

Accelerating
the Energy
Transition –
Perspectives
from  SAREF 3.0

sarawak  energy



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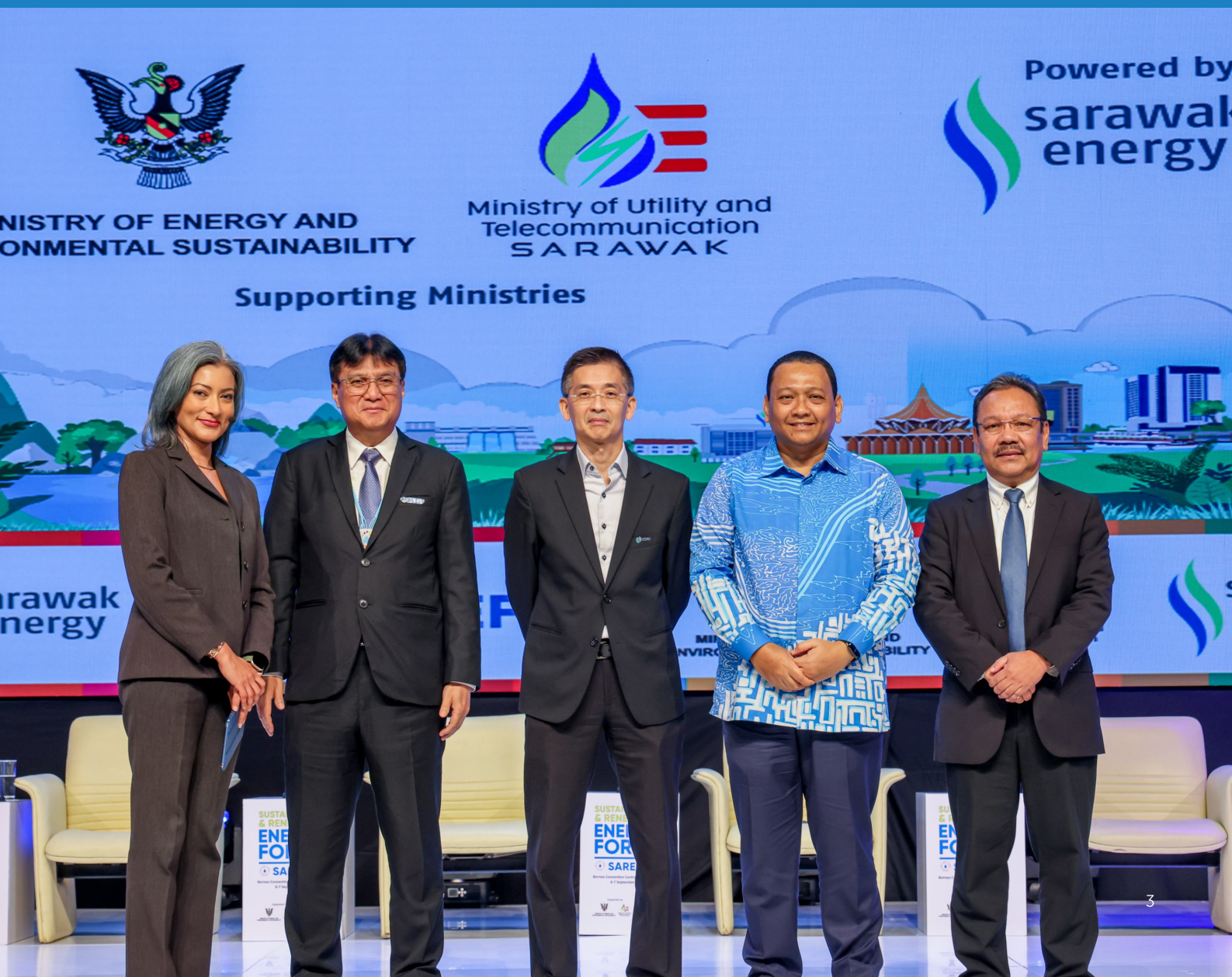
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Foreword

For genuine progress to be made in mitigating the world's climate crisis by transitioning to more widespread usage of renewable energy, governments, policy makers, financiers, energy producers and buyers, civil society and the general public must come together to align ideas with collaborative action.

Powered by Sarawak Energy, the third biennial Sustainability and Renewable Energy Forum (SAREF 3.0) brought stakeholders together to share learnings, debate key issues and agree on the way forward on Southeast Asia's journey to a more sustainable energy future.

Key insights from the major contributors to SAREF 3.0 are shared in this white paper, and we offer our grateful thanks to all participants for their time and commitment to ensure a just energy transition.



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Introduction

As Sarawak Energy convened the third biennial Sustainability and Renewable Energy Forum (SAREF 3.0) in September 2023, the words of United Nations Secretary-General Antonio Guterres were an often quoted talking point – that soaring temperatures witnessed in July 2023 had ushered in the era of ‘global boiling’. Climate change is now understood as an existential challenge to humanity and a crucial pillar for combating climate action is by accelerating the renewable energy transition.

The next ten years – often called the defining decade – will determine the quality of life for humankind and planet Earth alike. With greater alignment of thinking and technological advancement, there is greater cause for optimism with collaborative action across all stakeholder groups.

SAREF 3.0 represented a platform for voices to be heard, for ideas to be shared and for commitments to act to be made.

