

THE IMPLEMENTATION OF RENEWABLE ENERGY IN MALAYSIA IN THE CONTEXT OF GLOBAL INITIATIVES AND TARGETS

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ABSTRACT

This article discusses Malaysian initiatives in implementing RE and how far Malaysia has reached in terms of pledges made under the Paris Agreement and recently at COP27. Employing legal doctrinal and comparative methodologies, this article observes that apart from Malaysia's initiatives for the nation's transition to RE, many other global initiatives or assistance are provided by other countries to help offer strategies and financial support for Malaysia to accelerate its transition to RE and achieve its climate targets as outlined in the roadmap designed by Malaysia's Sustainable Energy Development Authority (SEDA). Achieving climate targets, such as net-zero emissions and 70% RE generation by 2050, requires more than just internal implementation alone. It is a nationwide collaborative effort dependent on constant collaboration with other countries and international organisations. Hence, this article discusses how the United Kingdom has played a role in actively encouraging other countries, especially Malaysia's own transition. It concludes by identifying several factors that would enhance the effectiveness of initiatives and programmes to achieve Malaysia's climate targets.

Keywords: renewable energy, global initiatives, climate targets, Malaysia

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INTRODUCTION

With the earth in dire need of help to recuperate from all the damages that were caused by greenhouse gas (“GHG”) emissions and fossil fuel consumption, more initiatives must be taken to help reduce and/or prevent climate change. Renewable energy (“RE”) is not a new concept; in fact, many countries have been transitioning to or attempting to transition into RE. For there to be RE, there must be various types of natural resources available for harnessing, and some of these types may not necessarily be available in a particular country. If so, what forms of RE are there in Malaysia, and more importantly, how effective is Malaysia in terms of implementing RE? This article will discuss Malaysian initiatives in implementing RE and how far Malaysia has reached in terms of pledges made under the Paris Agreement and recently at COP27. Apart from Malaysia’s initiatives for the nation’s transition to RE, there are also many other global initiatives or assistance provided by other countries to help offer strategies and financial support for Malaysia to accelerate its transition to RE and achieve its climate targets as outlined in the roadmap designed by Malaysia’s Sustainable Energy Development Authority (SEDA). Ultimately, this article is to illustrate that achieving climate targets, such as net-zero emissions and 70% RE generation by 2050, requires more than just internal implementation alone. It is a nationwide collaborative effort dependent on constant collaboration with other countries and international organisations. Hence, this article will also discuss how the United Kingdom has played a role in actively encouraging other countries, especially Malaysia’s own transition.

WHAT IS RENEWABLE?

“Renewable” refers to energies that can be regenerated, meaning that it is a type of energy, that is generated from natural sources that can be produced constantly at an effective rate¹. There is quite a wide range of RE, including solar, wind, geothermal, hydropower, and biomass. The types of RE available depend on the geographical location of the country. In Malaysia, the main types of RE are hydropower and, being

¹ United Nations, ‘What is Renewable Energy?’, (*United Nations*, n.d.), <<https://www.un.org/en/climatechange/what-is-renewable-energy>> accessed 6 November 2022.

close to the equator, solar energy.² Contrastingly, non-renewable energy is derived from finite natural resources that form over hundreds of millions of years.³ Fossil fuels such as coal, oil and gas are non-renewable energy sources, and to produce such energy, a large amount of GHG is emitted.⁴ Fossil fuels are burnt to generate electricity, contributing to worldwide emissions of carbon dioxide reaching around 34 billion tonnes of carbon in a year.⁵ GHGs are one of the main factors directly influencing climate change. More alarmingly, electricity production once again emerged as the main contributor to the increase in carbon dioxide emissions in 2022, with global energy-related CO₂ emissions reaching a new high of over 36.8Gt.⁶ This result indicates that energy demand is growing, leading to an increase in the use of fossil fuels.⁷ Moreover, it also indicates that RE alone is still not able to reduce GHG emissions, due to various factors, including insufficient implementation of the use of RE or governance in the use of non-RE. Another reasonable cause is the lack of awareness and persuasion in transitioning the use of non-RE to RE.

The use of RE can reduce GHG emissions, as RE systems do not emit GHG since their fuel or energy source is largely carbon-free.⁸ No GHG will be produced when generating electricity through wind or sun, as no combustion is involved. Although arguably biomass energy also involves combustion, the gases produced cannot be considered to

² Progressture Solar, 'Renewable Energy in Malaysia 2022: Extensions, Expansions & Expectation', (*Progressture Solar*, 9 December 2021), <<https://www.progressturesolar.com/post/renewable-energy-in-malaysia>> accessed 6 November 2022.

³ United Nations (n 1).

⁴ Ibid.

⁵ World Nuclear Association, 'Carbon Dioxide Emissions from Electricity', (*World Nuclear Association*, October 2022), <<https://www.world-nuclear.org/information-library/energy-and-the-environment/carbon-dioxide-emissions-from-electricity.aspx#:~:text=Worldwide%20emissions%20of%20carbon%20dioxide,and%20about%20%25%20from%20gas.>> accessed 7 November 2022.

