

# SPEARHEADING ENERGY TRANSITIONS



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**SUSTAINABILITY & RENEWABLE  
ENERGY FORUM |  SAREF 3.0**

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# POSITIONING SARAWAK AS A BATTERY OF ASEAN

Renewable energy (RE) is a key enabler for Sarawak to achieve its development goals, said Sarawak Premier Tan Sri Abang Johari Tun Openg at the opening ceremony of the Sustainability & Renewable Energy Forum (SAREF 3.0) in September. SAREF is a biennial conference focused on sustainability and renewable energy organised by Sarawak Energy.

Already, Sarawak's energy mix is primarily powered by hydropower, which enables the state to produce other forms of clean energy like green hydrogen, and meet the demand for green energy from neighbouring countries. This factor has resulted in Sarawak having the lowest average unsubsidised tariffs in Southeast Asia, which has attracted bulk power customers to the state, he said.

"We believe this will ensure economic prosperity, social inclusivity and a sustainable environment for all of Sarawak's people. If we manage the interconnection well as a region, it will be for all Southeast Asians," said Abang Johari.

The theme of the conference was "Regional Net Zero and Sustainable Communities, Renewable Energy Development and Interconnections". It was the third of a planned series of five biennial conferences to be held over 10 years.

The interconnection of power grids in the region was a major focus of the conference, which took place after the federal government lifted the ban on RE exports earlier this year and as Sarawak continues to forge relationships with neighbouring countries to share RE resources.

"We established our first interconnection with Kalimantan in 2016 and we are now exploring interconnections with Brunei and Singapore towards realising the Asean power grid, with the prospect of positioning Sarawak as the battery of Asean," said Sarawak Energy chairman Datuk Amar Abdul Hamed Sepawi in his welcome speech.

Sarawak Energy has completed comprehensive technical studies with Sembcorp Industries and SP Group on exporting energy to Singapore, and is currently in commercial negotiations for an interconnection via direct undersea power cables to the island state, according to Abang Johari.

"Sarawak can play a central role in progressing regional energy transition by sharing our hydro-based resources with regional neighbours via interconnections. Collectively, the projects are vital building blocks for the Asean power grid."

For these efforts to be successful, collaboration is key, he stressed. "Energy demand has increased by 3% on average a year over the past two decades [in Southeast Asia]. Accommodating this growing demand while meeting sustainability requirements will require us to work together."

## INVESTING IN NEW SOLUTIONS

To decarbonise its energy sector, Sarawak has already made great strides with plans to decommission its coal-fired power plant (CFPP), committing to no more new CFPPs in the state, building the region's first integrated hydrogen production plant and refuelling station, developing a floating

solar farm at the Batang Ai hydroelectric plant and installing a 60MW battery energy storage system at the Sejingkat CFPP.

The use of hydropower in the past decades has reduced the carbon emission intensity of the state's power system by 73% from 2010 to 2021, said Abang Johari. A fourth hydroelectric dam in Baleh is scheduled for completion at the end of the decade.

Under the Post-Covid Development Strategy 2030 targets, Sarawak Energy has been tasked with leading the energy transition efforts. Its target is to maintain at least 60% RE capacity mix by 2030, reduce carbon emissions by 600,000 tonnes per annum by electrifying Sarawak's mobility fleet by 2030, and achieving more than 15% income from foreign markets, including from the pursuit of power exports.

Going forward, the utility is exploring the use of cascading dams and wood pellets, grown from replanted trees in degraded forests, to produce power, said Abang Johari. It is also working with Shell to explore the possibility of developing hybrid solar and wind farms to complement decarbonisation.

To complement decarbonisation efforts, carbon capture, utilisation and storage (CCUS) is an important part of the state's strategy. The government passed its land code amendment bill last year to regulate the use of the state's land for carbon storage.

Petroleum Sarawak Bhd received the first licence for carbon storage in March, allowing the state-owned company to be a CCUS resource manager in the state.

Earlier this year, Sarawak Energy collaborated with Chitose Group to launch the first industrial scale micro-algae production facility in the state.

Micro-algae absorb carbon emissions as it grows and can be used in products like sustainable aviation fuel.

"Sarawak's aspirations for CCUS have been reaffirmed by the launch of Malaysia's National Energy Transition Roadmap," said Abang Johari.

On the mobility front, Sarawak Energy's hydrogen plant is already powering the hydrogen buses owned by the Sarawak Economic Development Corporation. A prototype autonomous rail transport is being trialled to enhance the state's public transport systems.

"Hydrogen has many applications in Sarawak's existing industries and can be exported in various forms via different methods. I believe it can play a significant role in further greening our industries, [including] the transport sector and healthcare," said Abang Johari.

These efforts are part of Sarawak's goal to cultivate sustainable cities and communities, he added. The government is in the midst of developing a Sustainable Sarawak Blueprint, which will guide all sectors and communities in achieving sustainable development goals.

"This focus on green mobility is further exemplified by our installation of electric vehicle charging stations around Kuching. We have plans to extend this programme to other major Sarawakian cities in the future," said Abang Johari.

The conference was held on Sept 6 and 7 at the Borneo Convention Centre in Kuching, Sarawak, which saw the attendance of around 1,000 people. It featured eight plenary sessions with speakers from various industries in the region. The event was supported by Sarawak's Ministry of Energy and Environmental Sustainability and Ministry of Utility and Telecommunication. ■



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"WE BELIEVE THIS WILL ENSURE ECONOMIC PROSPERITY, SOCIAL INCLUSIVITY AND A SUSTAINABLE ENVIRONMENT FOR ALL OF SARAWAK'S PEOPLE. IF WE MANAGE THE INTERCONNECTION WELL AS A REGION, IT WILL BE FOR ALL SOUTHEAST ASIANS." – ABANG JOHARI

# TIME TO EXECUTE AND IMPLEMENT THE PARIS AGREEMENT



LOW YEN YENG/THE EDGE

The historic Paris Agreement was ratified in 2015 under the leadership of Dame Christiana Figueres, who was the executive secretary of the United Nations Framework Convention on Climate Change from 2010 to 2016. It was seen as a “business plan” to decarbonise the economy, she said during her keynote speech at the Sustainability & Renewable Energy Forum (SAREF 3.0).

But any business plan is good for nothing if it stays on the shelf and is not financed and executed, said Figueres in response to a question about her thoughts on COP28, which is due to take place on Nov 30 in Dubai.

“Finance and execution are not the purview of the multilateral negotiations. The 90,000 people [attending] are not government delegates. They are members of different corporations, non-governmental organisations, scientists and people who actually need to execute [the Paris Agreement] under the policies of their central or regional government,” she said.

“If [execution] is not done on a timely basis, we would have committed general suicide. The planet doesn’t care because she has existed for 4.5 billion years. She will continue without the human race. It’s no longer about saving the planet, but returning to conditions that help us humans and other life to thrive. This is an emergency.”

The 2020s is defined as the “decisive decade”, as humans hold the power to save the planet. Right now, humans are in a race between two exponential curves: the curve of destruction and of technological solutions, said Figueres.

The curve of destruction details the horrible impacts of climate change, while the curve of technological solutions, signifying hope for the future, details the positive changes that have been enabled through technology.

The former is not something to ignore, she said, as the planet depends on it. There has been increasing evidence around the world of climate change impacts that are surpassing the predictions made by climate scientists.

“The technological curve is improving exponentially. It’s a race between the two exponential curves and we don’t know which will win by 2030,” she said.

Figueres said in the 1950s, humankind abruptly moved into a new geological era, which was an astonishing fact because it used to take the planet millions of years to move from one geological era to another. Now, humankind is in the Anthropocene era.

“For the first time, it is no longer nature holding the pen of evolution but we, humans, who



“FOR THE FIRST TIME, IT IS NO LONGER NATURE HOLDING THE PEN OF EVOLUTION BUT WE, HUMANS, WHO HAVE STOLEN THE PEN OF EVOLUTION. WE DETERMINE WHAT IS GOING TO HAPPEN FOR THE NEXT SEVEN GENERATIONS DOWN THE LINE. THAT MEANS IT IS A HUGE RESPONSIBILITY AMONG ALL OF US.” – FIGUERES

have stolen the pen of evolution. We determine what is going to happen for the next seven generations down the line. That means it is a huge responsibility among all of us.