The conference highlighted the visionary political dynamism from Sarawak’s leaders, showcased how Southeast Asian nations could pursue a common energy transition through an interconnected power grid with hydropower providing the foundation, discussed advances in carbon capture and storage, green hydrogen projects and highlighted the crucial role of financing and the vital importance of integrating diverse voices to ensure no one is left behind.

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We must actively search for new innovations, technologies, and processes to progress even further. It is time for us to empower our people and embrace the challenges ahead.



The Right Honourable
Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul
Rahman Zohari bin Tun Datuk Abang Haji Openg,
Premier of Sarawak

Premier of Sarawak, The Right Honourable Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari bin Tun Datuk Abang Haji Openg’s opening remarks set the tone of the conference, illustrating how Sarawak is whole-heartedly committed to the opportunities afforded by sustainability and renewable energy. Although many milestones can be successfully celebrated, the Premier reflected that much more still needs to be achieved. With willing partners on the journey to energy transition, the time to embrace the challenges ahead is now.

This white paper highlights these key themes and more arising from SAREF 3.0. As the world prepares for further collaboration and commitment at COP28 in November 2023, the contributors to SAREF 3.0 have shown the way in providing alignment and solutions to humankind’s greatest challenge.



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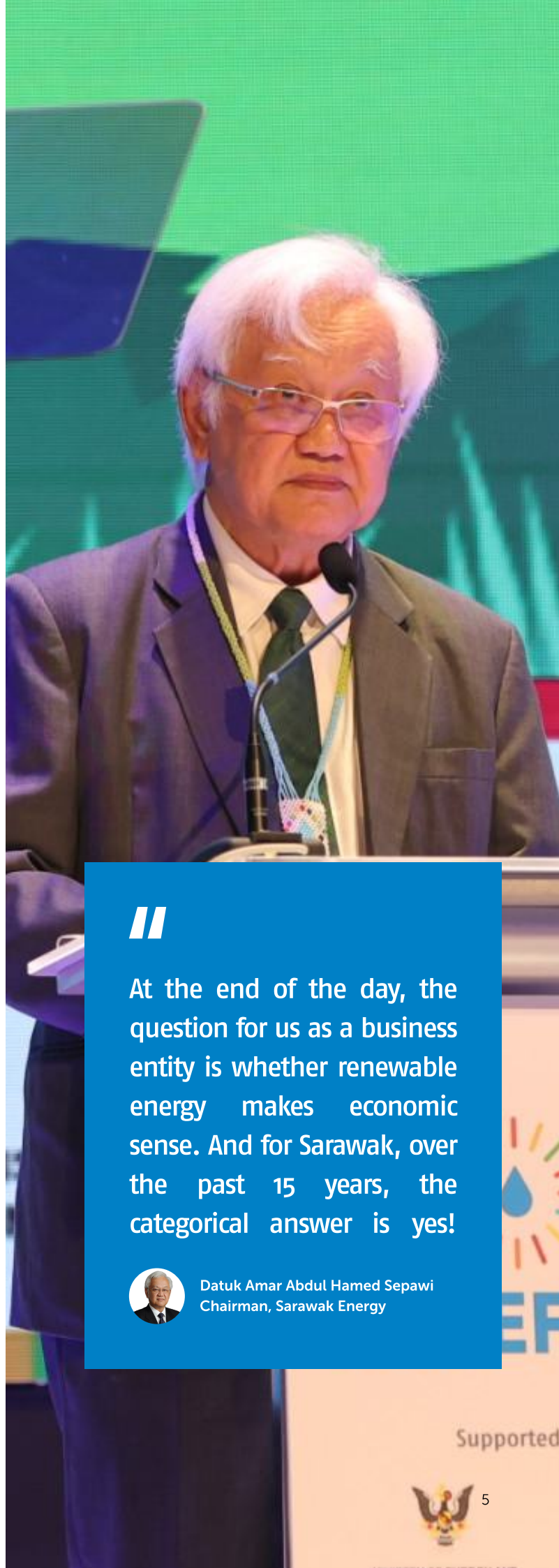
Accelerating the Energy Transition – Good for the Planet, and Good for Business

Although there is near-universal acceptance of the need to rapidly accelerate the energy transition in this 'defining decade' of climate change, many decision makers and stakeholders may not recognise that doing so makes excellent business sense too.

Datuk Amar Abdul Hamed Sepawi, Chairman of Sarawak Energy, puts it bluntly. The economic case for renewable energy is a 'no-brainer'. Operational costs to deliver Sarawak's abundant hydropower are many multiples lower than fossil fuels and predicted to become lower still. The energy security afforded by domestic renewable power generation limits the exposure to the price volatility of carbon-based fuels which has experienced recent shocks due to geopolitical events such as the war in Ukraine although Sarawak's thermal generation mix is primarily indigenous coal and gas.

This position has enabled Sarawak to monetise its renewable energy resources to expand the state's electricity coverage and attract foreign direct investment. The establishment of the Sarawak Corridor of Renewable Energy (SCORE) in 2008 had attracted over RM102 billion of investment by 2022 and created upwards of 18,000 job opportunities.

At a global level, Dame Christiana Figueres, former UN Climate Chief, highlights the fact that renewable energy is now highly competitive in the vast majority of geographies. This moves the debate from questions over cost-effectiveness to the removal of barriers and access to finance if a truly accelerated energy transition is to take place.