⁶ International Energy Agency, "Global Energy Review: CO₂ Emissions in 2022 – CO₂ Emissions in 2022", (*IEA*, March 2023), <<https://www.iea.org/reports/co2-emissions-in-2022>> accessed 29 November 2023.

⁷ Ibid.

⁸ Tennessee Valley Authority, 'The Role of Renewable Energy in Reducing Greenhouse Gas Buildup', September 2003.

increase GHG emissions as these gases are known as “carbon dioxide neutral” gas.⁹ The International Renewable Energy Agency (IRENA), in its report, has shown that to achieve 90% of energy-related CO₂ reduction, RE should constitute 80% of global power generation and 65% of primary energy supply.¹⁰ Currently, RE constitutes about 24% of global power generation and 16% of primary energy supply.¹¹ There is a comprehensive list of benefits of RE. Not only does RE reduce GHG emissions, the IRENA report shows that it will also bring socioeconomic benefits. IRENA reported that the reduction in global carbon dioxide emissions 2050, with increased economic activity driven by investments in renewables and energy efficiency, along with pro-growth policies such as carbon pricing and revenue raising.¹² Furthermore, a broader measure of welfare, local economic value creation, and improved livelihoods are one of the many benefits of RE.¹³

Countries come together to show their commitment to achieving climate targets by signing the Paris Agreement (“PA”). It is a legally binding international treaty concerning climate change that aims to limit global warming to 1.5°C.¹⁴ It brings all nations together to tackle climate change and signatory states are to assist one another to achieve this target in GHG reduction. There is also a Climate Change Conference (COP, short) that will be held annually. The conferences are global forums to discuss climate change matters.¹⁵ The COP

⁹ Ibid.

¹⁰ IRENA, “Perspectives for the Energy Transition: Investment Needs for a Low-Carbon Energy Transition”, (2017), <<https://www.irena.org/publications/2017/Mar/Perspectives-for-the-energy-transition-Investment-needs-for-a-low-carbon-energy-system>> accessed 7 November 2022.

¹¹ Ibid.

¹² IRENA, “Renewable Energy Benefits: Understanding the Socio-Economics”, p 2.

¹³ Ibid.

¹⁴ United Nations Climate Change, ‘The Paris Agreement’, (*United Nations Climate Change*, n.d.), <<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>> accessed 7 November 2022.

¹⁵ UNFCCC, “What are United Nations Climate Change Conferences?,” (*United Nations*, n.d.), <<https://unfccc.int/process-and-meetings/what-are-united-nations-climate-change-conferences?gclid=Cj0KCQiAgribBhDkARIsAASA5btBLDtsuoOMurUtpoPy4>>

conferences serve two purposes, namely, to review the implementation of the United Nations Framework Convention on Climate Change, Kyoto Protocol and Paris Agreement and to adopt decisions to help develop further and implement these three instruments.¹⁶ The Dubai, United Arab Emirates, Climate Change Conference (“COP28”) 2023 is being held in November 2023. In COP27 held in 2022 in Sharm el-Sheikh, Egypt, all COP participating countries agreed that the phase-out of coal power and fossil fuels subsidies needed to be accelerated.¹⁷ In addition, COP27 emphasised the urgent need for reducing GHG emissions through increase in low-emission and renewable energy. . COP28 will focus on fast-tracking the energy transition and slashing emissions before 2030.¹⁸

MALAYSIA’S EFFORTS IN IMPLEMENTING RENEWABLE ENERGY

Malaysia signed the PA on 22 April 2016 and ratified it on 16 November 2016.¹⁹ Malaysia has been attending COP conferences since COP1 and is now participating in the COP28. Malaysia expressed its commitment to climate change at the COP26 conference, stating that Malaysia will update the Nationally Determined Contribution (“NDC”).²⁰ In July 2021, Malaysia had previously updated its NDC,

[_vGmvRRncWO-MecsX1f6vdqngBel8M4TDYaAvCoEALw_wcB>](#) accessed 11 November 2022.

¹⁶ Ibid.

¹⁷ Global Witness, “Everything You need to know about COP,” (*Global Witness*, 6 November 2023), <https://www.globalwitness.org/en/blog/everything-you-need-know-about-cop/?gclid=Cj0KCQiAgribBhDkARIsAASA5bs_s7UOmo6fPdQR2mcpoEF7R Gycgt_KORHCdmU684ZY8xIEdZnTTGYaAjzLEALw_wcB> accessed 28 November 2023.

¹⁸ *Global Witness* (n 17).

¹⁹ United Nations Climate Change, ‘Malaysia’, (*United Nations Climate Change*, n.d.), <<https://unfccc.int/node/61107>> accessed 7 November 2022.

²⁰ Statement by Head of Delegation, Ministry of Environment and Water Malaysia, ‘For the Resumed Fifth Session of the United Nations Environment Assembly’, <https://wedocs.unep.org/bitstream/handle/20.500.11822/38517/Malaysia%20Country%20Statement_UNEA%205.2%2C%201%20March%202022.pdf?sequence=1&isAllowed=y> accessed 11 November 2022.

indicating that it will increase its mitigation ambition to reduce carbon intensity against GDP by 45% from the initial 35% by 2030.²¹ In addition, the revised NDC now covers seven GHG instead of the four previously covered.²² Furthermore, at COP26, Malaysia submitted a climate target to commit to stop deforestations by 2030 and reduce methane emissions, in addition to reducing overall GHG emissions.²³ With such great ambition and new pledges at the conference, Malaysia ought to put in greater effort in achieving the said targets.