“Even without the benefits of climate change and emission reduction benefits, we have a moral, technological, financial and historical imperative to act on it.”

## REGIONAL PARTNERSHIP AND COLLABORATION TO ACCELERATE EXECUTION

To achieve the respective regional net-zero targets, each member state must capitalise on the renewable energy (RE) sources available to them. During a special panel session, “A Shared Energy Future — Partnership and Collaboration” with Figueres, Sarawak Energy Bhd group CEO Datuk Sharbini Suhaili said RE is central to Malaysia’s low-carbon transition.

“We are in a lucky place. We have a lot of rivers, rainfall and we have strong policy and political will at the highest level to put in place the right strategies and pathways for RE and sustainability,” he said.

“In 2015, [Sarawak] shifted to 70% hydroelectric power. This was enabled by strong political will by our leaders, who harnessed the resources we have, as well as having public-private collaboration. The next step for us is to be able to generate more RE and then help the region transition [via] interconnection with neighbouring countries.”

Petroliam Nasional Bhd has made strategic investments within the RE space by partnering with entities like Tenaga Nasional Bhd, but funding and policy need to come in to enable the opening up of the grid, said Petronas president and group CEO Tan Sri Tengku Muhammad Taufik.

“We know now because of Ukraine that reliance on one particular country may be a geopolitically sensitive issue but we need to make sure as a region, the security of energy supply is preserved,” he said.

“We’re at the centre of the energy supply equation and we’re going to power 700 million people

in Asean. Within a reasonable time frame, our region will be the fourth-largest economy in the world and with a 3% year-on-year growth in demand for energy, that’s set to continue. The challenges are not insurmountable, but immense.”

On an Asean level, executive director at the Asean Centre for Energy Dr Nuki Agya Utama said there are seven programmes focusing on how the region can transition to have cleaner energy supply for power generation and fuel. He said that while the goal is to phase out coal, the whole grid needs to be looked at and thus, grid interconnectivity and capacity are the focus.

“We [are vying for] 40% of RE. Our homework now is to study the grid and base load. Hydro-power and geothermal are stable sources of RE and by combining those two with other forms of RE, we can reach the 40% target of the region having RE,” he said. “We are currently at 33% and our target is 35% in 2025, which is something we can do easily. But [to go] beyond that to hit the 40% target will be tremendously challenging.”

About US\$2.8 trillion (RM13 trillion) needs to be raised by 2030 for clean energy. Sharbini said at COP27 last year, there were conversations about green climate funding and how developed countries can help fund developing countries in their energy transition journey because affordability is a challenge.

“There are a lot of funds in the bank but where are they going to channel it? Hydropower is the forgotten giant of clean energy but it can help the whole world transition if we place funding there, as it can help us reach net zero by 2050,” he said.

Figueres said there needs to be a combination of financial flow and access to public finance, especially from multilateral banks. She added that there is a sequence in this because once the government has access to concessional lending, that opens the door for blended finance and private financing to come in.

“Public finance comes in and takes the risk and attracts private companies to come in and finance it too. Public financing brings some of the risks down,” she said. ■



Launch of Sarawak Energy and Gentari's EV flagship charging station

LOW YEN YEN/THE EDGE

IT'S A VERY EFFECTIVE MECHANISM FOR HOST COUNTRIES TO HAVE VCM BECAUSE IT ALLOWS INTERNATIONAL FINANCING TO SUPPORT OFFSETS AND HELP COUNTRIES MEET OUR GOALS." - CHEN



Projects that are only marginally commercially viable currently or are expensive, such as green hydrogen and CCUS, can be enabled via the sale of carbon credits or through the international compliance regime, such as the Article 6 mechanism established by the Paris Agreement.

# HYDROPOWER AND NATURAL GAS STILL IMPORTANT IN THE TRANSITION

**M**ature sources of energy like hydropower and natural gas are needed in the energy mix in the low-carbon future, said panellists at the fourth plenary session of the Sustainability & Renewable Energy Forum (SAREF 3.0) titled "New energy solutions".

Even though large hydropower is not thought of as a "new" energy solution, it is a competitive source of energy that has much untapped potential, said Nicolas Werkoff, head of hydropower development at TotalEnergies Renewables.

Hydropower dams can also become a solution to deal with water scarcity, which is likely to happen as climate change impacts worsen.

What makes hydropower most relevant for the future, however, is that it is dispatchable and flexible, Werkoff said. "Which means by creating reservoirs, even for run-off river [schemes], if you can create a pond that makes it possible to regulate your flow for even a few hours, you can create conditions to support the network."

He added that "by putting hydropower in your mix, it will give flexibility to your grid and make it possible to include intermittent energy [sources]".

Abang Arabi Abang Narudin, senior vice-president for corporate strategy at Petroleum Sarawak Bhd (Petros), meanwhile, made the case for natural gas to be the fuel of choice for the energy transition.

This is because it emits the lowest carbon emissions compared with other fossil fuels.

Sarawak has one of the largest natural gas reserves in Malaysia and exports it to countries in the region. Petros has also been entrusted with coming up with a strategy to increase the use of natural gas domestically to spur economic growth. This will be outlined in the Sarawak Gas Roadmap.

## FUNDING NEW ENERGY SOURCES

The most common strategies for the energy transition are the generation of green hydrogen; the development of carbon capture, utilisation and storage (CCUS); and the phase-out of coal-fired power plants.

These are expensive endeavours, especially for developing countries that may not have enough resources and know-how to develop them.

This is where carbon markets have a big role to play, said Dr Wei-nee Chen, head of carbon markets at Bursa Malaysia.

There are two types of carbon markets. The voluntary carbon market (VCM), which is available in Malaysia, is a voluntary system where sustainable project developers can generate credits and sell them to corporates that want to offset their emissions.

The compliance market, which is implemented in the European Union, for instance, is where companies that emit more emissions than their limit have to

pay to purchase more credits.

Chen said VCM can channel private financing into supporting projects that can help countries and companies achieve their net zero goals.

"It's a very effective mechanism for host countries to have VCM because it allows international financing to support offsets and help countries meet our [goals]. Malaysian carbon credits can be sold to foreign corporates and it will not jeopardise our own nationally determined contribution (NDC) achievements," said Chen.

Bursa ran its first auction of carbon credits through the Bursa Carbon Exchange (BCX) earlier this year. Chen noted that most of the successful bidders were from the financial sector. However, one of the biggest criticisms BCX received was that it only sold credits from outside Malaysia.

That is because Malaysia needs to kick-start its domestic carbon credit-generating projects and it is something that Bursa is promoting. For instance, it organised a roundtable on biogas in Kuching in conjunction with its conference on palm oil this month.

"Sarawak has 83 palm oil millers. This represents a significant opportunity for biogas. Sarawak has the largest forest area and this represents a wealth [of opportunities] where we can tap carbon credits from," she said.

Projects that are only marginally commercially viable currently or are expensive, such as green hydrogen and CCUS, can be enabled via the sale of carbon credits or through the international compliance regime, such as the Article 6 mechanism established by the Paris Agreement.

Article 6 allows countries to cooperate with each other to transfer carbon credits generated from projects that reduce emissions to help one or more countries meet their climate targets. Only one country can count the emissions reduction towards their climate target.

## DEVELOPING A CCUS ROADMAP

Petros has been entrusted by the state government to become the resource manager for CCUS, which the state views as a critical technology to combat climate change, said Abang Arabi.

"Embracing this responsibility, together with the state, [we] have developed a broad outline of our CCUS roadmap and the long-term aspiration for us is to make Sarawak the heartland for CCUS in the Asia-Pacific region; hence, it really contributes to the effort towards net zero and a more sustainable future."

CCUS can be used to enhance the supply of natural gas and create jobs for the state, he added.

"We recognise that CCUS is a major undertaking in terms of capital expenditure and the whole ecosystem and collaboration among major players are really the cornerstones of success. Petros is establishing partnerships with Petronas, Shell and other players in CCUS," he said. **E**



Sarawak Energy's booth provided information about renewable energy solutions

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The introduction of floating solar panels in hydropower plants is a good example of how different sources of renewable energy (RE) can be used together effectively, said panellists at the first plenary session of the Sustainability & Renewable Energy Forum (SAREF 3.0) titled “Asean Renewable Energy Development: Accelerating the Energy Transition”.