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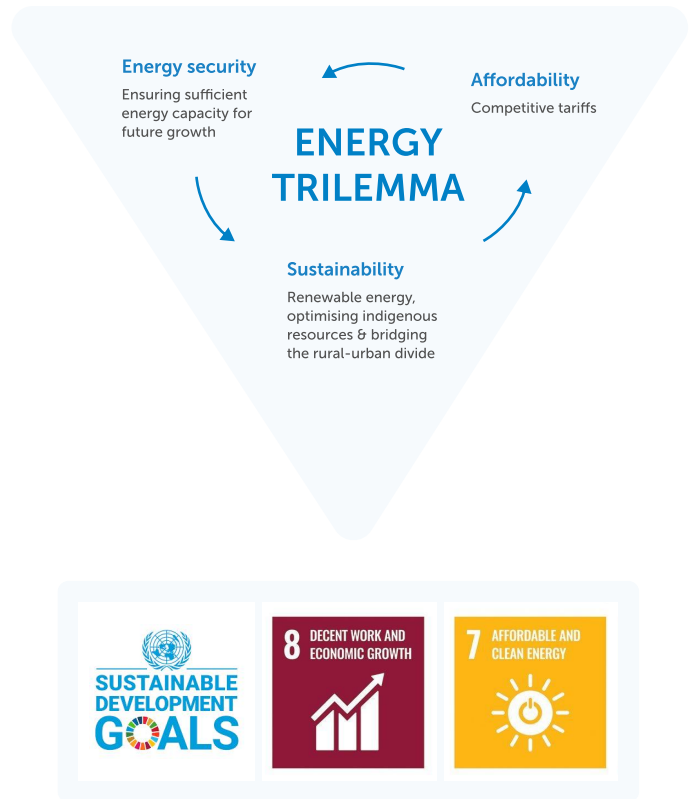
At the end of the day, the question for us as a business entity is whether renewable energy makes economic sense. And for Sarawak, over the past 15 years, the categorical answer is yes!



Datuk Amar Abdul Hamed Sepawi
Chairman, Sarawak Energy

For many Southeast Asian economies, including that of Malaysia, there is a strong desire to attract green investment. In its most recent annual budget, the government of Malaysia extended its successful Green Technology Financial Scheme (GTFS), increasing the total financing to RM3 billion. This initiative is expected to attract more developers to produce low-carbon infrastructure facilities and green buildings, as well as drive the growth of enterprises that support the implementation of circularity. Meanwhile, to promote green investment, the government proposed to extend the incentive application period of Green Investment Tax Allowance (GITA) and Green Income Tax Exemption (GITE) until 31 December 2025.

By focusing on affordable, secure and sustainable power, ASEAN nations are making every effort to tackle the 'energy trilemma'. The development of an international interconnected grid delivering renewable energy across the region is essential to achieving these outcomes. By managing the inherent variability of renewables through import and export via interconnectors, ASEAN nations will be in an excellent position not only to provide long-term security of energy supply, but also to raise the standard of living for everyone in the region, thereby creating the conditions for a vibrant and dynamic economy.



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The political economy would point to the fact that renewables are completely competitive in the vast majority of geographies. So, it is no longer about cost parity, it's no longer about competition – it is about removing barriers.



Dame Christiana Figueres
Former UN Climate Chief

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Optimising the Energy Mix

Leading voices at SAREF 3.0 highlighted the need to create a diverse mix of renewable energy sources to safely and securely power the energy transition that the world requires. Ir. James Ung, Group COO of Sarawak Energy, illustrates the benefits of Sarawak's renewable energy of indigenous hydropower and solar, supported by an ever-reducing dependence on gas and coal. By transitioning from fuel-dependent energy, the layer of unpredictability caused by price fluctuation is being removed.

Having greater energy diversification also stimulates greater innovation and economic progress, benefitting all. As PETRONAS' President and Group CEO Tan Sri Tengku Muhammad Taufik remarks, the goal is to create a low-carbon ecosystem and to understand how each renewable energy technology optimally contributes to this development.



The power generation mix today in Sarawak is 60 – 70% renewable hydropower and approximately 15% indigenous coal, with 20% indigenous gas from offshore Sarawak. So domestically the fluctuation of fuel prices has less impact, because most of the fuels are sourced locally within Sarawak. There's no dependence on fuel fluctuation for hydropower or solar, so that layer of worry has been eliminated.



Ir. James Ung
Group COO, Sarawak Energy

Dr. Nuki Agya Utama, Executive Director at the ASEAN Centre for Energy, goes further: the concept of technical neutrality is essential in meeting the region's spectrum of energy supply. That's why the ASEAN power grid (APG) welcomes all efforts to optimise its regional power grid based on renewable energy, from turbine technology through even to fusion. By focusing on the twin goals of energy efficiency and reduced carbon emissions, the APG has already achieved 33.7% of its total installed capacity from renewables, with an ambition to increase this to 39% by 2025.

Whilst the extensive contribution of wind and solar power to the energy transition is widely recognised, the variable and fluctuating nature of these technologies mean other more consistent and reliable renewable energy sources like hydropower and geothermal are essential in creating readily accessible base load for power grids.

Nascent renewable and mitigation technologies such as biomass, green hydrogen and carbon capture, utilisation and storage (CCUS) will play increasingly important roles in the optimal energy mix of the future. Sarawak is already at



The question is how to provide much-needed energy while minimising emissions. That will mean taking positions in technology which needs to be scaled up, things like CCS, and planting the foundations for cleaner, decarbonised energy ecosystems of the future.



