

# Sustainable Growth Towards Becoming a Regional Renewable Energy Powerhouse

ANNUAL AND SUSTAINABILITY REPORT 2022

# Inside This Report

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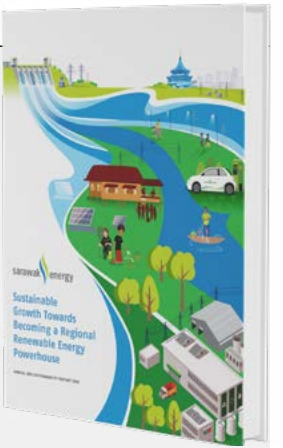
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## Cover Rationale

Building on more than a century of powering Sarawak, the Company made great strides in 2022 as Malaysia's largest renewable energy developer and provider.

In the Sarawak Energy Excellence (SEE) 2022 Strategic Roadmap's final year, we consolidated and protected value while capturing growth as well as ensuring reliable and affordable electricity supply. These efforts were paired with our continued pursuit for a more sustainable energy future for the region.

In line with Sarawak's Post COVID-19 Development Strategy 2030, we are ready to embark on the next phase of our growth journey to become a regional renewable energy powerhouse.



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# About This Report

Sarawak Energy's current success is fuelled by robust corporate strategies and the trust of shareholders, stakeholders, and customers. As part of our commitment to good corporate governance, we continue to voluntarily provide updates on our operational, financial, and sustainable performance through annual reports, even though non-public-listed companies are not required to do so.

The Sarawak Energy Annual and Sustainability Report (ASR) provides a holistic and comprehensive overview of the Company's activities and performance for the year 2022.

In 2022, Sarawak Energy remained resilient in the face of difficulties and continued to grow despite the constantly changing business landscape, as demonstrated through the disclosures in our ASR 2022.

## Reporting Standards

Guided by local and global best practices in corporate statutory reporting, with the Bursa Malaysia Securities Berhad Listing Requirements as well as the Malaysian Code on Corporate Governance serving as our primary guidelines, our annual report has also complied with the standards set by the Australasian Reporting Awards (ARA).

For further assurance to our stakeholders, we adopt the GRI Standards for our sustainability reporting. For the complete list of Sarawak

Energy's GRI disclosures and relevant references, you may refer to page 233-239 of this report. Since 2019, our sustainability report has included recommendations from the Task Force on Climate-related Financial Disclosures (TCFD) to provide consistent, comparable, reliable, clear, and efficient climate-related financial disclosures to help our investors and stakeholders make informed decisions.

Sarawak Energy will continue to improve the quality of our reporting while also growing the scope of our disclosures.

## Reporting Scope and Boundary

The ASR 2022 consists of a comprehensive overview of the Company's activities and performance for the period from 1 January to 31 December 2022. This includes information on our leadership, corporate strategies, commitments, corporate governance and performance report card, as well as sustainability approaches, responsibilities and milestones.

This report also highlights the accomplishments, challenges, risks, and opportunities during the year, as well as our plans, goals and objectives for the coming year, so that our stakeholders have a better understanding of our next steps.

The ASR 2022 was developed in response to the feedback received from Sarawak

Energy's stakeholders and is based on the assessment of our operations in light of the changes occurring in the economy, as well as the domestic and global energy industry.

## Assessment of Material Matters

Our Materiality Issues and Materiality Matrix presented on page 101 of this report are based on the assessment of matters that are of the utmost importance to Sarawak Energy and our stakeholders.

## Assurance

The Sarawak Energy ASR 2022 has been assured by an independent third party. The assurance statement can be found on page 226-232 of this report.

## Feedback

We welcome feedback, comments and enquiries via the following:



**Corporate-related enquiries:**  
[corpcomm@sarawakenergy.com](mailto:corpcomm@sarawakenergy.com)

**Sustainability-related enquiries:**  
[sustainability@sarawakenergy.com](mailto:sustainability@sarawakenergy.com)

## Statement of the Board of Directors of Sarawak Energy Berhad

The Board is pleased to present the Sarawak Energy Annual and Sustainability Report 2022 with the confidence that it is a fair representation of Sarawak Energy's performance throughout 2022.

Approved by the Board of Directors and signed on behalf of the Board.

**Datuk Amar Abdul Hamed Sepawi**  
Chairman

**Datu Haji Sharbini Suhaili**  
Group Chief Executive Officer

**Note:**  
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# About Sarawak Energy

Sarawak Energy is an energy development group of companies and a vertically integrated power utility, wholly owned by the Sarawak Government. Our business includes the generation, transmission, distribution, retail and export of electricity.

With an energy mix that is predominantly renewable hydropower, complemented by indigenous gas and coal for energy security and diversity, we provide the power to light up communities, homes, and businesses across Sarawak and beyond.

Today, we are Malaysia's largest renewable energy developer and are working towards becoming a regional powerhouse that is fully capable of fulfilling our vision of providing renewable, reliable, and affordable energy to Sarawak and beyond.



**Total Employees 5,537**  
(As of 31 December 2022)



**Customer Accounts<sup>a</sup>**  
**756,629**



**634,880**  
Domestic

**108,224**  
Commercial

**1,102**  
Industrial

**12,423**  
Public lighting

Sustainability partner and key member of the **International Hydropower Association (IHA)** since 2010



Member of the **Global Reporting Initiative (GRI) Community** since 2016

Member of the **UN Global Compact Network Malaysia & Brunei (UNGCMYB)**

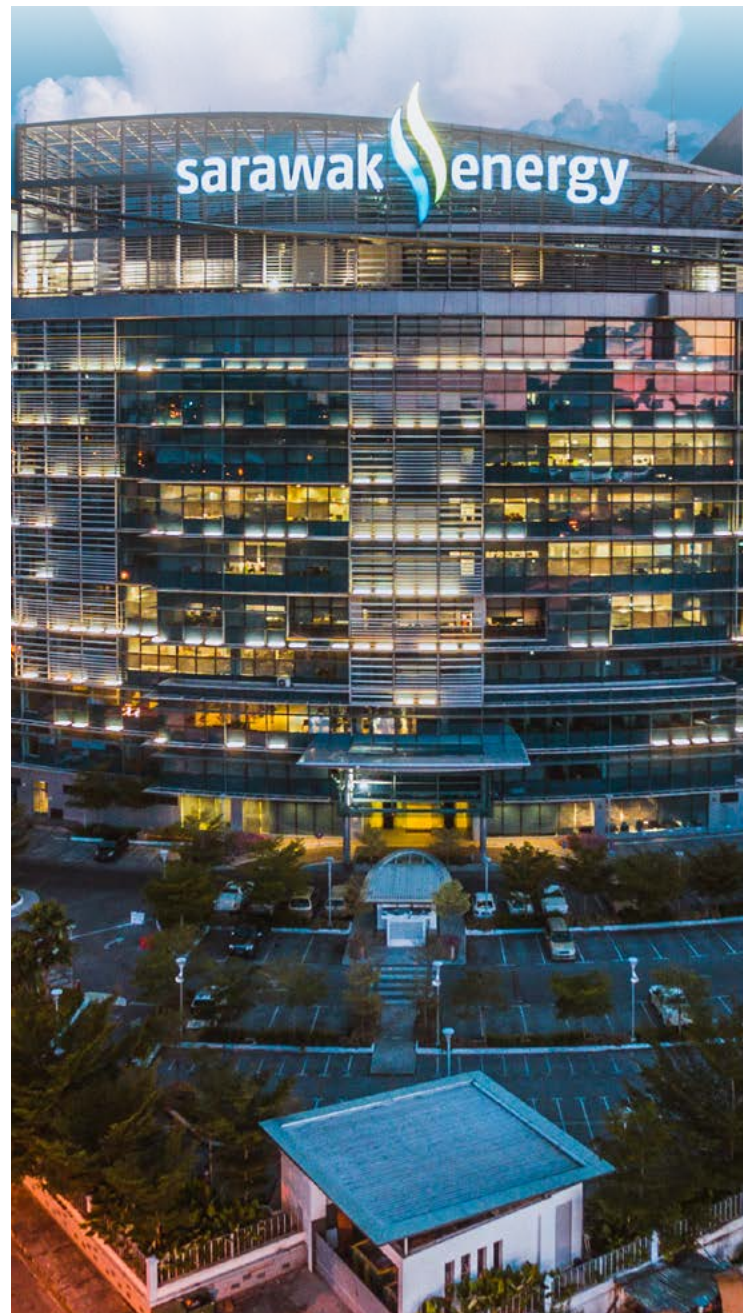
**Note:**  
<sup>a</sup> Number of active customers' account.

# Vision, Mission and Living Our Values



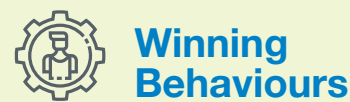
## Vision

Sustainable growth and prosperity for Sarawak by meeting the region's need for reliable, renewable energy



## Mission

- Pursue opportunities for growth by fully developing the Sarawak Government's Sarawak Corridor of Renewable Energy agenda
- Ensure our own safety and the safety of others, with a commitment to do 'no harm to anyone at any time'
- Provide a reliable supply of clean, competitively priced energy to support the economic and social development of Sarawak and our partners in the region
- Operate as a business based on principles that reward our owners and employees, and delight our customers
- Honour the trust placed in us by the people of Sarawak, by acknowledging and respecting them and contributing to their well-being
- Set and achieve high ethical and corporate standards that are a source of pride for our employees, customers and owners
- Develop our people, leadership and teamwork to build an agile, open and customer-focused culture that responds to challenges and the need for change with innovation and cooperation
- Harness and utilise natural resources in a sustainable and responsible way
- Achieve operational excellence through a commitment to continual improvement and best practice



## Winning Behaviours

- |                                                               |                                         |                                             |                                                              |                                                              |                                                               |
|---------------------------------------------------------------|-----------------------------------------|---------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------|
| 1<br>Proactive on HSSE                                        | 3<br>Trusted to deliver on our promises | 5<br>Conducting our business with integrity | 7<br>Working across functional and organisational boundaries | 9<br>Open and adaptable to leverage technology for solutions | 11<br>Employees of choice, working for the employer of choice |
| 2<br>Value and bottom line driven with strong cost discipline | 4<br>Precise and speed conscious        | 6<br>Focusing on teamwork and integration   | 8<br>Proud of Sarawak Energy and will do our best            | 10<br>Learning from our experience and mistakes              | 12<br>Respectful of our people and the law of the land        |

## Vision, Mission and Living Our Values



2-6, 203-1, 203-2, EU10, 3-3

# Renewable Energy for Sarawak and Beyond

Sarawak Energy adopts a comprehensive strategy for power development, carefully balancing energy security, sustainability, and costs, with the aim of fostering a sustainable socio-economic transformation in Sarawak and the broader Southeast Asian region. Our initiatives are in accordance with and reinforce the Sarawak's Post-COVID-19 Development Strategy 2030, which recognises affordable, dependable, and sustainable energy as one of the primary drivers of sustainable economic development.

In our pursuit of this objective, we are dedicated to sustainable progress, and our corporate strategies are aligned with the United Nations Sustainable Development Goals (UN SDGs). We emphasise the six UN SDGs to the right in particular, believing that they facilitate continued growth and promote strong value generation.

### A Balanced Generation Mix

Sarawak's generation mix consists primarily of renewable hydropower, with indigenous gas and coal for energy security and diversity.

### Long-Term Target

To maintain at least **60% renewable energy** in the generation mix with the balance from indigenous thermal resources.



Currently, Sarawak's installed capacity is **6,019MW** – including small renewable energy.

We are continuing to explore technological advances in alternative and renewable energy sources to light up Sarawak sustainably and cost-effectively.

### Electricity Tariff

We offer among the most competitively priced average unsubsidised tariffs in Southeast Asia.

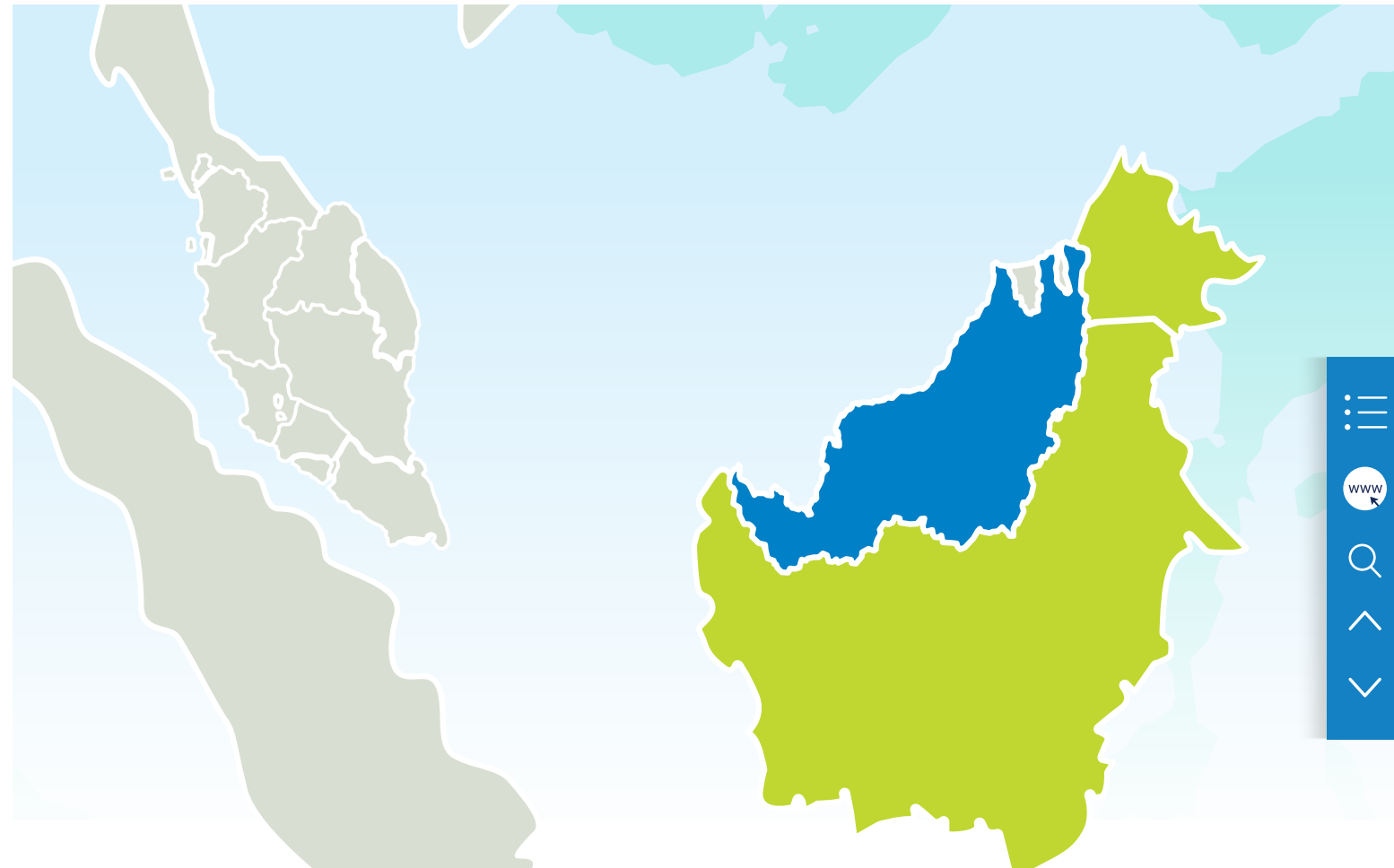
Our average rate is **28.2 cents/kWh**.

This has attracted significant investments from power-intensive industries to Sarawak, powering job creation and socio-economic growth.



2-6, 203-1, 203-2, EU26, 3-3

## Renewable Energy for Sarawak and Beyond



### Lighting Up Communities

Working under the purview of the Ministry of Utilities and Telecommunication, Sarawak Energy is accelerating rural electrification through the Rural Electrification Scheme (RES), Rural Power Supply Scheme (RPSS) and Sarawak Alternative Rural Electrification Scheme (SARES), to support Sarawak's ambition to achieve full electrification by 2025.

As of 31 December 2022, we have achieved **99.2%\*** overall domestic coverage and **97.9%\*** rural coverage in line with **UN SDG No. 7** to ensure access to affordable, reliable, sustainable and modern energy for all.

### Capturing Growth

Renewable hydropower offers investors reliable, renewable and affordable energy, as well as the option to green their operations.

2-6, 203-1, 203-2, EU10

## Renewable Energy for Sarawak and Beyond

### Sarawak Corridor of Renewable Energy (SCORE)

Between 2008 and 2022, 14 Power Purchase Agreements (PPA) have been signed with industries in SCORE as well as a Power Exchange Agreement (PEA) for the interconnection with Perusahaan Listrik Negara (PLN) in West Kalimantan and a PEA for the interconnection with Sabah Electricity Sdn Bhd. Close to 3,105MW has been committed.

#### Project Milestone

The Murum-Samalaju B 275kV Transmission Line was successfully commissioned on 29 December to mitigate the risk of losing all power from Murum HEP during double-circuit tripping. It is the second injection into Samalaju Industrial Park to relieve loading of the Similajau-Samalaju 275kV transmission lines.



#### New Opportunities

We signed two new power purchase agreements and amended an existing one in 2022, with a total committed new demand of **145MW**, comprising individual agreements with:



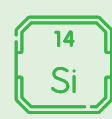
Shell for

**30 MW**



Malaysia LNG for

**90 MW**



PMB Silicon for additional

**25 MW**

2-6, 203-1, EU10

## Renewable Energy for Sarawak and Beyond



### A More Sustainable Energy Future

- ✓ Aligned with the San José Declaration on Sustainable Hydropower, Sarawak Energy adheres to its principles, among which is 'the only acceptable hydropower is sustainable hydropower'
- ✓ First corporate body in Malaysia to express its endorsement for the 'Business Ambition for 1.5°C' initiative, we are dedicated to making a difference in climate action by adopting science-based targets
- ✓ Developing a 50MW floating solar project on the Batang Ai HEP reservoir, aimed at boosting the proportion of renewable energy in Sarawak's energy generation portfolio
- ✓ Collaborating with regional industrial partners to champion decarbonisation, we are providing 100% renewable energy through the Renewable Energy Certificate (REC) mechanism to offset the carbon emissions linked to their electricity usage
- ✓ Utilising in-house Hydropower Sustainability Standard (HSS) assessors, we are dedicated to improving Sarawak Energy's hydropower sustainability and becoming a renewable hydropower specialist



### Becoming a Regional Powerhouse

We are committed to implementing our plans to create an interconnected Borneo via the Borneo Grid and, subsequently, the ASEAN Power grid, placing Sarawak Energy as the Battery of ASEAN.

- ✓ In 2016, we established Sarawak's first interconnection to export power to West Kalimantan in Indonesia.
- ✓ Last year, we signed a Power Exchange Agreement and an Interconnection Agreement with Sabah Electricity Sdn Bhd to export power supply to Sabah.
- ✓ We are making significant progress in the comprehensive preparations for the proposed 1,375MW Mentarang Induk Hydroelectric Project in North Kalimantan, which will be our first international joint venture hydropower development project.
- ✓ In 2022, the unincorporated consortium (Sarawak Energy, Singapore Power and Sembcorp Utilities) has received a non-binding Letter of Support from Energy Market Authority Singapore in favour of the proposed Singapore Interconnection Project. The technical and commercial feasibility studies are ongoing.



### Leading Regional Efforts in Climate Action

#### Green Building

Menara Sarawak Energy is the first building in Borneo to achieve a Green Building Index and has been rated Silver since 2013.

#### Greening the Transportation Sector

- First company in Sarawak to incorporate electric and hydrogen fuel cell vehicles into its corporate fleet
- Partnered with Malaysia Green Technology Corporation to install universal EV chargers in Kuching's main malls and hotels
- Supported the launch of four Kuching Metro electric city buses to further advance green mobility
- Fuel Kuching's hydrogen buses and cars through our Integrated Hydrogen Production Plant and Refuelling Station
- Further seeding of universal public EV chargers that are being expanded and deployed to other cities such as Sibul, Bintulu and Miri

2-6, 203-1, 203-2, EU10, 3-3

# Energy for Sarawak and Beyond

A reliable, affordable and sustainable source of energy is vital for Sarawak's continued growth and development. As the State's primary energy provider, we harness our natural resources in an ethical and sustainable manner to address this need, advancing socio-economic transformation to benefit our people and communities at large.

Sarawak's capacity mix is predominantly renewable hydropower, complemented by indigenous coal and gas for diversity and energy security. By 2030, we target to have 300MW of large-scale solar in our capacity mix, in line with the goals of the Sarawak Government's Post COVID-19 Development Strategy 2030.

Sarawak's installed capacity has grown from 1,347MW in 2010 to 6,019MW today including small renewable energy. Large-scale renewable hydropower plants contributes 3,452MW. Energy generated from renewable hydropower is an added value proposition for investors looking to green their operations.



2-6, 203-1, 203-2, 3-3

## Energy for Sarawak and Beyond

### Renewable and Sustainable Hydropower Development

Hydropower is a vital source of energy, delivering significant advantages to the people of Sarawak, enhancing their lives and fostering sustainable development.

Sarawak Energy is a proponent of responsible hydropower development and is in alignment with the San José Declaration on Sustainable Hydropower's principles. We believe that the only acceptable hydropower is sustainable hydropower, which requires all stakeholders to collaborate and work together. Through sustainable hydropower development, we can deliver ongoing benefits to communities, livelihoods, and the environment.

With three hydropower plants currently in operation - Batang Ai, Bakun, and Murum - we have been able to provide the following benefits to Sarawak's people:



Scan here to view the San José Declaration on Sustainable Hydropower

**1** A modern power system and accelerated rural electrification efforts

**2** Lower Levelised Cost of Electricity (LCOE), enabling Sarawak to have among the most competitive average unsubsidised tariffs in the region

**3** A decarbonised power system

**4** Reduced severity of downstream flooding during heavy rainfall

**5** Powers community growth, covering:

Literacy and Education

Culture and Heritage Preservation

Employability and Entrepreneurship

Health and Quality of Life

**6** Supporting the launch of Sarawak's first Renewable Energy Certificate (REC)

**7** Driving renewable energy transition for a sustainable energy future in the region

**8** Bolstering Sarawak's socio-economic transformation and digital economy, including development in rural areas

**9** Supporting the establishment of Totally Protected Areas, such as the Batang Ai National Park

Our fourth large renewable hydroelectric project, Baleh HEP, is under construction and is currently scheduled to be completed by 2028.



2-6, 203-1

## Energy for Sarawak and Beyond

### Thermal Power Development

Renewable hydropower will continue to dominate our capacity mix, with thermal power from our indigenous coal and gas providing additional supply security.

Our 842MW Tanjung Kidurong Combined Cycle Power Plant (CCPP) is an extension of the existing Kidurong Power Station and is one of the world's most efficient combined-cycle power plants in its class. Tanjung Kidurong CCPP was fully commissioned this past year, with Blocks 1 and Block 2 – at 421MW per block – being commissioned in December 2020 and June 2022 respectively. Because of this, an additional 106MW was made available in September 2022 – two years ahead of plan. The expansion of Tanjung Kidurong CCPP, which began in Q4 2016, aims to replace the power station's old open cycle turbines and provide reliable electricity supply for Sarawak's development and growth.

In pursuit of a more sustainable energy future in Sarawak and aligned with the global focus on reducing carbon emissions, Sarawak has committed not to build new coal power plants. Balingian Coal-fired Power Plant is the last coal-fired power plant that was built in Sarawak and Sejingkat Coal-fired Power Plant is tentatively scheduled for retirement in 2028. We have plans to reskill and redeploy our employees at Sejingkat – repurposing their skills and abilities for new roles within the organisation.



2-6, 203-1, 203-2, EU29

## Energy for Sarawak and Beyond

### Strengthening the Reliability of Our System

Sarawak Energy continues to invest in a strong and reliable transmission system to strengthen our network in Sarawak and expand cross border export potential.

#### 500kV Backbone Transmission Grid

The 500kV Backbone Transmission Grid from Similajau (Bintulu) to Tondong (Kuching) is a second transmission backbone that runs parallel to the 275kV first transmission grid. It plays a vital role in strengthening our power system's reliability as well as mitigating current system constraints, which will help minimise the risk of major power disruptions – particularly for customers in load centres at the Southern Zone of Sarawak like Kuching and Sibiu.

The 500kV transmission Backbone will also serve as the connection point for the upcoming Boleh HEP where the power generated from Boleh will be evacuated and injected into our existing 275kV grid via the 500kV Mapai Substation and the 500kV Transmission line from Boleh to Mapai.

The year 2022 marked the completion of the 500kV Backbone Transmission System, stretching from Bintulu's Similajau substation to Kuching's Tondong substation, with the commissioning of the Tondong 500/275/132kV substation on 6 March and the subsequent energisation of the Mapai-Tondong Transmission Line on 16 December.



#### Northern Grid Extension Project

We have continued to advance the Northern Grid Extension project with the aim of strengthening the Northern Region's supply reliability, expanding our transmission network across Sarawak and creating new injection points for potential power exports to neighbours like Sabah – bringing us closer towards realising the Borneo Grid. This has involved the construction of Extra High Voltage (EHV) 275/33/11kV substations as well as 275kV transmission lines.

The project is currently scheduled for commissioning in 2025 and is an essential infrastructure development that will be implemented in phases. Its completion will facilitate the linking of Limbang and Lawas to the transmission grid as well as the decommissioning of their respective diesel power plants, further greening our operations and driving climate action within the Company.

Investing in these projects has improved our System Average Interruption Duration Index (SAIDI), allowing customers to benefit from greater reliability of supply and reduced supply interruptions. Since 2016, our overall SAIDI numbers have improved by 50%, going from 242 minutes<sup>a</sup> to 77.93 minutes<sup>a</sup> in 2022.

The Bunut 275/33kV substation and Bunut-Marudi Junction 275kV double circuit transmission line both fall under the Northern Agenda and came online in December 2022. Furthermore, the interconnection to Sabah Electricity Sdn Bhd is expected to be completed in 2024.

#### Transmission Network Reinforcement

Our new Matang 275/132kV substation was also commissioned in April of the same year, further improving system reliability in the Kuching area.

By the end of 2022, the Murum-Samalaju B 275kV double circuit transmission line was commissioned, which significantly increased the supply reliability of the Samalaju area. It also maximises the power export from hydro generation with reduced system outage risk while also effectively reducing transmission losses.

**Note:**  
<sup>a</sup> Includes generation, transmission and distribution.



# Year in Review 2022



## A Generative HSSE Culture

- Achieved Zero Fatality and Lost Time Injury Frequency Rate (LTIFR) at 0.329\* for 2022
- More than **60%** decrease in the number of work-related accidents in 2022 compared to 2016
- **82%** of employees with Body Mass Index (BMI) **less than 30**
- Achieved **7.5 million** total safe manhours for Sarawak Energy Resources as of December 2022, having been Life Time Injury (LTI)-free since June 2018
- Received ISO 45001:2018 and 14001:2015 certifications for Balingian Energy Minerals' Occupational Health and Safety Management Systems and Environmental Management System
- No intrusions at our guarded assets
- High level of compliance in all major projects with strict punitive measures enacted against any instances of non-compliance



## Full Electrification by 2025

- Achieved overall electrification rate of **99.2%\***
- Achieved rural electrification rate of **97.9%\***
- Electrified **25,596 households** from 2019 to 2022
- Electrified an **accumulative 4,922 households** through our Last Mile and SARES programmes since January 2022

# Year in Review 2022

## Operational and Service Excellence

- Achieved a customer **satisfaction index of 97.15%**
- Reduced non-technical losses by **0.89%**, contributed to savings of **50.73GWh**
- Achieved overall System Average Interruption Duration Index (**SAIDI**) of **77.93 minutes<sup>a</sup>** and System Average Interruption Frequency Index (**SAIFI**) of **1.04 times<sup>a</sup>**

**Note:**  
<sup>a</sup> Includes generation, transmission and distribution.



## Ensuring Reliable Electricity Supply

- Successfully commissioned three EHV substations, 404km of transmission lines and five **33/11kV zone** substations
- Rolled out Distribution Remote Monitoring System, currently covering around **1,200 distribution substations** across Sarawak

## Growing Local Content

- Conducted **five digitalisation projects** to streamline and automate processes for efficiency
- Conducted **11 physical SEPRO Training** for vendors, in collaboration with the Bumiputera Participation division
- Conducted eight online SEPRO workshops

## Developing Our People

- **95% of critical positions** in the organisation have two 'Ready Now' candidates
- **770 employees** (comprising 14% of our overall workforce) were progressed
- Strengthened succession plans and implemented Accelerated Development Programme (ADP) for GEC-1
- Implemented the Bridging Programme to help non-executives progress into executive roles

*Read more about "Accelerate Our People Development" on page 173.*

## Making Sarawak Energy a Great Place to Work

- Recorded an all-time high score of **90%** for the Employee Engagement dimension in our Sarawak Energy Employee Survey (SEES), with an overall score of **87%** – an improvement over the previous year
- Achieved **80% or higher** in our SEES scores for the Continuous Improvement, Diversity & Inclusiveness and Compensation & Benefits dimensions



### Digitalising Our Business for Operational Excellence

- Implemented the Digital Power Plant blueprint for Generation Transformation by improving workforce and asset productivity while mitigating risks
- Improved transmission and distribution operations through smart grid development

*Read more about "Smart Grid" on page 116.*

- Rolled out more smart meters, with **19,695 units** currently installed across Kuching; we plan to install smart meters across Sarawak, with targeted coverage of **70%**
- Re-platformed our SEB cares mobile application for better interface and enhanced user experience
- Created virtual reality based immersive learning modules for two courses relating to the maintenance of power distribution networks: 11kV switching and low voltage live line work connection of service lines
  - ▶ These modules have been used to supplement and support conventional instructor-led trainings since 2022
- Continued using drone technology in transmission and distribution, power generation and coal resources, HSSE, and project site-related activities
- Started using drones in our Retail activities to monitor power theft operations and conduct spot checks for bitcoin mining



### Cultivating Commercial Acumen

- Exceeded our cost optimisation target of **RM50 million** – optimising a total of RM54.4 million while achieving **RM1.19 billion** in tax savings
- Continued our initiative to drive cost efficiencies and realised category management savings of **RM6.97 million**
- SEPRO digitalisation realised savings of **RM4.7 million** to date
- Introduced the Vendor Financing Programme and signed a Memorandum of Understanding with four financial institutions – resulting in total financing of **RM82.2 million** to date

### Stepping Up Project Delivery for Sustainable Growth

- Successfully tested the Tanjung Kidurong Combined Cycle Power Plant at its full rated capacity of 2 x 421MW
- Achieved one-off tax savings of RM33 million by accelerating completion of legacy transmission line projects before the end of 2022
- Completed five legacy transmission line projects totalling 530km as well as six substations worth RM2.3 billion, with Board approval for land acquisition of disputed land in 2020 and support from the State Steering Committee
- Capital project portfolio continued to increase in 2022 and currently stands at RM40 billion
  - ▶ Since 2018, we have commissioned RM10.5 billion in projects
- Independent Project Analysis (IPA) – a reputable independent, international benchmarking organisation – placed us in the second quintile of their 2022 benchmarking assessment

#### Commissioned eight transmission projects in 2022:

1. Package 6: Matang-Mambong 275kV Transmission Line Turn Into Tondong Project
2. Tondong 275/132kV Substation Project
3. Line 1 for the Reorganisation of Existing Matang - Mambong 275kV Transmission Line Project
4. Matang 275/132/33kV Substation
5. Marudi Junction-Bunut 275kV Transmission Line
6. Bunut 500/275/(132)/33kV Substation
7. Murum-Samalaju B Transmission Line
8. Package C Line 1: 500kV Backbone Transmission Line Project

### Progressing Our Regional Powerhouse Ambitions

- Two ongoing regional initiatives:
  - ▶ Exploring opportunities to export up to **1,000MW** in electricity to Singapore, in pursuit of a Singapore interconnection
  - ▶ Progressing the **1,375MW** Mentarang Induk HEP in North Kalimantan to support Indonesia's Tanah Kuning Green Energy Park

### Strengthening Corporate Governance

- Continued annual Mandatory Anti-Bribery and Corruption (ABC) and Code of Ethics (CoE) e-Learning Programme
- Read more about "Sustainable Governance" on page 126.*
- Rolled out the Sarawak Energy Enterprise Risk (SEERisk) System Phase One groupwide
  - Continued to conduct the Sarawak Energy Integrity Survey

### A More Sustainable Energy Future

- Progressed several research and development projects in advancing our sustainability journey, including:
  - ▶ Microalgae Production Facility with carbon capture and utilisation at Sejangkat Power Corporation
  - ▶ Containerised Solar Hydrogen Research Project, in collaboration with PESTECH Energy
  - ▶ Research on the potential utilisation of Balingian's fly ash, in collaboration with Swinburne Sarawak

### Expanding Our International Presence

- Our Group CEO was a panellist on the 'Decarbonising the ASEAN Way Harnessing the Collective Actions of ASEAN Private Sectors' session at COP27.



### Awards and Accolades

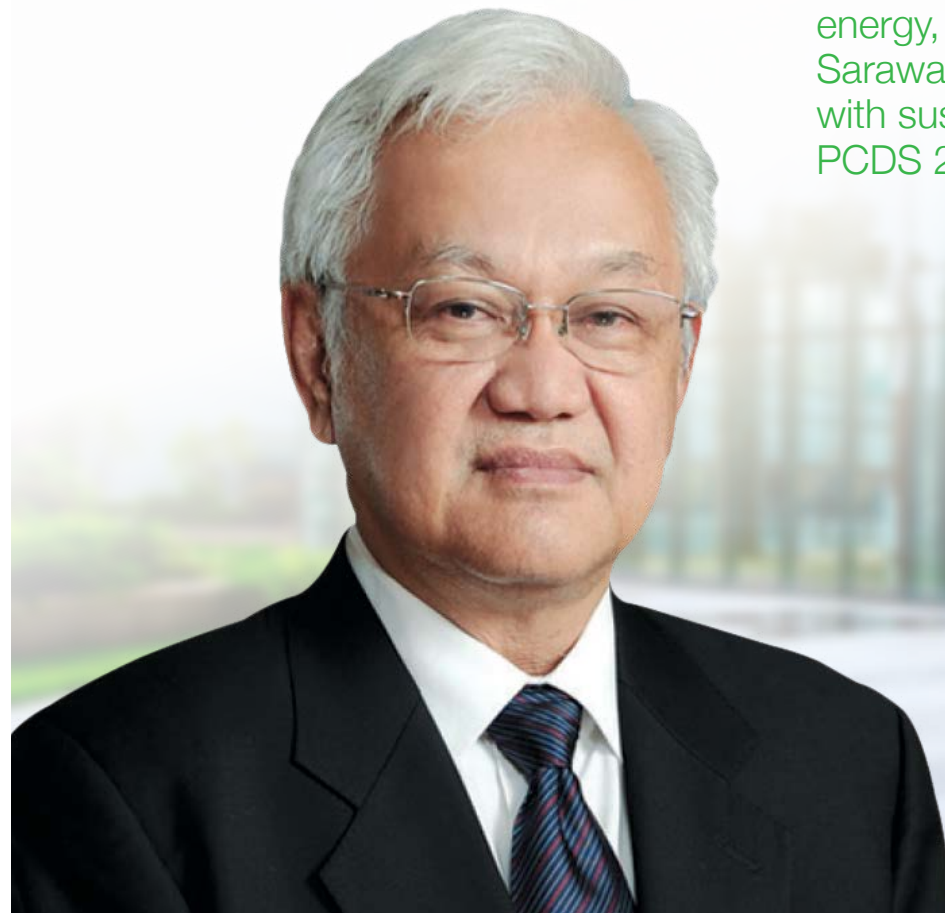
- Awarded in recognition of our Human Resources efforts:
  - ▶ Best Companies to Work For in Asia at HR Asia Awards 2022
  - ▶ Employer of Choice for The BrandLaureate's HR-PDL Branding Awards 2022



- We received four Sustainability Performance Awards at UNGCMYB's Sustainability Celebration Night 2022 - 'Sustainability Performance Award' presented to CEO Datu Haji Sharbini Suhaili as well as awards in the categories of 'SDG Ambition Benchmark 7: Science-Based Emissions Reduction in Line with a 1.5°C Pathway', 'Partnership for the Goals Recognition' and 'Sustainable Product Recognition'.
- Awarded for our HSSE Excellence, we received 16 awards at the Malaysian Society for Occupational Safety & Health (MSOSH) Awards 2022.
- Recognised for our community development initiatives with two Gold Awards at the 14<sup>th</sup> Annual Global CSR & ESG Summit & Awards 2022.
- Awarded based on our efforts towards becoming a digital utility:
  - ▶ Malaysia Technology Excellence Award, 'Analytics on Utilities' category
  - ▶ Bentley Infrastructure Going Digital Awards, finalist for 'Process & Power' category and recipient of 'Bentley Founders Honors'
  - ▶ HR Asia Award – Winner of the Digital Transformation Award
  - ▶ AIBP Malaysia Enterprise Innovation Award, finalist in the 'Application of RPA and Cloud-based Infrastructure in Driving Growth' category

# Chairman's Statement

**YBhg DATUK AMAR ABDUL HAMED SEPAWI**  
Chairman



“Sarawak Energy will continue to capitalise on our strength in providing reliable and renewable energy, prioritising the wellbeing of Sarawakians and the region in line with sustainability targets under PCDS 2030.”

## Prioritising Our Communities' Wellbeing

Our communities are at the heart of our business as we continue to empower and enrich their lives while growing our business over the long term.

For more information, please read on page 23.

## Advancing Towards Becoming a Regional Renewable Energy Powerhouse

We are making significant strides in realising our aspirations of becoming a regional renewable energy powerhouse and positioning Sarawak as the Battery of ASEAN through renewable hydropower development.

For more information, please read on page 22.

## Embedding Sustainability into Our Business

Sustainability is at the forefront of our organisation and will continue to govern us on our way forward.

For more information, please read on page 22.

## Dear Shareholders,

Sarawak Energy's success over the past century is a testament to our stability and resilience, fuelled by our aspiration to power Sarawak's growth and prosperity by meeting the region's need for reliable and renewable energy. As Chairman, I am proud to present our Annual and Sustainability Report 2022, which details our strategies to continue providing clean and reliable power to serve our stakeholders.

The year 2022 presented a more positive socio-economic outlook for the world and in Sarawak, we embraced the shift to the endemic stage of COVID-19. With the transition, we moved a step closer to normalcy as travel restrictions were lifted, international borders were reopened, and businesses reinstated activities.

However, this optimism was dampened as global conflicts sparked an international energy crisis which contributed to higher inflation globally.

The energy crisis, coupled with growing demand, has put the issue of energy security into sharp focus. While it has not diminished the importance of fossil fuels, it has certainly played a role in driving the energy industry's need to reorient and invest in alternative and renewable energy. In line with this global need for sustainable energy, coupled with the state's population growth and higher electricity demand, Sarawak has made a strategic move to spearhead renewable energy development. This advancement by the state in turn, is assisting the nation in diversifying its power generation to ensure energy security and meet greater sustainability goals.

Sarawak Energy plays a key role in supporting Sarawak and subsequently the region, through the responsible development of our hydropower sources. As a leading and responsible hydropower developer, we have the capacity and capability to maintain the competitiveness of our tariffs through a balanced approach in managing the energy trilemma of reliability, affordability and sustainability.

On top of hydropower development, we are moving forward with plans to increase the share of renewable energy through the integration of large-scale solar into our generation mix by 2030. In doing so, we are also helping to light up Sarawak and contribute to socio-economic growth, as well as advance the State's Post COVID-19 Development Strategy (PCDS) 2030.

The PCDS 2030 aims to facilitate Sarawak's move to high-income status by 2030 – creating economic prosperity, social inclusivity and a sustainable environment for all Sarawakians, leveraging renewable energy as a key enabler. As part of the PCDS 2030, the energy sector in Sarawak aims to sustain a renewable energy capacity mix of at least 60% until 2030. Additionally, it aims to achieve an annual reduction of 600,000 tons in CO<sub>2</sub> emissions through the electrification of transportation, thereby decreasing emissions.

Sarawak Energy is also committed to mitigating the impact of climate change and are working towards reducing carbon emissions in alignment with the UN SDGs and Malaysia's aim of becoming a carbon-neutral nation by 2050.

### Performance Highlights

The load demand for electricity in Sarawak is estimated to increase to 5,000MW by 2025, fuelled by increased industrial and commercial activities as well as demand from residential households, including rural communities. As a result of the stronger demand for electricity supply, Sarawak Energy recorded a 60% increase in revenue over a six-year period from 2016 to 2022, reaching RM6 billion in 2022 with more than 1,000MW of additional power sold to Sarawak Corridor of Renewable Energy (SCORE) customers.

Although we experienced challenges posed by the pandemic, we continued to deliver excellent operational performance. For instance, our System Average Interruption Duration Index (SAIDI) was below 80 minutes for the first time in our Company's history, indicating efficiency and reliability in our operations. We also recorded zero fatalities – a testament to our firm commitment to ensuring that everybody goes home safely. With our support, Sarawak's Accelerated Rural Electrification Master Plan achieved 99%\* statewide electrification.



2-6, 2-22, 2-23, 2-24, 203-1, 3-3

## Chairman's Statement

Sarawak Energy also worked towards strengthening our position as Malaysia's renewable energy leader by sharing renewable energy with neighbours and exploring alternative sources of renewable energy. For our people, we continue to embed a high performance culture within the organisation to enable excellent delivery in serving our stakeholders.

### Advancing Towards Becoming a Regional Renewable Energy Powerhouse

We are making significant strides in realising our aspirations of becoming a regional renewable energy powerhouse and positioning Sarawak as the Battery of ASEAN through renewable hydropower development. We remain focused on establishing the Borneo Grid by forming alliances with regional neighbours in pursuit of interconnections before expanding into the rest of ASEAN.

In 2016, Sarawak Energy carried out its first power export to West Kalimantan and the benefits of interconnections since then have led to the potential implementation of similar bilateral projects to complete the Borneo Grid. Currently, we are also making significant technical and stakeholder progress on the proposed 1,375MW Mentarang Induk Hydroelectric Project in Northern Kalimantan and are in discussions for a potential Sarawak-Singapore interconnection.

### Advocating Good Corporate Governance

Good corporate governance remains the cornerstone of Sarawak Energy's business as we are obligated to protect the best interests of our stakeholders. We are committed to maintaining a progressive and high-performance corporate culture and we uphold zero tolerance for any unethical conduct, fraud and corruption. Sarawak Energy believes that by emphasising good governance, our reputation as a trusted brand in Sarawak and beyond will be preserved – maintaining our license to operate, while also assuring our stakeholders of our ability to deliver in an ethical and corruption-free manner.



In line with our stance, we have launched a suite of governance initiatives and programmes in our pursuit of continuously enhancing Sarawak Energy's culture of compliance. The initiatives are further rooted in the implementation of relevant policies, procedures and guidelines (PPGs) which promote consistency across the organisation, ensuring that all parties who work with us clearly understand and agree to the strong ethics and corporate governance practices that we uphold.

The Board took proactive and comprehensive steps in 2022 to enhance the existing robust corporate governance system. While risks cannot be eliminated, they can be managed effectively. The Board, through its respective Board Committees, will continue to play an active role in driving improved governance within the Group and to share our governance values with our supply chain and business partners. Our stringent corporate governance practices also sustain the value created by our predecessors and will power our future growth while safeguarding the organisation from corporate as well as personal liability.

The Board and Company management also continues to provide oversight for ongoing initiatives to enhance business frameworks and maintain Sarawak Energy's high performance culture. In line with this, we are focused on employee development and the Group's succession planning initiative.

### Embedding Sustainability into Our Business

Sarawak Energy's ongoing commitment to sustainability continues to be the guiding principles in our operations and plans. In 2022, we held the launch event for our 10-Year Integrated Tree Planting, Protection and Habitat Restoration campaign with the Premier of Sarawak in attendance. The campaign supports Sarawak's goal of planting 35 million trees by 2025. We have set a target to plant and protect 500,000 trees between 2021 and 2030 in identified areas where we operate as well as other protected zones.

To further accelerate the campaign's outcomes, we also signed a memorandum of understanding with the Forest Department Sarawak (FDS) and Sarawak Forestry Corporation (SFC) to plant and protect trees and conduct other biodiversity-related research projects across our assets, facilities, locations, and project areas.

Our tree planting initiative is part of the Greening Malaysia campaign. The Greening Sarawak Programme was launched by the Ministry of Natural Resources, Environment and Climate Change in 2021 as a pledge and commitment by the government, based on the Shared Prosperity Vision, to contribute to a greener future. With the aim of heightening awareness and ensuring the maintenance of forest areas, the five-year programme's goal is to plant 100 million trees by 2025 to help preserve Malaysia's biological diversity and contribute to climate action. This aligns with Sarawak's PCDS 2030, which emphasises the importance of advancing sustainability, and will be further supported by the implementation of the Sustainable Sarawak Blueprint.

Sarawak Energy is aligned with the principles of the San José Declaration on Sustainable Hydropower, which stresses that the only acceptable hydropower is sustainable hydropower. We are focused on maintaining 60% renewable energy and incorporating alternative energy into our generation mix. We will also accelerate efforts to reduce carbon emissions to realise a low carbon economy, mitigate climate change and capitalise on the benefits of hydropower to generate income for Sarawak in line with the PCDS 2030 and our renewable energy powerhouse ambition.

### Prioritising Our Communities' Wellbeing

Our communities are at the heart of our business as we continue to empower and enrich their lives while working to fulfill our vision and missions.

In serving our communities and the country during the 15th General Election, we mobilised all resources and remained on high alert to ensure the continued reliability of electric supply. I commend the operations team that kept the lights on in Sarawak by intensifying the monitoring

of our feeders and stationing standby personnel at strategic points on the supply network system and critical facilities Statewide. We also had our technical teams at the ready for swift deployment to expedite supply restoration in the event of a supply interruption.

We have also implemented corporate social responsibility (CSR) initiatives. In support of these CSR programmes, we actively partner with organisations who are similarly committed to improving the wellbeing of Sarawakians.

Our efforts in Education & Young People are exemplified by the Education Funds that we set up for communities in Bakun, Belaga, Batang Ai and Boleh. Through this education fund, we have allocated annual funding to support the educational needs of the rural communities who live where we operate.

Apart from that, we collaborated with Institut Pendidikan Guru Kampus Sarawak in 2022 to organise an education enhancement programme – 'Program Jalinan Mesra Peribumi Zon Lubok Antu 2022' – which aims to provide academic guidance in

2-6, 203-1, 3-3

## Chairman's Statement



2-22, 203-1

## Chairman's Statement

Science, Technology, Engineering and Mathematics (STEM) as well as English subjects, equipping students with the necessary knowledge and skills for a technologically advanced society.

As part of our efforts to sustain and enhance our communities' social wellbeing, we embarked on the Bakun Resettlement Scheme (BRS) Longhouse Adoption Programme, which will run until 2023. This programme covers culture heritage preservation, infrastructure upgrades, land levelling works, safety and security as well as supporting income generation. In its fourth year of implementation, the Longhouse Adoption Programme has benefitted 7,742 people from nine longhouse communities under the BRS.

*Read more about "Bakun Resettlement Scheme" on page 184.*

As a socially responsible corporate citizen, we handed over a four-wheel drive ambulance vehicle to Sungai Asap Health Clinic earlier in 2022 in efforts to alleviate ambulance shortages in the Bakun resettlement in the Belaga District. We also supported the Sarawak Heart Foundation in

their fundraising campaign for a magnetic resonance imaging (MRI) machine for Sibuh hospital.

As the preservation of culture and heritage remains an important focus in our social investment pillar, Sarawak Energy ensures adequate support are provided to our local communities for their cultural events and festivities. We have been collaborating with the Murum Penan Development Committee (MPDC) annually to organise the yearly Batu Tungun Ritual Ceremony in recognition of its significance to the local Penan community.

We also prioritise women empowerment programmes as part of our CSR efforts – organising various handicraft development programmes and women's entrepreneurship workshops. We also support local artisans by providing them with opportunities to promote their art at local, national, and international exhibitions towards socio-economic growth as well as enhanced skills and capabilities for sustainable living.

### Board Matters

Working towards increasing women's representation on boards and senior management teams, we are pleased to

announce that 12 of our senior female talent were appointed as directors in our subsidiaries.

### Outlook for 2023

The progress towards universal energy access continues to experience major setbacks due to global events such as the trailing impacts of the pandemic, decrease in international financial flows and disruptions of supply chains. This has slowed down the progress of UN SDG No. 7, which focuses on ensuring access to affordable, reliable, sustainable and modern energy by 2030. Despite the slowdown, the '2022 Tracking SDG 7: The Energy Progress Report' by the International Energy Agency found that renewable energy was the only energy source that not only withstood, but also grew during the pandemic. This cements the need for greater deployment of renewables to provide affordable, reliable and sustainable energy to consumers.

However, while there is a strong rationale behind this global trend, there is also a need to assess developers' capacity to invest in new projects. Uncertainties, weak policy structures, and coordination can leave behind countries that are most in need of electricity.



## Chairman's Statement



With this in mind, Sarawak Energy will continue to capitalise on our strength in providing reliable and renewable energy, prioritising the wellbeing of Sarawakians and the region in line with sustainability targets under PCDS 2030 as well as Malaysia's National Renewable Energy Roadmap (MyRER). The MyRER has strategically formulated a framework to achieve 31% renewable energy share in the national capacity mix by 2025, increasing to 40% by 2035, while working towards attaining decarbonisation of the electricity sector by 2035.

On our business front, the completion of the Sarawak Energy Excellence (SEE) 2022 roadmap marks the beginning of our next chapter with SEE 2025 and our refreshed Key Focus Areas. Sarawak Energy will move forward towards achieving our ambition of becoming a top-quartile company and a sustainable digital utility fully aligning with the Sarawak government's PCDS 2030 as well as environmental, social and governance (ESG) principles.

### Acknowledgements

I hereby express my gratitude to the Board of Directors for the wisdom and counsel that has enabled us to navigate challenging

times and will allow us to continue growing Sarawak Energy as we embark on the next phase of our growth journey. Our strong leadership team, led by Sarawak Energy's Group Chief Executive Officer Datu Haji Sharbini Suhaili, has done a tremendous job in seeing through our Sarawak Energy Excellence (SEE) 2022 Strategic Roadmap. I look forward to many more milestones being achieved.

I also want to take this opportunity to congratulate Datu Haji Sharbini Suhaili on his recent appointments to Universiti Teknologi PETRONAS' (UTP) Research Advisory Council and the Singapore Management University's (SMU) International Advisory Council (IAC). His contributions will deliver insights as well as knowledge for the industry's sustainable future. He was also a recipient of the Sustainability Influencer Award at the UNGCMYB Sustainability Celebration Night 2022.

Sarawak Energy's leadership is supported by our dedicated employees who continuously strive to achieve our goals and aspirations. I record my appreciation for their commitment to the organisation, the industry and Sarawak.

On behalf of the Board of Sarawak Energy, I thank all shareholders for their continued trust in our vision and our business partners for their support. We are grateful to the Premier of Sarawak, Yang Amat Berhormat Datuk Patinggi Tan Sri Abang Johari Openg, and to the Sarawak Government and its Ministry of Utility and Telecommunication for steering us through their visionary leadership and invaluable guidance.

Last but not least, to our customers and the people of Sarawak, who are the main drivers of what we do, I thank you for your continued support of and contribution to our goal of becoming a regional powerhouse.

**Datuk Amar Abdul Hamed Sepawi**  
Chairman



# Group Chief Executive Officer's Statement

DATU HAJI SHARBINI SUHAILI



Group Chief Executive Officer

“As we look back over the last century, Sarawak Energy has been central to Sarawak’s sustainable growth and our people, past and present, have played a vital role in this. Building on this legacy, we will continue to drive the Company forward, realising our aspiration of becoming a top quartile, best-in-class regional powerhouse and Battery of ASEAN, leaving behind a stronger Company for future generations.”

2-6, 2-22, 203-1, 203-2, EU26, 3-3

## Group Chief Executive Officer's Statement

Over the past year, Sarawak Energy has made significant progress in supporting Sarawak’s energy needs. We have successfully completed our Sarawak Energy Excellence (SEE) 2022 Strategic Roadmap, which has not only strengthened the energy industry, but also enabled us to become the best operator and capture growth through continuous improvement while ensuring reliable and affordable electricity supply for the State.

We have continued to prioritise the needs of our customers and improved Operational Excellence through power system modernisation. This was done through digitalisation, innovation and the implementation of smart systems to enhance reliability, future-proof the business and improve cost efficiencies. In addition, we paid close attention to value creation and cost optimisation to ensure efficiency in our operations. As a result of our efforts, Sarawakians are experiencing fewer outages with quicker response times, while our sales and cost savings have also increased.

We have also progressed our Project Delivery transformation, improving our rating in an international benchmarking assessment by the Independent Project Analysis (IPA). We also focused on diligently addressing challenges, in particular manpower issues. To ensure that our projects are conducted ethically, we have tightened our governance and compliance practices, applicable throughout the entire organisation.

In contributing to the sustainable energy transition, we have continued to invest significantly in renewable hydropower as a clean source of

energy for the State. We strategically forged partnerships to further explore hydropower development and clean energy solutions as we believe that collective efforts and shared expertise will bring us closer to realising our energy transition goals.

We are aligned with Sarawak’s Post COVID-19 Development Strategy (PCDS) 2030 which drives shared prosperity for its people through seven key enablers for socio-economic growth, including renewable energy like hydropower. We are also making excellent progress in achieving full electrification for Sarawak, ensuring rural communities have access to reliable and clean electricity.

Sarawak Energy remains steadfast in our ambition to become a regional renewable energy powerhouse as part of our commitment to building a sustainable energy future for the region. With the upcoming SEE 2025, we will focus on becoming a sustainable digital utility that is aligned with PCDS 2030 as well as environmental, social & governance (ESG) principles.



**97.9%\*** of rural communities have access to 24/7 reliable electricity supply and the overall state electricity coverage stands at **99.2%\***



Access to affordable, reliable, sustainable and modern energy for all



2-29, 203-1, 203-2, 3-3

## Group Chief Executive Officer's Statement

### Key Achievements




Demonstrating growth, agility and resilience, we have successfully accomplished a number of key milestones under our SEE 2022 Strategic Roadmap.

Over the last three years from 2020 to 2022, we have persevered and performed throughout the pandemic – staying focused on becoming the best operator in Sarawak and the region. Apart from an increase in revenue and sales, we have maintained our position as Malaysia's largest renewable energy developer – transitioning Sarawak's generation capacity mix from being primarily fossil fuel to 70% hydropower.

Other milestones include fewer electricity disruptions, achieving around 99%\* statewide electrification in line with Sarawak's Accelerated Rural Electrification Master Plan and encouraging reception by like-minded corporates to our Renewable Energy Certificate (REC), which was introduced in 2019.

We also ensured that our people are well equipped to deliver excellence for our stakeholders as we continued embedding high-performance culture across the organisation. Our people's investment in our shared vision and mission is reflected in our consistent scores of 80% and above in employee engagement in our annual Sarawak Energy Employment Survey, indicating that Sarawak Energy is a great place to work.

Throughout the years, we have witnessed robust growth as a direct result of our strategies:

<b>Significant Growth &amp; Value Creation</b> 	<b>Sustaining Value &amp; Continuous Growth</b> Consolidate and Protect Value Created Over Past Years 	<b>Best Operator &amp; Capture Growth Through Continuous Improvement</b> 
<ul style="list-style-type: none"> <li>Revenue Increase: <b>3 times</b></li> <li>Generation Capacity Increase <b>&gt;3,000MW</b></li> <li>More than <b>2,500</b> Manpower Recruited</li> <li>Corporate Restructuring</li> </ul>	<ul style="list-style-type: none"> <li>Annual Revenue has grown &gt; RM5 billion &amp; PBT &gt; RM1.5 billion</li> <li>Capture growth: <b>579MW</b> PPA Signed</li> <li>Acquired Bakun HEP &amp; Generation Capacity <b>&gt;5,000MW</b></li> <li>Secured Upstream <b>Fuel Resources</b> (Gas &amp; Coal)</li> <li><b>Energised 500kV Transmission Backbone</b></li> </ul>	<ul style="list-style-type: none"> <li>Continuous Improvement &amp; Innovation Across Value Chain</li> <li>Strengthen Corporate Governance &amp; Compliances</li> <li>Attract Premium Customers and Interconnectings</li> <li>Maximise Returns on Invested Assets</li> <li>Increase Renewable Energy Footprint</li> <li>Accelerate State Grid &amp; Rural Electrification</li> </ul>
<p><b>2010-2016</b></p>	<p><b>2017-2019</b></p>	<p><b>2020-2022</b></p>

### Continuing Our 100 Years Celebrations

In honour of Sarawak Energy's remarkable century-long journey, we held a series of meaningful events that celebrated our organisation's history together with our community. The highlight of our 100-year celebration was the grand centenary townhall held at the Borneo Convention Centre Kuching, graced by the Premier of Sarawak and attended by esteemed past and present leaders, board members, ministers, colleagues, and guests. With virtual participation of our people in 19 of Sarawak Energy's premises, the townhall served as the platform to launch our 100 Years Commemorative Stamps and the Sarawak Energy Virtual Gallery, showcasing our rich history and future initiatives in building a sustainable energy future.

To further celebrate our milestone and pay tribute to Sarawak Energy's electrification journey, we curated a '100 Years of

Powering Sarawak' exhibition at the Borneo Cultures Museum launched by Datuk Haji Julaihi Haji Narawi, Minister for Utility and Telecommunication. Moreover, it served as a testament to the visionary goals of our State Government, the dedication of our employees, and the support of the communities and customers we serve. The exhibition also showcased vibrant demonstrations of beadwork and basket weaving from the Murum, Bakun, and Baleh communities, where our operations are located.



2-6, 201-4, 203-1, 203-2, EU26, 3-3

## Group Chief Executive Officer's Statement

### Project Delivery (PD) Excellence

We continue to focus on our PD performance by ensuring that our projects are handed over in a timely and efficient manner. We have made significant strides in our PD Transformation Roadmap since 2019 and are now officially rated in the IPA benchmarking assessment's second quintile for 2022. Our placing seals our position among major industry players and assures us that we are on the right track.

During the year under review, our Tanjung Kidurong Combined Cycle Power Plant (CCPP) was successfully tested under a controlled environment in preparation for its commissioning, which resulted in an additional 106MW of power being made available to the grid two years ahead of schedule.

### Value Creation and Optimisation

We are actively enhancing our ability to create value and initiatives to optimise costs. Since 2020, our efforts to drive cost efficiencies have included implementing category management and involving our Capital Works team in efforts to improve capital project cost management. On the commercial front, we have exceeded our target of RM50 million this year, achieving cost optimisation of RM54.4 million. In addition, we also secured tax savings of RM1.19 billion in the form of tax deductions, tax incentives as well as import duty and sales tax exemptions.

We continue to prioritise innovation and digitalisation to further assist us in managing our costs and gain savings such as the implementation of our Sarawak Energy e-Procurement (SEPRO) as well as the introduction of a digital vendor scorecard platform.

In addition, we support Bumiputera and local contractors by enhancing their competencies, which will subsequently increase the pool for competitive procurements. We collaborated with the Construction Industry Development Board (CIDB) Malaysia and

established the Centre for Technology Excellence Sarawak (CENTEX) Electrical Academy as a training hub to develop skilled workers in the construction industry. We also created the Vendor Financing Programme, signing a memorandum of understanding (MoU) with four financial institutions to aid our vendors in financing solutions, resulting in total financing of RM82.2 million to date.



### Sustaining Operational Excellence

Our all-time best SAIDI performance in 2022 is attributed to the effective management and coordination of Sarawak's transmission network, which has been key in overcoming generation outages. Sarawak Energy also achieved 100% in the timely restoration of line tripping and fast restoration during major outages. Our effective deployment of operational excellence initiatives has earned us significant cost savings and improved electricity sales.

Our Operational Excellence is also reflected in Miri Power Station, which celebrated its 50<sup>th</sup> anniversary this past year. The power station's longevity is a testament to our people's discipline, commitment, and adaptability to keep the lights on for Sarawak.

### Full Electrification of Sarawak

With the Rural Electrification Master Plan 2018 currently under implementation via the Sarawak Government's Projek Rakyat initiative, we are on track to achieve full statewide coverage with 97.9%\* of our rural communities now having access to 24-hour reliable, renewable, and clean electricity.

From 2019 and 2022, we connected 25,596 rural households in Sarawak with electricity supply. This electricity is harnessed via a suite of grid and off-grid solutions, including standalone solar and solar hybrid systems. Despite many challenges in electrifying remote areas, we remain on track to achieve full electrification by 2025.



2-6, 203-1, 3-3

## Group Chief Executive Officer's Statement



### Advocating Hydropower

Sarawak Energy understands the crucial role of a diversified energy mix to meet Sarawak's net zero ambitions while simultaneously catering to the increasing electricity demand. This ambition also aligns with the nation's energy security goals, in particular, the need to expand renewable energy sources. We have significantly invested in our renewable hydropower projects, with our installed hydropower capacity now standing at 3,452MW. Recognising climate change as an urgent and ongoing concern, we believe renewable energy, and hydropower in particular, will help with the energy transition.

This is consistent with our message at the 27<sup>th</sup> Conference of the Parties (COP27) in Egypt, where I participated in calling for greater and more urgent climate action through the forgotten giant of low-carbon electricity – hydropower.

Representing Sarawak Energy, I participated in the conference as a session panellist on 'Decarbonising the ASEAN Way – Harnessing the Collective Actions of ASEAN Private Sectors'. We also emphasised hydropower's capability to produce low-carbon electricity and its flexibility in allowing for the integration of more intermittent wind and solar power at COP27.

To further advocate for hydropower, we held the inaugural Global Hydropower Day in collaboration with the International Hydropower Association on 11 October to showcase the benefits of hydropower, particularly when developed and operated responsibly and sustainably.

### Strategic Partnerships

In 2022, we signed an MoU with Samsung Engineering Co Ltd, Sarawak Economic Development Corporation (SEDC) Energy, Lotte Chemical and POSCO Holdings to conduct a joint study on electricity supply for the H2biscus Project, which is a hydrogen plant that will produce clean hydrogen and ammonia through renewable hydropower energy. The project will study the potential of renewable power supply capacity

#### Senior Leadership

Following the retirement of members of our senior leadership team, we welcome new personnel in their place:

#### Group Chief Operating Officer

James Ung Sing Kwong, previously the Chief Executive Officer of our generation arm SEB Power, was appointed Group Chief Operating Officer for Sarawak Energy in January 2022 – succeeding Lu Yew Hung who retired on 31 December 2021.

#### Chief Executive Officer of SEB Power

Bunyak Lunyong served as General Manager for Project Controls and Performance Management prior to his recent appointment as Chief Executive Officer of SEB Power.

#### Chief Financial Officer

Tan Kok Kiong was seconded to Sarawak Energy from Sarawak Shell Berhad to cover the role of Chief Financial Officer with effect from 1 July up to 31 December 2022. Thereafter, he will assume the role of Chief Financial Officer. He succeeds Alexander Chin, who was our Chief Financial Officer since 2014 and retired in June 2022.

and facilities, such as substations and transmission infrastructure, that would be required to supply the H2biscus project in Sarawak.

We also expanded our collaboration with PETRONAS in clean energy solutions and technology through the signing of an MoU. This MoU was a follow-up to our previous partnership to jointly explore the commercial production of green hydrogen and its value chain in Asia – including clean energy solutions and technology to cover the hydrogen value chain, diversifying Sarawak's energy mix and green mobility solutions, among others.

### Transforming Energy Through Digitalisation and Innovation

Our digital transformation journey drives us towards realising our aspirations of becoming a digital utility operator by 2025. Our financial and non-financial investments in developing robust and purposeful infrastructure and systems have paid off, as we were able to ensure business continuity during the pandemic.

## Group Chief Executive Officer's Statement



A major achievement in 2022 was our strong partnership with the Electric Power Research Institute (EPRI), which resulted in the awarding of a USD1.1 million grant by the US Trade and Development Agency (USTDA). The grant will be utilised for technical studies to enhance our digital transformation strategic roadmap and support sustainable growth by meeting the region's need for reliable renewable energy.

We are also incorporating innovation into our business in line with the latest technological trends and to meet consumer needs. Balingian Power Generation is in the process of becoming our first Digital Power Plant, being equipped with relevant technologies on top of several systems which have gone live for efficient resource and maintenance planning, data visibility and online condition monitoring.

The Dynamic Water Dispatch Management system, which utilises artificial intelligence-based analytics to provide highly accurate hydrological forecasting for optimised fleetwide dispatch of our hydroelectric plants, won us the Malaysia Technology Excellence Award in 2022.

### Investing in Our People

Our employees have always been the driving force behind the success of Sarawak Energy. We have fostered a culture of professionalism, agility and adaptability that has enabled us to overcome unprecedented challenges in an unpredictable energy industry. In continuing to nurture the skills of our workforce, we constantly advocate

for the acquisition of new knowledge and honing of expertise, on top of embracing innovation and technologies to better thrive in a dynamic work environment.

In developing our employees to reach their full potential and become more resilient, our Talent Management Excellence Key Focus Area incorporates initiatives and programmes to support the growth and development of our people, with an emphasis on technology skills, digital literacy and commercial acumen to keep up with new advancements in the energy industry.

### Outlook

Energy security is key for the future, especially with demand rising in line with the reinstatement of industrial and commercial activities. As we look forward to 2023, we will continue to spearhead and work towards strengthening energy security for Sarawak and, in time, the region.

Sarawak Energy remains committed to supporting the state's demand for reliable and secure power supply while continuously working towards decarbonising the power system. Sarawak is slated to maintain at least 60% of its power generation capacity mix from renewable sources by 2030, which means that the State is in a capable position to become the Battery of ASEAN. This positioning translates into powering the region with reliable and affordable renewable energy by progressing the Borneo and wider ASEAN grid through interconnections with regional neighbours.

We will continue building on all that we have achieved during SEE 2022 and leverage our continuous improvement mindset to reaffirm the organisation's progressive, high-performance culture and deliver even better outcomes.

With the next strategic roadmap, Sarawak Energy is confident that we are well on our way to achieving our regional renewable energy powerhouse aspirations.

### Acknowledgements

As SEE 2022 ends and we begin a new chapter in the organisation's strategic direction, I take this opportunity to thank our Board of Directors for their unwavering support in navigating challenges. I am also grateful to be assisted by my Group Executive Committee (GEC) colleagues, a fit leadership team and committed employees for their support and efforts in seeing through the completion of SEE 2022. The success of the organisation is built by their strong support and contributions. As we embark on our new SEE 2025 journey, I look forward to more stellar performance by the team.

In managing our organisation effectively, our business partners and vendors play an important role in helping us to achieve our goals. To the Premier of Sarawak, Yang Amat Berhormat Datuk Patinggi Tan Sri Abang Johari Openg, the Sarawak Government, and the Ministry of Utility and Telecommunication, I thank you for entrusting us with the responsibility of supporting Sarawak's development and growth.

Finally, to our customers, Sarawak Energy expresses our appreciation for your continued trust and support of the Company and our operations. We anticipate exciting times ahead and assure you of our dedication to keeping the lights on for you and your families.



**Datu Haji Sharbini Suhaili**  
Group Chief Executive Officer



# Chief Financial Officer's Statement

**TAN KOK KIONG**  
Chief Financial Officer

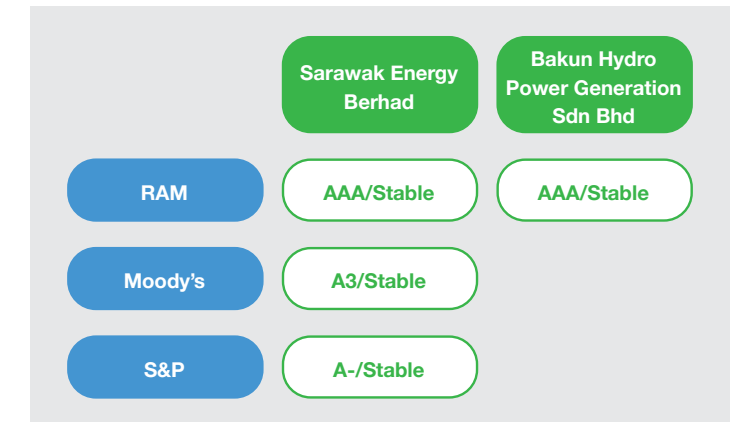


## Financial Performance in 2022

The year 2022 has been a momentous year for Sarawak Energy. We have weathered and fully recovered from the pandemic through our cash conservation and management strategy as well as disciplined spending – resulting in record financial results and strengthened financial resilience. Additionally, we continue to invest in operational and commercial excellence to sustain and improve our cost and operational performance to adapt to the ever-changing business landscape and increasing threat of global recessions. At the same time, we remain poised on developing paced investments in growing our generation capacity to meet the increasing energy demand in Sarawak and the region.

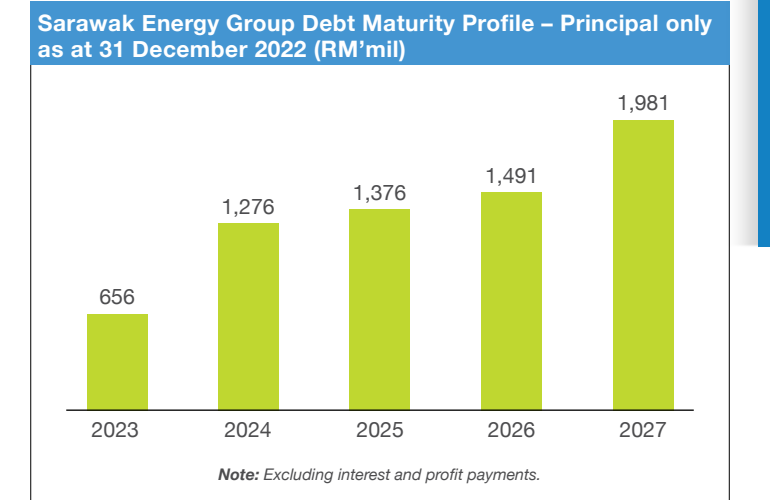
## Chief Financial Officer's Statement

Sarawak Energy Group's credit ratings are as shown below:



Sarawak Energy Berhad did not undertake any sukuk issuance in 2022.

As of 31 December 2022, the total outstanding borrowings of the Sarawak Energy Group stood at approximately RM17.163 billion. The Group's borrowing commitments are significant over the next five years as shown below (principal portion only):



The Group's gearing ratio has decreased from 1.60 times in 2021 to 1.20 times in 2022 resulting from the repayment of approximately RM1.9 billion in borrowings coupled with the Group's enlarged equity base arising from sustained profit improvements.

### Dividends

On 22 March 2023, the Board of Directors approved a single-tier final dividend in respect of the financial year ended 31 December 2022, of 9.8% on 1,610,568,979 ordinary shares, amounting to a dividend payable of RM158,000,000 (9.8 sen per ordinary share). The proposed dividend was paid on 26 April 2023. The financial statements for the current financial year do not reflect this proposed dividend and will be accounted for in equity as an appropriation of retained earnings in the financial year ending 31 December 2023.

I am pleased to report that we have achieved a record high revenue of RM6.965 billion and profit before tax of RM2.220 billion which is an 83.3% year-on-year improvement for 2022.

The revenue growth by 15.1% as compared to the preceding year of RM6.049 billion was primarily due to the higher sales of electricity resulting from increased power uptake by both organic and bulk customers.

The organic sector improved 9.2% year-on-year as power demand increased especially for commercial and industrial consumers arising from the country's transitioning into normalisation phase post COVID-19 pandemic and uptick in the number of organic customers.

Bulk power consumption was higher by 13.4% year-on-year largely underpinned by higher average demand from Sarawak Corridor of Renewable Energy (SCORE) customers in the Samalaju Industrial Park including the full operations since October 2021 of the extended capacity by one of the existing SCORE customers, coupled with positive commodity price adjustment arising from favourable commodity prices.

During the year, we have also successfully secured new power purchase agreement commitments of 145MW, further diversifying our customer base and fully operationalising new generation capacity of 421MW.

The substantial rise in profit before tax to RM2.220 billion was driven mainly by revenue growth as explained and lower impairment losses, offset partially by higher operating costs arising from new supply generation and a ramp-up in maintenance costs with the reopening of international borders.

Higher net profit of RM2.734 billion is mainly contributed by higher profit before tax coupled with a one-off non-cash deferred tax adjustment of RM1.157 billion vis-à-vis the Investment Allowance for two power plants.

### Financing Activities in 2022

In June 2022, Sarawak Energy Berhad secured its first-time issuer credit ratings from two international credit rating agencies: Moody's Investors Service (Moody's) of A3/Stable and S&P Global Ratings (S&P) of A-/Stable. The ratings and outlooks mirror and equalise with the ratings of Sarawak.

These international credit ratings will provide opportunities for Sarawak Energy to tap into the international and sustainable financing market for future funding requirements as the Company continues to materialise its regional expansion plans as part of its aspiration to become a regional renewable energy powerhouse.

RAM Rating Services Berhad (RAM) has also reaffirmed the credit ratings of Sarawak Energy Berhad and its subsidiary – Bakun Hydro Power Generation Sdn Bhd of AAA/Stable respectively, demonstrating the Group's financial strength and capacity to meet its financial obligations.

## Chief Financial Officer's Statement

## Strengthening Risk Management

In 2022, post pandemic recovery was well underway for our commercial, industrial, and bulk consumers with high demand and prices for their products which led to a significant increase in the consumption of power and corresponding increase in Sarawak Energy's revenue and profit before tax. Nonetheless, risks that impact our strategic objectives continue to exist and we continue to proactively manage these risks and strengthen risk management capabilities and processes.

During the year, we enhanced the Sarawak Energy Group's risk governance, operating model and organisational structure, risk management framework and tools as well as facilitated the groupwide rollout of Sarawak Energy Enterprise Risk (SEERisk), an internally developed enterprise risk management system, that streamlines and speeds up the risk review process across the Group and enhances visibility of risks and mitigations, among others. In our efforts to further embed risk management in the business and projects, 67 new Risk Controllers were appointed – bringing the total to 109 Risk Controllers.

## Moving Forward

As we enter into a new year, Sarawak Energy will remain committed to balancing sustainable value creation and maximising returns from our investments – we have invested in several key growth areas such as growing our generation capacity and sustainable power infrastructure, diversifying our customer market in pursuing the Sarawak Energy Excellence 2025 Roadmap and alignment with Sarawak's Post COVID-19 Development Strategy 2030 that can potentially drive future revenue and profitability growth. I am confident that these efforts driven by energy transition will position Sarawak Energy for continued success in powering Borneo and beyond in the years ahead.

## Acknowledgements

I would like to extend my deepest gratitude and appreciation to Alexander Chin, the former Chief Financial Officer who retired on 30 June. He has been instrumental in driving Sarawak Energy's financial transformation to support sustainable value creation in the business navigating an increasingly challenging business environment especially over the last two years of the unprecedented COVID-19 pandemic and leaving a strong record of accomplishments over the course of his eight-year tenure. We wish him the very best in all future endeavours.