One way to achieve the target of reducing GHG emissions in line with the PA is by implementing the use of RE. As will be discussed below, there are many methods of implementation, by way of introducing RE programmes or legislation. Regardless, how well would RE be implemented in Malaysia depends on how well the planned initiatives are being enforced. Malaysia implemented the Fifth Fuel Policy under the 8th and 9th Malaysia Plan to achieve the installation of up to 500MW of grid-connected RE power.²⁴ This policy aims to establish RE as the fifth source of energy in Malaysia, targeting a contribution of 5.5% to the overall energy mix²⁵. In terms of legislation concerning RE, Malaysia enacted the Renewable Energy Act 2011 and Sustainability Energy Development Authority Act 2011. Moreover, in 2021 the Sustainability Energy Development Authority put in place a Renewable Energy Roadmap (“MyRER”)

21 United Nations Climate Promise, ‘Malaysia’, (UNDP, n.d.), <<https://climatepromise.undp.org/what-we-do/where-we-work/malaysia#:~:text=Malaysia%20increased%20its%20mitigation%20ambition,being%20conditional%20on%20external%20support.>> accessed 7 November 2022.

22 Ibid.

23 Tan Zhai Yun, “Cop 27: Malaysia’s Climate Commitments at the International Stage” (*the Edge Malaysia*, 25 August 2022), <<https://www.theedgemarkets.com/article/cop-27-malysias-climate-commitments-international-stage#:~:text=During%20COP26%2C%20many%20countries%20%E2%80%94%20including,neutrality%20as%20early%20as%202050.>> accessed 11 November 2022.

24 A.L Maulud and H. Saidi, “The Malaysian Fifth Fuel Policy: Re-strategising the Malaysian Renewable Energy Initiatives”, (2012), *Energy Policy* 48, 88-92, 88.

25 Ibid.

which was set out to help achieve a 31% RE share in the national capacity mix by 2025.²⁶

MyRER outlined various key actions up to 2025 for the different types of RE available in Malaysia. According to 2019 statistics, Hydro and bioenergy generate more RE supply, while solar contributes just 1% to the RE mix. MyRER is structured around four strategic pillars (“SPs”): solar, hydro, bio-energy and new technology and solutions. It is separated into two parts, one specifying the respective milestones to be achieved by 2025 and another covering the period from 2025 to 2035.²⁷ Each of the SPs aim to achieve its 2025 target by enhancing the current programmes and its 2035 target by implementing new business models.²⁸

The key initiatives provided under SEDA’s MyRER include Malaysia’s Feed-In Tariff (“FIT”), a system mandated under the Renewable Energy Act 2011 and managed by SEDA, a statutory body formed under the Sustainable Energy Development Authority Act 2011.²⁹ FIT requires Distribution Licensees to purchase Feed-in Approval Holders electricity produced from RE.³⁰ SEDA initiated the Net Energy Metering (“NEM”) programme, allowing excess solar energy to be exported back to the grid on a ‘one-on-one offset basis’.³¹ Lastly, there is also the Large Scale Solar (“LSS”) programme, which is implemented by the Energy Commission³² and is discussed below.

26 Sustainable Energy Development Authority Malaysia, “Malaysia Renewable Energy Roadmap (MyRER)”, (SEDA, n.d.), <<https://www.seda.gov.my/reportal/myrer/#1630302447960-89cc071a-f8ac>> accessed 7 November 2022.

27 SEDA (n 24).

28 Ibid. The strategic pillars are summarised in the SEDA’s MyRER, which each strategic pillars are the forms of RE in Malaysia. It states also the key actions required in achieving both targets by 2025 and post 2025 to 2035.

29 Sustainable Energy Development Authority Malaysia, ‘Overview of SEDA’, (SEDA, n.d.), <<https://www.seda.gov.my/about-seda/overview-of-seda/>> accessed 7 November 2022.

30 Department of Statistics Malaysia, “Renewable Energy (RE)”, DOSM/BPPAS/1.2021/Series 17

31 SEDA (n 24).

32 Ibid.

Other RE programmes include the implementation of renewable energy certificates (“RECs”). RECs are issued to bearers owning one megawatt-hour (MWh) of RE.³³ It is a market-based instrument, meaning that there are trading platforms for RECs such as the Malaysia Green Attribute Tracking System (“mGATS”), I-REC and TiGRs, with mGATS being the national marketplace for RECs.³⁴ mGATS is operated by TNBX Sdn Bhd³⁵. RECs encourage the use of RE, with the certificates holding a certain value that is tradeable in the market. Although it is only voluntary, it can certainly contribute to Malaysia’s progress towards achieving its climate targets.

