

Discuss the role of the government in the green transition. Suggest a policy agenda that can help accelerate the evolution to a sustainable, net-zero future. Your answer might include fiscal and monetary policies for green transition as well as macro and regulation policies.

INTRODUCTION

The issue of climate change has become increasingly urgent in recent years. According to the latest report from the United Nations Intergovernmental Panel on Climate Change¹, by the year 2100, global temperatures could rise by 2 to 4 °C (Figure 1), leading to extreme weather conditions, significant food and water crises, and other severe impacts on our planet². However, the report also highlights that human actions still have the potential to shape the future course of climate change. This underscores the crucial role of governments in driving the green transition and ensuring long-term sustainability.

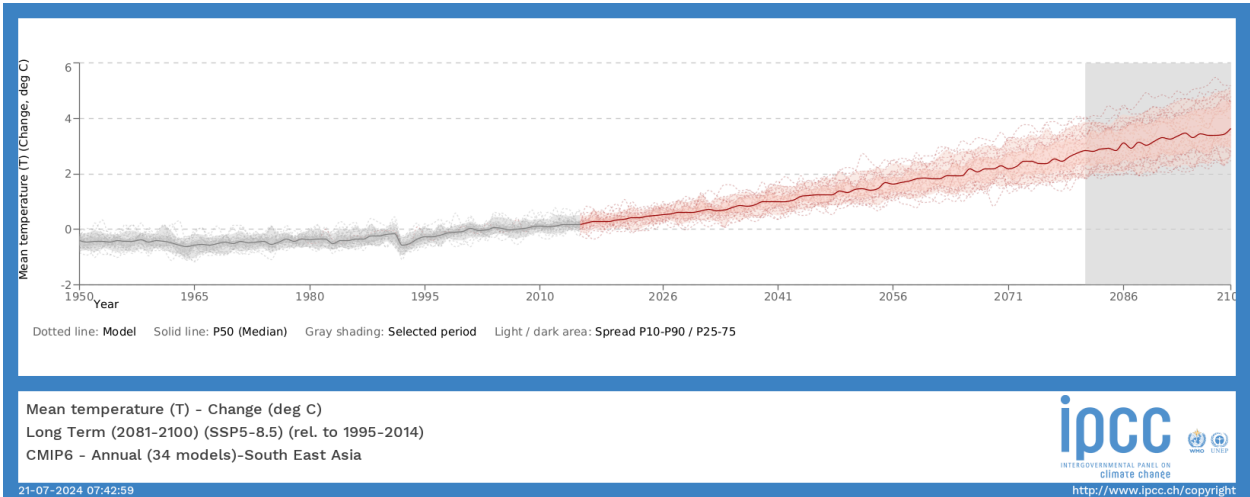


Figure 1 (Source: IPCC)

A narrow definition of the green transition is the transition from one state of an energy system to another, currently from using non-renewable energy sources, such as fossil fuels, to an energy system mostly based on renewable sources³. This transition is vital for achieving a net-zero future, where the amount of greenhouse gasses emitted is balanced by the amount removed from the atmosphere. Governments play a pivotal role in facilitating this transition through policy-making, regulation, and financial incentives.

To understand the challenges and opportunities in the green transition, it is essential to identify the main sources of carbon dioxide emissions (Figure 2). This essay will discuss the main challenges faced by governments in the green policy-making, existing policies employed by

governments and a list of recommended policies to accelerate the progress of countries to a sustainable future. For ease of depiction, example policies will be more centered towards Asian countries, especially Malaysia.