## Five-Year Group Financial Highlights

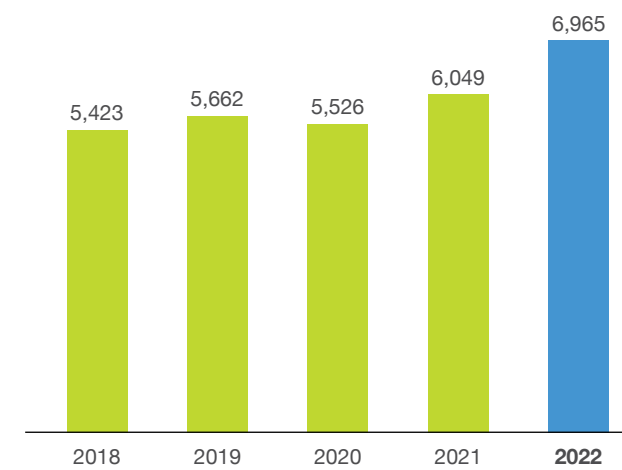
Financial Year Ended 31 December	2018	2019	2020	2021	2022
<b>Performance (RM'000)</b>					
Revenue	5,423,281	5,662,052	5,525,832	6,048,826	6,964,867
Profit before tax	1,733,207	1,635,106	1,058,267	1,211,521	2,220,233
Profit net of tax	1,280,620	1,182,944	698,800	820,555	2,733,709
Profit net of tax attributable to owners of the Company	1,279,878	1,171,623	710,394	818,527	2,717,477
Net dividends	67,805	-	-	-	(2)
<b>Key Financial Position Data (RM'000)</b>					
Property, plant and equipment	28,997,902	29,754,655	30,109,195	30,036,333	30,496,813
Right-of-use assets <sup>(1)</sup>	-	160,073	167,177	209,166	222,403
Cash and bank balances	4,216,264	4,210,859	5,478,655	5,077,608	4,015,231
Total assets	36,583,812	37,107,753	39,156,620	37,697,238	39,535,833
Loans and borrowings	20,462,687	20,147,806	21,543,566	19,050,962	17,163,344
Total liabilities	27,283,318	26,730,061	28,103,208	25,818,807	25,194,803
Share capital	1,833,341	1,833,341	1,833,341	1,833,341	1,833,341
Equity attributable to owners of the Company	9,275,179	10,341,056	11,028,594	11,851,585	14,297,952
<b>Share Information</b>					
Net asset per share attributable to owners of the Company (RM)	5.76	6.42	6.85	7.36	8.88
Net earnings per share (sen)	79.50	72.70	44.11	50.82	168.73
Gross dividend per share (sen)	4.21	-	-	-	(2)

<sup>(1)</sup> Starting 1 January 2019, leasehold land that was previously classified as property, plant and equipment is now presented as right-of-use assets upon adoption of MFRS 16 Leases.

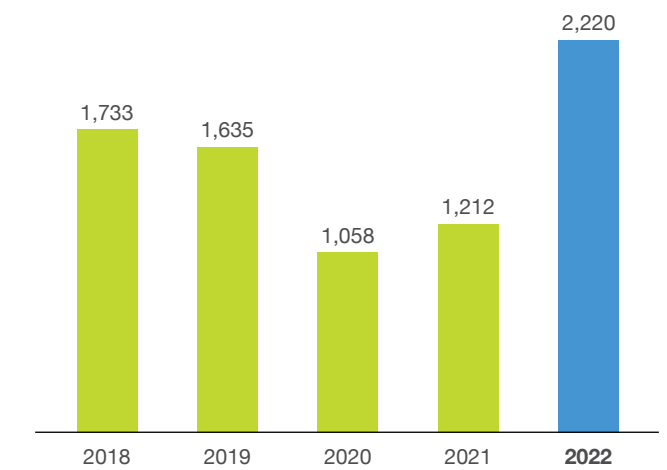
<sup>(2)</sup> On 22 March 2023, the Board of Directors approved a single-tier final dividend in respect of the financial year ended 31 December 2022, of 9.8% on 1,610,568,979 ordinary shares, amounting to a dividend payable of RM158,000,000 (9.8 sen per ordinary share). The proposed dividend was paid on 26 April 2023. The financial statements for the current financial year do not reflect this proposed dividend and will be accounted for in equity as an appropriation of retained earnings in the financial year ending 31 December 2023.

## Chief Financial Officer's Statement

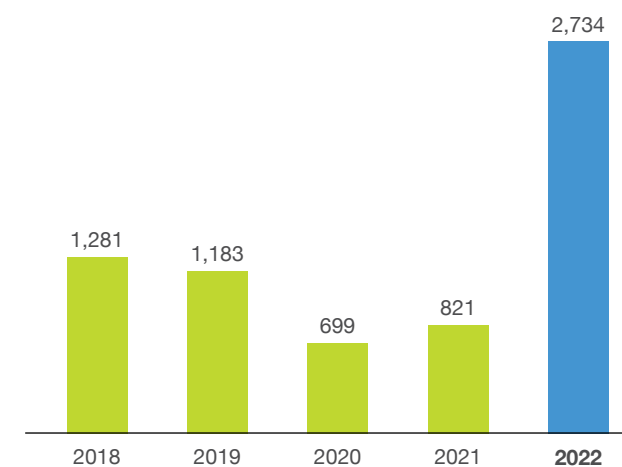
## Revenue (RM'Mil)



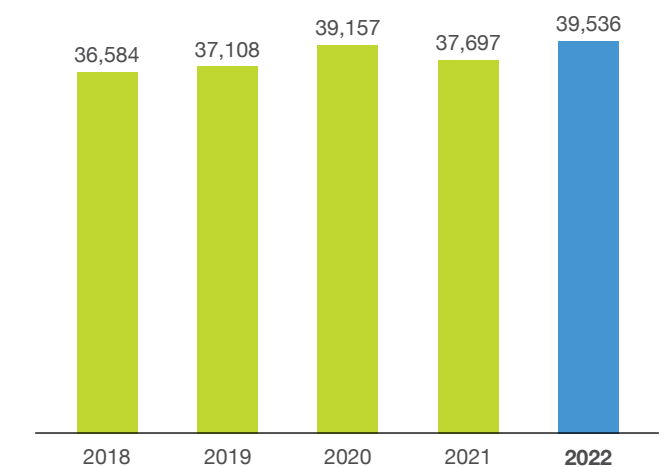
## Profit Before Tax (RM'Mil)



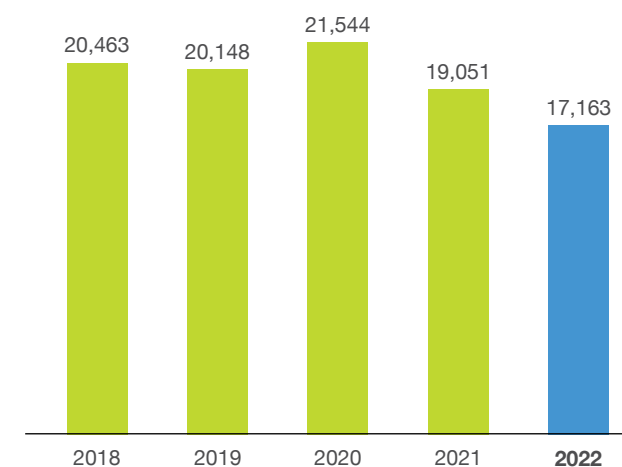
## Profit Net of Tax (RM'Mil)



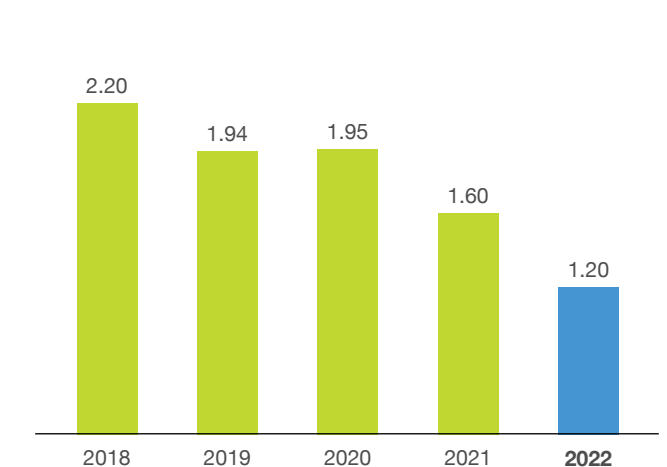
## Total Assets (RM'Mil)



## Loans and Borrowings (RM'Mil)



## Gearing Ratio (times)



# Management Discussion & Analysis

Sarawak Energy remains steadfast in our commitment to leverage and sustain our growth, striving to deliver sustainable, reliable and affordable energy to Sarawak and the region. With the completion of Sarawak Energy Excellence (SEE) 2022, we will be guided by SEE 2025 and our refreshed Key Focus Areas (KFAs) which emphasise key elements within the organisation. We are focused on fostering a high performance corporate culture of continuous improvement and innovation, capitalising on emerging opportunities and technological advancements while simultaneously embracing sustainability practices to meet the expectations of our stakeholders.

## Rural Electrification

Sarawak Energy is on track to achieve our target of full electrification for the State by 2025 while advancing our pursuit to become a regional renewable powerhouse. In 2022, we have achieved 97.9%\* coverage for our rural communities and 99.2%\* statewide coverage through rural electrification initiatives.

Over the span of three years, from 2019 to 2022, Sarawak Energy managed to connect 25,596 rural households with electricity supply under the State Government's Projek Rakyat initiative, with 5,157 connected in 2022. From the 25,596 rural households connected, about 11,200 which are situated at the very remote areas such as interior Baram, Merit and Kapit are being provided with off-grid solar systems via the Sarawak Alternative Rural Electrification Scheme (SARES) as they are situated very far from the grid and are mostly without proper road access. The remaining households were connected to the grid via the Last Miles initiative.

Apart from the Last Miles grid initiative, the Additional and Late Applicant Fund (ALAF) programme has also lit up 11,179 new rural households via the grid in already electrified villages from 2019 to 2022 with 2,272 being connected in 2022.



Besides electrifying domestic households, Sarawak Energy has also connected 109 rural schools to the grid or solar hybrid stations since 2019 with 57 being connected in 2022. This is part of the initiative by the Ministry of Education, Innovation and Talent Development as well as the Jabatan Pendidikan Negeri Sarawak to provide 122 rural schools with reliable electricity supply, replacing their current use of diesel generators. The remaining 13 schools are scheduled to be connected in 2023.

## Project Delivery (PD) Excellence

We have continued improving and progressively transforming our PD performance in 2022 to ensure timeliness, quality and efficiency at all projects. This past year, we were rated in the second quintile of the Independent Project Analysis' (IPA) annual benchmarking assessment which is a significant improvement over the fifth quintile rating in 2018.

## Management Discussion & Analysis

Having been validated by this reputable global benchmarking organisation, we are confident that we can reach the first quintile by 2025.

The Sarawak Energy Project Model (SEPM), which was launched in the past year, is a business process that ensures the prudent management of capital investments and now applies to all capital projects undertaken by Sarawak Energy and our subsidiaries. We have also tightened our governance and compliance practices, revising our Manual of Authority to reflect the stage gate process and align with our SEPM. We also established a governance function within the PD team to facilitate and monitor compliance.

Greater investments into capability building within Sarawak Energy has allowed the company to develop local Sarawakian talent and decrease our reliance on third party consultants. Our PD Academy has achieved 46,200 manhours since 2020, training more than 500 of our people. Selected Sarawak Energy personnel also participated in the Industry Benchmarking Conference (IBC) organised by the IPA, exposing them to world class practices.

While we have made significant progress in our PD transformation, the IPA's assessment of Sarawak Energy in 2022 indicated that we had fewer experienced personnel when compared to the industry average, especially in relation to project management, engineering, project controls and construction management. To resolve these issues, our PD Academy will continue conducting training to close these competency gaps and develop a skill group training module to address our workforce's training needs.

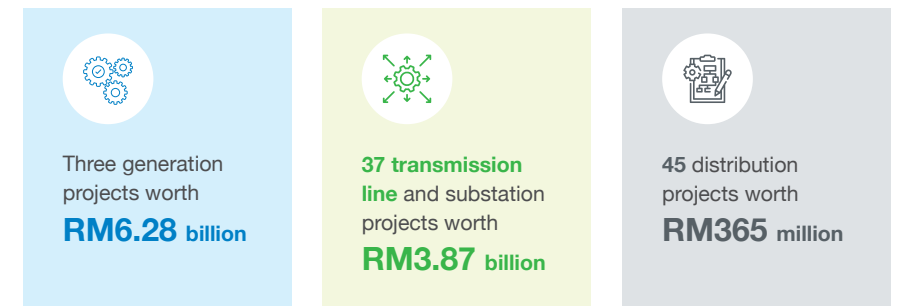
We also experienced issues with foreign manpower, recording a 67% shortfall against the planned number of foreign workers in our major capital projects for 2022. To address this challenge, we collaborated closely with the State Localisation Committee (SLC) and the Immigration and Labour Management Unit Sarawak (ILMU), as well as authorities from the Labour and Immigration Departments. The SLC also assisted us by approving a 4,790 quota for foreign workers via the One-Stop Committee (OSC).

A major challenge for our PD operations for the year was continued land and wayleave issues for around RM4.2 billion in projects, with delays ranging from around one to five years. Through compulsory land acquisition as well as the support of our State Steering Committee, we are working to resolve these problems.

With international events affecting the global supply chain, there were shortages in supplies and delays in delivery. Sarawak Energy has countered these challenges by implementing an appropriate contract strategy to mitigate logistical risks and also ensuring that we have a sufficient pool of alternative vendors in our approved vendor list.

Sarawak Energy's capital project portfolio currently stands at RM40 billion and we are involved in two international projects – the Mentarang Induk Hydroelectric Project (MIHEP) and Singapore High-Voltage Direct Current (HVDC) Undersea Interconnection. At present, MIHEP is in the Final Investment Stage while the Singapore HVDC Undersea Interconnection is in the Basic Engineering Phase.

Since 2018, we have commissioned projects that are worth RM10.5 billion, including:



## Management Discussion & Analysis



### Operational Excellence

We continued upholding Operational Excellence to ensure our consumers have access to uninterrupted power supply. To this end, we have significantly improved our System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) performances in 2022 – recording an all-time low of 77.93 minutes<sup>a</sup> for SAIDI while our SAIFI lowered to 1.04 times<sup>a</sup>. Since 2016, our overall SAIDI has improved by 68% while overall SAIFI dropped by 65%.

These improvements over the past decade have led to a consistent increase in our customer satisfaction index over the same span of time, growing from 77.42% in 2016 to 97.15% in 2022.

During the year, we also achieved several operational and performance milestones. This includes successfully re-rating four IMPSA Units at Bakun Hydroelectric Plant (HEP) for an additional 120MW capacity, conducting a full performance capacity test for Kidurong Power Generation at Tanjung Kidurong Combined Cycle Power Plant (CCPP) and improved 64 fly ash hoppers at Balingian Power Generation – improving performance and reducing equipment downtime.

To ensure reliability in Sarawak’s northern region, we added additional generators to increase capacity and enhance reliability in Limbang and Lawas. We also conducted recovery works at Mukah Power Generation, normalising the plant’s U1 and reconnecting to the grid after an extended shutdown since December 2019.

We are also strengthening our power reliability and grid stability through the Seingkat Battery Energy Storage System (BESS) and Kuching Network Reinforcement (KNR).

While there were a few reliability issues at several of our plants, our team acted diligently to progress and complete the necessary rectification works and will continue to work towards resolving these challenges long term.



### Commercial Excellence

Commercial Excellence is a vital part of Sarawak Energy’s decision-making processes – informing how we utilise money, assets and resources to generate maximum value for the company and stakeholders. Sarawak Energy has continued to focus on expanding our international footprint by exploring opportunities to form new interconnections in Southeast Asia – leveraging the latest technologies to optimise our grid reliability and diversify our generation mix via the introduction of new alternative renewables.

We have also emphasised the continuous improvement of procurement processes for operational efficiency and are examining ways to keep costs under control as we pursue future growth.

The Company is committed to establishing strategic partnerships with local vendors through knowledge, capacity, and capability development. We also have launched vendor performance platforms to recognise high-performing vendors, highlighting their contributions to the company and positioning them as good examples to others.

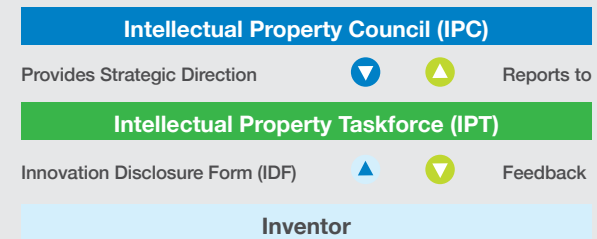
*Read more about "Integrated Business Skills and Commercial Excellence Culture" on page 172.*

**Note:**  
<sup>a</sup> Includes generation, transmission and distribution.



### Intellectual Property

Sarawak Energy is examining how best to manage the company’s intellectual property (IP) – which has the potential to be a key source of value generation. We have taken proactive measures through our intellectual property taskforce (IPT) to establish IP policies and enhance internal IP knowledge. A dedicated team for negotiations with research collaborators has also been formed.



Our IP activities are governed by the IPC, who provide us with a strategic direction. The IPT, which functions as a cross-departmental working group, subsequently implements these strategic recommendations to cultivate a culture of innovation and exploration within Sarawak Energy - working with inventors to promote and protect IP.

## Management Discussion & Analysis



### Health, Safety, Security and Environment (HSSE) Excellence

We continued the downward trend in our safety accident statistics for 2022 – recording 17 total work-related accidents compared to 23 from the previous year. Although our lost time injury (LTI) saw a slight increase from 8<sup>1</sup> in the previous year to 9<sup>\*</sup>, our lost time injury frequency rate (LTIFR) was kept under 1 at 0.329<sup>\*</sup> per million hours.

Our subsidiary – Sarawak Energy Resources – has recorded 7.5 million total safe manhours as of December 2022, having been LTI-free since June 2018. The company also received ISO 45001:2018 and 14001:2015 certifications for Balingian Energy Minerals’ Occupational Health and Safety Management System, and Environmental Management System respectively. HSSE Excellence in Sarawak Energy is supported by the organisation’s generative HSSE Culture, which encourages all employees to take ownership of HSSE. As a result of our diligence, we have achieved a more than 60% decrease in the number of work-related accidents between 2016 and 2022.

Our major power stations have demonstrated incremental adoption and exceptional compliance with process safety, as exemplified by the absence of any process safety incidents in 2022. Our employees at these facilities have implemented a systematic approach to identify and address any potential deviations in our processes through a pilot exercise that is called the Hazard and Operability Study (HAZOP) at Balingian Power Generation. These sustained efforts have helped ensure a high level of process safety rigour – protecting our personnel, environment, assets, and reputation from potential harm.

In line with our commitment to our people’s overall wellbeing, around 82% of our workforce has achieved a BMI below 30 – a significant improvement over 2021’s 80.9% score. While we did not meet our KFA target for the year, we will continue advocating for a safe and healthy lifestyle for our employees by fostering positive behavioural changes via the implementation of awareness programmes, physical activities, and organisation-wide competitions.

We enjoyed a high level of environmental compliance in all major projects with a single exception – for which Sarawak Energy has taken punitive measures by removing a contractor’s project manager early this year and exercised the payment deduction penalty provisions against this contractor. The Company has also recently revised contract terms with higher quantum of penalties for non-compliance reflecting Sarawak Energy’s seriousness on the importance of health, safety and environmental compliance.

We also constructed new scheduled waste storage areas in Sri Aman, Sibul, Kapit, Sarikei, Mukah, Miri, and Marudi to mitigate the impact of our operations and drove a Digitalised Waste Management 3R Programme, which leveraged digitalisation to modernise and simplify waste management as well as recycling processes.

*Read more about "Sarawak Energy Digitalised Waste Management 3R Programme" on page 167.*

Security performance also improved in 2022, with zero intrusions at our guarded assets and a 31% decrease in our overall physical security intrusions. We had a total of four arrest cases involving five cable theft suspects, all of whom have been apprehended and charged in court.

To continue fostering a generative HSSE culture within the organisation, various workshops were held to embed HSSE core values among employees – these include Leadership, Behaviour, and Culture. By leveraging Sarawak Energy’s ongoing digitalisation efforts, we have implemented measures to enhance the permit-to-work process by transitioning it from manual to digital.

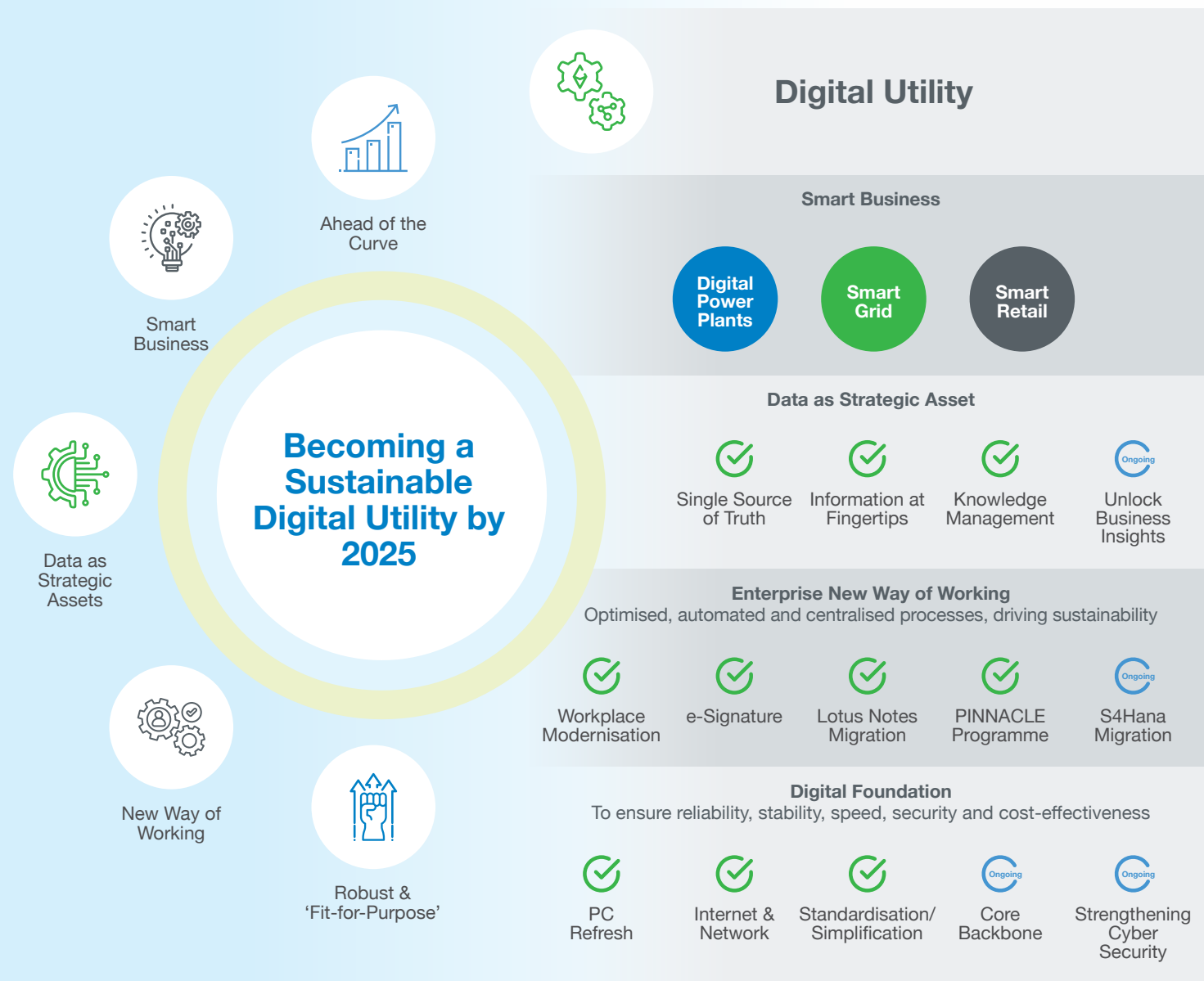
Communication has been the foundation of our strong HSSE performance over the past year, as we continuously cascade relevant HSSE policies, procedures, and guidelines (PPGs) to employees to ensure they are aware of the latest updates. We also provide platforms for feedback, facilitating continuous improvement in our HSSE activities.



2-6 Management Discussion & Analysis

**Towards Becoming a Digital Utility**

Forging ahead in our ambition to become a digital utility by 2025, we are supported by four key pillars:



**Digital Foundation**

Building on the success of earlier initiatives such as the PC Refresh programme, enhancement of internet and network bandwidth as well as the standardisation of hardware and devices under our Digital Foundation pillar, we are in the process of upgrading our core backbone from aging Synchronous Digital Hierarch (SDH) technology to the new Optical Transport Network (OTN) and Dense Wavelength Division Multiplexing to enable the 100Gbps network. We are also strengthening our IT infrastructure to safeguard against the possible risks that come with digitalisation.

Management Discussion & Analysis

**Enterprise New Way of Working**

Sarawak Energy has transitioned to a new way of working, modernising the workplace with the introduction of new technologies and processes like e-signatures and the ongoing migration from SAP Enterprise Resource Planning (ERP) Central Component 6.0 to SAP S/4HANA to enhance ERP processes within the organisation, boosting productivity and efficiency.

**Data as a Strategic Asset**

We are currently working to unlock business insights by leveraging data aligned with our goal of becoming a data driven business, introducing new capabilities like retail fraud and smart meter analytics as well as automated calculation of SAIDI and SAIFI.

**Smart Business**

Under our Smart Business pillar, we continued working to transform Balingian Power Generation (BPG) into Sarawak Energy's first Digital Power Plant (DPP) in 2022. As the first DPP, BPG will be equipped with a comprehensive suite of cutting-edge technologies like condition-based monitoring sensors, an online performance monitoring system, a mobile field service solution for operator rounds, and an optimised asset management process – driving Operational Excellence and enabling better analytical insights for enhanced daily operations and maintenance. It will also have an early warning system, which will provide timely and meaningful anomaly warnings for critical power generation components.

Aligning with our Smart Grid efforts, we have equipped an additional 100 substations with the Distribution Remote Monitoring System (DRMS) and installed more than 130 smart devices, including sectionalisers and line fault indicators, to enhance our overhead line network performance. We also rolled out our Smart Meter Project in Q4 2022, with a total of 14,144 smart meters being installed in Kuching. Deployment of smart meters will continue for the rest of Kuching as well as other cities and towns in subsequent years, ensuring our customers have access to accurate and timely electricity bills.

**Fulfilling Rural Telecommunication Needs**

To support our people working in remote areas, we accelerated efforts to cater to rural telecommunication needs in 2022 by setting up very small aperture terminal (VSAT) connections or providing mobile internet broadband. We established 4G telco coverage at our Baleh HEP site with support from the State Government and are continuing to engage with them to explore and test new technologies for rural last-mile connectivity.



**Contracts and Procurement (C&P)**

Our C&P endeavours in the last year dovetailed with our ongoing digitalisation and enterprise modernisation journey, as we rolled out five systems to streamline and automate existing systems for greater efficiency. Four of these systems were for internal use while one was for vendors.

A key highlight for 2022 was the launch of our Sarawak Energy e-Procurement (SEPRO) Tender Notice system, which allowed us to move away from an outsourced system – saving us subscription fees and automating existing workflows, cutting back manhours.

We strengthened procurement assurance by completing six compliance assessments for various departments within the company and developed Consequence Management Procedures to address non-compliance with our Procurement Policy & Procedures (PPP). We also conducted Integrated Risk Assurance to assess our Murum HEP and Bintulu Power Station.

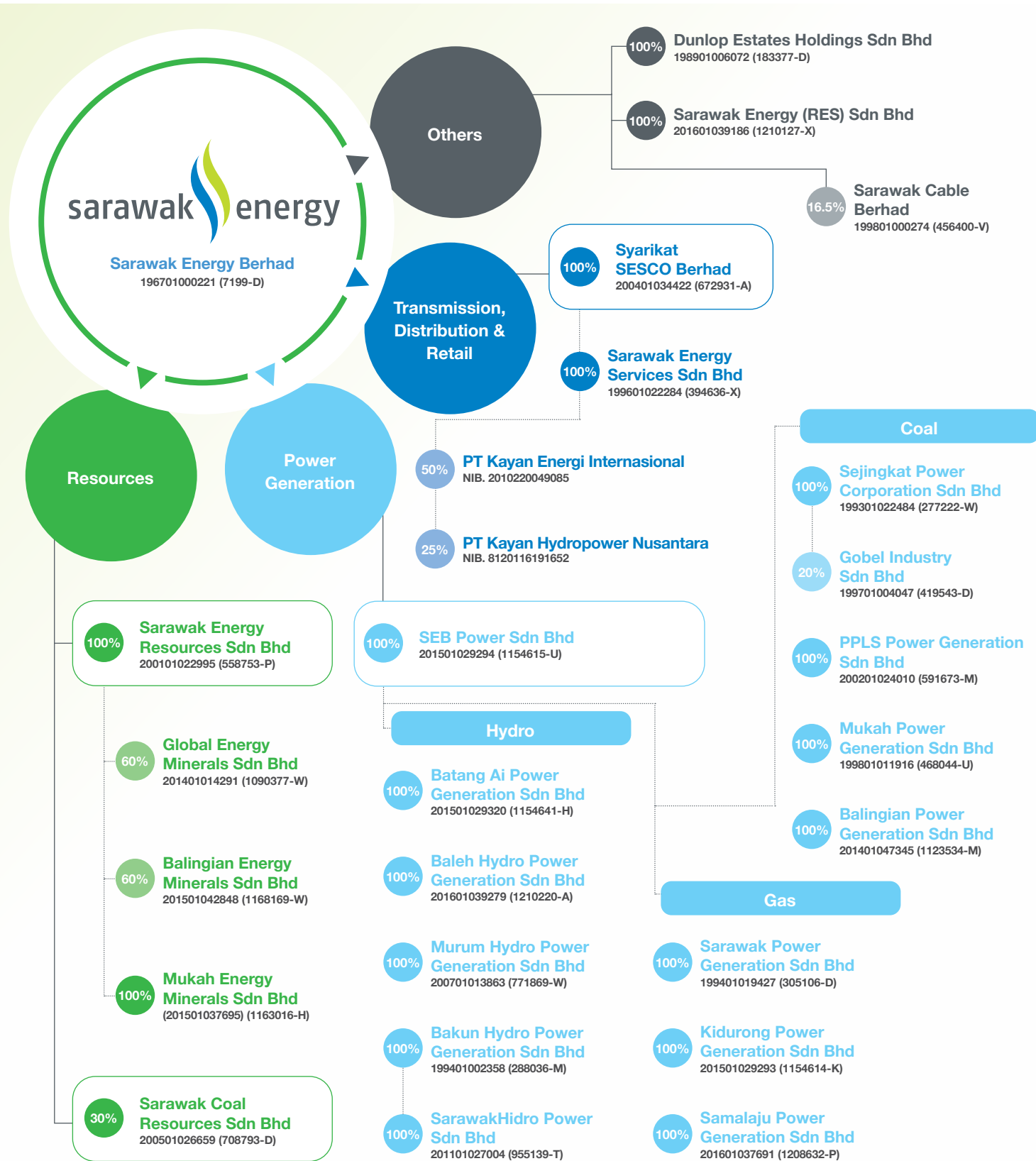
We continue to be part of the Bumiputera Participation Board Committee together with the Ministry of International Trade & Industry, Industrial Terminal and Entrepreneur Development (MINTRED), Dewan Usahawan Bumiputera Sarawak, Dayak Chamber of Commerce, Orang Ulu Chamber of Commerce and Industry as well as other professional and entrepreneurial groups. To date, Sarawak Energy has approximately 3,900 vendors and contractors which contribute to our business, of which more than 1,400 are Bumiputera contractors.

Our ongoing initiatives also aid these vendors to become professional industry players. Our continuous collaboration with training providers and regulators including the Unit Pendaftaran Kontraktor dan Juruperunding (UPKJ), the Construction Industry Development Board (CIDB) and the Electrical Inspectorate Unit (EIU) presents a platform for our contractors to hone their technical skills as well as receive assistance for business licence applications. More than 158 companies have benefitted from our efforts and are able to provide services to Sarawak Energy. Our Small Medium Enterprise-Sustainability Development Goals (SME-SDG) toolkit has also helped various companies in their sustainability journey.



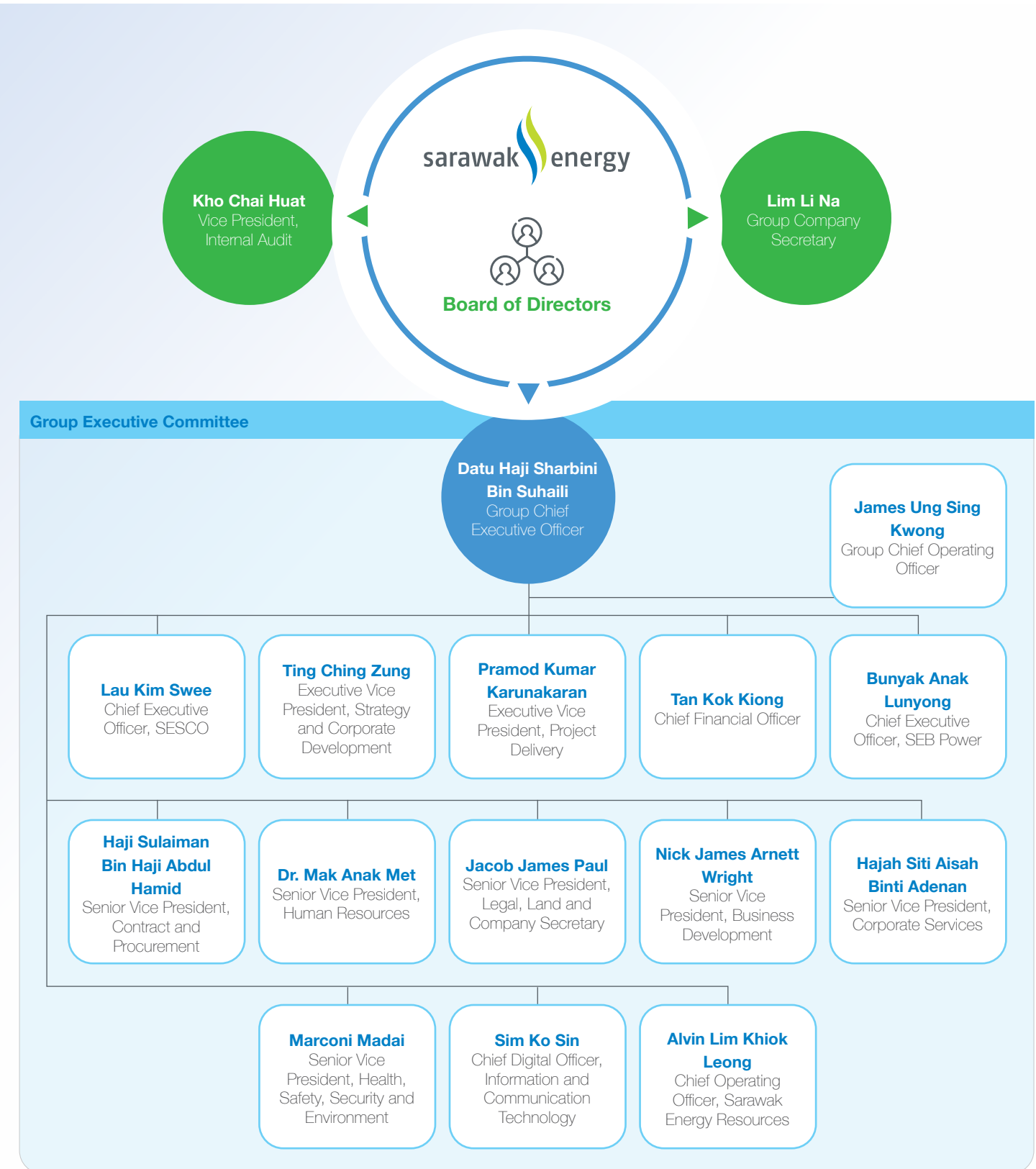
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# Our Corporate Structure



2-9

# Group Organisation Structure



# Board of Directors Profile

## YBhg. Datuk Amar Abdul Hamed Sepawi

Chairman of Sarawak Energy  
Non-Independent, Non-Executive Director

**Age:** 73  
**Gender:** Male  
**Nationality:** Malaysian  
**Meeting Attendance:** 4/5



Yang Berbahagia Datuk Amar Abdul Hamed Sepawi joined the Board of Sarawak Energy Berhad and was appointed Chairman of the Company on 27 June 2005. He has attended four (4) out of five (5) Board meetings held in 2022.

Datuk Amar Abdul Hamed is an entrepreneur, property developer, oil palm and tree planter, as well as an industrialist involved in the timber, food and beverage, and energy industries.

He graduated with a Bachelor of Science degree from the University of Malaya in 1971 and pursued his undergraduate studies in Forestry at the Australian National University from 1974 to 1975. He also holds a Master's degree in Forest Products Utilisation from Oregon State University, USA.

He was conferred the Panglima Gemilang Bintang Kenyalang in 1999 and the Datuk Amar Bintang Kenyalang in 2012. He has spent almost 40 years in the corporate world and in recognition of his success, he was most recently awarded the Global Muslim Excellence and Lifetime Achievement in 2022. He received the Sarawak Entrepreneur of the Year 2004 award and The BrandLaureate's prestigious 'Man of the Year' Brand Icon Leadership Award 2015.

He also serves as Chairman of Syarikat SESCO Berhad and Naim Holdings Berhad, as well as Executive Chairman of Ta Ann Holdings Berhad and Sarawak Plantation Berhad.

## Board of Directors Profile

## YBhg. Tan Sri Datuk Amar Haji Mohamad Morshidi Bin Haji Abdul Ghani

Non-Independent, Non-Executive Director

**Age:** 66  
**Gender:** Male  
**Nationality:** Malaysian  
**Meeting Attendance:** 5/5



Yang Berbahagia Tan Sri Datuk Amar Haji Mohamad Morshidi Bin Haji Abdul Ghani joined the Board of Sarawak Energy Berhad on 26 May 2010. He is a Non-Independent Non-Executive Director and attended all Board meetings held in 2022.

Tan Sri Datuk Amar Haji Mohamad Morshidi graduated with a Bachelor of Economics from Universiti Kebangsaan Malaysia and has a Master of Science in Human Resource Administration from the University of Scranton, Pennsylvania, USA.

He was a Management Executive with PETRONAS from 1980 to 1988, and Director of Kuching North City Hall from 1989 to 1998. He held a number of senior positions in the Chief Minister's Department before being appointed Permanent Secretary in the Ministry of Social Development and Urbanisation in 2001. He was Director of the State Planning Unit in the Chief Minister's Department prior to his appointment as the Deputy State Secretary of Sarawak in 2006 and later, the State Secretary of Sarawak from August 2009 to August 2019.

Tan Sri Datuk Amar Haji Mohamad Morshidi sits on the boards of Syarikat SESCO Berhad, Bintulu Port Holdings Berhad, Development Bank of Sarawak Berhad and several other private limited companies.

## YBhg. Tan Sri Dato Sri Mohd Hassan Bin Marican

Independent, Non-Executive Director

**Age:** 70  
**Gender:** Male  
**Nationality:** Malaysian

**Meeting Attendance:** 4/5



Yang Berbahagia Tan Sri Dato Sri Mohd Hassan Bin Marican joined the Board of Sarawak Energy Berhad on 9 June 2010. He is an Independent Non-Executive Director and has attended four (4) out of five (5) Board meetings held in 2022.

Tan Sri Dato Sri Mohd Hassan is a Fellow of the Institute of Chartered Accountants in England and Wales (ICAEW). He also holds honorary doctorates from University of Malaya and Universiti Teknologi MARA.

He began his professional career in 1972 at Touche Ross & Co., London, and subsequently became a Partner at Hanafiah Raslan & Mohamad/Touche Ross & Co. in 1981. He was the former President & CEO of PETRONAS, Malaysia's national oil company, from 1995 until his retirement in February 2010.

He was also previously the Chairman of Singapore Power, a director with Khazanah Nasional Berhad, ConocoPhillips, Sembcorp Industries, Bank Negara Malaysia and Malaysia-Thailand Joint Authority.

Tan Sri Dato Sri Mohd Hassan also serves as a board member on several other private limited companies.

## YBhg. Dato Sri Fong Joo Chung

Non-Independent, Non-Executive Director

**Age:** 73  
**Gender:** Male  
**Nationality:** Malaysian

**Meeting Attendance:** 5/5



Yang Berbahagia Dato Sri Fong Joo Chung joined the Board of Sarawak Energy Berhad on 31 January 1996. He is a Non-Independent Non-Executive Director and has attended all Board meetings held in 2022.

Dato Sri Fong received his LLB (Hons) from the University of Bristol, U.K., in June 1971. He was subsequently called to the Bar at Lincoln's Inn, London, in November of the same year. In 1972, he began his professional career at Reddi & Co. Advocates in Kuching. He was appointed the State Attorney-General, Sarawak in August 1992. He officially retired on 31 December 2007 but was retained by the Sarawak Government as the State Legal Counsel. He also served as Councillor with the Kuching Municipal Council and Council of Kuching City South. He is a founding member and past President of the Advocates' Association of Sarawak.

Dato Sri Fong was conferred the award of Panglima Jasa Negara (PJN) by Yang di-Pertuan Agong, Malaysia in 1999 and Panglima Gemilang Bintang Kenyalang (PGBK) by Yang di-Pertua Negeri, Sarawak in 1994.

He was conferred the Panglima Negara Bintang Sarawak (PNBS) in 2017.

Dato Sri Fong sits on the boards of several other subsidiaries of the Sarawak Energy Group besides holding directorships in Bintulu Port Holdings Berhad and Sarawak Cable Berhad.

## YB Dato' Haji Idris Bin Haji Buang

Non-Independent, Non-Executive Director

**Age:** 68  
**Gender:** Male  
**Nationality:** Malaysian

**Meeting Attendance:** 4/5



Yang Berhormat Dato' Haji Idris Bin Haji Buang joined the Board of Sarawak Energy Berhad on 24 June 2000. He is a Non-Independent Non-Executive Director and has attended four (4) out of five (5) Board meetings held in 2022.

Dato' Haji Idris graduated with LLB (Hons) from the University of Buckingham, and was subsequently called to the Bar and qualified as a Barrister at Lincoln's Inn, London, U.K. He is the proprietor of Idris-Buang & Associates (since 1985), a legal firm located in Kuching, Sarawak. He was formerly the Chief Political Secretary to the YAB Chief Minister of Sarawak, a position he held from August 2000 to August 2006. He was appointed Senator of the Dewan Negara on 28 November 2005 and was reappointed to another three-year term on 29 November 2008.

He was elected as a State Legislative Assemblyman in 2016 and appointed as the Deputy Speaker of the State Legislative Assembly in 2022.

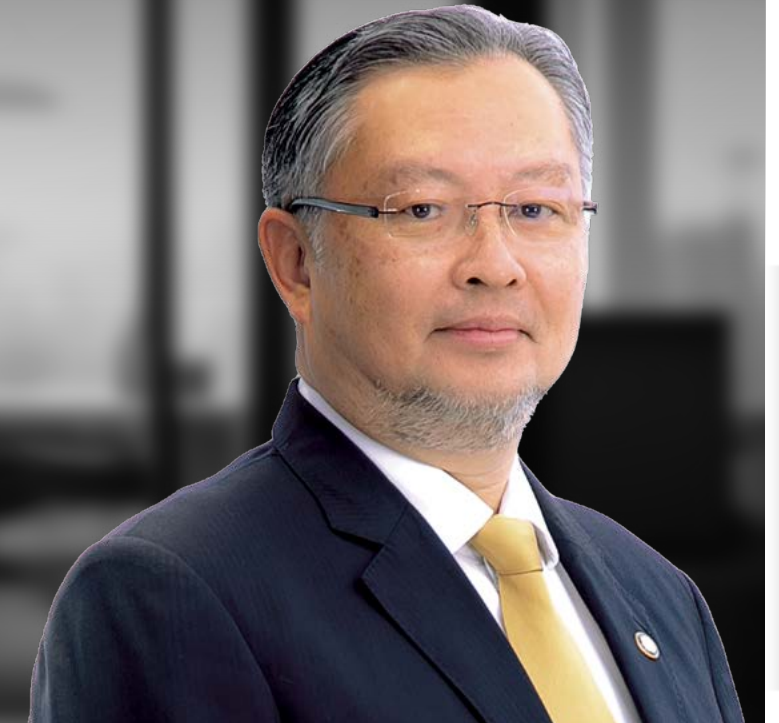
Dato' Haji Idris also sits on the boards of several other subsidiaries of the Sarawak Energy Group and other private limited companies.

## YBhg. Dato Sri Dr. Haji Wan Lizozman Bin Wan Omar

Non-Independent, Non-Executive Director

**Age:** 58  
**Gender:** Male  
**Nationality:** Malaysian

**Meeting Attendance:** 4/5



Yang Berbahagia Dato Sri Dr. Haji Wan Lizozman bin Wan Omar joined the Board of Sarawak Energy Berhad on 1 October 2021. He is a Non-Independent Non-Executive Director and has attended four (4) out of five (5) Board meetings held in 2022.

Dato Sri Dr. Haji Wan Lizozman graduated with a Bachelor of Sciences in Economic & Political Science from Northern Illinois University, Dekalb, USA in 1985. He pursued his studies and in 1987 completed a Master of International Affairs (Economic Development) from the School of International & Public Affairs, Columbia University, New York City, USA. Later, he obtained his PhD in Business Studies from Universiti Malaysia Sarawak in 2014.

He formerly served at the Sarawak Economic Development Corporation. During his tenure here from 2003 to 2012, he took on several roles including the Director of Entrepreneur Development Division, Director for the Tourism & Leisure Division, Deputy General Manager as well as Managing Director for Sara Resorts Sdn Bhd. In 2012, he was appointed as the Permanent Secretary for the Ministry of Housing Sarawak before taking on the role of Permanent Secretary for the Ministry of Urban Development and Natural Resources in 2017. He was appointed as the Deputy State Financial Secretary in 2019 and in 2021 he became the State Financial Secretary.

Dato Sri Dr. Haji Wan Lizozman is the Chairman of two state government-linked companies. He is the director of various State-owned Companies and a Board Member of the Sarawak Economic Development Corporation, Sarawak Timber Industry Development Corporation and Petroleum Sarawak Berhad.

# Our Management Team

## YBhg. Datu Haji Sharbini Bin Suhaili

Group Chief Executive  
Officer



Datu Haji Sharbini Suhaili is Group CEO of Sarawak Energy. Under Datu Haji Sharbini's stewardship, Sarawak Energy continues to advance hydropower which predominantly contributes to the installed generation capacity in Sarawak, powering residential, commercial and industrial activities, and supporting the government's economic growth strategy. In accelerating rural electrification, Sarawak Energy is delivering on Sarawak's mission to achieve 100% electrification coverage by 2025, together with the Ministry of Utility & Telecommunication.

Datu Haji Sharbini is strongly committed to managing Sarawak Energy's business to minimise any negative impact of its operations and maximise the positive impact of what it does for the community, as a socially responsible corporate citizen. Datu Haji Sharbini is also a strong advocate of safety as a key focus area for the corporation.

Sarawak Energy has been an International Hydropower Association (IHA) member and sustainability partner since 2010. On the IHA Board since 2017, Datu Haji Sharbini is also a director of Petroluem Sarawak Berhad, a wholly government-owned petroleum company. In 2018, he was conferred the Darjah Jasa Bakti Sarawak (D.J.B.S) which carries the title Datu, on the occasion of His Excellency the Governor of Sarawak's birthday.

Datu Haji Sharbini holds a Bachelor of Engineering (Hons) from the University of Leeds, UK, and a Masters in Business Administration (MBA) from Henley Management College, UK.

## James Ung Sing Kwong

Group Chief Operating  
Officer



James Ung Sing Kwong is the Group Chief Operating Officer of Sarawak Energy, a position he was appointed to in January 2022.

In this role, James is responsible for the vision and strategy of the group's operating units and oversees the execution of critical and transformative operational strategic initiatives while maintaining engineering and operational excellence. He is a member of the Group Executive Committee and also chairs the Group Operations Management Committee.

A mechanical engineer by profession, James has worked with Sarawak Energy's group of companies since 1990, growing his expertise in technical and leadership roles in power generation and power plant project management. Over the past thirty years, his extensive experience included roles as technical engineer and power station management for coal, gas and hydro plants in the power generation business and new power plant development.

Prior to this appointment, he was the Chief Executive Officer of SEB Power Sdn Bhd, the generation arm of Sarawak Energy.

James holds a Bachelor's Degree in Mechanical Engineering from the University of South Alabama in the United States of America. He is a Fellow of the International Hydropower Association (IHA) and a registered Professional Engineer (PE) by the Board of Engineers Malaysia.

## Our Management Team

## Lau Kim Swee

Chief Executive Officer,  
SESCO



Lau Kim Swee is the Chief Executive Officer of SESCO and is responsible for the reliability and security of the power system as well as oversight of end-user customer care.

Lau has served with Sarawak Energy for almost 30 years in various roles. Prior to his last appointment as Senior Vice President, Distribution, he held the retail portfolio and was responsible for the Company's significant success in combating power theft, saving the Company RM40 million and winning Sarawak Energy the first prize in the 2012 Key Focus Award from the Sarawak Government. Lau also brought visible change to the Company's customer service approach, spearheading Sarawak Energy's 24-7 Customer Care Centre in 2013 and other customer-oriented initiatives.

Born and raised in Kuching, Lau holds a Bachelor's Degree in Electrical and Computer Systems Engineering from Monash University in Melbourne, Australia.

## Ting Ching Zung

Executive Vice President,  
Strategy and Corporate  
Development



Ting Ching Zung is the Executive Vice President of Strategy and Corporate Development, a position he was appointed to in May 2015. In his current position, he leads the development strategies for sustainable business growth and heads the implementation of strategic plans to achieve the Group's overall goals.

Ting has extensive experience in major corporate restructuring and rationalisation exercises, financial planning and analysis, and profit-and-loss leadership. Before joining Sarawak Energy, he was the Chief Executive Officer of Trienekens (Sarawak) Sdn. Bhd., a waste management company which handles scheduled waste throughout East Malaysia and municipal waste in Sarawak's major cities. Prior to that, he held various leadership positions in the finance and accountancy sector in the East Asia region.

Ting is a Chartered Accountant of Chartered Accountants Australia and New Zealand and holds a Bachelor's Degree in Accountancy from the University of Otago, New Zealand.



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## Our Management Team

**Tan Kok Kiong**

Chief Financial Officer

Tan Kok Kiong assumed the role of Chief Financial Officer with Sarawak Energy on 1 July 2022.

He is responsible for the financial risk management of the Sarawak Energy Group, developing our financial and strategic plans by leveraging financial data and metrics to drive Group performance. He is also overseeing the ongoing development of financial control systems that have been designed to preserve the Group's assets while ensuring that financial results are reported accurately in a timely manner, complying with all relevant regulations.

Kok Kiong's broad and deep experience in financial and commercial roles at the national and international level over the past 30 years will ensure strong leadership continuity for Finance. He has provided strong and tangible commercial steers in our new business ventures. He also leads the Commercial Acumen workstream of our Commercial Excellence Key Focus Area.

**Pramod Kumar Karunakaran**

Executive Vice President, Project Delivery

Pramod Kumar Karunakaran joined Sarawak Energy as the Executive Vice President for Project Delivery in July 2018.

He has extensive leadership experience in business, operations, and project delivery with demonstrated successes in oil, gas, petrochemicals, and power industries. He successfully led operations and project delivery excellence efforts culminating in record operating and project delivery performances. He is accomplished in leading transformation, capability building, and negotiations in the area of oil, gas, petrochemicals, and power.

He has also had extensive Board experience in both public listed and private limited companies. He obtained a Bachelor of Science (B.Sc. Hons) Communications (Electronics) Engineering from Leeds Beckett University, Certificate In International Management from INSEAD and Professional Engineer Certification in Instrumentation & Control from the Board of Engineers Malaysia.

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## Our Management Team

**Bunyak Anak Lunyong**

Chief Executive Officer, SEB Power

Bunyak Anak Lunyong is appointed the Chief Executive Officer for SEB Power Sdn Bhd, a wholly-owned subsidiary of Sarawak Energy, responsible for all of the power generation business (hydro, coal, gas and hydrogen).

Bunyak started his career as an electrical engineer with SESCO in 1987 and brings to Sarawak Energy over 30 years of experience in electrical engineering, project management, engineering, construction, commissioning, operations, maintenance and asset integrity from his various roles in Royal Dutch Shell, Bakun Management Sdn Bhd, Proven Transmission Sdn Bhd and Siemens Power Generation Sdn Bhd, including a six-year assignment in Nigeria with Shell.

Prior to rejoining Sarawak Energy in 2020 to lead Project Controls and Performance Management in Project Delivery, Bunyak was the Operation Excellence Lead for Shell Malaysia's upstream operations.

He holds a Bachelor of Science in Electrical Engineering from the University of Houston, Texas, USA and is a member of the Institute of Engineers, Malaysia as well as the Board of Engineers Malaysia.

**Haji Sulaiman Bin Haji Abdul Hamid**

Senior Vice President, Contract and Procurement

Haji Sulaiman Bin Haji Abdul Hamid has 30 years of experience with Sarawak Energy, joining SESCO in 1988.

Haji Sulaiman has held the positions of Consumer Accountant, SESCO Regional Accountant (Western Region), Senior Accountant (Management Accounting), Manager Internal Audit, Manager Corporate Finance and Head of Finance.

He is also actively involved in social initiatives both within Sarawak Energy and externally, notably with the Sarawak Orphanage Association and as Chairman of the Sports Club.

Haji Sulaiman holds a Diploma in Accounting from Universiti Teknologi MARA, a Bachelor's in Accounting from Universiti Kebangsaan Malaysia and an Executive MBA from Ohio University in the USA. He is also a Certified Accountant of the Malaysian Institute of Accountants.



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## Our Management Team

**Dr. Mak Met**

Senior Vice President,  
Human Resources



Dr. Mak Met joined Sarawak Energy from Shell Malaysia Exploration and Production where he headed Human Resources for Shell's upstream businesses in Malaysia. Dr. Mak has a background in mechanical engineering and served in SESCO for five years before moving to Shell in the 1990s.

With over 30 years of experience and a Doctorate in Human Resources, he brings to Sarawak Energy a strong understanding of people and leadership development, in-depth knowledge of HR functions, frameworks and processes of a company that serves as a global benchmark for talent development and a passion for building Sarawakian talent.

Dr. Mak works with the Group Executive Committee and Human Resources team to build and develop the talent pipeline, ensure the Company attracts and retains the best talent and resources, at the same time develop people so that the organisation is ready to deliver on its commitments to Sarawak.

**Hajah Siti Aisah Binti Adenan**

Senior Vice President,  
Corporate Services



Hajah Siti joined Sarawak Energy as an electrical engineer in 1990 under the operating arm, Sarawak Electricity Supply Corporation (SESCO). In her 30 years of service, she has undertaken diverse roles in technical and non-technical fields including stints as Regional Manager for Sibul and Bintulu; Vice President of People & Leadership Development and Vice President for Distribution – the first woman to hold this key technical position.

Her diverse career experience has allowed her to grow her knowledge as a technical specialist and broaden her management and leadership skills.

In Hajah Siti's current role, she leads the support functions of Sarawak Energy – overseeing Corporate Administration; Corporate Communication; Corporate Social Responsibility; Sustainability; Government Relations, Event Management and Protocol; Buildings, Facilities and Infrastructure; Integrated Quality Management System and Fleet Management & Logistics.

She is also the Executive Champion for the Sarawak Energy Leading Women Network (SELWN), playing an active role in the network's activities including as a pioneer in the Women Mentoring Women programme.

Hajah Siti graduated from George Washington University, Washington DC with a degree in Electrical Engineering.

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## Our Management Team

**Nick James Arnett Wright**

Senior Vice President,  
Business Development



Nick Wright joined Sarawak Energy in June 2010. As Senior Vice President of Business Development, he led the negotiation of the Power Exchange Agreement with Indonesian national utility Perusahaan Listrik Negara (PLN) – governing the interconnection between Sarawak and West Kalimantan, which commenced operations in early 2016.

He is also leading the negotiation of similar agreements for Sarawak to export power to Brunei and Sabah and secured a deal with Malaysia's national oil company, PETRONAS, to supply 250 million standard cubic feet a day of natural gas to Sarawak.

For the four years prior to joining Sarawak Energy, Nick was the Senior Advisor for Energy, Water and Mining to the Minister for Energy and Resources, Tasmania.

Nick holds a Master of Business Administration (MBA) from the Graduate School of Business, University of New England. He also has a Bachelor of Arts (with First Class Honours) in Government and Economic Policy, as well as a Bachelor of Laws, from the University of Tasmania.

**Jacob James Paul**

Senior Vice President,  
Legal, Land and Company  
Secretary



James Paul joined Sarawak Energy in December 2020 as Senior Vice President, leading the functions of Legal, Land and Wayleave, and Company Secretary. He is a member of the Group Executive Committee.

James has over 25 years of experience in handling legal matters with a major part of his career spent in a multinational oil and gas company. He brings with him broad and deep experience in leadership roles in legal, company secretarial, managing counsel and ethics and compliance.

James holds a Bachelor of Science degree in Physics from the University of Malaya as well as a Bachelor of Laws degree from the University of Buckingham.



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## Our Management Team

**Marconi Madai**

Senior Vice President,  
Health, Safety, Security  
and Environment



Marconi Madai is the Senior Vice President of Health, Safety, Security and Environment, a position he was appointed to in January 2021. He leads a multidisciplinary team to drive excellence in health, safety and environment in Sarawak Energy as well as ensure business continuity management in line with the Group's business objectives.

Marconi has extensive industry experience, having served in management positions in the chemical industry in Malaysia, where he developed standard operating procedures, oversaw compliance to standards, managed business risks and drove initiatives on human resources and CSR.

Marconi graduated with a Bachelor of Science degree in Chemical Engineering from the University of Utah, Salt Lake City, USA in 1997.

**Sim Ko Sin**

Chief Digital Officer,  
Information and  
Communication Technology



Sim Ko Sin joined Sarawak Energy as the Vice President for Information and Communication Technology in April 2018 and became the Chief Digital Officer for Information and Communication Technology in January 2021.

In line with the increased importance of information and communications technology as an enabler for the business, Sim is responsible for driving Sarawak Energy's ICT functions. These include ICT Strategy and Planning, Applications, Telecommunications and IT Infrastructure, Information Management, Operations, as well as Information Security and Risk Management.

Sim has worked in the energy industry for 23 years and has extensive international experience, particularly in the Asia-Pacific, U.K. and China. She has well-rounded industrial experience and knowledge as well as IT services management expertise.

Sim has a Bachelor's Degree in Computer and Mathematical Sciences from the University of Western Australia and an MBA from Imperial College London. She is also a certified project management professional.

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## Our Management Team

**Alvin Lim Khiok Leong**

Chief Operating Officer,  
Sarawak Energy Resources



Alvin Lim is the Chief Operating Officer of Sarawak Energy Resources and is responsible for consolidating Sarawak Energy's upstream resource activities.

Alvin has served with Sarawak Energy for close to 25 years in various roles, ranging from technical to corporate management positions. Starting as an electrical engineer, he joined Sarawak Electricity Supply Corporation (SESCO), a wholly-owned subsidiary of the Sarawak Energy Group.

Prior to his appointment as Chief Operating Officer of Sarawak Energy Resources, Alvin served as General Manager for Planning and Strategy, which was during a time the Company was experiencing significant growth.

He led the Group's development strategies in areas such as system planning, key accounts and corporate development.

Born and raised in Kuching, Alvin holds a Bachelor's Degree in Electrical and Electronics Engineering (Hons) from the University of Tasmania, Australia.



# Statement of Corporate Governance

The Sarawak Energy Berhad (“the Group”) Board of Directors (“Board”) is committed to ensure that the highest standard of Corporate Governance is practised throughout the Group with the objective of strengthening the Group’s corporate accountability and safeguarding the interests of the stakeholders.

The Board is pleased to present a statement to the Shareholders on how the Group has applied the principles of good governance while taking into consideration the best practices set out in the Malaysian Code of Corporate Governance.

## The Board of Directors

The Board’s principal responsibilities for corporate governance are to set out the strategic direction of the Group and establish the objectives as well as to guide Management towards the achievement of the objectives and goals.

The Board consists of six (6) members, whereby five (5) of the members are Non-Independent Non-Executive Directors and one (1) member is an Independent Non-Executive Director. The Directors collectively have a wide range of experience and expertise drawn from various industries and in the areas of business, accounting, economics, legal as well as public administration. Their expertise, experience and background are vital for the strategic direction of the Group. The profiles of the Directors are set out on pages 44 to 49 of the Annual and Sustainability Report.

The Chairman’s responsibility is to ensure the effectiveness and efficiency of the Board meetings and their conduct, whereas the role of the Independent Non-Executive Director is to ensure that the views provided are professional and independent and that the advice and judgment made on issues and decisions are in the best interest of the stakeholders and the Group.

The Group has put in place the Sarawak Energy Berhad Group Manual of Authority, which provides a consistent and formal framework for approving matters. It sets out clear lines of accountability and

responsibility over which Sarawak Energy’s Board of Directors reserves authority and those which it has delegated to Management.

The Board meets at least four (4) times in a year, with additional meetings held as and when required. There were five (5) Board meetings held during the financial year ending 31 December 2022. A summary of the attendance of each Director at the Board meetings in 2022 are as follows:

Directors	Meetings Attended	% of Attendance
<b>Datuk Amar Abdul Hamed bin Sepawi</b> Non-Independent, Non-Executive Chairman	4/5 ●●●●○	80%
<b>Tan Sri Datuk Amar Haji Mohamad Morshidi bin Haji Abdul Ghani</b> Non-Independent, Non-Executive Director	5/5 ●●●●●	100%
<b>Dato’ Haji Idris bin Haji Buang</b> Non-Independent, Non-Executive Director	4/5 ●●●●○	80%
<b>Dato Sri Fong Joo Chung</b> Non-Independent, Non-Executive Director	5/5 ●●●●●	100%
<b>Tan Sri Dato Sri Mohd Hassan bin Marican</b> Independent, Non-Executive Director	4/5 ●●●●○	80%
<b>Dato Sri Dr. Haji Wan Lizozman Bin Wan Omar</b> Non-Independent, Non-Executive Director	4/5 ●●●●○	80%

## Statement of Corporate Governance

### Supply of Information

The Board and its Committees have full and unrestricted access to all information within Sarawak Energy pertaining to the Group’s business and affairs.

All the Directors are notified of the Board meetings within a stipulated time prior to the date of the meetings. The Directors are also provided with an agenda and a set of Board papers prior to each Board meeting to enable them to be well-informed and properly briefed before the meeting.

In most instances, Senior Management of the Group are invited to attend the Board meetings and external advisors are sometimes also invited to provide further information and to clarify issues that may be raised by the Board.

Board members also have access to the Company Secretary to obtain any further details they may require. Directors may also seek independent professional advice on any matter connected with the discharge of their responsibilities if deemed necessary and appropriate, whether as a full Board or individually in their capacity as a Director, at the Company’s expense.

### Re-Election of Directors

In accordance with the Company’s Constitution, all Directors appointed by the Board are subject to election by Shareholders at the first Annual General Meeting after their appointment. One-third (1/3) of the remaining Directors are required to submit themselves for re-election by rotation at each Annual General Meeting. All Directors must submit themselves for re-election at least once every three (3) years.

### Directors’ Training

The Directors have the option to attend various programmes organised by course leaders or course providers to enhance their knowledge and skills to enable them to carry out their role as Directors effectively. The Company informs Directors of relevant courses and will make the necessary arrangements for their attendance.

Additionally in 2022, the Company Secretary updated the Directors on evolving regulatory changes and developments in corporate governance through the Directors’ Refresher Series, initiated in 2021.

An induction programme was developed and implemented in 2022 to brief newly appointed Directors on the Group and its corporate governance requirements as well as on the roles and responsibilities of Directors.

### Board Committees

The following Committees have been established to assist the Board in the execution of its responsibilities. These Committees have written terms of reference approved by the Board that set out their authority and duties.

#### 1. Board Audit and Risk Committee (BARC)

The BARC plays an important role in reviewing the Group’s financial management as well as reporting and assessing the integrity of the Group’s accounting procedures and financial controls. The BARC is responsible for the review of accounting policy and the presentation of external financial reporting including the Group’s interim results and its disclosures. It also oversees the activities of the internal audit function and ensures an objective and professional relationship is maintained with the External Auditors and that conflicts of interest, if any, are avoided. The BARC has full access to both Internal and External auditors, who in turn, have access to the Chairman of the BARC at all times.

The BARC members are appointed by the Board from amongst its non-executive members and comprises one (1) independent non-executive director and two (2) non-independent non-executive directors of the Board.

The Chairman of the BARC, Tan Sri Dato Sri Mohd Hassan Bin Marican is a Fellow of the Institute of Chartered Accountants in England and Wales, as well as a Member of the Malaysian Institute of Accountants and Malaysian Institute of Certified Public Accountants.

During the financial year under review, the BARC convened four (4) meetings. The attendance record of the members are as follows:

Directors	Meetings Attended	% of Attendance
<b>Tan Sri Dato Sri Mohd Hassan Bin Marican</b> Independent, Non-Executive Director	4/4 ●●●●	100%
<b>Tan Sri Datuk Amar Haji Mohamad Morshidi bin Haji Abdul Ghani</b> Non-Independent, Non-Executive Director	4/4 ●●●●	100%
<b>Dato’ Haji Idris Bin Haji Buang</b> Non-Independent, Non-Executive Director	3/4 ●●●○	75%
<b>Dato Sri Dr. Haji Wan Lizozman Bin Wan Omar</b> Non-Independent, Non-Executive Director	3/4 ●●●○	75%

2-9, 2-10, 2-11, 2-12, 2-20, 2-21

## Statement of Corporate Governance

The Vice President/Head of Internal Audit and the Group Company Secretary, being Secretary of the BARC, were present at all the meetings. Upon invitation, representatives from the External Auditors, Group Chief Executive Officer/Chief Financial Officer and other members of Senior Management and external parties also attended specific meetings whenever required.

## Summary of Activities of the BARC

During the financial year ended 31 December 2022, the BARC carried out the following main activities: -

- Reviewed and recommended the Quarterly Group Management Reports and Audited Financial Statements of the Company to the Board for approval;
- Reviewed and endorsed the External Auditor's Audit Plan, Scope of Work and Fees for the Company and recommended the same for approval by the Board;
- Reviewed the Quarterly Enterprise Risk Management Report – Updates on the Group's Risk Profiles, Key Strategic and High Risks and Key Mitigation Actions taken by Management to address the risks;
- Reviewed and noted the strategic risk for SCORE and export customers' demand;
- Reviewed and approved the enhancement to the Group's Risk Management Frameworks with regard to risk appetite and risk organisation;
- Reviewed and endorsed the BARC Reports, Statement on Risk Management and Internal Controls and Corporate Governance Statement for inclusion in Sarawak Energy's Annual and Sustainability Report;
- Reviewed and endorsed Sarawak Energy's quarterly Integrity and Fraud Control Report;
- Reviewed and discussed the Group Annual Revenue and Capital Budget and Year End Estimates and recommended the same for submission to the Board;
- Reviewed and endorsed the Report of Sarawak Energy FOREX Hedging Committee on the hedging activities transacted during the year;
- Reviewed and noted the status updates on Sarawak Energy's insurance coverage and initiatives;

- Reviewed and approved/noted the Group Internal Audit Plans, KPIs Achievement and Quarterly Internal Audit Update Reports;
- Reviewed and deliberated reports issued by the External Auditors and Group Internal Audit on significant findings and remedial actions taken by Management to address the issues raised; and
- Reported to the Board on its activities and any significant issues and remedial actions taken by Management arising from the audits undertaken by the External and Internal Auditors on specific areas and reports/papers presented by Management at each BARC meeting.

## 2. Governance, Nomination and Remuneration Committee (GNRC)

The responsibilities of the GNRC are to identify potential candidates for Directorships to the Board and make recommendations for all new or re-appointments of members of the Board. Further to this, the GNRC also makes recommendations on the Company's framework for remuneration and its cost as well as determine specific remuneration packages on behalf of the Board and the terms and conditions of employment for the Group's employees.

The GNRC's additional duties are to provide remuneration input on contracts of employment with executive directors and senior management, determine the terms of any compensation in the event of early termination of the employment contracts, make recommendations on human resource policies from time to time and discuss and approve the revision of the Group's organisation structure as and when needed.

The GNRC also acts as a disciplinary committee to decide and recommend disciplinary action for senior staff misconduct to the Board for approval.

The composition of the GNRC members for the financial year ended 31 December 2022 is as follows:

- Tan Sri Datuk Amar Haji Mohamad Morshidi Bin Haji Abdul Ghani**  
(Non-Executive Director) – Chairman
- Tan Sri Dato' Sri Mohd. Hassan Bin Marican**  
(Non-Executive Director)
- Dato Sri Fong Joo Chung**  
(Non-Executive Director)
- Dato' Haji Idris Bin Haji Buang**  
(Non-Executive Director)

2-9, 2-10, 2-11, 2-12

## Statement of Corporate Governance

The GNRC held four (4) meetings during the financial year ended 31 December 2022. The attendance record of the members are as follows:

Directors	Meetings Attended	% of Attendance
<b>Tan Sri Datuk Amar Haji Mohamad Morshidi Bin Haji Abdul Ghani</b> Non-Independent, Non-Executive Director	4/4 ●●●●	100%
<b>Tan Sri Dato Sri Mohd Hassan Bin Marican</b> Independent, Non-Executive Director	3/4 ●●●○	75%
<b>Dato' Haji Idris Bin Haji Buang</b> Non-Independent, Non-Executive Director	3/4 ●●●○	75%
<b>Dato Sri Fong Joo Chung</b> Non-Independent, Non-Executive Director	4/4 ●●●●	100%

## 3. Bumiputera Participation Board Committee (BPBC)

The responsibility of the BPBC is to ensure the participation of local and Bumiputera service providers or contractors in Sarawak Energy's contract and procurement activities in line with the State government's vision to maximise local and Bumiputera participation and content in contract and procurement in Sarawak.

The BPBC has formulated an overall plan and is implementing the plan to ensure that Sarawak Energy's current and potential contractors are fully aware of the opportunities and incentives available. The objective of these initiatives is to expand the pool of qualified local Bumiputera contractors that can participate in Sarawak Energy's projects.

The composition of the BPBC members for the financial year ended 31 December 2022 are as follows:

- Dato' Haji Idris Bin Haji Buang**  
(Non-Executive Director) – Chairman
- Dzulkornain Bin Masron**  
(Public Sector) – Member
- Dato Ir. Abang Jemat Bin Abang Bujang**  
(Professional and Entrepreneurial Group) – Member  
(Deceased on 21 June 2022)
- Datu Haji Wan Kassim Bin Tuanku Zubir**  
(Professional and Entrepreneurial Group) – Member
- Dr. Simon Sinang Bada**  
(Professional and Entrepreneurial Group) – Member

- Ir. Haji Zawawi Bin Haji Embong**  
(Professional and Entrepreneurial Group) – Member

- Stell Sindau**  
(Professional and Entrepreneurial Group) – Member

- Datu Haji Abang Helmi Bin Tan Sri Ikhwan**  
(Bumiputera Business Chambers) – Member

- Datuk Mutang Tagal**  
(Bumiputera Business Chambers) – Member

- Dato Allan Keripin Nangkai**  
(Bumiputera Business Chambers) – Member

The BPBC held four (4) meetings during the financial year ended 31 December 2022.

The attendance record of the members is as follows:

Directors	Meetings Attended	% of Attendance
<b>Dato' Haji Idris Bin Haji Buang</b> Chairman	4/4 ●●●●	100%
<b>Dzulkornain Bin Masron</b> Member	2/4 ●●○○	50%
<b>Dato Ir. Abang Jemat Bin Abang Bujang</b> (Deceased on 21 June 2022) Member	2/2 ●●	100%
<b>Datu Haji Wan Kassim Bin Tuanku Zubir</b> Member	3/4 ●●●○	75%
<b>Dr. Simon Sinang Bada</b> Member	2/4 ●●○○	50%
<b>Ir. Haji Zawawi Bin Haji Embong</b> Member	4/4 ●●●●	100%
<b>Stell Sindau</b> Member	4/4 ●●●●	100%
<b>Datu Haji Abang Helmi Bin Tan Sri Ikhwan</b> Member	0/4 ○○○○	0%
<b>Datuk Mutang Tagal</b> Member	2/4 ●●○○	50%
<b>Dato Allan Keripin Nangkai</b> Member	4/4 ●●●●	100%

2-9, 2-12

## Statement of Corporate Governance

### Management Committee

The Group Executive Committee (“GEC”) is established to provide a Senior Management meeting and decision-making forum on specific matters as well as for reporting, information sharing, establishing cooperation or collaboration amongst the various departments or cross functions and finding resolutions to issues.

The GEC shall also function as the Executive Risk Committee (“ERC”) for the Group to promote risk discussion at the top management level.

The GEC has written terms of reference approved by the Board, and their authority and duties are set out as follows:-

- Monitor and evaluate political, economic and business conditions and formulate measures to ensure that any potential material impact is identified and managed;
- Review, decide on or endorse strategic decisions and policy discussions or such other matters that require submission to, or further deliberation on a decision from, the Board of Directors, Board Committees or Subsidiary Company Boards;
- Review, decide on or endorse strategic directions of the Group, including decision gates on projects, new business directions and the likes;
- Review, decide on or endorse strategic directions and policies relevant to the Group (such as Human Resources and leadership development, implementation of management leadership, change management and continuous improvement programmes and initiatives for Sarawak Energy);
- Review, decide on or endorse strategic directions and policies for Key Performance Indicators (“KPIs”) for the Group;
- Review, decide on or endorse issues of timely importance to the Group (such as Corporate Risk; Health, Safety, Security and Environment; customer-related issues; land access concerns and the like);
- Manage and regularly review the operational and financial performance of the Group;
- Optimise and allocate the Group’s resources;
- Discuss and debate the Group’s corporate culture and set ways forward to address any issues or encourage beneficial developments;

- Function as the Executive Risk Committee (“ERC”) for the Group and oversee the establishment, implementation and consistent adoption and communication of the Group’s risk management framework, which includes policies, processes and procedures to identify, analyse, evaluate, monitor and report on significant financial and non-financial risks, and respond to changes in the Group’s internal and external environments;
- Endorse any changes to the Group’s Risk Management Framework to Board Audit and Risk Committee and Sarawak Energy Board for approval;
- Set the risk appetite within, which the Board expects Management to operate - ensuring that actions are taken in a timely manner when risks are outside acceptable tolerance ranges;
- Monitor risk exposure against risk appetite tolerance ranges;
- Deliberate and provide directives, where applicable, on risk appetite metrics and tolerance ranges, portfolio of key risks and risk issues highlighted to the ERC, through regular reports;
- Ensure that controls are in place to mitigate and manage the key risks of the Group;
- Provide reasonable assurance that any adverse impact arising from a foreseeable future event or situation on the Group’s objectives is mitigated and managed; and
- Consider other matters as required by the Board;

As of 31 December 2022, the GEC comprises the following members:

- Datu Haji Sharbini Bin Suhaili**  
(Group Chief Executive Officer) - Chairman
- James Ung Sing Kwong**  
(Group Chief Operating Officer)
- Lau Kim Swee**  
(Chief Executive Officer, Syarikat SESCO Berhad)
- Bunyak Anak Lunyong**  
(Chief Executive Officer, SEB Power Sdn Bhd)
- Ting Ching Zung**  
(Executive Vice President, Strategy and Corporate Development)
- Pramod Kumar Karunakaran**  
(Executive Vice President, Project Delivery)

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## Statement of Corporate Governance

### Tender Committees

Tender committees are established to approve the award of tenders in line with the procurement Limits of Authority that was approved by the Board.