There are also initiatives made in relation to tax and financing that would encourage Malaysia to transition towards achieving its climate target, namely the Green Technology Financing Scheme (“GTFS”) and the Green Investment Tax Allowance (“GITA”) and Green Income Tax Exemption (“GITE”). These are the initiatives taken by Government which are also included in the planning of the national budget. GTFS is a scheme in which the government provides a rebate of 2% annually on the interest fees charged for loans for the first seven years of the loan and guarantees 60% of the green component cost.³⁶ Due to the positive response to participating in GTFS, GTFS 3.0 has been launched by the Ministry of Finance to provide further financial support to the RE related projects.³⁷ The GITA, on the other hand, allows for 70% of the Qualifying Capital Expenditure to be offset against 70% of statutory income, while GITE provides a 70% exemption of statutory income for green service providers.³⁸

Malaysia, as a signatory State of the PA, has implemented many initiatives to uphold its obligations under the PA and work towards Malaysia’s target of net-zero emissions by 2050. However, every initiative aimed at encouraging RE faces challenges that hinder the overall pace of RE generation. One challenge is the lack of regulatory framework for various REs. For example, there is a lack of a regulation concerning the upstream development of small and large hydro

33 Ibid.

34 Ibid.

35 Ibid.

36 Ibid.

37 Ibid.

38 Ibid.

projects, and there is also a deficiency in the lack of a regulatory framework supporting customer choice by introducing a third-party access framework for the implementation of corporate power purchase agreements.³⁹

MILESTONES IN IMPLEMENTING RENEWABLE ENERGY IN MALAYSIA

As discussed above, there are many initiatives considered by Malaysia in implementing renewable energy and playing an active role in reducing and preventing GHG emissions in line with the PA. The article will review the milestones in the implementation of RE with the contribution and effort of Tenaga Nasional Berhad (“TNB”) and the Energy Commission (“EC”). It will assess whether these efforts have resulted in positive progression towards achieving climate targets, taking into consideration how efficiently TNB and EC execute programmes and initiatives.

TNB is a state-owned power company distributing electric supplies to most parts of Malaysia. TNB has always been an active player in environmental sustainability and has initiated various RE projects in an effort to reduce GHG emissions. Powers are mainly generated from hydroelectric and thermal plants.⁴⁰ Recently, TNB declared their intention to go full force in accelerating the green agenda to help achieve net-zero emissions by 2050.⁴¹ TNB’s target is to reach an RE capacity of 8,300 MW by 2025 and its focus areas of technology are wind turbines, solar panels, and green hydrogen.⁴² TNB’s sustainability pathway also involves a 35% reduction of energy intensity and a 50% reduction in coal capacity by 2035 and eventually achieving net-zero emissions by 2050.⁴³ In order to achieve these

³⁹ SEDA (n 24).

⁴⁰ Tenaga Nasional, “Generation”, (*TNB*, n.d.), <<https://www.tnb.com.my/about-tnb/our-business/core-business/generation/>> accessed 11 November 2022.

⁴¹ Zuraimi Abdullah, “TNB Aims to Accelerate Green Agenda”, (*New Straits Times*, 3 August 2022), <<https://www.nst.com.my/business/2022/08/818890/tnb-aims-accelerate-green-agenda>> accessed 7 November 2022.

⁴² Yvonne Tan, “TNB to Focus on Technology Partnerships”, (*the Star*, 27 May 2022), <<https://www.tnb.com.my/assets/newsclip/27052022a2.pdf>> accessed 7 November 2022.

⁴³ *Ibid.*

targets, TNB is building key collaborations and partnerships with various companies that would be of advantage in pushing the energy transition agenda, such as partnering with N.U.R Power Sdn Bhd to provide smart energy solutions and RE as the main type of electricity for NUR Power customers.⁴⁴

With the Supply Agreement with Renewable Energy (“SARE”) in place – an agreement for supply renewable energy in Malaysia – TNB has implemented various initiatives, including the Smart Grid Initiative, Green Electricity Tariff (GET), mGATS, and many more. The Smart Grid supports the ongoing RE initiatives that aim to achieve the growth of RE capacity to 8.3GW by 2025.⁴⁵ It is TNB’s target to achieve a 40% RE generation capacity mix by 2025 which is in line with the “UN Sustainable Development Goals” Climate Action & Shared Prosperity Vision 2030’s Strategic Thrust.⁴⁶ TNB commits to working towards a low-carbon economy by encouraging RE generation and reducing GHG emissions in line with the PA.⁴⁷ TNB supports a variety of green energy initiatives, such as SEDA’s FIT and NEM schemes, as mentioned earlier. . In addition, TNB introduced the Green Electricity Tariff (GET) program, an initiative that allows consumers to virtually purchase renewable energy through a nominal surcharge, without having to invest in costly RE system installations.⁴⁸ It attracts many public and private sectors who emphasise Environmental, Social, and Governance(ESG) to subscribe to the GET programme, as it helps consumers reduce their carbon footprints.⁴⁹ Subscribers of GET also get a REC⁵⁰ which can be placed on the national marketplace,

44 The Star, “TNB, NUR Power Sign MoU on Green Energy Initiatives”, (*The Star*, 5 September 2022), <<https://www.thestar.com.my/business/business-news/2022/09/05/tnb-nur-power-sign-mou-on-green-energy-initiatives#:~:text=%E2%80%9CTNB%20aspires%20to%20achieve%20net,Energy%20Transition%20agenda%20even%20further.>> accessed 7 November 2022.