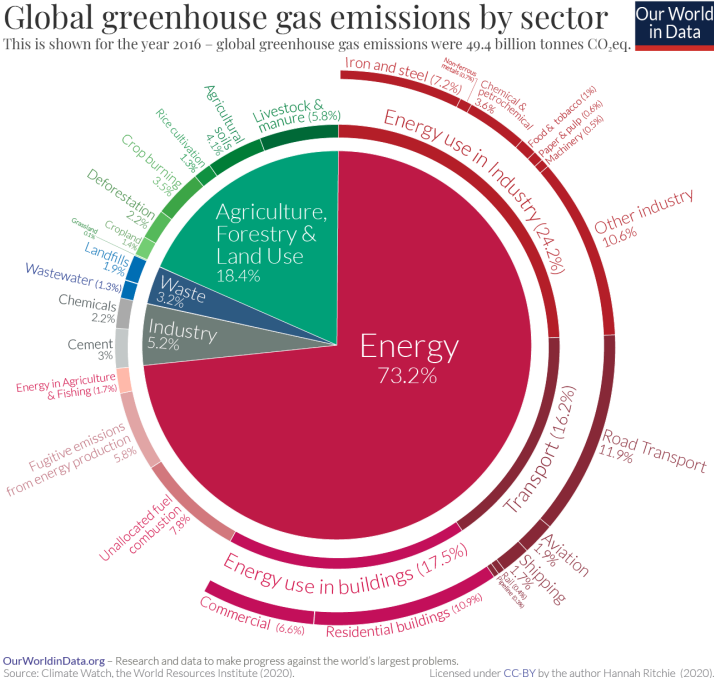


Figure 2 (Source: OurWorldInData.org ⁴)

ISSUES FACED IN GREEN TRANSITION

Over-Reliance On Non Renewable Energy Sources

Malaysia relies heavily on fossil fuels for 81% of its electricity, generating only 19% from clean sources, with hydropower providing the majority (17%). However, its share of solar and wind energy (1.5%) is far below the global average (13%) and less than half the ASEAN average (4.4% in 2023) ⁵. Thus, it is clear that the main challenge in Malaysia’s green transition is increasing the provision of renewable energy.

There is a lack in provision of renewable energy because firms in Malaysia lack incentives to join the green industry. Renewable energy, such as solar energy, is not currently bankable and lacks profitability. Several factors contribute to this: most solar farms in Malaysia are small-scale and cannot benefit from economies of scale, leading to higher costs per unit of electricity generated and smaller profit margins. Fixed costs, such as land rental and solar panels, cannot be spread over a large output.

Additionally, renewable energy sources like solar and wind are intermittent, meaning their supply is not steady and depends on uncontrollable factors such as weather. The government's limit on the proportion of intermittent energy in the total energy supply further discourages firms from entering the industry, as they would face restrictions on their market share.

High Emission of Carbon Dioxide By Transportation

Malaysia's transportation sector is the country's second most GHG (greenhouse gas) intensive sector after electric power generation. Road vehicles produce 85.2% of sector emissions. 59% of these emissions come from personal vehicles, a product of Malaysia's high car ownership rate ⁷. It is clear that private vehicles, including petrol cars, make up a substantial portion of these emissions because private automobiles make up to 52.84% of modes of transportation among consumers in Malaysia (figure 3). This highlights the need for more sustainable transportation options and policies to reduce the carbon footprint of the transport sector.

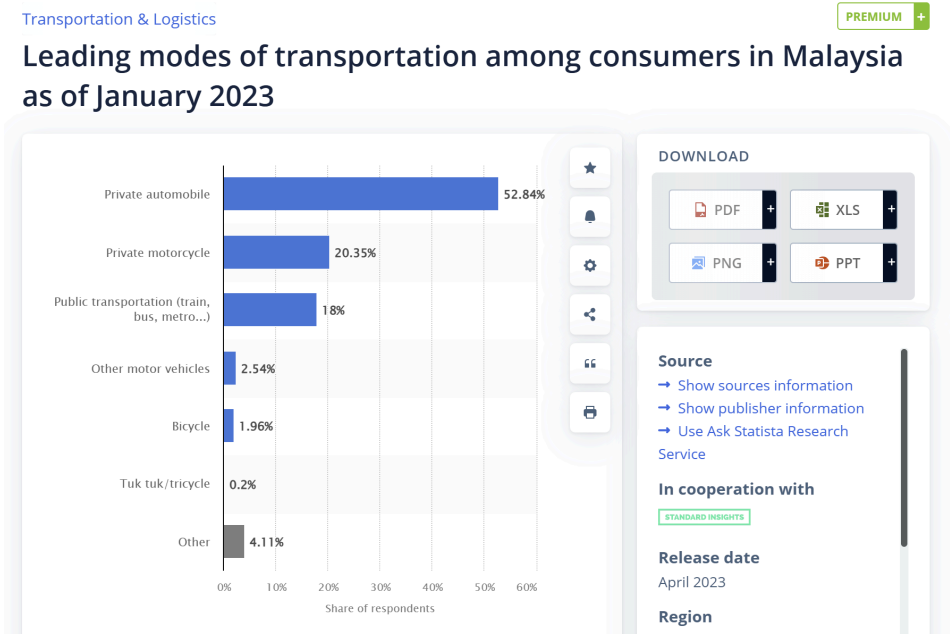


Figure 3 (Source: Statista)