### Confidentiality of Information

Under the Company’s Enterprise Information Management guidelines, documents are to be classified based on the confidentiality or sensitivity of their contents. For documents classified as Confidential, Secret or High Secret, there are stipulated guidelines to be adhered to.

Staff or external parties privy to information or documents classified as “Confidential” or higher are required to sign a Secrecy Oath or Confidentiality Agreement.

### Accountability and Audit

#### Financial Reporting

The Directors are responsible for ensuring that the annual financial statements of the Group are drawn up in accordance with the applicable approved accounting standards in Malaysia and the provisions of the Companies Act, 2016.

The Board is also responsible to provide and present a balanced and meaningful assessment of the Group’s financial performance and prospects, primarily through the annual financial statements and quarterly financial results as well as the Chairman’s Statement and Review of Operations in the Annual and Sustainability Report. The Board is assisted by the Board Audit and Risk Committee in overseeing the Group’s financial reporting processes and the quality of its financial reporting.

#### Relationship with Auditors

Through the BARC, the Board has established a formal, transparent and appropriate relationship with the Group’s Auditors, both External and Internal. The BARC meets regularly with External and Internal Auditors to discuss the yearly audit plan, quarterly financial results, annual financial statements and internal audit reports, and at every Board meeting convened, the Chairman of the BARC briefs the Board on significant matters discussed and deliberated at each BARC meeting and makes recommendations for the Board’s approval and endorsement.

- Alexander Chin**  
(Chief Financial Officer)  
(Retired on 30 June 2022)
- Tan Kok Kiong**  
(Covering Chief Financial Officer)  
(Appointed with effect from 1 July 2022)
- Haji Sulaiman Bin Haji Abdul Hamid**  
(Senior Vice President, Contract and Procurement)
- Dr. Mak Anak Met**  
(Senior Vice President, Human Resources)
- Jacob James Paul**  
(Senior Vice President, Legal, Land and Company Secretary)
- Hajah Siti Aisah Binti Adenan**  
(Senior Vice President, Corporate Services)
- Nick Wright**  
(Senior Vice President, Business Development)
- Sim Ko Sin**  
(Chief Digital Officer, Information and Communication Technology)
- Marconi Madai**  
(Senior Vice President, Health, Safety, Security and Environment)
- Alvin Lim Khiok Leong**  
(Chief Operating Officer, Sarawak Energy Resources)

The management meetings held during the financial year ended 31 December 2022 are as follows:

Management Meetings Held	
GEC meetings	●●●●●●●●●●●●●● 12
Special GEC meetings	●●●●●●●●●●○○○ 9
GEC Workshop	●○○○○○○○○○○○○○ 1
GEC Brainstorming Day	●○○○○○○○○○○○○○ 1
GEC Technology Council meetings	●●○○○○○○○○○○○○○ 2
Group Digital Council meetings	●●●○○○○○○○○○○○○○ 3
GEC HSSE Council meetings	●●●○○○○○○○○○○○○○ 3

2-12, 2-14, 2-27

## Statement of Corporate Governance

## Financial Reporting

Information on the Group's internal controls system is presented in the Statement of Risk Management and Internal Control as set out on pages Annual and Sustainability Report.

## Directors' Responsibility Statement

The Board is responsible to ensure that the financial statements are prepared in accordance with the Companies Act, 2016 and the applicable approved accounting standards set by the Malaysian Accounting Standards Board to present a true and fair, balanced and understandable assessment of the Group's financial position and results. In this Annual and Sustainability Report, an assessment is provided in the Directors' Report of the Audited Accounts.

The BARC reviews the statutory compliance and scrutinises the financial aspects of the Audited Accounts prior to deliberation at the Board level.

## Additional Compliance Information

To the best of the Directors' knowledge:

- Material Contracts

Neither the Company nor its subsidiaries entered into any material contracts not in the ordinary course of business during the financial year ended 31 December 2022.

- Sanctions/Penalties

There were no material sanctions and/or penalties imposed on the Company and its subsidiaries, Directors or Management by any relevant regulatory authorities during the financial year ended 31 December 2022.

- Revaluation Policy on Landed Properties

The Group did not adopt any revaluation policy on landed properties during the financial year ended 31 December 2022.

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# Statement on Risk Management and Internal Control

As part of its commitment to good corporate governance, Sarawak Energy Berhad ("Sarawak Energy") has voluntarily adopted the best practices for Sarawak Energy's Board of Directors ("Board") to provide a statement in its Annual and Sustainability Report on the state of risk management and internal control as a "Group", referring to Sarawak Energy and its subsidiaries.

The Group's risk management framework and system of internal control applies to Sarawak Energy and its subsidiaries while associated companies and joint ventures are excluded because the Group does not have full management control over them. Nonetheless, the Group through its Board representations, exercises the power to participate in policy decisions of the associated companies and joint ventures.

Sarawak Energy's Board is pleased to present the following statement that has been prepared in accordance with the best practices recommended by the Statement on Risk Management and Internal Control: Guidelines for Directors of Listed Issuers (2012) and Principle B of the Malaysian Code of Corporate Governance. This Statement outlines the nature and scope of the risk management and internal control systems within the Group during the year under review.

The Statement on Risk Management and Internal Control outlines the structure and processes that have been implemented to ensure the adequacy, effectiveness and integrity of the risk management framework and system of internal control of the Group during the financial year ended 31 December 2022.

## Board

The Board has an overall responsibility for the Group's risk management framework and system of internal control to provide reasonable assurance of efficient operations, effective internal checks and compliance with laws and regulations.

The ongoing process for identifying, evaluating, monitoring and managing the significant risks faced by the Group is periodically reviewed by the Board during the financial year under review. However, the Board recognises that the Group's system of internal control is designed to manage rather than eliminate the risk of failure to achieve its objectives, hence it can only provide reasonable but not absolute assurance against material misstatement, fraud or loss.

The Board Audit and Risk Committee ("BARC") assists the Board to review the adequacy and effectiveness of the system of internal controls in the Group as part of the governance and risk management processes.

## Management

The Group Executive Committee ("GEC") led by the Group Chief Executive Officer ("GCEO") is responsible for overseeing the establishment, implementation and consistent adoption and communication of the Group's risk management framework, which includes policies, processes and procedures to identify, analyse, evaluate, monitor and report on significant financial and non-financial risks, and respond to changes in the Group's internal and external environments.

The GEC also functions as the Executive Risk Committee ("ERC") for the Group, to promote risk discussion at the top management level.



## Statement on Risk Management and Internal Control

## Business Units, Corporate Support Functions, and Individuals

The following are led by respective GEC members and supported by Risk Controllers. They are responsible for:

- Identifying and assessing of risks, implementation of appropriate control measures and action plans to mitigate and control these risks whilst balancing risks and opportunities.
- Timely reporting and communicating of risks under their purview.
- Reviewing and updating the Risk Appetite Statement (“RAS”) metrics and ensuring risk-taking activities are within the Group’s tolerance range.
- Embedding of risk-informed decision-making and culture.

## Enterprise Risk Management (“ERM”)

ERM is responsible for:

- Setting the overall risk management standards and providing risk management framework, inclusive of policies, procedures, processes, and guidelines.
- Providing risk advisory and support to the Business Units and Corporate Support Functions to effectively manage risks.
- Managing risk aggregation across Business Units and Corporate Support Functions and providing GEC, BARC and Board with a comprehensive corporate-level view (reporting) of risk.
- Driving performance management in terms of Key Risk Indicators, i.e. RAS metrics and risk reports on breaches and mitigations.

With changes in the overall risk landscape, business aspirations and how the business (including risks) is being managed in 2022, the risk governance, operating model, and organisation structure was enhanced to clearly articulate the risk-related roles and responsibilities of the 3 Lines to ensure effective risk management, thereby avoiding organisational blind spots and overlapping actions.

## Risk Management Framework

In addition to discharging its duties and responsibilities in maintaining a robust and sound system of internal control, the Board has approved the Risk Management Framework for the Group to provide guidance relating to the implementation of enterprise risk oversight and management processes. This framework incorporates the identification, assessment, mitigation and control, monitoring and reviewing processes especially relating to significant risks and their trending.

The framework ensures that significant risks are continuously identified and that instituted controls are efficaciously applied by the Management to manage risk exposure at levels that are tolerable and acceptable to the Group, consistent with its risk appetite and risk management practices.

## Risk Management Process

The Group has an ERM process to identify potential unfavourable events that may adversely affect the Group’s business objectives and strategies as well as to prioritise risks within the Group’s risk appetite.

The following is the summary of the tools and processes that ensure effective risk management in the Group:

- The Group’s RAS articulates strategic and business risks that the company is willing to accept in pursuit of its strategic ambitions. The Board determines the Group’s risk appetite and tolerance which provides early warning of increasing risk exposures and potential risk events. The Group RAS metrics are monitored and reported on a quarterly basis to the ERC, BARC and the Board.
- The Group’s Strategic Risk Profile consists of strategic and emerging risks with corresponding risk mitigations. This allows sufficient management oversight, the ability for timely intervention or mitigation of risks, as well as enabling risks to be appropriately considered in business decision-making. The profile is presented to BARC and the Board.
- The Group Risk Impact and Likelihood Parameters and Matrix, which is aligned with the Group’s risk appetite, are used to guide the assessment and prioritisation of risks that are identified during planning initiatives, projects and operations, thereby developing appropriate mitigation and resolution plans.
- To enable comprehensive identification and prioritisation of risks throughout the Group, a top-down and bottom-up risk review process was implemented.
- “Sarawak Energy Enterprise Risk” (“SEERisk”), an enterprise risk management system, was developed and rolled-out Groupwide. SEERisk serves as the single source of truth for enterprise risk information and facilitates the identification, assessment, monitoring and mitigation of enterprise risk with an aim to streamline the risk review process across the Group with timely review and updates of risks and mitigation actions, enhanced visibility of risks and progress of mitigation plans, faster work processes through online approvals, monitoring and reporting, among others.
- In supporting the enhancements above as well as the implementation of a new system and as part of inculcating a risk-conscious culture within the Group, risk awareness and education programmes were conducted for appointed Risk Controllers and other employees through internal engagement sessions and risk sharing sessions with other leading risk practitioners.

## Statement on Risk Management and Internal Control

## Key Risks Of The Group

The Group’s risk profile is categorised into eight key risk areas. The following are the key risks of the Group:

Risk Category	Risk Description
1. Major and Strategic Investments	Quality of investment decisions in delivering value targets.
2. Project Delivery	Delay in scheduled completion of projects leading to cost overrun and inability to meet customer demand.
3. Operational	Failure to ensure reasonable level of grid system reliability, stability, and security.
4. Human Capital	Competency and capacity gap to meet new areas of business.
5. Sustainability	Meeting stakeholders’ expectation on environmental, social and governance (“ESG”) management standards.

## Business Continuity Management (“BCM”)

The Board acknowledges the significance of instituting a holistic BCM Framework and Crisis Management Plan for the Group to build and enhance organisational resilience with the capability and capacity to create an effective response that safeguards the interests of its key stakeholders, reputation, and value-creating activities.

The Group has implemented the BCM Framework, Crisis Management Plan and continues its rollout of the BCM implementation roadmap and related programmes.

Additionally, Crisis Simulation Exercises, BCM Awareness and Refresher training as well as Business Impact Analysis/Business Continuity Plan documentation review workshops were conducted to enhance business resiliency by building organisational capability and capacity for effective emergency responses and systematic recovery strategies to maintain business continuity.

In consideration of the COVID-19 endemic phase, the Group has in place the following measures to mitigate the impact of COVID-19 on the Group in 2022:

- Regular monitoring and assessment of the Group’s cashflow to ensure funding requirements are met and liquidity position remains intact;
- The Group Crisis Management Plans, Business Continuity Plans and COVID-19 Contingency Plans which were rolled out across the Group in 2020 are still in effect;
- Continual proactive engagement with the relevant external government agencies;

- Introduced the Flexible Work Arrangement-Hybrid Arrangement (FWA-HA) which is an enhanced version of the Group New Work Arrangement. The FWA-HA aims to deliver optimum organisational efficiency and effectiveness with more focus on employee wellbeing without compromising productivity and business performance.

## System of Internal Controls

- The Group’s Organisational and Management Structure formally defines the line of responsibility for all aspects of the Group’s affairs which is aligned with its strategic and operational requirements. The structure will be reviewed and updated as and when needed to reflect the changing business environment and operating activities within the Group.
- Senior Management prepares and presents the business plans and budgets to the Board annually for approval and updates progress on a quarterly basis.
- Measurement of performance is regularly monitored through reports incorporating key project progress, financial and operational key performance indicators and departmental initiatives by the GCEO to the Board.
- The BARC reviews the statutory annual financial statements and the quarterly group management reports and recommends them to the Board for approval.
- The Sarawak Energy Berhad Group Manual of Authority (“MOA”) was formalised and rolled out in 2020, as a means of governing and safeguarding the Group in key approval matters for strategic and critical financial and non-financial matters as well as setting a sound framework of authority and accountability to facilitate timely, effective and quality decision-making. Subsequently, the MOA was reviewed and updated in 2022 to ensure the continued relevance and appropriateness of its contents.

About This Report	About Sarawak Energy	2022 Year in Review	Leadership Messages	<b>A Commitment to Governance</b>	Our Strategic Roadmap	Our Performance
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## Statement on Risk Management and Internal Control

- Under the custody of the Governance and Regulatory Unit of the Legal Division, the Group's Policy Central was established as a centralised portal for the Group's Policies, Procedures and Guidelines. These documents are consistently reviewed and enhanced when necessary to ensure relevance and effectiveness.
- Finance Policies and Procedures covering key processes, including Invoice to Pay, Record to Report, Planning, Budgeting and Forecasting, Order to Cash, Taxation, Treasury, Corporate Finance and Investor Relations, where relevant, have been reviewed and enhanced to ensure compliance and control.
- Procurement Policies and Procedures are updated and in place to govern the procurement activities within the Group.
- The Sarawak Energy Project Model ("SEPM") is a business process that facilitates prudent management of investments. As a stage-gated process, SEPM ensures the assessment of commercial viability, effective front-end planning, and design, contracting and final investment decisions. All capital works projects undertaken by the Group shall comply with the requirements as defined in the SEPM.
- The suite of Human Resources Policies, Procedures and Guidelines encompasses areas of Human Resources management such as recruitment, onboarding, employee development, benefits and remuneration among others and is supported by the promotion of a high performance culture to enable the Group to achieve its strategic goals and objectives.
- The Group strives to implement best practices, some of which have been recognised and awarded with International Organisation for Standardisation ("ISO") Management System certifications. The ISO 27001:2013 Information Security Management System ("ISMS") compliance assessments are conducted at planned intervals by the Integrated Management System and Assurance ("IMSA") Division to ensure compliance with ISO standards and internal requirements, as well as the effectiveness of implementation.
- Assessment of the adequacy of insurance coverage for employees and assets is conducted annually to safeguard against any contingent incidents that could result in material losses.
- Significant contracts and legally enforceable agreements are reviewed by the Legal Division prior to finalisation and execution.
- All regulatory non-compliance or breach of laws and regulations are reported to the BARC on a quarterly basis.

- Enhancement of the use of information and communications technology by implementing mobile device management information security controls to protect company data and implement a digital literacy and comprehensive cyber security awareness campaign aimed at developing employees' digital capabilities and competencies.

### Internal Audit Function

The BARC, assisted by the Group Internal Audit ("GIA"), provides the Board with the assurance it requires on the adequacy and effectiveness of the system of internal controls. The BARC has an oversight function for all activities carried out by the GIA.

The head of GIA has the relevant qualification as well as experience and is responsible to lead and manage the internal audit ("IA") function which includes overseeing the planning, execution, and reporting of GIA activities to provide assurance to the BARC, Board and senior management that the company's internal control systems are operating effectively.

As part of its mandate, the GIA conducts regular and systematic audits of the Group's operations, including financial, operational, information technology ("IT"), project, and compliance audits. The Group's internal auditors conduct their functions according to the standards set by recognised professional bodies, i.e., the Institute of Internal Auditors ("IIA") International Professional Practices Framework ("IPPF"), and IA activities are conducted based on the IA charter and IA framework. The IA framework was enhanced during the year in line with IPPF to ensure that it remains current and effective.

In the past year, the GIA has conducted a comprehensive risk assessment and developed an annual audit plan that covers key business processes, high-risk areas, emerging risks, and regulatory requirements. The GIA has also strengthened its collaboration and communication with the BARC, Board, senior management, and other stakeholders to ensure that audit findings and recommendations are effectively communicated and acted upon.

A Quality Assurance programme was carried out during the year to ensure that the GIA meets the relevant standards of professionalism and competence. Peer reviews and a full self-assessment were also conducted to assess the effectiveness of the internal audit function in providing assurance on the adequacy and effectiveness of the Group's internal control system. These reviews help to identify areas for improvement and ensure that the IA function continues to deliver value to the Group and its stakeholders.

The Group's IA function has played a vital role in evaluating and improving the effectiveness of the Group's risk management, control, and governance processes. The GIA will continue to enhance its capabilities to ensure that the Group has a robust and effective internal control system that supports our business objectives and safeguards the interests of our stakeholders.

Enhancing Our Commitment to Climate Action	Strategy	Our Response to Climate Change	Sustainability Performance	Our Performance Data	Notes and References	Independent Third Party Assurance Statement	GRI Content Index
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2-13, 2-14, 2-15, 2-16, 2-17, 2-23, 2-24, 2-26, 205-2, 3-3

## Statement on Risk Management and Internal Control

### Integrity & Fraud Control Function

In 2020, the Integrity and Fraud Control Unit was established under the GIA. The Group appointed a Chief Integrity and Fraud Control Officer whose key role is independent oversight of integrity and fraud control in the Group.

Management has implemented the following key initiatives, which demonstrates the Group's commitment to integrity and zero tolerance to fraud, corruption and bribery as well as its continuous efforts towards meeting the Adequate Procedures requirement of Section 17A of the MACC (Amendment) Act 2018:

- Revised Sarawak Energy Code of Ethics ("COE") in October 2020;
- Established the Harassment at Workplace Policy and Conflict of Interest ("COI") Policy in October 2021;
- Established the Sarawak Energy Ethics Hotline ("SEEH"), which is accessible by both Sarawak Energy employees and the public;
- Conducted the Fraud, Bribery and Corruption Risk identification, assessment, profiling, action planning, training and education of Risk Controllers, and established the related risk registers;
- Revised the Anti Bribery and Corruption ("ABC") Policy Statement and policy;
- Conducted mandatory Online ABC and COE training;
- Conducted training, education and related Governance and Compliance programmes inclusive of awareness briefings on Zero Tolerance to Fraud, Corruption and Bribery, ABC Policy, PPG on Gifts Entertainment and Hospitality ("GEH"), COI Policy and Whistleblowing Policy;
- Conducted the annual signing of the Sarawak Energy Integrity Pledge, for existing employees as well as new recruits as part of its recruitment and onboarding process;
- Carried out the annual Integrity Survey;
- Carried out the "Step Up Speak Up" event with guest speakers from the Malaysian Anti-Corruption Commission ("MACC") and Tenaga Nasional Berhad ("TNB"); and
- Continual implementation of the Integrity, Fraud and Corruption roadmap, and inculcation of integrity, anti-fraud corruption and bribery culture.

### Conclusion

The Board has obtained assurances from the GEC through a statement of assurance that to the best of their knowledge and belief, the Group's risk management and internal control system is operating adequately and effectively in all material aspects. Where weaknesses were identified, rectification steps have been put in place.

To the best of their knowledge and belief, the Board is of the view that the risk management and internal control system in place for the year under review and up to the date of approval of this statement for inclusion into the Annual and Sustainability Report, is adequate and effective to safeguard shareholders' investment, the interests of customers, regulators and employees, and the Group's assets.

### Review of the Statement by External Auditor

The external auditors have reviewed this Statement on Risk Management and Internal Control pursuant to the scope set out in Audit and Assurance Practice Guide 3, Guidance for Auditors on Engagements to Report on the Statement on Risk Management and Internal Control included in the Annual Report (AAPG3) issued by the Malaysian Institute of Accountants (MIA) for inclusion in Sarawak Energy's Annual and Sustainability Report for the year ended 31 December 2022, and reported to the Board that nothing has come to their attention that causes them to believe that the statement intended to be included in the Annual and Sustainability Report is not prepared, in all material respects, in accordance with the principle disclosures required by paragraphs 41 and 42 of the Statement on Risk Management and Internal Control: Guidelines for Directors of Listed Issuers nor is the Statement factually inaccurate.

AAPG3 does not require the external auditors to consider whether the Directors' Statement on Risk Management and Internal Control covers all risks and controls, or to form an opinion on the adequacy and effectiveness of the Group's risk management and internal control system including the assessment and opinion by the Directors and management thereon.

The report from the external auditors was made solely for and directed solely to the Board in connection with their voluntary adoption of the best practices recommended by the Statement on Risk Management and Internal Control: Guidelines for Directors of Listed Issuers (2012) and Principle B of Malaysian Code of Corporate Governance which is for the Board to make a statement in its Annual and Sustainability Report about the state of risk management and internal control as a Group and for no other purpose or parties. The external auditors do not assume responsibility to any person other than the Board in respect of any aspect of this report.

This statement is made in accordance with the resolution of the Board dated 18 May 2023.



# Our Strategic Roadmap

Having successfully completed the objectives outlined in Sarawak Energy Excellence (SEE) 2020 Strategic Roadmap in the year 2020, we continued our efforts to sustain value creation and foster continuous growth with SEE 2022 towards becoming the best operator and to capture growth through continuous improvement.

This strategic roadmap has further guided and aligned the Company in taking the next step in 2023 and beyond in progressing our ambition of becoming a regional powerhouse.

We are committed to our Key Focus Areas (KFAs) of Health, Safety, Security and Environment (HSSE); Operational; Project Delivery; Commercial; and Talent Management Excellence, supported by a High Performance Culture. By focusing on these KFAs, Sarawak Energy strives to deliver on our promises to customers, enhance business operations and earn the confidence and loyalty of the stakeholders and communities we serve.

## Sarawak Energy Excellence (SEE) 2022

In the face of extreme and unforeseen challenges over the past several years, Sarawak Energy and its people have demonstrated strong dedication, perseverance and resilience in delivering on our promises while completing our SEE 2022 our SEE 2022 roadmap – supported by an organisational emphasis on continuous improvement aligned with our six KFAs and their respective targets.

HSSE Transformation has remained a key priority for the Company since the launch of our KFAs in 2017, introducing and refining vital

### Past (2017-2019)

#### Sustaining Value & Continuous Growth

- Captured growth: 579MW PPA signed
- Bakun HEP acquisition and generation capacity > 5,000MW
- Secured upstream fuel resources (gas and coal)
- Energised 500kV transmission backbone



### Present (2020-2022)

#### Best Operator & Capture Growth Through Continuous Improvement

- Continuous improvement and innovation across value chain
- Strengthen corporate governance and compliance
- Attract premium customers and interconnections
- Maximise returns on invested assets
- Increase renewable energy footprint
- Accelerate state grid and rural electrification



### Future (2023 & Beyond)

#### Regional Powerhouse

- Digital utility
- Borneo Grid and regional expansion
- Driving innovation and investment across Borneo and the region
- Regional leader in clean, renewable energy and technology



## Our Strategic Roadmap

their careers. Reflecting our growing focus on the global stage, we benchmark ourselves against international companies in terms of infrastructure and incentives to ensure we are offering the best and most competitive benefits possible.

Our people is also the driving force behind our progressive, resilient, and high-performing corporate culture. In line with this, we embed our people with Sarawak Energy's winning behaviours and encourage them to embody our core values of courage, unity, respect, integrity and accountability.

In the short time since its introduction, Commercial Excellence has played an important role in advancing us towards becoming a technically and commercially savvy organisation. Our people at all levels have taken steps to embed a commercial mindset, which plays a important role in day-to-day decision making. We are consciously looking to maximise value for the Company when managing our finances, assets and resources to ensure long-term profitability and sustain our growth.

With the completion of SEE 2022, we are even closer to realising our regional renewable energy powerhouse ambitions, standing as a best-in-class utility in Southeast Asia. Our collective commitment to delivering our targets and continued focus on digitalisation will continue driving us forward.

HSE policies, programmes and guidelines that have helped cultivate a generative HSSE culture within the organisation – where everybody takes ownership of HSSE matters. This has created a safe and sustainable workplace for all our people. We will continue to focus on progressing a strong HSSE culture within Sarawak Energy as we embark on the next phase of our growth staircase: SEE 2025.

This sense of continuous improvement also extends to our efforts towards Operational Excellence, as we consistently look for opportunities to maximise operational efficiency and output across our value chain – capitalising on new digital technologies and innovations where possible. The Company will continue to leverage digitalisation and enterprise modernisation to maintain Operational Excellence at all levels, with the aim of maintaining high customer satisfaction through the provision of safe and reliable power supply.

Our Project Delivery Transformation initiative has also been a foundational building block for Sarawak Energy's continued, sustainable growth – playing a key role in ensuring all our projects are delivered safely, within cost, on schedule and with high quality. This focus on project delivery excellence yielded important improvements to our systems, processes, capabilities and networks over the course of our SEE 2022 roadmap – ultimately culminating in the Company being ranked in the second quintile of the Independent Project Analysis 2022 benchmarking assessment – a marked improvement over our 2018 placement in the fifth quintile.

All of these successes would not be possible without our people – Sarawak Energy's greatest asset. We have continued to lean on our holistic people strategy of 'Lets ADD (Acquire, Develop and Deploy) our talent' to attract and retain the best talents, putting them in positions to develop, grow and succeed. Our talent development programmes are anchored by the Talent Management Excellence framework, preparing our employees for vital positions and succession plans as they progress in



**DATU HAJI SHARBINI SUHAILI**  
Group Chief Executive Officer



EU30

# Report Card 2022

## Generation Operational Excellence

Equivalent Available Factor (Weighted Average)



Power Plant		2019	2020	2021	2022
Coal	EAFF	77.49%	82.07%	78.8%	78.18%
	FOR	10.53%	2.94%	5.05%	5.11%
Gas	EAFF	91.06%	79.23%	79.4%	79.11%
	FOR	0.38%	1.14%	5.99%	11.91%
Hydro	EAFF	93.41%	94.74%	95.2%	94.91%
	FOR	1.28%	0.49%	0.42%	0.45%

**Notes:**  
 • Equivalent Available Factor (EAF) is weighted.  
 • 2022 is 12 months' rolling average up to December.  
 • Forced Outage Rate (FOR) is a simple average.  
 • 2022 is average for January to December.

EU28, EU29, 3-3

# Report Card 2022

## Network and Customer Service Excellence

Disclosure	Actual 2022	Target 2022	SEE 2022 KFA Target
System Average Interruption Duration Index (SAIDI)	77.93 minutes <sup>a</sup>	≤ 85 minutes	< 60 minutes
System Average Interruption Frequency Index (SAIFI)	1.04 times <sup>a</sup>	≤ 1.32 times	< 1 time
Age of Debtors > 42 days	22.99%	< 26%	< 20%
Non-Technical Losses	3.23%	≤ 3.64%	< 2%
Street Lighting Repair	97.88% ≤ 24 hours	95% ≤ 24 hours	90% < 24 hours
Release of Connection Charges	93.50% ≤ 14 days	92% ≤ 14 days	90% < 14 days
Service Call Attendance	93.80% ≤ 45 minutes	90% ≤ 45 minutes	90% < 45 minutes
Service Line Installation	91.36% ≤ 7 days	95% ≤ 7 days	90% < 7 days
Service Cable Installation	98.94% ≤ 7 days	80% ≤ 7 days	90% < 7 days
Customer Satisfaction Index	97.15%	≥ 90%	> 90%

**Note:**  
<sup>a</sup> Includes generation, transmission and distribution.

## Commercial Excellence

### Value Optimisation

#### Return on Assets



### High Performance Culture

#### Sarawak Energy Employee Survey (SEES)



# SEE2022 Key Focus Areas' Targets

## Sarawak Energy Excellence 2022



### Health

**95%** Employees with Body Mass Index (BMI) < 30

### Safety

**Zero** Loss Time Injury (LTI) & Zero Fatalities

### Security

**Zero** Intrusions at All Guarded Power Stations, Substations And Offices

### Environment

**100%** Compliance with Regulatory Laws



### Generation Excellence

**Coal** EAF  $\geq 87\%$   
FOR  $\leq 2\%$

**Gas** EAF  $\geq 89\%$   
FOR  $\leq 2\%$

**Hydro** EAF  $\geq 93\%$   
FOR  $\leq 1\%$

### Network & Customer Service Excellence

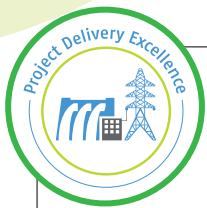
- SAIDI < 60 mins
- SAIFI < 1 time
- Customer satisfaction index > 90%
- Non-technical losses < 2%
- Age of debtors > 42 days < 20%
- 90% Resolution of Key Services
- Street lighting repair < 24 hours
- Service call < 45 mins
- Connection charge < 14 days
- Service Line/Cable Installation < 7 days



### Value Optimisation



Return on Assets (ROA) > 3%



### Timely Completion

**70%** of projects are completed on time

### Cost Discipline

- 1 Within 1<sup>st</sup> quartile benchmark
- 2 CAPEX execution within  $\geq 90\%$  and < 105%

### Quality

- 1 No malfunction/major equipment failure during Defect Liability Period
- 2  $\geq 80\%$  conformance to Audit Criteria
- 3  $\geq 80\%$  audit non-conformance closeout



We know that Sarawak Energy is a great place to work when:

- Our people demonstrate Winning Behaviours.
- Our culture enables the delivery of aspirational targets for all key focus areas.
- Employees share their positive experiences as indicated by the SEES scores.

Score target above 80%

- 1 Employee Engagement
- 2 Continuous Improvement
- 3 Diversity & Inclusiveness

- We receive external recognition.



### Sustainable Talent Bench Strength

2 'Ready Now' & 2 'Ready Later' successors for critical positions: 95%

### Individual Development Plan (IDP)

For every employee: 100%

### Competence Assurance Framework (CAF)

**90%** Self-assessment

**70%** SME assessment

# Our People

Sarawak Energy's people have been an invaluable asset from the very outset, fuelling our success throughout the last century. Their agility, creativity, resilience and diversity have been fundamental catalysts for our organisation's progressive, high performance corporate culture.

We prioritise and invest in our people by providing them with opportunities based on a 70:20:10 development model, building their respective capabilities and competencies in alignment with business needs.

### Sarawak Energy's Workforce

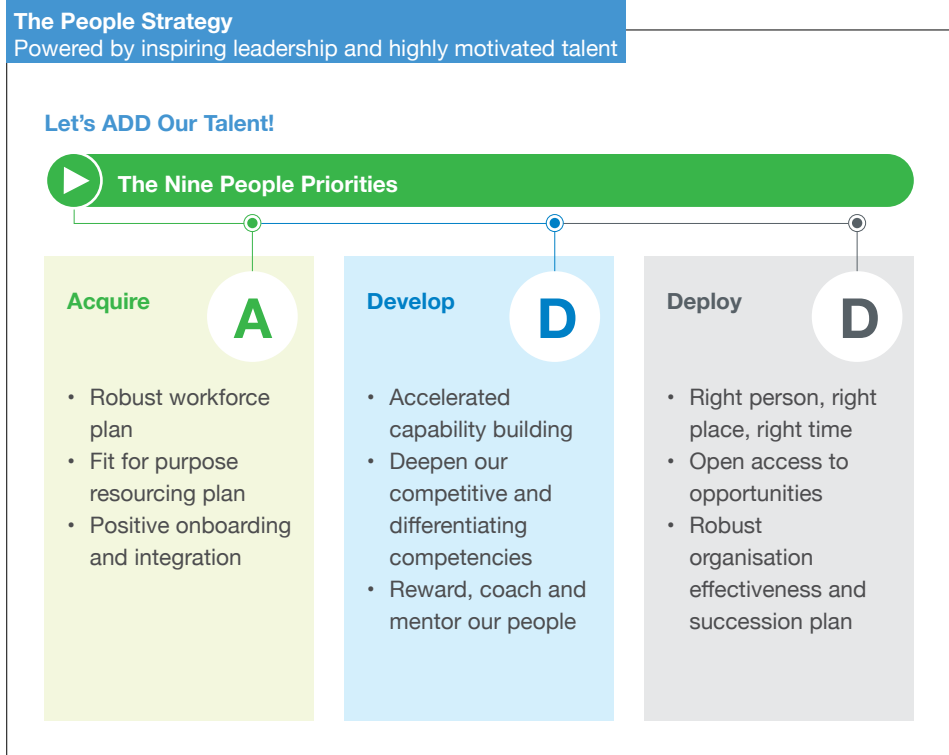
Sarawak Energy's progress has been accompanied by remarkable growth in our workforce, in both numbers and expanded roles, to meet evolving business needs. With around 5,500 diverse individuals in our workforce, Sarawak Energy is the largest employer of local Sarawakian talent in the State.

This expansion has been propelled by our robust People Strategy of Acquire, Develop and Deploy (ADD), which comprehensively addresses the entire talent management value chain. Our approach entails acquiring the right talent, effectively developing their skills, and strategically deploying them into positions that enable them to reach their full potential.

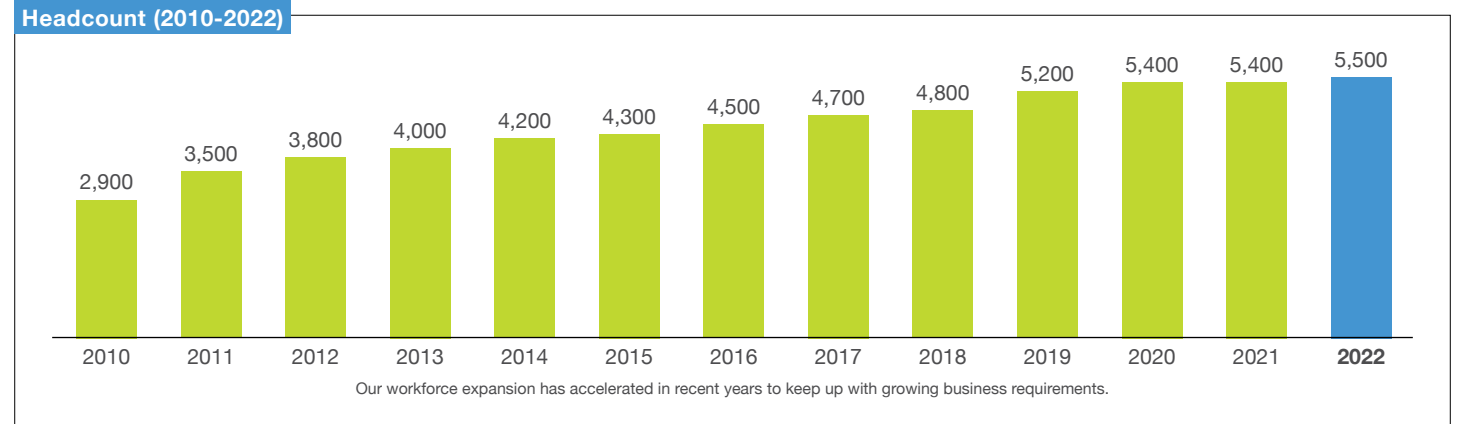
The implementation of our People Strategy is strengthened by a Talent Management ecosystem that includes Talent Councils, Individual Development Plans, Subject Matter Experts, a Competence Assurance Framework, Structured Development Programmes, scholarships, bursary programmes and more.

The ADD approach provides us with a clear pathway to meet future challenges and enables us to attract the most talented individuals who will drive Sarawak Energy towards our aspiration of becoming a regional renewable energy powerhouse.

We are fully focused on fostering a workforce and workplace that inspires a strong sense of contribution and belonging. In 2022, we continued to enhance our Talent Management ecosystem, building upon the achievements and progress of previous years to ensure Sarawak Energy remains a great place to work.



## Our People



### Competence and Expertise Building

Guided by our Talent Management Excellence Roadmap, the development of our people continues to be a focus in accelerating competence and expertise building. This has led to concentrated efforts to nurture talents through targeted development initiatives for various groups across the Company. Our objective is to ensure that our employees possess the necessary competencies to thrive in today's fast-paced and dynamic landscape, while also driving personal growth and preparing them to meet future business objectives.

Our pool of expertise is anchored by Subject Matter Experts (SMEs) who are integrated within a Matrix Organisation of Experts (MOE) structure – fostering synergy in competency development, deployment and support across the Company. A total of 270 SMEs actively collaborate under the MOE which has yielded significant benefits for the Company, including the launch of a coordinated Company-wide skill pool development plan aimed at accelerating capability building for both SMEs and skill pool members.



We have adopted a comprehensive approach to our employees' development by empowering them to plan and shape their own career paths through the Individual Development Plan (IDP). The IDP allows employees to chart their career progression, monitoring and reviewing work performance. This platform is part of our wider Sarawak Energy People System (SEPS), which also allows our people to identify and track their learning and development needs.

By integrating our people development processes in this manner, we have provided our people with a simplified, one-stop platform that covers potential assessment, succession planning, development opportunities, departure windows and internal movement opportunities.



404-2, 3-3

Our People



Talent Assessment

In 2022, Sarawak Energy conducted its third cycle of potential assessment, a process undertaken every two to three years to proactively identify the organisation’s talent bench strength at the earliest possible stage. This assessment not only identifies the strengths of top talent, but also highlights any gaps that need to be addressed to unlock their full potential.

We provide these high-potential employees opportunities to collaborate with our leadership team. This offers these talents new avenues to expand their business knowledge and skills, ensuring that they are ready to contribute effectively to their personal growth and the organisation’s success.

Accelerated Development Programme

Since 2021, we have implemented the Accelerated Development Programme (ADP) to facilitate the growth of top talents in the Company. The ADP identifies individuals with GEC-1 potential in each department, ensuring strong bench strength and preparing our people for leadership roles. (GEC-1 is the group of managers that report directly to the Company’s Group Executive Committee [GEC].)

In addition to accelerating talent development, the ADP also plays a key role in our diversity, equity and inclusiveness (DEI) efforts. We aim for at least 40% females and a balanced 50:50 ratio between Bumiputeras and non-Bumiputeras in our workforce as well as leadership roles – targets that we have achieved since 2021.

In 2022, selected top talents had the opportunity to engage in Short-Term Assignments (STAs) with renowned international organisations. These assignments – ranging from three to 24 months – accelerate their development to meet regional and global standards. Upon their return, bonded talent are expected to leverage their enhanced skills and capabilities to contribute to Sarawak Energy, taking on more significant responsibilities.

To expedite the progression of non-executive employees to executive roles, we also launched a Bridging Programme in the past year, which combines on-the-job development, mentoring, coaching and formal learning to prepare senior clerks, senior technicians, and engineering assistants for executive positions. It includes opportunities for career elevation within their current roles and reskilling to enhance competitiveness for alternative positions. A total of 45 junior mentees were appointed from the senior executive group as part of the Bridging Programme, preparing them to become future mentors.

The Sarawak Energy Mentoring Programme is another significant part of our Talent Management Excellence ecosystem. It is a platform that enables talents to network with and learn from experienced leaders, helping them achieve their professional and personal development goals while also building new leaders for Sarawak Energy.

In 2022, 353 active mentees joined the mentoring programme, starting their one-year mentoring journey with matched mentors.

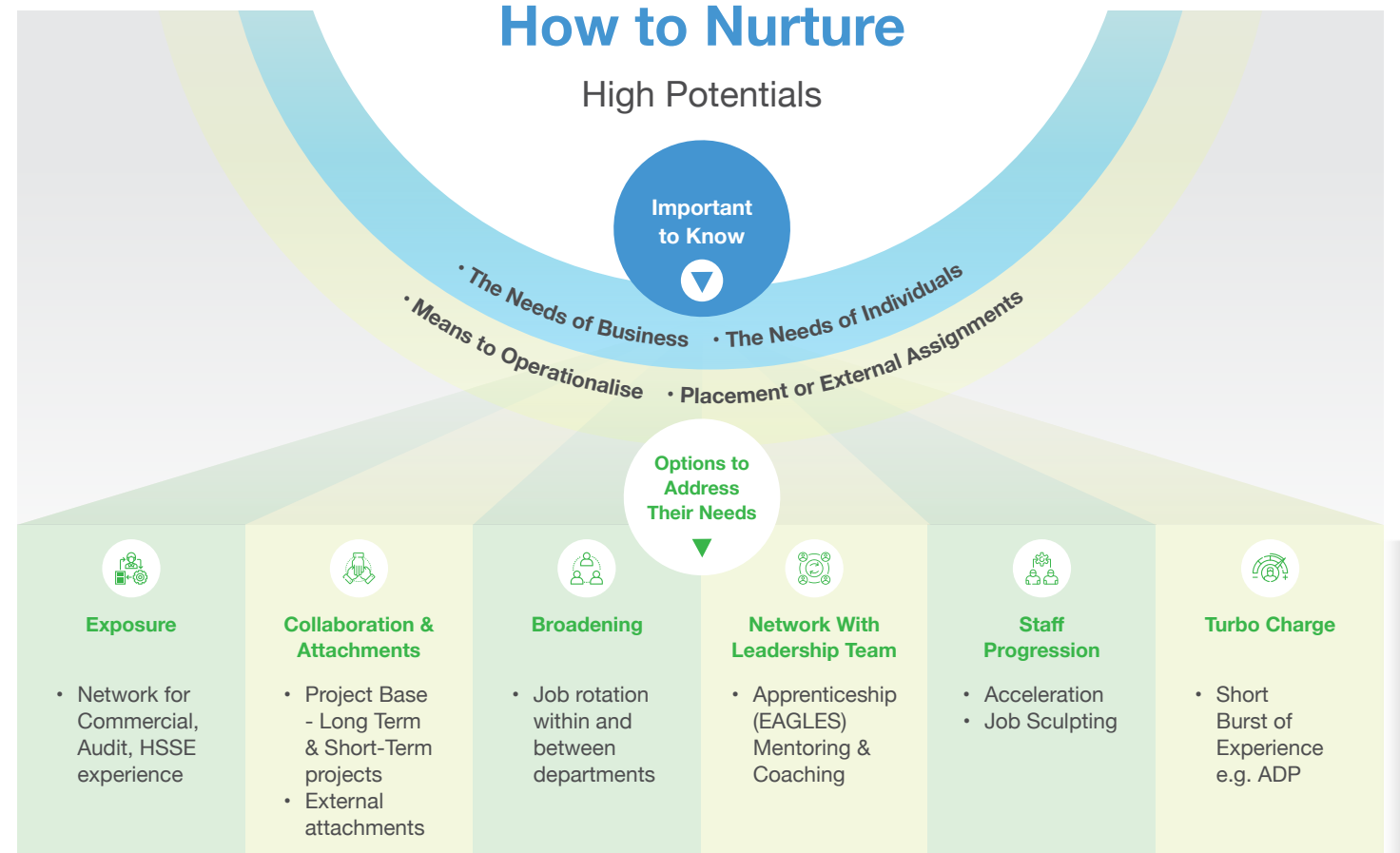
Our efforts to strengthen our talent bench resulted in 771 approved progressions in 2022, marking the highest total since 2017. We are pleased to note that the proportion of female progressions increased from 16% in 2021 to 29% in 2022.

The Talent Excellence ecosystem has played a pivotal role in helping us meet many of our targets for the year.

Key Performance Indicators	Target	2022 Results
Sustainable Talent Bench Strength	95%	95%
Individual Development Plan (IDP) Completion	95%	97%
Competence Assurance Self-Assessment	90%	93%
Competence Assurance Subject Matter Expert (SME) Assessment	80%	80%

404-2, 3-3

Our People



External Capability Building

We achieved a significant milestone in external capability building by becoming the first government-linked company from Sarawak and the second at the national level to sign a memorandum of understanding (MoU) with the Construction Industry Development Board Malaysia (CIDB) in 2022. This MOU aims to enhance competency through trade training, ensuring compliance with CIDB Act 520, which mandates certification and accreditation by CIDB for 25 skill trades, including crucial construction site trades such as wiremen, bricklayers, welders, plumbers, and others.

During the signing ceremony, 28 of our contractors demonstrated their commitment to compliance with CIDB Act 520 by signing a pledge.

Furthermore, we collaborated with learning institutions like the Centre for Technology Excellence Sarawak (CENTEXS) to strengthen contractor capabilities and increase the number of skilled vendors in Sarawak. These partnerships enable us to enhance the expertise and competence of our contractors, promoting greater performance and compliance.

Inspiring and Sustainable Leadership

We believe all our people are leaders and have taken steps to cultivate their ability to lead and thrive at all levels. Our five-month XCeL 2022 leadership programme was the key highlight that reflected this in 2022, building on previous iterations of the programme to transition our

workforce from ‘Participative Leadership’, where they are encouraged to be more proactive in sharing their perspectives and displaying ownership in their respective capacities, to ‘Inspirational Leadership’, towards encouraging our employees to have a deep sense of purpose and motivate others to create positive change within the organisation.

As part of XCeL 2022, 13 participants from various departments engaged in a two-week immersion programme, gaining first-hand experience and understanding of our core businesses while networking with colleagues. The programme culminated in a Leadership Conference attended by over 1,100 employees. This event featured presentations from internal and external leaders across different industries and fields. Additionally, 19 high-potential employees received mentoring from GEC members during the past year as part of the EAGLES initiative.



2-23, 2-24, 205-2, 3-3

## Our People



### Sarawak Energy Leading Women Network

The Sarawak Energy Leading Women Network (SELWN) continues to serve as a professional networking platform for female employees, offering structured development programmes, professional networking and learning experiences. SELWN supports governance improvements, policies and initiatives that create a conducive work environment for talent retention and equal opportunities for women within Sarawak Energy to grow.

SELWN engaged in various activities in 2022, including holding talks on Diversity, Equity and Inclusiveness (DEI) during International Women's Day as well as organising 'Women in Focus' talks with external women leaders. The SELWN team also drove efforts to raise awareness of the Company's zero tolerance for workplace harassment through internal sharing on the topic towards creating a safer, positive, and conducive working environment for employees. Relationships with external organisations that advocated for women, such as LeadWomen, the Women Leadership Foundation and Akademi Kepimpinan Wanita, were also fostered.

The Women Mentoring Women (WMW) programme under SELWN welcomed 33 participants from both non-executive and executive groups in 2022. Since 2021, 43 participants have completed the one-year programme. The WMW programme allows women role models to instil confidence, promote new perspectives, provide proactive feedback and foster a culture of learning, nurturing and growth among their mentees.



### Learning Mindset

Sarawak Energy has fostered a strong learning culture, with a significant increase in corporate-wide learning hours since 2020. Remote learning has become increasingly prominent following the pandemic, with 76% of our employees engaging in virtual learning activities as of December 2022. We leverage new innovations and technology, such as virtual reality, to enhance their learning experience.

Our learning management system (LMS) offers internal development courses on business skills, safety and technical e-learning. Within six months, over 2,800 employees completed a total of 2,980 learning hours through these courses. We have also integrated virtual reality modules on 11kV switching and low voltage live line works, providing a safe and realistic learning environment for technicians. Virtual assessments and interviews have also been implemented for competency and certification evaluations.

To ensure compliance and good corporate governance, we uphold a zero-tolerance policy for fraud, corruption, and unethical behaviour. A mandatory Anti-Bribery and Corruption (ABC) and Gifts and Hospitality learning programme was rolled out to strengthen integrity and corporate governance.

As part of efforts to cultivate an enterprise-first mindset among our employees, we offer learning experiences to enhance their business skills and knowledge. New joiners undergo onboarding programmes while established executives participate in the Introduction to Sarawak Energy Business programme.

We also launched a Commercial Acumen Fundamentals programme in 2022 to nurture a commercial excellence mindset through interactive learning sessions, ensuring our people have the ability to make informed, commercially-sound decisions in their day-to-day work. To supplement the programme, bite-sized learning nuggets on commercial acumen were published on our internal communication platforms, reaching an average of 3,600 views per release.

### Scholarship Awards

The Scholarship Awards programme is part of Sarawak Energy's ongoing efforts to help Sarawakian talents reach their full potential through an annual educational commitment of RM16 million. Since its introduction in 2014, this Scholarship programme has benefitted 895 scholars, including 123 employees. Currently, 55 internal scholars and 226 external scholars are still pursuing their studies. A total of RM34.9 million has been invested in the programme since 2017.

2-26, 2-29, 201-3, 403-3

## Our People

In 2022, Sarawak Energy awarded scholarships to 201 Sarawakian students and 13 Sarawak Energy employees. These 214 scholarships will help the recipients to further their education at both local and overseas universities.

We are also sponsoring 27 students who are enrolled in the Diploma in Electrical Engineering course at Universiti Tenaga Nasional (UNITEN). These students will have more than 12 weeks of industrial training and exposure at both Sarawak Energy and Tenaga Nasional Berhad generation and network facilities.

### Employee Wellbeing

As part of our ongoing commitment to our people's overall wellbeing, we launched the Employee Wellbeing Programme in August of last year. The programme focuses on four pillars: physical, mental, career and financial wellbeing. It aligns with our commitment to Healthy Living and a High Performance Culture, fostering a healthy, productive, resilient, and agile workforce.

The Sarawak Energy Support Group (SESG) is a key component of our Employee Wellbeing Programme. Comprising 16 trained colleagues who have been certified as mental health first aiders by the Malaysian Mental Health Association, the SESG offers initial assistance and guidance to affected employees, connecting them with professional treatment and other supportive measures like our Employee Assistance Programme (EAP), which offers counselling services to all employees.

Aside from the EAP, we are actively creating safe spaces for open discussions on mental health. This supports our DEI goals and encourages those in need to seek support.

### Recognising Our People

To celebrate our people's contributions to the business, Sarawak Energy held our inaugural People's Day series in 2022. This comprised a number of People's Day events that were held across various Sarawak Energy offices and facilities, which involved Breakfast Shows and teh tarik sessions to provide our people with opportunities to engage with Company leadership. We communicated important information regarding Sarawak Energy's growth policies and encouraged our people to ask important questions directly to Sarawak Energy leaders.

During the People's Day finale, our colleagues' outstanding performance was

### Highlights

#### Capacity and Capability Buiding



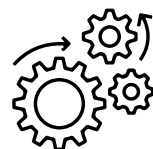
#### Generation Academy eLearn

Launch of Generation Academy Portal & Generation Connect



#### Subject Matter Expert

Strengthen Subject Matter Expert & Technical Sharing



#### Maintenance Engineering

Strengthen Maintenance Practice & Engineering



acknowledged with awards in the following categories: SME Role Model, Emerging Leader, Digital Figure, Female Figure, Operational Excellence (SESCO) and Operational Excellence (SEB Power).

We continued to hold the Sarawak Energy Hall of Fame (SEHoF) award ceremony, which was launched in 2017, to recognise colleagues who have made significant contributions to the Company's Key Focus Areas and overall strategic objectives. In 2022, Sarawak Energy recognised a total of four GCEO Award winners and four Chairman Award winners.

We also acknowledged 492 long-term employees and 75 retirees for their service as part of our Loyalty Service Award (LSA) and Retirement Event, which celebrates long-time employees who have served Sarawak Energy for a span of 10, 20, 25, 30, 35 and 40 years, as well as retirees.

In technical learning development, we celebrated the graduation of 83 colleagues who completed the Sarawak Energy Technician Foundation Programme (SETFP), an in-house foundation programme which provides a structured 70/20/10 learning development approach for newly recruited technicians.

Our continuous efforts to make Sarawak Energy a great place to work for all our people have yielded fruit, as exemplified by the good scores we achieved in the annual Sarawak Energy Employee Survey (SEES) – with scores of 80% and above for categories like employee engagement, continuous improvement, diversity & inclusiveness, and work-from-home.

In 2022, we achieved the status of a 'Great Place to Work' when we received a 90% favourability score in the Employee Engagement element in the SEES, which was the highest recorded score since its inception.

2-29, 403-4, 403-7, 3-3

# A Safe and Healthy Workplace

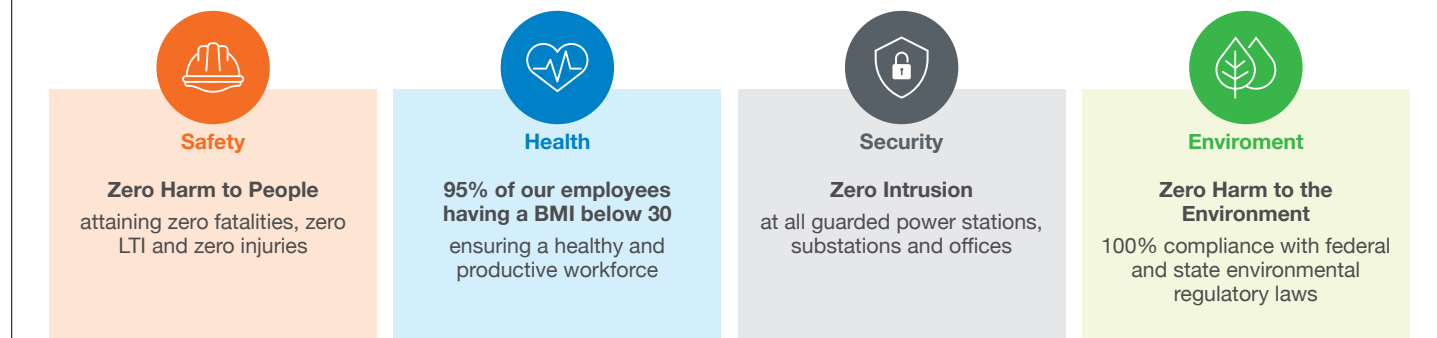
Sarawak Energy is committed to embedding a generative health, safety, security and environment (HSSE) culture where all our people take ownership. We believe that it is our responsibility to ensure everyone's safety at the workplace, preventing damage to assets as well as minimising the negative environmental impacts that may arise from our business operations.

Through relevant and continuous improvement programmes, we aim to establish best-in-class HSSE practices – allowing us to maintain our social licence to operate and boost productivity. As we continue expanding regionally, a strong HSSE culture is crucial to gain credibility on the international stage.

We are guided by our five value drivers to ensure that our efforts deliver on all fronts and generate long-term value for our stakeholders:



We are also committed to achieving:



2-29, 403-2, 403-3, 403-4, 403-5, 403-6, 413-1, 3-3

## A Safe and Healthy Workplace

### Strengthening Our HSSE Governance

Sarawak Energy recognises the importance of HSSE Governance as a fundamental component of our comprehensive risk management strategy. To ensure effective implementation, we have established HSSE Management Systems, encompassing our HSE Management System and Security Management System. These systems are designed to promote HSSE Excellence and compliance throughout the organisation by providing clear guidelines and protocols within defined scopes of operation.

Building on this, Sarawak Energy implemented various governance initiatives to reaffirm the importance of HSSE governance across the organisation. We conducted internal workshops to promote generative HSSE cultural behaviours to our people and highlight how best to integrate them into their daily duties. A number of Train-the-Trainer workshops and awareness training programmes were also conducted to advance our digital Permit to Work (PTW) transformation, ensuring a greater understanding of the evolving PTW process among our people in a variety of different contexts.

We have also consistently held engagements with both internal and external stakeholders, refreshing the former on important concepts such as our Journey Management Guidelines and Plan Vehicle Information as well as Job Safety Analysis (JSA). For our external stakeholders, our engagement focuses on our ISO 45001 journey.

#### Safety

We remain committed to maintaining a safe workplace for our people and communities, especially in areas where we operate. Towards this end, we have launched several occupational safety initiative this year.

One of the key initiatives included the launch of our Community of Practice (COP) Portal, which provides all employees with knowledge-sharing and networking opportunities across the Company – ensuring that they have ample opportunities to learn about relevant practices and processes.

We also engage with our contractors to ensure they are aligned with our organisational commitment to occupational safety. We have rolled out our HSSE Requirements.

We also conducted a partnership drive and assurance initiative under our Contractor Transformation Programme (CTP) and Contractor EIA Compliance Award (CECA) to encourage contractors to take greater accountability for their compliance with our HSE regulations and practices, leading them to implement self-regulating mechanisms in their activities at our projects and operations.



Scan here to read more about the inaugural Sarawak Energy HSE Excellence Award, which merged CECA and the CTP under one event.

#### Health

Recognising the correlation between employee wellbeing and productivity, we have implemented a broad range of occupational health programmes in support of their physical and mental health. To provide our people with a target to aim for, we set a corporate goal of having at least 85% of our workforce achieve a BMI equal to or less than 30 for 2022. While we did not meet this goal, 82.04% of our employees did achieve it, enabling us to record a marked improvement over our score of 80.90% in 2021.

We also have the Sarawak Energy Employee Wellbeing Programme which aims to improve our people's work-life balance and emphasise the importance of personal wellness – something which has become increasingly important in a post COVID-19 world. In line with this, we rolled out the DASS-21 Corporate Mental Health Survey to measure our people's emotional state, with the aim of determining how best we can address their needs and support their work – creating a truly healthy workplace for all.



2-23, 403-2

## A Safe and Healthy Workplace

### Security

Building upon the significant investments in transforming the role of corporate security in Sarawak Energy, ranging from the introduction of our integrated Security Management System to the continued expansion of our Auxiliary Police (AP) team, we have achieved many security milestones in 2022. Our overall physical security intrusions decreased by 31%, continuing the positive trend we have enjoyed since 2020. While there had been 20 intrusions at unguarded substations, incidents decreased by 26%.

Several of our key installations were officially gazetted under the Protected Areas and Protected Places Act 1959 (Act 298) in 2022, restricting entry to these premises to only individuals with the relevant permit. In addition, our Bakun, Murum and Batang Ai hydroelectric dams were classified as critical national infrastructure.

We have also established the Sarawak Energy Security Golden Rules (SGR) which are designed to enhance the efficiency of our management systems, personnel, site protocols, and security governance. The SGR is a vital part of our efforts to cultivate a security-conscious culture among our people – promoting prudence and continuous vigilance among employees and non-employees at Sarawak Energy sites.

#### Key Achievements (Sarawak Energy Excellence 2022)

Promotion of 267 Auxiliary Police



Approval of six security-related Policies, Procedures and Guidelines

Our security-related Policies, Procedures and Guidelines are:

- Cash in Transit
- Contingency Plan for Crisis & Disaster, Corporate Security Division
- Patrolling and Surveillance
- Security
- Arms and Ammunition
- Bomb Threat and Suspicious Item

Conducted Security Risk Assessment (SeRA) on 59 Installations



## A Safe and Healthy Workplace

### Environment

Sarawak Energy is committed to minimising the adverse effects and maximising the positive contributions of our projects in the surrounding environment in which we operate by driving various programmes to promote awareness and compliance throughout the organisation. This has led to our biggest environmental milestone to date with 100% compliance with all statutory requirements for our entire operations, including our projects.

We rolled out our new Erosion and Sediment Control Plan (ESCP) Guideline to support the implementation of environmental best practices at our project sites and provide self-regulation mechanisms to guide our contractors. In addition, we conducted in-house training for our employees, covering important topics such as scheduled waste management, environmental awareness as well as chemical spill control procedures and drills. Various key programmes under our Go Green Campaign were also organised, including beach cleaning efforts at several locations – resulting in the collection of around 2,000kg in waste.

As part of our ongoing commitment to environmental stewardship, Sarawak Energy launched a 10-Year Corporate-Wide Integrated Tree Planting and Protection Campaign in 2022. Our goal is to plant and protect 500,000 trees from 2021 to 2030. As of December 2022, we have planted and protected a total of 52,897 trees.

This campaign aligns with the Sarawak Government's objective of planting 35 million trees, which is equal to about 35% of the trees that need to be planted in Malaysia from 2021 to 2025 under the 12<sup>th</sup> Malaysia Plan.

Sarawak Energy continues to enjoy collaborative partnerships with various organisations and institutions that share our commitment to environmental excellence. These partnerships include the Department of Environment (DOE) of Sarawak, Universiti Malaysia Sarawak (UNIMAS), the Natural Resources and Environment Board (NREB) Sarawak and the Forest Department of Sarawak. Through such partnerships, we strive to advance our environmental stewardship and sustainability initiatives.



## A Safe and Healthy Workplace

### Strengthening Our HSSE Performance

Our robust HSSE culture is built on the sense of ownership that our workforce and partners have. To maintain this, we have various platforms including award programmes to recognise and appreciate the outstanding contributions of our employees and contractors in embodying HSSE Excellence in delivering their duties:

<b>1</b> <b>Contractor Transformation Programme (CTP)</b>	<b>2</b> <b>Contractor EIA Compliance Award (CECA)</b>	<b>3</b> <b>Best Station Award</b>	<b>4</b> <b>Group CEO Appreciation Award</b>
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## A Safe and Healthy Workplace

### Awards and Accolades



In 2022, our dedication towards HSSE excellence received significant external recognition, being honoured with multiple awards and recognitions throughout the year:

- Malaysian Society for Occupational Safety & Health (MSOSH) Awards 2022

 <b>1</b> <b>Gold Merit Award</b>	 <b>1</b> <b>Silver Award</b>
 <b>10</b> <b>Gold Class</b> <b>1</b> <b>Awards</b>	 <b>4</b> <b>Gold Class</b> <b>2</b> <b>Awards</b>



- Premier of Sarawak Environmental Award (PSEA) 2021/2022

 <b>4</b> <b>Gold Class</b>	 <b>1</b> <b>Merit Award</b>
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2-25, 413-1

# Delivering Sustainable Growth

Energy security, sustainability and adherence to environmental, social and governance (ESG) principles are paramount in today’s world, as reflected in the growing expectations of stakeholders towards the energy industry. As Malaysia’s largest renewable energy provider, we recognise the increasing global focus on sustainability and renewables, and capitalise on this trend through renewable hydropower development. The growing emphasis on clean energy sources has further bolstered our prospects, enabling us to fuel our growth while simultaneously driving us towards a more sustainable future.

Sarawak Energy aligns its sustainability efforts with UN SDG No. 7 to ensure access to affordable, reliable, sustainable and modern energy for all, with renewable hydropower playing a pivotal role in driving Sarawak’s sustainable growth. With a commitment to diversifying our generation mix, we anticipate that renewable hydropower will continue to be our primary source of energy while we expand our portfolio of alternative energy sources. By embracing this approach, we aim to harness the inherent advantages of renewable hydropower and contribute to the sustainable growth of Sarawak’s and the region’s energy sector and economy.

### Sustainable Renewable Hydropower Development

We adhere to the International Commission on Large Dams’ (ICOLD) strict guidelines which ensure that our dams are meticulously designed and constructed. Additionally, we have aligned with the International Hydropower Association’s (IHA) Hydropower Sustainability Tools (HST) since 2014, further enhancing the sustainability and responsible operation of our dams. With these guidelines, our dams are not only built and operated safely, efficiently and economically but also integrate measures to ensure environmental sustainability and social equity.

*Read more about Hydropower Sustainability on page 119.*

By incorporating these leading industry guidelines, we demonstrate our unwavering commitment to maintaining the highest standards of dam construction, operation and environmental stewardship.

### Baleh Hydroelectric Project (HEP)

Sarawak Energy’s Baleh HEP, with a capacity of 1,285MW, is the company’s second hydropower development project under the Sarawak Corridor of Renewable Energy (SCORE) initiative, following the successful completion of the Murum HEP. Once completed, Baleh HEP will be the largest HEP developed by Sarawak Energy. In 2022, we achieved a significant milestone – reaching 31.1% progress in development.

### Soft Opening of Baleh Information Centre



This year, we successfully soft launched the Baleh Information Centre on 21 January. Through this facility, communities in Kapit have access to more information about Baleh HEP’s development – including the Baleh-Mapai Transmission Lines and Mapai Substation. The centre will also manage the grievances of local communities, providing them with solutions to any issues arising from our projects.

2-25, 2-26, 2-29, 304-1, 304-2, 403-5, 403-7, 413-1

## Delivering Sustainable Growth

During the year under review, Biodiversity Interim Monitoring (BIM) was conducted at Baleh HEP to ensure that the project would be delivered with respect to the surrounding biodiversity. Some key achievements under this monitoring, include:

- The launch of the Sarawak Energy Amphibian & Reptile Pod to help conserve wildlife surrounding our operations. Endangered, rare, and endemic amphibians as well as reptiles from the Baleh HEP area will be housed at this biodiversity husbandry facility, which adheres to international standards and will also cater to the Wildlife Monitoring and Rescue (WiMoR) operation, which we signed with the Sarawak Forestry Corporation.
- Four monitoring trips were conducted covering downstream, construction areas and upstream. This resulted in the rescue, tagging, and recording of 117 species of avifauna, 25 species of mammals, 33 species of fish, 28 species of reptiles and 28 species of amphibians. Environmental DNA (eDNA) sampling was also executed to assess the diversity of fish species, with samples sent to the University of Nottingham Malaysia (UNM) for further analysis.
- Awareness and training programmes such as the Snakebite Awareness and Management Talk were organised as part of a human-wildlife conflict management initiative to ensure the mutual safety of people and wildlife in the area.
- The Biodiversity Monitoring Tool (BioMoT) mobile application was also introduced to Baleh HEP’s PProject Delivery (PD) Team, providing a systematic and effective way for observers to record, report and monitor biodiversity sightings. The app has more than 91 users to date and 90 sightings have been received since November 2022.

Sarawak Energy prioritises sourcing local manpower to fill the appropriate positions at Baleh HEP. To date, 40% of the project’s manpower is local, with the amount expected to increase as we continue to train workers in the various skills needed. Our project partner, China Gezhouba Group Co. Ltd. (CGGC) gave 10 youths who graduated under our Baleh Skills Training programme the opportunity to start their career with CGGC. This year, an additional four graduates joined the establishment. CGGC’s office in Kapit also recruited two local talent for the ongoing project.

The project is expected to be fully commissioned in 2028, further benefitting surrounding communities through infrastructure development as well as programmes for agriculture, education, skill development and entrepreneurship, among others.

As part of our commitment to stakeholder engagement, we have established a grievance mechanism to address concerns related to the project in a transparent and timely manner. Grievances can be submitted online through our corporate website or physically, ensuring that they are managed fairly and effectively.



Scan here to view the Baleh HEP Grievance Mechanism

### Mentarang Induk Hydroelectric Project (MIHEP)

Sarawak Energy’s collaboration with PT Kayan Patria Pratama (PT KPP) and PT Adaro Energy continued to advance MIHEP in 2022, via our joint venture company, PT Kayan Hydropower Nusantara (PT KHN). Located in Indonesia’s Northern Province of Kalimantan (KALTARA), the facility will have a capacity of 1,375MW and provides affordable, reliable and sustainable energy to support Kawasan Industri dan Pelabuhan Internasional (KIPI) Tanah Kuning Green Energy Park in Bulungan Regency, North Kalimantan.

Our achievements over the past year for MIHEP are due to the support we have received from communities surrounding the project area in KALTARA as well as guidance from both the Provincial and Sarawak governments. Some key milestones in 2022 include being identified as a National Strategic Project for Indonesia and welcoming PT Adaro’s subsidiary, PT Mentarang Tirta Energi, to PT KHN on 29 November.



MIHEP is expected to reach the Final Investment Decision by 2024. This will make it our first international project – a significant milestone in realising our regional renewable energy powerhouse ambitions.



203-1  
Delivering Sustainable Growth

**Alternative Energy Development**

We continue to be fully committed towards climate action, exploring alternative energy sources as well as the diverse application of other renewables to further decarbonise our energy system.

To date, Sarawak’s capacity mix consists of 1% in alternative energy and it is our goal to increase to 4% through large-scale solar integration by 2030.

**Hydrogen Economy and Value Chain**

Sarawak Energy was tasked by the State Government with the responsibility of driving green hydrogen research, exploring its viability as a potential energy solution. This eventually led to the construction and commissioning of the first Integrated Hydrogen Production Plant and Refuelling Station in Southeast Asia in 2019, which has provided the Company with an avenue to research the commercial viability of a hydrogen economy for Sarawak.

The facility reflects Sarawak’s focus on decarbonising the State’s transportation sector by refuelling the first hydrogen-powered public buses in the nation.

Sarawak Energy is also collaborating with a strategic partner to install the first Proton Exchange Membrane-based (PEM) hydrogen generation and fuel cell system at our production plant and refuelling station as a proof of concept.

This proposed project will explore the integration of PEM technology and fuel cell systems for energy and peak management, with the aim of determining its technical feasibility and potential commercial viability.

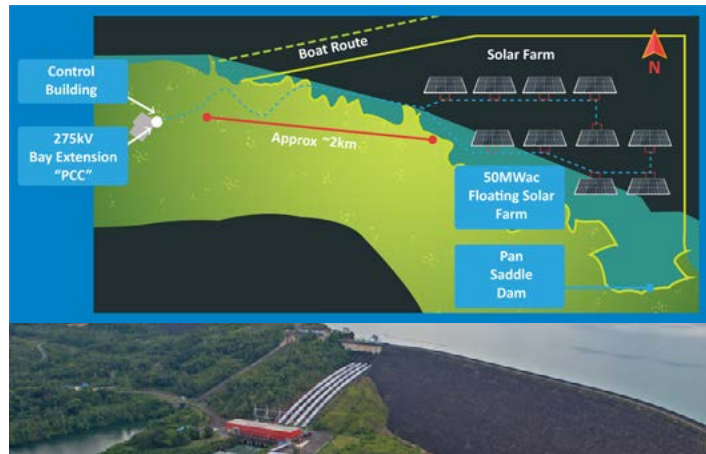


Our facility has been visited by many government representatives and organisations who are interested in Sarawak Energy’s green hydrogen journey.

**Floating Solar**

Our floating solar facility at the Batang Ai Hydroelectric Power (HEP) reservoir is expected to be completed and commissioned in 2024. This 50MW solar farm is projected to offset approximately 52 kilotonnes of carbon emissions per year, contributing to the ongoing decarbonisation of the State’s energy system.

This project will mark Sarawak’s first significant integration of hydro and solar power generation, leveraging innovative floating solar farm technology. Once completed, this facility will potentially lead to the implementation of similar floating solar farms at reservoirs in our other HEPs.



Delivering Sustainable Growth

**Reinforcing Sarawak’s Power System**

Sarawak Energy emphasises the reinforcement of our network system, ensuring that we continue to deliver reliable supply to customers and minimise supply interruptions in the long run.

The Kuching network is currently undergoing major reinforcement to increase transmission network capacity and further enhance system reliability, security, and stability. The Tondong Static Synchronous Compensator (STATCOM) in Southern Sarawak is key to achieving this goal. It is scheduled for completion in 2023 and will deliver dynamic voltage support for Sarawak’s grid, significantly improving grid supply stability – particularly for the Kuching grid system.

In addition, the Sejingkat Battery Energy Storage System, which is slated to be commercially operational by Q3 2023 will support the Kuching grid through a peak shaving application. The system will also provide spinning reserve by utilising the available capacity of Tanjung Kidurong CCPP.

Some key highlights over the past year to reinforce supply reliability of our power system, include:

- The successful commissioning of:
  - Package 6: Matang-Mambong 275kV Transmission Line Turn into Tondong Project and Tondong 275/132kV Substation Project
  - Matang 275/132/33kV Substation & Associated Line Turn-In
  - Bunut 275/33kV Substation & Marudi Junction-Bunut 275kV Transmission Line Project
  - Murum-Samalaju B 275kV Transmission Line
- The successful energisation of Package C Line 1: 500kV Backbone Transmission Line Project



203-2, 3-3

## Delivering Sustainable Growth

### Rural Electrification Efforts

We are closing in on our goal of full domestic electrification by 2025, with only a few more remote areas in the state left to electrify.

**Our efforts are anchored on the Accelerated Rural Electrification Master Plan, which encompasses several key programmes:**

- **Rural Electrification Scheme (RES) Last Miles:** Extends existing distribution lines to connect rural households to the grid.
- **Rural Power Supply Scheme (RPSS):** The RPSS has synergy with the RES, as it focuses on the introduction of new transmission and distribution lines, as well as constructing substations strategically in rural areas.
- **Sarawak Alternative Rural Electrification Scheme (SARES):** Offers a quicker solution via the provision of stand-alone solar power systems to very isolated villages and longhouses which are not accessible by road or are not connected to the grid.
- **Solar Hybrid Project:** Combines solar technologies with diesel-generator sets to deliver reliable electricity supply to remote rural villages.

In 2022, we made considerable progress in the following:

- 1 The RES Last Miles programme lit up 3,043 households in approximately 154 villages.
- 2 SARES electrified 107 remote villages and 2,067 households. To date, SARES has supplied 548 villages, comprising more than 15,000 households with access to reliable electricity.
- 3 The Additional Late Applicants Funds (ALAF) programme connected 4,364 households state-wide.



### Standalone Solar Hybrid Power Stations

When grid solutions are not possible for particularly remote areas of Sarawak’s interior, Sarawak Energy implements off-grid utility-scale projects that utilise two generation sources to supply power. Currently, the following have been implemented:

- 37 solar hybrid stations
- 1 mini-hydro hybrid power station
- 1 mini-hydro hybrid power station under implementation, expected to be commissioned by 2025

Operation and maintenance of these solar hybrid power stations after completion are managed by Sarawak Energy.

### Rural School Electricity Supply

Our partnership with the Federal Ministry of Education, Ministry of Utilities Sarawak, Sarawak Education Department and Sarawak Public Works Department for the Rural School Electricity Supply programme has extended the grid to 122 rural schools.

In 2022, 116 schools were connected to the grid which enabled both teachers and students to operate in a more conducive environment. The schools now benefit from a dependable and secure electricity supply, eliminating their reliance on diesel generators. Further efforts are underway to connect an additional six schools to the grid under this programme by 2023.

We have installed 55,301 streetlights in 5,976 villages state-wide under the ‘Lampu Jalan Kampung’ programme.

3-3

## Delivering Sustainable Growth

### Research and Development (R&D)

To better serve our stakeholders, Sarawak Energy has also made significant progress in a number of R&D projects to advance its sustainability journey. These include:

- The ongoing construction of a Microalgae Production Facility, with carbon capture and utilisation, at our Sejingkat Power Corporation.
- A Containerised Solar Hydrogen Research Project in collaboration with PESTECH Energy to provide an alternative solution for rural electrification.
- A collaborative study with Swinburne Sarawak on the potential utilisation of Balingian’s fly ash to make construction materials.

**Study on Corrosion Topics – A Collaboration with Universiti Teknologi PETRONAS (UTP)**

Our Limnology & Gases team under the R&D Department’s Environmental Sciences Division kickstarted a research study on the presence of Hydrogen Sulfide (H<sub>2</sub>S) at Bakun HEP as well as its impact on the facility by understanding corrosion sciences early last year. They are working alongside their research partner, UTP and the Bakun HEP engineering team for this study.

The research was conducted through systematic studies, including field work and accelerated corrosion studies in the laboratory. Through this research work, we look to gain better understanding on the contributing factors of corrosion at our hydropower generation assets. Results generated from this research will facilitate the development of effective mitigation measures for Bakun HEP as well as future hydropower projects.