This is because hydropower provides a steady baseload to the grid, which addresses the problem posed by intermittent RE sources like wind and solar. The huge reservoir becomes a readily available site for floating solar panel farms. This avoids the need to develop large pieces of land for large-scale solar farms.

“There is a complementary [synergy] between solar and hydropower. Solar energy is mostly abundant during the daytime. If there is a combination of hydropower with floating solar, then when there is availability of solar energy, we can conserve water in our hydropower lake and water can be used as storage,” said Sarawak Energy group chief operating officer James Ung.

Sarawak Energy is in the midst of constructing a floating solar plant at its Batang Ai hydropower plant. “We will look at the solar [power] option in supporting hydropower. We will continue to make hydropower the baseload for Sarawak’s system and support it with gas, solar energy and other alternative energies we can see in the future.”

This was echoed by Solarvest CEO Davis Chong, who brought up successful projects in China and Vietnam that integrated floating or ground-mounted solar with hydropower plants. “It has been proven that the natural behaviour of both energy [sources] can complement each other. Hydropower will be stronger in the wet season and solar is stronger during the dry season. This is a good way to synergise both solutions [without adding] burden to the grid.”

Striking the right balance between RE sources to ensure energy affordability and security will be crucial in order to limit global warming to below 1.5°C. According to the International Renewable Energy Association, to meet the climate target, the share of RE in primary energy supplies has to grow from 16% in 2020 to 77% in 2050.

# IMPORTANT TO HAVE A MIX OF RENEWABLE ENERGY SOURCES



Hydropower can be stronger during the wet season, while solar power generation can be more dominant during dry seasons, said Chong. Solarvest had a booth showcasing its solutions at the forum.

There will have to be a net gain of 61% in RE share from hydropower, solar, wind and other RE sources, explained Ung. For Asean, the RE capacity mix will have to reach 57% by 2030 to stay on track.

The good news is that RE installation in Asean is picking up pace. Chong pointed out that the Philippines and Vietnam have introduced policies that are accelerating RE deployment, as has Malaysia through its recently released National Energy Transition Roadmap.

“It is interesting to combine solar with

hydropower to have easier penetration into the current grid infrastructure. We think with the current [integration] of solar and variable RE into the grid, we still have the capacity to inject probably up to 6GW of variable RE [before] we need to look at [grid] infrastructure upgrades to make it stronger,” said Chong.

Meanwhile, International Hydropower Association CEO Eddie Rich emphasised the need for large-scale hydropower to have a role in this low-carbon future.

“If we are going to have a decarbonised

produced now are from fossil fuels. This produces around one billion tonnes of carbon dioxide emissions a year.

“We set out to ensure we decarbonise the production of hydrogen and leverage the potential of RE for renewable hydrogen to decarbonise new industries, including fertilisers, shipping and steel production,” she said.

The Green Hydrogen Organisation works with governments, industry players and civil society organisations to develop green hydrogen policies and legislation and to ensure the energy source is produced sustainably, among other things.

The advantage of green hydrogen is that it can be stored and transported more easily than other sources of RE and turned into ammonia, which is a feedstock used by many industries.

“Green hydrogen, as an energy vector, does allow you to store energy and use it to back up the grid, for instance, or store it in the longer term ... You can transport green ammonia and use it as feedstock for fertiliser or to produce green steel,” said Marques.

The cost of producing green hydrogen will depend on the affordability of RE, she added. “Regions that are producing RE at a low cost are already well positioned [to do so].”

This can be encouraged by public funding, which is seen in the US and the European Union currently. It might be more difficult for emerging economies to do so, Marques added, which is where development financial institutions need to step in and de-risk green hydrogen projects.

On the other hand, mandates that require certain industries to replace grey hydrogen with green hydrogen, as seen in Europe and India, would be helpful.

To ensure the integration of green hydrogen can be done seamlessly, the relevant infrastructure will have to be in place as well, said Marques. “The government needs to play a key role there in reducing cost and risk.”

## BATTERY OR PUMPED STORAGE

Another solution to address the intermittency of some RE sources is by introducing storage systems, whether battery or pumped storage, which use excess RE to pump water uphill or to the upper river.

Both solutions are important to consider, said Chong. Although the integration of battery energy storage systems (BESS) is relatively slow in Malaysia currently, he believes that the pace will pick up once more RE is integrated into the grid.

“We really need to plan for the next five to 100 years of BESS integration. How are we going to finance it? What are the policies and regulations for industry players to come in and invest?” he asked rhetorically. ■



“THERE IS A COMPLEMENTARY [SYNERGY] BETWEEN SOLAR AND HYDROPOWER.” – UNG



Attendees of SAREF 3.0 listening to Petronas’ representative as she explained its carbon capture, utilisation and storage technology at its booth outside the conference hall

# ENABLING ASEAN GRID INTERCONNECTIVITY THROUGH COLLABORATION

Parallels have been drawn between Asean and the European Union (EU) when it comes to grid interconnectivity. While there are similarities between the strategies employed by the two regions, the main advantage the EU has is the presence of an independent party to drive the interconnectivity of the grid, said speakers at the second panel session of the Sustainability & Renewable Energy Forum (SAREF 3.0).

Datuk Abdul Razib Dawood, CEO of the Energy Commission Malaysia, explained that the EU, unlike Asean, is a political union with a parliament that can easily put forward bills to turn into law.

"Asean is a loosely associated association. We are voluntary [members] but because we have a common objective [for our] markets and economies, we have the Asean vision," said Abdul Razib.

"That [vision] will be the economic drive and we have to put forward a lot of good arguments on the economic benefit [of having grid interconnectivity]. A heavily integrated Asean doesn't mean that we compromise our security. We actually enhance it," he said during the panel session titled "Regional Energy Transition and Interconnections in Asean".

During a presentation preceding the panel session, Asean Centre for Energy executive director Dr Nuki Agya Utama shared that 18 potential interconnection projects had been identified as at May 2023. Currently, the region has 7.7GW of existing interconnections.

"If we're looking at the main key players in the region, it is important to have the [involvement] of governments. State-owned and government-owned [agencies] could work together to realise the Asean power grid, which is crucial at this stage," he said.

## BEING AN EXAMPLE TO THE REST OF ASEAN

Right now, there is a lot of interest and support for building the interconnected power grid within Asean. Nuki said that on Aug 25, Asean Centre for Energy signed a memorandum of understanding (MoU) with PT PLN, Tenaga Nasional Bhd and Sabah Electricity Sdn Bhd on the sidelines of the 41st Asean Ministers on Energy Meeting in Bali, Indonesia.

Ngiam Shih Chun, chief executive of the Energy Market Authority, Singapore, who was present at the meeting, said all the energy ministers recognised the importance of energy transition and how Asean member states can work closely to add value to the interconnections.

"We saw top-level commitment but at the same time also witnessed a host of MoUs that were signed by private companies in the presence of the ministers. It ranged from agreements between grid operators and different companies, and it really reflected the effort and single-minded goal to [make] energy transition a reality.



Launching of Malaysian Photovoltaic Industry Association's Sarawak chapter



THE [ASEAN VISION] WILL BE THE ECONOMIC DRIVE AND WE HAVE TO PUT FORWARD A LOT OF GOOD ARGUMENTS ON THE ECONOMIC BENEFIT [OF HAVING GRID INTERCONNECTIVITY]."

— ABDUL RAZIB

That [experience] in Bali really gave me the confidence [for this project]," he said.

Nuki said out of the 14 MoUs signed at the meeting, up to six were regarding the Asean power grid. "The commitment is there and it's coming from utilities, companies and governments, and even companies that just want to support the cause. Financial institutions seem to be interested too."

From standard operating procedures to pricing for power trading, Abdul Razib said a lot of knowledge and technical expertise were shared between Malaysia, Thailand and Singapore, considering that these three countries are already interconnected. Right now, the intention is for other countries in the region to replicate this model.

"We are going to share information with Brunei. We understand the textbook benefits of interconnection. It's a top-down effort that requires strong leadership and commitment."