Tan Sri Tengku Muhammad Taufik
President and Group CEO, PETRONAS





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From the perspective of technology in our region, we try to make it neutral. We accept all technology, starting from very simple turbine technology, combined heat power for example, until fusion perhaps. We have to make sure that power generation is efficient enough, affordable and with less emissions.



Dr Nuki Agya Utama
Executive Director, ASEAN Centre for Energy

the forefront of incorporating green hydrogen into its mass transit system, with the launch of an engineering run in September 2023 of the world's first hydrogen-powered 'smart tram' in Kuching. A total of 38 autonomous rapid transit vehicles powered by this technology are due to run on three lines across the city from 2025.

Other exciting future developments in optimising the energy mix include floating solar, sustainable aviation fuel and even ocean technology. Sarawak Energy has seized the initiative in maximising the efficiency of its renewable energy assets with the development of 400MW of floating solar capacity on its hydroelectric dams by 2030, to meet rising demand for renewables from neighbouring countries with the first 50MW due to be commissioned in 2024.

The pursuit of optimal energy efficiency is fundamental to the success of a renewable energy mix; in turn, the issue of renewable energy storage will be essential to resolve for a truly successful energy transition to occur. Whilst a hydropower facility's reservoir is in effect, a massive battery, long-term storage solutions for variable renewables such as wind, solar and others need to be found to balance the power grid and maintain reliability.

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Hydropower – A Forgotten Giant?

While newer renewable energies such as wind and solar power currently may take the limelight, a forgotten giant already plays a vital role in mitigating climate change: hydropower. Sarawak has already benefitted from the transformational capabilities of this reliable, versatile and cost-effective energy source through Sarawak Energy's series of major hydropower investments to create an energy mix of which 70% is powered by renewable energy today.

As Eddie Rich, CEO of the International Hydropower Association, asserts, sustainable hydropower has an essential role to play globally in helping the world achieve the required energy transition to Net Zero. On its own, hydropower has nearly as much global capacity as wind and solar power combined. This represents the immense opportunity for hydropower to become the leading renewable energy source in tackling climate change.



Malaysia's federal government recognised large hydropower as a major renewable energy resource in 2021. Today, government bodies are providing even more policy support for decarbonisation targets, which complements the progress of our SAREF aspirations.



Datuk Haji Sharbini Suhaili
Group CEO, Sarawak Energy

Ir. James Ung, Group COO of Sarawak Energy, points out that compared to the intermittency of wind and solar power, hydropower delivers a consistent and instantly dispatchable base load. This in turn supports the stability of the power grid and helps manage fluctuations. The maturity of hydropower technology means it delivers a high efficiency rate of up to 90%.





Whilst development costs and project timescales for major hydropower projects are significantly greater than those of wind and solar investments, over time hydropower can be regarded as a 'forever technology', delivering reliable and secure renewable energy in a highly cost-effective manner, as long as reservoirs are filled by rainfall.

Recent developments in hydropower project construction have focused on ensuring sustainable designs built in sympathy with biodiversity and minimising negative impacts on affected communities. Such projects are independently assessed against the hydropower sustainability standard, with Sarawak Energy's Baleh hydroelectric project currently undergoing the review process.

Given its maturity, reliability and versatility as a renewable energy technology, hydropower is a proven catalyst that allows the advancement and integration of future energy solutions, not only in national power grids but through international interconnectivity. Sarawak Energy has already embarked on sharing its hydropower experience with neighbouring Indonesia through the Mentarang Induk hydroelectric project in North Kalimantan, Borneo. And the ambition is to go beyond this to deliver a pan-ASEAN interconnected grid where hydropower integrates seamlessly with other renewable energy sources to secure a regional solution for all ASEAN nations.

From a forgotten giant to an essential solution in the transition to Net Zero with the power to bind nations together, hydropower can unlock a cleaner energy future.



The International Energy Agency, IRENA, the World Bank; these voices are well-aligned about the need for sustainable hydropower.