45 Tenaga Nasional, ‘TNB Smart Grid Initiatives’, (*TNB*, n.d.), <<https://www.tnb.com.my/smart-grid/>> accessed 11 November 2022.

46 Ibid.

47 Ibid.

48 Ibid.

49 Tenaga Nasional, “Green Electric Tariff”, (*TNB*, n.d.), <<https://www.tnb.com.my/get>> accessed 11 November 2022.

50 Ibid

mGATS⁵¹. Despite mGATS transactions complying with international standards such as CDP and Greenhouse Gas Protocol, and mRECs meeting the requirements of the Bursa Malaysia Reporting Guide, mRECs are not tradable in Malaysia.⁵² They can only be redeemed or retired by end customers.⁵³ TNB has its subsidiary, GSPARX, which continues to grow the sales of self-generation solar solutions under the NEM and SARE. GSPARX also works with the Ministry of Energy and Natural Resources to install more solar PV through pilot projects involving government agencies, local councils and schools.⁵⁴

The LSS programme, is implemented by the EC.⁵⁵ LSS is a competitive bidding programme that aims to lower the Levelized Cost of Energy through the development of LSS plants.⁵⁶ This programme allows for the development of large-scale solar power plants,⁵⁷ where the electricity generated from solar PV farms can then be sold to the grid.⁵⁸ The progress of LLS reached 57.7% at the end of June 2023, with increases in Penang, Perak and Kelantan totalling 50.99MW.⁵⁹

⁵¹ Malaysia Green Attribute Tracking System, “Malaysia Renewable Energy Certificates”, (*mGATS*, n.d.), <<https://www.mgats.com.my/>> accessed 9 November 2022.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ Tenaga Nasional (n 45).

⁵⁵ Department of Statistics Malaysia, ‘Renewable Energy (RE)’, (*DOSM*, 2021), DOSM/BPPAS/1.2021/series17, <https://www.dosm.gov.my/v1/uploads/files/6_Newsletter/Newsletter%202021/DOSM_BPPAS_1-2021-Series-17.pdf> accessed 11 November 2022.

⁵⁶ SEDA, “Large Scale Solar”, (*SEDA*, n.d.), <<https://www.seda.gov.my/reportal/large-scale-solar/>> accessed 11 November 2022.

⁵⁷ Rodl & Partner, “Tenders for large-scale solar projects in Malaysia – an overview”, (*Rodl & Partner*, n.d.), <<https://www.roedl.com/insights/renewable-energy/2019-05/tenders-for-large-scale-solar-projects-in-malaysia>> accessed 11 November 2022.

⁵⁸ Tenaga Nasional, ‘Large Scale Solar (LSS)’, (*myTNB*, n.d.), <<https://www.mytnb.com.my/renewable-energy/large-scale-solar>> accessed 11 November 2022.

⁵⁹ Izzul Ikram, “Large Scale Solar Scheme Progress Rises to 57.7% in 2Q2023 After Six-month Lull”, (*The Edge* Malaysia, 8 September 2023), <<https://theedgemaalaysia.com/node/681840>>, accessed 28 November 2023.

The implementation of RE in Malaysia is a collaborative initiative, between the Government, SEDA, TNB and EC. The Government and SEDA are responsible for setting out the aims and strategies to achieve those aims, while TNB executes the strategies by making the programmes available and running. The programmes and schemes provided allow both the public and private sectors to play their part in transitioning to RE by participating in the various programmes initiated. There is no doubt that Malaysia is putting effort into working towards the climate targets, as pledged in PA and at the Climate Conferences.

ASEAN RE ROADMAP

Apart from the PA being universally binding to signatory States as a form of encouragement in contributing to environmental sustainability, there are many organisations which also provide various suggestions and support for the implementation of RE. One prominent organisation is the International Renewable Energy Agency (“IRENA”) with HQ in Abu Dhabi, which is an intergovernmental organisation, supporting countries in the transition to a sustainable future.⁶⁰ It is a platform providing the policy, resources, technology and financial knowledge on renewable energy.⁶¹

The IRENA report, “Renewable Energy Outlook for ASEAN: Towards A Regional Energy Transition” (IRENA Report) was published in September 2022. This report analyses and evaluates the potential pathways or roadmaps for renewable and low-carbon technology and power sectors in the ASEAN Member States (“AMS”) with a medium-term focus to 2030 and a long-term focus to 2050.⁶² Most importantly, it has provided options catered for ASEAN in speeding up the deployment of renewables, emerging of low-carbon technologies, end-user electrification, and energy efficiency and

⁶⁰ International Renewable Energy Agency, “About IRENA”, (*IRENA*, n.d.), <<https://www.irena.org/About>> accessed 8 November 2022.

⁶¹ *Ibid.*

⁶² IRENA, “Renewable Energy Outlook for ASEAN: Towards A Regional Energy Transition”, (*IRENA*, 2nd Edition), ISBN: 978-92-9260-467-7, pp 26.

conservation.⁶³ Malaysia, being an AMS, has aligned its renewable energy roadmap established by SEDA with the medium and long-term pathways outlined by IRENA.