As of 2023, only a total of 13,301 out of 832,340 vehicles registered in Malaysia are electric (1.60 per cent) whereas 730,630 out of 832,340 vehicles are petrol (89.78%) (Figure 4). This shows that petrol cars are main contributors to CO2 emissions. Malaysians prefer petrol cars over electric cars due to limited charging stations. This greatly restricts how far EV cars can travel and makes it harder for people to overcome range anxiety. As of June 2024, Malaysia only has a total of 2,585 electric vehicle (EV) charging stations, which translates to roughly 7.8 charging stations per 100,000 people ⁹. In comparison, countries with more advanced EV infrastructure, such as the

Netherlands, have a much higher density of charging stations. The Netherlands, for example, has over 117,000 public charging points for a population of around 17 million, which is about 688 charging stations per 100,000 people ¹⁰. While Malaysia’s current number of charging stations is a step in the right direction, there is still significant room for growth to support widespread EV adoption.

Vehicles Registered by Fuel type

	2022		2023		(until 30 April) 2024	
Electric	3,129	0.42%	13,301	1.60%	6,298	2.28%
Hybrid Petrol	15,368	2.06%	22,210	2.67%	7,953	2.88%
Hybrid Diesel	9	0.00%	5	0.00%		0.00%
Green Diesel	59,768	8.03%	60,958	7.32%	16,775	6.08%
Diesel	4,147	0.56%	5,230	0.63%	1,453	0.53%
Petrol	662,331	88.93%	730,630	87.78%	243,232	88.22%
Others	5	0.00%	6	0.00%	1	0.00%
Total	744,757		832,340		275,711	

Source: data.gov.my

Figure 4 (Source: data.gov.my ¹¹)

Excessive Carbon Output by Industries

In response to the threats of global warming, Malaysia has adopted the Paris Agreement and committed to a 45 percent reduction in emissions intensity of GDP by 2030 compared to a 2005 baseline ¹². However, the regulatory framework and enforcement mechanisms are often not stringent enough. While Malaysia has environmental laws such as the Environmental Quality Act 1974, enforcement can be inconsistent. Industries may not face significant penalties for non-compliance, leading to continued pollution and high emissions ¹³.

In addition, economic growth and industrial development are often prioritized over industrial sustainability. For instance, Malaysia face the difficult challenge of decarbonizing their economies while their population increases and they need to grow their GDPs so they can alleviate substantial levels of poverty ¹⁴. As with most of the MEDCs and LEDCs, government funds are often limited, leading to major opportunity cost when deciding on the allocation of funds. Often, funds are chosen to be used in expanding the economy as it gives the most financial return and is of primary importance. This focus on economic development over environmental protection can lead to continued high emissions from industrial activities.

CURRENT POLICIES

Typically, an expansionary fiscal and monetary policy is employed to boost the green economy. In Malaysia, the government has increased spending on green initiatives to expand the green sector. These are some key policies implemented to achieve this goal.

Large Scale Solar (LSS) Programs

The Malaysian government's Large Scale Solar (LSS) programs aim to develop large solar farms, making renewable energy more affordable and increasing demand. As of 2022, Malaysia's renewable energy capacity reached 9,000 megawatts, with significant contributions from solar power¹⁴. LSS programs have been instrumental in driving this growth by reducing solar energy production costs, making it competitive with fossil fuels. This success is evident in the rising number of solar projects and growing investor interest. LSS initiatives support Malaysia's renewable energy targets, create jobs, and stimulate economic growth in the green sector. As Malaysia expands its solar capacity, it moves closer to achieving sustainability goals and reducing its carbon footprint.

Incentives for Renewable Energy and Electric Vehicles

To boost renewable energy and electric vehicle (EV) adoption, the Malaysian government has introduced incentives like tax credits and green loans (Green Investment Tax Allowance) with lower interest rates. These incentives ease the financial burden on individuals and businesses investing in green technologies, making the switch to renewable energy and EVs more attractive. Moreover, the government also plans to install 10,000 EV charging stations by 2025, with 1,430 already operational across 620 locations. These measures not only promote clean energy use but also support the development of the EV ecosystem in the country. In the long run, these approaches help reduce greenhouse gas emissions from the transportation sector and support Malaysia's commitment to achieving net-zero emissions by 2050.