## PUBLIC-PRIVATE PARTNERSHIP FOR FUNDING

However, not everything should be financed by the government or utility companies. Abdul Razib said the industry is open to private funding or, perhaps, a hybrid of public-private funding to taper the risks. He adds that it may be difficult to justify the returns in the beginning but he said "if you build it, people will come".

"I think we spent RM250 million on assets that lasted more than 20 years and

it broke even in about 10 years, so we are running at a profit because the asset is still running," he said.

"Right now, we need strong commercial agreements to address security, and we need large corporations to come in so we can help our neighbours [through power trading]. The economic [benefits] and return of investment is already justified."

The returns may also be in kind, Abdul Razib said, where Asean member countries can look to each other in times of emergency. "You never know, one day, you may encounter a problem where you may have a shortage [of power]. You don't want your country to live in darkness. We will have neighbours to support us."

Ngiam said Singapore has a wholesale electricity market, where the most efficient generation source produces electricity at every point in time. As with any transaction, with power trading, there is the willing seller (country that sells the power supply) and willing buyer (country that buys the power supply). Price discovery is another element, he said, that is key to the energy transition.

"We know how much it costs to produce electricity in Singapore, for instance, and how much it costs to produce renewable



energy (RE) somewhere else, say in Laos. If you factor in the cost of transporting the electron from Laos to Singapore, and it is still competitive in the Singapore electricity market, then you have found a far more efficient

way of generating electricity and bringing about cleaner energy sources into the system," he explained.

"Markets have to bring about the most efficient way of generating clean energy. It also brings about price discovery. So now we know what the value of clean energy is. It means that investors and bankers will know what the gap in the market is, whether this is bankable and finance-able. And this will bring about green investments across the entire region and more RE resources can be traded across borders."

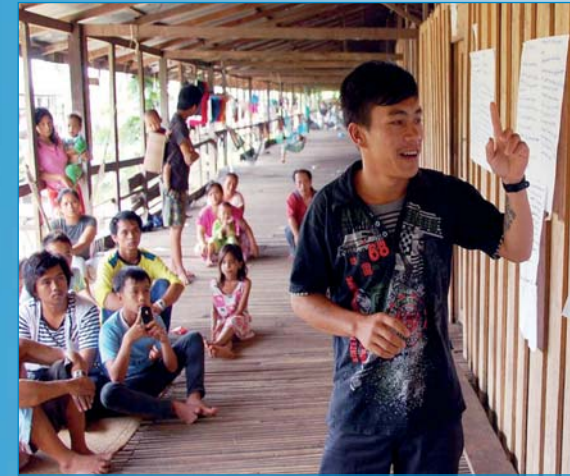
Dr Georgios Papaefthymiou, principal consultant for power system development and operations at Elia Grid International, added that Malaysia seems to be on the right path by starting the journey with willing and passionate parties.

"Please get the ones that are willing to start [to do it] because this also happened in Europe and they made it happen. Then, this made it possible to be copied in the next country. This is how you create this wave." ■

# EMPOWERING COMMUNITIES:

## A CLOSER LOOK AT SARAWAK ENERGY'S INITIATIVES

Sarawak Energy is steadfast in its commitment to enrich the communities surrounding the Bakun, Murum and Baleh areas through its diverse corporate social responsibility (CSR) programmes. These initiatives are focused on practical and tangible impacts, homing in on education, safety, skill development and entrepreneurship.



### MURUM: LITERACY AND CONSERVATION

The Murum Penan Literacy Programme exemplifies Sarawak Energy's dedication to educational enhancement. In partnership with the Society for the Advancement of Women and the Family Sarawak (SWAF), this programme has imparted basic reading, writing and arithmetic skills to over 300 adults.

Handicraft development in Murum has also been amplified through a partnership with Universiti Malaysia Sarawak (UNIMAS) that aims to enhance the commercial viability of traditional crafts and create sustainable livelihoods.

The Murum Tagang System at Sungai Lekasi — initiated by Sarawak Forestry Corporation (SFC), Sarawak Energy and the Agriculture Department — marks a significant step in community-based river conservation.



### BAKUN: SAFETY AND SKILL DEVELOPMENT

In Bakun, fire safety is paramount. Since Sarawak Energy's acquisition of Bakun Hydroelectric Plant (HEP) in 2017, collaborations with Persatuan Bomba Sukarela Sungai Asap and Bomba Bintulu zone have been integral. The Fire Safety Awareness and Prevention Programmes are tailored to equip the 15 longhouse communities in the Bakun Resettlement area with essential knowledge and tools.

Handicraft development is another focal area, with workshops organised in conjunction with the Sarawak Craft Council. These sessions are not only geared towards enhancing the quality and value of local crafts but also facilitating knowledge transfer.

In addition, the partnership with local associations is driving the Skill Workshop Programmes, which offer courses in baking, cooking, entrepreneurship and leadership for women. The Warisan Sape Belaga Programme underscores the commitment to cultural preservation and youth skill development.







## BALEH: YOUTH AND WOMEN EMPOWERMENT

In Boleh, the Youth Skills Training Programme has made a remarkable impact, equipping 765 youths with skills in diverse areas, including health and safety, entrepreneurship, and technical operations, since its inception in 2016.

The Boleh Women Entrepreneurship Programme, launched in 2018, has empowered 30 women, offering insights and support to facilitate their foray into business activities.



## A PLATFORM FOR GROWTH

During the Sustainability & Renewable Energy Forum (SAREF 3.0), artisans from Bakun, Murum and Boleh were given a unique opportunity to display their crafts and musical talents. The event was instrumental in bridging the gap between local artisans and potential markets, showcasing a rich tapestry of culture, skill and innovation. Sarawak Energy played a pivotal role in not only organising the event but also ensuring that artisans receive the support and exposure necessary to turn their skills into sustainable livelihoods.

The crafts and music displayed at SAREF 3.0 were a testament to the success of Sarawak Energy's various training and development programmes. The company facilitated workshops and training, helping artisans refine their skills and products. However, it was the direct exposure to markets and audiences at events like SAREF 3.0 that truly accelerated the journey from local crafting to broader commercial viability.

Post-SAREF 3.0, the artisans experienced enhanced recognition, and the event opened avenues for further collaborations and opportunities. Sarawak Energy remains committed to this trajectory of growth, continuously seeking ways to amplify the reach of these unique crafts and music. This dedication not only underscores the company's commitment to cultural preservation but also highlights its focus on economic empowerment, facilitating a journey where art, culture and commerce intertwine seamlessly.

## MOVING FORWARD

In the refined atmosphere of SAREF 3.0, Sarawak Energy's young executives emerged as ambassadors of a new corporate ethos, weaving an intricate tapestry of relationships that bridged corporate aspirations with community welfare. These professionals, armed with an interactive engagement strategy and an unwavering commitment to sustainability, crafted a legacy of collaboration and mutual growth. Every dialogue and workshop became a conduit for reciprocal learning, where modern sustainability paradigms danced gracefully with the rich cultural tapestries of the engaged communities.

The narrative of SAREF 3.0 is thus intricately embroidered with stories of an emerging class of corporate leaders from Sarawak Energy. These individuals embody a harmonious blend of profitability and societal enrichment, illustrating that the pursuit of sustainability and the celebration of cultural richness are not mutually exclusive but can be the twin pillars upon which a prosperous future is built. Each interaction, discussion and collaboration sown during this event promises to blossom into enduring innovations and partnerships, heralding a future where corporate and community welfare flourish side by side.

Before the outbreak of Covid-19, European government officials visited their counterparts in Thailand to ask whether the country had products powered by 100% renewable energy (RE) ready for export, but the Southeast Asian nation was not ready, said Than-yaporn Krichtitayawuth, executive director of Global Compact Network Thailand, at the third plenary session of the Sustainability & Renewable Energy Forum (SAREF 3.0).

The plenary session, presented by Alliance Bank Malaysia Bhd, centred on the topic of climate action.

After the pandemic, private sector players from the European Union, the US, Japan and China came knocking on their door to ask the same question. Krichtitayawuth used this to illustrate how the demand for low-carbon and sustainable products had increased significantly in recent years, spurring local companies to take action.

“Unilever said that by 2030 it has to be [powered by] 100% RE in its own operations. If you are producing for Unilever, no matter if it is food or consumable products, [you have to change] how you source your energy in your factory. The landscape [is changing] faster,” she pointed out.