Eddie Rich
CEO, International Hydropower Association

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Sarawak Energy: Hydropower

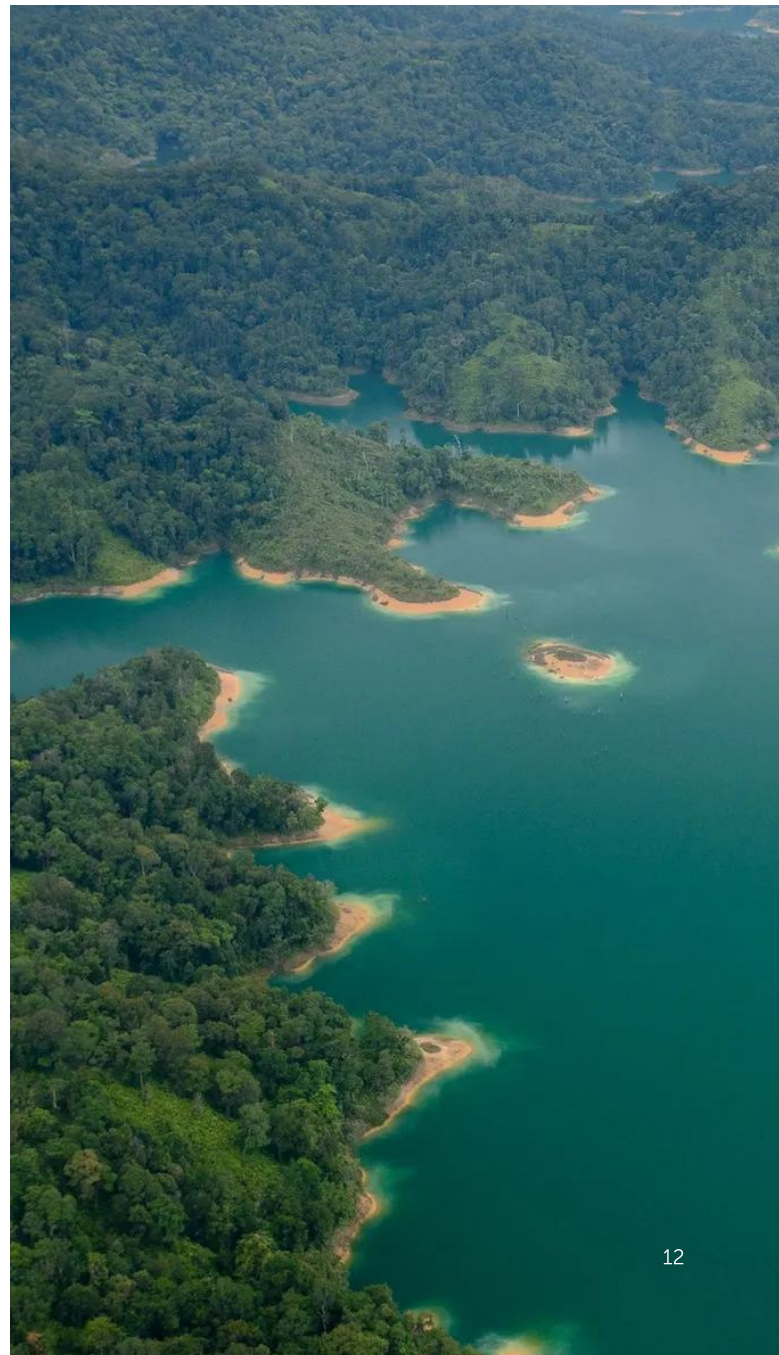
Sarawak is blessed with abundant indigenous natural resources, including 55 navigable rivers extending over 3,300 kilometres with about 8,000MW of potential at different hydropower sites. Since 1985, Sarawak Energy has harnessed over 3,400MW of this potential to deliver renewable hydropower to the region's population and businesses, creating a reliable, secure and affordable source of energy.

Sarawak's first hydroelectric plant Batang Ai began operations in 1985 and captures the stored energy of a 90km² reservoir impounded by a dam 85m high and 649m wide. For the past three decades, it has delivered up to 108MW of power to Kuching via a purpose-built 275kV transmission line. The project has transformed the lives of local communities, who enjoy much better access to education and healthcare and to markets for their agricultural produce. Many have also become involved in ecotourism, driven by the unique culture of the local Iban people and the spectacular rainforest of the project catchment area. The local orangutan population has been steady since the establishment of the 120,000-hectare catchment area, which is now one of the most densely populated orangutan habitats in Borneo with more than 1.7 animals per square kilometre.

The Bakun hydroelectric plant, commissioned in 2011, is currently Sarawak Energy's largest renewable energy generator since it acquired the facility in 2017. The project comprises a hydroelectric power plant, with an installed generation capacity of 2,400MW (firm energy of 1,771MW) and a power transmission system to connect with the existing transmission network in Sarawak. In addition to powering Sarawak's organic needs, the plant supports the Sarawak Corridor of Renewal Energy (SCORE) initiative in Samalaju Industry Park for energy-intensive heavy industries, a key initiative in delivering foreign direct investment to the region.

The hydroelectric plant at Murum provides 635MW (constant) and 944MW (peak) from a 2,750km² catchment area feeding a 270km² reservoir. It is a strong example of sustainable construction, including the world's tallest stepped chute spillway to aerate overflow water and reduce its kinetic energy. This helps preserve the riverine ecosystem, which is further protected by a 7.5MW ecological power station that supplies power to the nearby resettlement areas and conserves the 13km stretch of the Murum River between the dam and the powerhouse.

Attention is now focused on the construction of the Baleh hydroelectric plant, which is expected to be commissioned by the end of the decade and is Sarawak Energy's largest hydropower project to date. The plant's renewable energy generation will meet rising demand from energy-intensive industries within SCORE, thereby supporting Sarawak's ambition of achieving a high-income and developed status by 2030.



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Carbon Capture, Utilisation and Storage

Carbon capture, utilisation and storage (CCUS) is recognised as a vital solution in the energy transition to Net Zero. Because they can be applied across the energy value chain, CCUS technologies can further decarbonise and reduce carbon emissions through four key steps: carbon capture, transport, storage and utilisation.

PETRONAS is employing Carbon Capture and Storage (CCS) technology in its high CO₂ fields to realise the company's aspiration of achieving net zero carbon emissions (NZCE) by 2050. PETRONAS aims to further capture and store CO₂ emissions while maturing technologies for onshore processing plants to utilise and convert CO₂ into valuable products.

The implementation of CCUS entails a seamless integration of subsurface and surface technologies from the reservoir to the topside of the offshore facilities. Meanwhile onshore, the CO₂ utilisation programme enables value to be derived from waste products. This end-to-end solution will not only optimise operational results in terms of monetisation of high CO₂ fields but also support PETRONAS' sustainability goals.

Despite its multiple benefits, CCUS needs to be viable to be scaled up. Currently, the process of carbon capture is expensive due to significant deployment and energy costs. There is a strong push for countries and corporations to work together on an effective collaborative model to attract investments that will make the scaling-up and deployment of CCUS viable. Industry players and policymakers working together to push for the extensive adoption of this solution can create a positive technical and economic ecosystem for the implementation of CCUS across industries.