Cross-Border Energy Transfer: LTMS-PIP

The LTMS-PIP allows energy transfer between countries, expanding the market for intermittent energy sources and enabling energy exports. By 2020, Malaysia's energy supply included 166,883 terajoules from renewables, highlighting cross-border trade potential¹⁵. Ultimately, the LTMS-PIP opens new revenue streams for renewable energy producers and integrates renewable energy into the regional grid. This project reduces reliance on fossil fuels and helps Malaysia manage energy supply and demand, ensuring a stable and sustainable future. The LTMS-PIP is a crucial step towards regional cooperation in achieving shared sustainability goals.

Net Energy Metering (NEM) Scheme

The Net Energy Metering (NEM) scheme, including Feed-in Tariffs (FiT), allows individuals and businesses to offset energy consumption on a one-to-one basis. Introduced in 2021, NEM 3.0 has a quota of 1,550 megawatts, divided into categories like NEM Rakyat and NEM GoME¹⁴. This scheme offers a reasonable price for excess solar energy, encouraging investments in solar farms and boosting renewable energy capacity. By enabling consumers to sell excess energy back to the grid, NEM makes solar investments more viable. The initiative has seen significant uptake, with many households and businesses installing solar panels. NEM supports Malaysia's renewable energy targets and empowers consumers to actively participate in the green transition.

RECOMMENDED POLICIES

Simplifying the Process of Applying for Green Loans/Subsidies

Although the Malaysian government offers green loans and subsidies, such as the Green Technology Financing Scheme (GTFS), many people face challenges due to the complex application process¹⁶. Simplifying this process is crucial to encourage more participation. The government can streamline applications by creating a dedicated hotline to answer queries and developing an easily accessible official website. By reducing bureaucratic hurdles and providing clear guidance, the government can make it easier for individuals and businesses to access these funds, thereby accelerating the adoption of green technologies.

Increasing Awareness of Government Policies

According to a recent survey, only 30% of Malaysian citizens are aware of the government's efforts in green transition¹⁶. It is essential for the public to understand and stay updated on these policies to ensure their optimal effectiveness. The government can increase awareness through targeted campaigns, social media outreach, and educational programs. By engaging with communities and providing transparent information, the government can foster a culture of sustainability. Increased awareness will not only enhance public support for green initiatives but also encourage more individuals and businesses to participate in the transition to a sustainable economy.

Increasing the Limit on Intermittent Energy Supply

In Malaysia, the limit on intermittent energy supply, such as solar and wind, is currently capped at 21%¹⁷. In contrast, countries successful in green transitions, like Germany, have limits up to 40%¹⁸. To address concerns about the uncontrollable nature of intermittent energy, Malaysia can increase its reserve capacity. This ensures a stable energy supply even when renewable sources are not available. Additionally, excess energy can be sold to neighboring countries through initiatives like the Laos-Thailand-Malaysia-Singapore Power Integration Project

(LTMS-PIP) , generating potential revenue¹⁴. By increasing the limit on intermittent energy, Malaysia can significantly boost its renewable energy capacity and reduce reliance on fossil fuels.

Implementing a Carbon Tax

All the aforementioned policies generally involve government expenditure, which could lead to a budget deficit in the long run. Therefore, it is crucial to increase tax revenue without raising tax rates. Implementing a carbon tax is a viable solution. A carbon tax imposes a fee on the carbon content of fossil fuels, incentivizing businesses to reduce emissions. If successfully implemented, a carbon tax in Malaysia could generate up to RM24.6 billion annually, similar to projections in other countries¹⁶. This revenue can be used to fund further green initiatives, creating a sustainable cycle of investment in the green sector. By limiting carbon emissions and providing additional funding, a carbon tax can play a pivotal role in Malaysia's green transition.

CONCLUSION

While the green transition has gained momentum in recent years, governments must intensify their efforts to meet the commitments made under the Paris Agreement and COP26. Implementing comprehensive policies, including fiscal and monetary measures, as well as education and training programs, is essential. Most importantly, governments must take proactive and sustained initiatives to ensure the success of the green transition and achieve a sustainable, net-zero future.

(1960 words)

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