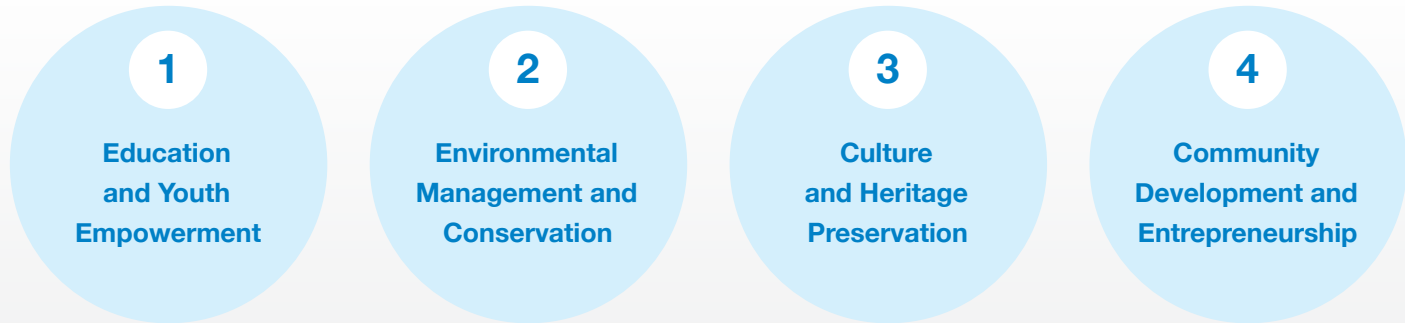


3-3

# Powering Our Community

## Sarawak Energy and the Community

In alignment with Sarawak Energy’s corporate social responsibility (CSR) principles, our commitment lies in fostering community development through collaborative partnerships and social investments. We strive to empower communities by providing diverse opportunities, not only through the creation of jobs and sustainable projects for Sarawakians, but also through annual social investment programmes encompassing four key areas:



We prioritise transparency by actively collaborating with the communities we serve, forging strong partnerships and implementing CSR projects that will benefit all.



## Powering Our Community

These are some of our major highlights for the year:



### Education and Youth Empowerment

Our efforts to provide quality education unlocks new opportunities and vital experiences for Sarawak’s youth. To this end, Sarawak Energy has implemented various programmes and initiatives to invest in developing the State’s young talents – paving the way for a brighter future for them.

Programme	Description
Trust Fund	<p>Sarawak Energy collaborated with the Bakun Charitable Trust to set up four Education Funds for communities in Bakun, Belaga, Batang Ai and Baleh. The Baleh, Bakun and Belaga funds have an annual revolving fund of RM200,000 each while the Batang Ai fund has one at RM300,000.</p> <p>This special fund is dedicated to supporting the educational needs of the targeted rural communities where we operate.</p>
Scholarships	<p>To broaden the development of young Sarawakian talent, we allocate RM8 million annually for scholarships.</p> <p>Between 2014 and 2022, Sarawak Energy awarded 895 scholarships to school leavers and employees pursuing further studies. About 30% of the recipients were students from rural areas.</p>
Bursaries	<p>We offer bursaries through schools to Sarawakian students (in Forms 1 to 5) who achieve excellent results and display leadership qualities, based on academic and co-curricular assessments.</p>
World Robotic Olympiad (WRO)	<p>Sarawak Energy sponsored Sarawak’s Institute of Teacher Education’s participation at the WRO 2022 from 17 to 19 November. The team secured fourth place in the overall category and was awarded the Excellence Award.</p> <p>This initiative supports the government’s efforts to increase the level of STEM literacy among Sarawakians as the State aims to achieve 60% of students in STEM by the year 2030.</p>



413-1 Powering Our Community



**Environmental Management and Conservation**

Apart from our commitment to advancing sustainable hydropower development, we are actively participating in conservation efforts to protect our native flora and fauna in line with UN SDG No. 15 'Life on Land'. To achieve this goal, we have established collaborations with state agencies, higher learning institutions, local communities and stakeholders.

Programme	Description
Corporate-wide Integrated Tree Planting and Protection Campaign	Sarawak Energy continued to progress its corporate-wide Integrated Tree Planting and Protection Campaign to plant and protect 500,000 trees within 10 years. As of December 2022, a total of 52,897 trees have been planted. We have continued to work closely with the Forest Department of Sarawak and other relevant stakeholders to meet the campaign's goals and objectives.
Sungai Murum Empurau Fish Conservation Project	We have piloted a fish cage facility to conserve the Empurau, a fish native to the waters surrounding our Murum HEP, as per the recommendations of the Natural Resources and Environment Board (NREB) Sarawak for the conservation and protection of Sarawak's indigenous fish species.

413-1 Powering Our Community



**Culture and Heritage Preservation**

We collaborate closely with local communities through various social investment programmes – actively involving them in the promotion, protection and preservation of uniquely Sarawakian culture and traditions. This will provide our communities with various opportunities for entrepreneurship and platforms to increase the public's awareness of our rich heritage and culture.

Programme	Description
Murum Batu Tungun Blessing Ceremony	Sarawak Energy organises the annual Murum Batu Tungun Blessing Ceremony in collaboration with the Murum Penan Development Committee and Murum community leaders.
Ladong Bio Lepa Ajau	The annual Ladong Bio Lepa Ajau or harvest festival celebration by the Kenyah communities in Belaga was organised by Persatuan Kebangsaan Kenyah Sarawak (PKKS) Cawangan Asap on 21 May. Ladong Bio Lepa Ajau has been observed by the Kenyah communities from time immemorial to preserve the tradition of communal gatherings to give thanks for a bountiful harvest.  Sarawak Energy has supported this annual celebration since 2018 as part of our Culture and Heritage Preservation initiatives to uphold the identity of the Kenyah people.
Warisan Sape Telang Usan	Sarawak Energy initiated the Warisan Sape Telang Usan programme in 2016 to preserve traditional sape music, engaging the younger generation through free training classes in Long San. Our first cohort, comprising 20 trainees, completed the programme while the second cohort of 28 trainees are currently undergoing training. With this programme's success, a similar initiative – named Warisan Sape Belaga – was introduced to the Bakun Resettled Community.  Sape music is normally associated with the Ulu people from Sarawak's interior and is played during festivals as well as community gatherings.
Rainforest World Music Festival (RWMF) 2022	The sape musicians from Warisan Sape Telang Usan as well as local artisans under our Handicraft Development Programme from Murum, Bakun and Baleh showcased their indigenous music and crafts at the RWMF 2022, which took place from 17 to 19 June.  Visitors to our booth also had the opportunity to learn about the Penan, Kayan, Kenyah and Iban communities' craftwork through beadwork, rattan and pua kumbu weaving demonstrations.



203-2, 403-4, 413-1

## Powering Our Community



### Community Development and Entrepreneurship

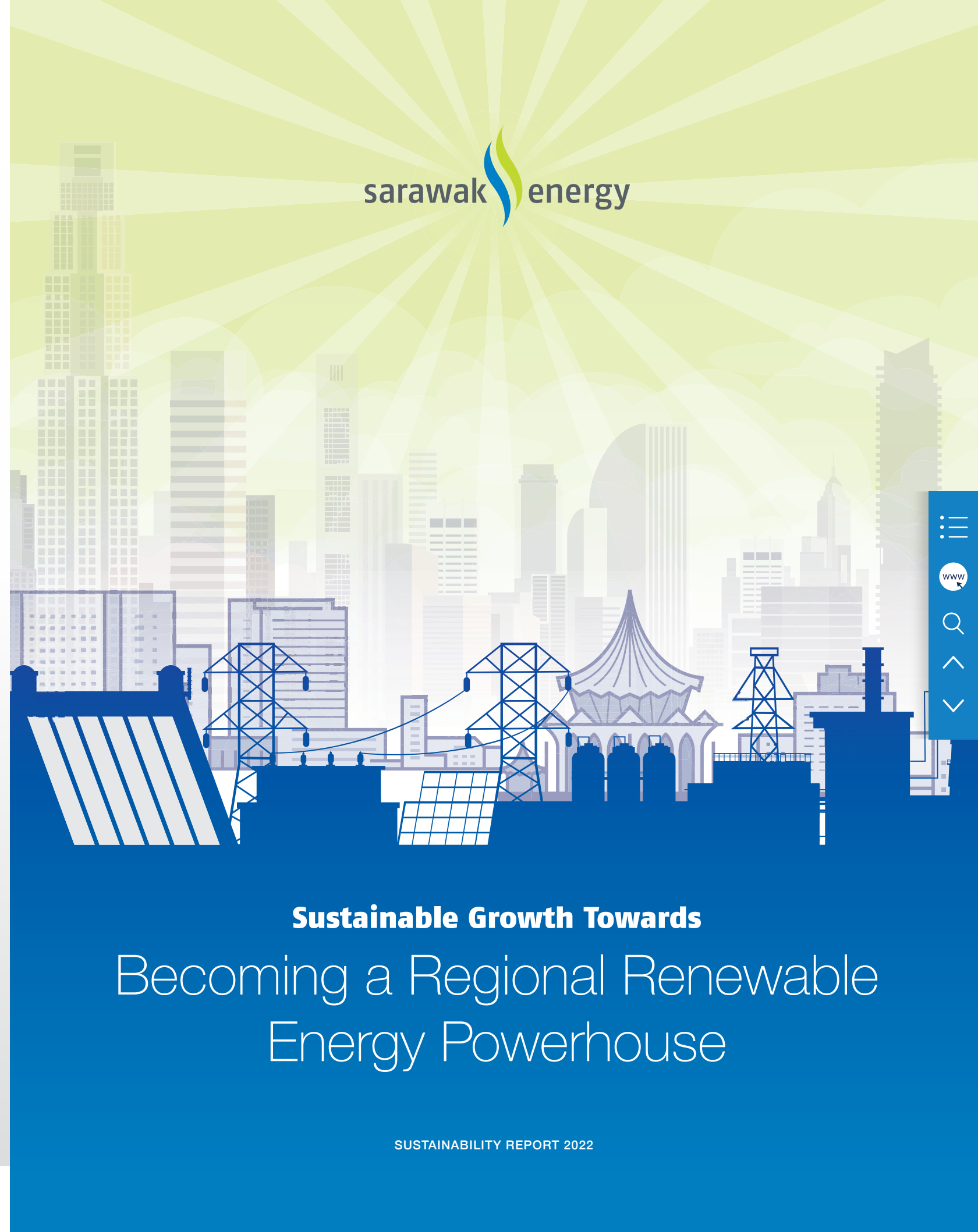
Sarawak Energy has taken steps to support project-affected communities through socio-economic development opportunities related to our projects and operations – improving the standard of living for those in the area.

Programme	Description
Baleh Youth Skills Training Programme	<p>To date, a total of 708 youths from Baleh and Kapit have undergone and completed the Baleh Skills Training Programme in various fields such as welding technology, occupational safety and health, entrepreneurship, human resource management, heavy vehicle driving, painting, metal blasting as well as rigging and slinging.</p> <p>The programme is centred on enhancing the ability of youths from project affected communities, empowering them to capitalise on the potential business and employment opportunities available through the development of Baleh HEP.</p>
Handicraft Development Programme	<p>Our Handicraft Development Programme provides upskilling to indigenous artisans through training programmes with the aim of improving the prestige of indigenous handicrafts.</p> <p>The artisans are also provided with platforms at national and international exhibitions to network, gain inspiration for new ideas and exchange knowledge on techniques and designs with fellow artisans from different communities. Approximately 170 women from Sarawak Energy’s project-affected areas have benefitted from this programme.</p>
Supporting the Sarawak Heart Foundation	<p>Sarawak Energy supported the wellbeing of local communities by contributing to the Sarawak Heart Foundation’s purchase of a new magnetic resonance imaging (MRI) Machine for Sibu Hospital.</p>
Modified Ambulance Handover to Kapit Health Office	<p>Sarawak Energy handed over a modified ambulance to the Kapit Health Office. This ambulance will help those in surrounding communities to gain access to treatment at Sungai Asap Clinic or Bintulu Hospital.</p>
Gotong-Royong with the Kuching Autistic Association (KAA)	<p>A group of Sarawak Energy employees organised a gotong-royong session at the KAA Centre’s vegetable garden to support its Sunshine Hub Shelter Workshop Programme by extending its gardening plots from 8 to 10.</p>

### Recognition of Our CSR Efforts

At the 14<sup>th</sup> Annual Global CSR & ESG Summit and Awards 2022, our collaboration with the Bintulu Zone Fire and Rescue Department (BOMBA) and the Bakun Resettled Community was recognised with the Gold Award for Best Community Programme. This partnership was established to ensure immediate action as well as the readiness of first responders in the event of a fire prior to BOMBA’s arrival.

At the same event, Sarawak Energy was also awarded the Gold Award in the Empowerment of Women category. Since 2012, numerous initiatives for indigenous women in our project-affected areas have been implemented, focusing on capacity building and sustainable livelihoods. A few key examples include the Penan Women’s Adult Literacy Programme for women in Murum and Baram; the Handicraft Development Programme which drives socio-economic growth and heritage preservation, as well as entrepreneurship and capacity development via the Women’s Entrepreneurship Programme.



sarawak energy

## Sustainable Growth Towards

# Becoming a Regional Renewable Energy Powerhouse

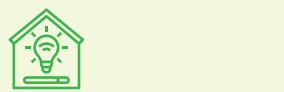
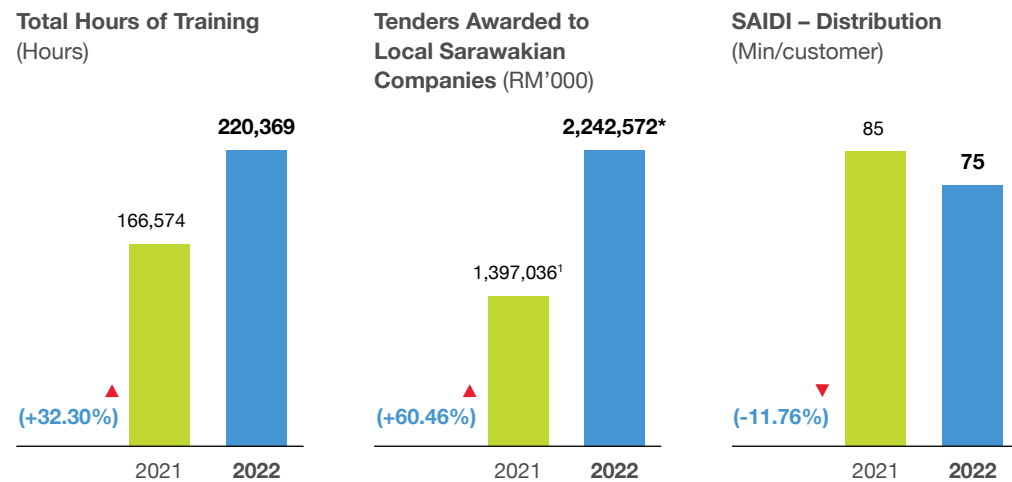
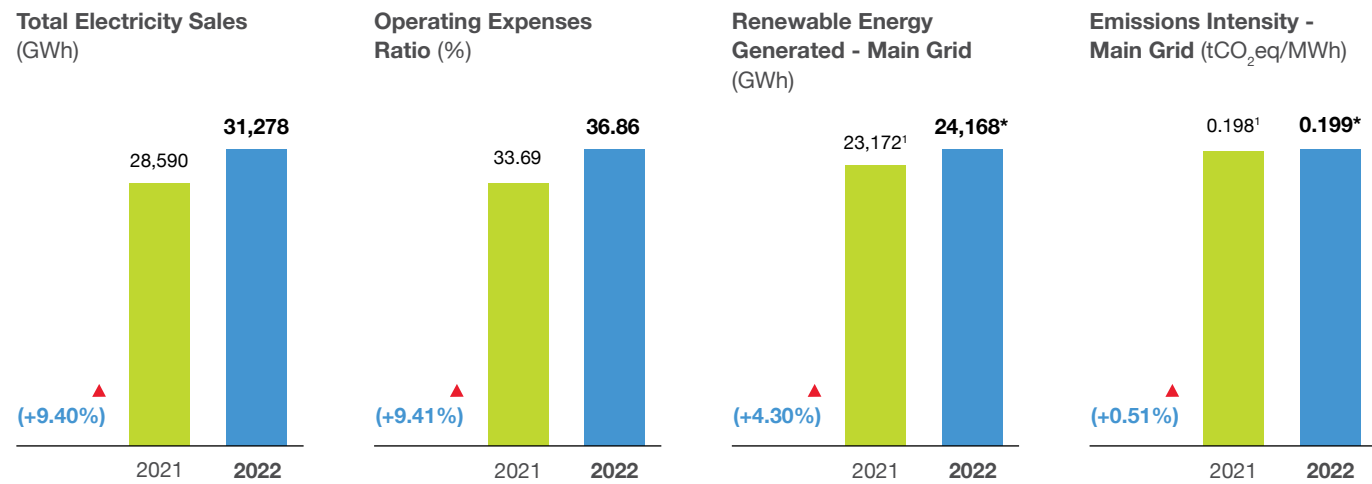
204-1, 305-4, EU29

# Sustainability Key Highlights

## Our Year at a Glance

Sarawak Energy is focused on supplying reliable and renewable energy as we work towards the full electrification of Sarawak by 2025. We are proactive in exploring opportunities for sustainable, long-term growth to benefit our stakeholders and the region. While pursuing financial growth, we are equally committed to preserving natural resources and enhancing our community. Our primary goal is to contribute to Sarawak's prosperity and fulfil the region's energy requirements. To ensure that we progress sustainably, we assess our performance according to our key pillars of sustainability encompassing Economic, Environmental and Social, as reflected in the following infographics:

### 2022 Highlights



First utility company in the country to secure a

## 100 million

sustainability-linked loan (SLL) in the form of a revolving credit facility - a loan linked to measurable sustainability performance targets.

- reaffirms Sarawak Energy's commitment to keep its grid emissions intensity in alignment with the Paris Agreement and light up 100% of Sarawak by 2025.

2-26, 2-29, 3-1, 3-2

# Materiality Issues

Material issues are sustainability matters that are most significant to our stakeholders and our business. Knowing our material issues will allow us to identify the opportunities and mitigate the risks of each material issue. Our material issues are identified through various methods such as thought leader perspectives, surveys and stakeholder feedback, as well as social media coverage.

In 2017, we conducted a comprehensive materiality assessment guided by GRI Standards and identified 32 material issues according to Sarawak Energy's Economic, Environment and Social impacts.

### Review of Material Issues

Reviewing and updating material issues that are in line with any development in:

- Business landscape
- Internal policies
- Key Performance Indicators (KPIs)
- Local and global trends
- Regulatory requirements
- Stakeholder feedback

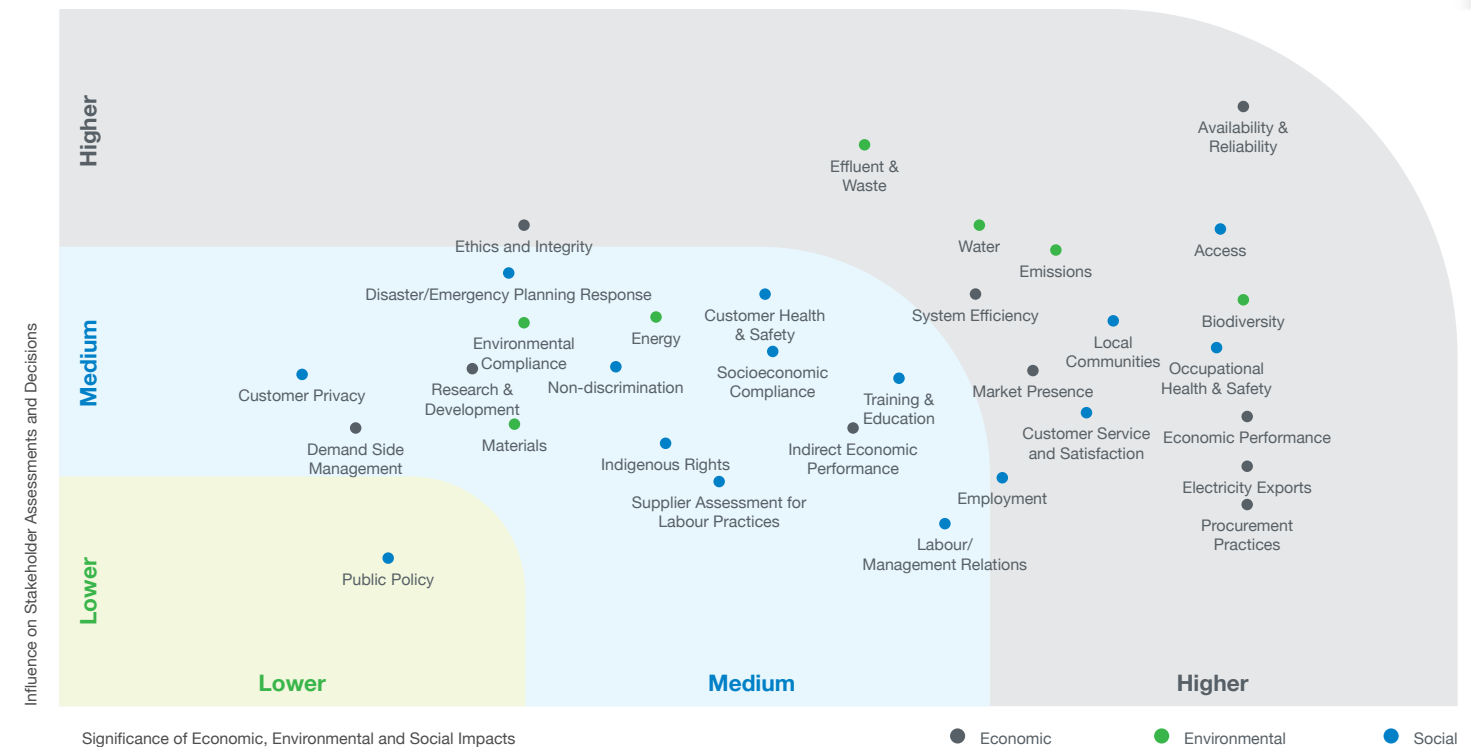
### Stakeholder Engagement

Prioritising and engaging with stakeholders through continuous dialogue to gain valuable insights to meet the needs of stakeholders and develop strategies and initiatives

### Prioritising Material Issues

Identifying material issues before prioritising the issues that are in line with the Company's business needs

Our materiality matrix is shown below:



2-22, EU12, EU29, EU30

# Embracing Global Sustainability Agenda from Within

The 17 United Nations Sustainable Development Goals (UN SDGs) is a collective plan that serves as an urgent call to action for all nations, as a unified alliance, to realise global harmony and well-being. As a responsible corporate citizen, we support the UN SDGs and are committed to contributing towards materialising six selected SDGs that resonate with our business:



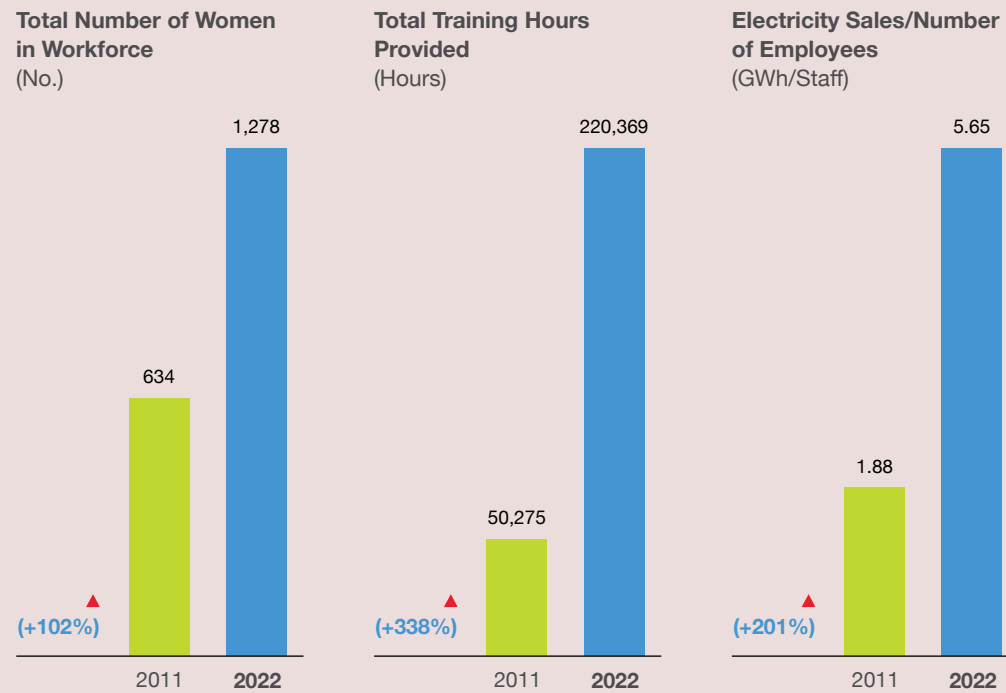
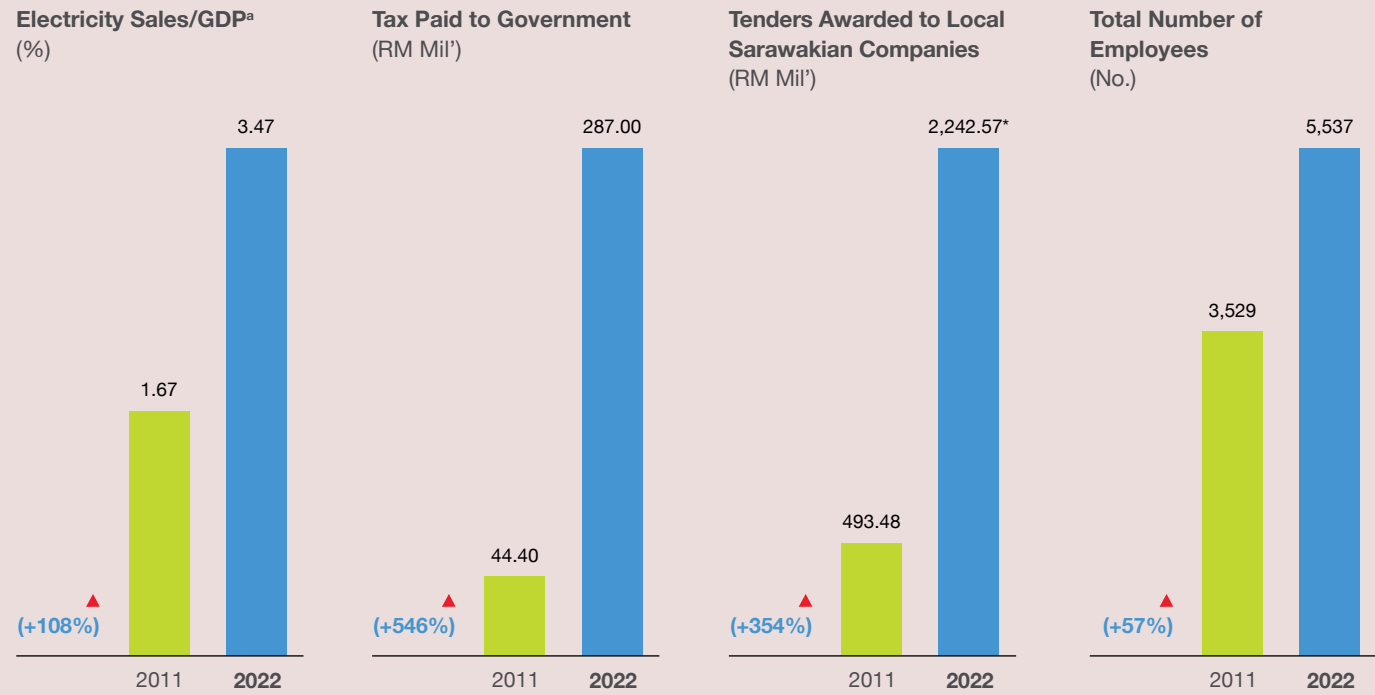
305-4, 305-5

## Embracing Global Sustainability Agenda from Within



204-1 Embracing Global Sustainability Agenda from Within

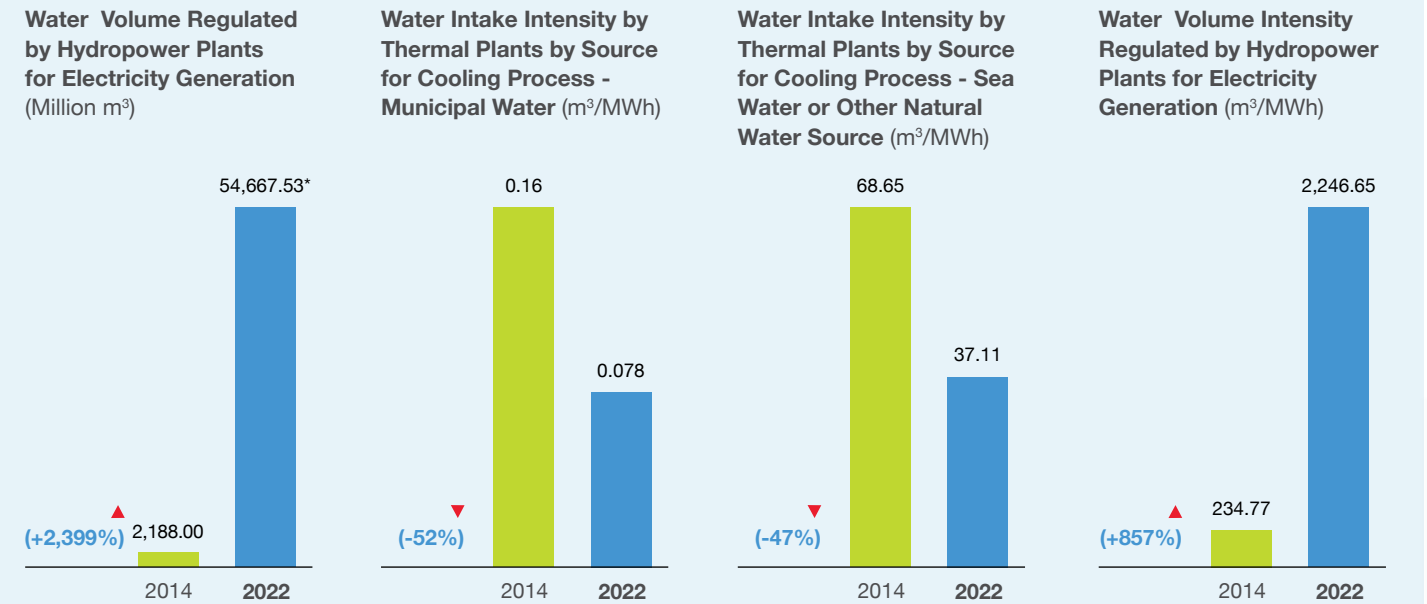
8 - Decent Work & Economic Growth



Note: <sup>a</sup> GDP for State of Sarawak in 2022 is based on current prices.

304-1, 3-3 Embracing Global Sustainability Agenda from Within

6 - Clean Water and Sanitation



We are a member of the state's Integrated Watershed Management Committee that supports and contributes to the development of the state policy, procedures and guidelines for Integrated Watershed Management.

15 - Life on Land

- Supported the Heart of Borneo (HoB) Initiative
- Baleh National Park gazetted
- Conducted various workshops on watershed management
- Nurtured Flora Conservation Garden
- Enrichment Planting at Batang Ai Dam for Carbon Sequestration

17 - Partnerships for the Goals

- Partnership in conservation and protection of HoB areas
- Collaboration with government agencies, NGOs such as WWF and universities in developing an Integrated Catchment Management Policy, Procedures, Guidelines and Plan
- Actively working together with local universities on our Environmental Sustainability Programme
- In partnership with IHA, UNGC Network Malaysia & Brunei and GRI to champion Sustainability global agenda in the local context



# Fostering Sustainable Value Creation

Fostering Sustainable Value Creation

We consistently generate returns and foster positive impacts across our value chain by harnessing local resources to produce renewable energy. We believe that by making a stand on climate action, we will be able to protect the well-being of our stakeholders, Sarawak and the region as well as preserve the environment.

### Powering Low-Carbon Economy

Electricity Generated & Fuel Consumption by Type:

- Hydro** 24,167.73 GWh\* (74%)
- Natural Gas** 4,573.63 GWh\* (14%)
- Coal** 3,845.75 GWh\* (12%)

Hydro: Total Annual Water Volume Regulated for Electricity Generation: 54,667.53 Million m<sup>3</sup>

Coal: 3,087,236.06 Tonnes\*

Diesel: 27,887,522.36 Litres\*

Natural Gas: 42,464,815.69 MMBtu\*

Thermal – Water Utilisation: 1,232 Million m<sup>3</sup> (Cooling process)

## Value Creation Process

1 Empowering Our People

2 Powering The Economy

3 Preserving The Environment

4 Value Created

### Powering The Economy

Operating Expenses Ratio: 36.86%

Economic Value Retained (RM Million): 2,642\*

Payments to the Government (RM Million): 287

Employee Remuneration (RM Million): 674

Electricity Sales: 31,278 GWh

### Empowering Our People

Total Workforce: 5,537 People

+ 1.75%

Menara Sarawak Energy.

### Preserving The Environment

Grid Emissions Intensity (Main Grid): 0.199 tCO<sub>2</sub>eq/MWh\*

▲ 1.40% (Increased from 2021)

### Adding Value to Our Business

Return on Assets (%): 6.9

Total Assets (RM Million): 39,536

Operating Costs (RM Million): 2,602.40

Tenders Awarded to Local Sarawakian Companies (RM Million): 2,243\*

Benefitted at least 139,534 Rural Households Since 2009

### Empowering Our People & Society

Human Capital Development - Total Training Hours: 220,369 HOURS

Employee New Hires: 261

Sarawak's Rural Electrification Coverage (%): 98\*

▲ 1.40% (Increased from 2021)

Input

Value To Our Stakeholders

Output

www

Search

Up

Down

2-25, 305-4, 3-3

2-25, 3-3

# Climate Action Stewardship Through Sustainable Solutions

Climate Action Stewardship Through Sustainable Solutions

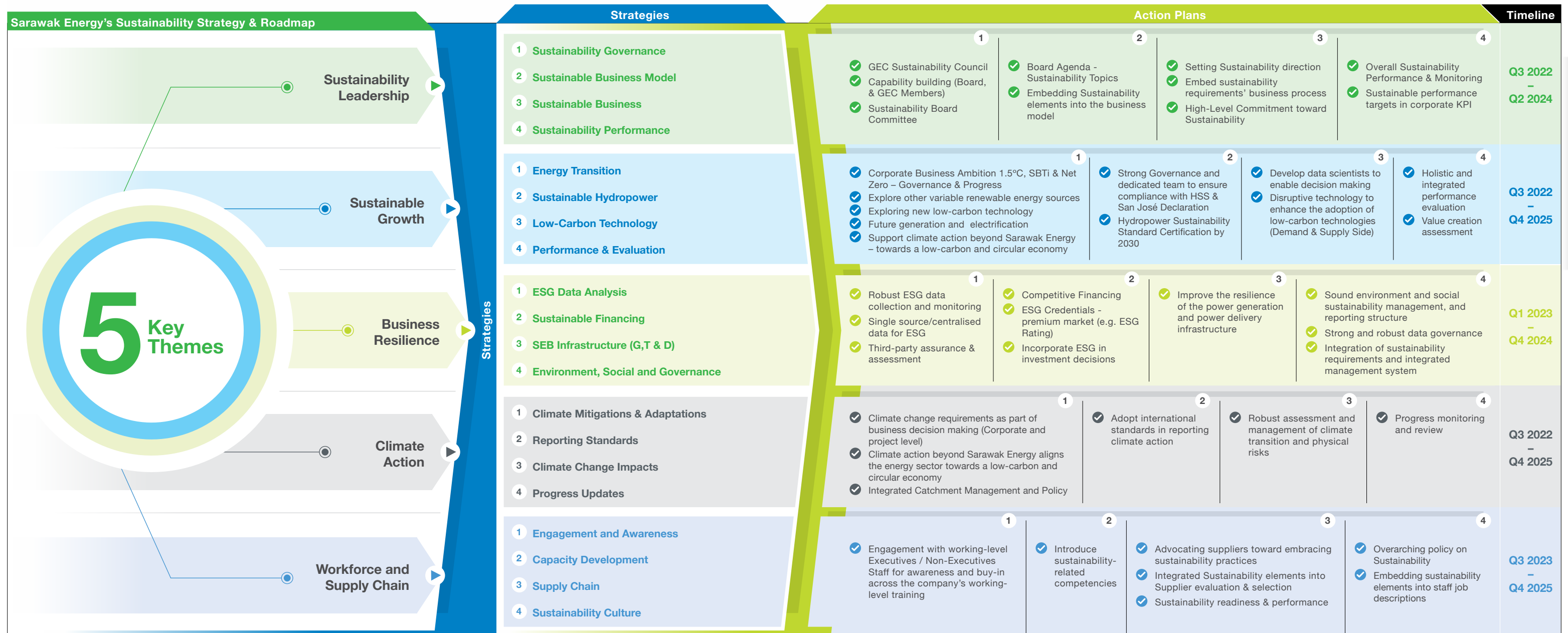
Emissions Intensity (Main Grid)  
**0.199 tCO<sub>2</sub>eq/MWh\***

Emissions Intensity (Northern Grid)  
**0.611 tCO<sub>2</sub>eq/MWh\***

Total CO<sub>2</sub> Emissions (Main Grid)  
**6.48 million tCO<sub>2</sub>eq**

Total CO<sub>2</sub> Reduction from Clean Development Mechanism Projects  
**401,452 tCO<sub>2</sub>**

Note:  
\* Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.



2-6, 2-25, 305-4, 3-3

### Climate Action Stewardship Through Sustainable Solutions

The effects of climate change continue to worsen as global temperatures rise due to human activities and emissions from fossil fuel. Extreme weather events have caused excessive rainfall and floods, which damage assets and properties and disrupt business operations.

In view of this, Sarawak Energy increases its business resilience through innovative solutions, drawing us nearer to our goals for Sarawak's sustainability, economics, and social development. Our emphasis on digitalisation and hydropower usage as a renewable energy source has successfully provided Sarawak with clean, dependable and affordable electricity.

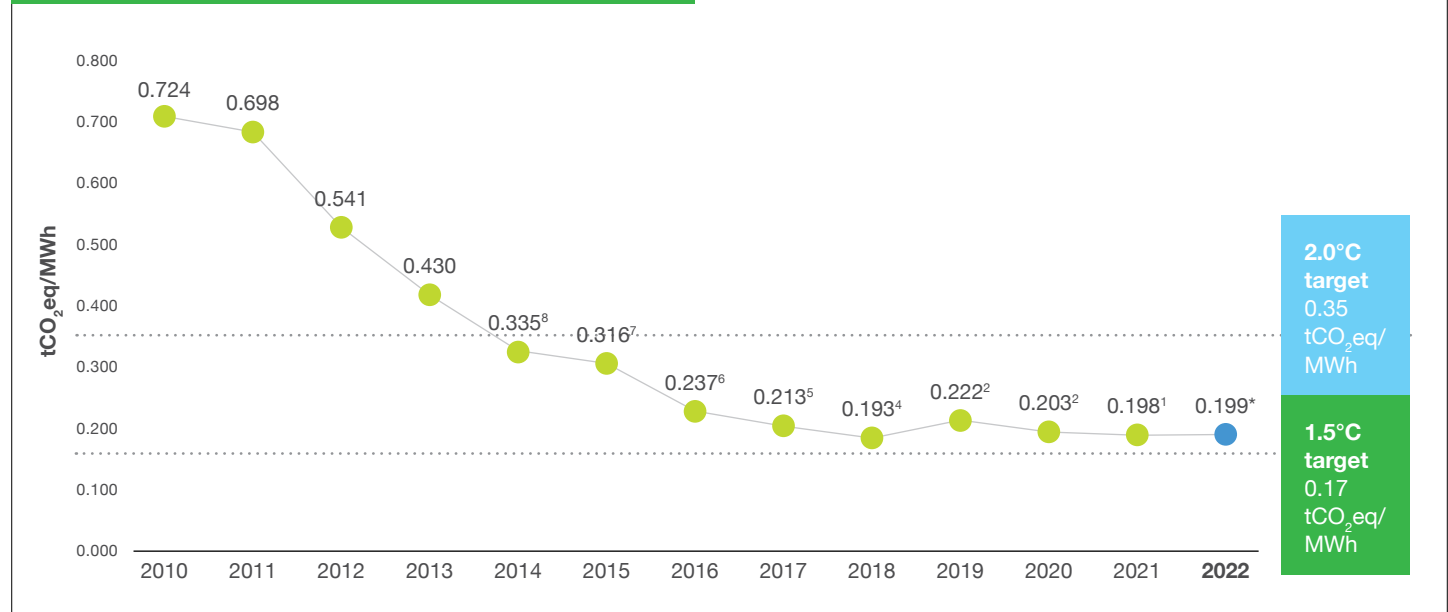
In 2022, the renewable energy share in Sarawak's generation mix continued to grow to 24,168 GWh\* from 1,248 GWh in 2011. This helped to lower Sarawak's main grid CO<sub>2</sub> emissions intensity by 71%, which was 77% lower than the global average of 450 gCO<sub>2</sub>eq/kWh.

#### Supporting the Paris Agreement

Sarawak Energy prides itself in meeting the Paris Agreement's goal to substantially limit global temperature rise to well below 2°C above pre-industrial levels. Since 2014, Sarawak Energy have kept our Scope 1 Main Grid CO<sub>2</sub> emissions intensity within the 2°C and 1.5°C targets.

In our commitment to the legally binding agreement adopted at the United Nations Framework Convention on Climate Change, we are also devoted in setting a science-based emissions reduction target across relevant scopes to further pursue efforts to meet the 1.5°C target by 2030. By the end of 2022, the total number of companies with science-based targets validated by the SBTi since its launch was 2,079 with a further 2,151 companies committing to setting science-based targets<sup>a</sup>. As one of the global companies that pledged to support the UN Global Compact's Business Ambition for 1.5° C, Sarawak Energy is proud to advocate the way in the Malaysian industry to achieve net zero carbon emissions by 2050.

#### Scope 1 Main Grid CO<sub>2</sub> Emissions Intensity within the 2°C and 1.5°C Targets in Accordance with the Paris Agreement



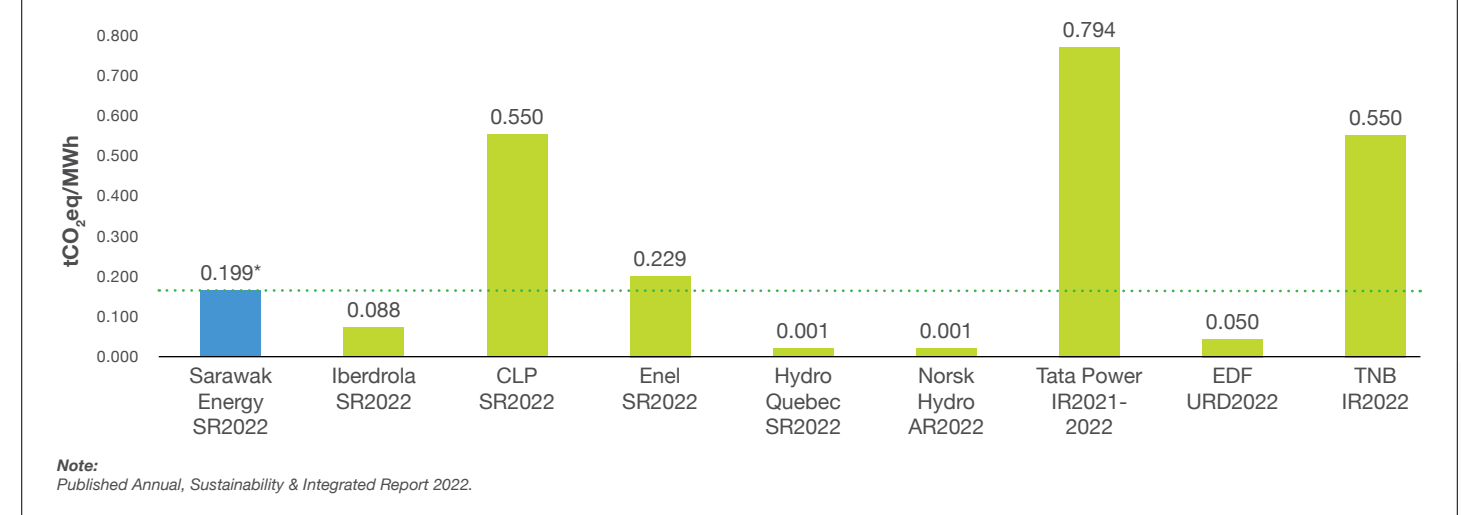
<sup>a</sup> Source: SBTi Monitoring Report 2022.

2-25, 305-4, 3-3

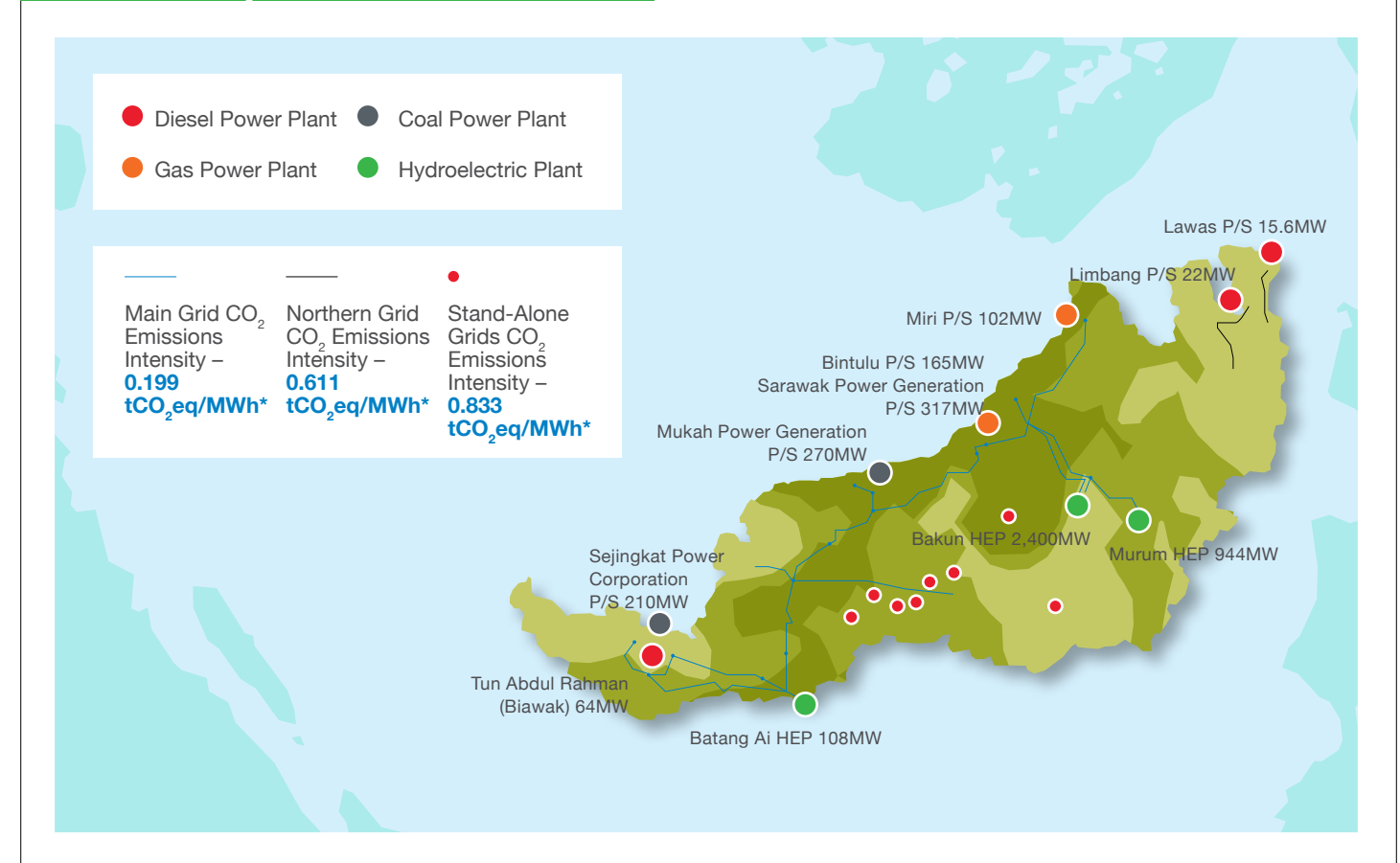
### Climate Action Stewardship Through Sustainable Solutions

In 2022, our total main grid emissions amounted to 6.48 million tCO<sub>2</sub>eq, reflecting an 8% increase from 2021, due to the commencement of operations at our Tanjung Kidurong Combined Cycle Power Plant in June 2022. Our emissions intensity of 0.199 tCO<sub>2</sub>eq/MWh\* continues to be one of the lowest in comparison with other international power utility companies.

#### International Comparison of CO<sub>2</sub> Emissions Intensity Among Power Utility Companies



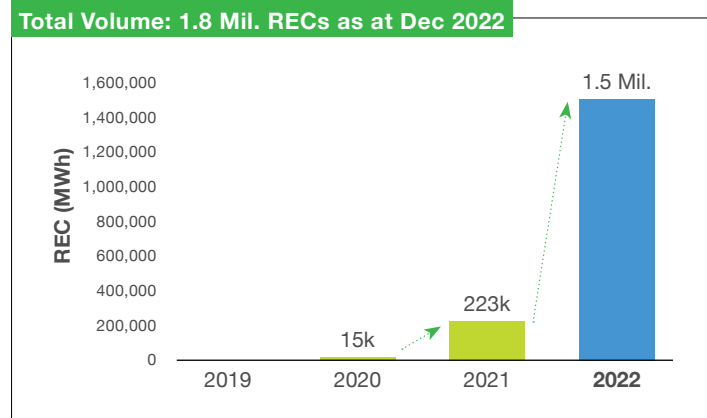
#### Sarawak Energy CO<sub>2</sub> Emissions Intensity Based on Grids



2-25, 3-3  
Climate Action Stewardship Through Sustainable Solutions

**Renewable Energy Certificate**

In 2019, the Sarawak Renewable Energy Certificate (REC) mechanism was launched, marking the commencement of its REC journey with Tradable Instrument for Global Renewables (TIGR) registry. This allowed for REC supply from Batang Ai Hydroelectric Plant, facilitating corporate purchases of certified renewable energy within Sarawak.



Since its inception in 2019, Sarawak Energy has been actively supporting business organisations across various sectors, including petrochemical, manufacturing and financial services, in attaining the REC to enhance their sustainability endeavours. In 2022, Sarawak Energy demonstrated its commitment by issuing a total of around 1.5 million RECs (MWh). During the same year, Sarawak Energy stepped up its efforts to support corporates in meeting their sustainability goals by diversifying its REC offerings. This involved initiating REC supply from the Murum Hydroelectricity Plant with the International Renewable Energy Certificate (I-REC) registry.

**Aspiration for Sarawak REC Mechanism**

Sarawak Energy aims to continuously collaborate with REC registries and business organisations from diverse sectors to enhance the development of the REC mechanism in Sarawak. This is in line with our vision for the REC to catalyse the development of renewable energy by enhancing sustainability awareness and promoting wider renewable energy usage among industry players. We believe that the support and active participation of corporate organisations play a pivotal role in driving Sarawak's transition towards a low-carbon economy.



Murum HEP.

2-25, 203-1, 3-3  
Climate Action Stewardship Through Sustainable Solutions

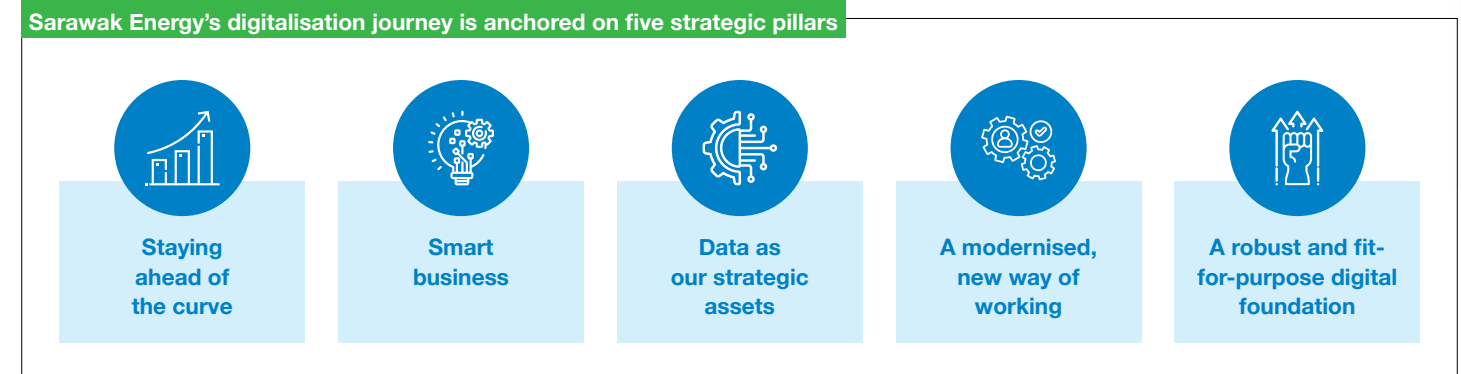
**Innovative Technologies and Digital Transformation**

**Integrating Digital Technologies**

As the main energy supplier for Sarawak, we are constantly adapting to evolving demands and a changing operating environment by leveraging new technology and innovative methods. This allows us to operate effectively and support a global digital economy. We are committed to adopting new technology to stay relevant and maintain our competitive edge.



Our digital transformation journey has enabled us to move towards becoming a digital utility by 2025 and realising our Vision 2022 regional powerhouse ambitions. We have invested in new technologies, processes and initiatives that promote high performance in our six Key Focus Areas. This will improve system performance, facilitating the transformation of business and process automation in all our operations.



**Empowering for Transformation**

In alignment with the Sarawak Government's five-year Sarawak Digital Economy Strategy, we are pursuing a digital grid transformation, positioning ourselves to lead the digital revolution within the utility industry. Hence, we are embracing a systematic approach to digitise and modernise processes, technologies, skill sets, and competencies across our core business and support functions. As a result, we formulated and put into action our Sarawak Energy Digitalisation Blueprint in 2018.



## Climate Action Stewardship Through Sustainable Solutions

### Sarawak Energy's Journey Towards Becoming a Digital Utility by 2050 Through World-Class Operational Excellence

## Digital Utility



Ahead of the Curve

### Smart Business

#### Smart Grid & Smart Retail

- Distribution Automation
- Advanced Metering Infrastructure & Smart Meters
- Smart Asset Performance Management
- Mobile Field Force Automation
- Virtual Assist/Counter (Carina)
- e-Billing

#### Digital Power Plants

- Remote Monitoring and Diagnostic Centre (RMAD)
- Generation Control Centre (GCC)
- Generation Transformation (GENX)
- Generation Digital Innovation



Smart Business

### Data as Strategic Assets

Unlock business insights, information at fingertips anytime on any device

#### MyPortal

- Sarawak Energy KFA Dashboard
- Digitalisation (e-Signature, Resource Central)

- Retail Fraud Analytics
- Revenue Intelligence
- Digital Customer Experience
- Generation Transformation (GENX)

- Dynamic Water Dispatch Management
- Online Vibration Monitoring
- Online Dissolved Gas



Data as Strategic Assets

### Enterprise New Way of Working

Optimised, automated and centralised processes, driving sustainability

#### Workplace Modernisation

- Microsoft 365, Teams, Video Conferencing, Virtual Events
- Digital People CELL (SEDAP)

#### Enterprise Applications Modernisation

- Pinnacle Programme (SEPS, CONCUR, etc.)
- FINX (SAP S/4 HANA Migration)

- GenesysX Programme
- Project Delivery Control Tower
- Corporate Service
- HSSE, SEACE, etc.



New Way of Working

### Digital Foundation

To ensure reliability, stability, speed, security and cost-effectiveness

#### Infrastructure Refresh

- PC Refresh
- Internet and Network Bandwidth Enhancement DC/DR expansion
- Core Backbone Communication Technology Upgrade

#### Standardisation/Simplification

- DC rationalisation
- Hardware, Wi-Fi System standardisation
- PC, mobile, printer standardisation
- Service improvement and automation

#### Strengthening Cybersecurity

- ThinkSecure
- OT network security (ICS, USB scanners)
- Enhance access control (Multifactor Authentication)
- Upgrade Security Monitoring system (SIEM)

2018-2019

2020-2021

2022 AND BEYOND

Read more about **Digital Foundation** on page 40.

### The five trends that are critical in Sarawak's grid transformation:

- Increased distribution of clean renewable energy in generating electricity
- Growing supply and demand, presenting additional opportunities for customers to participate in the electricity market
- Growing demand for a more resilient and reliable grid, protected against weather disruptions and cyber and physical attacks
- Rise of interconnected electricity information and control systems
- Ageing electricity infrastructure



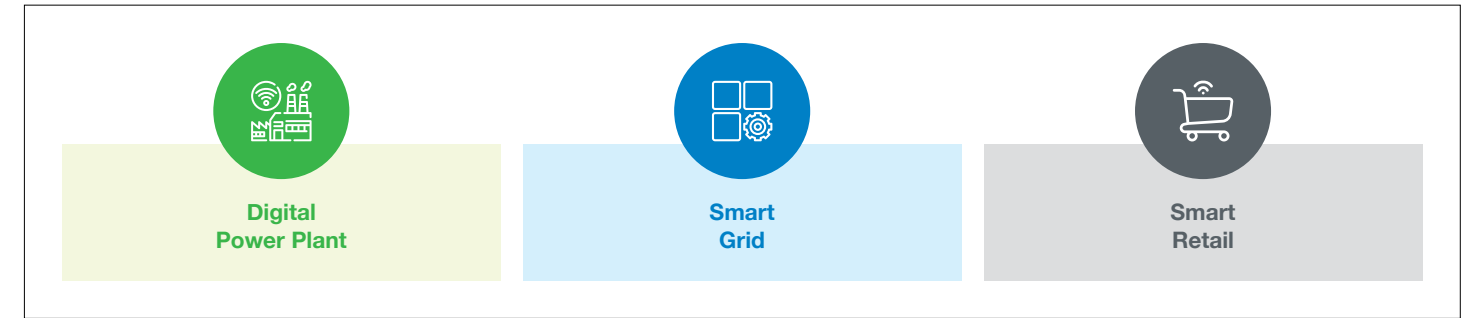
Robust & 'fit-for-purpose'

## Climate Action Stewardship Through Sustainable Solutions

### Advancing Smart Business

We are focused on ensuring that our business operations can sustainably achieve accessibility, reliability and affordability for our customers, thereby supporting the expansion of our business growth.

We are guided by our business digitalisation blueprints and roadmaps for each of our core businesses encompassing:



### Digital Power Plant

- Our implementation of Generation Operation Excellence through Generation Transformation enables our workforce and asset productivity to progress in tandem with innovative digital technologies, which assists us in navigating risks effectively
- We have invested in efforts to improve our plant operating hours by understanding and enhancing plant performance and health. With newly developed technologies, we also prioritise operational safety



Remote Monitoring and Diagnostic Centre (RMAD).

### A Remote Monitoring & Diagnostic Centre (RMAD)

- A centralised centre to connect all power stations, driven by advanced analytic tools with insights from Subject Matter Experts (SMEs). This will allow the plants to reach optimum performance with better reliability, efficiency, productivity and profitability



### Generation Control Centre (GCC)

- To further enable remote potential through innovative technologies, our control room operators can efficiently oversee multiple plants from a single location, promoting workforce optimisation and enhancing operational agility

### Enterprise Asset Management (EAM) System

- Our existing business processes are improved through the development of our digital asset management strategy, enabling an asset's life cycle to be aligned with ISO 55001 Asset Management standards

### Computerised Maintenance Management System (CMMS)

- Our decision-making processes are enhanced through accurate reporting and efficient dashboarding with the help of business intelligence tools

2-25, 3-3  
Climate Action Stewardship Through Sustainable Solutions

Smart Grid

- Grid operation is increasingly complex, in tandem with the demand for renewable energy. Therefore, manual operation, monitoring, and security of the network and our assets are no longer cost-effective or efficient
- As such, we continue to dedicate our resources into modernising our grid and operations via digitalisation to create a secure and dependable smart power grid
- Through the incorporation of smart grid technology, we are able to:
  - Enable a secure and dependable grid and supply system
  - Improve safety and efficiency in our operations
  - Safeguard our resources while striving for peak asset performance
  - Ensure that our customers' needs are fulfilled and empowered

Smart Grid Focus

<p style="color: #0070C0; font-weight: bold;">Monitoring &amp; Control</p> SCADA, DMS/ADMS	<p style="color: #0070C0; font-weight: bold;">Supply Reliability</p> SAIDI, SAIFI	<p style="color: #0070C0; font-weight: bold;">Data Analytics</p> Smart Meter Coverage, Data Analytics Application
<p style="color: #0070C0; font-weight: bold;">Security</p> IT/OT Cybersecurity	<p style="color: #0070C0; font-weight: bold;">Customer Empowerment &amp; Satisfaction</p> Real-Time Data to Customers, Customer Satisfaction Feedback	

Key Smart Grid Initiatives For The Years Ahead

<p style="color: #0070C0; font-weight: bold;">Advanced Metering Infrastructure &amp; Smart Meters</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>Automatic meter reading</li> <li>Outage, tampering &amp; energy theft detection</li> <li>Remote disconnection/connection</li> <li>Power quality monitoring</li> <li>Enhanced digital experience for customers</li> </ul>	<p style="color: #0070C0; font-weight: bold;">Mobile Field Force Automation</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>Concise information flow between field crew (FC) and Customer Care Centre (CCC)</li> <li>Monitoring work order progress</li> <li>Tracking FC performance on response and restoration</li> </ul>	<p style="color: #0070C0; font-weight: bold;">Distribution Remote Monitoring System</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>Sensors for substation and pillar doors and loss of supply (transformer), remote sensing earth fault indicator, street lighting status</li> <li>Automated detection and alerts via SMS and email</li> <li>Faster restoration</li> </ul>
<p style="color: #0070C0; font-weight: bold;">Geographical Information System</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>Network assets visibility</li> <li>Availability of asset information linking to customer information</li> </ul>	<p style="color: #0070C0; font-weight: bold;">Substation Smart Surveillance System</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>Real-time monitoring of substations and assets with alert notifications</li> <li>Cases of theft and vandalism have reduced significantly after installation</li> </ul>	<p style="color: #0070C0; font-weight: bold;">Distribution Automation</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>Remote fault indication</li> <li>Safe remote operation</li> <li>Faster fault isolation and service restoration</li> </ul>
<p style="color: #0070C0; font-weight: bold;">Online Asset Monitoring</p> <p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>Real-time monitoring of asset condition</li> <li>Early detection of anomalies and alert notifications</li> </ul>		

2-25, 203-1, 203-2, 3-3  
Climate Action Stewardship Through Sustainable Solutions

Smart Retail

- Technological innovations adopted in our retail services enable us to provide optimum customer experiences
- We are striving to implement automated customer service operations for enhanced excellence and convenience

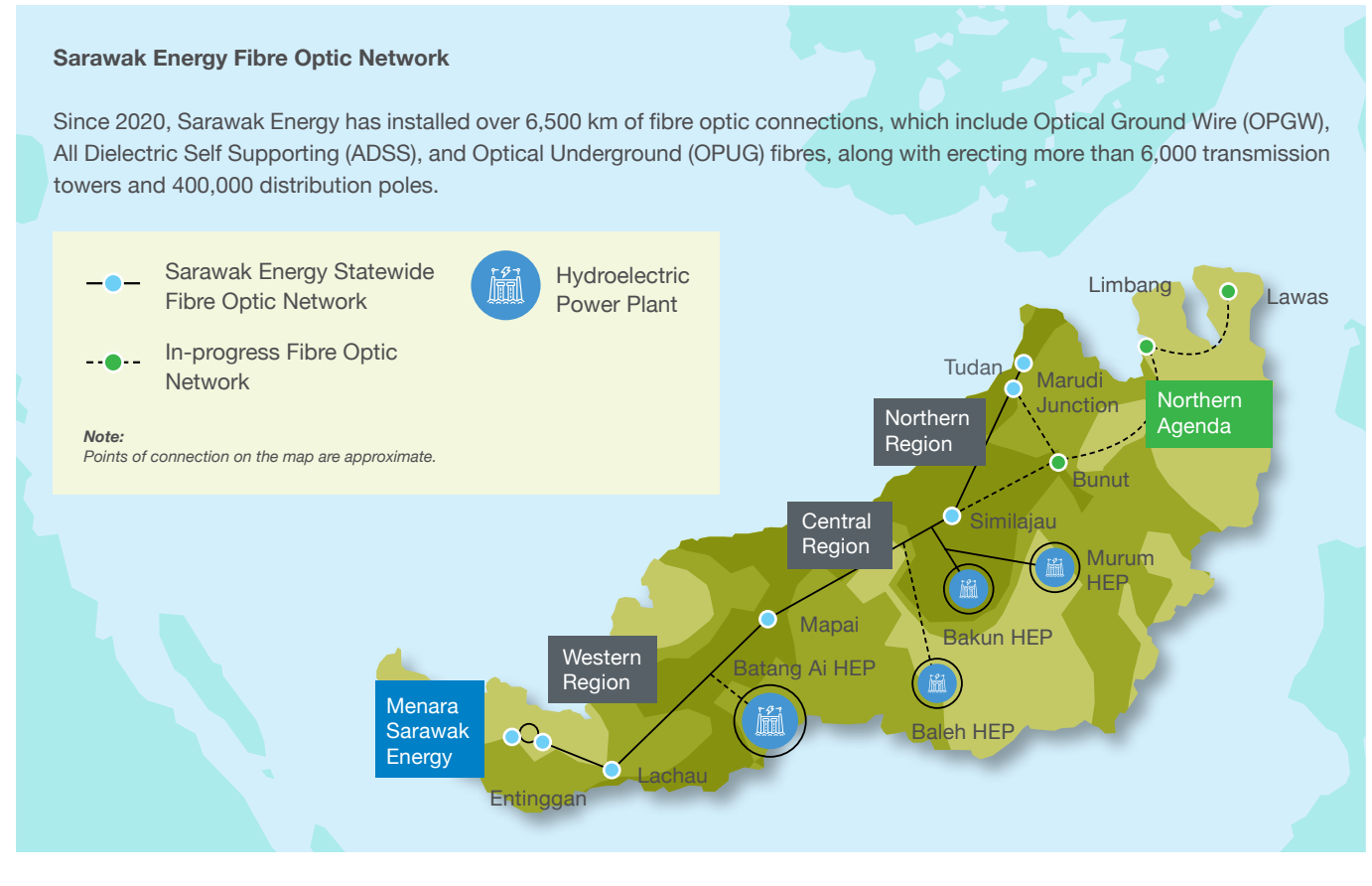
**Smart Meters**

- We target to empower 70% of our customers located in Kuching by 2026 through our Smart Meters. In 2029, we aim to increase our locations to include customers in Miri, Sibul, Bintulu, Sri Aman, Betong, Sarikei, Mukah, Kapit and Limbang
- To date, we have 19,695 Smart Meters installed in Kuching, while the rest of the regions will be installed with Smart Meters the following year with no additional fees imposed on existing customers

## Climate Action Stewardship Through Sustainable Solutions

### Supporting Sarawak's Digital Economy

We are accelerating our growth towards high-speed connectivity through the support of our fibre optics infrastructure, in line with Sarawak's Digital Economy agenda. In addition, we collaborate with the Sarawak Multimedia Authority (SMA) and Sarawak Digital Economy Corporation (SDEC) to increase and maximise bandwidth and connectivity coverage Statewide with the support of our 500kV network. This will enable Sarawak to shift into the role of a digital leader in the region.



### Action Centre for Sustainable SMEs (ACCESS) Programme – Building a Sustainable Supply Chain Ecosystem

Despite being an energy development company and a vertically integrated power utility with over 99% of its CO<sub>2</sub> emissions coming from Scope 1, Sarawak Energy remains committed to minimising indirect Scope 3 GHG emissions. Recognising the growing demand for sustainable supply chains that adhere to environmental and social standards, we collaborated with the UN Global Compact Network Malaysia and Brunei (UNGCMYB) to implement the Action Centre for Sustainable SMEs (ACCESS) Programme. ACCESS has enabled our small and medium-sized businesses (SMEs) to enhance their business resilience and competitiveness, thus future-proofing local and international supply chains while producing sustainable trade-ready SMEs.

#### ACCESS aims to:

- Align the understanding and expectations of sustainability performance
- Develop enterprise level sustainability framework and action plans
- Gain sustainability strategy development knowledge and application tools
- Network with like-minded sustainability champions

## Climate Action Stewardship Through Sustainable Solutions

### Sustainable Hydropower: A Holistic Shift Towards a Greener Future

We strive to align our hydropower projects and operations with the UN SDGs and the Hydropower Sustainability Standard (HSS). To demonstrate our HEP's sustainable performance, we manage and develop our projects in line with international best practices through good governance.

We are committed to ensuring that our hydropower projects and operating facilities embed the right principles in managing indigenous people, including respect for their dignity, human rights, aspirations, culture, lands, knowledge, practices and natural resources-based livelihoods. We believe that the development of sustainable hydropower exemplifies our efforts in long-term economic viability, protecting and managing natural resources, responsible environmental management and social accountability.

#### Enhancing Sustainability in Hydropower Projects

To ensure our sustainability practices are effectively implemented across all our Hydropower Electric Power Plants (HEPs), we have in place an internal assessment team. Established in 2014, the team was endorsed and approved by the Sarawak Energy Executive Management Committee. The cross-functional team comprises members from various departments who have received provisional accreditation and internal training to assess the sustainability performance of our hydropower project development and practices.

#### HSS Internal Assessment Team



- 4 IHA Accredited Assessors
- 18 IHA Provisionally Accredited Assessors
- 51 Hydropower Sustainability Tools Certified Users

- The internal assessors aim to:
  - Become agents of change in their respective department/divisions to ensure the continual embedding of sustainability practices in SEB's business processes
  - Hold internal assessments for hydropower projects using the HST prior to any official assessments
  - Develop internal capabilities

#### Hydropower Sustainability Standard (HSS)



The Hydropower Sustainability Standard (HSS), is an independent international certification scheme which measures minimum levels of good practice in the environmental, social and governance topics.

#### Hydropower Sustainability Assessment Tools (HST)



HST offers a comprehensive evaluation of the sustainability aspects in our hydropower project development and operations. The HST reflects our commitment to the pursuit of sustainable hydropower projects as it recognises the importance of balancing economic, environmental and societal considerations. It also reinforces our commitment to conducting comprehensive assessments and ensuring the risks at our projects are efficiently assessed and managed.

The three complementary tools are:

- Hydropower Sustainability Assessment Protocol (HSAP)
- Hydropower Sustainability Guidelines on Good International Industry Practice (HGIIIP)
- Hydropower Sustainability ESG Gap Analysis Tool (HSEG)

This is a comprehensive framework utilised for evaluating the sustainability of our projects and covers a wide spectrum of social, environmental and financial aspects.

- Key drivers for the implementation:
  - To manage and address sustainability risks and opportunities
  - To meet the expectations and requirements of investors and lenders
  - To benchmark our performance against international best practices

2-25, 3-3  
Climate Action Stewardship Through Sustainable Solutions

In 2022, the pool of certified internal assessors grew from 11 in 2019 to 22. Among them, 4 are now Accredited Assessors, while 18 hold Provisional Accreditation.

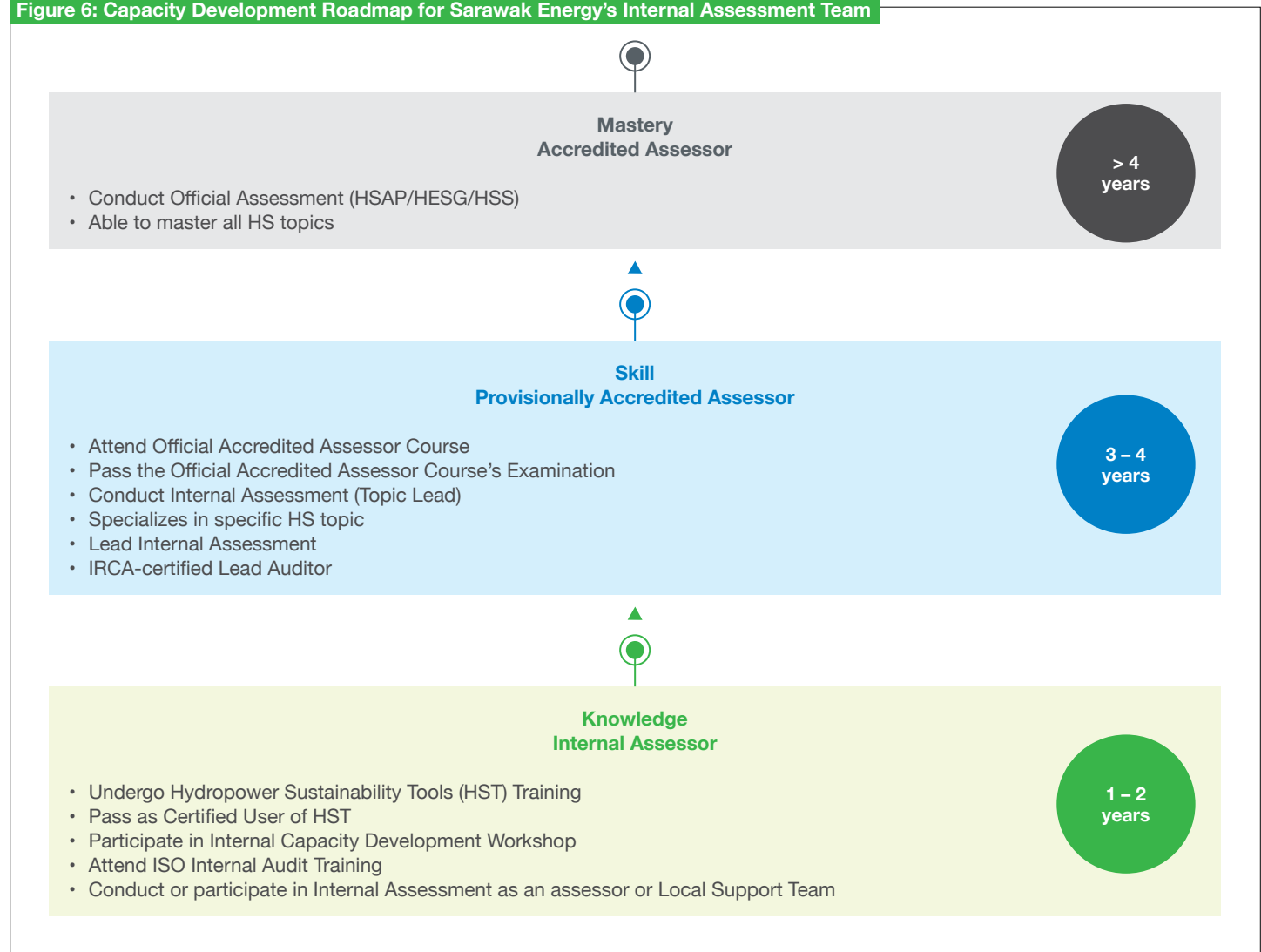
Apart from conducting internal assessments on Sarawak Energy’s hydropower projects, the internal assessment team had the opportunity to assess international hydropower projects in Indonesia and Tajikistan. This experience not only allowed our assessors to apply their skills and knowledge but also demonstrated the confidence that international practitioners have in our homegrown certified assessors.