As part of the PETRONAS Carbon Commitment and the company's efforts to reduce greenhouse gas emissions, PETRONAS has initiated the Kasawari Integrated Offshore High Contaminant project, a strategic CCS project off the coast of Sarawak. The first injection of CO₂ is planned for commencement by the end of 2025. Once operational, the project is expected to reduce CO₂ volume emitted via flaring by 76 million metric tonnes with an annual average of 3.7 million metric tonnes per annum (mtpa), making it one of the largest CCS projects in the world.

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New Carbon Markets – A Vital Accelerator to a Greener Future

An important theme of SAREF 3.0 was the potential game-changing solutions offered by new carbon capture and removals technologies in bringing about rapid progress to a decarbonised energy future.

Carbon capture, utilisation and storage (CCUS) technologies not only provide businesses with opportunities to reduce their carbon footprints, but also help create new and sustainable revenue streams for those providing the solutions. Sarawak Energy has already embarked on their CCUS journey with the launch of the Japanese funded industrial microalgae production facility (CHITOSE Carbon Capture Central Sarawak) in May 2023. Further developments, such as CCUS using wood pellets and the repurposing of over 1,600 depleted offshore oil wells for international carbon storage illustrate the transformational capabilities of this technology, and the lofty ambitions of Sarawak.

In order to maximise the role played by carbon capture, companies need to have an avenue to trade carbon credits from climate-friendly projects to offset their carbon emissions, thereby helping to achieve their climate goals. As Dr. Wei-Nee Chen, Head of Carbon Market at Bursa Malaysia asserts, nature-based solutions can only provide 30 – 37% of the CO₂e reduction required to achieve global Net Zero. The remaining percentage needs to come from CCUS technological solutions. As a result, the Voluntary Carbon Markets (VCM) is thriving, as demand for carbon credits grows rapidly. A recent World Economic Forum article (published on 24 August 2023) highlighted how the VCM is the most effective way to address emissions by mobilising billions of dollars in private sector finance every year.



The key reason to establish a Voluntary Carbon Market in Malaysia is so that we can actually facilitate the development of this ecosystem locally in addition to scaling up the deployment of renewable energy. The residual gap of achieving national Net Zero needs to come from other projects which will need additional private financing beyond governmental support.



Dr. Wei-Nee Chen
Head of Carbon Market, Bursa Malaysia

Malaysia's multi-asset exchange, Bursa Malaysia, launched its own VCM exchange – Bursa Carbon Exchange (BCX) in December 2022, in fulfilment of a national mandate announced in October 2021 at the tabling of the national Budget 2022. Carbon credits offered during the first auction in March 2023 included both nature-based and technology-based solutions that results in the avoidance, reduction or removal of greenhouse gas (GHG) emissions.

As Dr. Chen observes, domestic participants, primarily from the financial sector, dominated the first VCM auction in Malaysia, reflecting the financial sector's role as a powerful agent of change, indicating where capital should be allocated to de-risk their own futures.

BCX has also launched a comprehensive Malaysian VCM Handbook to encourage the development of domestic projects, covering themes such as what policies to adhere to and how the government supports carbon trading.

It is clear that the VCM in Malaysia has the potential to incentivise further carbon avoidance, reduction and removal projects based in the region. By rewarding the implementation of such projects, participants can monetise the amount of CO₂e savings they are creating for corporates who wish to offset their carbon footprint. By

ensuring a vibrant, regionally based carbon market, all participants have a great opportunity to benefit whilst delivering on their climate change ambitions.

Post COP28 announcement:

On 4 December 2023, Bursa Carbon Exchange (BCX) signed a Memorandum of Collaboration (MoC) with Sarawak Energy, Hydropower Sustainability Alliance and I-REC Standard Foundation paving the way for the offering of renewable energy certificates (RECs) on BCX. The MoC was signed during the 28th United Nations Climate Change Conference of Parties (COP28) held in Dubai, United Arab Emirates. The offering of RECs in BCX aligns with the aspiration of BCX to be a one-stop Shariah compliant multi environmental products exchange which provides companies the opportunities to provide more options and flexibility for our customers to access and trade environmental products.



Of the successful auction participants, more than half came from the financial sector. This shows that the financial sector today is really a very powerful agent of change. They will determine where capital should be allocated to de-risk their own futures.



Dr Wei-Nee Chen
Head of Carbon Market, Bursa Malaysia

Case Study

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Voluntary Carbon Market Learnings: Bursa Malaysia

In its 2022 budget, the Malaysian government announced the implementation of a voluntary carbon market (VCM) as one of the key initiatives to address the nation's climate change agenda. The VCM is a collaborative effort between the Malaysian Ministry of Finance, Ministry of Natural Resources, Environment and Climate Change (MNRECC), and the Malaysian multi-asset exchange, Bursa Malaysia.

A VCM allows carbon credits to be traded, where companies make voluntary purchases to compensate for their GHG emissions. This helps companies to reach their climate change mitigation goals. A successful VCM relies on having an ecosystem of enablement: financial institutions play a key role in allocating capital to green financing; standards and verification bodies need to create the rules and procedures governing the carbon credit market and validate project designs; project developers need to offer nature-based or technology-based solutions that adhere to the required standards, and technical experts need to provide scientific and engineering expertise to assess the mitigation potential and implement the projects.