The IRENA report was established through various methodologies and the main reference case is the Planned Energy Scenario (“PES”).⁶⁴ PES reflects the current plans and other expected or approved objectives or policies.⁶⁵ Studies show that solar PV, hydropower and geothermal energy are important in the ASEAN’s electricity generation under the PES, but, unfortunately, for the ASEAN power sectors, electricity generation will continue to be dominated by coal and natural gas.⁶⁶

Based on statistical data, the total renewable power generation capacity in Malaysia for 2021 amounted to 8,898 MW as compared to 2020 of 8,570 MW, there had been a slight increase.⁶⁷ In fact, there had a constant increase in the total capacity since 2017. SEDA along with the implementing agencies like TNB and EC did contribute to the growth of the RE sectors in Malaysia. It was reported that the above programmes had contributed to a 12.1% compound annual growth rate (“CAGR”) of installed RE capacity from 2012 to 2019.⁶⁸ That

⁶³ ASEAN, “Joint Ministerial Statement of the 40th ASEAN Ministers on Energy Meeting”, (*ASEAN*, 15 September 2022), <https://asean.org/wp-content/uploads/2022/09/40th-AMEM-JMS_Final_15-Sep_cln.pdf> accessed 9 November 2022.

⁶⁴ IRENA (n 63) at pp 28.

⁶⁵ *Ibid.*

⁶⁶ IRENA (n 63) at pp 36.

⁶⁷ Statista Research Department, “Total Renewable Power Generation Capacity in Malaysia from 2012 to 2021’, (*Statista*, 5 October 2022), <[⁶⁸ Ybhg. Dato’ Hamzah bin Hussain and Energy Watch, “A Decade of Renewable Growth in Malaysia, Where Do We Go From Here?”, \(*Energy Watch*, 20 August 2021\), <<https://www.energywatch.com.my/blog/2021/08/20/a-decade-of-renewables-growth-in-malaysia-where-do-we-go-from-here/>> accessed 9 November 2022.](https://www.statista.com/statistics/872508/total-renewable-power-generation-capacity-in-malaysia/#:~:text=Total%20renewable%20power%20generation%20capacity%20in%20Malaysia%202012%2D2021&text=In%202021%2C%20the%20capacity%20amounted,eight%20thousand%20megawatts%20since%202012.> accessed 9 November 2022.</p></div><div data-bbox=)

represents a growth from 3.7 GW to 8.2 GW in the same period.⁶⁹ Additionally, the Malaysia Renewable Energy Market is also to expect a CAGR of 8.5% between 2022 to 2027 with the Government's effort in implementing policies and incentives for the growth of solar energy.⁷⁰

Attention should be given to the most recent Malaysian Government initiative, the National Energy Policy 2022 – 2040 (“NEP”) published on 19 September 2022. The NEP covers all sources of energy, both renewable and non-renewables and the use of energy across all sectors of economy.⁷¹ With the NEP, it aims to help improve Malaysia's economic resilience while also to ensure environmental sustainability.⁷² Overall, the NEP is established to harmonise existing energy policies, creating a long-term vision and response plan, provide the most recent direction of the energy sector and ensuring a coordinated response from the energy sector and ensuring they keep in line with the national aspirations and agendas.⁷³ The NEP sets out its targets in relation to RE energy, the grid systems and GHG reporting to include initiatives such as enhancing of potential solar, hydroelectric and bioenergy resources.⁷⁴ Focusing only on solar energy, the NEP aims to maintain a long-term pipeline for LLS projects with “indicative total package and lot sizes, optimised between large solar parks and smaller scale packages”.⁷⁵ The NEP aims to increase the competitions

⁶⁹ Ibid.

⁷⁰ Mordor Intelligence, “Malaysia Renewable Energy Market-growth, Trends, Covid-19 Impact, and Forecasts (2022-2027)”, (*Mordor Intelligence*, n.d.), <<https://www.mordorintelligence.com/industry-reports/malaysia-renewable-energy-market>> accessed 9 November 2022

⁷¹ Chor Jack, Christopher Lee, Lim Siaw Wan, “The Government of Malaysia Launches the National Energy Policy 2022 – 2040: What it Means for the Renewables Landscape”, (*Christopher & Lee Ong*, September 2022), <<https://www.christopherleeong.com/media/5070/2022-09-the-govt-of-msia-launches-the-national-energy-policy-2022-2.pdf>> accessed 10 November 2022.

⁷² Business Today Editorial, “National Energy Policy (NEP) 2022 – 2040 Launched Today as a New Narrative For Energy Transition”, (*Business Today*, 19 September 2022), <<https://www.businesstoday.com.my/2022/09/19/national-energy-policy-nep-2022-2040-launched-today-as-a-new-narrative-for-energy-transition/>> accessed 10 November 2022.

⁷³ Business Today Editorial (n 73).

⁷⁴ Business Today Editorial (n 73).

