reducing food waste by 30%.

Some of CRC’s action on controlling GHG emissions include:

Solar rooftop installation. CRC has installed solar panels on the rooftops of its department stores and distribution centers with the primary objectives of reducing GHG emissions and energy costs. In 2023, the solar panel has been installed in 112 locations across assets from different business units in Thailand including Robinson Lifestyle Center, Central Department Store, Robinson Department Store, Tops Supermarket, Thai Watsadu, distribution centres, and 30 locations in Vietnam. In total, the rooftop solar panels are estimated to produce 87,824 MWh of renewable energy per year, helping CRC reduce 44 tCO₂e and c.THB0.4m of energy cost per year.

Energy efficiency improvements. In Thailand, CRC has implemented a chiller plant management system (CPMS) and energy management information system (EMIS) in seven branches of Robinson Lifestyle Center. This technology enables the company to monitor and manage the chillers used for air conditioning in the department stores, which helps to maintain proper chilled water temperature, avoids unnecessary cycling, and improves overall efficiency. As well as gather data on energy consumption in the department stores (ie, chillers, lighting, and air conditioning) to identify areas of high energy consumption, which allow CRC to effectively target energy reduction efforts. It is estimated that the CPMS and EMIS can reduce energy consumption by 1,897 MWh, equal to 948 tCO₂e and reduce energy cost by c.THB8m pa.

Sustainable transportation for business operations and customers. CRC promotes sustainable modes of transportation for its own business operations and customers. In 2023, it replaced 24 diesel-engine trucks with electric trucks for use in logistics across various business units. This adaptation is estimated to reduce 355,588 liters of diesel consumption and metrically reduce 970 tCO₂e of GHG emissions per year. The company also installed EV charging stations throughout its department stores to promote adoption of EVs by customers. In 2023, its EV charging network is able to support 793 vehicles.

Recycling and upcycling programs by the hardline business unit. CRC implements various recycling and upcycling programs with the objective of ensuring that recyclable packaging is actually recycled. It collects used plastic bottles from designated collection points in Power Buy and Officemate outlets – two subsidiaries under the hardline business category, and

delivered to a Buddhist temple to be processed into fibers that are then woven into robes for monks. In 2023, a total of 20,009 plastic bottles were upcycled into 333 robes. Power Buy has also partnered with Advance Info Service, one of Thailand’s largest mobile network providers, to establish 40 electronic waste drop-off points nationwide to be properly recycled and disposed, adhering to international standards.

Responsible sourcing. CRC has ensured that suppliers and local communities produce its products responsibly. It demonstrates such attributes to customers through specific labelling mechanisms and product category management. The company also sources products that have obtained eco-labels that certify environmental-friendly production methods.

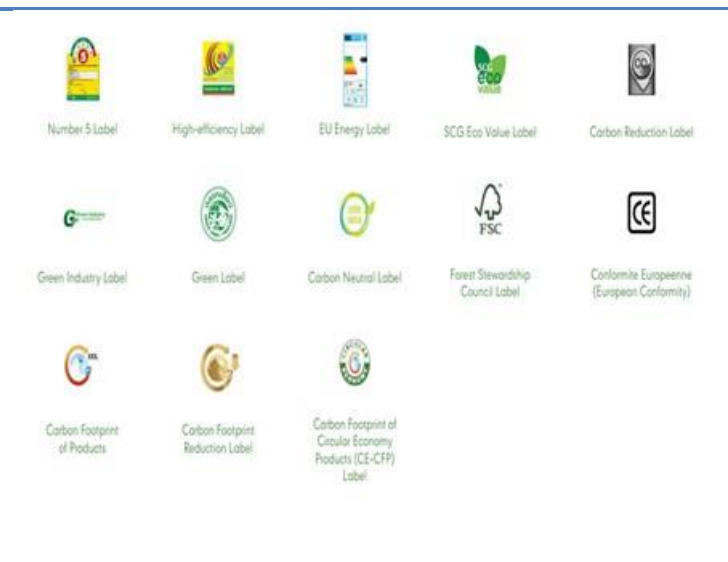
Turning food waste into pet treats. Driven by the objective to utilise food loss and waste for alternative uses, CRC partners with Jaikla, a startup company, to turn food waste into pet treats. Food wastes from 10 Tops Supermarkets in Bangkok, ie bakery products, vegetables, and fruits that are no longer edible by humans, are assessed for quality and hygiene before transported to Jaikla to be used as feed for insects. The insects are then processed into insect-protein pet treats that are sold in Tops Supermarkets, Tops Food Halls, and online channels. In 2023, the partnership reduced food waste by 23,589kg.

Figure 66: CRC’s ReNEW strategy for a green and sustainable retail business

Figure 67: CRC sources products with eco-labels that certify environmental-friendly production methods



Source: Company



Source: Company

Berli Jucker (BJC TB, BUY, TP: THB31.00)

Berli Jucker has four key operational guidelines for climate change strategy: i) Building knowledge and awareness among employees, ii) increasing energy efficiency, iii) clean energy consumption, and iv) putting efforts to reduce GHG emissions.

In 2022, the company’s aggregated scope 1 and 2 GHG emissions decreased by 2,962 tonnes of CO2 equivalent (tCO2e) or -0.3% YoY to 1.12m tCO2e. The company planted 9,140 trees, reduced Scope 1 and Scope 2 GHG emissions intensity by 4% and 5-10% YoY, increased the total renewable energy consumption by 10% YoY, lowered disposed waste by 30% YoY, lowered total weight of plastic packaging consumption by 2% YoY, and raised the usage of recyclable plastic packaging to 75% (2021: 65%). In 2023, BJC carried out 10 environment-related activities, which helped to reduce CO2 emissions by 54 tonnes/year.