Bursa Carbon Exchange (BCX) successfully held its inaugural auction of standardised contracts with underlying carbon credits in March 2023. Projects were offered under Global Technology-Based Carbon Contract (GTC) and Global Nature-Based Plus Carbon Contract (GNC+). 150,000 Verra Certified Units (VCUs) were cleared by fifteen local buyers, with strong representation from the financial sector.

The GTC Contracts featured carbon credits from the Linshu Biogas Recovery and Power Generation Project in China. The project is aligned with several of the United Nation's Sustainable Development Goals (SDGs), including generating clean energy, providing decent work and addressing climate change by reducing fugitive methane emission leakage to the atmosphere. The GTC Contracts were oversubscribed and cleared at RM18.50 per Contract.

The GNC+ Contracts featured carbon credits from the Southern Cardamom Project, which is a REDD+ (Reducing Emissions from Deforestation and Forest Degradation) project from Cambodia that comes with climate, community and biodiversity co-benefits, contributing to the livelihoods of local communities and biodiversity conservation in the Indo-Burma Biodiversity Hotspot. This GNC+ Contract fetched a clearing price of RM68.00 per Contract at the auction.

By establishing a market-based price for carbon credits, the auction has provided a clear signal to potential project proponents and developers on the economic viability of carbon credits. This will incentivise local project owners to develop carbon credit projects that can create real impact in the fight against climate change and facilitate the acceleration of Malaysia towards a green economy.

9

Collaboration – The Alignment Factor for a Successful Future

At its heart, SAREF 3.0 offered a major platform for key voices in the energy transition debate to come together, listen to each other and be heard. And as the world faces the existential crisis of climate change, leading participants agree that collaboration between all stakeholders is fundamental if Net Zero ambitions are to be achieved.

True collaboration leads to impact. And for that impact to be maximised, all stakeholders must be aligned in their approach, from governments to civil society, from the financial community to energy producers. Without this alignment, agreement, action and progress becomes limited.

As Dame Christiana Figueres highlights, in order for collaboration to crystallise into action, national commitments need to be fully aligned with policy implementation. Quantum leaps can only occur where national, regional, city and corporate policies are focused in unison on achieving the same outcomes in the same style within the same timeframes.

Collaboration begins with commitment. At a national level, Malaysia is already playing a pivotal role in setting ambitious targets via its Nationally Determined Contributions (NDCs) towards climate change mitigation. The country has pledged Net Zero greenhouse gas (GHG) emissions by 2050, underpinned by a target of 70% renewable energy installed capacity within the same timeframe.

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In those countries where you have an alignment of national policy, to regional policy, to city policy and corporate policy, then quantum leaps really are possible.



Dame Christiana Figueres
Former UN Climate Chief





Yet as PETRONAS' President and Group CEO Tan Sri Tengku Muhammad Taufik observes, the scale of the energy transition challenge goes beyond the capabilities of individual nations acting alone. International collaborations, such as those between member states of the Association of Southeast Asian Nations (ASEAN) help turn climate change commitments into reality. Dr. Nuki Agya Utama, Executive Director of the ASEAN Centre for Energy, highlights the ASEAN Power Grid (APG) as an example of international collaboration in action. This initiative seeks to construct a regional power interconnection to connect the grids of all ASEAN members through a diverse range of renewable energies that ensures a reliable, stable, secure and decarbonised power grid.

As the opportunities presented by the energy transition become clearer, collaboration with previously marginalised groups becomes even more important. SAREF 3.0 facilitated a platform to ensure the breadth and diversity of opinion from women, young people and other under-represented groups was brought into mainstream discussion. The assimilation of the needs of these groups is fundamental to ensuring the energy transition is socially just and equitable rather than simply a technological solution that fails to address widespread socioeconomic disparities.



Conferences like SAREF 3.0 are vital, but they cannot and should not be the only platforms for partnerships and collaborations. For genuine change to take place, the onus is on us to further the relationships we have established here and continue advancing towards our shared goal of a more sustainable energy future.



Datuk Haji Sharbini Suhaili
Group CEO, Sarawak Energy

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Environmental victories are very important. A lot of the perception from young people about climate change is based on doom and gloom, a bleak future. So, if you provide them with stories of climate victories or climate optimism, those things feed into young people's perspective to say that change is possible.



Aidil Iman Aidid
UNICEF Youth Climate Champion

UNICEF Youth Climate Champion Aidil Iman Aidid highlights the huge demand for a climate-safe future from young people, which extends to their voting intentions towards politicians who prioritise the energy transition. Young people need to see support through advocacy programmes, education and funding of youth-led sustainability projects for a genuinely collaborative environment to be established.

Gender equality and the empowerment of all women and girls is enshrined in the UN Sustainable Development Goals (SDGs). Sarawak Energy is committed to this collaboration through the Sarawak Energy Leading Women Network (SELWN) to empower and develop women leaders in the company.

Datuk Haji Sharbini Suhaili, Group CEO, Sarawak Energy encourages all those committed to sustainability to take the collaborations offered by SAREF 3.0 and convert them into meaningful and fruitful relationships. Although conferences such as SAREF 3.0 can instigate new beginnings, only real-world actions can realise the ambition of Net Zero.

With so much at stake, collaborative action across all stakeholders is an essential component of an accelerated energy transition.



10

Making the Energy Transition Real

SAREF 3.0 illustrated the ambition and optimism shared by many in tackling climate change and achieving a meaningful energy transition. But underneath these aspirations, what will it take to create a successful and socially just green energy future?