“After Covid-19, many companies are moving ahead of the game. For example, McDonald’s started to pledge carbon neutrality and is sourcing rice and the sesame topping for its burgers to be low-carbon.”

On the other hand, this poses an opportunity for companies and countries that are ahead of the game to gain market share. Sharmel Ali, head of group ESG at ST Telemedia Global Data Centres, said the company had a commitment to be carbon neutral by 2030. To achieve this goal, it has been very proactive in utilising RE sources in its operations around the world.

“For example, our operations in the UK utilise 100% RE, which eradicate our Scope 2 footprint. In India, we are trying on a yearly basis to acquire power purchase agreements in addition to renewable energy certificates,” he said.

“In this part of the world, the availability of various instruments [for acquiring RE] obviously has room for improvement but we are not limiting ourselves in terms of the efforts we are making towards [utilising] RE.”

### TRANSFORMING THE SUPPLY CHAIN

To encourage companies to produce more low-carbon products and services, it is essential to work with the supply chain, particularly small and medium enterprises (SMEs).

“A supplier in Malaysia serves a corporate. If it improves and it does climate action and carbon emissions reduction, it helps the corporate [too and] this becomes a multilateral kind of impact,” said Roy Heong, head of strategic partnerships and innovation at Alliance Bank.

“The SMEs that we work with also supply to Asean,” he added, noting that this multiplies the impact of climate action along the value chain and across the region.

It is important to help SMEs recognise which green projects are financeable. This can be done through advocacy and the raising of awareness. For Heong, this also means helping companies understand why going green is something that can help them become more competitive and profitable.

Alliance Bank developed a climate assessment tool with the UN Global Compact Network Malaysia & Brunei to provide corporations with a climate action road map, he said. “Corporates are able to assess their suppliers and based on their sustainability maturity or improvement of

# DEMAND FOR CLIMATE ACTION IS ON THE RISE



From left: Moderator Faroze Nadar, executive director at UN Global Compact Network Malaysia & Brunei, Heong, Krichtitayawuth, Sharmel and Lim



A SUPPLIER IN MALAYSIA SERVES A CORPORATE. IF IT IMPROVES AND IT DOES CLIMATE ACTION AND CARBON EMISSIONS REDUCTION, IT HELPS THE CORPORATE [TOO AND] THIS BECOMES A MULTILATERAL KIND OF IMPACT.” – HEONG



[their sustainability profile], we actually taper down the interest rates.”

Eric Lim, chief sustainability officer at UOB Ltd, explained that when banks offer financing, they look at whether the technology or business model is mature and commercially viable, and if the operator or regulatory environment is conducive to ensuring the performance of the project or company can be properly executed. These are important points to keep in mind when companies are seeking green financing.

He observed that countries in the region that are making the most progress in sustainability are those with direction from the top. Large corporations are also able to pull their supply chains along with them when they transform.

“One of the best practices we’ve tried to do is identify who the champions are in each sector and work closely with them to [provide] support and their value chain,” said Lim.

Banks are playing their role in promoting the low-carbon transition, especially the big banks that have committed to net zero emissions, he said. Some may be sceptical about these goals, but “having gone through

that exercise, I can tell you it fundamentally changes how the banking industry starts to interact with the real economy, government and regulators. The moment a bank sets out a net zero target, it is on the hook”, he added.

“We become the middleman to work with our regulators to say if we want this segment to move faster and this is what we are seeing.”

### WORKING WITH THE GOVERNMENT

Without regulations, it can be difficult to push the private sector to change. That’s why Krichtitayawuth has been engaging with the Thai government to set up a council to navigate the low-carbon transition. Thailand produces a lot of agricultural waste and most of its population operates businesses in the food, agriculture and tourism sectors, she explained.

“We requested [information on] how

the government can support the facility to turn waste into energy. Not all agricultural waste is clean and good to be [an] energy [source], so we need to link with the central bank to announce the green taxonomy,” said Krichtitayawuth.

“After that, we cascade to the SMEs on how the government and bankers support projects. We need to incubate micro enterprises and SMEs to learn how to do bankable projects.”

She also proposed to the government that it organise campaigns that promote behavioural change and create local demand for low-carbon products and services. This year, the government ran awareness campaigns to encourage households to reduce their consumption of electricity.

“Next year, we would like to run a campaign to have the young generation think about what behaviours we should change,” she said. **E**



Alliance Bank is committed to helping businesses transition to more sustainable business practices

# INCREASED INTEREST IN GREEN FINANCING



(From left) Spencer, Salmah, Wei Wei and Chang

Green assets and conventional assets should be viewed with the same lens to assess their risks, said United Overseas Bank (Malaysia) (UOB) executive director and CEO Ng Wei Wei. Their viability does not increase just because they are green.

Speaking during a panel session titled “Looking Beyond the Hype: Is ESG Financing Really Viable?” at the Sustainability & Renewable Energy Forum (SAREF 3.0), she said that just because an asset is green it does not mean it has no credit risks or poor performance risk.

“What is important is that the same credit underwriting due diligence standard has to be applied, whether one is looking at green assets or conventional assets,” Wei Weisaid in response to a question about the possibility of greenwashing in environmental, social and governance (ESG) financing and whether renewable projects are commercially viable.

For projects that require a huge amount of investment, having the government’s support or commitment from an anchor investor could make a difference. “Having a credible off-taker is important, as it definitely enhances the credit warranty of the project we’re looking at,” Wei Wei said.

Some projects that are high-risk and capital-intensive would need more than commercial funding, she said. “We really do need a blended financing approach, where the public and private sectors come together to utilise and deploy development capital to fund high-impact projects.”

Patrick Chang, Principal Asset Management Bhd chief investment officer for Malaysia and Asean, echoed Wei Wei’s views.

When considering a project, banks pay attention to the construction and operational risks that come with it. Having supportive government policy is a good indicator that could increase banks’ confidence in the project, said Chang.

While citing the Sarawak government’s support for renewable energy projects as an example, he said that ultimately, banks and investors have to do their homework and understand what they are investing in.

“At the end of the day, the sponsorship role of the state government, as well as the

federal government itself [is important], and policymaking from the Securities Commission [Malaysia] and [other regulators] are all embedded in the ecosystem to help support viable investments,” he said.

## INCREASE IN GREEN FINANCING BY GOVERNMENT, REGULATORS

The moderator of the session, Spencer Ng, vice-president — senior credit officer in Moody’s public, project and infrastructure finance team, said that over the past few years, governments, regulators, financiers and companies have increasingly placed a focus on sustainability principles. This is seen by the increase in the number of countries that have committed themselves to net zero targets, whether in the form of legislation, policy or political pledge.

“Between 2018 and 2021, we saw the number of countries that have pledged to the net zero target increasing from the single digit to close to 80 now. It is fair to say that it is now more than the norm rather than an exception for a country to have a net zero target,” Spencer said.

“That’s really encouraging because it demonstrates the commitment and dedication of governments as well as organisations to sustainability targets as well as the willingness to take action to set targets.”

Now that the net zero targets have been set, the next important step is to come up with the financing strategy to make sure necessary investments are made to achieve the goals set, said Spencer. He added that, according to recently published Moody’s research on sustainable bond issuer trends in the first half of 2023, global data showed that between 2018 and 2021, there was an increase of five times in the issuance of sustainable bonds in the market.

“Looking at this level of financing activity, it’s very clear that the sustainability

principle is already deeply embedded in what we do. What is also encouraging is that green bonds remain the dominant type that is issued and, from a sustainability standpoint, we think social bonds and sustainability-linked bonds are becoming more prominent,” he said.

“Transitional bonds are also becoming very popular, and while we saw a little dip in issuers’ activity in 2022, the first half of 2023 [performed] quite nicely and we believe that the issuance level in 2023 will get quite close to US\$1 trillion. It’s a clear indication that sustainability bonds are now becoming more widely accepted by issuers as well as the investment community.”

Asia-Pacific accounts for 20% of global sustainable bonds issued, said Spencer, adding that the region’s growth trend is similar to that globally, with the largest issuers in the region being Japan, South Korea and China.