The exposure gained from these assessments demanded greater agility and foresight from the assessors. It provided valuable insights into projects in other countries, showcasing commendable commitments to strengthening resources and enhancing ownership of best practices for sustainable hydropower development.

Sarawak Energy was also invited to various knowledge-sharing sessions during the International Hydropower Association’s (IHA) training sessions in Nepal and Tajikistan. In these sessions, Sarawak Energy shared its journey and commitment to sustainable hydropower, highlighting the establishment of the internal assessment team and the effective use of the HST in embedding international best practices. These practices are crucial for enhancing various functions within its operations.

As we cultivate a global mindset among our assessors, this exercise represents one of the pivotal steps taken to prepare Sarawak Energy for creating impacts beyond its borders, aligned with Sarawak Energy’s vision to be a regional powerhouse.

Figure 6: Capacity Development Roadmap for Sarawak Energy’s Internal Assessment Team



2-25, 203-2, 304-1, 304-2, 413-1, 3-3  
Climate Action Stewardship Through Sustainable Solutions

Advancing Carbon Sequestration Efforts at Batang Ai Dam

As part of our ongoing efforts to minimise our environmental footprint and underscore our commitment to environmental sustainability, we undertook a project at Batang Ai Dam in 2021. The project was conducted in partnership with the Forest Department Sarawak (FDS) and was a collaborative forest landscape restoration (FLR) initiative.



Batang Ai HEP.

- The main aim of the project was to restore vegetation on the degraded lands adjacent to the Batang Ai Dam, thereby enhancing the local environment and improving water catchment functions
- Indigenous varieties of timber trees, fruit-bearing trees and non-timber forest species like rattan, were strategically cultivated in specific areas at the request of the local community
- As a result of this project, approximately 229,260kg of CO<sub>2</sub> were sequestered

Project Highlights

- 6,000** Indigenous tree species cultivated including Belian, Gaharu, Engkabeng, Kapur and Meranti
- 6+ ha.** Forest preserved and rehabilitated
- Seven longhouses** Received training on forestry
- 200+** Individuals engaged through Restoration Awareness Campaigns
- Four projects** Enhanced key biodiversity and ecosystem services
- 100+** Youths received education on environmental conservation

## Climate Action Stewardship Through Sustainable Solutions

### Recognising Emissions from Our Hydropower Generation Portfolio

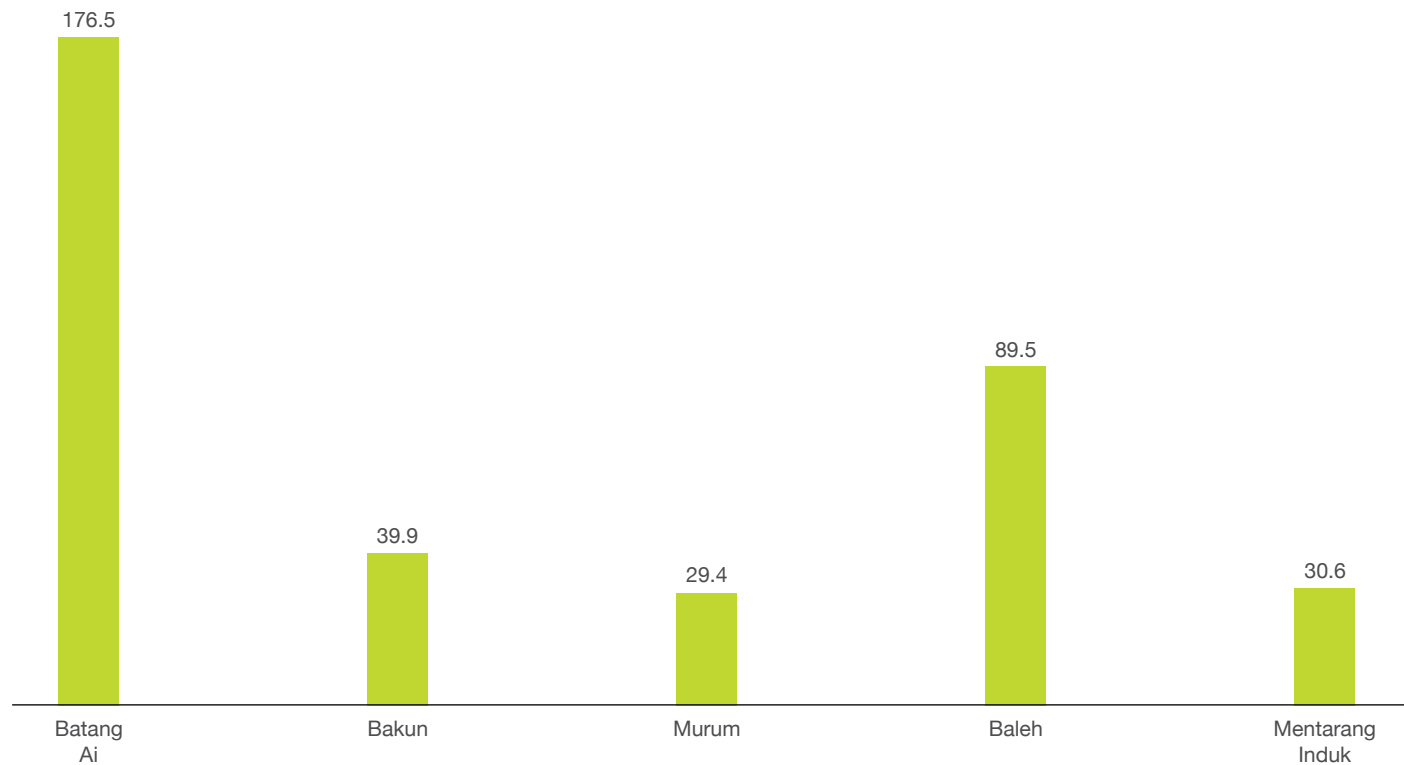
Power density is an indicator of emissions intensity. The relation between the intensity of power density and emissions suggests that projects with a power density above 5 W/m<sup>2</sup> will exhibit emissions intensity below 100 gCO<sub>2</sub>eq/kWh.

To forecast the net GHG emissions of reservoirs, we conduct a thorough assessment, validation and report of the reservoir's carbon footprint. This process is conducted using the G-res Tool, a web-based application developed by the IHA and UNESCO Chair for Global Environmental Change.

#### Power Density at Sarawak Energy's Hydropower Projects

Hydro-power Project	G-res ID	Power Density (W/m <sup>2</sup> )	Allocated Emissions Intensity (gCO <sub>2</sub> eq/kWh)
Batang Ai HEP	3.02155	1.6	176.5
Bakun HEP	3.02158	3.5	39.9
Murum HEP	3.02157	3.9	29.4
Baleh HEP	3.112265	2.2	89.5
Mentarang Induk HEP <sup>a</sup>	3.02156	6.1	30.6

#### Sarawak Energy's HEPs Allocated Emissions Intensity (gCO<sub>2</sub>eq/kWh) - Project Life Cycles

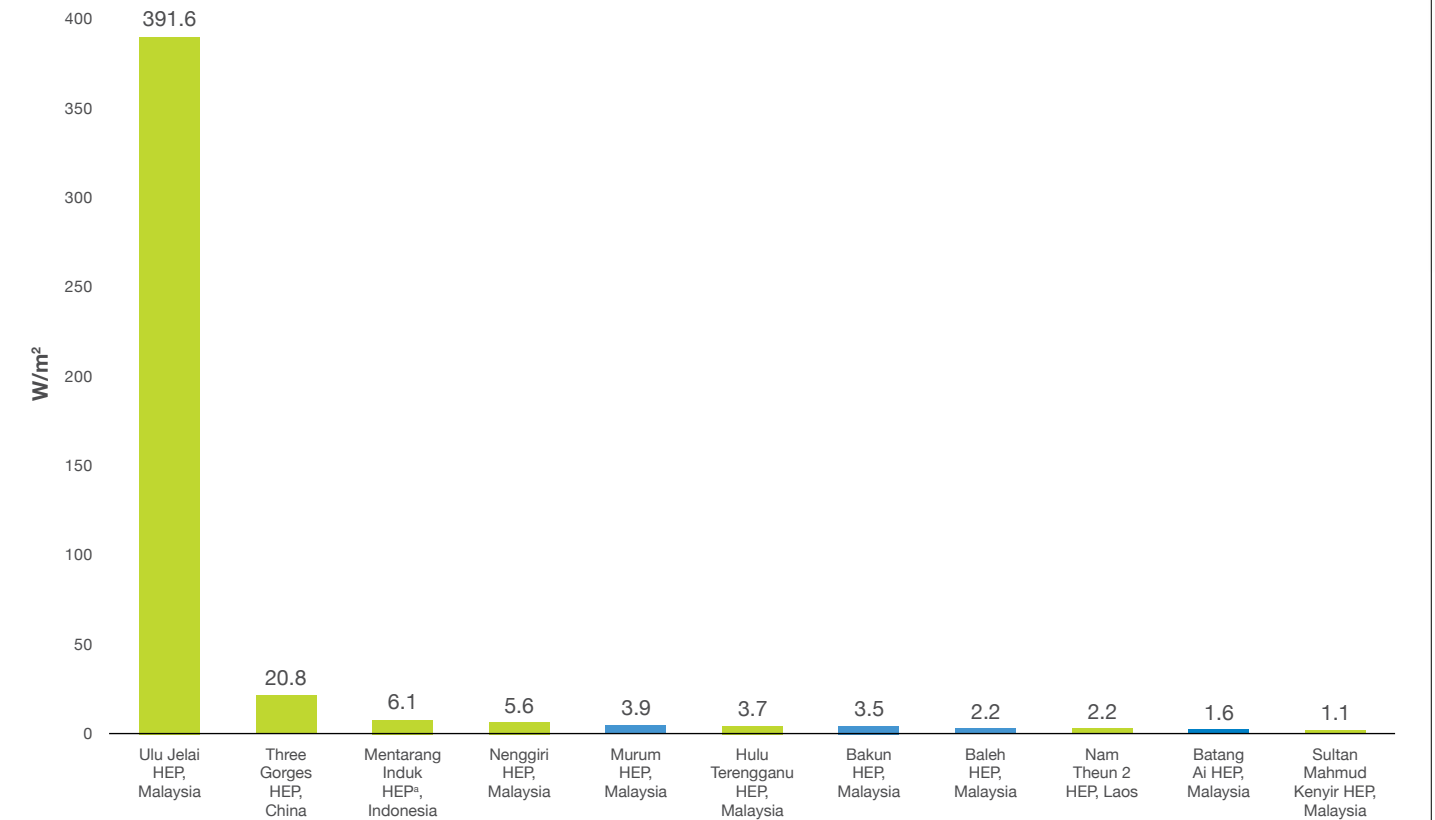


**Notes:**  
 1. Power Density (W/m<sup>2</sup>) - The ratio of installed capacity to total reservoir surface area. Source: The GHG Reservoir Tool (G-res) User guide.  
 2. Allocated Emissions Intensity (gCO<sub>2</sub>eq/kWh) - The life cycle emission rate of greenhouse gases (CO<sub>2</sub> + CH<sub>4</sub>) relative to the intensity of power production.  
<sup>a</sup> Mentarang Induk HEP is a joint venture project in Kalimantan Utara, Indonesia between Sarawak Energy & KPP Group.

## Climate Action Stewardship Through Sustainable Solutions

Hydro-power Project	Power Density (W/m <sup>2</sup> )
Ulu Jelai HEP, Malaysia	391.6
Three Gorges HEP, China	20.8
Mentarang Induk, Indonesia	6.1
Nenggiri HEP, Malaysia	5.6
Murum HEP, Malaysia	3.9
Hulu Terengganu HEP, Malaysia	3.7
Bakun HEP, Malaysia	3.5
Baleh HEP, Malaysia	2.2
Nam Theun 2 HEP, Laos	2.2
Batang Ai HEP, Malaysia	1.6
Sultan Mahmud Kenyir HEP, Malaysia	1.1

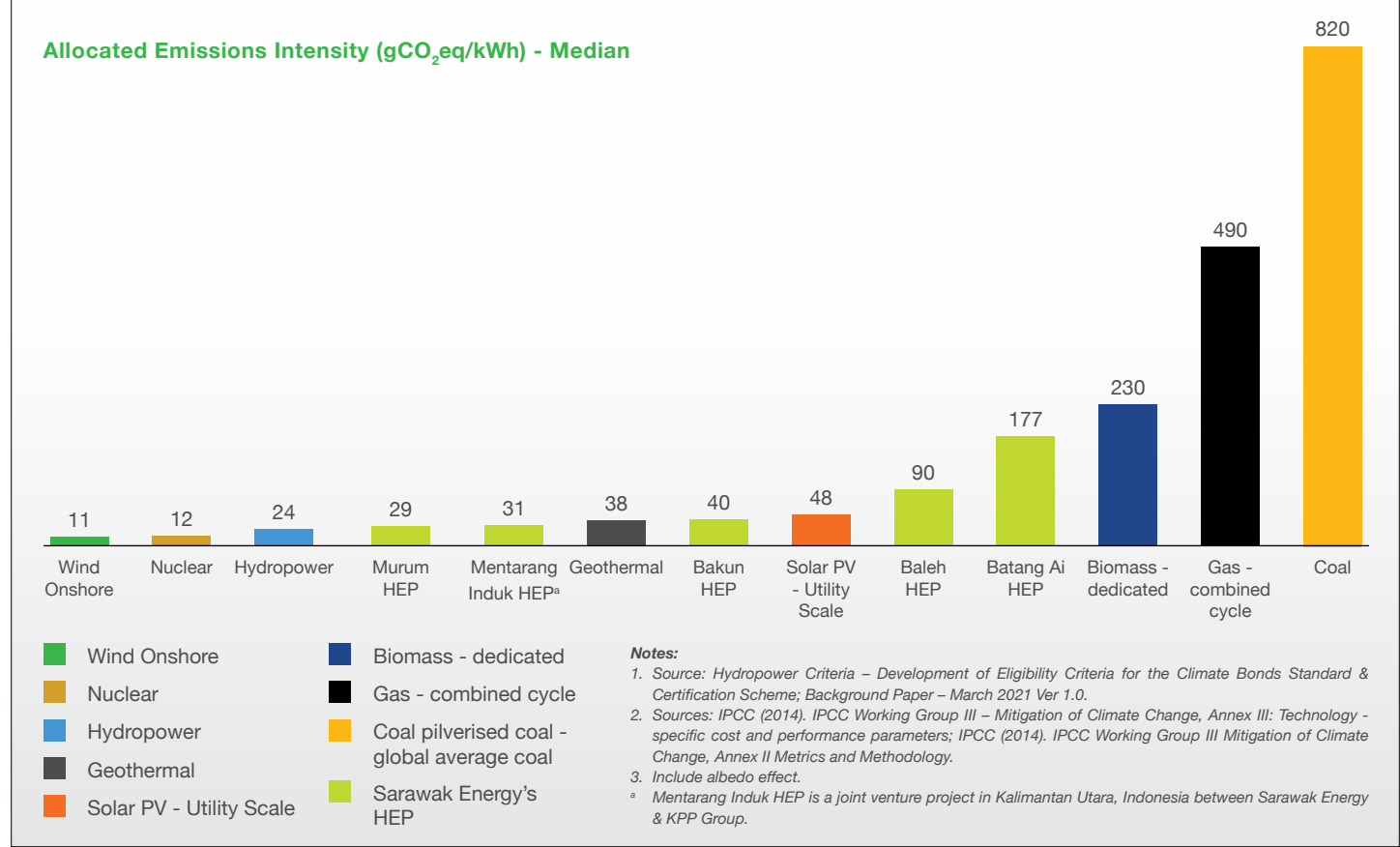
#### International Comparison of HEPs' Power Density (W/m<sup>2</sup>)



**Note:**  
<sup>a</sup> Mentarang Induk HEP is a joint venture project in Kalimantan Utara, Indonesia between Sarawak Energy & KPP Group.

### Climate Action Stewardship Through Sustainable Solutions

#### Comparison of Allocated Emissions Intensity (gCO<sub>2</sub>eq/kWh) by Technologies - Median



#### Expanding Decarbonisation Value Beyond Sarawak

In our endeavours to reduce carbon emissions across various sectors of our environment, economy and society, we strive to mitigate global warming and achieve a sustainable, low-carbon future. We remain committed to lowering emissions from our energy sources beyond Sarawak to play our part in the global initiative to decelerate the temperature increase to 1.5°C.

To lead the industry in sustainability and renewable energy, Sarawak Energy's electricity generation mix includes hydro, coal, gas and diesel, meeting the economic needs of our customers throughout Malaysia and Indonesia. In 2022, renewable energy through hydropower increased to 74%, up from 16.51% compared to 2011. This underscores our commitment to meeting the energy demands of our clientele through hydropower, which is a clean energy source compared to many fossil fuels such as coal, gas and diesel. Additionally, in 2022, there was a slight increase in electricity sales by category, reaching 31,278 GWh (compared to 28,590 GWh in 2021) in order to meet customers' demands.

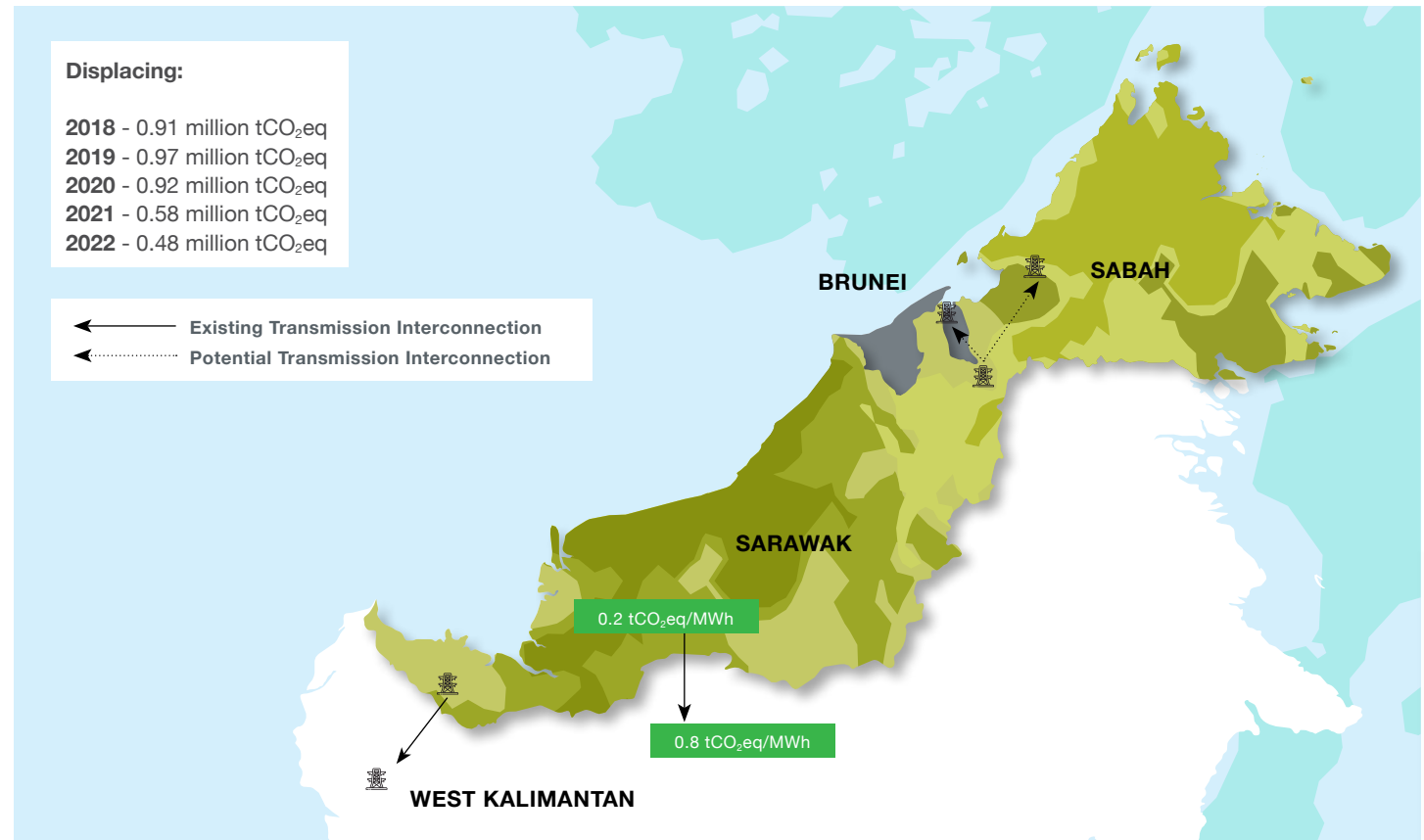
#### Sarawak Energy's Generation Mix (2011 vs 2022)

Source	2011 (%)	2022 (%)
Hydro	16.51	74.16
Coal	40.58	11.80
Gas	41.94	14.03
Diesel	0.97	0.01

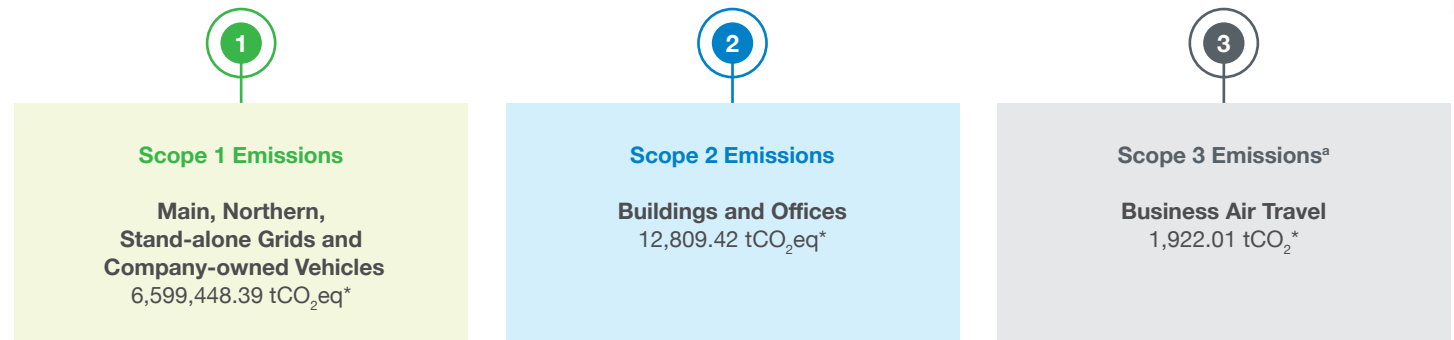
Our journey in decarbonisation began in 2016 with the construction of the Sarawak-West Kalimantan Interconnection, a cross-border HVAC link connecting the Mambong 275 kV substation in Sarawak to the Bengkayang 275 kV substation in West Kalimantan.

As of 2022, we have exported a total of 8,273 GWh of energy to West Kalimantan<sup>a</sup> and have offset 4.90 million tCO<sub>2</sub>eq, which is equivalent to the sequestration of 13,800 hectares of tropical forest.

### Climate Action Stewardship Through Sustainable Solutions



**Note:**  
 West Kalimantan grid – using conservative estimation based on diesel emission factor of 0.8 tCO<sub>2</sub>eq/MWh (IPCC 2016).



**Notes:**  
 1. Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.  
<sup>a</sup> Scope 3 emissions – Business air travel is calculated using ICAO Carbon Emissions Calculator as on 9 June 2023.

2-9, 2-13, 2-16, 3-3

# Building Business Resilience Through Climate-Related Disclosures

## Task Force on Climate-Related Financial Disclosures – Where Impact Meets Financial Performance

As an energy provider, our business is very much exposed to climate change effects such as floods and storms, which could affect our power lines, power generation and power delivery. Such disruptions could impact our financial growth in the long-term.

To mitigate climate-related risks, which encompass physical and transition aspects, we have adopted the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). Since 2021, we have been increasingly embedding climate action into our decision-making process and business strategy to prepare ourselves to be climate resilient. We are among the 2,000 over companies in the world to pledge support for UNGC’s Business Ambition for 1.5°C in 2022.

Aligning our disclosures with the TCFD recommendations enables us to provide investors and stakeholders a better understanding of Sarawak Energy’s approach in responding to the effects of climate change on our business. It also serves as a foundation to facilitate analysis, providing transparent, reliable and consistent climate-related information to our stakeholders.

### Governance

Climate-related matters in Sarawak Energy are overseen by the Sustainability Department. Serving as the highest authority in driving sustainability strategy, the department ensures that the Company’s climate-related disclosures are aligned with the TCFD recommendations.

### Strategy

Our climate action strategy is anchored on a five-pronged strategy, encompassing five key areas that aim to minimise and mitigate climate-related risks across our operations.

### Risk Management

To minimise the physical and transition risks of our business, we conducted a climate scenario analysis that covered five climate scenarios, based on the World Bank’s Climate Change Knowledge Portal.

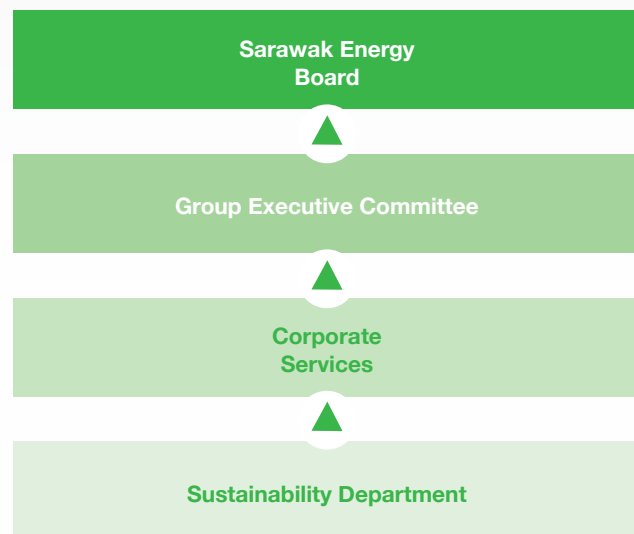
### Metrics

We monitor and manage our carbon emissions by tracking our emission disclosures according to Scope 1, Scope 2 and Scope 3 GHG emissions according to global reporting standards.

## Governance

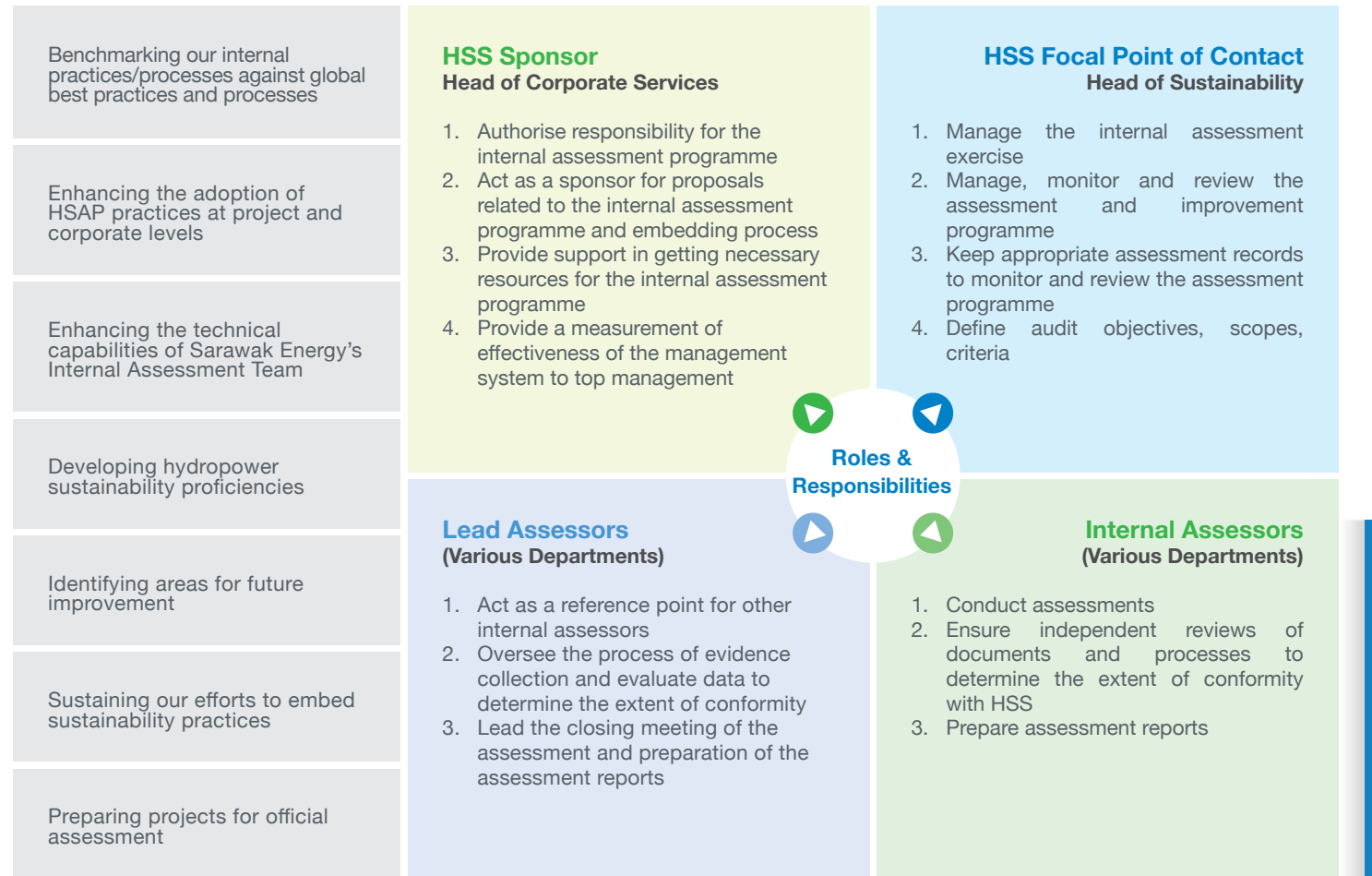
In 2022, we enhanced our sustainability governance to focus more on delivering Sarawak Energy’s sustainability agenda. The previous Sustainability Division is now a Sustainability Department and holds the responsibility for incorporating sustainability principles across the business operations. This consists of developing, planning, implementing and managing the embedding of sustainability principles into the organisation. It includes adopting best practices, international standards and protocol. The department also ensures effective implementation of sustainability initiatives by tracking, monitoring and verifying the sustainability performance of Sarawak Energy. As the Company currently does not have a TCFD Steering Committee or a Board Committee, the Sustainability Department oversees the alignment of the organisation’s climate-related disclosures with the recommendations of the TCFD.

Since 2022, we have put in place a robust Sustainability Strategy, Policy and Roadmap as part of our corporate Key Performance Index (KPI). Going forward, we embrace and embed sustainability in all Sarawak Energy business units and corporate functions by having a clear, holistic and integrating inter-departmental linkages, aligning them with business priorities to achieve our corporate objectives.



3-3

## Building Business’s Resilience Through Climate-Related Disclosures



### Mitigating Climate Risks and Capturing Opportunities

While global warming and increased rainfall will pose risks and challenges to our business operations and stakeholders, they also present us with opportunities to pivot and adapt to the effects of climate change.

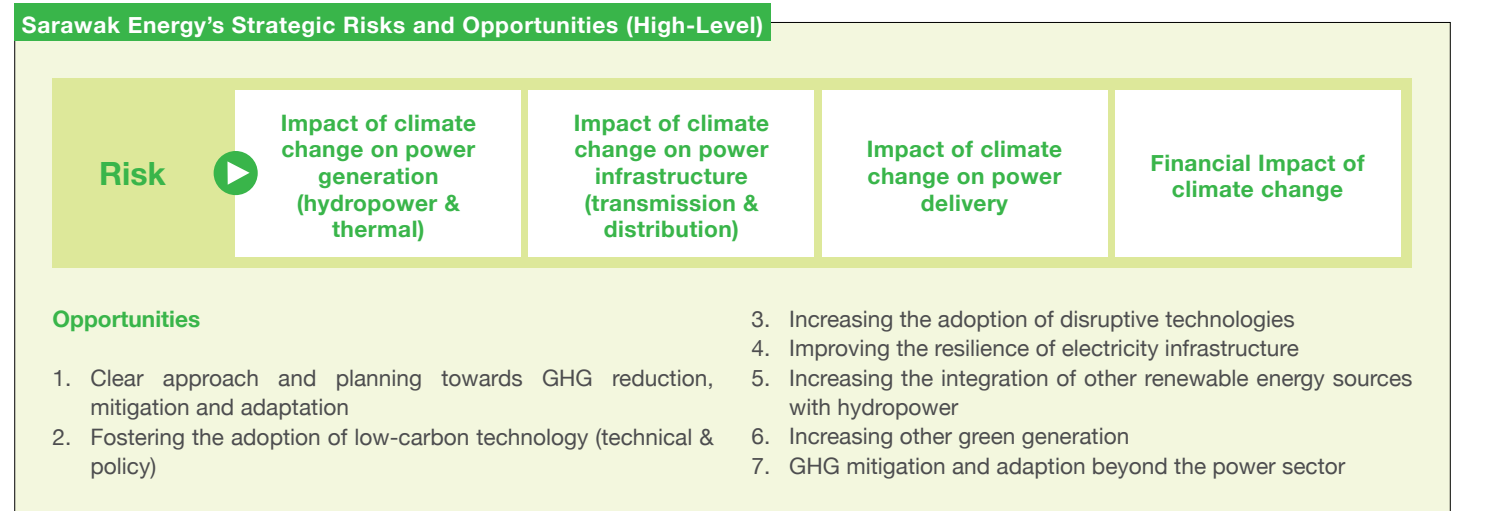


Table 1: High-level Strategic Risks and Opportunities Arising from Climate Change.

3-3 Building Business's Resilience Through Climate-Related Disclosures

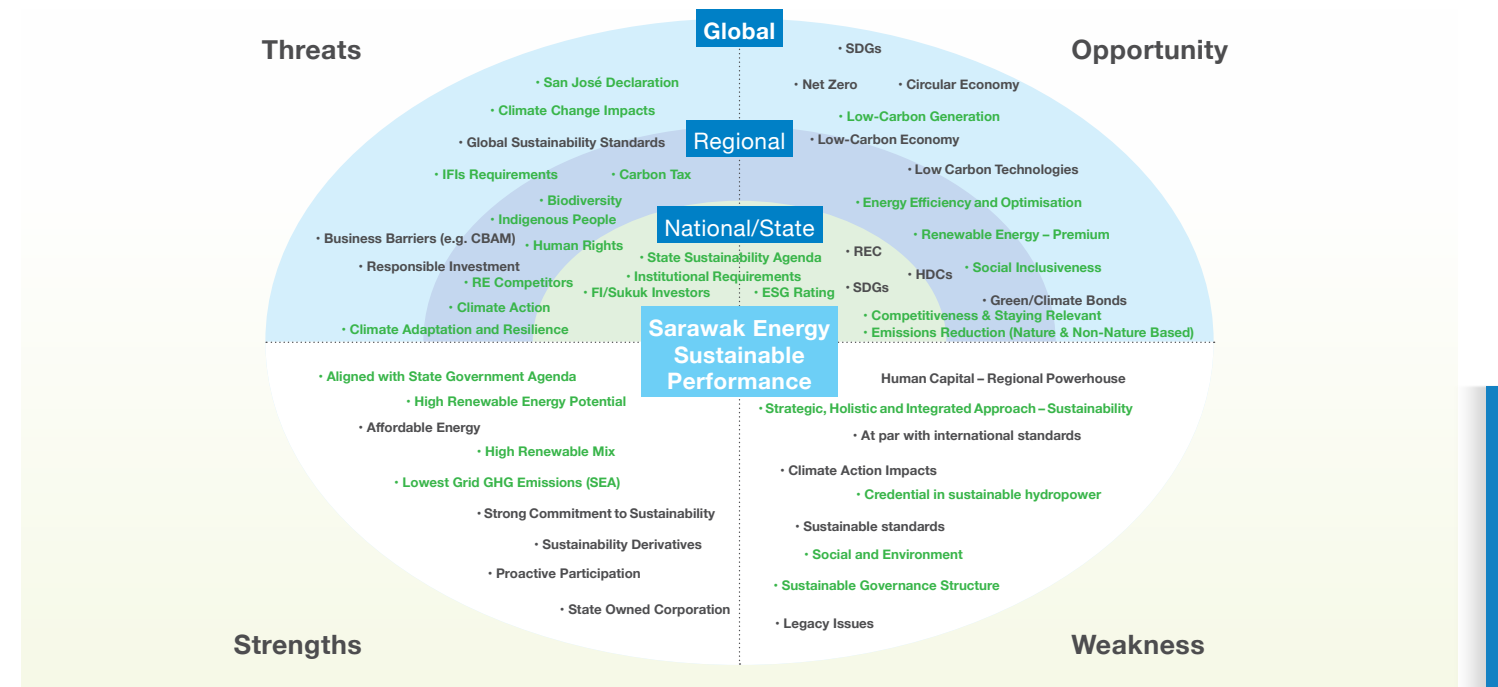


Table 2: High-Level Strategy for Climate Action – GHG Mitigation & Adaptation for the Power Sector in Sarawak.

3-3 Building Business's Resilience Through Climate-Related Disclosures

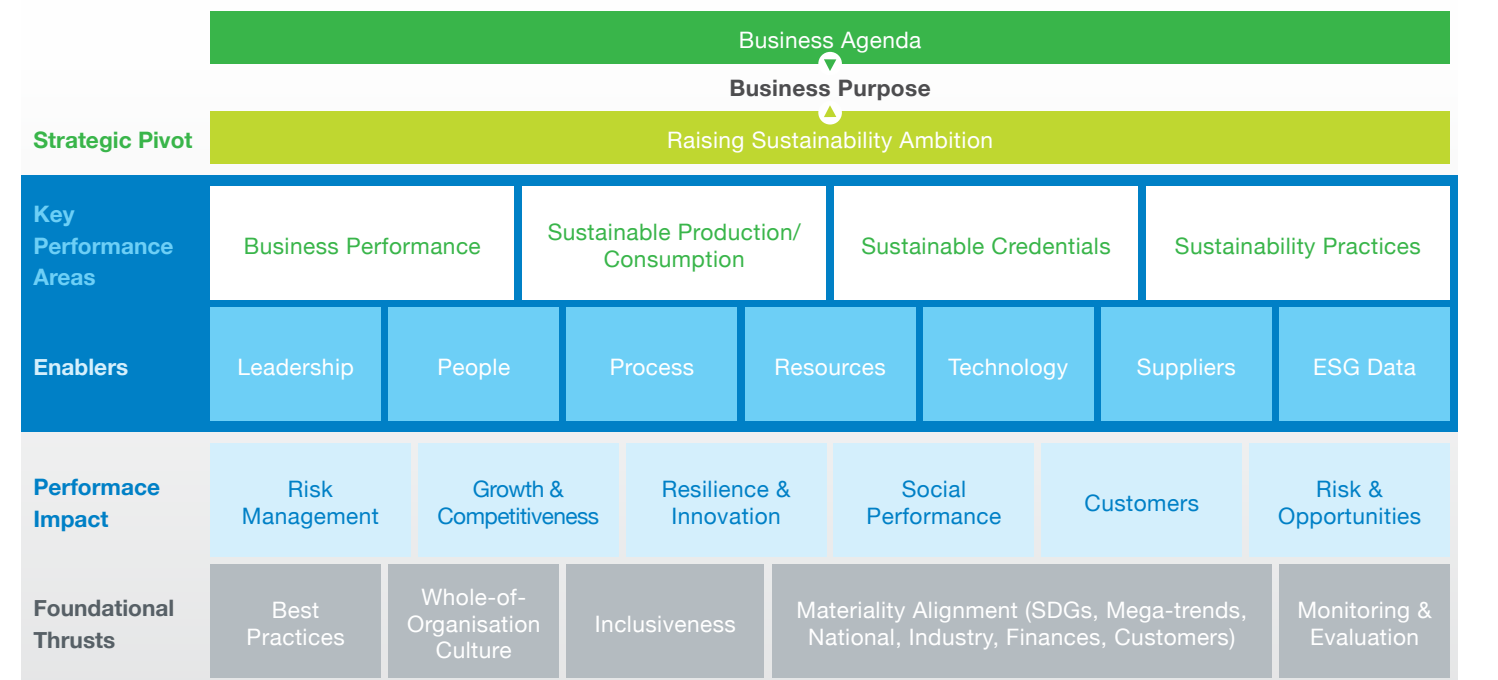
Sarawak Energy's Sustainability Performance and Climate Change – Internal and External Factors

Our strategy in risk mitigation is comprehensive and covers both internal and external factors. We carefully identify and assess how ESG issues are impacting the business and its stakeholders in a strategic manner by considering both internal and external emerging ESG risks and opportunities.



Sarawak Energy's Sustainability Strategy Framework

In delivering on our sustainability agenda, our actions are anchored on a sustainability strategy framework that focuses on four key focus areas and seven enablers.



3-3 Building Business's Resilience Through Climate-Related Disclosures

### Risk Management

#### Climate Scenario Analysis

In 2021, we conducted a climate scenario analysis to further prepare our business to be climate resilient. Based on the World Bank's Climate Change Knowledge Portal, the analysis covered five climate scenarios consisting of mean temperatures and average precipitation levels in five probable conditions and time periods (short and medium-short). The analysis revealed that there is a possibility for the average air temperature and rainfall to increase between 2021 and 2030 in Sarawak. Maximum sea levels are also projected to rise, thereby increasing the possibility of floods. Dry spells may occur from 2045 to 2055<sup>a</sup> in the state.

Parameter	Observed (1970 - 2000)	Projected for 2030	Projected for 2050
Average Annual Temperature	24.8 - 26.2°C	25.6 - 26.8°C (0.6 to 0.8°C increase)	26.4 - 27.5°C (1.3 to 1.6°C increase)
Average Annual Rainfall	3,551 - 3,907mm	3,597 - 4,144mm (1 to 6% increase)	3,574 - 4,124mm (1 to 5% increase)

Parameter	Observed Rate (1993 - 2010)	Projected for 2030	Projected for 2050
Sea Level Rise	3.82 - 5.11mm/year	0.04 - 0.12m	0.15 - 0.22m

Table 3: Observed and Projected Climate Change and Sea Level Rise in Sarawak.

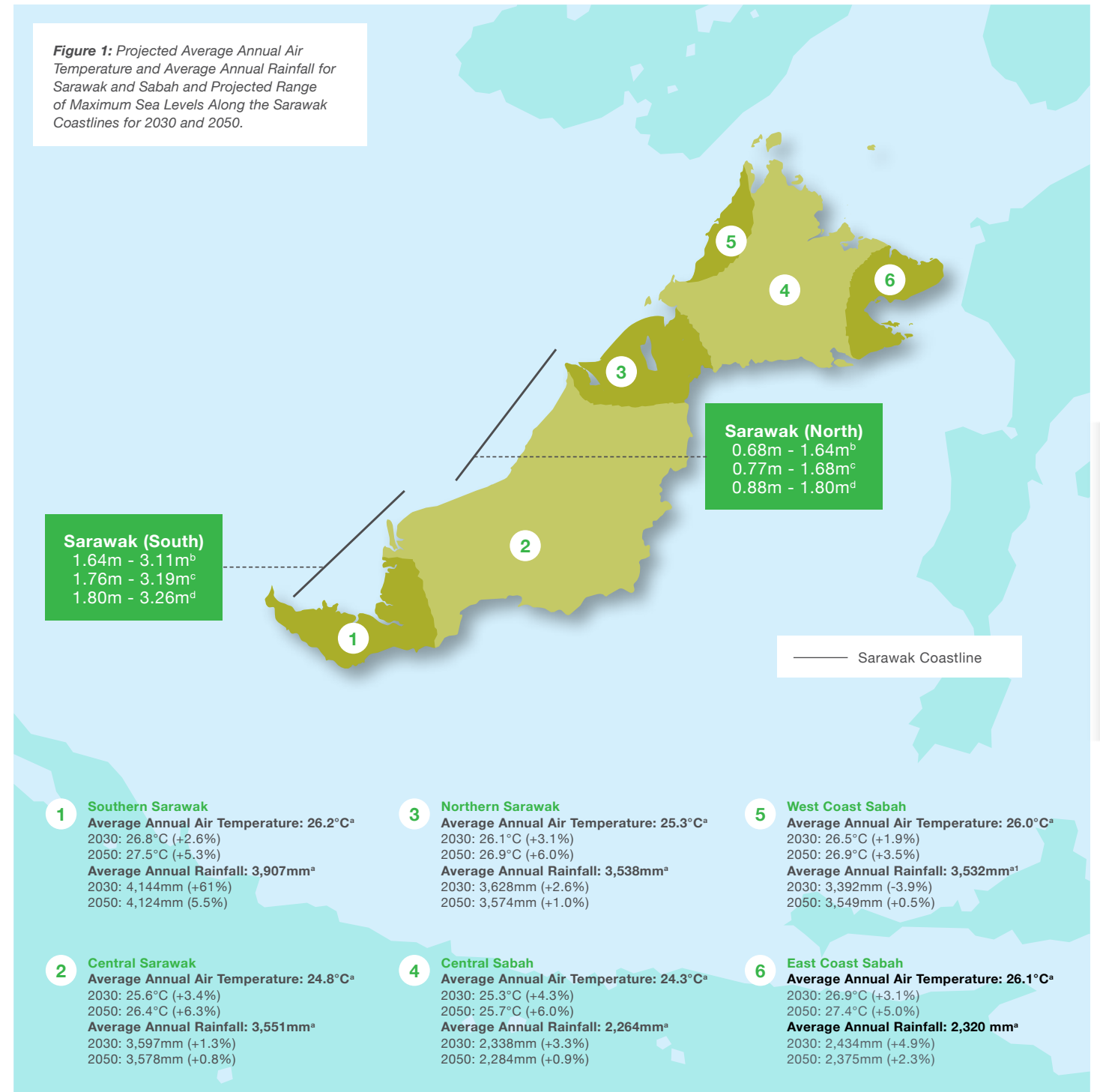
Note: <sup>a</sup> Source: Malaysia Third National Communication and Second Biennial Update Report to the UNFCCC.

Our projection data shows the range and distribution of the most plausible projected outcomes of change in the climate system for the selection of the latest Shared Socioeconomic Pathways (SSPs). The SSPs endeavour to share information on future climates by considering specific emissions, mitigation efforts and development trajectories.

Period	2020-2039					2040-2059					
	Historical (Reference Period: 1995-2014)	SSP 1-1.9	SSP 1-2.6	SSP 2-4.5	SSP 3-7.0	SSP 5-8.5	SSP 1-1.9	SSP 1-2.6	SSP 2-4.5	SSP 3-7.0	SSP 5-8.5
Mean Temp. (°C)	25.64	26.17	26.23	26.24	26.23	26.33	26.32	26.50	26.74	26.88	27.14
Average Largest 1-Day Precipitation (mm)	59.81	62.48	59.65	59.36	61.87	61.44	62.38	61.39	62.50	64.74	72.33
Average Largest 5-day Cumulative Rainfall (mm)	148.12	153.60	150.75	150.77	153.50	152.28	156.13	155.23	156.21	159.20	158.11

Notes: 1. Source: Sarawak Climate Scenario Based on World Bank Climate Change Knowledge Portal (WBCKCP). 2. Data presented is Coupled Model Intercomparison Project 6 (CMIP6), derived from the Sixth phase of the CMIPs. The CMIPs form the data foundation of the IPCC Assessment Reports. CMIP6 supports the IPCC's Sixth Assessment Report. 3. Projection data is presented as multi-model ensembles which represent the range and distribution of the most plausible projected outcomes of change in the climate system for selected Shared Socioeconomic Pathways (SSPs). 4. Shared Socioeconomic Pathways (SSPs) are meant to provide insight into future climates based on defined emissions, mitigation efforts, and development paths.

3-3 Building Business's Resilience Through Climate-Related Disclosures



Notes: <sup>a</sup> Historical data (average annual air temperature & average annual rainfall: year 1970 - 2000). <sup>b</sup> Current (year 2016) sea level; <sup>c</sup> year 2030 sea level; <sup>d</sup> year 2050 sea level. Source: Malaysia's Third National Communication and Second Biennial Update Report to the UNFCCC.

## Building Business's Resilience Through Climate-Related Disclosures

The findings of the climate scenario analysis enabled us to identify the transitional physical risks and opportunities that are linked to our assets and services. These are across our business divisions in Generation, Transmission, Distribution and Retail in the short to medium and long terms. The following tables show the risks and opportunities that we have identified, and the effects on our business strategy and financial planning.

Transition – Risks & Opportunities	
<p><b>Timescale: Short to Medium Term (1-5 years)</b>  <b>Type of Risks: Transition Risks</b></p>	
Strategy Response	
<p><b>Risks &amp; Opportunities</b></p> <p><b>Corporate</b></p> <ul style="list-style-type: none"> <li>Enhancing carbon inventory (Scope 1, 2, 3)<sup>a</sup> for better access to relevant data in managing climate-related risks for effectively measuring and evaluating climate-related risks</li> <li>Quantifying the climate change impact risks</li> <li>Enhancing carbon emissions reporting, structure and governance of climate-related risks and climate-related financial disclosures</li> <li>Renewable energy incentives</li> <li>Access to new financing platforms</li> <li>Regulatory and policy frameworks to drive climate-related initiatives</li> <li>Stringent legal/market requirements on climate change (cost of carbon)</li> <li>Cost to transition to low-carbon technology</li> </ul> <p><b>Generation</b></p> <p><b>Hydropower &amp; Thermal Generation (Development &amp; Operation)</b></p> <ul style="list-style-type: none"> <li>Embedding climate change risks in hydropower development at design stage</li> <li>Understanding and quantifying the risks of climate change</li> <li>Clear &amp; practical approach and planning towards mitigation of and adaptation to climate risks</li> <li>Technology advancement – efficiency improvement</li> <li>Other Renewable Energy Sources</li> </ul> <p><b>Other Renewable Energy Sources</b></p> <ul style="list-style-type: none"> <li>Integration of other renewable energy sources with hydropower generation</li> <li>Aligning with global, national and state goals and targets in GHG emissions reduction</li> </ul> <p><b>Transmission &amp; Distribution</b></p> <ul style="list-style-type: none"> <li>Assessment of climate change risks in hydropower development at design stage</li> <li>Climate change impacts on electricity infrastructure and delivery</li> </ul>	<p><b>Impacts On Business Strategy And Financial Planning</b></p> <ul style="list-style-type: none"> <li>Better assessment, reporting and governance of climate change risks</li> <li>Detached from non-renewable generation sources</li> <li>Integrated approach in improving the resilience of electricity assets and infrastructure to climate change risks (including upstream resources)</li> <li>Holistic and consolidated approach to investment in energy efficiency improvement and adoption of low-carbon technology that is aligned with longer-term emissions reduction initiatives</li> <li>Resilience of electricity delivery system via efficient, smart &amp; flexible system infrastructure</li> <li>Advancement in development of flexible system infrastructure as platform for integrating other new renewable energy capacity</li> <li>Advocating best practices in managing climate risks - ahead of the regulatory frameworks</li> <li>Meeting the growing expectations of stakeholders (e.g. shareholders, financial institutions, customers and general public)</li> </ul>

**Table 4:** Climate-Related Transition Risks & Opportunities and Impacts on Business Strategy and Financial Planning.

**Note:**  
<sup>a</sup> Guided by Task Force on Climate-related Financial Disclosures (TCFD) and Science Based Targets initiative (SBTi) standards & requirements.

## Building Business's Resilience Through Climate-Related Disclosures

Physical – Risks & Opportunities	
<p><b>Timescale: Long Term (&gt;5 years)</b>  <b>Type of Risks: Physical Risks</b></p>	
Strategy Response	
<p><b>Risks &amp; Opportunities</b></p> <p><b>Corporate</b></p> <ul style="list-style-type: none"> <li>Stringent legal/market requirements on climate change (cost of carbon)</li> </ul> <p><b>Generation</b></p> <ul style="list-style-type: none"> <li>Extreme weather events impacting generation assets</li> <li>Extreme weather events impacting hydropower generation</li> <li>Rising sea levels impacting power assets and infrastructure</li> <li>Rising mean temperatures impacting plant efficiency &amp; reliability</li> </ul> <p><b>Transmission &amp; Distribution</b></p> <ul style="list-style-type: none"> <li>Extreme weather events impacting electricity delivery, system reliability and efficiency</li> <li>Rising mean temperatures impacting the power delivery efficiency</li> </ul> <p><b>Customer Services</b></p> <ul style="list-style-type: none"> <li>Shift in consumer preferences</li> </ul>	<p><b>Planning &amp; Response</b></p> <ul style="list-style-type: none"> <li>Improving the resilience of electricity assets, infrastructure and upstream resources</li> <li>Increasing the resilience of electricity delivery system to climate change</li> <li>Integrating other new renewable energy capacity</li> <li>Detailed climate modelling studies to assess vulnerability of specific resilience improvement plans</li> <li>Enhancing demand side management to better understand changes in demand patterns</li> <li>Establishing a clear linkage between financial planning and carbon intensity</li> <li>Establishing solid governance of climate change issues</li> <li>Climate change as one of the core elements in corporate planning</li> </ul>

**Table 5:** Climate-Related Physical Risks & Opportunities and Strategic Response.

### Metrics

We carefully control our carbon emissions by closely monitoring relevant disclosures and metrics. We ensure transparency by reporting our Scope 1, Scope 2 and Scope 3 GHG emissions in accordance with global standards. In 2022, we have already achieved 2°C, as committed under the Paris Agreement.

Moving forward, we will continue to promote energy transition to achieve the 1.5°C business ambition, in line with the global warming reduction target. Up to 2022, we have invested more than RM10 billion\* in low-carbon generation technologies.

Building Business's Resilience Through Climate-Related Disclosures

The year under review witnessed an increase in our GHG emissions, primarily due to the start of new block operation at Tanjung Kidurong Combined Cycle Power Plant in June 2022.

Climate-Related Metrics

Category - Greenhouse Gas Emissions

Absolute Scope 1, Scope 2 and Scope 3 GHG Emissions (tCO<sub>2</sub>eq)

Scope 1 Emissions	Unit	2020	2021	2022
Main Grid	tCO <sub>2</sub> eq	5,600,892.97 <sup>2</sup>	5,976,874.06 <sup>1</sup>	6,483,137.99*
Northern Grid	tCO <sub>2</sub> eq	97,829.99 <sup>2</sup>	100,595.84 <sup>1</sup>	104,238.93*
Stand-alone Grid	tCO <sub>2</sub> eq	9,176.85 <sup>2</sup>	8,818.18 <sup>1</sup>	9,958.58*
Company-owned Vehicles	tCO <sub>2</sub> eq	4,167.74	3,766.89	2,112.89*
<b>Total</b>	<b>tCO<sub>2</sub>eq</b>	<b>5,712,067.55</b>	<b>6,090,054.97</b>	<b>6,599,448.39*</b>

Note: Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.

Scope 2 Emissions	Unit	2020	2021	2022
Building Electricity Consumption (Offices & Substations)	tCO <sub>2</sub> eq	13,447.19 <sup>2</sup>	11,991.48 <sup>1</sup>	12,809.42*

Note: Emissions in CO<sub>2</sub>eq include Direct Scope 2 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.

Scope 3 Emissions	Unit	2020	2021	2022
Business Air Travel	tCO <sub>2</sub>	565.13 <sup>2</sup>	252.42 <sup>1</sup>	1,922.01*

Note: Scope 3 emissions (Business air travel) is calculated using ICAO Carbon Emissions Calculator as on 9 June 2023.

SF<sub>6</sub> Consumption Data (Tonne)

SF <sub>6</sub> Consumption by Category	Unit	2020	2021	2022
Generation Level	Tonne	17.41	17.63	17.63
Transmission Level	Tonne	34.03	43.52	44.35
Distribution Level	Tonne	13.62	13.92	14.45
<b>Total</b>	<b>Tonne</b>	<b>65.06</b>	<b>75.07</b>	<b>76.43</b>

Building Business's Resilience Through Climate-Related Disclosures

Climate-Related Metrics

Category - Greenhouse Gas Emissions

Absolute Scope 1, Scope 2 and Scope 3 GHG Emissions (tCO<sub>2</sub>eq)

Cost of Fuel (2020-2022)

Category	Unit	2020	2021	2022
Main Grid (Thermal & Hydro) - Diesel Fuel	RM	1,067,303,040	1,405,313,739	1,690,225,346
Northern Grid (Thermal & Hydro) - Diesel Fuel	RM	69,212,663	84,519,368	156,714,589
Stand-Alone Grid (Thermal) - Diesel Fuel	RM	7,867,749	7,983,125	15,176,525
Company-owned Vehicles - Diesel & Petrol Fuel	RM	2,933,411.93	507,732.66	3,503,585.07

Emissions Intensity

Scope 1 Emissions Intensity	Unit	2020	2021	2022
Normalised by Gross Energy	tCO <sub>2</sub> eq/MWh	0.201	0.196	0.197
Normalised by Net Energy	tCO <sub>2</sub> eq/MWh	0.206	0.201	0.201

Scope 2 Emissions Intensity	Unit	2020	2021	2022
Normalised by Gross Energy	tCO <sub>2</sub> eq/MWh	0.000474	0.000387	0.000382
Normalised by Net Energy	tCO <sub>2</sub> eq/MWh	0.000485	0.000395	0.000391

Direct Emissions (Scope 1) Intensity (tCO<sub>2</sub>eq/RM Millions of Revenue)

Year	Total tCO <sub>2</sub> eq Emissions (Scope 1)	Revenue (RM Million)	Direct Emissions (Scope 1) Intensity (tCO <sub>2</sub> eq/RM Million)	Unit
2020	5,712,067.55	5,525.83	1,033.70	tCO <sub>2</sub> eq / RM Millions of Revenue
2021	6,090,054.97	6,048.80	1,006.82	tCO <sub>2</sub> eq / RM Millions of Revenue
2022	6,599,448.39*	6,964.87	947.53*	tCO <sub>2</sub> eq / RM Millions of Revenue

Note: Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.

Building Business's Resilience Through Climate-Related Disclosures

Building Business's Resilience Through Climate-Related Disclosures

Climate-Related Metrics

Category - Greenhouse Gas Emissions

Emissions Intensity

• Direct Emissions (Scope 1) Intensity (tCO<sub>2</sub>eq/RM Millions of Total Investment<sub>LCG</sub>)

Year	Unit	Total tCO <sub>2</sub> eq Emissions (Scope 1)	Total Investment <sub>LCG</sub> (RM Million)	Direct Emissions (Scope 1) Intensity (tCO <sub>2</sub> eq/ RM Millions of Total Investment <sub>LCG</sub> )
2020	tCO <sub>2</sub> eq / RM Millions of Total Investment <sub>LCG</sub>	5,712,067.55	6,919.64	825.49
2021	tCO <sub>2</sub> eq / RM Millions of Total Investment <sub>LCG</sub>	6,090,054.97	6,919.83	880.09
2022	tCO <sub>2</sub> eq / RM Millions of Total Investment <sub>LCG</sub>	6,599,448.39*	10,004.17*	659.67*

Notes:  
1. Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.  
<sub>LCG</sub> Low-Carbon Generation

Category - Transition Risks

Amount and extent/percentage of assets or business activities vulnerable to climate-related transition risks

• Percent of Revenue from Coal Mining

Item	Unit	2020	2021	2022
Revenue	RM Million	5,651.70	6,152.60	7,060.80
Sales of Coal	RM Million	-	18.89	18.24
Sales of Coal/Revenue (%)	%	-	0.31	0.26

Category - Climate-related Opportunities

Proportion of revenue, assets, or other business activities aligned with climate-related opportunities

• Number of zero-emissions vehicles (ZEV)

- ▶ Electric Car (4 units)
- ▶ Electric Scooter (19 units)
- ▶ Hydrogen SUV (2 units)

Notes:  
1. Revenue from products or services that support the transition to a low-carbon economy (Hydropower)  
2. <sub>ES</sub> Electricity Sales  
3. Year 2014 – Murum HEP commissioned  
4. Year 2015 – Lundu PS commissioned

• Renewable Energy Generation Intensity (RM Millions of Revenue<sub>ES</sub>/MWh)

Item	Unit	2020	2021	2022
Renewable energy generation intensity	Millions of Revenues <sub>ES</sub> (RM)/MWh	0.00026	0.00026	0.00029

Climate-Related Metrics

Category - Capital Deployment

Amount of capital expenditure, financing, or investment deployed toward climate-related risks and opportunities

• Annual capital invested in R&D for low-carbon products/services

Category	Unit	2020	2021	2022
Investment in R&D of low-carbon products/services	RM	7,060,176.57	6,640,319.00	8,279,567.25

Category - Remuneration

Proportion of executive management remuneration linked to climate considerations

- The remuneration for the board of directors of government-linked companies is recommended and approved by the board of directors and shareholders, respectively subject to the limits set by the Majlis Mesyuarat Kerajaan Negeri. Any revision to the remuneration requires the approval of the Majlis Mesyuarat Kerajaan Negeri.
- Corporate Sustainability Strategy & Roadmap has been approved and was part of Sarawak Energy's corporate KPI in 2022 entailing the following five (5) key themes:
  - ▶ Sustainability Leadership
  - ▶ Sustainability Growth
  - ▶ Business Resilience
  - ▶ Climate Action
  - ▶ Workforce and Supply Chain



Building Business's Resilience Through Climate-Related Disclosures

Input

Fuel Consumption		
Coal	Natural Gas	Diesel
2020 2,684,065.69 Tonne <sup>2</sup>	2020 33,066,287.95 MMBtu <sup>2</sup>	2020 24,301,619.57 Litres <sup>2</sup>
2021 2,940,286.82 Tonne <sup>1</sup>	2021 32,806,349.50 MMBtu <sup>1</sup>	2021 26,313,382.07 Litres <sup>1</sup>
<b>2022</b> <b>3,087,236.06 Tonne*</b>	<b>2022</b> <b>42,464,815.69 MMBtu*</b>	<b>2022</b> <b>27,887,522.36 Litres*</b>

Fuel Consumption Intensity			
Coal Consumption Intensity	Natural Gas Consumption Intensity	Diesel Consumption Intensity	Total Fuel Consumption Intensity
2020 1,531.23 MJ/MWh	2020 1,228.44 MJ/MWh	2020 82.23 MJ/MWh	2020 2,841.90 MJ/MWh
2021 1,566.85 MJ/MWh	2021 1,115.95 MJ/MWh	2021 75.13 MJ/MWh	2021 2,757.92 MJ/MWh
<b>2022</b> <b>1,524.41 MJ/MWh</b>	<b>2022</b> <b>1,336.91 MJ/MWh</b>	<b>2022</b> <b>72.64 MJ/MWh</b>	<b>2022</b> <b>2,933.96 MJ/MWh</b>

Water Withdrawal Intensity by Source		Water Regulated Intensity for Hydropower
Municipal Water Withdrawal Intensity	Sea Water or Other Natural Water Source Withdrawal Intensity	Water Volume Regulated by Hydropower Plants for Electricity Generation
2020 0.08 m <sup>3</sup> /MWh	2020 23.87 m <sup>3</sup> /MWh	2020 2,275.56 m <sup>3</sup> /MWh
2021 0.08 m <sup>3</sup> /MWh	2021 33.10 m <sup>3</sup> /MWh	2021 2,274.27 m <sup>3</sup> /MWh
<b>2022</b> <b>0.08 m<sup>3</sup>/MWh</b>	<b>2022</b> <b>37.11 m<sup>3</sup>/MWh</b>	<b>2022</b> <b>2,246.65 m<sup>3</sup>/MWh</b>

Category	Unit	Year 2020	Year 2021	Year 2022
Fly Ash	Tonne	78,183.21	152,605.28	158,790.28
Bottom Ash	Tonne	194,414.13	243,874.85	288,116.33
Others (Used Oil, Contaminated Items, E-Waste, Gas Condensate, Contaminated Soil and Chemicals)	Tonne	320.27	652.97	420.96
<b>Total Scheduled Waste Generation</b>	<b>Tonne</b>	<b>272,917.61<sup>2</sup></b>	<b>397,133.10<sup>1</sup></b>	<b>447,327.57*</b>

Building Business's Resilience Through Climate-Related Disclosures

Output

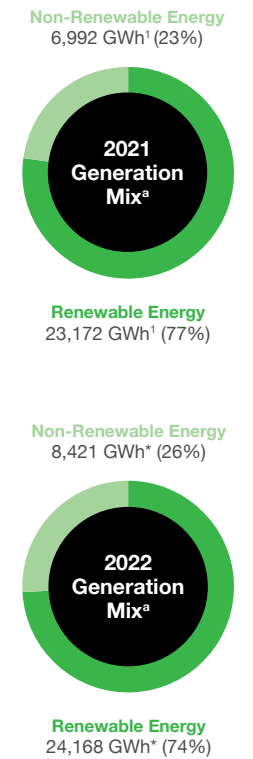
Scope 1 Emissions	Unit	2020	2021	2022
Main Grid	tCO <sub>2</sub> eq	5,600,892.97 <sup>2</sup>	5,976,874.06 <sup>1</sup>	6,483,137.99*
Northern Grid	tCO <sub>2</sub> eq	97,829.99 <sup>2</sup>	100,595.84 <sup>1</sup>	104,238.93*
Stand-alone Grid	tCO <sub>2</sub> eq	9,176.85 <sup>2</sup>	8,818.18 <sup>1</sup>	9,958.58*
Company-owned Vehicle	tCO <sub>2</sub> eq	4,167.74	3,766.89	2,112.89*
<b>Total</b>	<b>tCO<sub>2</sub>eq</b>	<b>5,712,067.55</b>	<b>6,090,054.97</b>	<b>6,599,448.39*</b>

Scope 2 Emissions	Unit	2020	2021	2022
Building Electricity Consumption (Offices & Substations)	tCO <sub>2</sub> eq	13,447.19 <sup>2</sup>	11,991.48 <sup>1</sup>	12,809.42*

Scope 3 Emissions	Unit	2020	2021	2022
Business Air Travel	tCO <sub>2</sub>	565.13 <sup>2</sup>	252.42 <sup>1</sup>	1,922.01*

Scope 1 and Scope 2 Emissions Intensity	Unit	2020	2021	2022
Scope 1 Emissions Intensity (normalised by gross energy)	tCO <sub>2</sub> eq/MWh	0.201	0.196	0.197
Scope 1 Emissions Intensity (normalised by net energy)	tCO <sub>2</sub> eq/MWh	0.206	0.201	0.201
Scope 2 Emissions Intensity (normalised by gross energy)	tCO <sub>2</sub> eq/MWh	0.000474	0.000387	0.000382
Scope 2 Emissions Intensity (normalised by net energy)	tCO <sub>2</sub> eq/MWh	0.000485	0.000395	0.000391

Scheduled Waste Generation Intensity				
Type of Waste	Unit	2020	2021	2022
Fly Ash	t/GWh	2.77	5.20	5.08
Bottom Ash	t/GWh	6.90	8.31	9.22
Others (Used Oil, Contaminated Items, E-Waste, Gas Condensate, Contaminated Soil and Chemicals)	t/GWh	0.01	0.02	0.01
<b>Total Scheduled Waste Generation Intensity</b>	<b>t/GWh</b>	<b>9.69<sup>2</sup></b>	<b>13.54<sup>1</sup></b>	<b>14.32*</b>



**Notes:**  
 1. Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.  
 2. Scope 3 emissions (business air travel) are calculated using ICAO Carbon Emissions Calculator as on 9 June 2023.  
 \* Net energy generated.

The Science Based Targets Initiative (SBTi)

As part of our transition to a low-carbon economy, we are committed to setting science-based emissions reduction targets within the scopes that are relevant to our business operations. This commitment is in line with our support for the Paris Accord, which seeks to limit global temperature rise to 1.5°C above pre-industrial levels by 2030.

We utilise Science Based Targets initiative (SBTi) to better understand our emissions performance and develop an emissions reduction intervention action plan. We are among one of the 2,151 organisations in the world that pledge their support for UNGC's Business Ambition for 1.5°C in year 2022.

To ensure Sarawak Energy stays on course with its decarbonisation targets, we use the Sectoral Decarbonisation Approach (SDA) trajectory of the SBTi tool to provide a transparent comparison.

201-1, 3-3

# Shaping a Low-Carbon Economy

201-1  
Shaping a Low-Carbon Economy



Operating Expenses Ratio  
**36.86%**



Renewable Energy Generated  
**24,167.73 GWh\***



Economic Value Distributed  
**RM4,418.50 Million**

Sarawak Energy consistently conducts environmentally friendly business practices and leverages renewable sources to provide clean and reliable electricity to the state and region. Our pace and capabilities in generating sustainable economic activities throughout our supply chain enables the state and its inhabitants to enjoy and leverage on the benefits.

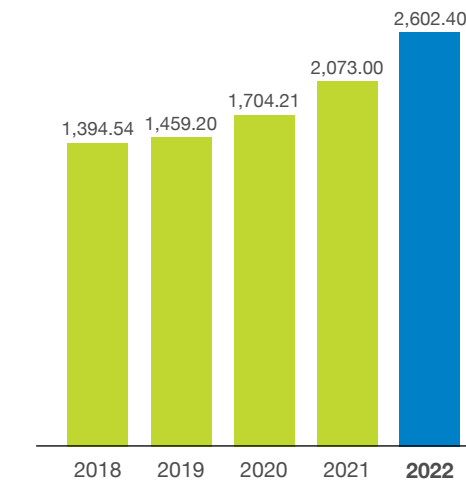
### Building a Sustainable Sarawak

In the year under review, RM4.42 billion was distributed through operating costs, employee remuneration, interest paid and taxes. This resulted in RM2.64 billion\* in economic value retained compared to RM2.44 billion<sup>1</sup> in 2021.

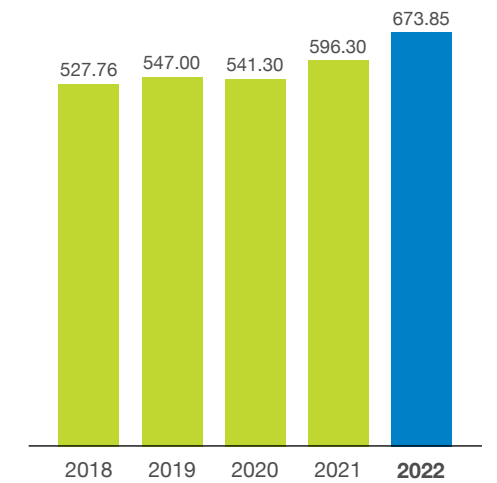


### Economic Value Distributed (RM Million)

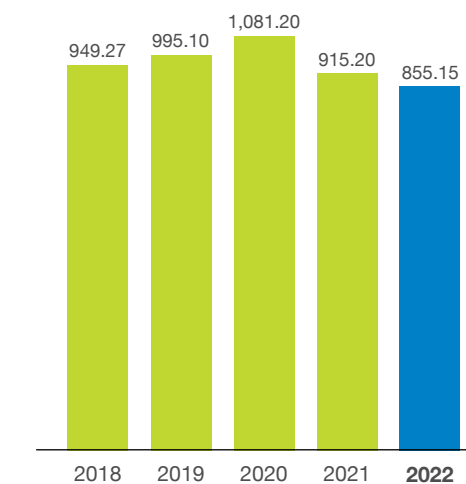
Operating Costs



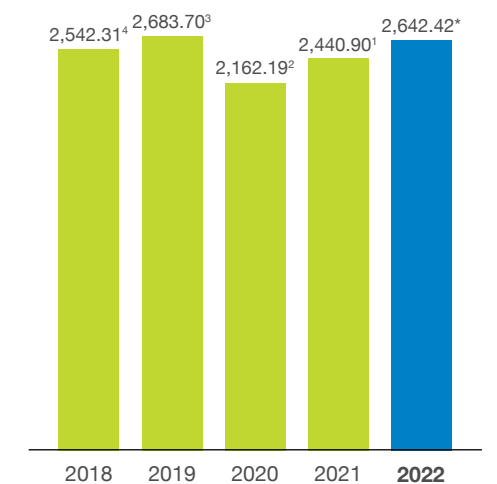
Employee Remuneration



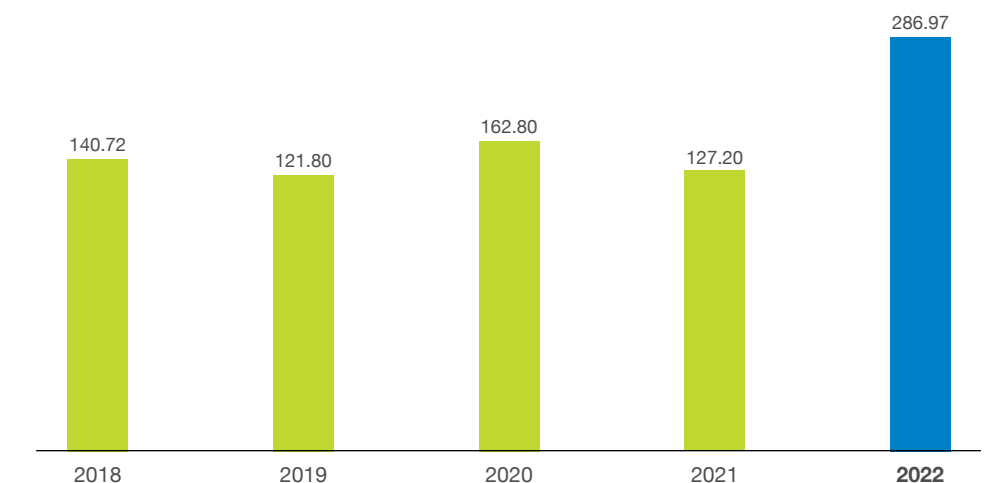
Payments to Capital Providers - Interest Paid



Economic Value Retained



Payments to the Government - Income Taxes Paid (Net of Refunds)



### Shaping a Low-Carbon Economy

Electricity Sales (GWh)

**+9%**  
From 2021

Net Profit Margin Ratio

**+190%**  
From 2021

Operating Expenses Ratio (%)

**+9%**  
From 2021

Operating Costs (RM)

**+26%**  
From 2021

Electricity Sales (RM) Per Sarawak GDP<sup>a</sup>

**3%**

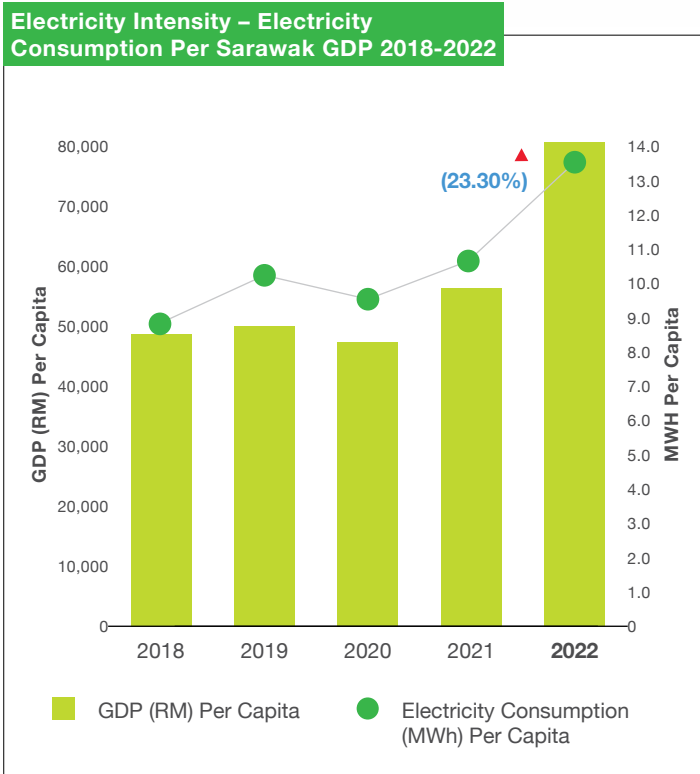
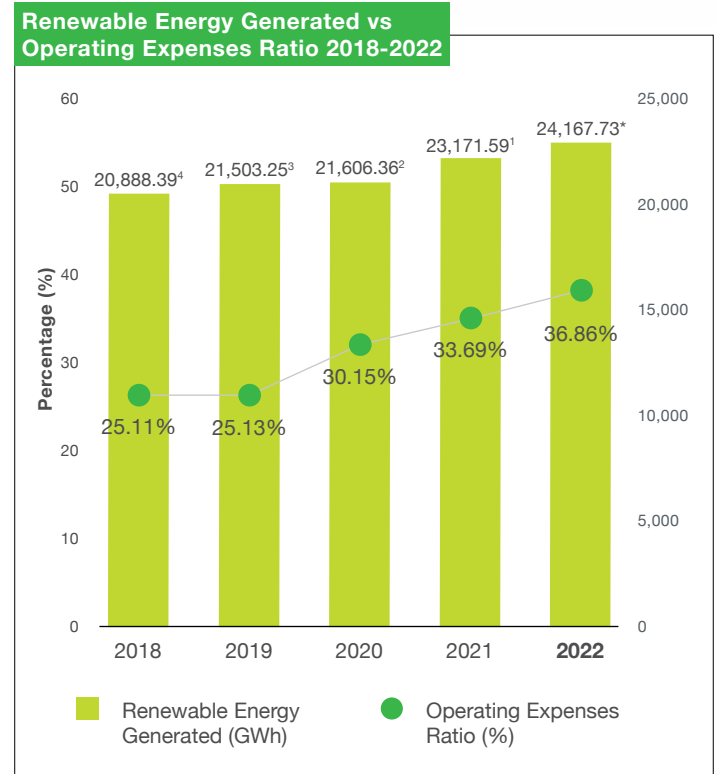
Electricity Consumption Per Capita

**+23%**  
FROM 2021

Total Electricity Sales

**31,278GWh**

Note:  
<sup>a</sup> GDP for State of Sarawak in 2022 is based on current prices.