⁷⁵ Chor Jack *et al* (n 72).

in private capital for solar investments, with optimisation of equity holding rules and strengthening the due diligence process during bidding and evaluation process.⁷⁶ Moreover, the NEP also aims to extend the existing NEM programme, which is in line with the Prime Minister announcement given during the Fifth International Sustainable Energy Summit 2022 that there will be 1,200MW worth of quota to be allocated to solar projects like the NEM.⁷⁷ The NEP ensures that there will be an increase in the accessibility of RE to businesses in line with ESG (define) standards.⁷⁸ RE would be one of the key factors for considered by multinational companies when deciding whether to invest in a country.⁷⁹ In fact, corporates that obtain most of its energy from renewable sources attracts investment as investors are more keen on projects that are ESG friendly, improving their portfolios. Apart from enhancing the existing RE programmes, NEP also aims to explore other potential REs such as wind and geothermal.⁸⁰ These two types of RE are of great potential considering the geographical location of a certain region in Malaysia. The plans listed in the NEP are actually more than what has been discussed above, and ultimately, the NEP sets out a clear roadmap to improve the nation's socioeconomically and keep in line with other policies to achieve net-zero GHG emissions by 2050.⁸¹ For the NEP to be executed in such manner, the Malaysian Government still plays an important role in ensuring that the implementation plans are properly introduced for each initiative set out in the NEP.⁸²

As mentioned, the global mission requires nations to collaborate, cooperate, and support each other in achieving climate targets, as

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ Economic Planning Unit, "National Policy 2022 – 2040", (*EPU*, n.d.), <https://www.epu.gov.my/sites/default/files/2022-09/National%20Energy%20Policy_2022_2040.pdf> accessed 10.11.2022.

⁸¹ Baker McKenzie, "Malaysia: Malaysian National Energy Policy 2022-2040", (*Baker McKenzie*, 26 September 2022), <https://insightplus.bakermckenzie.com/bm/energy-mining-infrastructure_1/international-malaysian-national-energy-policy-2022-2024> accessed 10 November 2022.

⁸² Baker McKenzie (n 82).

evidenced in the PA and each annual COP. One example of support given by another fellow member state is the United Kingdom ('UK') which announced at COP26 its support by providing £110 million of financial aid to the ASEAN Catalytic Green Finance Facility which will support new sustainable infrastructures⁸³ and £274 million fund for UK Climate Action for a Resilient Asia (CARA) programme that will strengthen the climate adaptation across the Indo-Pacific region⁸⁴. Other forms of assistance come in a form of studies and strategy recommendations such as from IRENA above, or the EU-ASEAN Business Council ("EABC") where their strategies aim to serve as a guideline for ASEAN to work towards the challenges faced in the energy transition. EABC suggested that it is crucial to first strengthen the ASEAN's Sustainable Finance Ecosystem.⁸⁵ EABC also identified that AMS needs to improve the access to low-carbon technologies at a reasonable cost.⁸⁶ For that, the EU has in place practical resources and expertise to provide the support required in terms of technology and finance.⁸⁷

UNITED KINGDOM'S MILESTONES IN RE

As Malaysia strives to achieve its climate targets, the United Kingdom ("UK") also set the same target to reach net zero by 2050 with a transition to an electrical system with 100% zero-carbon generation

⁸³ Foreign, Commonwealth & Development Office and The Rt Hon Elizabeth Truss MP, "Truss Announces Major Investment in Clean Infrastructure in Asia", (*Gov.UK*, 3 November 2021), <<https://www.gov.uk/government/news/truss-announces-major-investment-in-clean-infrastructure-in-asia>> accessed 11 November 2022.

⁸⁴ Foreign, Commonwealth & Development Office and The Rt Hon Amanda Milling MP, "UK Announces £274m Boost to Climate Resilience Across Indo-Pacific", (*Gov.UK*, 8 November 2022), <<https://www.gov.uk/government/news/uk-announces-274m-boost-to-climate-resilience-across-indo-pacific>> accessed 11 November 2022.

⁸⁵ EU-ASEAN Business Council, "Powering ASEAN's Energy Transition" (2021) at pp 15.

⁸⁶ *Ibid.*

⁸⁷ *Ibid.*

and with much of this generated from renewable energy.⁸⁸ In 2023 Q2, 42.13% of the power in the UK came from RE sources, including wind (21.1%), bioenergy (11.2%), solar (8.6%), and hydropower (1.1%).⁸⁹ The zero-carbon power generated from the above RE has increased from 20% to 43% since 2010, while the power generated by fossil fuels has significantly decreased from 75% in 2010 to around 38.8% in 2023.⁹⁰

Similarly, such impressive achievement has been achievable with various schemes in the UK that provide financial support for RE to encourage technology development and greater adaptation of renewables.⁹¹ Like Malaysia, the UK has also implemented a FIT scheme that requires participating licenced electricity suppliers to make payments for the electricity generated and exported by accredited installations, such as wind turbines and solar panels.⁹² The UK also pledged to accelerate the UK's transition to RE at the COP27. For that, the UK plans to incur £65.5 million for the Clean Energy Innovation Facility where researchers and scientists in developing countries can speed up the development of clean technology.⁹³

Although based on the achievements of the UK in energy transition, regulatory support mechanisms like the FIT, are designed and implemented differently from one country to another according to

⁸⁸ National Grid, 'How Much of the UK's Energy is Renewable?', (*National Grid*, n.d.), <<https://www.nationalgrid.com/stories/energy-explained/how-much-uks-energy-renewable>> accessed 10 November 2022.