Securities Commission Malaysia’s (SC) executive director for market development Salmah Bee Mohd Mydin said while the commission is happy to see increased investment in ESG instruments in Malaysia, what they want to see is more intention translating into action so that the landscape will see a lot more issuances of transition bonds, green bonds and sukuk in the country.

“We’ve been working on it about 10 years ago, where the SC introduced the SRI sukuk framework in 2014 and it led to the first sukuk issuance for the construction of a solar power plant [here in Borneo] in 2017 for about RM250 million.

“In total, the outstanding sukuk for the green sector is at about RM18 billion and it is very small as compared to the almost RM2 trillion market in Malaysia, but I think this is where the growth is,” she said.

## ESG RESHAPING INVESTMENT AND BANKING INDUSTRIES

Environmental, social and governance (ESG) principles have caused banks to rethink their purpose as an organisation and how they contribute to the country

and society at large, said UOB’s Wei Wei. She believes banks have a role to play because it ensures that capital is allocated to financing that helps the transition towards net zero.

“As the CEO of the bank, I have to ensure we walk the talk. So, we have achieved carbon neutrality for our operations since 2021 and announced our net zero commitment across six sectors last year,” she said.

“For banks, managing our Scope 3 financing emissions is the most challenging, and this is where we spend most of our time and efforts, to put in key building blocks that can accelerate ESG adoption.”

Scope 3 emissions refer to all other indirect emissions that occur in the upstream and downstream activities of an organisation.

While it is encouraging to see Malaysia’s sustainable financing portfolio grow six times, a lot still needs to be done to educate and help the business community, especially small and medium enterprises, make the transition.

“From my own observation, what has worked well for our journey so far is, first, we have developed sustainable financing frameworks that can cater for different sectors and purposes. This is useful for our customers because it makes the processes simpler and easier for businesses to do what they need to do,” said Wei Wei.

“Second, our frameworks are aligned with UNSDGs (United Nations Sustainable Development Goals), which have been verified by second-party opinion providers to ensure they meet the highest standards.”

Principal’s Chang said the firm’s ESG journey is more philosophical and focused on purposeful investing frameworks. “I’m a big believer that the ESG journey is not just about investments, but also making a big meaningful impact on the social and governance structure of this country as well as in Southeast Asia.

“We’ve only focused on the energy transition part, which is the E, and people forget about the S and G. We have a lot of focus on governance and I can honestly tell you in investments itself, you can forget about ESG if you forget about G because it’s more important than anything else.

“Engagement [with corporates] is a very important component by virtue because we become parties to that change, especially when it comes to energy transition or social change. When we partner with corporations, we are in the game together. We need to engage with them and make sure they are aligned with our journey of proximal investments. And by doing that, we continue to improve.”



LOW YEN VEING/THE EDGE



“WHAT IS IMPORTANT IS THAT THE SAME CREDIT UNDERWRITING DUE DILIGENCE STANDARD HAS TO BE APPLIED, WHETHER ONE IS LOOKING AT GREEN ASSETS OR CONVENTIONAL ASSETS.” — WEI WEI

# IMPORTANT TO KEEP TALENTS RELEVANT IN THE TRANSITION

In Estonia, the oil and gas sector is located mostly in the eastern part of the country, while the new energy sectors of wind and solar are spread across the country.

So, when Estonia began accelerating its energy transition, it had to make sure workers in the traditional O&G sector would not be left behind, said Yngve Rosenblad, chief analyst of the Oska Programme at the Estonian Qualifications Authority, during the Sustainability & Renewable Energy Forum (SAREF 3.0).

“We have a lot of funding from the European Union to transform the local economy towards the new sectors, maybe to produce wind turbines, have more electrical equipment production and new chemical industries to introduce new jobs. But this also requires a lot of reskilling and upskilling, so we are doing a lot of cooperation with local universities and schools,” she said.

Rosenblad was speaking at the sixth plenary session titled “Talent development for the energy transition”, where she shared details of Estonia’s Oska system — a labour and skills forecasting system that the country has been running for nine years. It found that going forward, in almost every European country, the fastest-growing sector in job creation is the energy sector.

This is even as automation and digitalisation have resulted in a leaner workforce in the sector. “They need [a smaller] workforce but a much more highly skilled one. It’s important to pay attention to the skills,” she said.

Based on these results, Rosenblad’s organisation has been working with Estonia’s energy sector to prepare the workforce for the transition.

Oska provides a forecast of up to a decade based on qualitative and quantitative methods on what skills and jobs are needed in the future. These results are used by policymakers, educational institutions, career counsellors and youth to make relevant decisions in Estonia.

“As we are moving towards a sustainable economy, we have made a special study on green and digital skills, sector by sector,” said Rosenblad.

“We go into distinct skills. Which skills are most needed in what sectors, and how can we teach these skills? We want to transform our forecasting system to be skills-based and not occupation-based.”

Oska is very relevant now that industries are changing rapidly and new skills are needed to grow emerging industries. This is a challenge observed around the world, as new talents are in demand and upskilling or reskilling is needed to ensure

the rest of the workforce is not left behind.

Having agility and adaptability is critical at this time, observed Akmal Niza Ahmad, senior general manager of global human resources partners upstream at Petroliaam Nasional Bhd (Petronas). “The world is changing as we speak. If we’re not able to highly adapt and pivot in all the things that we are doing, we may not be relevant,” she said.

The workforce these days place an importance on purpose and value, so companies have to acknowledge that, she added.

Lifelong learning is also needed. It is something that Petronas embeds in its leadership as well, said Akmal.

“Now, in the new world of sustainability, we focus on everyone in Petronas, whether you are newly appointed or you have been in the organisation in the leadership role [for a while]. We start putting our leaders through these programmes so they are aware and when they make business decisions, it’s about the livelihood of others and not just about the company.”

## PROVIDING COURSES ON THE LATEST TECHNOLOGIES

The Centre for Technology Excellence Sarawak (Centexs) is offering courses in the digital and green economy in collaboration with industry partners to prepare the workforce for new job opportunities in these sectors.

Tan Sri Mohamad Morshidi Abdul Ghani, chairman of Centexs and board member of Sarawak Energy, said the government, industry and businesses have to collaborate to focus on skills training programmes that meet the needs of the energy transition.

“The ongoing energy transition and decarbonisation efforts are poised to bring prolonged shifts in sectors of employment, including massive new opportunities for job creation in clean energy. But at the same time, the traditional energy sector will experience declining job opportunities,” he said.

There are seven focus areas in its training programmes, with green energy being one of them. Huawei and Solarvest Holdings Bhd are partners for a number of the programmes. “We believe in the next five years, 1,000 students will be trained in this area of green energy. So, we are ready,” he added.

Centexs has also developed test beds for research and development and application. “The test bed provides everyone, especially the industries, with a better understanding of the challenges and solutions required in deploying solar and battery energy storage in green hydrogen,” he said.

Currently, it has a solar test bed with 780 solar panels installed on a rooftop capable of generating 425kWp, and it is integrated with a battery storage system. It also has a hydrogen test bed that can be powered by an onsite solar power system. The green hydrogen will be used to support a 5G telecommunications system.



## WHO SHOULD BE LEARNING?

Centexs’ courses are targeted at everyone, from students and engineers to dropouts, said Mohamad Morshidi. But they have to be interested in the subject. This is something brought up by other speakers as well.

Rosenblad cited data showing that those who take up lifelong learning are those who probably don’t need it because they already have experience in higher education. “Those who need upskilling don’t have access to the training. Maybe they don’t have the motivation. We have to capture every target group differently. It’s a question of service design,” she said.