#### Electricity Sales (GWh)

By Customer Type	2018	2019	2020	2021	2022
Domestic	2,368	2,401	2,620	2,867	<b>2,916</b>
Commercial	2,857	2,767	2,584	2,620	<b>2,973</b>
Industrial	2,367	2,297	2,329	2,298	<b>2,656</b>
Public Lighting	110	104	109	109	<b>113</b>
Bulk Customers	18,123	19,620	18,569	20,696	<b>22,620</b>
<b>Total Electricity Sales</b>	<b>25,825</b>	<b>27,189</b>	<b>26,211</b>	<b>28,590</b>	<b>31,278</b>

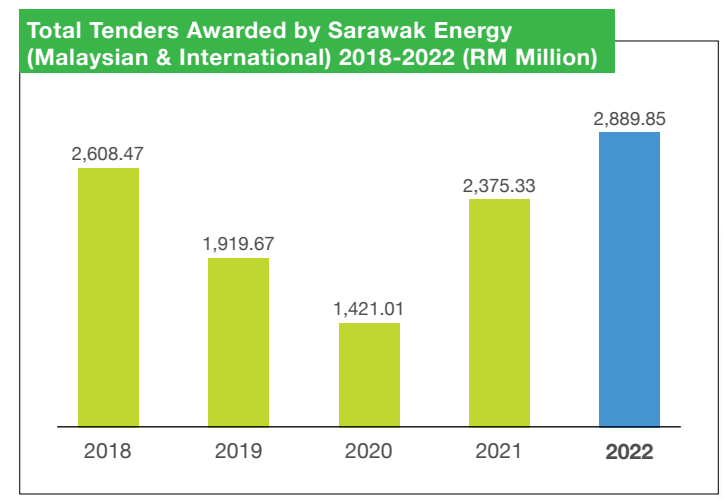
### Shaping a Low-Carbon Economy

#### Forecasted Demand to Increase to ~5,000 MW by 2025

Committed Demand (MW)	2018	2019	2020	2021	2022
Organic Customers	1,358	1,426	1,440	1,523	<b>1,647</b>
Bulk Customers (incl. export)	2,296	2,424	2,478	2,880	<b>2,894</b>
<b>Total Committed Demand (MW)</b>	<b>3,654</b>	<b>3,850</b>	<b>3,918</b>	<b>4,403</b>	<b>4,541</b>

#### Malaysian vs International (RM Million)

Status	2018	2019	2020	2021	2022
Malaysian	1,482	1,568	1,265	1,818	<b>2,511</b>
International	1,126	352	156	557	<b>379</b>
<b>Overall Total</b>	<b>2,608</b>	<b>1,920</b>	<b>1,421</b>	<b>2,375</b>	<b>2,890</b>



#### Establishing Supply Chain Value Creation

Sarawak Energy remains committed to helping Sarawak attract investors which can lead to sustainable growth for local businesses and the state as a whole. As Sarawak's main energy provider, we constantly engage with the State's vendors and businesses to establish strong connections and ease operations. In 2022, we awarded the majority of our projects, valued at RM2,511 million, to Sarawakian and Malaysian (non-Sarawakian) companies. Sarawakian businesses won 78% of the projects worth RM2,243 million\*. Our total value of projects appreciated in 2022 as we worked towards expanding the business.

Tenders Awarded	Status	2018	2019	2020	2021	2022
Capital Works	Sarawakian	625,917,773.91 <sup>4</sup>	416,366,166.99 <sup>3</sup>	114,555,097.49 <sup>2</sup>	335,983,187.44 <sup>1</sup>	<b>295,198,815.38*</b>
	Malaysian (Non-Sarawakian)	266,245,214.38	274,575,584.00	44,542,098.60	226,103,506.14	<b>32,522,488.80</b>
	International	1,095,210,392.28	299,412,243.00	117,782,423.00	528,705,566.15	<b>100,626,345.66</b>
Operations and Maintenance	Sarawakian	564,066,169.62 <sup>4</sup>	822,335,735.58 <sup>3</sup>	1,037,245,113.37 <sup>2</sup>	1,061,052,945.37 <sup>1</sup>	<b>1,947,373,513.08*</b>
	Malaysian (Non-Sarawakian)	26,039,763.67	54,243,444.92	68,301,534.66	194,827,901.20	<b>235,672,775.79</b>
	International	30,992,905.85	52,732,516.13	38,580,626.30	28,660,053.82	<b>278,455,646.61</b>

#### Malaysian vs International (RM Million)

Status	2020	2021	2022
Sarawakian	1,152 <sup>2</sup> (81%)	1,397 <sup>1</sup> (59%)	<b>2,243* (78%)</b>
Malaysian	113 (8%)	421 (18%)	<b>268 (9%)</b>
International	156 (11%)	557 (23%)	<b>379 (13%)</b>
<b>Overall Total</b>	<b>1,421 (100%)</b>	<b>2,375 (100%)</b>	<b>2,890 (100%)</b>

203-1, EU10

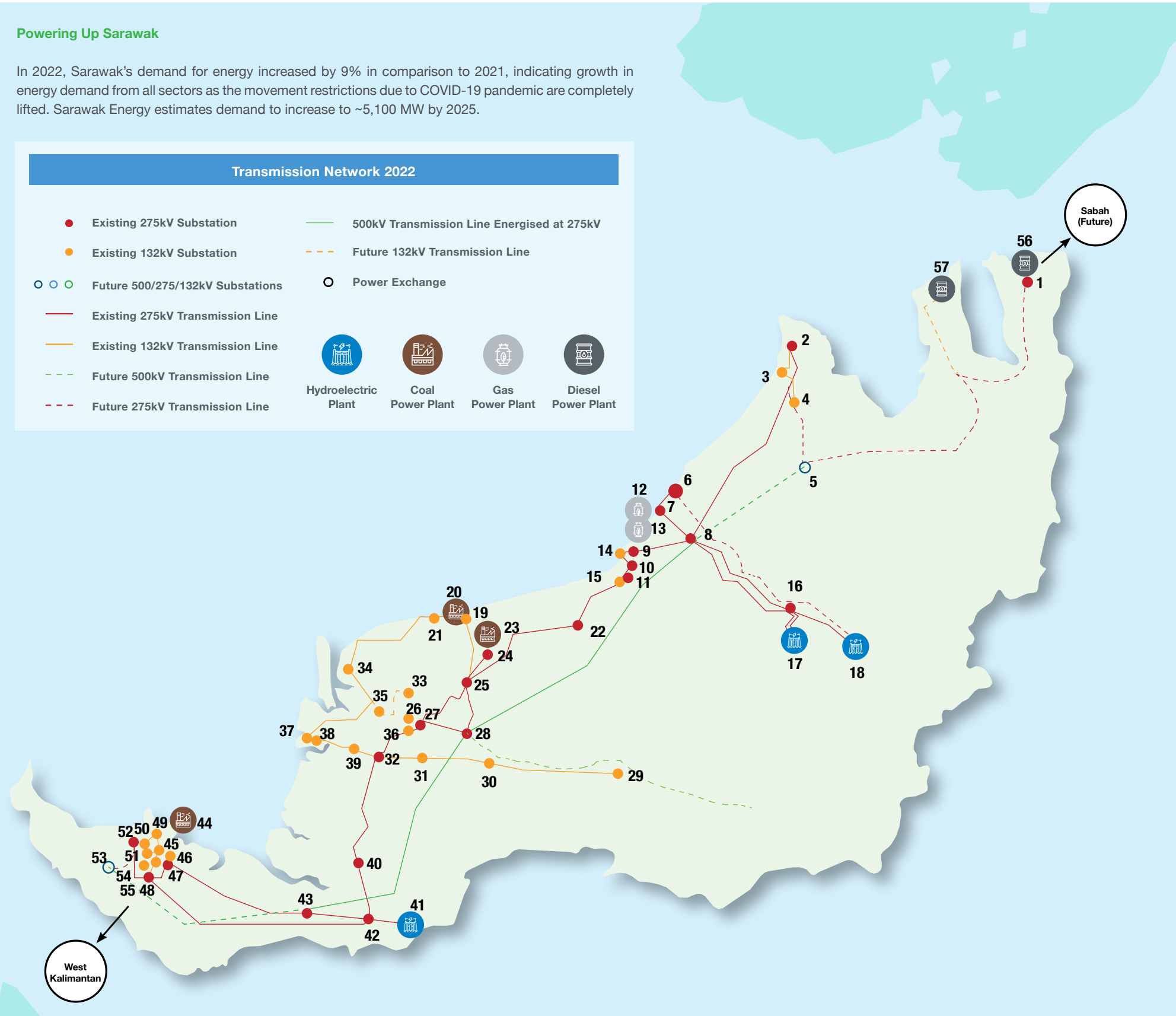
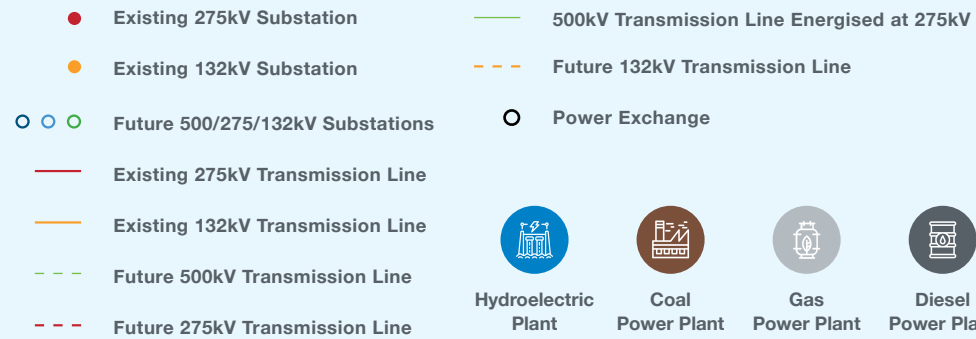
## Shaping a Low-Carbon Economy

## Shaping a Low-Carbon Economy

### Powering Up Sarawak

In 2022, Sarawak's demand for energy increased by 9% in comparison to 2021, indicating growth in energy demand from all sectors as the movement restrictions due to COVID-19 pandemic are completely lifted. Sarawak Energy estimates demand to increase to ~5,100 MW by 2025.

#### Transmission Network 2022



- 1 Lawas 275/33kV S/S
- 2 Tudan 275/132/33kV S/S
- 3 Eastwood 132/33kV S/S
- 4 Marudi Junction 275/132/33kV S/S
- 5 Bunut 500/275/33kV S/S
- 6 Samalaju B 275/132/33kV S/S
- 7 Samalaju 275/132/33kV S/S
- 8 Similajau 500/275/33kV S/S
- 9 Bintulu 275/132kV S/S
- 10 Bintulu B 275/132kV S/S
- 11 Kemena 275/132/33kV S/S
- 12 Tanjung Kidurong CCGT P/S 826MW
- 13 Sarawak Power Generation P/S 280MW
- 14 Tanjung Kidurong 132/33/11kV S/S
- 15 Sibiyu 132/33/11kV S/S
- 16 Murum Junction 275/33kV S/S
- 17 Bakun HEP 2,520MW
- 18 Murum HEP 944MW
- 19 Matadeng 132/33kV S/S
- 20 Mukah Power Generation P/S 243MW
- 21 Petian 132/33kV S/S
- 22 Tatau 275/132/33kV S/S
- 23 Balingian P/S 578MW
- 24 Balingian 275/33kV
- 25 Selangau 275/132/33kV S/S
- 26 Deshon 132/33kV S/S
- 27 Oya 275/132/33/11kV S/S
- 28 Mapai 500/275/33kV S/S
- 29 Kapit 132/33/11kV S/S
- 30 Song 132/33/11kV S/S
- 31 Kanowit 132/33/11kV S/S
- 32 Kemantan 275/132/33/11kV S/S
- 33 Sg. Merah 132kV S/S
- 34 Daro 132/33kV S/S
- 35 Sg. Maaw 132/33kV S/S
- 36 Salim 132/33kV S/S
- 37 Tanjung Manis B 132/33kV S/S
- 38 Tanjung Manis 132/33/11kV S/S
- 39 Sarikei 132/33/11kV S/S
- 40 Serudit 275/132/33kV S/S
- 41 Batang Ai HEP 94MW
- 42 Engkilili 275/33/11kV S/S
- 43 Lachau 275/33kV S/S
- 44 Sejingkat Power Corporation P/S 80MW
- 45 Muara Tabuan 132/33kV S/S
- 46 Samajaya 132/33kV S/S
- 47 Entinggan 275/132/33kV S/S
- 48 Mambong 275/132/33kV S/S
- 49 Sejingkat 132/33kV S/S
- 50 Astana 132/33kV S/S
- 51 Mendu 132/33kV S/S
- 52 Matang 275/132/33kV S/S
- 53 Tondong 500/275/33kV S/S
- 54 Semenggo 132/33kV S/S
- 55 Stakan 132/33kV S/S
- 56 Lawas P/S 15.6MW
- 57 Limbang P/S 22MW

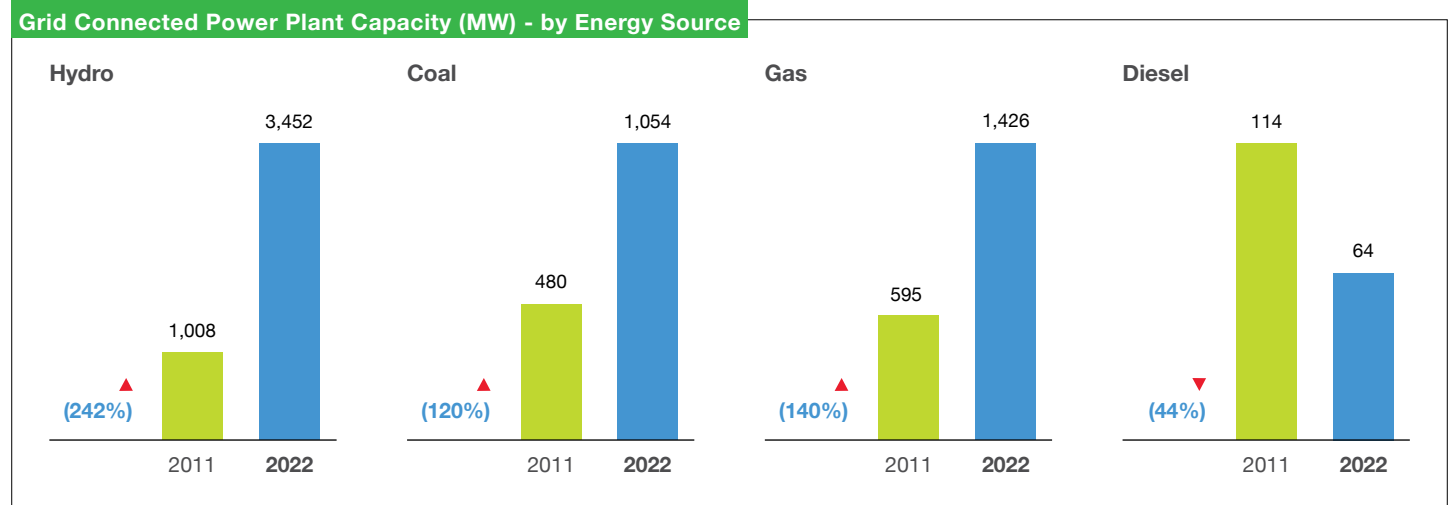


EU1, EU29, EU30  
Shaping a Low-Carbon Economy

Making Low-Carbon Economy Into Reality

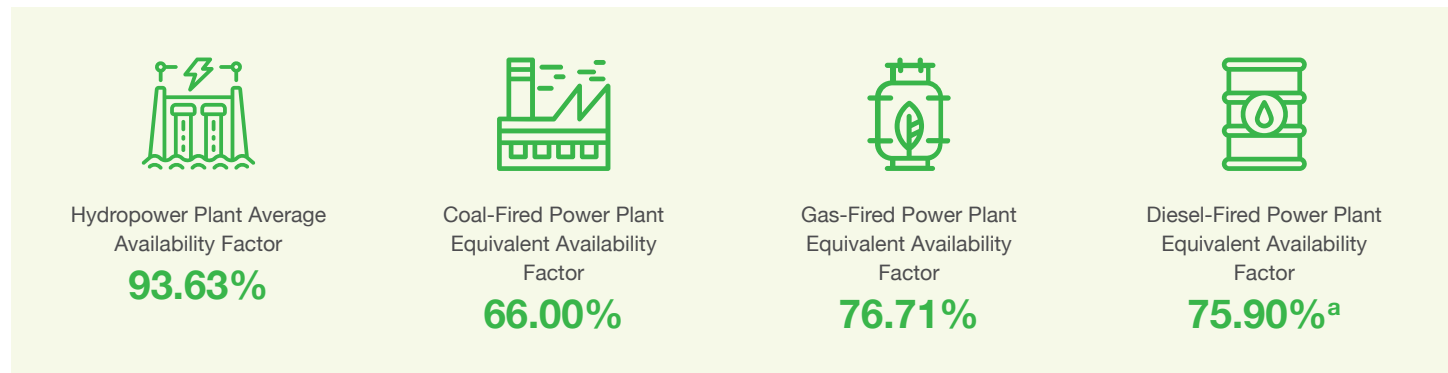
Grid Connected Power Plant Capacity (MW) – By Energy Source

In the year under review, the Company's grid connected power plant capacity increased to 5,996MW from the total installed capacity of 5,358 MW in 2021.



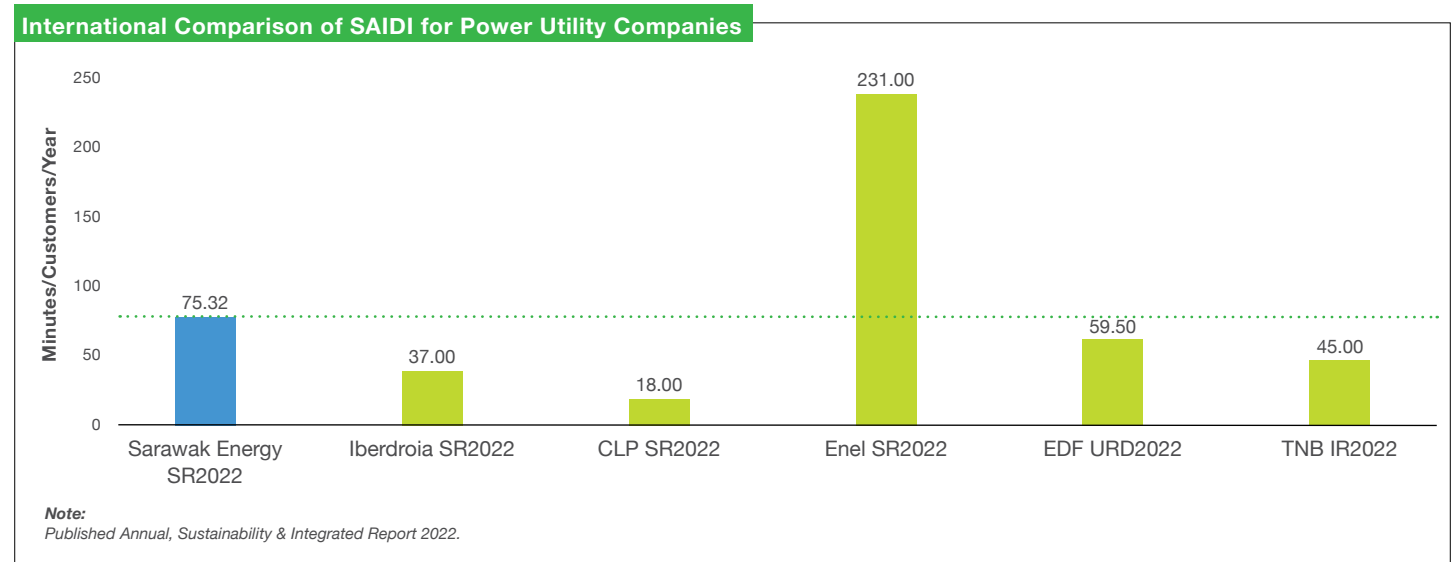
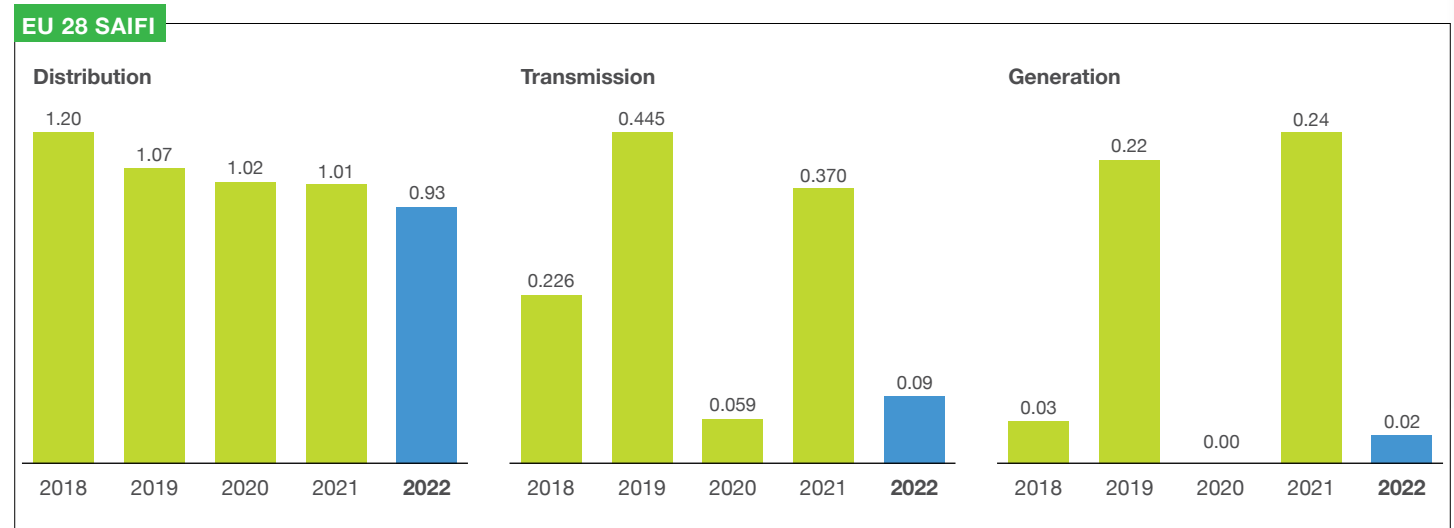
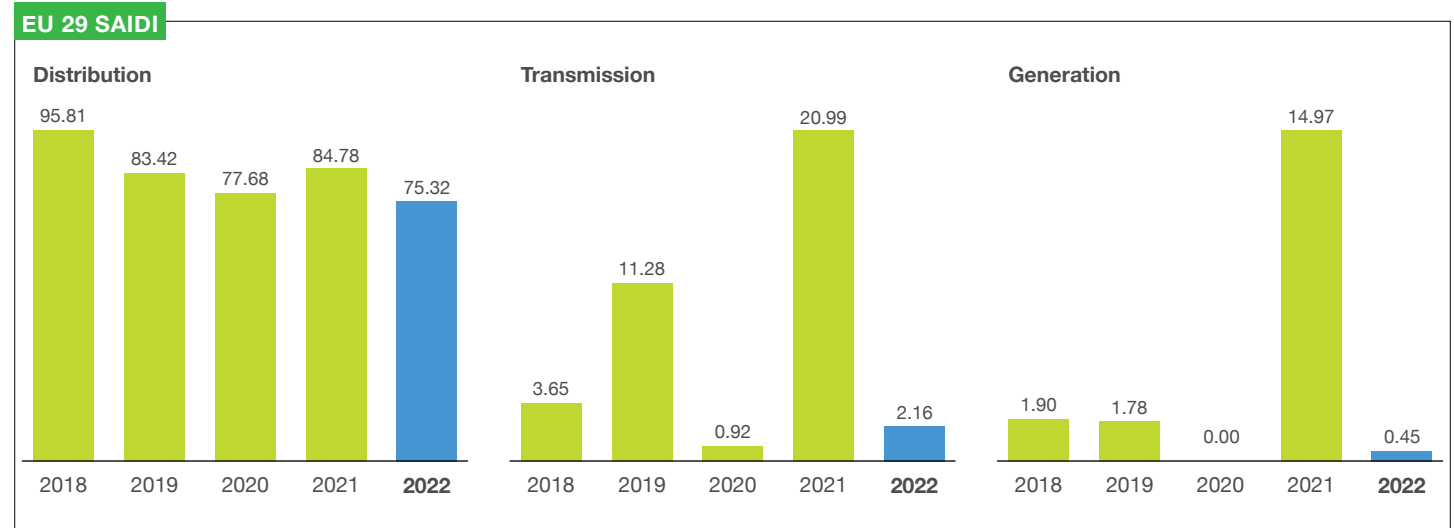
Ensuring Consistency and Trust

Sarawak Energy takes great satisfaction in holding the track record of being a reliable energy supplier, providing strong power supply at the plant, transmission and distribution stages. This reflects our efforts in striving for excellence to provide outstanding service to customers.



Notes:  
1. Equivalent Availability Factor (EAF) and Availability Factor (AF) using simple average.  
<sup>a</sup> Consists of Sg. Biawak, Limbang & Lawas Diesel-Fired Power Plants.

EU28, EU29  
Shaping a Low-Carbon Economy



Note:  
Published Annual, Sustainability & Integrated Report 2022.

EU12, 3-3

## Shaping a Low-Carbon Economy

### Transmission and Distribution Losses

In 2022, transmission and distribution losses remained steady as a result of our efforts to enhance system efficiency and implementations to combat power theft. Some of the initiatives included the replacement and refurbishment of transmission lines and transformers, the introduction of new injection points, the installation of energy-efficient amorphous transformers and restoration of capacitor banks. Additionally, there was an increase in electricity theft related to cryptocurrency mining operations. This was attributed to the increase in value of cryptocurrency and the reduced frequency of meter inspections during lockdown periods.

The Non-Technical Loss (NTL) has been hovering above 4% from 2018 to 2021, which is an increase compared to 2017 (3.78%). However, in 2022 the NTL has been reduced to 3.23% with the implementation of new strategies and continuous efforts from the team to curb the electricity theft in the State.

Despite the challenges faced in 2022, we continued combating electricity theft by focusing on meter inspection at shophouses, residential areas, meters at gate posts and HV meters. A total of 33 Executive Action (EA) operations had been successfully carried out and 15 press releases on power theft were released to raise public awareness.

In 2022 we continued focusing on illegal cryptocurrency mining premises. This is an ongoing effort to curb the mining operators and we managed to raid 54 cryptocurrency mining operations in the state detected with tampered meter and wirings, or directly connected to the service line without meters.

#### No. of Cases and Losses (RM) Due to Cable Theft

Year	2018	2019	2020	2021	2022
<b>Losses (RM)</b>	1,090,595.11	2,114,769.76	214,147.00	1,280,148.44	<b>1,332,565.56</b>
<b>No. of Cases</b>	122	588	148	123	<b>187</b>

Distribution losses occurred for technical or non-technical reasons. Technical losses are caused by power dissipation in the system components such as transmission and distribution lines, transformers and measurement systems. Non-technical losses are due to actions external to the power system and consist primarily of electricity theft, non-payment by customers and errors in accounting and record-keeping. In 2022, non-technical losses decreased to 3.23 % from 4.14% in 2021, while technical losses stood at 6.29% in 2022 with just a slight drop from 6.47% in 2021.

Description	2018	2019	2020	2021	2022
<b>Transmission Losses (%)</b>	1.99	2.17	2.32	2.50	<b>2.52</b>
<b>Distribution Losses (Technical) (%)</b>	6.33	6.43	6.59	6.47	<b>6.29</b>
<b>Distribution Losses (Non-Technical) (%)</b>	4.47	4.41	4.05	4.14	<b>3.23</b>

## Shaping a Low-Carbon Economy

We strive to reduce technical and non-technical losses to minimise energy disruption. We have in place a Technical Losses Management System for Distribution Technical Losses estimation development, which reduces errors in calculation and allows for better monitoring and accurate data.

#### Combating Power Theft in 2022

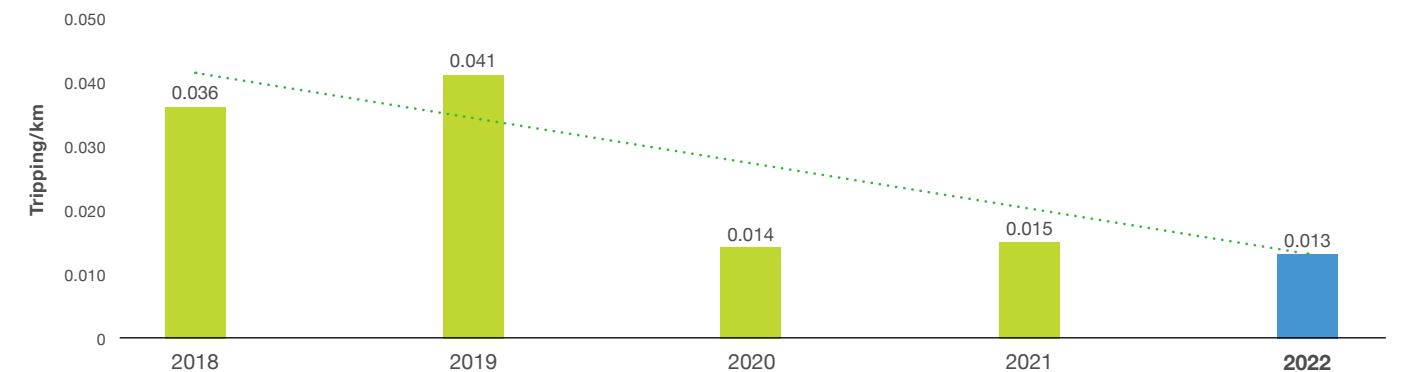
- Electricity theft operations
- Increased public awareness through Power Theft Campaign
- Increased daily and weekly patrolling at copper theft prone areas
- Installed CCTVs at remote zone substations
- Conducted ongoing tests on the use of remote sensing technology to detect opening of distribution pillar doors and intrusions into substations
- Cryptocurrency mining operator detection and raid
- Enhancement of Fraud Detection Analytics
- Close collaborations with authorities and enforcement agencies
- Replaced theft prone materials such as copper cables, earthing wires and mains wiring with aluminium power cables, Copper Clad Steel (CCS) conductors and steel wire
- Enhanced equipment installation practices to deter theft and vandalism through:
  - ▶ Anti-theft earthing protection by installing copper wires above ground through GI pipe filled with concrete. Copper wires located underground are wrapped with barbed wire and encased in 100mm x 100mm concrete
  - ▶ Copper theft mitigation at shophouses by reinforcing mains wiring with galvanised steel sheets and raw bolts
  - ▶ Reduction of equipment theft at substations through the additional use of padlocks, installation of flat bars, encasing LT cables in concrete; spot weld bolts and nuts of pillars and transformer busbars

#### Number of Transmission Tripping

Total Number of Transmission Tripping and Tripping Intensity at Transmission:

Year	2018	2019	2020	2021	2022
<b>Substation</b>	22	29	15	12	<b>15</b>
<b>Transmission</b>	58	69	53	64	<b>49</b>
<b>Total</b>	80	98	68	76	<b>64</b>
<b>Transmission Tripping Intensity (Tripping/km)</b>	<b>0.036</b>	<b>0.041</b>	<b>0.014</b>	<b>0.015</b>	<b>0.013</b>

#### Transmission Tripping Intensity (Tripping/km)



EU27  
Shaping a Low-Carbon Economy

The number of accounts disconnected in Kuching, Sibul, Sarikei, Bintulu, Miri, Limbang and Lawas saw a sharp increase from 8,808 in 2021 to 13,608 in 2022. Following the receipt of RM13.87 million, a total of 11,413 accounts were reconnected and the power for 10,178 accounts were restored within 24 hours after payments were made.

Summary of Payment and Reconnection by Categories

Year	<48 Hours	48 – 1 Week	1 Week – 1 Month	1 Month – 1 Year	> 1 Year
2018	17,830	1,518	138	78	0
2019	13,669	1,188	233	32	0
2020	9,401	973	144	276	0
2021	7,857	516	390	480	0
2022	8,698	1,043	618	671	9

Year	< 24 Hours	24 Hours – 1 Week	> 1 Week
2018	19,304	348	32
2019	14,841	397	24
2020	9,047	891	89
2021	8,695	326	90
2022	10,178	531	562

Breakdown of Disconnected and Reconnected Accounts

Year	Total Accounts Disconnected	Total Amount Disconnected (RM)	Total Accounts Reconnected	Total Amount Reconnected (RM)
2018	11,461	49,260,770	9,542	31,030,807
2019	7,961	48,033,995	6,253	22,334,925
2020	11,312	35,567,618	9,135	18,939,264
2021	8,808	19,431,684	7,267	12,675,901
2022	13,608	27,490,239	11,413	13,870,686

Power Theft Arrears Bill Recovery

Continuous efforts were made to recover electricity theft arrears bills issued. From 2010 to 2021, a notable sum of approximately RM175.73 million had been recovered successfully. In 2022, a total of RM13.61 million were recovered from the arrears of customers.

Sarawak Energy will continue to work closely with local enforcement agencies, increase the knowledge of meter inspection teams across the region and collaborate with China Light Power (Hong Kong) on the research and development of a fraud analytics model to better identify and detect potential power theft.

403-2  
Shaping a Low-Carbon Economy

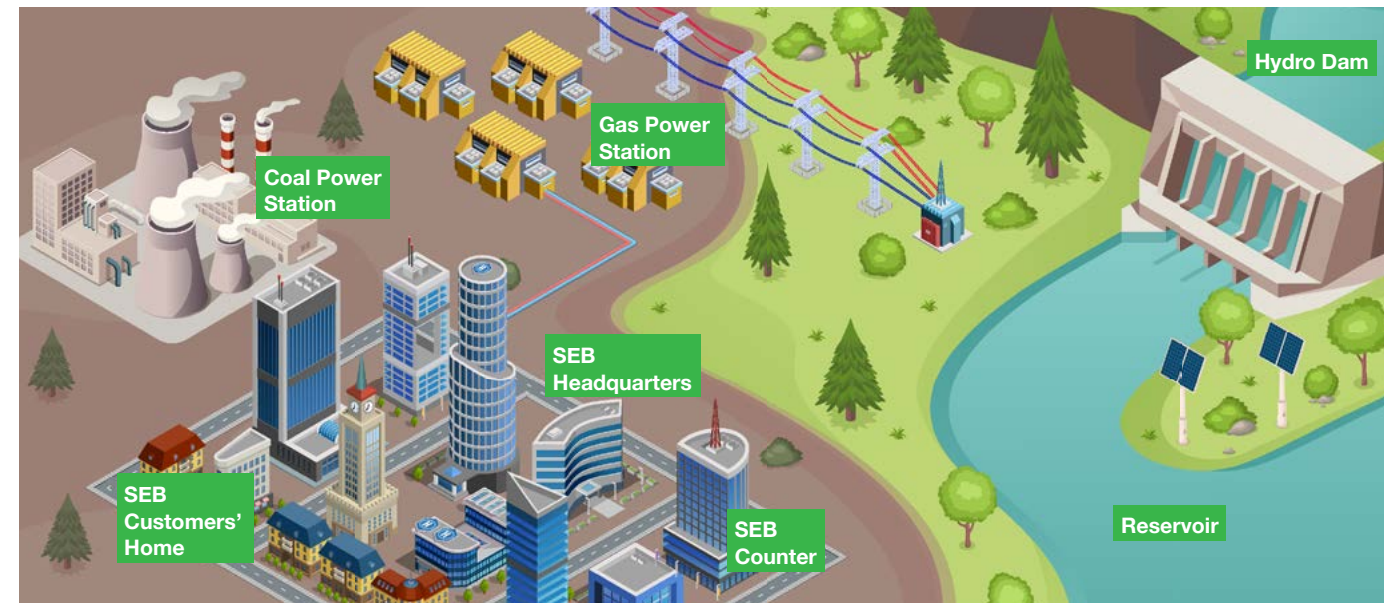
Business Continuity Management (BCM)

We adhere to our Business Continuity Management (BCM) Framework which is aligned with both local and international BCM standards. The framework was established in 2016 to proactively protect our stakeholders' interests, enhance the Company's reputation, and ensure the continuity of value creation initiatives through practical solutions. It also fosters close collaboration with authorities during crises or disaster situations. The framework is in line with ISO 22301:2012, ISO 22313:2012, and the relevant Malaysian and international BCM standards and guidelines.

Read more about **Business Continuity Management (BCM)** on page 67.

Sarawak Energy's BCM Policy Statement

Through our BCM Programme, Sarawak Energy is committed to maintaining and ensuring the continuity of our services in order to minimise the impact to its stakeholders in the event of any service disruptions



Note: For illustration purposes.

BCM Implementation

In 2022, our BCM framework covered emergency response, business continuity plan (BCP), training, testing and improvements in 20 locations.

Why BCM

Customers and Stakeholders

- ▶ Readiness to respond in a timely manner to major emergencies and crises
- ▶ Safeguard the interests of key stakeholders
- ▶ Increase customers and stakeholders' confidence and trust
- ▶ Minimise threats to life, health & safety

Environment

- ▶ Reduce potential impact of environment risks
- ▶ Achieve sustainable development
- ▶ Safe working environment

Financial

- ▶ Prevent losses to Company (revenue and assets)
- ▶ Reduce insurance premium and duration of any disruption
- ▶ Comply with legal requirements and statutory obligations

Company's Reputation and Brand

- ▶ Safeguard Company's reputation and brand
- ▶ Manage and mitigate critical operational risks
- ▶ Improve business continuity and resiliency
- ▶ Aligned with international BCM standards and best practices

## Shaping a Low-Carbon Economy

### Milestones Achieved

We continued to build and strengthen our BCM strategies amidst the unprecedented global economic disruption caused by COVID-19. We activated:

- Implementation to cover more locations
- Benchmarking with international best practices
- Improvement in emergency response and crisis management
- Continuous awareness and competency development
- Continuous sustainability initiatives

Upon the removal of pandemic restrictions, our BCM proceeded to reactivate physical activities including fire drills, evacuation drills, dam safety emergency drills, business recovery exercises and crisis simulation desktop walkthrough exercises for all the major power stations and regional offices.

The BCM team also organised workshops, site visits and roundtable discussions with well-established organisations to facilitate benchmarking and knowledge exchange regarding BCM and risk management practices.



Emergency evacuation drill at Murum HEP.

The regular conduct of crisis simulation exercises and emergency response drills are crucial to assess the readiness and efficiency of emergency response procedures within the Company.

## Shaping a Low-Carbon Economy

### Dam Safety And Emergency Drills

To ensure that employees are well-versed in all aspects of safety procedures, Sarawak Energy continued to roll out Dam Safety Emergency drills in 2022. These drills underscored the importance of adhering to established protocols to mitigate the risk of incidents and LTIs, encompassing a range of safety and emergency exercises, as well as stakeholder engagement sessions, as detailed below:

#### Disaster/Emergency Planning & Response

- Outreach Session on Dam Safety Awareness (DAMSA) with Sarikei District Disaster Management Committee (DDMC)
- Murum Dam Safety Emergency Drill Exercise
- Bakun Dam Safety Emergency Drill Exercise
- DAMSA Sharing Session with Community (CSR programme) at Sg. Mepi, Batang Ai
- Batang Ai Dam Safety Emergency Drill Exercise

#### In-House Dam Safety Training Programmes

- Generation Academy 2022
  - ▶ Introduction to Civil Assets
  - ▶ Civil Assets Management Programme
- Monitoring Dam Practices in Sarawak Energy Talk
- Training on Using Global Navigation Satellite System (GNSS), Total Station and Other Survey Equipment at Batang Ai
- Train the Trainer Dam Safety Emergency Plan
- Dam Safety Emergency Plan Workshop

### Customer Service Excellence

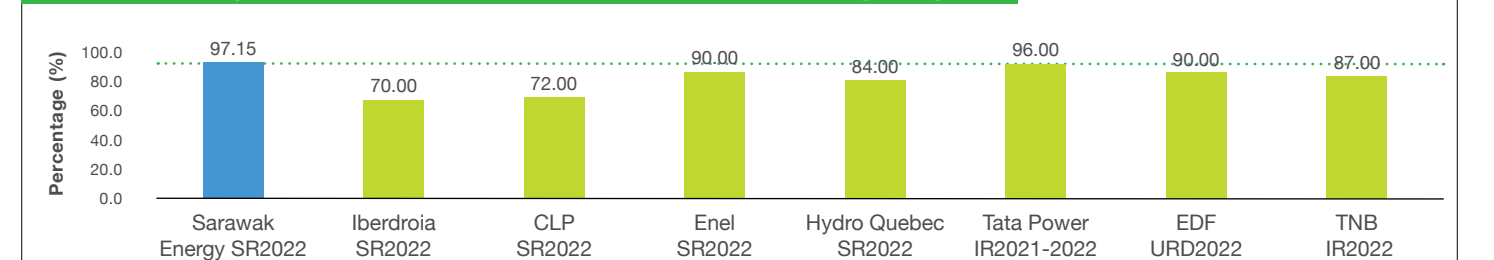
Generating innovative solutions to fulfil the needs of our customers remain a top priority for our customer service teams. We reach out to our customers via social and mass media, encouraging them to utilise our available customer service platforms, Sarawak Energy Cares web and mobile. The platforms facilitate billing and meter reading, payments, enquiries and reporting of technical issues. Apart from that, embracing digitalisation also offers the advantage of supporting Sarawak's digital transformation initiatives and enhancing sustainability by minimising the need for paper submissions.

The COVID-19 pandemic and the country's current transition to the endemic phase created an opportunity for our customer service teams to find innovative solutions to elevate customer experience. In achieving customer service excellence, we further increased our Customer Satisfaction Index (CSI) rating from 96.51% in 2021 to 97.15% in 2022. This increase is attributed to the role of our Customer Care Centre (CCC), which continuously engages with our customers in meeting and addressing their needs and issues through unwavering top customer service excellence.

We will continue to leverage digital platforms to enhance customer experience apart from reaching out to our customers via social and mass media advertisements to raise awareness about our mobile app and online facilities.

Year	2018	2019	2020	2021	2022
Customer Satisfaction Index	94.72%	95.08%	95.20%	96.51%	97.15%

#### International Comparison of Customer Satisfaction Index for Power Utility Companies



Note: Published Annual, Sustainability & Integrated Report 2022.

3-3

## Shaping a Low-Carbon Economy

### Enhancing Our E-Customer Experience (eCX)

Our eCX system which is designed for the online submission of power supply applications, offers a seamless user experience and contributes to the digital transformation in Sarawak by cutting down paper consumption. This system enhances contactless experience for customers and provides support through its chatbot, Carina, via Sarawak Energy’s corporate website and the SEB Cares platform.

Launched in 2020, the eCX system aims to facilitate and expedite online applications for electricity supply and provides a range of services including Change of Name, Supply Upgrading/Downgrading and Requests for Meter Testing – providing a convenient digital platform for counter-based services. Additionally, the eCX system enables electrical consultants and internal wiring contractors to submit bulk electricity supply applications.

During the global pandemic, the implementation of our online supply application portal, eCX has encouraged contactless interaction between consultants, contractors and our internal users, in line with the Sarawak Digital Transformation Roadmap, which aspires to drive digitalisation in society by 2030.



#### Advantages of eCX

- Registration and renewal have become more efficient and transparent, enabling faster reviews and approvals
- Paperless transactions, reducing our carbon footprint, and saving time and space
- Updates users in real-time and allows them to monitor the progress of their applications

During the endemic phase, we continued to see more customers using our chatbot services. In 2022, a total of 27,927 users were engaged with Carina, our chatbot compared to 9,214 chatbot users in 2021. Moreover, as of December 2022, Carina achieved a Customer Service Rating of 87.6%, indicating that our customers have adapted to the services offered by our chatbot.

Additionally, our Salesforce CRM successfully completed its implementation in 2021 and is now transitioning into the mature phase with minor adjustments to improve processes like case management. Previously overseen by the Fulfilment Team, enquiry cases are now managed by our Customer Care Centre Executives (CCE). To ensure cases are handled efficiently, specific case statuses and sub-statuses in CRM are regularly updated, providing a progress report on customers cases. This allows case owners such as CCEs and team leads to monitor and follow-up until the case is resolved and closed.

### Payment Kiosks

As part of our efforts to accelerate our digitalisation journey, we have installed 12 new payment kiosks located in rural stations. We currently have 37 payment kiosks located statewide and we aim to install more in 2023/2024 to reduce waiting and serving time at counters.

Furthermore, in October 2021, we introduced the Sarawak Energy Appointment System in Kuching, and in 2022 we have expanded our appointment system in Sri Aman, Sibul, Sarikei, Bintulu and Miri. This system enables customers to make online appointments before visiting our branches, reducing the need for walk-ins, in compliance to COVID-19 safety measures.

### Sarawak Energy Mobile App SEB Cares

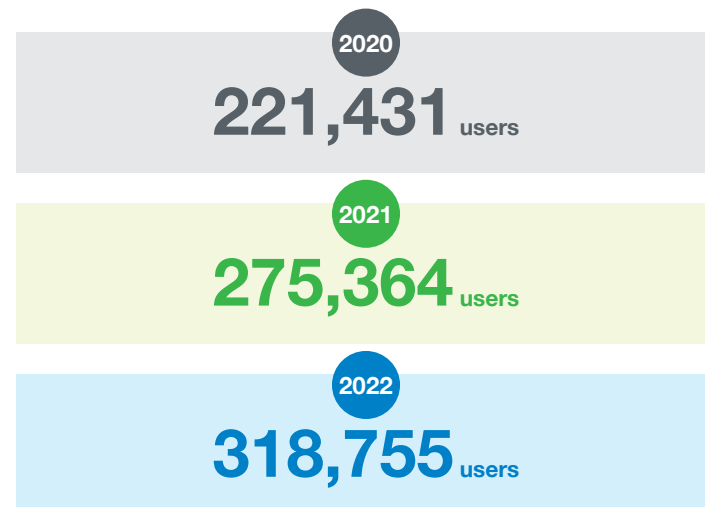
The SEB Cares mobile app was developed to enhance customer’s payment performance and improve their overall user experience. The app also enables the delivery of updates as well as event and programme notifications. In 2021, the app was upgraded to allow:

- Express Payments – enabling payments from the app for any contract account number, without the need for registration of account and subscription to e-billing services
- Payments made via SEB Cares are updated in real-time into our SAP Billing system

Since the pandemic, SEB Cares has experienced an increase in user registration, as many customers utilise the app to view their account and make bill payments. In 2022, SEB Cares received a total of 318,755 user registrations, up by 16% from 2021.

In 2021, the app and online services enabled Sarawak Energy to launch a “Go Paperless Campaign”. The campaign offers a monthly rebate of RM2 over a 12-month period to customers who subscribe for the e-Billing service. The campaign is currently ongoing and has been extended to December 2023.

### SEB Cares Registered Users



## Shaping a Low-Carbon Economy

### Managing Our Assets

To elevate our operational efficiencies and drive our performance, we have implemented measures aimed at strengthening our assets to align with the needs and expectations of our customers. We are committed to refining and enhancing various processes that are integral to our operations.

#### Mobile Field Force Automation (MFFA)

The MFFA system diligently monitors and evaluates the response time of our technical field crew. This comprehensive system encompasses our operational teams stationed in Kuching, Sibul, Bintulu and Miri. Implemented in 2016, the MFFA has been incorporated with auditing, performance monitoring and enhancement features.

In 2022, we introduced an offline mode to enable users to utilise the system without internet access. We also implemented an electronic Permit to Work (PTW) system, designed to regulate hazardous work related to high-risk activities. This system allows users to issue and receive PTWs electronically, streamlining the entire process.

#### Enterprise Management System

We continued to enhance the Enterprise Asset Management (EAM) work order management and mobility system for our end users. Our EAM has been fully extended to Rural Operations since 2021. Among the improvements we rolled out in 2022 were:

- Direct Assignment to Crew Lead
- Enabled report development for Rural Operation, Distribution Substation Maintenance progress and TLO Vegetation Management Work Order

Going forward, we aim to automate the computation of the Distribution System Reliability Indices to replace the current manual computation method, which is susceptible to human error.

#### Geographical Information System (GIS)

In 2022, we implemented measures aimed at enhancing our asset management capabilities, leveraging digitalisation to assist us in the mapping of activities and the efficient management of our network. The following are the improvements we made to our GIS:

- By employing the ArcGIS Enterprise as a tool, our GIS team was able to successfully develop a new web application to present the distribution of network assets and customers’ locations within Sarawak Energy’s GIS. This greatly facilitates the work of our Distribution and Retail departments. The new web application was completed in November 2022
- The GIS team conducted practical training sessions for regional GIS Operators, equipping them with the skills and knowledge to utilise open-source software such as the Quantum Geographical Information System (QGIS) for updating and maintaining near real-time datasets into the centralised spatial data repository

Going forward, we aim to propel our GIS transformation journey forward and explore the integration of ArcGIS Utilities Network Extension in 2023. This extension will enable us to model our distribution network and enhance our power source and outage tracing capabilities.



303-2, 305-7

# Enhancing Climate Resilience for Sustainability



## Hydro

Water for Power Generation

**54,667.53 million m<sup>3</sup>\***

Total Annual Water Volume Intensity for Energy Generation

**2,246.65 m<sup>3</sup>/MWh**



## Thermal

Water Withdrawn (Cooling process)

**1,232 million m<sup>3</sup>\***

Seawater or Other Natural Water Source Withdrawal Intensity

**37.11 m<sup>3</sup>/MWh**

SO<sub>x</sub> and NO<sub>x</sub> Emissions Intensity (Main Grid)

**SO<sub>x</sub>: 8.10 x 10<sup>-5</sup> kgSO<sub>x</sub>/kWh**

**NO<sub>x</sub>: 1.08 x 10<sup>-4</sup> kgSO<sub>x</sub>/kWh**

## Water Management

Water plays a crucial role in all our operational processes and activities. It is the primary energy source for our hydroelectric facilities and is a vital element in the cooling systems of our thermal power plants. Our steadfast commitment lies in the responsible use and sustainable management of water resources. To this end, we continuously invest in innovative technologies aimed at reducing our environmental footprint on natural water resources.



303-1, 303-2, 304-1, 304-2

## Enhancing Climate Resilience for Sustainability

### Sarawak Energy's Integrated Catchment Management Strategy – Safeguard Upstream Water Resources

#### Catchment Management Policy, Procedures and Guidelines For Hydropower

	Management Technical	Technical
	Good Practices in Catchment Management	Water Resource, Hydrology & Sedimentation
	Hydropower Sustainability Standard (HSS)	Reservoir Storage & Lifespan
	Addressing Sustainability Issues – Long-Term Risks	Maintenance
	Realignment – International, National & State Levels	Biodiversity
	Advocating and Communicating Good Catchment Management Practices	Social & Environment

The scope of work for the Catchment Management Study consists of three main components:

#### Overview of the Overall Catchment Management Study

- Catchment Management Policy**
  - Conservation & Gazettement
  - Land Use
- Catchment Management Procedures & Guidelines**
  - Socio-economic & Livelihood
  - Conservation Planning & Priority Conservation Area
  - Stakeholder Engagement
  - Management Practices
  - Catchment Management Roadmap
- Catchment Management Initiatives**
  - Inventory of Biodiversity – Heart of Borneo (HoB)
  - Information & Monitoring - Common Baselines
  - Sedimentation Management
  - Ecosystem Services
  - Monitoring Land Use
  - Environmental Flow

301-1 Enhancing Climate Resilience for Sustainability

Annual Water Volume Intensity for Energy Generation

Hydro Plant	Data	Unit	2018	2019	2020	2021	2022
Batang Ai	Annual Inflow	Million m <sup>3</sup>	3,576.00	2,852.00	4,255.00	3,651.00	3,277.00
	Annual Water Volume for Energy Generation	Million m <sup>3</sup>	3,646.50 <sup>4</sup>	2,844.00 <sup>3</sup>	3,974.38 <sup>2</sup>	3,617.61 <sup>1</sup>	3,534.20*
	Annual Energy Generated	GWh	481.00	391.00	518.00	476.00	470.00
Murum	Annual Inflow	Million m <sup>3</sup>	7,737.00	8,183.00	9,993.00	9,660.00	10,791.00
		Million m <sup>3</sup>	7,932.00	7,482.00	8,321.00	8,321.00	9,416.00
	Annual Water Volume for Energy Generation	Million m <sup>3</sup> (including EPS)	8,022.00 <sup>4</sup>	7,532.00 <sup>3</sup>	8,548.94 <sup>2</sup>	8,583.01 <sup>1</sup>	9,496.38*
	Annual Energy Generated	GWh	6,094.00	5,714.00	6,415.00	6,484.00	7,178.00
Bakun	Annual Inflow	Million m <sup>3</sup>	40,481.00	40,373.00	55,730.00	49,894.00	50,884.00
	Annual Water Volume for Energy Generation	Million m <sup>3</sup>	36,148.11 <sup>4</sup>	38,827.00 <sup>3</sup>	36,965.72 <sup>2</sup>	40,874.51 <sup>1</sup>	41,636.95*
	Annual Energy Generated	GWh	14,482.00	15,544.00	14,803.00	16,376.00	16,681.00
<b>Total Annual Water Volume for Energy Generation</b>		Million m <sup>3</sup>	47,816.61 <sup>4</sup>	49,203.00 <sup>3</sup>	49,489.05 <sup>2</sup>	53,075.13 <sup>1</sup>	54,667.53*
<b>Total Annual Water Volume Intensity for Energy Generation (Hydro Main Grid Gross Energy)</b>		m <sup>3</sup> /MWh	2,273.42	2,271.48	2,275.56	2,274.27	2,246.65

3-3 Enhancing Climate Resilience for Sustainability

Advancing Sustainable Hydropower Initiatives for a Greener Future

As we strive to cultivate a more sustainable future, it is important to execute significant initiatives to reduce our carbon footprint while meeting the escalating energy demands. Our efforts are focused on managing our resources efficiently, mitigating risks and optimising power generation. During the reporting period, we implemented the following initiatives:

Establishment of Murum Weather Station

As part of our hydrometric network expansion development project, the Murum Weather Station at Murum HEP was installed on 25 July 2022 to facilitate the monitoring and recording of real-time weather data at Murum HEP.

Generation Asset Management Initiatives

In 2022, we developed and initiated condition-monitoring technologies and programmes within SEB POWER such as vibration, thermography, dissolved gas analysis, partial discharge and oil quality, which are utilised as condition-based maintenance techniques to sustain and enhance asset reliability. We also developed and implemented modules on Enterprise Asset Management, which is a computerised maintenance management system and a material management system. These digital solutions operate within the SAP platform, to sustain and enhance asset reliability by providing comprehensive support for SEB POWER's operation, maintenance and reliability processes in power generation.

Enhancing the Operational Performance of Bakun HEP

In the last three consecutive years, the Bakun Equivalent Availability Factor (EAF) has consistently maintained a performance level exceeding 90%, attaining its target of Forced Outage Rate below 1%. The main factors contributing to these outages were due to mechanical brake failures, slip ring flashovers and broken servomotor rods. Despite such challenges, Bakun's total electricity generation experienced a growth of 1.1% compared to 2021.

Apart from that, Bakun has successfully conducted reliability testing, enabling Units 1 to 4 to operate at 10% higher capacity or 30MW higher across all units, generating a capacity of up to 330MW per unit. This has substantially increased Bakun's overall generation capacity to 2,520MW. Furthermore, the machine was able to run in a stable manner during the Load Rejection Test which was conducted in March 2022.

Other improvement measures taken in 2022 included:

- A Generator Testing and Model Validation was conducted in October 2022 to enhance the performance of generator responses during disturbances, such as power trips within a unit or power plant. This comprehensive process included fine-tuning the Governor and Excitation system. Prior to conducting the test, our consultant performed an in-depth desktop study, which yielded positive results and improved quality of responses. This allowed for better management of disturbances, enhanced the power quality and ensured grid stability
- The Automatic Tube Cleaning System (ATCS) and Partial Discharge Retrofitting are two of the major ongoing improvement projects to enhance the monitoring and performance of the machines. The ATCS is an automated system designed to clean the Heat Exchanger at four-hour intervals to prevent fouling or scaling in the tubing. Presently, six out of ten ATCS units have been installed and have successfully reduced the labour-intensive cleaning work of the Heat Exchanger, resulting in cost savings of approximately RM600,000
- Enabled measurement of Partial Discharge (PD), which is an indication of insulation issue in electrical equipment. Arising from localised electrical stress concentrations in the insulation or on its surface, PD will become more intense and hazardous. Over time, the deterioration can persist and escalate, resulting in a flashover, extensive asset damage and power outage. To minimise such risks, PD measurement is a reliable and non-intrusive method that can be used to assess the condition of an electrical asset. We also conduct PD online monitoring and detection to record real-time data for analysis to detect and prevent severe failure of the stator winding insulation, ensuring long-term, reliable operations of electrical equipment. To date, six out of eight PD monitoring systems have been installed and commissioned, enabling remote monitoring from the Bakun Main Control Room



303-1, 303-3

### Enhancing Climate Resilience for Sustainability

#### Water Withdrawal

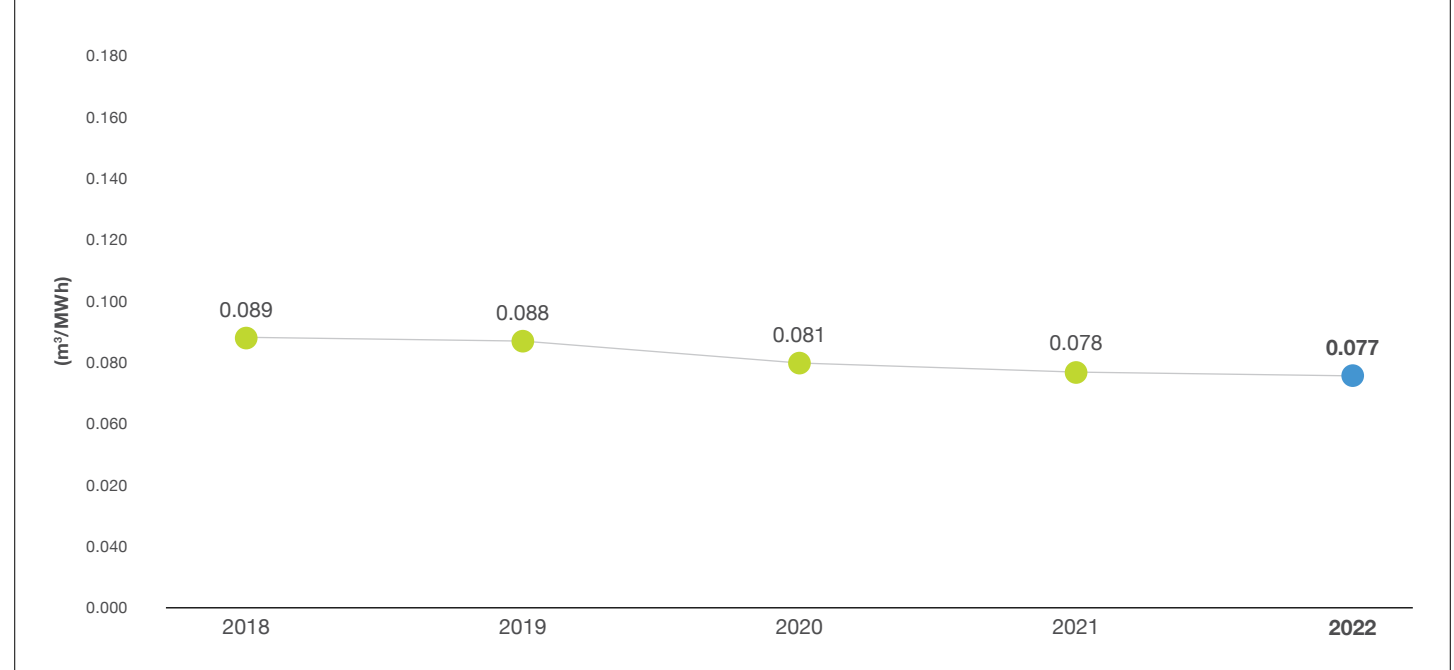
In the year under review, water withdrawal increased due to the commissioning of a new block at the Tanjung Kidurong Combined Cycle Power Plant and the resumption of MPG's unit 1 operation. Our water is sourced from the sea and rivers, which is used in the cooling processes at our thermal power plants.

Plant Type	Source	Unit	2018	2019	2020	2021	2022
Coal	Municipal	m <sup>3</sup>	2,186,120.00 <sup>4</sup>	2,204,029.00 <sup>3</sup>	2,007,712.00 <sup>2</sup>	1,965,834.00 <sup>1</sup>	2,110,812.00*
	Sea Water or other natural water source	m <sup>3</sup>	739,325,453.18 <sup>4</sup>	724,178,991.74 <sup>3</sup>	569,688,758.40 <sup>2</sup>	528,585,158.70 <sup>1</sup>	507,079,011.12*
Combined Cycle - Natural Gas	Municipal	m <sup>3</sup>	229,836.00 <sup>4</sup>	353,319.00 <sup>3</sup>	279,765.00 <sup>2</sup>	435,583.00 <sup>1</sup>	434,769.00*
	Sea Water or other natural water source	m <sup>3</sup>	227,489,565.60 <sup>4</sup>	241,935,030.72 <sup>3</sup>	104,047,121.52 <sup>2</sup>	491,928,176.88 <sup>1</sup>	729,470,134.50*
Diesel	Municipal	m <sup>3</sup>	13,952.50 <sup>4</sup>	6,896.13 <sup>3</sup>	1,731.51 <sup>2</sup>	4,417.00 <sup>1</sup>	5,673.66*
	Sea Water or other natural water source	m <sup>3</sup>	69,650.00 <sup>4</sup>	- <sup>3</sup>	- <sup>2</sup>	- <sup>1</sup>	-*

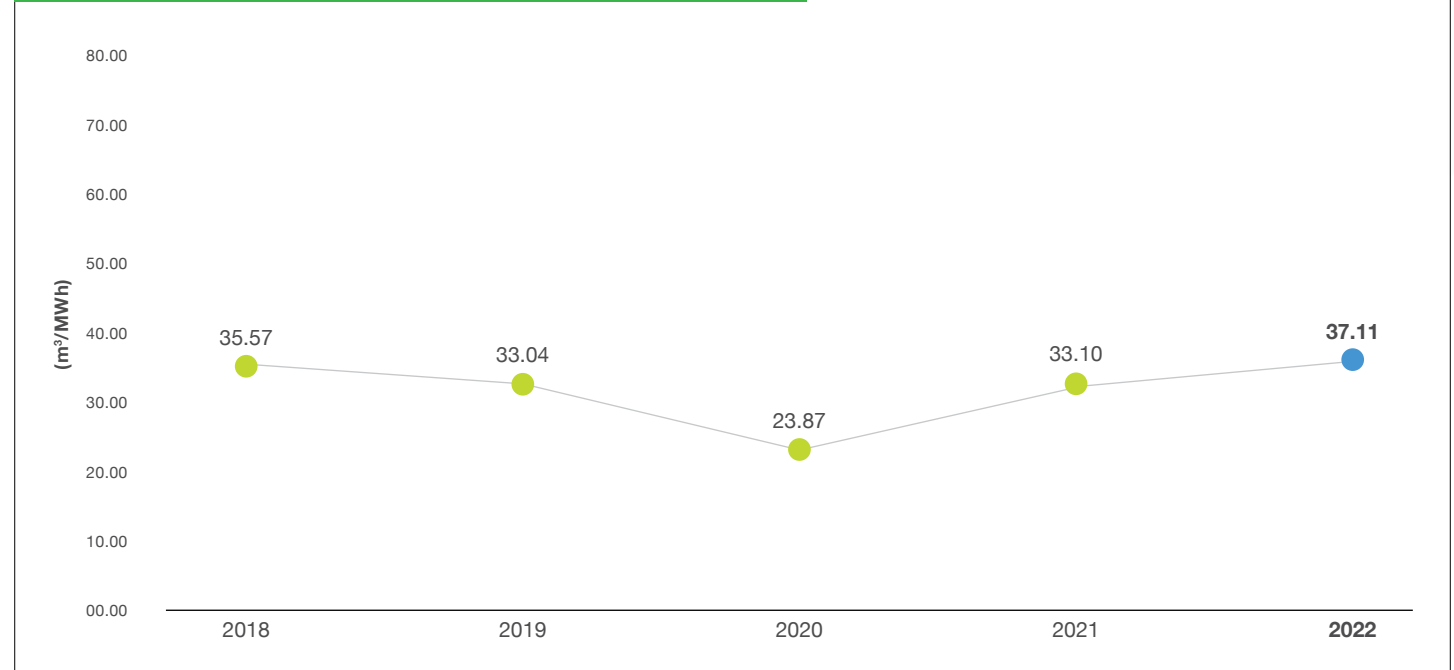
Water Withdrawal Intensity by Source (Thermal Plants MWh)	Unit	2018	2019	2020	2021	2022
Municipal Water Withdrawal Intensity (Thermal)	m <sup>3</sup> /MWh	0.089	0.088	0.081	0.078	0.077
Sea Water or Other Natural Water Source Withdrawal Intensity (Thermal)	m <sup>3</sup> /MWh	35.57	33.04	23.87	33.10	37.11

### Enhancing Climate Resilience for Sustainability

#### Municipal Water Withdrawal Intensity (Thermal & Hydro Plants)



#### Natural Water Source Withdrawal Intensity (Thermal & Hydro Plants)

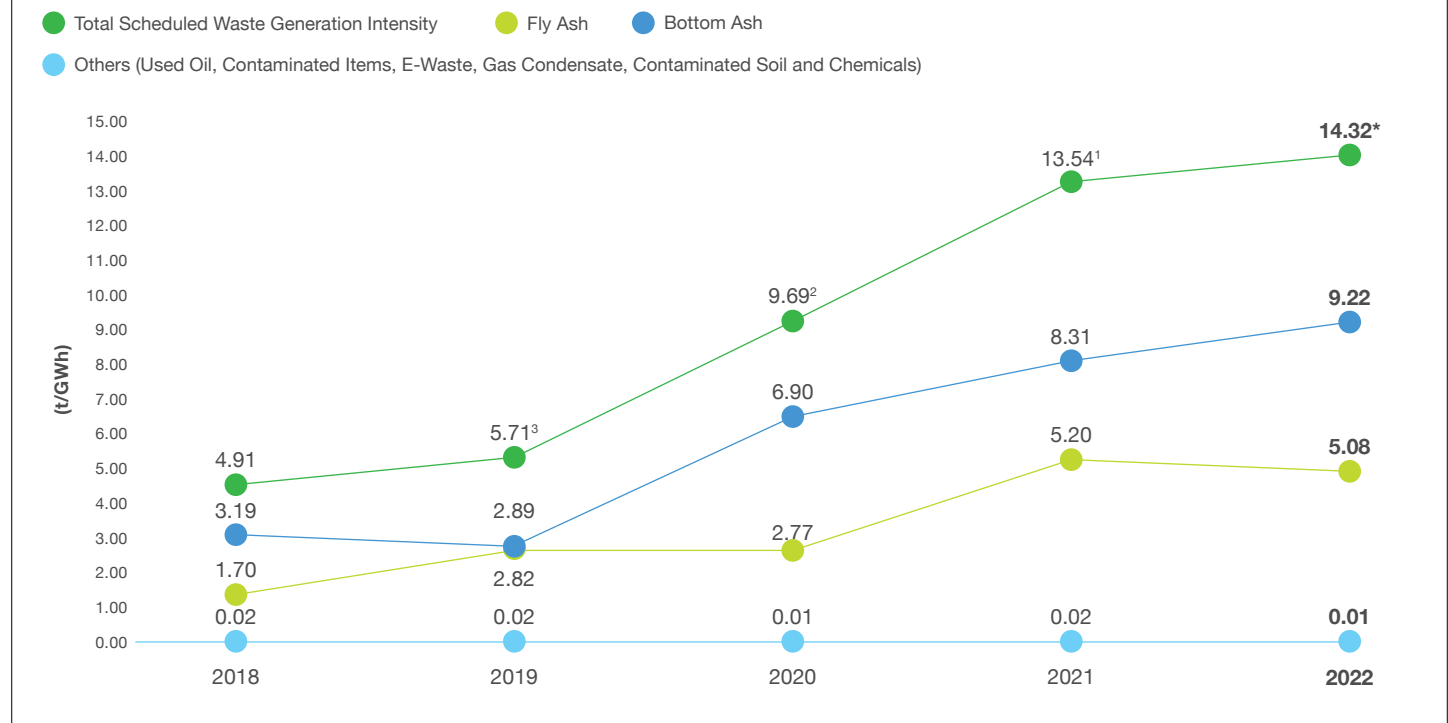


## Enhancing Climate Resilience for Sustainability

### Scheduled Waste Management

We are committed to ensuring our scheduled waste is disposed responsibly as per the Environmental Quality (Scheduled Wastes) Regulation 2005. Monthly inventory reporting continues to be implemented throughout our operations, while external contractors are engaged for the collection and responsible disposal of our scheduled waste. In 2022, there were no fines or penalties recorded in relation to non-compliances with laws and regulations.

#### Scheduled Waste Generation Intensity



Parameter	Unit	Year				
		2018	2019	2020	2021	2022
<b>Total SO<sub>x</sub> &amp; NO<sub>x</sub> Emissions</b>						
SO <sub>x</sub>	Tonne	1,656.62	454.33	3,589.52	858.73	<b>2,639.73</b>
NO <sub>x</sub>	Tonne	1,046.51	2,307.27	5,433.16	2,251.75	<b>3,528.49</b>
<b>SO<sub>x</sub> &amp; NO<sub>x</sub> Emissions Intensity</b>						
SO <sub>x</sub>	Kg/kWh	0.000062	0.000017	0.00013	0.000028	<b>0.000081</b>
NO <sub>x</sub>	Kg/kWh	0.000039	0.000085	0.00020	0.000075	<b>0.00011</b>

## Enhancing Climate Resilience for Sustainability

### Upholding Environmental Compliance

Sarawak Energy remains committed to complying with all applicable laws and regulations as part of HSE Excellence under Key Focus Areas (KFA). Our Internal Environmental Compliance Audit (IECA) is a fundamental component of our commitment to ensuring our operations consistently align with EIA conditions and other environmental regulations. The IECA is a self-regulatory process that is conducted internally to identify instances of non-compliance and implement corrective actions and preventive measures before any inspections by third-parties or regulatory authorities are conducted. The audit is executed across all 14 of our major projects that require EIA/EMP approval, conducted quarterly for projects including substations, transmission lines, coal mining, the Balingian operator village and Tanjung Kidurong Combined Cycle Power Plant. It is also conducted annually for the Baleh HEP.

In 2022, all Sarawak Energy projects in the construction stage recorded zero penalties/fines from Federal or State environmental authorities.

### Optimising Environmental Compliance Through Training

To drive environmental excellence throughout our operations, it is essential to enhance contractors' skills and knowledge in environmental management and regulations. Therefore, we provide training and workshops on a wide spectrum of topics that are applicable to our business and operations, such as environmental management, regulatory requirements, erosion and sediment control and scheduled waste management.

### Biodiversity Conservation

Biodiversity conservation is vital to preserve the health of our planet and protect the well-being of our people. It is a shared responsibility and requires concerted efforts to protect and restore the diversity of life on earth. To this end, Sarawak Energy is committed to protecting important flora and fauna in Sarawak. In 2021, we established the Biodiversity Conservation Committee (BCC) with the primary objective of streamlining biodiversity conservation efforts across Sarawak Energy. This strategic step also serves to enhance our capacity to conduct research and implement conservation measures in line with our objectives and international best practices, including HSAP<sup>a</sup>, HESG<sup>b</sup>, ESMS<sup>c</sup> and the United Nations Sustainable Development Goals (UN SDG) disclosures.

Additionally, the BCC actively advocates and recommends policies to relevant government stakeholders and promotes environmental and social innovation in line with international best practices and Sarawak's vision. The BCC is chaired by various department heads who report directly to the Group Executive Committee and convene quarterly.

In 2022, the BCC tabled three meetings with its core members, addressing a total of 13 agendas such as Corporate Biodiversity Policy, Procedure and Guideline (PPG), 10-Year Integrated Tree Planting, Protection and Habitat Restoration Programme, Greening Sarawak (Forest Landscape Restoration) Programme: Sabal Forest Reserve and MIHEP Collaboration Proposal with Balai Taman Nasional Kayan Mentarang, among others.


**Notes:**

- <sup>a</sup> Hydropower Sustainability Assessment Protocol.
- <sup>b</sup> Hydropower Sustainability ESG Gap Analysis Tool.
- <sup>c</sup> Environmental and Social Management System.