In 2022, following BJC’s 140 years of operations celebration, it established the 1 + 5 strategy – a new BJC Sustainable Environmental Goals project beyond the industry norm, to be achieved before its 150-year anniversary. The project clearly outlines BJC’s strategy to reduce GHG emissions intensity from all its operations over the next 10 years. This enables BJC to contribute to the corporate-wide target to achieve net zero by 2050.

The strategy comprises one build (to plant 150,000 more trees) and five curbs to be attained by 2032, including to: i) Reduce Scope 1 & 2 emissions by 15% and 10%, ii) reduce 15% of non-renewable energy per revenue from the base year 2021, iii) reduce 15% of water consumption per revenue from the base year 2021; iv) reduce 15% of food waste per revenue from the base year 2021, and v) reduce 15% of packaging volume from the 2021 base year.

BJC's major action on controlling GHG emissions by business units include:

Packaging supply chain. The glass manufacturing process is highly energy-intensive and it is BJC's significant source of GHG emissions. Two of its subsidiaries in the glass business have implemented the Pellet batch project since 2017 – to reduce energy intensity by replacing critical raw materials (such as silica and unprocessed ingredients) with processed and compressed raw material pellets having a lower melting point. They also apply the circular glass by increasing the collection of recycled glass, allowing for more glass scraps to be used as raw materials for new glass bottles, which help minimise operational energy costs and waste within surrounding communities. In 2022, its glass companies collected 0.6m tonnes of recycled glass materials (55% of all raw materials used in glass productions).

Consumer supply chain. Its subsidiary Berli Jucker Foods (BJF) is committed to utilise recycled water during the processing of raw materials (ie potatoes). This initiative helped BJF reduce water utilisation by 12.2% and water consumption by 3.4 cubic metres per tonne in 2022 compared with 2019. BJF also installed solar rooftops at a warehouse for potato cold storage in the northern province of Chiang Rai in 2022, capable of generating 257,000kW pa or 26% of all electric consumption requirement – allowing BJF to reduce 131 tCO₂e pa. For the tissue paper business, Berli Jucker Cellox (CPC) applies the zero-wastewater discharge by reusing recovered freshwater at two of its facilities, saving c.THB23.9m in 2022. CPC also fosters the circular economy through the collection and recycling of paper-based waste from its production, to reprocess into recycled paper fibre pulps for new production batches. It also initiated the “Refill Box” project in 2021, in which tissue boxes are refillable through removable sides – raising the usage of reusable packaging and minimising paper waste and customer costs. Berli Jucker Logistics (BJL) replaced the use of unsustainable packaging materials ie styrofoam boxes, foam sheets, and plastic bags with ice chips in temperature-controlled drug transportation with reusable, recyclable materials such as cooler boxes, plastic partitions, and gel packs.

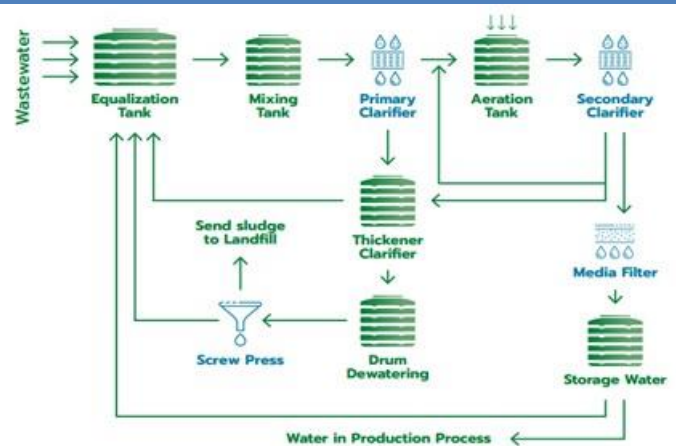
Modern retail supply chain. In 2022, BJC launched its first 100% EV trucks in the transportation and distribution of products from Big C Supercenter's distribution centres to Big C branches across Bangkok, with the aim to continuously increase the number of EV trucks in operation to more stores located throughout South East Asia. This allows BJC to significantly reduce GHG emissions from transportation and logistical services. It is estimated a reduction of 40 tCO₂e per EV truck per year when compared with two fossil-fueled trucks used previously. It also planned to install EV charging stations at 50 Big C stores throughout Thailand in 2022. Solar rooftops were installed at 45 Big C stores, reducing GHG by 31,333 tonnes pa (equivalent to THB59m total savings per year). The project's current phase in 2022-2024 aims to install more solar rooftops across the additional 43 Big C branches – expected to save THB197m per year, in addition to reducing 33,626 tonnes of GHG emissions annually. Its initiative to increase the use of reusable packaging by encouraging customers to refill their used fabric softener bottles in nine Big C stores in 2022, reducing the creation of 7,000 new plastic bottles per year.

Figure 68: BJC's “1 + 5” strategy



Source: Company

Figure 69: BJC's water treatment process



Source: Company

Figure 70: To increase the use of reusable packaging, BJC encourages customers to refill used fabric softener bottles in nine Big C stores



Source: Company

Figure 71: Big C Supercenter's EV truck fleet



Source: Company

RHB Guide to Investment Ratings

Buy:	Share price may exceed 15% over the next 12 months
Trading Buy:	Share price may exceed 15% over the next 3 months, however longer-term outlook remains uncertain
Neutral:	Share price may fall within the range of +/- 10% over the next 12 months
Take Profit:	Target price has been attained. Look to accumulate at lower levels
Sell:	Share price may fall by more than 10% over the next 12 months
Not Rated:	Stock is not within regular research coverage

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