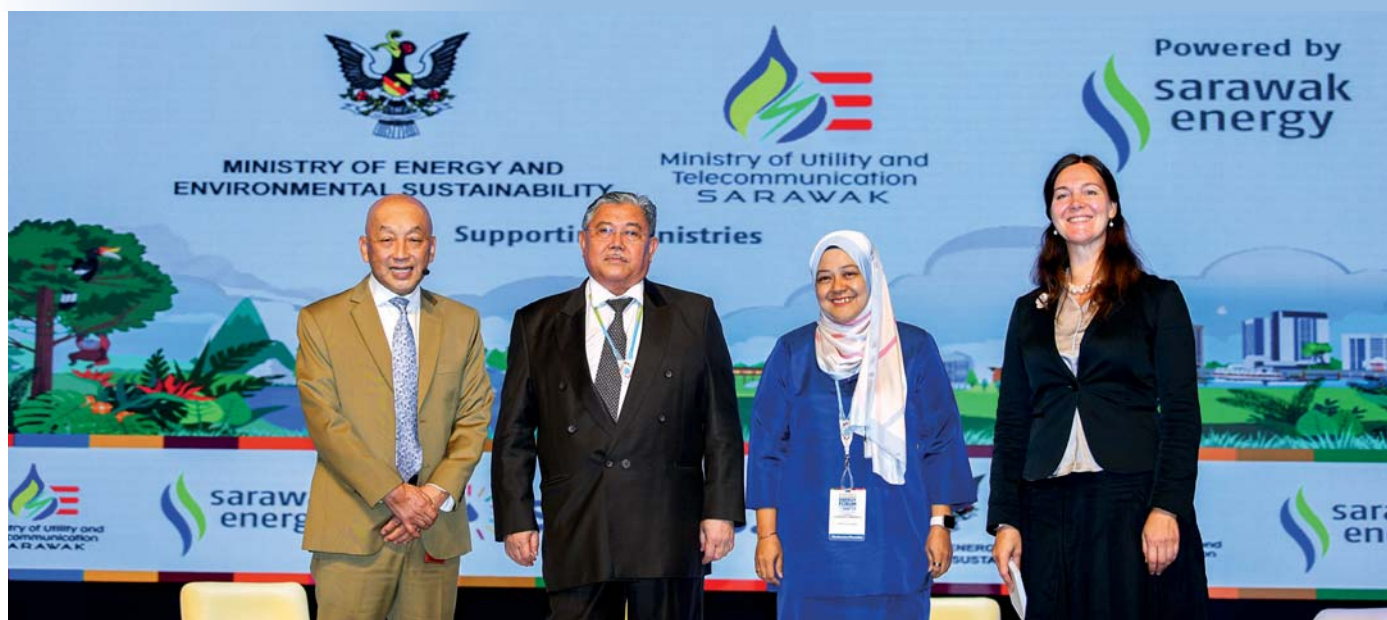
For instance, workers in the O&G sector may be older or speak a different language, so the learning options have to be catered for them.

“We need to learn more and more, and we have less and less time, and less and less attention. If you talk about adult learners, upskilling and reskilling have to really be bite-sized, granular and micro-credential based,” she added.

“Adult learners don’t have time to go back to university for a full-time course. It would be good if it can be work-based or a mix of work and school.” ■



WE NEED TO LEARN MORE AND MORE, AND WE HAVE LESS AND LESS TIME, AND LESS AND LESS ATTENTION. IF YOU TALK ABOUT ADULT LEARNERS, UPSKILLING AND RESKILLING HAVE TO REALLY BE BITE-SIZED, GRANULAR AND MICRO-CREDENTIAL BASED.” – ROSENBLAD



From left: Moderator Ismail Said, vice-president of human capital and relations at Petroleum Sarawak Bhd, Mohamad Morshidi, Akmal and Rosenblad



Gentari's booth at SAREF 3.0 showcased its vision and targets

# CRUCIAL TO PROPERLY EXECUTE NETR

The release of Phase Two of the National Energy Transition Roadmap (NETR) in late August signals that now is the time to focus on the execution of the targets, said Shah Yang Razalli, deputy CEO of Gentari and CEO of Green Mobility Sdn Bhd.

A strong collaboration with the industry is needed to ensure that implementation of the roadmap is on track, measure where the industry is and compare the progress against the NETR's targets.

"[The industry needs to] find the actual gaps and intervene. The NETR also addresses the need to have effective governance in the form of the National Committee on Energy Transition, which reports to the National Energy Council, and they will constantly track the implementation and unlock any intervention gaps that they see along the way. Hopefully, we will be on the right track," said Shah Yang, speaking at the Sustainable and Renewable Energy Forum (SAREF 3.0) during the eighth plenary session titled "Green mobility powered by renewables". The session was presented by Gentari.

Shah Yang said the NETR also touched on having a robust and accessible charging infrastructure system. A "whole-of-nation approach" is needed for this goal to be realised. This means collaboration among all stakeholders is crucial to building a vibrant electric vehicle (EV) ecosystem.

"The NETR calls for 10,000 charging points by 2025. We're two years away from that and we have about 1,000 charging points in the country. We need to multiply that by 10 times in the space of two years and we need to collaborate to [reach the targets]," he said.

"When we think about the various entities that come in, they don't just come in with capital, but they also come with various value propositions and business models that will help make the charge point oper-

ator's business a viable one. One example is Tesla, which is coming in with their own supercharger network that complements well with vehicle sales."

He commended Tenaga Nasional Bhd and Sarawak Energy Bhd (SEB) for putting in fast-charging infrastructure so that more private sector players can come in.

"All these are very good because they help augment the value creation that comes out of providing a charge point service to users. And this will allow the city to be sustainable in the long run and achieve the [aspiration to have] 10,000 charging points."

Echoing Shah Yang's sentiments is Sashi Ambi, head of corporate communications



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— SHAH YANG

and sustainability at BMW Group Malaysia. He said that in the past, the challenge was range anxiety but, today, because EVs are common on the roads, the challenge is charging anxiety.

"People need to visually see [the charging station] when, in fact, you don't need to have a charger everywhere or anywhere, in most places. It's only when it's needed," said Sashi.

Huzaimi Nor Omar, chief operating officer of Green EV Charge and a contributor to the Low Carbon Mobility Blueprint (LCMB), said the government's policies have helped with the acceptance of EVs

among Malaysians since the blueprint was launched in 2021.

EVs had a reputation for being high-end vehicles that most Malaysians could not afford. The LCMB changed the perception of EVs and strengthened the charging infrastructure landscape, he said.

"Since the LCMB announcement in 2021, incentives had started pouring in by 2022, which was a good start. A year later, during Budget 2023, the incentives were better and the people's confidence in EVs had increased," said Huzaimi.

"One of the incentives is free road tax for EV users until the end of 2025 ... the

Ministry of Transport came out to say it was reviewing it and promised that the road tax would be cheaper than that of an internal combustion engine vehicle. So, things are happening on the ground."

## SARAWAK LEADING THE GREEN ENERGY JOURNEY

In Sarawak, Datuk Alice Jawan Empaling, permanent secretary at the Ministry of Transport Sarawak, said the state's main focus is on hydrogen-powered transport. She said the state has one hydrogen plant and is venturing into hydrogen fuel cells for autonomous rail transit in Kuching between 2025 and 2027.

"Currently, our hydrogen production is only about 150kg a day and, by 2024, we'll be doing about 2,000kg a day. By 2025, we are looking at 5,000kg a day, so this is a big thing over the next two to three years that SEB has to seriously look into," Alice said.

The goal is to have an integrated transport system that is accessible, inclusive and sustainable and that can become a catalyst for economic growth to ensure a better quality of life for the people, said Empaling. The transformation in the transport sector is being executed by using technology to reduce carbon emissions.

"We are currently developing the Sarawak Integrated Transport Master Plan 2050 to create a transport system that is safe, reliable, affordable and energy-efficient. This is also in line with our post-Covid development strategy 2030, which focuses on land, river and aviation transport planning throughout Sarawak."

Empaling said the state has also piloted the production of sustainable aviation fuel using microalgae. "It is one of the world's first successful productions of sustainable aviation fuel from algae, demonstrating Sarawak's potential in generating reliable and safe sustainable aviation fuel for commercial aviation."

Rahimah Ali, head of group sustainability at Malaysia Aviation Group, said aviation is a tough industry to tackle decarbonisation as its Scope 1 emissions are huge. Nevertheless, the industry is on a decarbonisation journey, specifically looking into sustainable aviation fuel production, along with Petronas.

"We very much rely on feedstock and, in our first two years, we used cooking

oil and have done 20 sustainable flights across our group, bringing awareness of the safety of sustainable aviation fuel," she said.