3-3 Enhancing Climate Resilience for Sustainability


Objectives of the BBC are as follows:




To streamline biodiversity conservation initiatives throughout the organisation to drive environmental excellence




To develop internal capabilities and explore emerging biodiversity research areas as a foundation of biodiversity conservation efforts




To optimise positive impacts and minimise adverse impacts of our projects and business on biodiversity by implementing conservation measures




To promote, create, execute and oversee biodiversity conservation measures in alignment with regulatory standards and international best practices, benchmarked against global organisations such as IUCN, among others




**Biodiversity Conservation Policy & Governance**




**Biodiversity Knowledge Creation & Management**



**Protection & Conservation of Biodiversity**



**Conservation Education & Public Awareness (CEPA)**



**Collaboration & Partnership in Biodiversity Conservation**

**Corporate Biodiversity Policy, Procedure & Guideline (PPG)**

In line with the BCC Roadmap 2022 and Sarawak Energy's Key Focus Areas in HSSE Excellence to go beyond compliance in environmental stewardship, the PPG was developed and approved by the SEB Board on 29 September 2022. Detailing the Company's policy statement, the PPG provides guidelines and procedures to steer the organisation, stakeholders and CEPA in identifying key biodiversity issues and impact management approaches including Biodiversity Management Plan, Biodiversity Monitoring & Evaluation Plan and Biodiversity Action Plan. The PPG will be implemented throughout a project's lifecycle guided by key reference documents like the IHA's Guide on Biodiversity and Invasive Species. It is available for reference to all Sarawak Energy companies, projects and employees – embedding biodiversity excellence in project developments and operations.

304-1, 304-2, 413-1 Enhancing Climate Resilience for Sustainability

**Murum Plant Conservation Garden**

- In 2015, a collaborative partnership was formed with the Sarawak Forestry Corporation (SFC) to maintain a conservation garden, housing a diverse array of important plant species
- Added 250 plants in 2022, bringing the total number of plants to 1,528
- Since its establishment, plant survival rate is approximately 81.4%
- Supports the corporate-wide HSSE X Murum HEP Tree Planting Programme by planting 185 tree seedlings of Ensurai, Nyatoh, Meranti and Tongkat Ali in conjunction with Global Hydropower at Murum Flora Conservation Garden

Types of Plants/Trees	Actual no. planted in 2021	No. of Plants as of Dec 2021	Target no. to plant in 2022	Actual no. planted in 2022	No. of plants as of 2022
<b>Trees</b>					
Mixed Dipterocarp spp.	-	-	-	50	50
Gaharu	30	313	50	55	265
Ensurai	90	210	100	55	368
Tongkat Ali	35	108	20	25	133
<b>Non-Trees</b>					
Orchids	10	270	10	15	285
Ethno-Botanical Plants	25	154	10	25	179
Bamboo	25	233	10	15	248
<b>Overall Total</b>	<b>210</b>	<b>1,288</b>	<b>210</b>	<b>240</b>	<b>1,528</b>

**Sungai Lekasi Tagang System at Tegulang Murum**

- The local community actively conducts routine fish stock assessments and oversees the controlled fishing system known as Tagang
- Sarawak Energy has been working closely with the Department of Agriculture (DoA) to empower the local community with the necessary skills and knowledge to ensure the success of the project. Through the partnership, regular fish stock assessments, Ensurai tree planting and skills development have been organised within the community
- As a result of these efforts, the community has developed a strong sense of ownership and is capable of independently operating and managing the Tagang system. The fish stock for 2022 was conducted internally in collaboration with Tagang committee members
- On 7 September 2022, a training session was conducted with the DoA for Tagang committee members on Tagang management where 13 personnel from Long Wat and Long Malim participated. This was followed by a fish stock assessment via Catch Per Unit Effort (CPUE) method, to identify the healthy number of fish stock in Sungai Lekasi and to ensure regular inspection and maintenance is conducted
- Sungai Lekasi Tagang System Project shows potential as an eco-tourist site and will provide the community with a source of income. The location is pollutant-free and is a suitable habitat for sensitive fish species such as Semah and Empurau
- Going forward, we will ensure capacity building for Tagang committee members, and we will continue to collaborate with the DoA to engage and support them in the management of the Tagang system as well as eco-tourism efforts through training, site visits and community dialogue sessions

**Fish Stock Assessment 2022**

Species	Fish Stock Assessment 2022			
	Average Length (cm)		Average Weight (gm)	
	2021	2022	2021	2022
Semah	45.60	48	765	781.30
Kulong	41.30	44.34	418.30	406.80
Adong	29.60	35	220.30	266.70

**Note:**  
The average growth rate is calculated based on random samplings, benchmarked against weight measurements recorded in 2020.

304-1, 304-2, 3-3

## Enhancing Climate Resilience for Sustainability

### Amphibian and Reptile Pod

- On 23 November 2022, the Amphibian and Reptile Pod facility, located at Sarawak Energy Research and Development Laboratory Kuching was officially launched
- Established in 2021 by Sarawak Energy's Conservation Ecology unit, the project is an ex-situ conservation facility for amphibians and reptiles. The facility is an integral component of our Species Survival Programme, which is the outcome of the Sarawak Energy Hydro Environmental Sciences Research Blueprint
- The project was established to meet the following objectives:

- To implement international best practices in mitigating the impact on species as recommended in the HSAP
- To create an ex-situ conservation husbandry facility dedicated to the amphibians and reptiles native to the Baleh HEP area
- To rescue and establish sustainable assurance colonies of impacted amphibian and reptile species within the Baleh HEP area

- Currently, the pod is home to seven species of amphibians and reptiles including the endemic water skink (*Tropidophorus sebi*) and can house up to 50 amphibians and reptiles before they are released and reintroduced to alternative sites
- Expansion plans are underway to provide adequate infrastructure to accommodate more species and ensure their survival



*Tropidophorus sebi, the Baleh Water Skink.*

### Wildlife Monitoring & Rescue (WIMOR) Recce Visit to Baleh HEP

- A recce trip was organised with officers from the Forest Department Sarawak (FDS), Department of Agriculture (DoA) and Sarawak Forestry Corporation (SFC) to gain a better understanding on the Baleh area and to prepare directly impacted communities at Sg. Entawau
- The aim of the trip was also to comply with NREB's requirements, to mitigate the impacts of the Baleh HEP project on biodiversity and to implement biodiversity conservation initiatives as per the HSAP throughout the project's lifecycle

### HSSE X Murum HEP Tree Planting Programme

- In a collaboration with Murum HEP, our HSSE division launched a corporate-wide tree planting programme in line with UN Sustainable Development Goals, namely Goal 13: Climate Action and Goal 15: Life on Land
- The aim of the project is to plant/protect 500,000 trees by 2030. Currently, our corporate KPI is to plant 50,000 trees. As of December 2022, a total of 52,897 trees have been planted

306-2, 413-1, 3-3

## Enhancing Climate Resilience for Sustainability

### Advocating Environmental Awareness

As part of our commitment to environmental stewardship, we believe that promoting environmental awareness among communities and stakeholder groups is necessary. The following initiatives are aimed at instilling a sense of responsibility, encouraging sustainable practices and most importantly, addressing the current environmental challenges to create a sustainable future.

### Sarawak Energy Digitalised Waste Management 3R Programme

In 2022, the programme rolled out two initiatives to improve waste management and recycling practices:

- Awareness Talk** – The HSSE Department organised a talk in March 2022, to educate and encourage participation among internal stakeholders on Go Green initiatives. The topic was Waste Management and Internet of Waste Things (IoWT) Membership Drive in partnership with iCYCLE Malaysia Sdn Bhd
- Promotional Event** – Two internal programmes 'Aced Recyclers' (Nov 2021 to July 2022) and 'Rookie Recyclers' (1 Aug to 30 Sept 2022), were organised to encourage employees in a friendly competition to see who could collect the most recyclable waste based on total weight (kg)



'Aced Recyclers' winners.

### Denai Sungai Kebangsaan (DSK) Programme

- Launched in conjunction with Sarawak's World Environment Day 2022 on 6 August 2022, the programme is jointly organised between Sarawak Energy and the Department of Environment (DoE) Sarawak
- Aims to implement preventive measures to combat pollution via a 'control at source' approach to drive sustainability and protect the river
- Local communities, government agencies and Sarawak Energy participated in various activities organised, including 'gotong-royong' and awareness talks given by various agencies on cleanliness and river protection



'Gotong-royong' activities with Department of Environment and local communities of Kampung Stabut, Serian for the Denai Sungai Kebangsaan (DSK) Programme.

### Go Green – Beach Cleaning Programmes

- Beach Cleaning Programme at Pantai Marina, Miri (24 September 2022)** – The HSSE Department organised a beach clean-up with Miri City Council (MCC), which saw the participation of 90 Sarawak Energy employees across the region as well as MCC staff. A total of 609.9kg of waste was collected
- Beach Cleaning Programme at Pantai Kala Dana (22 June 2022)** – A programme organised between our HSSE Department and Majlis Daerah Dalat Mukah (MDDM), the beach cleaning activity was carried out by 100 participants from MDDM and Sarawak Energy counterparts. A total of 466.38kg of waste was collected
- Fun Ride and Beach Cleaning Programme at Pantai Pasir Panjang, Kuching (15 October 2022)** – Organised in conjunction with Sarawak Energy's HSSE Excellence Week 2022, the programme was a collaboration with Jawatankuasa Kemajuan dan Keselamatan Kampung (JKKK) Kampung Pantai Pasir Panjang. The programme kicked off with Fun Ride, followed by a beach clean-up which saw the participation of 90 individuals from the local community, NREB, Perjasa Sarawak, Menara Sarawak Energy, Western RO, Kuching PS and many others. A total of 309kg of waste was collected



Beach cleaning programme at Pantai Marina, Miri.

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# Fostering Sustain-Enablers Community

## Nurturing Sarawak Energy's Talents

We value our employees by investing in training and development to enable them to grow professionally. To keep our people safe, we ensure a safe and conducive working environment, so that our people will go home safely.

### Equal Opportunities for Employees

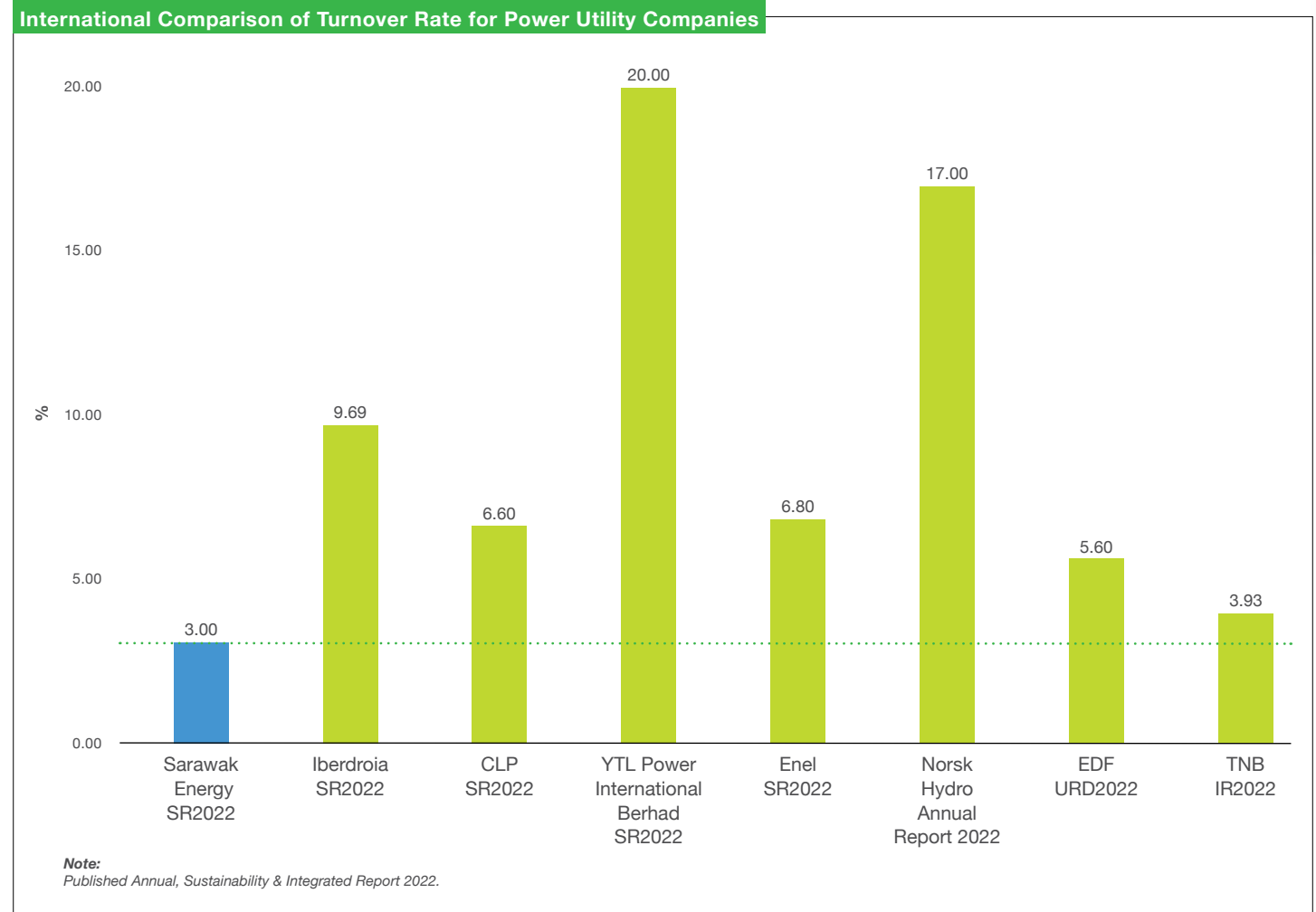
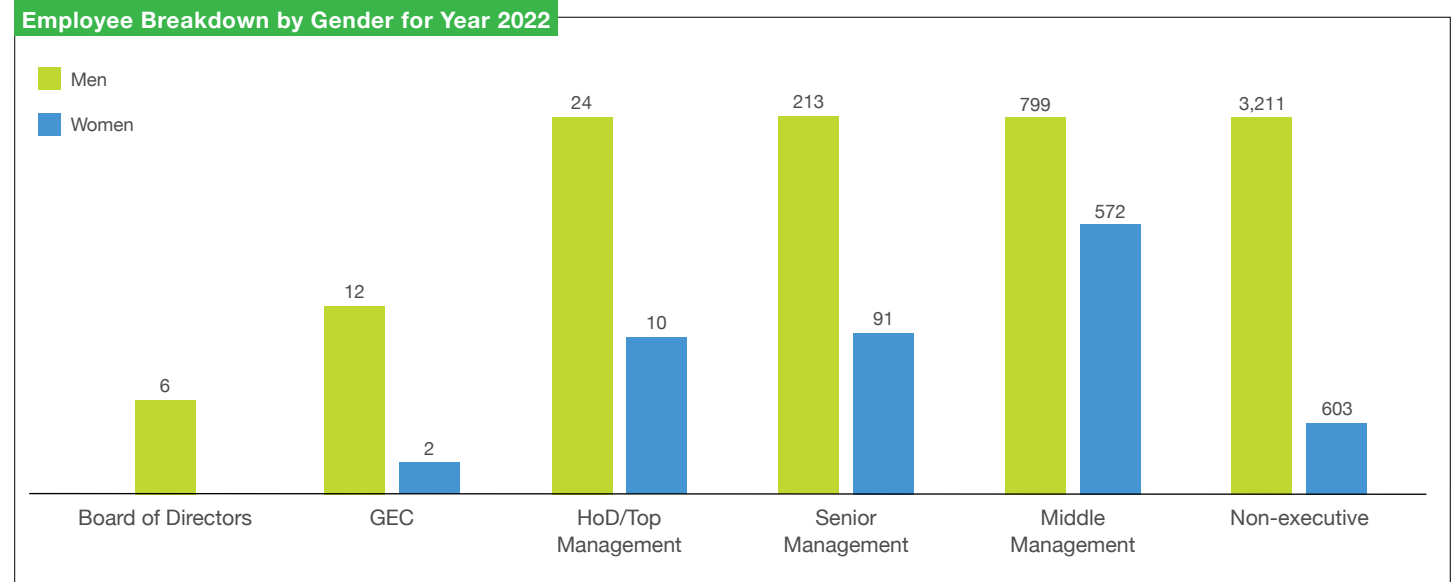
We have increased our workforce from 5,442 in 2021 to 5,537 in 2022, onboarding 261 new hires. Of these, 75 new recruits were women, while the remaining 186 were men. During the year under review, the Company experienced a turnover of 166 employees. A detailed breakdown of new hires and staff turnover by gender and age can be found on pages 213 to 214 of Our Performance Data section.



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## Fostering Sustain-Enablers Community

The following statistics indicate our expansion in the workforce:



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Fostering Sustain-Enablers Community

Training & Education

Learning and development (L&D) plays a prominent role in our company as we believe that it is crucial for employee engagement and growth. In 2022, we clocked in 220,369 training hours of which 167,332 hours were conducted online/virtually.

The following tables reflect the participation breakdown according to various categories:

Total and Average Training Hours

Year	2020	2021	2022
<b>Total SEB Employees</b>	5,381	5,442	<b>5,537</b>
<b>Total No. of Employees Who attended learning activities</b>	2,405	5,062	<b>5,487</b>
<b>Total Learning Hours</b>	78,103.06	166,573.86	<b>220,368.81</b>
<b>Total Online/Virtual Learning Hours</b>	51,556 (66% of total learning hours)	156,783.61 (94% of total learning hours)	<b>167,332.22 (76% of total learning hours)</b>
<b>Learning Hours per Employee (Annual)</b>	14.51	30.61	<b>39.79</b>

Total Learning Activities by Category

Category	2020	2021	2022
	% of learning hours	% of learning hours	% of learning hours
<b>Technical</b>	52	43	<b>59</b>
<b>Business</b>	39	45	<b>30</b>
<b>Leadership</b>	7	10	<b>8</b>
<b>Conferences</b>	2	2	<b>4</b>

Note:  
 1. Y2021 & Y2022 data includes formal learning programmes, knowledge sharing and learning activities.  
 2. Y2020 data was revised to reflect additional learning hours recaptured during internal L&D learning data cleansing exercise in Y2021.

Summary of Overall Average Hours of Training by Employee Category

Year	2018	2019	2020	2021	2022	
<b>Total Number of Employees by Category</b>	Management	476	145	54	49	<b>352</b>
	Executive	2,140	1,538	1,468	1,578	<b>1,371</b>
	Non-executive	5,427	3,338	3,864	3,815	<b>3,814</b>
<b>Total Hours of Training by Category</b>	Management	7,987.00	3,269.00	1,505.80	1,971.82	<b>25,704</b>
	Executive	31,479.00	28,932.00	40,945.16	87,115.35	<b>70,987</b>
	Non-executive	73,919.50	57,864.00	35,652.10	77,486.69	<b>123,678</b>
<b>Average Hours of Training by Category</b>	Management	16.78	22.54	27.89	40.24	<b>73.02</b>
	Executive	14.71	18.81	27.89	55.21	<b>51.78</b>
	Non-executive	13.62	17.33	9.23	20.31	<b>32.43</b>

404-1

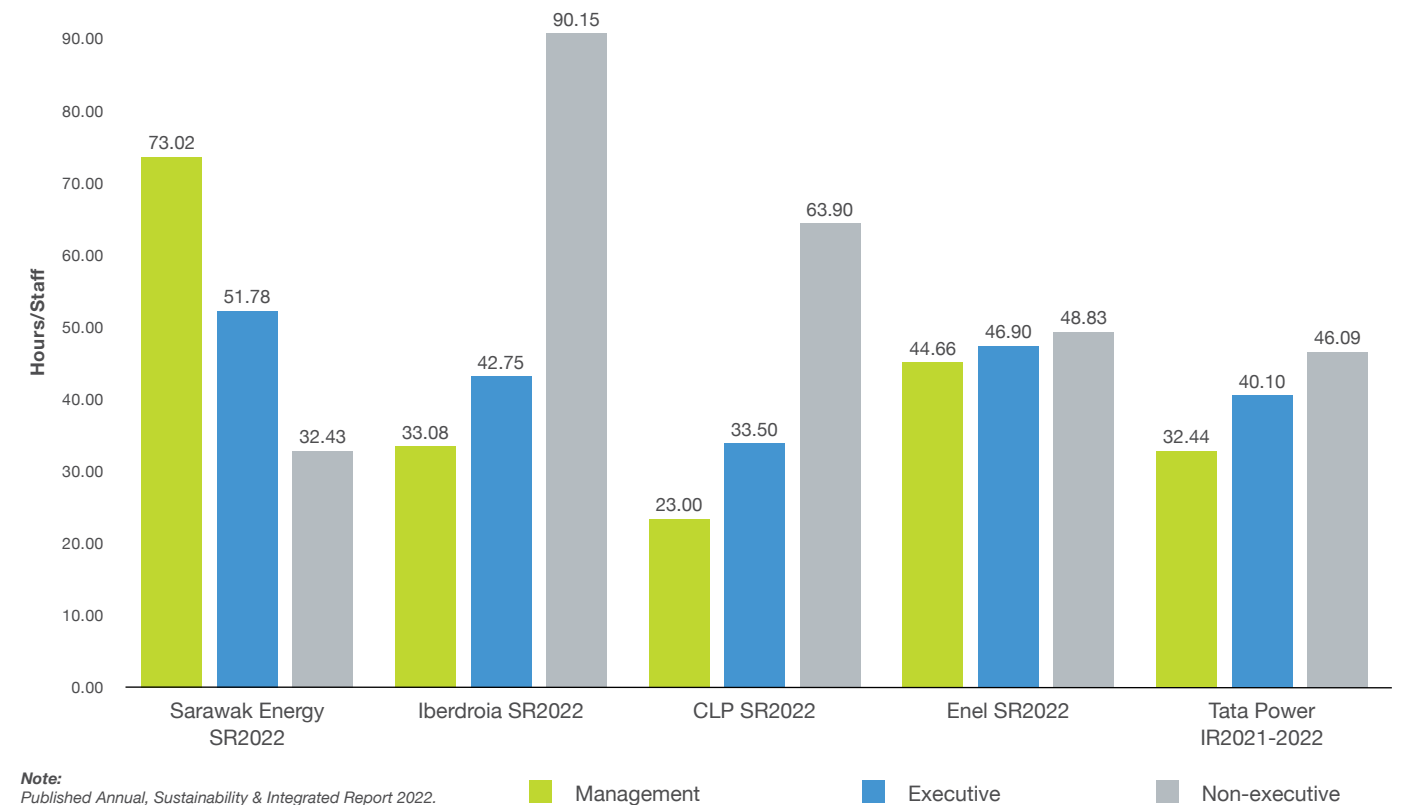
Fostering Sustain-Enablers Community

Average Hours of Training Recorded by Category and Gender

Year		2020		2021		2022	
		Male	Female	Male	Female	Male	Female
<b>Management</b>	Average	<b>24.28</b>	<b>40.50</b>	<b>36.10</b>	<b>53.02</b>	<b>70.52</b>	<b>79.08</b>
	Total Training Hours	1,019.80	486.00	1,335.60	636.22	17,559.38	8,144.83
	No. of Employees	42	12	37	12	249	103
<b>Executive</b>	Average	<b>26.48</b>	<b>30.17</b>	<b>54.62</b>	<b>56.13</b>	<b>53.20</b>	<b>49.79</b>
	Total Training Hours	24,021.30	16,923.86	52,708.67	34,406.68	42,557.97	28,428.67
	No. of Employees	907	561	965	613	800	571
<b>Non-executive</b>	Average	<b>9.48</b>	<b>7.90</b>	<b>19.14</b>	<b>26.47</b>	<b>33.51</b>	<b>26.65</b>
	Total Training Hours	30,697.05	4,955.05	61,341.71	16,144.98	107,661.60	16,016.34
	No. of Employees	3,237	627	3,205	610	3,213	601

Note:  
 Y2021 & Y2022 data include formal learning programmes, knowledge sharing and learning activities.

International Comparison of Average Training Hours for Power Utility Companies



Note:  
 Published Annual, Sustainability & Integrated Report 2022.

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Fostering Sustain-Enablers Community

People Development

The Company is steadfast in investing in our people development through a comprehensive Talent Management Excellence Roadmap. This has led to effective initiatives aimed at nurturing talent across various segments within the Company, ensuring that our workforce is well-equipped with the essential skills required to navigate the ever-evolving landscape within the demanding work environment.

Notably, our organisational learning culture has made remarkable progress in recent years, evident in the steady increase in corporate-wide learning hours since 2020. In 2022, 76% of learning hours is attributed to online learning, reflecting our commitment to embracing digital learning methods.

During the year under review, we conducted the following initiatives:

i) Integrated Business Skills and Commercial Excellence Culture

We are actively fostering an enterprise-first mindset among our employees through integrated business skills and a culture of commercial excellence via three key programmes:

- **Welcome to Sarawak Energy - SE01:** equipped 122 new joiners with essential knowledge about the Company through various learning methods including digital self-paced contents, gamification, and introduced new modules on employee well-being and enterprise risk management
- **Introduction to Sarawak Energy - SE02:** observed 84 executive graduates, enhancing their understanding of the Company's operations. This programme is a part of our Talent Management Excellence initiative which educates new hires between NE6 to E4 about different areas of our operations to empower them to better contribute to the organisation
- **Commercial Acumen Fundamentals - SE03:** attended by 137 participants, guided by four SMEs and 15 facilitators from different departments. Additionally, 25 bite-sized learning nuggets on commercial acumen were published throughout the year, reaching an average of 3,600 views per nugget. These initiatives underscore our commitment to developing a skilled and commercially adept workforce

ii) Fostering Facilitation & Intervention Skills

Attended by 124 employees, the programme continued to equip them with basic facilitation skills to ensure that organisational productivity is increased. The skills are especially useful during the facilitation of internal and external engagements.

iii) Leadership at All Levels

Placing a strong emphasis on leadership development at all levels in line with our regional powerhouse ambitions, we collaborated with Melbourne Business School (MBS) to provide in-house leadership programmes, graduating 50 managers and senior managers. Additionally, 203 staff members, ranging from non-executive to executive levels, completed our in-house leadership development programmes.

We also proceeded with the annual XCeL 2022 Leadership Series, engaging Sarawak Energy employees in participative leadership and emphasising the values of #WeBeforeMe and #MansangBersama (Moving Forward Together). The initiative was impactful this year with the following achievements:

- Increased open communications on leadership in the Company through the *Juh, Kelakar* activity – eight physical, two virtual Leadership Booths and activities carried out statewide
- Aram Berandau and Leader's Lab learning sessions – six sessions conducted covering "Leading Self, Leading Others, and Leading Business" and experience sharing. These sessions were participated by more than 1,200 attendees and 18 speakers
- EAGLES journey – development of future leaders through the identification of 19 young high potentials attached to GEC members for a one year apprenticeship
- Finale of Leadership Conference in Menara Sarawak Energy
  - ▶ Garnered a hybrid participation of over 1,100 employees with four external speakers for Rapid Fire Learning, Podium and Keynote sessions
  - ▶ Featured insights from accomplished leaders, who shared their wisdom on leadership and crisis communication
    - ▷ Tan Sri Dato' Seri Rafidah Aziz, Former Minister of International Trade & Industry highlighted the qualities of good leadership by drawing from her decades of experience in government service
    - ▷ Professor Tan Sri Dr. Jemilah Mahmood, Executive Director for Sunway Centre for Planetary Health shared about managing communication breakdowns during a crisis
  - ▶ A two-week immersion programme allowed 13 participants to gain firsthand experience in various Sarawak Energy core businesses, fostering a deeper understanding of operations and promoting continuous improvement. This holistic approach underscores Sarawak Energy's commitment to nurturing effective leaders and fostering a culture of growth and development

403-1, 3-3  
Fostering Sustain-Enablers Community

iv) Accelerate Our People Development

To build on our Talent Management Excellence key focus area, we designed the Bridging Programme to advance the development of our high performance NE5 and NE6 colleagues to prepare them for the executive level.

Our programme is primarily based on the Competence Assurance Framework and offers well-structured developmental interventions covering technical, functional, and leadership competencies, employing the 70-20-10 learning model. Initial pilot cohorts, comprising 45 colleagues from Business Support and Technical departments, have been successfully launched.

Additionally, we marked a significant achievement by celebrating the graduation of 83 colleagues who successfully completed the Sarawak Energy Technician Foundation Programme (SETFP), an in-house foundation programme that utilises a structured 70-20-10 learning development approach to equip newly recruited technicians with essential skills and knowledge.

Occupational Health & Safety (OSH)

OSH is paramount in the workplace because it safeguards the well-being of our employees, reducing the risk of accidents, injuries and illnesses. A safe and healthy work environment will enhance productivity, morale, and overall business performance. Compliance with OSH regulations not only mitigates legal and financial liabilities but also underscores the Company's commitment to employees' welfare, fostering a culture of trust that attracts and retains talent while minimising disruptions to operations.

Health & Safety Governance

Environment, Occupational Safety and Health (EOSH) Committees

The establishment of our EOSH Committees in regional offices, power stations, and mining sites including our project delivery, reflects our commitment to preventing work-related accidents, injuries and illnesses of our internal employees and any third-party stakeholders.

The EOSH's structure encompasses a Chairman, Secretary, and representatives of the employer and employees, as required under the Occupational Safety and Health (Safety and Health Committee) Regulations 1996, Part II, regulation 5.

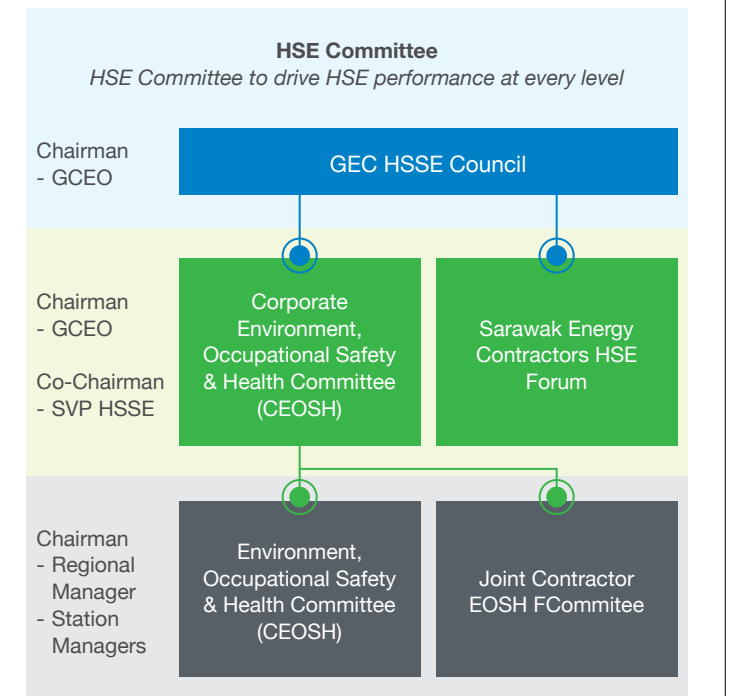
In 2022, our total number of members for EOSH Committees remained at:

Chairman	22
Secretary	22
Employer Representative	211
Employees Representative	301
<b>Total</b>	<b>556</b>

The committee's members function accordingly to the OSH (Safety and Health Committee) Regulations 1996, Part III (Functions of Safety and Health Committee) under regulation 11.

Committee meetings will convene at intervals necessary to align with the risks associated with the workplace's nature of work. This is typically on a quarterly basis, but no less frequently than once every three months.

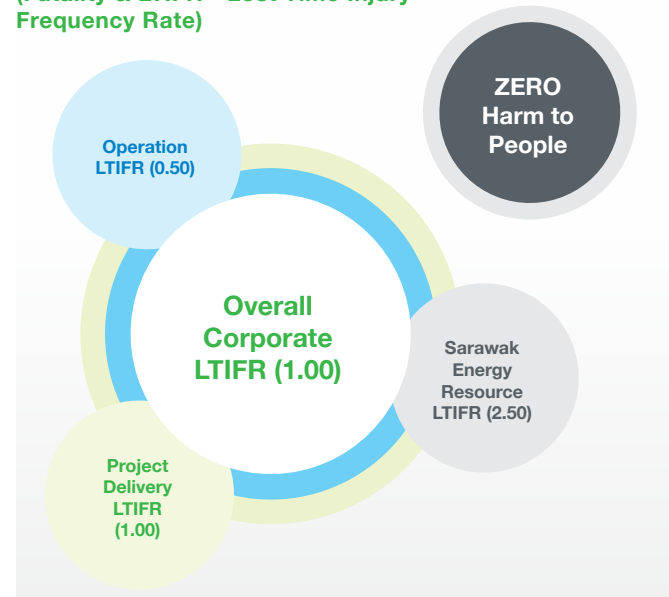
These meetings serve as a platform for discussing significant issues pertaining to HSSE for both employer and employees. They also provide a forum to deliberate on the corporation's annual HSSE programmes and KPIs, ensuring alignment across all committee members and striving to achieve HSSE excellence. This initiative reflects our commitment to becoming Best-in-Class through Cultural Transformation for Sustainable Performance, encapsulated in our HSE slogan: 'Raising Standards, Nurturing Culture, Saving Lives.'



Fostering Sustain-Enablers Community

Our Commitment Towards Zero Injuries & Fatalities

Corporate KPI Safety Performance 2022 (Fatality & LTIFR - Lost Time Injury Frequency Rate)



Lost Time Injury Frequency Rate (LTIFR) refers to the number of lost time injuries per million hours worked. This safety measure is standard for most industries, and we measure our LTIFR accordingly to three categories representing the overall corporate LTIFR result for the Group:

- Operation – includes the Company’s overall operations from Corporate Functions (HR, HSSE, Finance, and others) to core business operations and projects from Generation (thermal & hydropower), Distribution, Transmission, Retail and SE(RES)
- Sarawak Energy Resources – covers coal mining operations
- Project Delivery – refers to any ongoing project

Our achievements for the year included:

- Overall corporate LTIFR result of 0.329\*, outperforming our overall corporate LTIFR target of 1.0 for the year.
- Total man-hours decreased from 28,642,709 hours<sup>1</sup> in 2021 to 27,334,071 hours\* in 2022 due to the unavailability of contractor workers, who had returned to their hometowns/ countries during the pandemic.
- Zero fatality and we will continue to work towards maintaining our target of Goal Zero and strengthen our compliance to the highest level of safety standards

Corporate KPI Safety Result 2022 (Fatality & LTIFR - Lost Time Injury Frequency Rate)

Category	Operation	SER	Project Delivery Department	Corporate
Total man-hours worked	19,613,623.45*	1,746,663*	5,973,784.59*	27,334,071.04*
LTI Case	8*	0*	1*	9*
Fatality Case	0	0	0	0
LTIFR	0.408	0	0.167	0.329*

Rate of Fatalities as a Result of Work-related injury

Category	Employees only	Contractors only
Number of fatalities	0*	0*
Number of hours worked	12,525,628*	14,808,443*
Hours worked rate	1,000,000	1,000,000
Rate of fatalities	0.00	0.00

Rate of High-consequence Work-related Injuries (excluding fatalities)

Category	Employees only	Contractors only
Number of LTI (excluding fatalities)	4*	5*
Number of hours worked	12,525,628*	14,808,443*
Number of worked rate	1,000,000	1,000,000
Rate of high-consequence work-related injuries (excluding fatalities)	0.319	0.338

Fostering Sustain-Enablers Community

We continue to build and emphasise a robust HSSE culture in the Company through various OSH activities conducted:

HSE Critical Training & Training Providers Upskilling/Assurance

We introduced a HSSE Induction programme, delivered through e-learning modules which was successfully completed by 2,812 employees. This initiative aimed to ensure that everyone in the Company understands their role in nurturing a generative HSSE culture.

Furthermore, Sarawak Energy made significant strides in compliance and competency building. We were the first government-linked company and second nationally, following PETRONAS, to sign an MoU with the Construction Industry Development Board Malaysia (CIDB) for trade training and compliance with the CIDB Act 520. In collaboration with institutions like the Centre of Technical Excellence (CENTEX), we actively enhanced contractor capabilities and expanded the pool of competent vendors in Sarawak. This comprehensive approach underscored our commitment to promoting safety and compliance in the construction industry.

Establishment of HSE Critical Roles Training Matrix

The HSSE Department collaborated with the Learning & Development (L&D) Division to roll out the Sarawak Energy HSE Critical Roles Training Matrix in April 2022. In relation to quality assurance process and embedding a strong HSSE culture, the initiative aims to ensure that employees and contractors are competent in skills, health knowledge and safety and environment.

The HSE Critical Roles Training Matrix and associated training providers will undergo periodic reviews to ensure that training remains consistent, of high quality, and sustainable, meeting both business requirements and competency needs effectively. Additionally, it serves the dual purpose of preparing employees for critical roles within the organisation and facilitating their career growth and development.

Contractor Transformation Programme (CTP) Partnership Drive

In this collaboration with our contractors, our team aids and educates selected yearly parties in enhancing their HSE performance, drawing insights from HSE gap analysis outcomes. We also provide mentorship and support to assist them in implementing the HSE Management System (HSEMS), preparing them for the HSE Assurance process overseen by the DOSH. Safety remains our paramount concern, and through this partnership, we are committed to progressing towards our Goal Zero objective, ensuring that everyone collaborating with Sarawak Energy returns home safely.

HSSE Requirement for Contractors (RFC) Briefing

This initiative is applicable to our internal stakeholders including SEPRO champions and teams that are involved in the preparation of the strategy paper from the respective departments on the new HSSE RFC that was rolled out on 20 April. The briefing highlighted compliance and alignment with the government’s new requirements.

Drug Screening Test

To create a drug-free working environment, we conducted the Drugs Screening Programme at the Bintulu Regional Office, Bintulu Power Station, Murum HEP and Bakun HEP. The programme was coordinated by the Occupational Safety Division of the HSSE Department and the Employees and Industrial Relations (E&IR) Division of the Human Resources Department, assisted by the National Anti-Drugs Agency from Bintulu and Mukah.

403-1, 403-2, 403-4, 403-5

## Fostering Sustain-Enablers Community

### SEACE HSE Solutions Briefing and Online Showcase Demo

Our SEACE champions conducted refresher training sessions across the region to equip end users on relevant modules especially the HSE Observation module that empowers participation in active reporting of HSE incidents. This avenue was accessible to all employees and assisted in streamlining incident management by connecting them to operations and HSE.

This module was designed to streamline our current work processes and offer a user-friendly platform for reporting Unsafe Acts and Unsafe Conditions (JAUC). We are also working towards transforming traditional reporting methods to an online reporting system, enhancing our HSE excellence efforts.

### Zero Leak Drive

In early 2022, the Gas and Hydropower divisions, aligning with the power stations' zero-harm objectives, joined the Coal division to enhance asset performance and integrity. These proactive efforts focused on risk management and processed safety compliance across plant operations, featuring initiatives such as automated Heat Exchanger Tube cleaning, RAMCO flange safety shield installation (fuel oil and lube oil), replacement of scaling and corroded cooling water pipes (CCW), and optimisation of lube oil and cooling water consumption.

### Standardisation and Improvement of Existing Policy, Procedure and Guidelines

We are currently developing our corporate level Lock Out Tag Out (LOTO) procedure which helps to ensure standardisation and further strengthen the implementation of the LOTO initiative across SEB. Additionally, we are revising the Permit-To-Work (PTW) procedure to improve its efficacy after feedback from our stakeholders.

To prepare our stakeholders across major power stations, we held pre-rollout sessions to ensure that the final procedure can meet the functionality of different business needs. At the same time, the procedure must also secure our personnel, environment, assets and reputation.

### Process Safety Management (PSM) Working Committee and Awareness Fundamentals

The committee is an integration between Corporate HSSE and SEB Power which meets every quarterly to review and evaluate existing initiatives. These initiatives are jointly created and is improved based on measurements according to its feasibility and effectiveness. The discussion and agenda revolve around key PSM elements: mechanical integrity, safe operating limits, and updated procedures to minimise risk levels across our assets, aiming for the ALARP threshold.

We also carried out internal PSM Awareness Programmes, emphasising the core principles of PSM at our major Power Stations. These programmes saw an average 87% participation rate across relevant functions including operations, maintenance, and HSSE personnel. We provided an overview and explanation of various risk assessment tools used in PSM, such as bowtie analysis and hazard barrier illustration through Swiss Cheese models. Additionally, we presented case studies highlighting major accident hazards from various industries, illustrating how they have shaped the evolution of PSM across various sectors beyond just oil and gas or petrochemicals.

### Routine Audit & Inspection

We conducted regular HSE audits and inspections across the regions, power stations, rural stations, projects and mining sites to ensure compliance:

- Routine OSH audit and inspection
- Contractor OSH audit and inspection
- Plan Shutdown Switching Request (PSSR) Inspection
- ISO 45001 Audit
- MSOSH Audit
- Best Station Award Audit

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## Fostering Sustain-Enablers Community

### Sarawak Energy Resources (SER) HSE 2022 Highlights

- **7.5 Million Total Safe Man-hours Milestones** – we have successfully maintained Goal Zero in 2022 and are free from LTI since 13 June 2018. As of December 2022, we have reached a total of 7,527,677 total safe man-hours year to date, December 2022.

*Read more about **Health, Safety, Security and Environment (HSSE) Excellence** on page 39.*

- **ISO 45001:2018 - Occupational Health and Safety Management Systems (OHS MS) & ISO 14001:2015 - Environmental Management Systems (EMS)** - Balingian Energy Mineral (BEM) is the first coal mine in the country to have received the ISO certifications for its OHS MS and EMS from NIOSH Certification Sdn Bhd, an external certifying agency. The ISO 14001 and ISO 45001 certifications were awarded in December 2022 after two audit stages.

### Spotlight Story: Inaugural HSSE Excellence Week 2022

SER's HSSE Excellence Week 2022 took place on 13 to 15 September at BEM under the theme "Fostering a Culture of Safety, Enhancing Standards, and Preserving Lives."

The event was launched by Group CEO, Datuk Haji Sharbini bin Suhaili and was attended by SEB Power CEO Ir. Bunyak Lunyong and the Management team, various heads of department and SEB colleagues, government agencies and contractors.

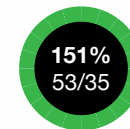
Kicking off with a tree planting ceremony, the event symbolised SER's dedication to land rehabilitation and restoration, aligning with Sarawak Energy's 10-year integrated tree planting, protection and habitat restoration initiative. We also honoured our government stakeholders and contractors with appreciation plaques, acknowledging their continuous support and contributions to HSSE excellence and self-regulation.

The HSSE Excellence week will be held annually to continue our drive towards maintaining robust HSSE practices and in support of Sarawak Energy's HSSE Excellence targets. The initiative will enable employees and stakeholders to take part in awareness programmes, training sessions and interactive workshops. Other than fostering a safety-conscious culture, the initiative also aims to bolster emergency response preparedness and enhance environmental sustainability across SEB. We believe this holistic approach will enable us to provide a workplace environment that will not only meet regulatory rules but also prioritise the safety and well-being of our employees and contractors.

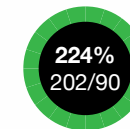
### Public Safety

We convey the message of public safety through various methods including exhibition, briefing and training sessions. These sessions reflect our commitment in HSSE excellence and serve as a vital platform in sharing HSSE policies, performance data, and strategic initiatives with the local communities while also giving stakeholders the opportunity to express their perspectives and concerns.

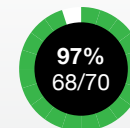
In 2022, we have briefed our stakeholders via various engagement sessions:



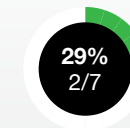
**Longhouses/Villages**  
Total : 2,081 participants



**Annual Contractors + Sub Contractors**  
Total : 1,910 participants



**Gov. Authorities/ Oil Palm Estates/ Pan Borneo & Public Contractors**  
Total : 1,256 participants



**Local Lorry/ Excavator Association**  
Total : 1 participant

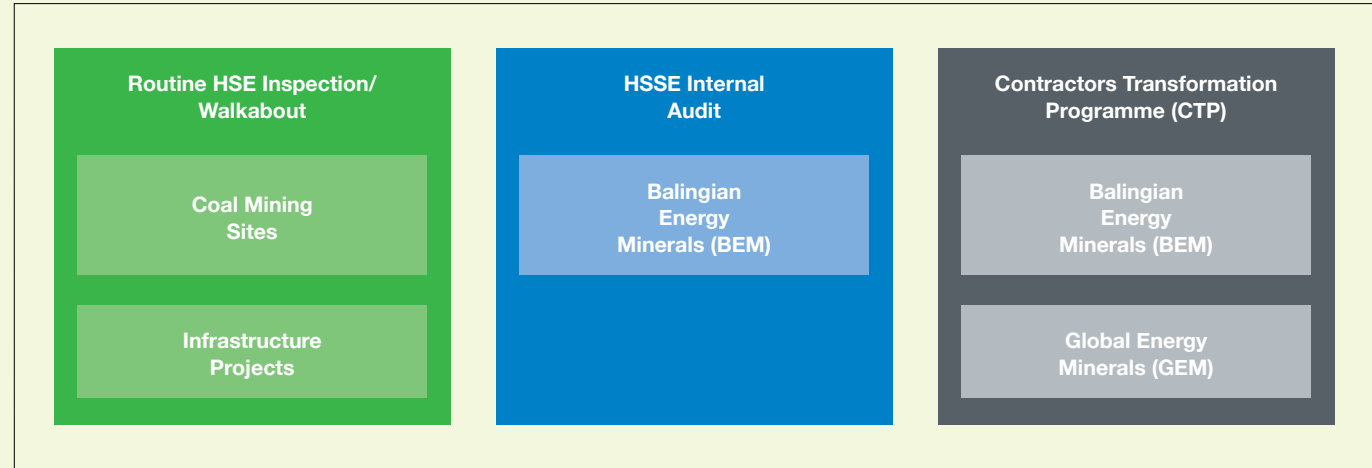
- Villagers were educated on precautionary measures in electrical appliances utility, safe clearance distance from our OHL and others. We distributed informative leaflets for their reference.
- We issued a number of stop-work orders and intervened on ground to ensure that our annual contractors and public contractors comply with our HSE requirements. This also prevents flashover case that may result in serious injuries or fatalities.
- We partnered with DOSH and BOMBA offices to renew equipment Certificate of Fitness (CF) and Fire Certificates to ensure legal compliance. Additionally, we held meetings with government agencies to address operational concerns and foster positive relationships with them.



## Fostering Sustain-Enablers Community

Routine HSSE Inspection, Audit & Awareness Programme – We carry out regular HSSE audits, inspections and CTP to evaluate and review our performance, ensuring that we adhere to the highest HSSE standards.

We also conducted a series of Health Safety and Environmental awareness training for staff and contractors.



**Sustainable Development Indicators Award** – BEM is the only receiver of a five-star rating from Jabatan Mineral dan Geosains Malaysia, based on a sustainability audit for Sarawak’s mining and quarrying industries. The audit ensures that operators adhere to standard procedures, best practices, effective HSSE monitoring plan, CSR and effective mitigation measures to reduce our environmental footprint.

**Occupational Health Programme** – we initiated the programme for our employees including the Fitness-To-Work (FTW), Medical Surveillance and Preventive Health assessment. As of December 2022, SER staff have successfully completed 100% of the Health Assessment while BEM completed the critical Occupational Health Programme consisting of the Chemical Health Risk Assessment (CHRA) and Noise Risk Assessment (NRA).

**BEM Rehabilitation Pilot Project in Collaboration with Forest Department Sarawak** – the collaboration sees the rehabilitation and restoration of mined-out land through the planting of trees. The Forest Department provided 7,174 tree seedlings of various species to be planted at a five-hectare rehabilitation area. This initiative is in line with the Group’s 10-year integrated tree planting, protection and habitat restoration programme.

### Health Programme

Our Occupational Health Division is tasked to ensure that the well-being of all Sarawak Energy employees are safeguarded against workplace hazards and occupational diseases. Our Occupational Health Management Programme is dedicated to the protection and enhancement of workers’ safety, health and overall well-being. Furthermore, it strives to elevate working conditions and cultivate a healthier and safer work environment for all.

In 2022, the OH Division covered five locations for legal compliance assessment which are:

- Matang 275kV Substation
- Miri Power Station
- Miri Regional Office Store
- R&D Kuching Laboratory
- Kuching Central Store Complex (Inventory Management)

## Fostering Sustain-Enablers Community

Other assessments conducted by the OH team include:

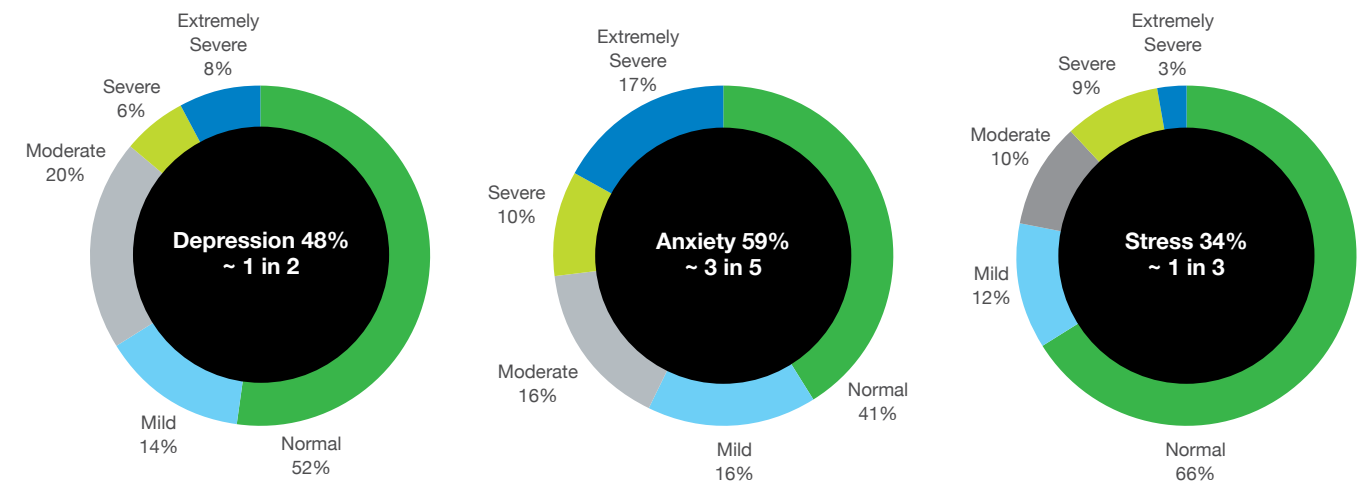
- Lighting assessment for Miri Power Station
- Initial ERA for Bintulu Power Station
- EMF & Noise risk assessment in Miri
- Noise risk assessment in Kuching Central Store Complex

Our initiatives conducted during the year include:

### Employee Well-being Programme

Our Employee Well-being Programme is a collective effort by OH, HSSE, HR and Corporate Communications. Anchored on the pillars of Mental, Physical, Career and Financial, the programmes aim to positively impact our employees.

In 2022, our primary emphasis was on promoting both physical and mental well-being. The Employee Well-being committee organised physical activities and conducted monthly health talks on Healthy Living Thursday, addressing various topics. Additionally, we administered the Corporate Mental Health Survey DASS21 in November 2022, revealing an uptick in depression and anxiety symptoms among our staff. This valuable survey data guides our efforts to enhance support for employee mental well-being in the future.



Other organised initiatives:

- Employee Assistance Programme (EAP)
- Sarawak Energy Support Group (SESG)
- Preventive Health Screening

### Project Delivery (PD)

A strong focus is placed on establishing clear HSSE ownership and accountability among all project stakeholders, aiming to cultivate a generative HSSE culture. In 2022, the PD HSSE team intensified risk management efforts by identifying, comprehensively assessing, and proactively mitigating risks and hazards, while ensuring the availability of necessary resources for safe project execution.

Efforts also included internal capacity building, learning from inspection, audit, and incident findings, and sharing lessons learned for continuous improvement. To further bolster HSSE compliance and sustainability, a range of programmes and campaigns were implemented throughout the year, encompassing HSSE training, milestone celebrations and participation in HSSE Awards.

# Lighting Up Sarawak

**Our strategy is focused on statewide electrification by 2025 and we are close to achieving our goal.**

As of 2022, we have accomplished an electrification rate of 99.2%\* for Sarawak. Simultaneously, we advanced in expanding rural electricity access and during the year under review, we have increased the rural electrification coverage to 97.9%\* from 96.5%<sup>1</sup> in 2021.

Year	2018	2019	2020	2021	2022
<b>Sarawak Electricity Coverage (%)</b>	96.0	97.0 <sup>3</sup>	98.01 <sup>2</sup>	98.6 <sup>1</sup>	<b>99.2*</b>
<b>Urban (%)</b>	100	100	100	100	<b>100</b>
<b>Rural (%)</b>	91.0	93.0 <sup>3</sup>	95.3 <sup>2</sup>	96.5 <sup>1</sup>	<b>97.9*</b>

We remain dedicated to promoting rural electrification through the State Government’s RM2.37 billion Projek Rakyat initiative, as well as our own Rural Electrification Scheme (RES), Hybrid programme, and Sarawak Alternative Rural Electrification Scheme (SARES). We have successfully extended access to 5,511 additional rural households in 2022. From the total, 3,347 households are connected to the grid while the remaining 2,074 households are connected through off-grid.

Grid/ Non-Grid	Year	2018	2019	2020	2021	2022
<b>Grid</b>	<b>Rural Electrification Scheme (RES)</b>	3,990	5,239	3,186	4,010	<b>3,437</b>
<b>Non-Grid</b>	<b>Hybrid</b>	270	483	70	115	<b>13</b>
	<b>SARES</b>	1,448	3,122	3,354	1,912	<b>2,061</b>
	<b>TOTAL</b>	<b>5,748</b>	<b>8,844</b>	<b>6,610</b>	<b>6,037</b>	<b>5,511</b>

### SARES Solar Project

Year	2017-2018 Phase 2	2018-2019 Phase 3	2019-2020 Phase 4	2020-2021 Phase 5*	2021-2022 Phase 6
<b>Installed Capacity (kW)</b>	1,619.69	1,990.65	3,128.82	4,022	<b>2,814.09</b>
<b>Villages</b>	59	75	85	131	<b>140</b>
<b>Door</b>	1,601	1,968	3,027	4,065	<b>2,824</b>

# Lighting Up Sarawak



Lighting up rural households via Rural Electrification Scheme (RES), Hybrid programme, and Sarawak Alternative Rural Electrification Scheme (SARES).

It is projected that about 60% of the isolated grid will remain off-grid by 2030. In 2022, 105 households under SARES solar system at Julau area were successfully connected to the grid. The grid connection households (HH) projection is shown in table below:

Year	Total number of HH in isolated grid	Number of HH connected to grid	Number of HH remained off-grid	% of HH remained off-grid
2022	17,005	105	16,900	99%
Year	Total number of HH in isolated grid	Number of HH planned to be connected to grid	Number of HH remained off-grid	% of HH remained off-grid
2025	17,081	553	16,528	97%
2030	12,170	4,864	7,306	60%



Connecting Off-Grid Households to the Grid.

### RES Highlights in 2022

- **5,511** households energised under **51** contracts/projects (29 last mile, 3 RES KPLB, 18 SARES, 1 Hybrid)
- **4,364** households energised under ALAF
- Completion of **seven** last mile contracts
- Completion of **1 MVCC project** - MVCC lines from Petian to Dalat project
- Completion of **one fiber optic** link project for Kanowit to Ngungun Substation
- Completion of **SARES phase 6A & SARES phase 6B**
- Completion of **Rural school project** phase 2A and phase 3A
- Completion of **five clusters** under **Rural school project** phase 3B (Cluster Baram, Bintulu, Sebauh, Kanowit, Kapit A)

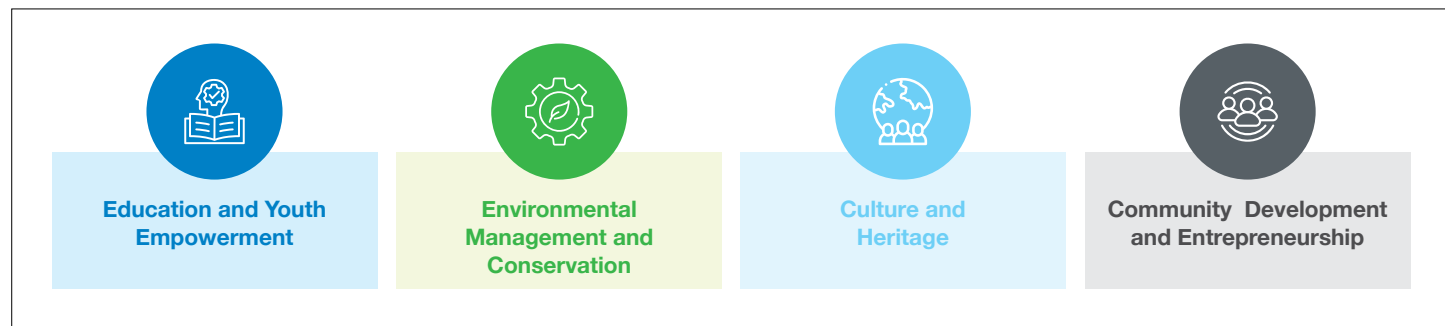


413-1, 3-3

# Developing a Sustainable Community

A thriving community is essential to Sarawak’s growth and prosperity. In 2022, we contributed to community building by channelling RM9 million in corporate social responsibility (CSR) initiatives. We also collaborated with various strategic partners to empower and uplift vulnerable individuals and communities.

There are four pillars that drive our community programmes:



## Education And Young People

### Sarawak Energy Academic Excellence Incentive Programme

- Awarded 59 young high achievers from SMK Bakun and SMK Belaga with Academic Excellence Incentives in the Sijil Pelajaran Malaysia (SPM) and Sijil Tinggi Persekolahan Malaysia (STPM) public examinations 2021 as academic encouragement
- Benefitted 256 students since 2017

### Baleh Skills Training Programme's First Batch of Occupational Safety and Health (OSH) Diploma Holders

- Benefitted 15 young individuals from Kapit who completed their OSH learning diplomas through the sponsorship of Sarawak Energy's Baleh Skills Training Programme
- Represented the initial cohort of 20 students who completed the OSH diploma course in 2022, with the remaining five who completed their studies in November 2022

### Murum HEP School Outreach Programme

- Organised safety awareness talks and presented school aid assistance at SK Lusong Laku
- Benefitted 120 students and fostered stronger relations with host communities at the location

### 'Program Selangkah ke Universiti' for Secondary School Students

- Collaborated with Mukah and Selangau District Education Offices to organise the "Program Selangkah Ke Universiti" at CENTEX MPH Hall, Mukah
- Furnished Form Five students with information of courses offered by local academic institutions
- Benefitted 400 students from SMK Mukah, SMK Three Rivers, SMK St. Patrick and SMK Ulu Balingian

413-1

## Developing a Sustainable Community

### Environmental Management and Conservation

#### Gotong Royong Programme with Local Murum Community

- 20 employees from CSR, Murum HEP, and EIA joined 50 local community members in a gotong-royong activity to support the Murum community at Sungai Lekasi in the Tegulang Resettlement area, near our Tagang System site
- Conducted cleaning operations at the main Tagang System compound, including the installation of a new signage and clearing activities for the pathway leading to the Tagang System's waterfall
- Benefitted approximately 143 households

#### Tree Planting Activity at Rumah Seri Kenangan

- Partnered with i-CATS University College for a tree planting programme at Rumah Seri Kenangan and celebrated Christmas with the elderly residents at the facility through activities including Christmas tree decorating, mural painting, karaoke and *poco-poco* dancing sessions
- Benefitted 62 elderly folks

#### Logjam Debris Gotong-Royong

- 50 employee volunteers and the local Uma Balui, Long Kebuho and Naha Jaley community joined forces to clear floating debris obstructing the waterway in the Bakun Reservoir
- Benefitted 300 community members, ensuring safer passage for upstream communities that travel by smaller boats



Log clearing at Naha Jaley.

### Culture and Heritage

#### Traditional Beadworks Workshop

- Collaborated with the Tun Jugah Foundation and organised a two-day workshop on traditional beadworks to enhance our Baleh women community's handicraft skills and empower their work through commercialisation
- Benefitted 17 participants who were taught to produce 'Contemporary Tangu' (beaded collar) and 'Kungkung Igi Peria' (traditional necklace)

#### Murum, Bakun and Baleh Artisans' Participation in Hari Kraf Kebangsaan Kuala Lumpur 2022

- Supported the participation of six artisans from Baleh, Bakun and Murum in the Hari Kraf Kebangsaan Kuala Lumpur 2022, an event that serves as a platform for artisans to showcase their handicraft and knowledge sharing

#### "Sugu Tinggi" Skill Training Programme

- Supported the participation of 20 Iban women from Balingian. The objective of the programme is to enhance and elevate the participants' skills in crafting "sugu tinggi", enrich their creativity and innovation in production, and preserve the traditional knowledge of craft-making



Murum, Bakun and Baleh Artisans participate in Hari Kraf Kebangsaan Kuala Lumpur 2022.

203-1, 203-2, 413-1

## Developing a Sustainable Community

### Sarawak Energy's Centenary Exhibition

- Our community partners exhibited their indigenous handicrafts at the Borneo Cultures Museum in conjunction with our '100 Years of Powering Sarawak' exhibition:
  - Three booths featured a variety of handicrafts, including 'Ajat' (rattan woven baskets), 'Meratai Kabor' and 'Terbilang' (Orang Ulu beaded necklaces), as well as 'Kain Buriek' (skirts with beaded shells) and 'Pua Kumbu' textiles.
  - Exhibits were complemented with demonstrations by 12 skilled artisans from the Penan, Kayan, Kenyah and Iban communities in Murum, Bakun and Baleh.
  - There was also a performance by the Warisan Sape Telang Usan, a cultural project in collaboration with the Bakun, Baram and Belaga communities under the "Telang Usan Sape Heritage Programme". The aim of the programme is to preserve the sape, the traditional musical instrument of the Orang Ulu community.

### To preserve the culture and tradition of Sarawak, we took part and supported various festivities:

- Pesta Adet Tapok Penan Belaga 2022* - held to preserve the Penan's cultural heritage and traditional games while promoting a healthy lifestyle. The festival was also attended by the State Assemblyman, various community leaders and residents.
- Do Ledoh* Celebration for Kayan community at Sungai Asap, Belaga – an annual cultural festival celebrated by the Kayan community in Belaga District.
- Annual Batu Tungun Ceremony 2022* – organised the annual Murum Batu Tungun Blessing Ceremony (Upacara Pemberkatan Batu Tungun) in collaboration with Murum Penan Development Committee (MPDC) and the Murum community leaders.



Community partners participate in our centenary exhibition.



### COMMUNITY DEVELOPMENT AND ENTREPRENEURSHIP

#### Relief Assistance to Fire Victims

- Our Bakun and Murum HEPs provided immediate relief assistance through food aid and essential supplies to fire victims of Uma Sambop, Long Semutut, Belaga.
- Benefitted 86 households comprising 680 individuals who were affected from a fire incident that destroyed their longhouse.

#### Agriculture Training Programme

- Partnered with the Department of Agriculture (DOA) Sarawak and organised a two-day agriculture training programme for ginger and chilli fertigation planting at Rumah Bajang in Sungai Teliai, Baleh, Kapit.
- Benefitted 63 participants in two sessions encompassing both practical and theoretical training.

#### Bakun Resettlement Scheme (BRS) Longhouse Adoption Programme

- Marks our fourth year for our five year Longhouse Adoption Programme for 15 longhouses in the BRS.
- Uma Kulit, Uma Nyaving and Uma Belor longhouses were selected for this cycle with works carried out such as the upgrading of facilities, infrastructure improvements and construction of new buildings.

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## Developing a Sustainable Community

### Other Community Relations Divisions' initiatives in 2022:

Every year, we engage with local community representatives and leaders to discuss CSR initiatives and action plans. We also address grievances and identified issues such as job opportunities, skill training, infrastructure and services, along with providing support for cultural heritage. Additionally, we keep them updated on our projects and operations:

#### a) Bakun

- Engagement with Belaga Action Community (BAC) – 13 December 2022
- Balui Lake Native Association (BLNA) and Peng Maren Maren Uma (PMMU) – 13 December 2022

#### b) Murum

- Community Engagement with Metalun Resettlement Community – 16 August 2022
- Sesi Dialog bersama Komuniti Murum – 24 June 2022
- Engagement with Murum Community Consultative Committee (MPDC) – 22 December 2022

#### c) Balingian

- Engagement Session for the 21 Longhouses along Jalan Bukut-Balingian – 24 July 2022

#### d) Baleh

- Dialogue with Long Singut/Rantau Panora community on Relocation Action Plan (RAP) - 19-23 April 2022
  - Conducted a community engagement programme as part of the Rantau Penora Moving Back Assistance Programme at Rantau Penora and Long Singut to update communities regarding the programme, gather their feedback and consent
  - Briefed on the current Baleh HEP progress, grievance mechanism, Rantau Penora Moving Back Assistance Programme, after which a Q&A session was conducted to respond to the communities' questions, concerns and feedback
  - Engaged women in a focus group discussion to obtain feedback
- Community Engagement at Rh Laso, Nanga Entawau, Baleh – 27 April 2022
- Briefing on the progress of Baleh HEP and Baleh-Mapai 500kV Transmission Line Project - 23 May 2022
  - Conducted for government stakeholders, the briefing covered Project Status Update for Baleh HEP & Baleh-Mapai 500kV TLP, Biomass Removal Plan, Public Emergency Response Plan, Social Investment Programme and local participation
- Community Engagement at Rh. Sebuang Ng. Merama, Baleh Kapit - 19 July 2022
  - Updated the community on the progress of Baleh HEP and Baleh-Mapai Project and planned CSR initiatives for the community
  - Matters raised also included compensation and future availability of electricity supply to their respective longhouses

Thanks to our consistent support, there were no identified incidents of violations involving the rights of indigenous peoples during the reporting period.

### Awards and Recognition

Our growing prominence in sustainability and community development initiatives garnered recognition from the 13<sup>th</sup> Annual Global Corporate Social Responsibility (CSR) Virtual Summit and Awards 2021. We were honoured with the Gold Award for Best Community Project for our "Longhouse Adoption Programme" in the Bakun Resettlement Scheme (BRS).

Launched in 2018, the "Longhouse Adoption Programme" was designed to improve the wellbeing of communities within the BRS. The initiative involved the rotational adoption of fifteen longhouses, streamlining efforts to enhance individual longhouses. We consulted longhouse leaders and proposed ideas and suggestions aimed at improving longhouse facilities. The proposals included rolling out communal efforts, supporting cultural preservation, and implementing community development and entrepreneurial programmes.

In addition, we collaborate with the community to enhance infrastructure, including land levelling within village compounds to accommodate additional housing for the growing population and expanding gravesite areas.

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# Our Performance Data

We assess the effectiveness of our sustainability strategy and initiative by monitoring the key sustainability, or ESG performance data over five years. Our data is prepared with reference to the GRI Standards 2021 and also reports on the GRI G4 Electric Utilities Sector Disclosures (EUSD) by the Global Reporting Initiative.

## Financial

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Direct economic value generated</b>							201-1
Revenue	RM Million	5,554.60	5,806.80	5,651.70	6,152.60	7,060.84	
<b>Economic Value Distributed</b>							
Operating Costs (RM Million)	RM Million	1,394.54	1,459.20	1,704.21	2,073.00	2,602.44	
Employee remuneration (RM Million)	RM Million	527.76	547.00	541.30	596.30	673.85	
Dividends paid (RM Million)	RM Million	-	-	-	-	-	
Interest paid (RM Million)	RM Million	949.27	995.10	1,081.20	915.20	855.15	
Payments to the government - Income taxes paid (net of refunds)	RM Million	140.72	121.80	162.80	127.20	286.97	
<b>Economic Value Retained</b>	<b>RM Million</b>	<b>2,542.31<sup>4</sup></b>	<b>2,683.70<sup>3</sup></b>	<b>2,162.19<sup>2</sup></b>	<b>2,440.90<sup>1</sup></b>	<b>2,642.42<sup>*</sup></b>	

**Note:**  
Revenue figures include rental income, interest received & proceeds from disposal of property, plant & equipment for the Economic Value Retained calculation.