⁸⁹ Department for Energy Security & Net Zero, *Energy Trends UK April to June 2023*, (UK Government, 2023) <https://assets.publishing.service.gov.uk/media/6513fe8ef6746b000da4bab5/Energy_Trends_September_2023.pdf>, accessed 28 November 2023.

⁹⁰ Ibid; National Grid (n88).

⁹¹ Energy UK, "Renewable Generation", (*Energy UK*, n.d.), <<https://www.energy-uk.org.uk/energy-industry/renewable-generation.html#:~:text=Fuel%20sources%20include%20wind%2C%20wave,increase%20to%2030%25%20by%202020.>> accessed 11 November 2022.

⁹² Ofgem, "Feed-in Tariffs", (*Ofgem*, n.d.), <<https://www.ofgem.gov.uk/environmental-and-social-schemes/feed-tariffs-fit>>, accessed 29 November 2023.

⁹³ Prime Minister's Office, 'UK announces major new package of climate support at COP27', (*Gov UK*, 7 November 2022), <<https://www.gov.uk/government/news/uk-announces-major-new-package-of-climate-support-at-cop27>> accessed 11 November 2022.

Crossley.⁹⁴ This is true because there is no sole mechanism or combined mechanism that can meet the needs of each country considering that each country will have its natural resources, legislation, governmental structures and customs.⁹⁵ Hence, it cannot be a direct comparison with the UK, in the hope of adapting their method of implementation for the better progress in Malaysia. Instead, the UK's implementation can serve as guidance or an example for Malaysia.

MALAYSIA AND THE UNITED KINGDOM

As part of a global effort in achieving climate targets, the UK and Malaysia have signed the 'UK-Malaysia Memorandum of Understanding 2022' for both countries to work together in stepping up the action plan on climate and biodiversity to reducing GHG emissions.⁹⁶ This partnership will remain in effect for a period of five years and may be extended for another five years with mutual agreement of both countries.⁹⁷ This partnership will only strengthen the climate ties between Malaysia and the UK. Prior to this partnership, the UK had been delivering projects in Malaysia, and to name a few, the UK contributed to the strengthening of the nature-based solutions in the Terengganu forest, supporting low-carbon city planning in Iskandar Malaysia and promoting sustainable urbanisation in Kuala Lumpur.⁹⁸

In this new partnership, Malaysia and the UK have to take necessary steps to encourage and promote technical cooperation in the main areas, namely, collaboration on climate and biodiversity issues,

⁹⁴ Penelope Crossley, "Renewable Energy Law: An International Assessment" 2019, (Cambridge University Press), ISBN 9781107185760.

⁹⁵ Ibid

⁹⁶ Foreign, Commonwealth & Development Office and the Rt Hon Lord Goldsmith, "UK-Malaysia Climate Ties Strengthened with New Climate Partnership", (*Gov.UK*, 7 June 2022), <<https://www.gov.uk/government/news/uk-malaysia-climate-ties-strengthened-with-new-climate-partnership>> accessed 11 November 2022.

⁹⁷ Paragraph 10 of the Memorandum of Understanding between the Government of United Kingdom of Great Britain and Northern Ireland and the Government of Malaysia on Co-operation in Climate Actions (Sustainable Growth), pp 5.

⁹⁸ Foreign, Commonwealth & Development Office and the Rt Hon Lord Goldsmith (n 72).

knowledge sharing, promoting scientific and technical collaboration, supporting private sector involvement and promoting outreach activities.⁹⁹ Both countries will collaborate and co-operate in the climate change, mitigation and adaptation related area such as clean energy, low carbon planning, industrial processes and product use (IPPU), waste, agriculture, forestry and land use, and biodiversity.¹⁰⁰ Additionally, both countries will also collaborate and co-operate in Green / Sustainable Finance to support Malaysia's transition to a low carbon economy and in Communication, Education and Public Awareness (CEPA) and climate change related technology.¹⁰¹

CONCLUSION

Malaysia has in fact made great progress in the implementation of RE. There are a variety of initiatives taken not only by the government but also by the organisation and energy supplier of Malaysia. Everyone is working towards the same objective and target in reducing GHG emissions and reaching environmental sustainability. Nonetheless, merely putting forward initiatives or programmes does not guarantee their effectiveness in contributing to the achievement of Malaysia's climate targets. It depends on the execution of the project or implementation and the extent to which it has reached the general public, determining the level of voluntary participation in existing programmes. That being one of the factors which would affect the progress of the RE transition in Malaysia, another factor is the financial challenge. That is where a country like the UK's financial aid would impact the transitioning process, especially in ASEAN countries.

⁹⁹ Memorandum of Understanding between the Government of United Kingdom of Great Britain and Northern Ireland and the Government of Malaysia on Co-operation in Climate Actions (Sustainable Growth) (n 95) at Paragraph 2, pp 2.

¹⁰⁰ Ibid at Paragraph 3, pp 3.

¹⁰¹ Ibid.