Rahimah said the group is also working closely with Malaysia Airports Holdings Bhd on its electrification journey, which involves ground equipment. But it still remains a challenge. "A few companies have started this in Europe. We can do up to 50 narrowbody [jets] via electrification and no diesel. It's easy maintenance and requires about three hours of charging, and this is something that we would like to take forward." **E**

# MAKE THE ENERGY SECTOR ATTRACTIVE AND RELEVANT

The message that Asean needs an interconnected electricity grid to accelerate the adoption of renewable energy (RE) was emphasised in the Energy Leaders Forum at the Sustainability & Renewable Energy Forum (SAREF 3.0). Furthermore, the speakers, who are leaders of energy companies and government officials, gave suggestions on how the new energy sector could be modernised to attract young talent to the industry.

These solutions are needed in order to meet the goal of limiting global warming to below 1.5°C, said Datuk Sharbini Suhaili, group CEO of Sarawak Energy Bhd. He pointed to the United Nations' estimate that with the current climate strategies and targets, the world is still heading towards a 2.8°C warming trajectory.

"The world is facing a critical decade in terms of climate action. We need to do more and work faster. That's why the key thing to me is collaboration and cooperation between various member states. If we talk about Southeast Asia, we need to make sure the member states need to harness the renewable energy resources available to them and share these resources across the region," said Sharbini.

The different member states of Asean are at varying levels of development and

thus, have different needs. The countries also have different geographies and types of natural resources. Consequently, the demand centre and supply of RE are spread across the region.

"Having the connectivity, be it through pipelines, cables or shipping, can really help advance the pace at which the region can move towards [a low-carbon transition]," said Wong Kim Yin, group president and CEO of Sembcorp Industries, which is headquartered in Singapore.

Matching the supply and demand for RE sources could open up new markets and allow the adoption of new technologies. Datuk Hamzah Hussin, CEO of Sustainable Energy Development Authority Malaysia, shared that a challenge of generating energy from biomass is in getting sufficient biomass.

"Why? Most producers prefer to export biomass waste to other countries because they offer a better tariff. With the decision to allow exports to other countries, it could [make our energy that is produced using biomass waste] more competitive," said Hamzah.

By sharing resources, Asean as a whole will benefit.

"We have to change our mindset. We need to love, trust and work together with

our neighbours, not only because it benefits us but because it makes Asean prosper. Only together can we achieve a good Asean sustainable future for all of us," said Datuk Dr Mohd Yusoff Sulaiman, president and CEO of Malaysian Industry-Government Group for High Technology.

Sarawak Energy hopes to push forward this agenda by forming connections with neighbouring countries and sharing its RE resources.

"Today, if you want to talk about the big scheme of power trading across Asean, we need to get started on bilateral discussions and interconnections. That will probably be the seed that will grow the trans-Asean power grid," said Sharbini.

Wong, whose company is collaborating with Sarawak Energy to export hydropower to Singapore, said this initiative will address the shortage of RE in the city state.

"Let's start with bilateral links. Let's not always be so ambitious and want something perfect on day one and have everyone connected," he said, suggesting that links could first be started between countries. "All these bilateral links will eventually

form part of a much wider network. That will go a long way."

There should not just be physical links, Wong added. Countries should invest in each other's assets and share knowledge. "Physical, capital links and know-how [are important to be shared]. The last one would be talent. In the space of RE, one of the key things Sembcorp has encountered as a constraint is we are never able to get enough good talent," said Wong.

## GETTING TALENT INTO THE ENERGY SECTOR

A challenge that the energy sector is facing is a potential shortage of talent, as many youth are not going into the fields of science, technology, engineering and mathematics. Some of them may also see the oil and gas sector as old and traditional, said Mohd Yusoff.

"The most important [factor that will transform] the energy sector will be the people. We have to encourage universities and research institutions to be more attractive for young people to come and learn their trade and work inside these organisations."

Technologies like drones and artificial intelligence are increasingly being used in the energy sector. This is where future talent could contribute, and it is the direction that the sector is going towards. But it is not just about technology.

"One of the main talents that I'm looking for is an energy economist. We are lacking that. After all, with the energy transition, it's not only about protecting the environment. It's about creating a sustainable economic [environment] and social stability," said Hamzah.

## POLICIES AND FINANCING NEEDED

To realise these goals, clear policies and sufficient financing are needed. There need to be incentives for funds to support RE projects, and policies to encourage companies and institutions to invest in new technologies.

For instance, to promote sustainable aviation fuel (SAF), "the only way to do it is if the governments of certain countries say, 'You can only fly to my country if your plane has at least 15% SAF,'" said Sharbini.

Compared to conventional jet fuel, SAF is at least three to four times more expensive, "so no airline will want to use it if they have to compete with each other".

But if all companies are required to use SAF due to government regulations, it would make economic sense for airlines to invest in it.

Policies must also support projects that are considered risky by private investors. In such instances, governments could create regulatory environments that reduce the risks and provide assurance to these investors.

"Maybe Asean can come together and have a multilateral agency that [invests in] energy transition, where with the support of the Asean framework and governments, there is assurance that such risks will be dealt with rationally," said Wong. "I think that will accelerate the deployment of capital into energy transition for the region."

This is echoed by Hamzah. "I've been proposing for our country to have a special agency under the government that will finance RE projects in the country." **E**



WE NEED TO GET STARTED ON BILATERAL DISCUSSIONS AND INTERCONNECTIONS. THAT WILL PROBABLY BE THE SEED THAT WILL GROW THE TRANS-ASEAN POWER GRID." – SHARBINI



From left: Moderator Sharanjit Leyl, Sharbini, Wong, Hamzah and Mohd Yusoff

# SUSTAINABILITY & RENEWABLE ENERGY FORUM | SAREF 3.0



TOWARDS A BETTER FUTURE ... Sarawak Premier Tan Sri Abang Johari Tun Openg (centre) launching the third edition of Sarawak Energy's flagship event, Sustainability & Renewable Energy Forum (Saref 3.0).



Scenes during SAREF 3.0

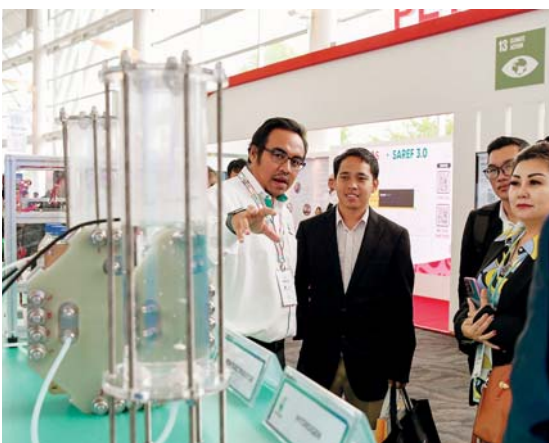
Guest singer Datuk Zainal Abidin Mohamed



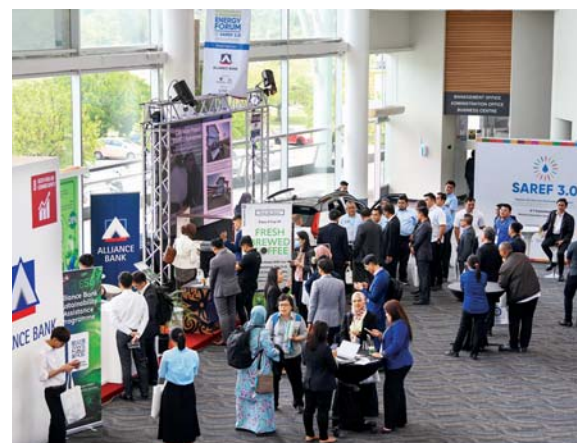
In the exhibition hall



Sarawak Energy's booth



More happenings in the exhibition hall



A community market stall



**Batang Ai  
Hydroelectric Plant**

108MW  
installed capacity

**Murum  
Hydroelectric Plant**

944MW  
installed capacity

2,400MW  
installed capacity

**Bakun  
Hydroelectric Plant**



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Sarawak Energy is Malaysia's largest renewable energy provider and developer, with a vision to achieve sustainable growth and prosperity for Sarawak by meeting the region's needs for reliable and renewable energy. The energy mix in Sarawak predominantly comprises renewable hydropower, supplemented by indigenous gas and coal to enhance energy security and diversity. Our large hydro plants have a total installed capacity of 3,452MW. In addition to these, Sarawak Energy has also developed small hydropower plants that support off-grid communities and facilitate rural electrification in the many remote villages of Sarawak.

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