Firstly, SAREF 3.0 showed that the time is now for all stakeholders to step up and align their vision of the energy transition. From political leaders to the workforce of the future, the energy transition requires a multistakeholder approach, with all needing to play their part.

Political will and inspiring leadership are the driving impetus for nations to confidently accelerate their renewable energy journeys. Sarawak shines as an example of this, with The Right Honourable Premier articulating the extensive implementation programme that the region has undertaken since 2017 as part of its renewable energy vision. Having this clarity of thought and political stability establishes the roadmap for other stakeholders to follow.



To succeed in the green economy, we need to prepare four frameworks. Number one is the legal framework. The second framework is the technical framework. The third framework that we need to deliver is the financial, business and taxation framework. And the last framework is the human resource framework. With these four frameworks, only then can we embark on whatever green projects we want to do effectively and successfully.



The Honourable
Datuk Dr. Haji Hazland Abang Hipni
Deputy Minister for Energy and
Environmental Sustainability, Sarawak



MALAYSIAN PHOTOVOLTAIC INDUSTRY ASSOCIATION

Sarawak Chapter

Official Launch of Malaysian Photovoltaic Industry Association (MPIA) Sarawak Chapter

by

YB DATUK HAJI JULAIHI BIN HAJI NARAWI
Minister for Utility and Telecommunication Sarawak



Sarawak Minister of Utility and Telecommunication, The Honourable Dato Sri Haji Julaihi Narawi (fifth from right) officially launched the state's chapter of the Malaysian Photovoltaic Industry Association (MPIA) at the Sustainability & Renewable Energy Forum (SAREF) 3.0 on 7 September 2023. The MPIA is a non-profit organisation representing the Malaysian solar industry, and comprises companies from the local solar supply chain, including manufacturers, service providers and training providers

Aligning policies and legal frameworks behind a visionary roadmap is the next essential step to turning the energy transition into reality. This is best illustrated through the hugely ambitious and impactful Inflation Reduction Act (IRA), passed by the Biden administration in the US in August 2022. The legislation provides for over US\$800 billion to address climate change, energy security and reduce consumer energy costs. Within Southeast Asia, ASEAN states are seeking similar alignment by harmonising the regulatory framework across member nations to accommodate energy interconnectivity within the region.

As The Honourable Datuk Dr. Haji Hazland Abang Hipni, Sarawak's Deputy Minister for Energy and Environmental Sustainability, observes, developing a clear framework to understand and leverage future technologies is a further vital component in translating ambition to tangible outcomes. This means not only allowing for a diversity of renewable energies within the power grid, but also forecasting how newer technologies such as green hydrogen and carbon capture and storage will impact national economies in the near and longer-term future.

Alignment of financial resources and investment is another critical step to make the energy transition a reality. Experts believe US\$2.8 trillion needs to be raised by 2030 to attain the UN climate goals; to unlock this unprecedented scale of investment, governments need to lead the way in providing appropriate financial incentives, and private sector energy producers need to demonstrate the proven commercial viability of their products and appropriate performance risks for major lenders to feel secure that ESG financing will yield a competitive return on investment.

The final essential framework in converting ambition to reality focuses on human capital. Only with a highly skilled workforce can the full potential of the energy transition be realised. This means extensive workforce readiness, planning and learning. Sarawak Energy plays its part by ensuring its brightest talent is exposed to best practice, learning and development across the world so ultimately the company can improve its own efficiencies to bring the energy transition to life.



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The critical part is human capital. That's why we at Sarawak Energy expose our talented employees to international experiences and best practice. It allows us to develop efficiency in our system.



Datuk Amar Abdul Hamed Sepawi
Chairman, Sarawak Energy



SAREF 3.0

Summary

Despite significant challenges and complexity, contributors to SAREF 3.0 illustrate the dynamism, optimism and focus the world needs to bring to deliver a socially just and sustainable energy transition.

The need for all stakeholders to be aligned in their approach is an essential starting point to bring about the transformation required. However, as so many participants express, optimistic talk needs to be channelled into tangible, real world actions if genuine progress is to be made in accelerating the energy transition.

Sarawak's own renewable energy journey demonstrates that the right investments in renewable energies such as hydropower can help secure a long-term sustainable energy future that operates in harmony with natural resources whilst delivering energy security and affordability.

Furthermore, the energy transition journey needs to go beyond national borders. Multilateral collaborations such as the ASEAN power grid will act as a catalyst for the economic prosperity of the Southeast Asian region by providing sustainable energy security underpinned a stable mix of indigenous renewable energies.

Insightful planning by governments focused on a sustainable future can lead the way for other stakeholders to follow. The stability of renewable energy pricing makes the category highly competitive compared to the volatile markets of fossil fuels. Facilitating attractive investment ecosystems for renewable energy projects will be essential for a successful transition.

Innovative renewable technologies such as CCUS, floating solar and green hydrogen help broaden the mix of energy sources to tap, and help drive future scenarios of greater storage and carbon removals from the atmosphere.

Underrepresented voices must be intentionally engaged with to ensure no one gets left behind on the sustainable energy journey. Giving more platforms to young people in particular will unlock the talent and skills required for the next generation to progress the energy transition even further.

The case for a sustainable energy transition has been made clearly and in stark terms. The opportunity now is to normalise the best practices of renewable energy seen at SAREF 3.0 regionally and globally for a brighter future.