## Tariff

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Average Tariff by Customer Type</b>							203-1
Average Organic	cent / kWh	27.96	28.22	28.22	28.30	28.17	
Domestic	cent / kWh	28.27	28.47	28.81	28.96	28.81	
Commercial	cent / kWh	30.50	30.65	30.70	30.59	30.54	
Public Lighting	cent / kWh	47.17	47.20	47.27	47.28	47.70	
Industrial	cent / kWh	23.69	24.16	23.89	23.96	23.97	

## Procurement

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Total Tenders Awarded by Sarawak Energy</b>							204-1
<b>Capital Works</b>							
Sarawakian	RM	625,917,773.91 <sup>4</sup>	416,366,166.99 <sup>3</sup>	114,555,097.49 <sup>2</sup>	335,983,187.44 <sup>1</sup>	295,198,815.38 <sup>*</sup>	
Malaysia (Non-Sarawakian)	RM	266,245,214.38	274,575,584.00	44,542,098.60	226,103,506.14	32,522,488.80	
International	RM	1,095,210,392.28	299,412,243.00	117,782,423.00	528,705,566.15	100,626,345.66	

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## Our Performance Data

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Operations and Maintenance</b>							204-1
Sarawakian	RM	564,066,169.62 <sup>4</sup>	822,335,735.58 <sup>3</sup>	1,037,245,113.37 <sup>2</sup>	1,061,052,945.37 <sup>1</sup>	1,947,373,513.08 <sup>*</sup>	
Malaysian (Non-Sarawakian)	RM	26,039,763.67	54,243,444.92	68,301,534.66	194,827,901.20	235,672,775.79	
International	RM	30,992,905.85	52,732,516.13	38,580,626.30	28,660,053.82	278,455,646.61	

## Anti-Corruption

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Capital Works</b>							205-3
Total number and nature of confirmed incidents of corruption	Number	1	7	4	0	1	
Total number of confirmed incidents in which employees were dismissed or disciplined for corruption	Number	1	7	4	0	1	
Total number of confirmed incidents when contracts with business partners were terminated or not renewed due to violations related to corruption	Number	N/A	N/A	N/A	N/A	N/A	
Public legal cases regarding corruption brought against the organisation or its employees during the reporting period and the outcomes of such cases	Number	1	1	1	0	1	

## Materials Used

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Category: Non-Renewable Materials Used</b>							301-1
<b>Plant Type</b>							
Coal	Tonne	2,038,842.21 <sup>4</sup>	3,064,825.62 <sup>3</sup>	2,684,065.69 <sup>2</sup>	2,940,286.82 <sup>1</sup>	3,087,236.06 <sup>*</sup>	
Diesel <sup>a</sup>	Litre	20,393,035.80 <sup>4</sup>	12,584,999.55 <sup>3</sup>	24,301,619.57 <sup>2</sup>	26,313,382.07 <sup>1</sup>	27,887,522.36 <sup>*</sup>	
Natural Gas	mmbtu	35,891,301.46 <sup>4</sup>	36,756,369.74 <sup>3</sup>	33,066,287.95 <sup>2</sup>	32,806,349.50 <sup>1</sup>	42,464,815.69 <sup>*</sup>	
<b>Category: Renewable Materials Used</b>							
<b>Batang Ai HEP</b>							
Annual Inflow (annual inflow from catchment)	million m <sup>3</sup>	3,576.00	2,852.00	4,255.00	3,651.00	3,277.00	
Annual water volume for energy generation	million m <sup>3</sup>	3,646.50 <sup>4</sup>	2,844.00 <sup>3</sup>	3,974.38 <sup>2</sup>	3,617.61 <sup>1</sup>	3,534.20 <sup>*</sup>	
Annual energy generated	GWh	481.00	391.00	518.00	476.00	470.00	
Annual water consumption (Spillway discharge)	million m <sup>3</sup>	0.00	0.00	0.00	0.00	0.00	

**Note:**  
<sup>a</sup> Diesel – excluding Limbang & Lawas.

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## Our Performance Data

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Category: Renewable Materials Used</b>							301-1
<b>Murum HEP</b>							
Annual Inflow (annual inflow from catchment)	million m <sup>3</sup>	7,737.00	8,183.00	9,993.00	9,660.00	10,791.00	
Annual water volume for energy generation	million m <sup>3</sup>	8,022.00 <sup>4</sup>	7,532.00 <sup>3</sup>	8,548.94 <sup>2</sup>	8,583.01 <sup>1</sup>	9,496.38*	
Annual energy generated	GWh	6,094.00	5,714.00	6,415.00	6,484.00	7,178.00	
Annual water consumption (Spillway discharge)	million m <sup>3</sup>	432.00	0.00	1,446.00	1,159.00	1,175.00	
<b>Bakun HEP</b>							
Annual Inflow (annual inflow from catchment)	million m <sup>3</sup>	40,481.00	40,373.00	55,730.00	49,894.00	50,884.00	
Annual water volume for energy generation	million m <sup>3</sup>	36,148.11 <sup>4</sup>	38,827.00 <sup>3</sup>	36,965.72 <sup>2</sup>	40,874.51 <sup>1</sup>	41,636.95*	
Annual energy generated	GWh	14,482.00	15,544.00	14,803.00	16,376.00	16,681.00	
Annual water consumption (Spillway discharge)	million m <sup>3</sup>	4,761.00	0.00	15,589.00	10,436.00	6,278.00	

## Cost of Materials Used

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Fuel cost (RM) &amp; power plant by our main grid, northern grid &amp; stand-alone grid</b>							301-1
<b>Plant Type: Coal (Main Grid)</b>							
Sejingkat Power Corp.	RM	78,950,123	62,240,358	63,965,074	46,941,917	45,351,027	
PPLS Power Generation	RM	73,758,623	73,207,127	69,420,961	62,355,174	77,450,023	
Mukah Power Sdn. Bhd.	RM	131,399,599	136,815,314	80,100,452	83,435,903	85,905,113	
Balingian Power Generation	RM	-	76,236,790	93,326,367	146,213,300	199,080,660	
<b>Total</b>	<b>RM</b>	<b>284,108,345</b>	<b>348,499,589</b>	<b>306,812,854</b>	<b>338,946,294</b>	<b>407,786,823</b>	

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## Our Performance Data

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Fuel cost (RM) &amp; power plant by our main grid, northern grid &amp; stand-alone grid</b>							301-1
<b>Plant Type: Natural Gas (Main Grid)</b>							
Sarawak Power Generation	RM	107,933,003	104,969,215	82,595,756	165,916,342	227,209,389	
Kidurong Power Generation	RM	-	-	12,593,455	198,763,919	285,328,211	
Bintulu PS	RM	55,016,264	56,669,505	56,237,474	47,281,118	102,007,412	
Miri PS	RM	65,874,180	54,433,029	65,076,152	70,473,886	57,123,718	
<b>Total</b>	<b>RM</b>	<b>228,823,447</b>	<b>216,071,749</b>	<b>216,502,837</b>	<b>482,435,265</b>	<b>671,668,730</b>	
<b>Plant Type: Diesel (Main Grid)</b>							
<b>Sg Biawak PS</b>	<b>RM</b>	<b>749,609</b>	<b>1,650,986</b>	<b>322,805</b>	<b>528,727</b>	<b>2,454,593</b>	
<b>Plant Type: Diesel (Northern Grid)</b>							
Limbang PS	RM	55,284,823	55,632,336	45,428,664	57,097,815	108,187,732	
Lawas PS	RM	33,001,175	35,417,332	23,783,999	27,421,553	48,526,857	
<b>Total</b>	<b>RM</b>	<b>88,285,998</b>	<b>91,049,668</b>	<b>69,212,663</b>	<b>84,519,368</b>	<b>156,714,589</b>	
<b>Plant Type: Diesel (Stand-alone)</b>							
Kapit PS	RM	116,596	-	-	-	-	
Belaga PS	RM	3,237,276	3,624,602	3,211,011	3,150,084	5,561,759	
Song PS	RM	2,986,373	4,375,076	30,867	-	-	
Ng Mujong PS	RM	200,204	153,147	-	-	-	
Ng Ngungun PS	RM	642,386	-	-	-	-	
Ng Jagau PS	RM	238,796	280,448	262,055	334,741	577,906	
Ng Entawau PS	RM	275,355	267,409	241,753	256,501	469,904	
Mulu PS	RM	1,564,934	1,753,085	991,743	844,404	1,864,707	
Long Lama PS	RM	2,627,910	2,815,294	2,314,513	2,348,843	4,726,129	
Banting PS	RM	330,674	345,082	289,425	322,281	544,571	
Paloh PS	RM	531,858	597,609	526,382	726,271	1,431,549	
<b>Total</b>	<b>RM</b>	<b>12,752,362</b>	<b>14,211,752</b>	<b>7,867,749</b>	<b>7,983,125</b>	<b>15,176,525</b>	

303-3

## Our Performance Data

## Water

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Plant Type: Coal</b>							303-3
<b>Sejingkat Power Corp + PPLS</b>							
Municipal	meter cubic (m <sup>3</sup> )	1,386,373.00 <sup>4</sup>	1,140,932.00 <sup>3</sup>	1,265,838.00 <sup>2</sup>	1,133,445.00 <sup>1</sup>	1,163,372.00*	
Sea Water or other natural water source	meter cubic (m <sup>3</sup> )	353,454,413.18 <sup>4</sup>	331,568,280.00 <sup>3</sup>	348,383,088.00 <sup>2</sup>	305,121,492.00 <sup>1</sup>	266,940,141.12*	
<b>Mukah Power Generation</b>							
Municipal	meter cubic (m <sup>3</sup> )	803,362.00 <sup>4</sup>	1,063,097.00 <sup>3</sup>	741,874.00 <sup>2</sup>	814,465.00 <sup>1</sup>	931,051.00*	
Sea Water or other natural water source	meter cubic (m <sup>3</sup> )	410,793,379.20 <sup>4</sup>	392,610,711.74 <sup>3</sup>	219,655,670.40 <sup>2</sup>	219,276,979.20 <sup>1</sup>	235,671,120.00*	
<b>Balingian Power Generation</b>							
Municipal	meter cubic (m <sup>3</sup> )	-	-	N/A <sup>2</sup>	17,924.00 <sup>1</sup>	16,389.00*	
Sea Water or other natural water source	meter cubic (m <sup>3</sup> )	-	-	1,650,000.00 <sup>2</sup>	4,186,687.50 <sup>1</sup>	4,467,750.00*	
<b>Plant Type: Combined Cycle - Natural Gas</b>							
<b>SPG + Bintulu SESCO</b>							
Municipal	meter cubic (m <sup>3</sup> )	220,611.00 <sup>4</sup>	329,516.00 <sup>3</sup>	250,223.00 <sup>2</sup>	275,082.00 <sup>1</sup>	232,815.00*	
Sea Water or other natural water source	meter cubic (m <sup>3</sup> )	227,489,565.60 <sup>4</sup>	241,935,030.72 <sup>3</sup>	104,047,121.52 <sup>2</sup>	87,860,036.88 <sup>1</sup>	228,063,636.00*	
<b>KPG</b>							
Municipal	meter cubic (m <sup>3</sup> )	-	-	-	112,863.00 <sup>1</sup>	162,506.00*	
Sea Water or other natural water source	meter cubic (m <sup>3</sup> )	-	-	-	404,068,140.00 <sup>1</sup>	501,406,498.50*	
<b>Plant Type: Open Cycle - Natural Gas</b>							
<b>Miri SESCO</b>							
Municipal	meter cubic (m <sup>3</sup> )	9,225.00 <sup>4</sup>	23,803.00 <sup>3</sup>	29,542.00 <sup>2</sup>	47,638.00 <sup>1</sup>	39,448.00*	
Sea Water or other natural water source	meter cubic (m <sup>3</sup> )	N/A <sup>4</sup>	N/A <sup>3</sup>	N/A <sup>2</sup>	N/A <sup>1</sup>	N/A*	

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## Our Performance Data

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Plant Type: Combined Cycle - Diesel</b>							303-3
<b>Sg Biawak SESCO</b>							
Municipal	meter cubic (m <sup>3</sup> )	13,952.50 <sup>4</sup>	6,896.13 <sup>3</sup>	1,731.51 <sup>2</sup>	4,417.00 <sup>1</sup>	5,673.66*	
Sea Water or other natural water source	meter cubic (m <sup>3</sup> )	69,650.00 <sup>4</sup>	0.00 <sup>3</sup>	0.00 <sup>2</sup>	0.00 <sup>1</sup>	0.00*	
<b>Non-Grid - Limbang</b>							
Municipal	meter cubic (m <sup>3</sup> )	22,992.00	40,859.00	41,251.00	43,936.00	46,726.00	
<b>Non-Grid - Lawas</b>							
Municipal	meter cubic (m <sup>3</sup> )	656.00	2,837.00	3,700.00	4,220.00	4,683.00	

## Climate

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Direct (Scope 1) GHG emissions</b>							305-1 305-4 TCFD
Main Grid	tCO <sub>2</sub> eq	5,151,395.75	6,348,254.39 <sup>3</sup>	5,600,892.97 <sup>2</sup>	5,976,874.06 <sup>1</sup>	6,483,137.99*	
Northern Grid	tCO <sub>2</sub> eq	102,837.43	104,477.64 <sup>3</sup>	97,829.99 <sup>2</sup>	100,595.84 <sup>1</sup>	104,238.93*	
Stand-Alone Grid	tCO <sub>2</sub> eq	13,812.44	14,453.34 <sup>3</sup>	9,176.85 <sup>2</sup>	8,818.18 <sup>1</sup>	9,958.58*	
Company-owned	tCO <sub>2</sub> eq	5,189.96	5,353.45	4,167.74	3,766.89	2,112.89*	
<b>Total</b>	<b>tCO<sub>2</sub>eq</b>	<b>5,273,235.58</b>	<b>6,472,538.82</b>	<b>5,712,067.55</b>	<b>6,090,054.97</b>	<b>6,599,448.39*</b>	
<b>Scope 1 Emissions Intensity</b>							
Normalised by Gross Energy	tCO <sub>2</sub> eq/MWh	0.193	0.220	0.201	0.196	0.197	
Normalised by Net Energy	tCO <sub>2</sub> eq/MWh	0.196	0.225	0.206	0.201	0.201	
Direct Emissions (Scope 1) Intensity (over Revenue) <sup>a</sup>	tCO <sub>2</sub> eq/ Millions of Revenue (RM)	972.33	1,143.14	1,033.70	1,006.82	947.53*	
Direct Emissions (Scope 1) Intensity (over Total Investment <sub>LCG</sub> ) <sup>a</sup>	tCO <sub>2</sub> eq/ RM Millions of Total Investment <sub>LCG</sub>	780.70	955.98	825.49	880.09	659.67*	

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Our Performance Data

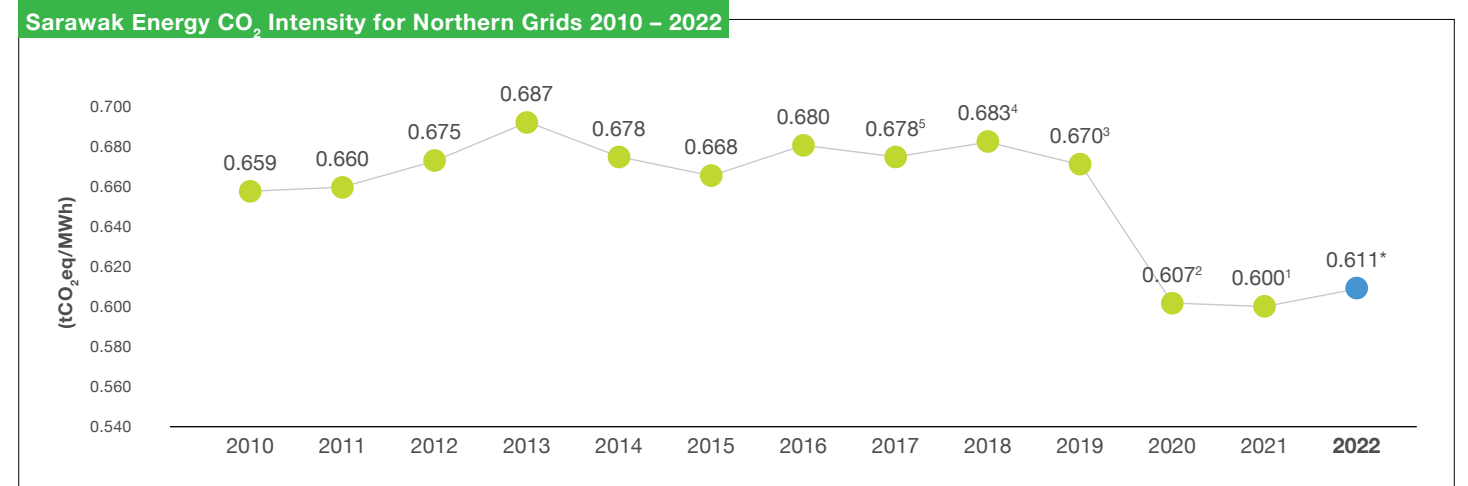
Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Energy Indirect (Scope 2)</b>							305-1 305-2 305-3 305-4 TCFD
Building Electricity Consumption (Offices & Substations)	tCO <sub>2</sub> eq	13,044.61	13,709.25	13,447.19 <sup>2</sup>	11,999.62 <sup>1</sup>	12,809.42*	
<b>Scope 2 Emissions Intensity</b>							
Normalised by Gross Energy	tCO <sub>2</sub> eq/MWh	-	0.000466	0.000474	0.000387	0.000382	
Normalised by Net Energy	tCO <sub>2</sub> eq/MWh	-	0.000477	0.000485	0.000395	0.000391	
<b>Other Indirect (Scope 3) GHG Emissions</b>							
Business Air Travel	tCO <sub>2</sub>	-	2,582.05	565.13 <sup>2</sup>	252.41 <sup>1</sup>	1,922.01*	
<b>Total CO<sub>2</sub> Emissions (Main Grid)</b>							
Sejangkat Power Corp.	tCO <sub>2</sub> eq	854,293.99	679,890.56	671,849.96	462,019.95	335,052.46	
PPLS Power Generation	tCO <sub>2</sub> eq	707,251.87	697,347.40	650,276.32	605,853.28	571,262.26	
Mukah Power Sdn. Bhd.	tCO <sub>2</sub> eq	1,609,253.91	1,585,818.75	871,167.29	895,037.02	805,325.80	
Balingian Power Generation	tCO <sub>2</sub> eq	-	1,423,412.27	1,605,680.74	2,234,823.71	2,501,945.80	
Sarawak Power Generation	tCO <sub>2</sub> eq	950,543.09	950,462.21	749,873.97	600,125.08	778,083.39	
Kidurong Power Generation 1	tCO <sub>2</sub> eq	-	-	103,455.03	668,870.02	462,530.86	
Kidurong Power Generation 2	tCO <sub>2</sub> eq	-	-	-	-	364,529.62	
Bintulu PS	tCO <sub>2</sub> eq	545,729.43	520,329.19	520,956.75	167,782.04	312,304.24	
Miri PS	tCO <sub>2</sub> eq	483,172.32	488,542.53	427,168.65	341,586.19	348,464.37	
Sg Biawak PS	tCO <sub>2</sub> eq	1,151.14	2,451.47	464.25	776.76	3,639.19	
<b>Total tCO<sub>2</sub>eq Emissions (Main Grid)</b>	<b>tCO<sub>2</sub>eq</b>	<b>5,151,395.75</b>	<b>6,348,254.39<sup>2</sup></b>	<b>5,600,892.97<sup>2</sup></b>	<b>5,976,874.06<sup>1</sup></b>	<b>6,483,137.99*</b>	
<b>Total CO<sub>2</sub> Emissions (Northern Grid)</b>							
Limbang PS	tCO <sub>2</sub> eq	64,433.37	63,744.59	64,646.28	67,682.00	71,502.75	
Lawas PS	tCO <sub>2</sub> eq	38,404.06	40,733.05	33,183.71	32,913.84	32,736.18	
<b>Total tCO<sub>2</sub>eq Emissions (Northern Grid)</b>	<b>tCO<sub>2</sub>eq</b>	<b>102,837.43</b>	<b>104,477.64<sup>2</sup></b>	<b>97,829.99<sup>2</sup></b>	<b>100,595.84<sup>1</sup></b>	<b>104,238.93*</b>	

305-1, 305-4

Our Performance Data

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Total CO<sub>2</sub> Emissions (Stand-alone Grid)</b>							305-1 305-4 TCFD
Kapit PS	tCO <sub>2</sub> eq	119.98	-	-	-	-	
Belaga PS	tCO <sub>2</sub> eq	3,632.72	3,700.81	3,859.01	3,603.22	3,783.97	
Song PS	tCO <sub>2</sub> eq	3,066.06	4,742.08	-	-	-	
Ng Mujong PS	tCO <sub>2</sub> eq	221.73	157.66	-	-	-	
Ng Ngungun PS	tCO <sub>2</sub> eq	748.49	-	-	-	-	
Ng Jagau PS	tCO <sub>2</sub> eq	233.08	236.12	253.84	298.84	319.19	
Ng Entawau PS	tCO <sub>2</sub> eq	303.40	280.15	289.32	292.80	296.77	
Mulu PS	tCO <sub>2</sub> eq	1,671.70	1,524.01	1,005.82	896.63	1,216.42	
Long Lama PS	tCO <sub>2</sub> eq	2,933.86	2,927.26	2,848.51	2,759.08	3,299.35	
Banting PS	tCO <sub>2</sub> eq	288.33	298.80	297.26	287.88	303.02	
Paloh PS	tCO <sub>2</sub> eq	593.11	586.46	623.1	679.72	739.86	
<b>Total</b>	<b>tCO<sub>2</sub>eq</b>	<b>13,812.44</b>	<b>14,453.35<sup>3</sup></b>	<b>9,176.86<sup>2</sup></b>	<b>8,818.18<sup>1</sup></b>	<b>9,958.58*</b>	
<b>Total SF<sub>6</sub> Consumption – by Business Level</b>							
Generation	Tonne	11.04	17.18	17.41	17.63	17.63	
Transmission	Tonne	32.25	33.47	34.03	43.52	44.35	
Distribution	Tonne	12.05	13.06	13.62	13.92	14.45	
<b>Total</b>	<b>Tonne</b>	<b>55.33</b>	<b>63.71</b>	<b>65.05</b>	<b>75.08</b>	<b>76.43</b>	

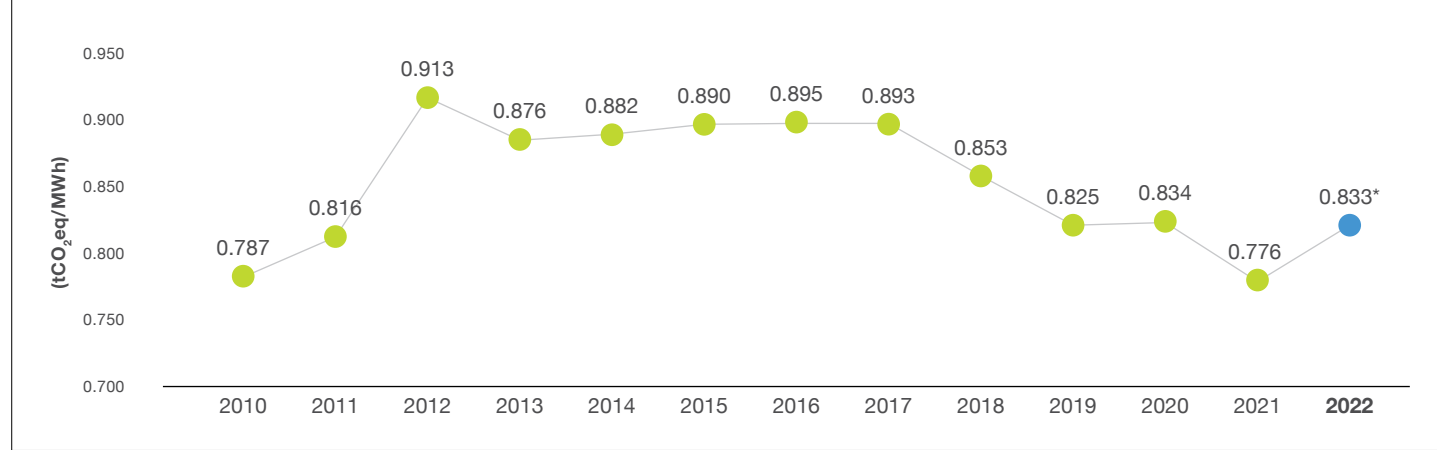
**Notes:**  
 1. Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.  
 2. Scope 3 emissions – Business air travel is calculated using ICAO Carbon Emissions Calculator as on 9 June 2023.  
 3. <sup>1,2,3</sup> Low Carbon Generation.  
 4. \* TCFD related metrics.



305-4, EU2

Our Performance Data

Sarawak Energy CO<sub>2</sub> Intensity for Stand-alone Grids 2010 – 2022 (Whole Sarawak)



Net Energy Generated

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Total Net Energy Generated for Main Grids</b>							EU2 TCFD
<b>Plant Type: Hydro</b>							
Batang Ai	MWh	480,586.75 <sup>4</sup>	386,993.39 <sup>3</sup>	517,434.53 <sup>2</sup>	475,024.49 <sup>1</sup>	471,217.65*	
Bakun	MWh	14,351,890.00 <sup>4</sup>	15,424,402.00 <sup>3</sup>	14,680,879.00 <sup>2</sup>	16,239,095.00 <sup>1</sup>	16,549,475.00*	
Murum	MWh	6,053,056.70 <sup>4</sup>	5,688,832.30 <sup>3</sup>	6,406,413.20 <sup>2</sup>	6,456,371.70 <sup>1</sup>	7,145,655.30*	
Lundu PS	MWh	2,852.54 <sup>4</sup>	3,024.10 <sup>3</sup>	1,637.74 <sup>2</sup>	1,094.91 <sup>1</sup>	1,379.18*	
<b>Total</b>	<b>MWh</b>	<b>20,888,385.98<sup>4</sup></b>	<b>21,503,251.79<sup>3</sup></b>	<b>21,606,364.48<sup>2</sup></b>	<b>23,171,586.10<sup>1</sup></b>	<b>24,167,727.13*</b>	
Renewable energy generation intensity <sup>a</sup>	Millions of Revenues from Electricity Sales (RM)/MWh	0.00026	0.00026	0.00026	0.00026	0.00029	
<b>Plant Type: Coal</b>							
Sejingkat Power Corp.	MWh	593,489.90 <sup>4</sup>	505,914.49 <sup>3</sup>	494,902.10 <sup>2</sup>	330,743.60 <sup>1</sup>	181,343.10*	
PPLS Power Generation	MWh	614,127.50 <sup>4</sup>	518,672.85 <sup>3</sup>	516,329.80 <sup>2</sup>	500,261.90 <sup>1</sup>	422,287.60*	
Mukah Power Sdn. Bhd.	MWh	1,401,963.65 <sup>4</sup>	1,343,966.90 <sup>3</sup>	770,626.40 <sup>2</sup>	776,398.80 <sup>1</sup>	685,932.10*	
Balingian Power Generation	MWh	-	1,421,724.40 <sup>3</sup>	1,263,976.37 <sup>2</sup>	2,104,908.50 <sup>1</sup>	2,556,189.00*	

EU2

Our Performance Data

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Plant Type: Natural Gas</b>							EU2 TCFD
Sarawak Power Generation	MWh	2,023,026.02 <sup>4</sup>	2,106,253.75 <sup>3</sup>	1,594,561.40 <sup>2</sup>	1,073,279.19 <sup>1</sup>	1,640,519.17*	
Kidurong Power Generation 1	MWh	-	-	212,114.57 <sup>2</sup>	1,626,879.19 <sup>1</sup>	1,166,241.95*	
Kidurong Power Generation 2	MWh	-	-	-	-	1,056,307.39*	
Bintulu PS	MWh	661,306.76 <sup>4</sup>	615,465.59 <sup>3</sup>	608,672.49 <sup>2</sup>	204,363.70 <sup>1</sup>	333,360.49*	
Miri PS	MWh	487,506.50 <sup>4</sup>	535,371.43 <sup>3</sup>	468,368.98 <sup>2</sup>	374,955.17 <sup>1</sup>	377,202.85*	
<b>Plant Type: Diesel</b>							
Sg Biawak PS	MWh	0.00 <sup>4</sup>	887.78 <sup>3</sup>	0.00 <sup>2</sup>	0.00 <sup>1</sup>	1,913.17*	
<b>Total (Main Grid)</b>	<b>MWh</b>	<b>5,781,420.33<sup>4</sup></b>	<b>7,048,257.18<sup>3</sup></b>	<b>5,929,552.11<sup>2</sup></b>	<b>6,991,790.05<sup>1</sup></b>	<b>8,421,296.82*</b>	
<b>Total Net Energy Generated for Northern Grids</b>							
<b>Plant Type: Mini Hydro</b>							
Lawas M/H (Kalamuku)	MWh	2,549.86 <sup>4</sup>	2,012.81 <sup>3</sup>	1,603.95 <sup>2</sup>	786.20 <sup>1</sup>	1,025.43*	
Lawas M/H (Sg. Kota 1)	MWh	8,508.60 <sup>4</sup>	3,993.69 <sup>3</sup>	0.00 <sup>2</sup>	1,403.46 <sup>1</sup>	2,728.00*	
Lawas M/H (Sg. Kota 2)	MWh	-	1,849.88 <sup>3</sup>	21,321.83 <sup>2</sup>	26,985.88 <sup>1</sup>	28,211.39*	
<b>Total</b>	<b>MWh</b>	<b>11,058.46<sup>4</sup></b>	<b>7,856.38<sup>3</sup></b>	<b>22,925.78<sup>2</sup></b>	<b>29,175.54<sup>1</sup></b>	<b>31,964.82*</b>	
<b>Plant Type: Diesel</b>							
Limbang PS	MWh	87,494.23 <sup>4</sup>	90,569.93 <sup>3</sup>	91,660.87 <sup>2</sup>	93,756.55 <sup>1</sup>	95,730.16*	
Lawas PS	MWh	52,043.58 <sup>4</sup>	57,466.64 <sup>3</sup>	46,662.14 <sup>2</sup>	44,838.54 <sup>1</sup>	42,956.23*	
<b>Total</b>	<b>MWh</b>	<b>139,537.81<sup>4</sup></b>	<b>148,036.57<sup>3</sup></b>	<b>138,323.01<sup>2</sup></b>	<b>138,595.09<sup>1</sup></b>	<b>138,686.39*</b>	
<b>Total Net Energy Generated for Stand-alone Grids</b>							
<b>Plant Type: Diesel</b>							
Kapit PS	MWh	96.78	-	-	-	-	
Belaga PS	MWh	4,238.20	4,256.13	4,519.19 <sup>2</sup>	4,914.287 <sup>1</sup>	5,110.62*	
Song PS	MWh	3,816.98	6,222.96	-	-	-	
Ng Mujong PS	MWh	250.40	177.63	-	-	-	
Ng Ngungun PS	MWh	858.68	-	-	-	-	
Ng Jagau PS	MWh	210.37	218.24	232.60 <sup>2</sup>	256.19 <sup>1</sup>	282.62*	
Ng Entawau PS	MWh	343.93	328.64	340.59 <sup>2</sup>	342.67 <sup>1</sup>	345.22*	
Mulu PS	MWh	1,877.34	1,641.00	1,056.89 <sup>2</sup>	948.10 <sup>1</sup>	1,543.48*	
Long Lama PS	MWh	3,519.90	3,628.99	3,778.73 <sup>2</sup>	3,768.35 <sup>1</sup>	3,522.21*	
Banting PS	MWh	319.15	342.47	335.12 <sup>2</sup>	340.40 <sup>1</sup>	340.21*	
Paloh PS	MWh	662.52	699.00	735.61 <sup>2</sup>	796.90 <sup>1</sup>	804.07*	
<b>Total</b>	<b>MWh</b>	<b>16,194.25</b>	<b>17,515.05</b>	<b>10,998.73<sup>2</sup></b>	<b>11,366.90<sup>1</sup></b>	<b>11,948.43*</b>	

Notes:

1. <sup>a</sup> TCFD related metrics.  
2. These net energy generated data have been corrected for Sg. Biawak PS for year 2018, 2020 & 2021 and Lawas M/H (Sg. Kota 1) for year 2020 from the Sarawak Energy Sustainability Report 2018, 2020 & 2021.



305-4  
Our Performance Data

Plants CO<sub>2</sub> & CO<sub>2</sub> Intensity (tCO<sub>2</sub>eq & tCO<sub>2</sub>eq/MWh) – Main Grid

Disclosure	Plant Type	Plant (Main Grid)	CO <sub>2</sub> Emissions	Gross Energy Generated	CO <sub>2</sub> Emissions Intensity	GRI
Unit			tCO <sub>2</sub> eq	MWh	tCO <sub>2</sub> eq/MWh	
2018	Coal	Sejingkat Power Corp	854,293.99	673,672.50	1.268	305-4
		PPLS	707,251.87	675,296.00	1.047	
		MPG	1,609,253.91	1,573,521.05	1.023	
	Natural Gas	SPG	950,543.09	2,059,519.80	0.462	
		Bintulu SESCO	545,729.43	670,339.06	0.814	
		Miri SESCO	483,172.32	493,843.86	0.978	
		Diesel	Sg Biawak SESCO	1,151.14	1,044.31	
2019	Coal	Sejingkat Power Corp	679,890.56	553,289.86	1.229	
		PPLS	697,347.40	637,196.85	1.094	
		MPG	1,585,818.75	1,515,106.28	1.047	
		BPG	1,423,412.27	1,562,639.57	0.911	
	Natural Gas	SPG	950,462.21	2,145,919.00	0.443	
		Bintulu SESCO	520,329.19	625,274.14	0.832	
		Miri SESCO	488,542.53	541,988.30	0.901	
Diesel	Sg Biawak SESCO	2,451.47	2,127.20	1.152		
2020	Coal	Sejingkat Power Corp	671,849.96	505,307.39	1.330	
		PPLS	650,276.32	634,529.00	1.025	
		MPG	871,167.29	858,735.07	1.014	
		BPG	1,605,680.74	1,532,546.58	1.048	
	Natural Gas	SPG	749,873.97	1,628,610.51	0.460	
		KID1	103,455.03	222,919.67	0.464	
		Bintulu SESCO	520,956.75	616,612.83	0.845	
Diesel	Miri SESCO	427,168.65	474,195.11	0.901		
Diesel	Sg Biawak SESCO	464.25	330.20	1.406		
2021	Coal	Sejingkat Power Corp	462,019.95	372,898.69	1.239	
		PPLS	605,853.28	560,269.00	1.081	
		MPG	895,037.02	861,797.57	1.039	
		BPG	2,234,823.71	2,326,198.96	0.961	
	Natural Gas	SPG	600,125.08	1,101,259.00	0.545	
		KID1	668,870.02	1,682,655.19	0.398	
		Bintulu SESCO	167,782.04	207,738.65	0.808	
Diesel	Miri SESCO	341,586.19	380,266.89	0.898		
Diesel	Sg Biawak SESCO	776.76	621.70	1.249		

305-4  
Our Performance Data

Disclosure	Plant Type	Plant (Main Grid)	CO <sub>2</sub> Emissions	Gross Energy Generated	CO <sub>2</sub> Emissions Intensity	GRI
Unit			tCO <sub>2</sub> eq	MWh	tCO <sub>2</sub> eq/MWh	
2022	Coal	Sejingkat Power Corp	335,052.46	213,475.20	1.570	305-4
		PPLS	571,262.26	486,652.60	1.174	
		MPG	805,325.80	779,242.85	1.033	
	Natural Gas	BPG	2,501,945.80	2,826,894.64	0.885	
		SPG	778,083.39	1,686,662.00	0.461	
		KID1	462,530.86	1,214,330.75	0.381	
		KID2	364,529.62	1,057,768.99	0.345	
		Bintulu SESCO	312,304.24	339,006.56	0.921	
		Miri SESCO	348,464.37	383,976.59	0.908	
Diesel	Sg Biawak SESCO	3,639.19	3,083.40	1.180		

Note:  
Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.

Plants CO<sub>2</sub> & CO<sub>2</sub> Intensity (tCO<sub>2</sub>eq & tCO<sub>2</sub>eq/ MWh) – Northern Grid

Disclosure	Plant Type	Plant (Northern Grid)	CO <sub>2</sub> Emissions	Gross Energy Generated	CO <sub>2</sub> Emissions Intensity	GRI
Unit			tCO <sub>2</sub> eq	MWh	tCO <sub>2</sub> eq/MWh	
2018	Diesel	Limbang PS	64,433.37	90,795.98	0.710	305-4
		Lawas	38,404.06	53,823.62	0.714	
2019	Diesel	Limbang PS	63,744.59	93,953.17	0.678	
		Lawas	40,733.05	59,529.64	0.684	
2020	Diesel	Limbang PS	64,646.28	94,979.15	0.681	
		Lawas	33,183.71	48,450.37	0.685	
2021	Diesel	Limbang PS	67,682.00	97,218.98	0.696	
		Lawas	32,913.84	46,575.33	0.707	
2022	Diesel	Limbang PS	71,502.75	99,053.53	0.722	
		Lawas	32,736.18	44,515.03	0.735	

Note:  
Emissions in CO<sub>2</sub>eq include Direct Scope 1 emissions from CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.



305-7  
Our Performance Data

Nitrogen Oxides (NO<sub>x</sub>) & Sulfur Oxides (SO<sub>x</sub>)

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Plant Type: Coal</b>							305-7
<b>Sejangkat Power Corp.</b>							
SO <sub>x</sub> Emissions	kg	614,470.31	89,848.99	378,491.95	81,348.10	-	
NO <sub>x</sub> Emissions	kg	259.67	16.42	359,136.25	69,304.95	315,323	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	9.12 x 10 <sup>-4</sup>	1.62 x 10 <sup>-4</sup>	7.49 x 10 <sup>-4</sup>	2.18 x 10 <sup>-4</sup>	-	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	3.85 x 10 <sup>-7</sup>	2.97 x 10 <sup>-8</sup>	7.11 x 10 <sup>-4</sup>	1.86 x 10 <sup>-4</sup>	1.48 x 10 <sup>-3</sup>	
<b>PPLS Power Generation</b>							
SO <sub>x</sub> Emissions	kg	479,441.87	91,591.63	735,016.78	141,190.26	276,203	
NO <sub>x</sub> Emissions	kg	234.42	440.51	904,654.39	111,777.62	1,524,118	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	7.10 x 10 <sup>-4</sup>	1.44 x 10 <sup>-4</sup>	1.16 x 10 <sup>-3</sup>	2.52 x 10 <sup>-4</sup>	5.68 x 10 <sup>-4</sup>	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	3.47 x 10 <sup>-7</sup>	6.91 x 10 <sup>-7</sup>	1.43 x 10 <sup>-3</sup>	2.00 x 10 <sup>-4</sup>	3.13 x 10 <sup>-3</sup>	
<b>Mukah Power Sdn. Bhd.</b>							
SO <sub>x</sub> Emissions	kg	495,377.29	251,154.40	1,021,298.63	215,766.98	21,167	
NO <sub>x</sub> Emissions	kg	402.41	669.96	1,134,177.51	343,351.40	-	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	3.15 x 10 <sup>-4</sup>	1.66 x 10 <sup>-4</sup>	1.19 x 10 <sup>-3</sup>	2.50 x 10 <sup>-4</sup>	2.72 x 10 <sup>-5</sup>	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	2.56 x 10 <sup>-7</sup>	4.42 x 10 <sup>-7</sup>	1.32 x 10 <sup>-3</sup>	3.98 x 10 <sup>-4</sup>	-	
<b>Balingian Power Generation</b>							
SO <sub>x</sub> Emissions	kg	-	-	416,981.70	309,364.12	2,304,494	
NO <sub>x</sub> Emissions	kg	-	-	363,580.35	54,820.72	778,711	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	-	-	2.72 x 10 <sup>-4</sup>	1.33 x 10 <sup>-4</sup>	8.15 x 10 <sup>-4</sup>	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	-	-	2.37 x 10 <sup>-4</sup>	2.36 x 10 <sup>-5</sup>	2.75 x 10 <sup>-4</sup>	
<b>Plant Type: Natural Gas</b>							
<b>Sarawak Power Generation</b>							
SO <sub>x</sub> Emissions	kg	35,473.30	8,765.45	14,055.59	21,690.53	19,699	
NO <sub>x</sub> Emissions	kg	1,036,442.01	2,305,925.09	1,178,960.42	1,238,778.14	892,474	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	1.72 x 10 <sup>-5</sup>	4.08 x 10 <sup>-6</sup>	8.63 x 10 <sup>-6</sup>	1.97 x 10 <sup>-5</sup>	1.17 x 10 <sup>-5</sup>	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	5.03 x 10 <sup>-4</sup>	1.07 x 10 <sup>-3</sup>	7.24 x 10 <sup>-4</sup>	1.12 x 10 <sup>-3</sup>	5.29 x 10 <sup>-4</sup>	

305-7  
Our Performance Data

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Kidurong Power Generation 1</b>							305-7
SO <sub>x</sub> Emissions	kg	-	-	-	10,102.91	5,939	
NO <sub>x</sub> Emissions	kg	-	-	-	16,182.00	11,650	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	-	-	-	6.00 x 10 <sup>-6</sup>	4.89 x 10 <sup>-6</sup>	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	-	-	-	9.62 x 10 <sup>-6</sup>	9.59 x 10 <sup>-6</sup>	
<b>Kidurong Power Generation 2</b>							
SO <sub>x</sub> Emissions	kg	-	-	-	-	5,046	
NO <sub>x</sub> Emissions	kg	-	-	-	-	6,090	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	-	-	-	-	4.77 x 10 <sup>-6</sup>	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	-	-	-	-	5.76 x 10 <sup>-6</sup>	
<b>Bintulu PS</b>							
SO <sub>x</sub> Emissions	kg	31,551.82	12,003.51	1,023,678.72	77,778.18	6,502	
NO <sub>x</sub> Emissions	kg	979.77	130.25	1,384,977.34	137,827.00	71	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	4.71 x 10 <sup>-5</sup>	1.92 x 10 <sup>-5</sup>	1.66 x 10 <sup>-3</sup>	3.74 x 10 <sup>-4</sup>	1.92 x 10 <sup>-5</sup>	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	1.46 x 10 <sup>-6</sup>	2.08 x 10 <sup>-7</sup>	2.25 x 10 <sup>-3</sup>	6.63 x 10 <sup>-4</sup>	2.08 x 10 <sup>-7</sup>	
<b>Miri PS</b>							
SO <sub>x</sub> Emissions	kg	306.44	965.92	-	1,488.01	681	
NO <sub>x</sub> Emissions	kg	8,190.26	83.38	107,678.46	279,706.00	59	
SO <sub>x</sub> Intensity	kgSO <sub>x</sub> /kWh	6.21 x 10 <sup>-7</sup>	1.78 x 10 <sup>-6</sup>	-	-	1.77 x 10 <sup>-6</sup>	
NO <sub>x</sub> Intensity	kgNO <sub>x</sub> /kWh	1.66 x 10 <sup>-5</sup>	1.54 x 10 <sup>-7</sup>	2.27 x 10 <sup>-4</sup>	7.36 x 10 <sup>-4</sup>	1.53 x 10 <sup>-7</sup>	



306-3 Our Performance Data

Waste

Plant Type	Plant Name	Types of Waste	Waste Code	Source/Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
<b>Waste Volume Generated from Hydro Power Plants by Category</b>										
Hydro	Bakun HEP	Used lubricating oil	SW 305	Turbine bearing and crane motor	1.40	19.80	0.20	0.00	4.40	306-3
		Used hydraulic oil	SW 306	Power intake and governor	37.60	28.40	12.60	16.30	79.10	
		Spent mineral oil -water emulsion	SW 307	Dewatering pit - oil spill due to excursion from unit	6.00	11.80	1.38	2.25	2.00	
		<b>SUM</b>			<b>45.00</b>	<b>60.00</b>	<b>14.18</b>	<b>18.55</b>	<b>85.50</b>	
		Contaminated rags	SW 410	Maintenance activities	0.03	0.30	0.74	0.66	0.74	
		Contaminated oil filter	SW 410	Maintenance activities	0.00	0.01	0.00	0.39	0.01	
		Empty contaminated container	SW 409	Maintenance activities	0.00	0.02	0.36	0.07	0.02	
		<b>SUM</b>			<b>0.03</b>	<b>0.33</b>	<b>1.10</b>	<b>1.12</b>	<b>0.77</b>	
		Used fluorescent tube and bulbs	SW 109	Powerhouse and residential area	0.01	0.22	0.04	0.13	0.27	
		Waste of batteries containing cadmium and nickel or mercury or lithium	SW 103	Battery room/UPS room	0.00	0.34	0.00	0.10	0.00	
		Electrical and electronic waste	SW 110	Powerhouse and residential area	0.00	0.82	0.28	0.37	1.10	
		<b>SUM</b>			<b>0.01</b>	<b>1.38</b>	<b>0.31</b>	<b>0.59</b>	<b>1.37</b>	
		Contaminated soil disposed (if applicable)	-	-	0.00	0.00	0.00	0.00	0.00	
		<b>SUM</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
		Chemicals that are discarded or off-specification	SW 429	Chemical store	0.01	0.38	0.91	0.00	0.66	
		Spent inorganic acids	SW 206	Battery room/UPS room	0.00	0.32	0.00	0.00	0.00	
		<b>SUM</b>			<b>0.01</b>	<b>0.71</b>	<b>0.91</b>	<b>0.00</b>	<b>0.66</b>	

306-3 Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
Hydro	Murum HEP	Used lubricating oil	SW 305	Diesel genset	0.33	1.12	0.22	1.05	1.87	306-3
		Used hydraulic oil	SW 306	For hydraulic system, e.g., intake gate	2.30	31.69	25.00	169.45	12.98	
		Oil water emulsion	SW 307	Lube oil contaminated with water through process (dewatering pit, lube oil contaminated with water during operation i.e. leak heat exchange tube)	0.37	3.58	9.20	70.61	1.62	
		Dirty diesel	SW 311	Cleaning of bolts and nuts and parts of the turbine	0.00	0.03	0.00	0.00	0.00	
		Used transformer oil	SW 327	-	0.00	0.00	0.00	0.00	0.00	
		<b>SUM</b>			<b>3.00</b>	<b>36.42</b>	<b>34.42</b>	<b>241.10</b>	<b>16.47</b>	
		Discarded Oxidant Media	SW 104	-	2.29	0.24	0.00	0.00	0.00	
		Discarded media of air circulation unit (carb)	SW 104	-	0.56	0.00	0.00	0.00	0.00	
		Discarded paint cans	SW 409	-	0.03	0.02	0.09	0.03	0.12	
		Container contaminated with SW	SW 409	-	0.31	0.74	0.05	0.00	1.51	
		Used oil filter	SW 410	-	0.08	0.11	0.05	0.12	0.22	
		Empty spray can	SW409	-	0.00	0.01	0.01	0.01	0.01	
		Contaminated rags	SW 410	-	0.49	1.15	0.56	1.35	0.90	
		<b>SUM</b>			<b>3.76</b>	<b>2.26</b>	<b>0.77</b>	<b>1.51</b>	<b>2.76</b>	
		Discarded Light Bulb/Tube	SW 109	Building maintenance	0.08	0.04	0.00	0.04	0.06	
		Discarded Lead Acid Battery	SW 102	From Genset and DC Supply System	0.00	0.00	0.00	0.12	4.37	
		E-Waste	SW 110	Electrical device	0.08	0.02	0.02	0.17	0.29	
		Discarded Battery	SW103	From DC supply	0.05	0.04	0.00	0.14	0.04	
		<b>SUM</b>			<b>0.21</b>	<b>0.09</b>	<b>0.02</b>	<b>0.47</b>	<b>4.75</b>	



306-3  
Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Contaminated soil disposed (if applicable)	-	-	0.00	0.00	0.00	0.67	0.00	306-3
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.67</b>	<b>0.00</b>	
		Spent sodium hydroxide	SW 206	-	0.05	0.00	0.00	0.00	0.00	
		Spent hydrochloric acid	SW 206	-	0.04	0.00	0.00	0.00	0.00	
		Mixture of SW and non-SW (Paints, plant maintenance)	SW 422	-	0.00	0.03	0.00	0.04	0.02	
		Obsolete laboratory chemicals	SW 430	-	0.03	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.13</b>	<b>0.03</b>	<b>0.00</b>	<b>0.04</b>	<b>0.02</b>	
Hydro	Batang Ai HEP	Used lubricating oil	SW 305	Maintenance activities	7.74	8.60	5.23	6.65	16.51	
		Used transformer oil	SW 327	Transformer oil maintenance	0.79	22.11	23.00	11.00	0.00	
		Used transformer oil	SW 306	Transformer oil maintenance	0.00	0.00	0.00	34.00	0.00	
				<b>SUM</b>	<b>8.53</b>	<b>30.71</b>	<b>28.23</b>	<b>51.65</b>	<b>16.51</b>	
		Disposed drums contaminated with chemicals	SW 409	-	0.40	0.00	0.24	0.25	4.00	
		Disposed containers contaminated with chemicals	SW 409	-	0.32	2.13	0.12	0.11	0.00	
		Contaminated rags	SW410	Maintenance activities	0.83	3.62	0.55	0.80	6.00	
				<b>SUM</b>	<b>1.54</b>	<b>5.75</b>	<b>0.91</b>	<b>1.16</b>	<b>10.00</b>	
		Discarded bulbs	SW 109	-	0.17	0.30	0.56	0.50	0.04	
				<b>SUM</b>	<b>0.17</b>	<b>0.30</b>	<b>0.56</b>	<b>0.50</b>	<b>0.04</b>	
		Contaminated soil	SW 408	-	0.58	0.00	0.35	0.30	0.00	
				<b>SUM</b>	<b>0.58</b>	<b>0.00</b>	<b>0.35</b>	<b>0.30</b>	<b>0.00</b>	
		Chemicals disposed (if applicable)	SW 429	-	0.00	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	

306-3  
Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
<b>Waste Volume Generated from Coal, Gas and Diesel Fired Power Plants by Category</b>										
Coal	SPC	Used lubricating oil	SW 305	Machinery maintenance	14.54	24.19	4.39	10.94	3.98	306-3
		Used hydraulic oil	SW 306	Machinery maintenance	34.31	9.65	6.28	5.57	13.62	
				<b>SUM</b>	<b>48.85</b>	<b>33.83</b>	<b>10.67</b>	<b>16.52</b>	<b>17.60</b>	
		Disposed containers, bags or equipment contaminated with chemicals, pesticides, mineral oil or scheduled waste	SW 409	-	3.59	4.00	2.41	2.09	1.42	
		Contaminated rags	SW 410	Items used for maintenance work	20.68	18.05	14.79	2.92	1.48	
				<b>SUM</b>	<b>24.27</b>	<b>22.05</b>	<b>17.20</b>	<b>5.01</b>	<b>2.91</b>	
		Waste of lead acid batteries in whole or crushed form	SW 102	Machinery maintenance	0.26	0.27	0.21	0.26	0.00	
		Waste of batteries containing cadmium and nickel or mercury or lithium	SW 103	Machinery maintenance	0.01	0.02	0.01	0.01	0.01	
		E-waste	SW 110	Electrical & electronic maintenance	0.58	0.51	0.13	0.04	0.12	
		Disposed fluorescent bulb	SW 109	Electrical & electronic maintenance	-	-	-	0.04	0.08	
				<b>SUM</b>	<b>0.85</b>	<b>0.80</b>	<b>0.35</b>	<b>0.35</b>	<b>0.21</b>	



306-3 Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Contaminated soil, debris or matter resulting from cleaning-up spilled chemicals, mineral oil or scheduled waste	SW 408	-	2.68	3.73	3.70	5.02	1.26	306-3
		<b>SUM</b>			<b>2.68</b>	<b>3.73</b>	<b>3.70</b>	<b>5.02</b>	<b>1.26</b>	
		Chemicals that are discarded or off-specification	SW 429	-	0.25	1.74	1.72	0.47	0.60	
		<b>SUM</b>			<b>0.25</b>	<b>1.74</b>	<b>1.72</b>	<b>0.47</b>	<b>0.60</b>	
		Fly Ash	SW 104	Plant operation	0.00	0.00	3,529.47	5,515.16	4,057.87	
		Bottom Ash (Wet/bottom)	SW 104	Plant operation	0.00	0.00	63,652.00	48,827.28	38,334.90	
		Wet Ash (Wet and dry ashes stored in ash pond)	SW 104	Plant operation	79,264.08	70,589.01	-	-	-	
		<b>SUM</b>			<b>0.00</b>	<b>0.00</b>	<b>3,529.47</b>	<b>5,515.16</b>	<b>4,057.87</b>	
		<b>SUM</b>			<b>79,264.08</b>	<b>70,589.01</b>	<b>63,652.00</b>	<b>48,827.28</b>	<b>38,334.90</b>	
Coal	MPG	Used lubricating oil	SW 305	From machine/equipment during shutdown	39.79	11.44	21.18	3.70	9.09	
		Used hydraulic oil	SW 306	Hydraulic system (e.g., for the torch system)	0.52	0.52	0.35	0.17	7.09	
		<b>SUM</b>			<b>40.31</b>	<b>11.96</b>	<b>21.53</b>	<b>3.87</b>	<b>16.18</b>	
		Contaminated empty drum	SW 409	From machine/equipment during shutdown & service	2.76	0.00	0.78	0.76	0.65	
		Contaminated rags	SW 410	Service & cleaning oil spillage	0.48	0.14	0.43	0.06	0.55	
		<b>SUM</b>			<b>3.24</b>	<b>0.14</b>	<b>1.21</b>	<b>0.82</b>	<b>1.20</b>	

306-3 Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Used batteries	SW 102	From equipment, electrical & electronic parts, for genset, double AA, torchlight, for testing equipment, auxiliary equipment	0.29	0.00	0.00	0.12	6.89	306-3
		E-waste	SW 110	From machine/equipment, laptop parts, parts of electrical (panel)	0.03	0.51	0.15	0.00	5.21	
		<b>SUM</b>			<b>0.32</b>	<b>0.51</b>	<b>0.15</b>	<b>0.12</b>	<b>12.10</b>	
		Contaminated soil disposed (if applicable)	-	-	0.00	0.00	0.00	0.00	0.00	
		<b>SUM</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
		Discarded Chemical Waste	SW 429	Analysis and sampling, from lab	0.05	0.01	0.08	0.00	0.01	
		<b>SUM</b>			<b>0.05</b>	<b>0.01</b>	<b>0.08</b>	<b>0.00</b>	<b>0.01</b>	
		Fly Ash	SW 104	Plant operation	46,552.92	80,394.56	7,686.03	27,024.77	22,982.96	
		Boiler Bottom Ash Hopper	SW 204	Plant operation	7,989.88	8,047.50	5,099.19	2,705.17	2,556.50	
		<b>SUM</b>			<b>46,552.92</b>	<b>80,394.56</b>	<b>7,686.03</b>	<b>27,024.77</b>	<b>22,982.96</b>	
		<b>SUM</b>			<b>7,989.88</b>	<b>8,047.50</b>	<b>5,099.19</b>	<b>2,705.17</b>	<b>2,556.50</b>	
Coal	BPG	Used lubricating oil	SW305	Machinery maintenance	-	-	1.90	5.05	14.41	
		Used hydraulic oil	SW306	Machinery maintenance	-	-	0.00	0.00	0.95	
		Waste oil or oily sludge	SW311	Machinery maintenance & operation	-	-	-	-	0.27	
		Oily residue from automotive workshop, service station, oil or grease interceptor	SW312	Machinery maintenance & operation	-	-	0.07	0.25	2.14	
		<b>SUM</b>			<b>0.00</b>	<b>0.00</b>	<b>1.97</b>	<b>5.30</b>	<b>17.77</b>	



About This Report	About Sarawak Energy	2022 Year in Review	Leadership Messages	A Commitment to Governance	Our Strategic Roadmap	Our Performance
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306-3

## Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/ Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Pathogenic waste, clinical waste or quarantined materials	SW404	Items used for swab test	-	-	-	-	0.11	306-3
		Disposed containers, bags or equipment contaminated with chemicals, pesticides, mineral oil or scheduled waste	SW409	-	-	-	2.70	1.64	0.62	
		Contaminated rags	SW410	Items used for maintenance work	-	-	0.54	1.12	2.24	
		Fibre wools	SW201	Machinery Maintenance	-	-	-	0.10	1.92	
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>3.24</b>	<b>2.86</b>	<b>4.89</b>	
		Waste of lead acid batteries in whole or crushed form	SW102	Machinery maintenance	-	-	0.00	0.11	0.21	
		Waste of batteries containing cadmium and nickel or mercury or lithium	SW103	Machinery maintenance	-	-	0.00	0.01	0.00	
		Waste containing mercury or its compound	SW109	Electrical & electronic maintenance	-	-	-	-	0.04	
		E-waste	SW110	Electrical & electronic maintenance	-	-	0.00	0.28	0.14	
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.40</b>	<b>0.40</b>	

Enhancing Our Commitment to Climate Action	Strategy	Our Response to Climate Change	Sustainability Performance	Our Performance Data	Notes and References	Independent Third Party Assurance Statement	GRI Content Index
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306-3

## Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/ Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Contaminated soil, debris or matter resulting from cleaning-up of a spill of chemical, mineral oil or scheduled wastes	SW408	-	-	-	7.00	0.00	1.76	306-3
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>7.00</b>	<b>0.00</b>	<b>1.76</b>	
		Chemicals that are discarded or off-specification	SW429	-	-	-	0.00	2.95	0.61	
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2.95</b>	<b>0.61</b>	
		Fly Ash (Dry/ fly ash was last produced in July 2017. Thus, total generation is less than 2016)	SW 104	Plant operation	-	-	66,967.71	120,065.35	131,749.45	
		Bottom Ash (Wet/bottom)	SW 104	Plant operation	-	-	11,817.83	12,111.00	23,249.90	
		Wet Ash (Wet and dry ashes stored in ash pond)	SW 104	Plant operation	-	-	113,845.11	180,231.40	223,975.03	
			Fly Ash	<b>SUM</b>	<b>-</b>	<b>-</b>	<b>66,967.71</b>	<b>120,065.35</b>	<b>131,749.45</b>	
			Bottom Ash	<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>125,662.94</b>	<b>192,342.40</b>	<b>247,224.93</b>	
Natural Gas	Bintulu PS	Used lubricating oil	SW 305	Maintenance	32.90	28.20	35.20	40.50	31.67	
		Dirty Diesel	SW 421	Diesel engine, sometimes used for engine cleaning	2.60	2.60	3.97	2.60	0.00	
			SW 421	Mixture of Scheduled Waste	-	-	-	-	1.70	
				<b>SUM</b>	<b>35.50</b>	<b>30.80</b>	<b>39.17</b>	<b>43.10</b>	<b>33.37</b>	

306-3

Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/ Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Used Paint Cans	SW 409	Maintenance	0.20	0.80	0.46	0.01	1.22	306-3
		Disposed Container Contaminated with Chemical	SW409	Maintenance	-	-	-	-	0.01	
		Used WD-40 Spray Cans	SW 409	Maintenance	-	-	-	0.05	0.01	
		Used Chemical Bottles	SW 409	Maintenance	0.10	0.80	0.08	0.02	0.02	
		Contaminated rags	SW 410	Maintenance	2.60	4.21	0.20	3.50	0.75	
		Sodium Hypochlorite residue	SW425	Maintenance	-	-	-	-	0.08	
		Used oil filter	SW 410	Maintenance	3.60	5.40	3.28	2.20	0.96	
		Spent Silica Gel	SW 429	Maintenance	1.70	2.10	1.43	0.61	0.00	
		Contaminated containers	SW409	Maintenance	-	-	-	-	0.23	
		Spent Resin	SW 429	Maintenance	-	-	-	14.60	0.80	
		Contaminated matters	SW 410	Maintenance	-	-	-	-	2.82	
				<b>SUM</b>	<b>8.20</b>	<b>13.31</b>	<b>5.45</b>	<b>20.99</b>	<b>6.88</b>	
		Used Cadmium Batteries	SW 103	From control system in MCR, gas turbine	5.09	0.00	0.00	0.00	0.00	
		Chemical waste containing mercury	SW 109	Maintenance	0.00	0.00	0.00	0.00	0.00	
		Used Bulbs	SW 110	Building Maintenance	0.00	0.11	0.21	0.03	0.12	
		E-waste	SW 110	Building Maintenance	0.00	0.00	0.36	0.05	0.01	
				<b>SUM</b>	<b>5.09</b>	<b>0.11</b>	<b>0.57</b>	<b>0.08</b>	<b>0.13</b>	
		Contaminated soil disposed (if applicable)	-	-	0.00	0.00	0.00	7.70	4.00	
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.70</b>	<b>4.00</b>	

306-3

Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/ Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Mixed Chemicals	SW 429	Maintenance	0.00	0.20	0.06	0.00	0.00	306-3
		Sludge from Interceptor	SW 312	Maintenance	-	-	-	19.60	0.00	
		Sludge containing metal	SW 204	Maintenance	-	-	-	57.20	0.00	
		Sludge containing lead	SW 204	Maintenance	0.00	3.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.00</b>	<b>3.20</b>	<b>0.06</b>	<b>76.80</b>	<b>0.00</b>	
		Gas condensate	SW 421	-	9.83	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>9.83</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
Natural Gas	Miri PS	Used lubricating oil	SW 305	-	10.60	2.20	2.20	11.60	17.80	
		Used transformer oil	SW 306	-	8.80	0.40	2.60	0.80	0.60	
		Oil-water emulsion (dirty diesel, cleaning of engine, operation of gen set)	SW 307	-	0.00	0.00	0.00	0.80	0.00	
		Sludge from mineral oil storage tank (sludge from the diesel storage tank)	SW 310	-	0.00	0.00	0.00	0.00	0.00	
		Mixture scheduled waste (cleaning of gen set, collected by products)	SW 421	-	1.00	0.60	0.40	2.80	1.80	
				<b>SUM</b>	<b>20.40</b>	<b>3.20</b>	<b>5.20</b>	<b>16.00</b>	<b>20.20</b>	
		Contaminated drum	SW 409	-	0.20	0.04	0.03	0.06	0.02	
		Contaminated rags	SW 410	-	1.30	0.70	0.80	1.50	1.20	
		Used oil filter	SW 410	-	0.30	0.60	0.40	1.50	0.50	
				<b>SUM</b>	<b>1.80</b>	<b>1.34</b>	<b>1.23</b>	<b>3.06</b>	<b>1.72</b>	



306-3

Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/ Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Used battery (gen set, acid battery)	SW 103	-	1.95	1.90	0.00	0.00	0.00	306-3
		Fluorescent tube lighting	SW 109	-	0.01	0.20	0.00	0.40	0.10	
				<b>SUM</b>	<b>1.96</b>	<b>2.10</b>	<b>0.00</b>	<b>0.40</b>	<b>0.10</b>	
		Contaminated soil disposed (if applicable)	SW 409	-	0.00	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
		Chemicals disposed (if applicable)	-	-	0.00	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
		Gas condensate	SW 421	-	5.80	3.40	2.40	0.60	3.20	
				<b>SUM</b>	<b>5.80</b>	<b>3.40</b>	<b>2.40</b>	<b>0.60</b>	<b>3.20</b>	
Diesel	Sg Biawak PS	Used lubricating oil	SW 305	From diesel engine (flushing of lube separators)	17.40	88.95	2.22	2.23	4.95	
		Used hydraulic oil	SW 306	From transformer	0.00	17.81	0.00	0.00	0.00	
				<b>SUM</b>	<b>17.40</b>	<b>106.76</b>	<b>2.22</b>	<b>2.23</b>	<b>4.95</b>	
		Uncured Resin waste	SW 325	Termination insulation of transformer	0.10	0.00	0.00	0.00	0.00	
		Contaminated empty drums	SW 409	-	1.00	0.18	0.00	0.00	0.00	
		Discarded chemical bottles	SW 409	Laboratory	0.01	0.00	0.04	0.00	0.01	
		Contaminated rags	SW 410	Cleaning of Diesel engine	0.05	0.01	0.03	0.00	0.05	
		Used oil filter	SW 410	Diesel engine lube oil filter	0.00	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>1.16</b>	<b>0.19</b>	<b>0.07</b>	<b>0.00</b>	<b>0.06</b>	
		Used battery acid plumbum	SW 102	From diesel fire pump (for starting)	0.08	0.00	0.00	0.02	0.00	
		Waste containing mercury or its compound	SW 109	Fluorescent tubes	0.05	0.04	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.13</b>	<b>0.04</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	

306-3

Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/ Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
		Contaminated soil disposed (if applicable)	-	-	0.00	0.00	0.00	0.00	0.00	306-3
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
		Non-Halogenated organic solvent	SW 322	Laboratory	0.08	0.02	0.02	0.00	0.00	
				<b>SUM</b>	<b>0.08</b>	<b>0.02</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	
Diesel	Limbang PS	Used lubricating oil	SW 305	Machinery maintenance	54.60	42.60	56.80	66.00	57.25	
		Dirty Diesel	SW 421	Machinery maintenance	32.60	22.80	30.40	14.20	7.90	
				<b>SUM</b>	<b>87.20</b>	<b>65.40</b>	<b>87.20</b>	<b>80.20</b>	<b>65.15</b>	
		Contaminated Used Drum	SW 409	Machinery maintenance	4.42	2.24	1.84	2.03	1.69	
		Contaminated Used Paint Can	SW 409	Machinery maintenance	0.40	0.40	0.15	0.00	0.00	
		Contaminated rags	SW 410	Machinery maintenance	1.50	1.30	1.80	1.90	3.15	
		Used oil filter	SW 410	Machinery maintenance	0.20	0.10	0.07	0.63	1.48	
				<b>SUM</b>	<b>6.52</b>	<b>4.04</b>	<b>3.86</b>	<b>4.56</b>	<b>6.32</b>	
		Lead Acid Battery	SW 102	From machine/equipment (Fork lift, from fire hydrant pump)	0.50	0.00	0.00	0.00	0.00	
		Unused Air Conditioner (e-waste)	SW 110	From machine/equipment	0.20	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.70</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
		Contaminated Soil	SW 408	Machinery maintenance	0.10	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
		Chemicals disposed (if applicable)	-	-	0.00	0.00	0.00	0.00	0.00	
				<b>SUM</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	



306-3

Our Performance Data

Plant Type	Plant Name	Types of Waste	Waste Code	Source/Remark	2018	2019	2020	2021	2022	GRI
					Waste Quantity by Year (Tonne)					
Diesel	Lawas PS	Used lubricating oil	SW 305	-	11.00	11.57	20.20	30.00	55.40	306-3
		Dirty Diesel	SW 421	-	14.20	12.49	0.00	0.00	0.00	
		Oily Residue from Station Interceptor	SW 312	-	-	-	-	3.00	0.00	
	<b>SUM</b>			<b>25.20</b>	<b>24.06</b>	<b>20.20</b>	<b>33.00</b>	<b>55.40</b>		
	Contaminated empty drums	SW 409	-	1.12	1.05	0.65	0.18	0.46		
	Contaminated rags	SW 410	-	1.60	1.98	1.40	0.80	0.90		
	<b>SUM</b>			<b>2.72</b>	<b>3.03</b>	<b>2.05</b>	<b>0.98</b>	<b>1.36</b>		
	E-waste disposed (if applicable)	-	-	0.00	0.00	0.00	1.86	0.00		
	<b>SUM</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.86</b>	<b>0.00</b>		
	Contaminated soil	SW 108	-	0.00	0.00	0.00	0.20	1.80		
<b>SUM</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.20</b>	<b>1.80</b>			
Chemicals disposed (if applicable)	-	-	0.00	0.00	0.00	0.00	0.00			
<b>SUM</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>			

Type of Plant	Type of Waste	2018	2019	2020	2021	2022	GRI
		Scheduled Waste Generation Intensity (Tonne)					
Overall	Fly Ash	46,552.92	80,394.56	78,183.21	152,605.28	158,790.28	306-3
	Bottom Ash	87,253.96	78,636.51	194,414.13	243,874.85	288,116.33	
	Others (Used Oil, Contaminated Items, E-Waste, Gas Condensate, Contaminated Soil and Chemicals)	413.57	473.72	320.27	652.97	420.96	
	<b>Total Quantity (Tonne)</b>	<b>134,220.45</b>	<b>159,504.78<sup>3</sup></b>	<b>272,917.61<sup>2</sup></b>	<b>397,133.10<sup>1</sup></b>	<b>447,327.57*</b>	

2-27, 306-3, 401-1

Our Performance Data

Type of Plant	Type of Waste	2018	2019	2020	2021	2022	GRI
		Scheduled Waste Generation Intensity (t/GWh)					
Overall	Fly Ash	1.70	2.89	2.77	5.20	5.08	306-3
	Bottom Ash	3.19	2.82	6.90	8.31	9.22	
	Others (Used Oil, Contaminated Items, E-Waste, Gas Condensate, Contaminated Soil and Chemicals)	0.02	0.02	0.01	0.02	0.01	
	<b>Total Scheduled Waste Generation Intensity</b>	<b>4.91</b>	<b>5.72<sup>3</sup></b>	<b>9.69<sup>2</sup></b>	<b>13.54<sup>1</sup></b>	<b>14.32*</b>	

Environmental Compliance

Disclosure	GRI
<b>Non-compliance with environmental laws and regulations</b>	2-27
In 2022, there is no fine/penalty/compound from environmental authorities recorded for SEB	

New Hires and Turnover by Gender and Age

New Hires (by Gender)	2018			2019			2020			2021			2022			GRI
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	
<b>Total</b>	<b>227</b>	<b>77</b>	<b>304</b>	<b>258</b>	<b>110</b>	<b>368</b>	<b>275</b>	<b>75</b>	<b>350</b>	<b>121</b>	<b>42</b>	<b>163</b>	<b>186</b>	<b>75</b>	<b>261</b>	401-1
<b>By age, in numbers</b>																
Up to 30 years old	158	58	216	159	67	226	222	53	275	89	31	120	161	58	219	
Between 31 and 50 years old	51	17	68	99	43	142	45	22	67	29	11	40	18	15	33	
Over 50 years old	18	2	20				8	0	8	3	0	3	7	2	9	

Staff Turnover (by Gender)	2018			2019			2020			2021			2022			GRI
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	
<b>Total</b>	<b>128</b>	<b>32</b>	<b>160</b>	<b>147</b>	<b>26</b>	<b>173</b>	<b>146</b>	<b>30</b>	<b>176</b>	<b>155</b>	<b>27</b>	<b>182</b>	<b>134</b>	<b>32</b>	<b>166</b>	401-1
<b>By age, in numbers</b>																
Up to 30 years old	18	19	37	76	23	99	18	10	28	13	6	19	10	4	14	
Between 31 and 50 years old	21	7	28				22	6	28	28	11	39	36	14	50	
Over 50 years old	89	6	95	71	3	74	106	14	120	114	10	124	88	14	102	

401-1

## Our Performance Data

New Hires (by Company)	2018			2019			2020			2021			2022			GRI
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	
<b>Total</b>	<b>227</b>	<b>77</b>	<b>304</b>	<b>258</b>	<b>110</b>	<b>368</b>	<b>275</b>	<b>75</b>	<b>350</b>	<b>121</b>	<b>42</b>	<b>163</b>	<b>186</b>	<b>75</b>	<b>261</b>	401-1
<b>By company, in numbers</b>																
Sarawak Energy Berhad	227	77	304	258	110	368	275	75	350	121	42	163	186	75	261	
Sejingkat Power																
Mukah Power																
Syarikat SESCO Bhd																
Balingian Power Generation																
Bakun Hydro Power Generation																

Staff Turnover (by Company)	2018			2019			2020			2021			2022			GRI
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	
<b>Total</b>	<b>128</b>	<b>32</b>	<b>160</b>	<b>147</b>	<b>26</b>	<b>173</b>	<b>146</b>	<b>30</b>	<b>176</b>	<b>155</b>	<b>27</b>	<b>182</b>	<b>134</b>	<b>32</b>	<b>166</b>	401-1
<b>By company, in numbers</b>																
Sarawak Energy Berhad	16	15	34	12	46	35	11	46	37	11	48	29	12	41		
Sejingkat Power	3		11		11		4	0	4	-	-	-	-	-		
Mukah Power	2		3		3		2	0	2	2	1	3				
Syarikat SESCO Bhd												101	19	120		
SESCO Headquarters	52	8	37	10	47	37	8	45	40	6	46					
SESCO Kuching	18	2	14	1	15	36	4	40	34	6	40	-	-	-		
SESCO Sri Aman	6		3		3							-	-	-		
SESCO Sarikei	2	1	11		11	4	1	5	7	0	7	-	-	-		
SESCO Sibu	12	2	14		14	9	1	10	17	1	18	-	-	-		
SESCO Bintulu	7	2	7	1	8	5	0	5	3	2	5	-	-	-		
SESCO Miri	10	2	12	1	13	14	4	18	5	1	6	-	-	-		
Balingian Power Generation	-	-		1	1				1	0	1	-	-	-		
Sarawak Hidro Sdn Bhd	40	15	1		1	2	0	2	3	0	3	-	-	-		
Bakun Hydro Power Generation							4	1	5	2	0	2	1	-	1	
Sarawak Power Gen.												1	-	1		

2-7, 401-1, 401-2, 403-6

## Our Performance Data

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Turnover rate</b>	%	3.19	3.32	3.27	3.34	3.00	401-1

## Benefits Provided to Full-Time Employees

Disclosure	Description	GRI
<b>Effective 1 January 2022, we introduced the following benefits:</b>		
Employee Wellness Allowance (this allowance replaces Healthy Living and Dental & Optical)	The Employee Wellness Allowance is aimed at promoting the well-being of our employees. The allowance is designed to encourage our employees to adopt healthy lifestyle habits and to support them in their efforts to maintain a work-life balance	401-2
Digital Literacy Allowance (this allowance replaces Mobile Phone Reimbursement Subsidy, Mobile Phone Bill Subsidy and Computer Loan)	The Digital Literacy Allowance is intended to support our digitalisation journey and enable our employees to work from anywhere and anytime.	

## Employees

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Total number of employees</b>	Number	5,023	5,207	5,381	5,442	5,537	2-7
<b>Total female employees</b>	Number	1,069	1,155	1,200	1,235	1,278	
<b>Total male employees</b>	Number	3,954	4,052	4,181	4,207	4,259	
<b>Permanent female employees</b>	Number	1,039	4,052	1,156	1,182	1,216	
<b>Permanent male employees</b>	Number	3,846	3,947	3,961	3,958	4,023	
<b>Contract female employees</b>	Number	30	23	44	53	62	
<b>Contract male employees</b>	Number	108	105	220	249	236	

2-7, 2-9, 403-4, 404-1

2-7, 2-9, 404-1

Our Performance Data

Our Performance Data

Total Employees by Age Group

Year	2018			2019			2020			2021			2022			GRI
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	
<b>Total Staff (by Gender)</b>	<b>3,954</b>	<b>1,069</b>	<b>5,023</b>	<b>4,052</b>	<b>1,155</b>	<b>5,207</b>	<b>4,181</b>	<b>1,200</b>	<b>5,381</b>	<b>4,207</b>	<b>1,235</b>	<b>5,442</b>	<b>4,259</b>	<b>1,278</b>	<b>5,537</b>	
<b>By age, in numbers</b>																
Below 20 years old	12	1	13	4	1	5	3	0	3	3	0	3	0	0	0	
Between 21 and 25 years old	330	58	388	313	54	367	331	62	393	326	65	391	264	82	346	
Between 26 and 30 years old	947	294	1,241	904	276	1,180	860	237	1,097	776	195	971	804	176	980	
Between 31 and 35 years old	929	307	1,236	1,028	361	1,389	1,131	401	1,532	1,175	423	1,598	1,120	404	1,524	
Between 36 and 40 years old	460	133	593	532	166	698	599	190	789	683	223	906	831	266	1,097	
Between 41 and 45 years old	359	107	466	366	110	476	389	116	505	410	121	531	405	132	537	
Between 46 and 50 years old	229	67	296	255	75	330	266	82	348	301	84	385	340	97	437	
Between 51 and 55 years old	323	68	391	267	65	332	242	62	304	220	75	295	206	74	280	
Between 56 and 60 years old	349	34	383	361	47	408	335	50	385	293	49	342	266	46	312	
Above 60 years old	16	0	16	22	0	22	25	0	25	20	0	20	23	1	24	

Total Employees by Grade & Position

Year	Unit	2018			2019			2020			2021			2022			GRI
		Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	
<b>By Grade</b>	<b>By Position</b>															2-9	
Board of Directors	Board of Directors	Number	5	0	5	5	0	5	5	0	5	6	0	6	6	0	6
SG1 and above	GEC	Number	12	2	14	12	2	15	13	2	15	13	2	15	12	2	14
	HoD/Top Management	Number	17	5	22	17	7	24	24	10	34	24	10	34	24	10	34
E5-E8	Senior Management	Number	149	52	201	228	61	228	179	70	249	190	84	274	213	91	304
E1-E4	Middle Management	Number	566	372	938	662	454	1,116	728	491	1,219	775	529	1,304	799	572	1,371
NE1-NE6	Non-executive	Number	3,063	603	3,666	3,193	631	3,824	3,237	627	3,864	3,205	610	3,815	3,211	603	3,814
<b>Total (Excl. BoD)</b>	<b>Number</b>		<b>4,841</b>		<b>5,207</b>		<b>5,381</b>		<b>5,442</b>		<b>5,537</b>						

Environment & Occupational Health & Safety (EOHS) Members in 2021 & 2022

Disclosure	Unit	2021 & 2022	GRI
<b>Members</b>			403-4
Chairman	Number	22	
Secretary	Number	22	
Employer Representative	Number	211	
Employees Representative	Number	301	

Training

Disclosure	Unit	2018		2019		2020		2021		2022		GRI
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
<b>Total and Average of Hours of Training Recorded by Category and Gender for 2018 - 2022</b>												
Management	No. of Employees	331	146	95	50	42	12	37	12	249	103	
	Total Training Hours	5,607.00	2,387.00	1,713.00	1,556.00	1,019.80	486.00	1,335.60	636.22	17,559.38	8,144.83	
	Average	16.94	16.35	18.03	31.12	24.28	40.50	36.10	53.02	70.52	79.08	
Executive	No. of Employees	1,370	769	995	543	907	561	965	613	800	571	
	Total Training Hours	20,608.00	10,865.00	19,219.00	9,713.00	24,021.30	16,923.86	52,708.67	34,406.68	42,557.97	28,428.67	
	Average	15.04	14.13	19.32	17.89	26.48	30.17	54.62	56.13	53.20	49.79	
Non-executive	No. of Employees	4,782	643	2,933	405	3,237	627	3,205	610	3,213	601	
	Total Training Hours	66,241.00	7,623.00	51,316.00	6,548.00	30,697.05	4,955.05	61,341.71	16,144.98	107,661.60	16,016.34	
	Average	13.85	11.85	17.50	16.17	9.48	7.90	19.14	26.47	33.51	26.65	

418-1 Our Performance Data

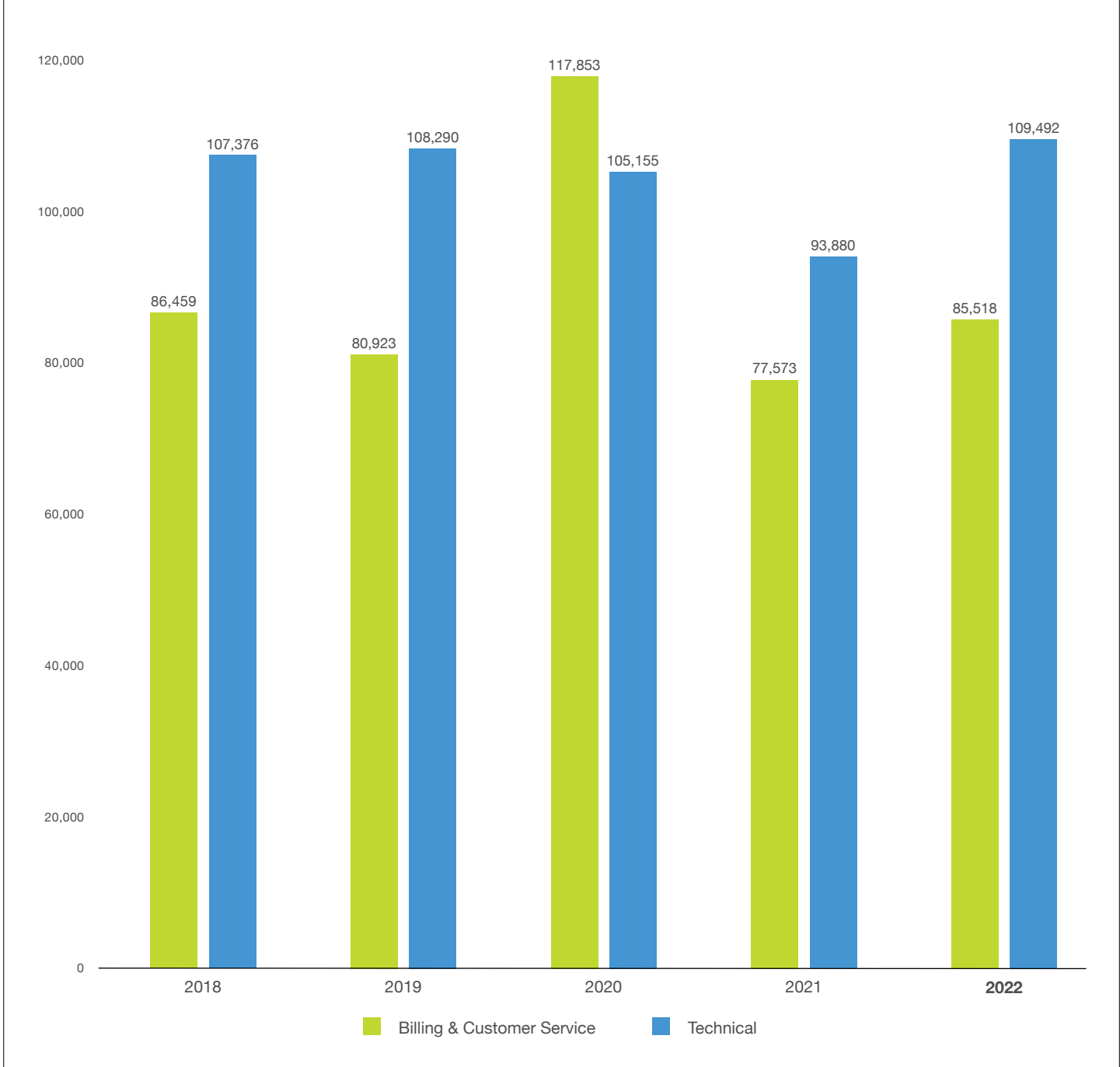
Customer Privacy

Disclosure GRI

**Substantiated complaints concerning breaches of customer privacy and losses of customer data** 418-1

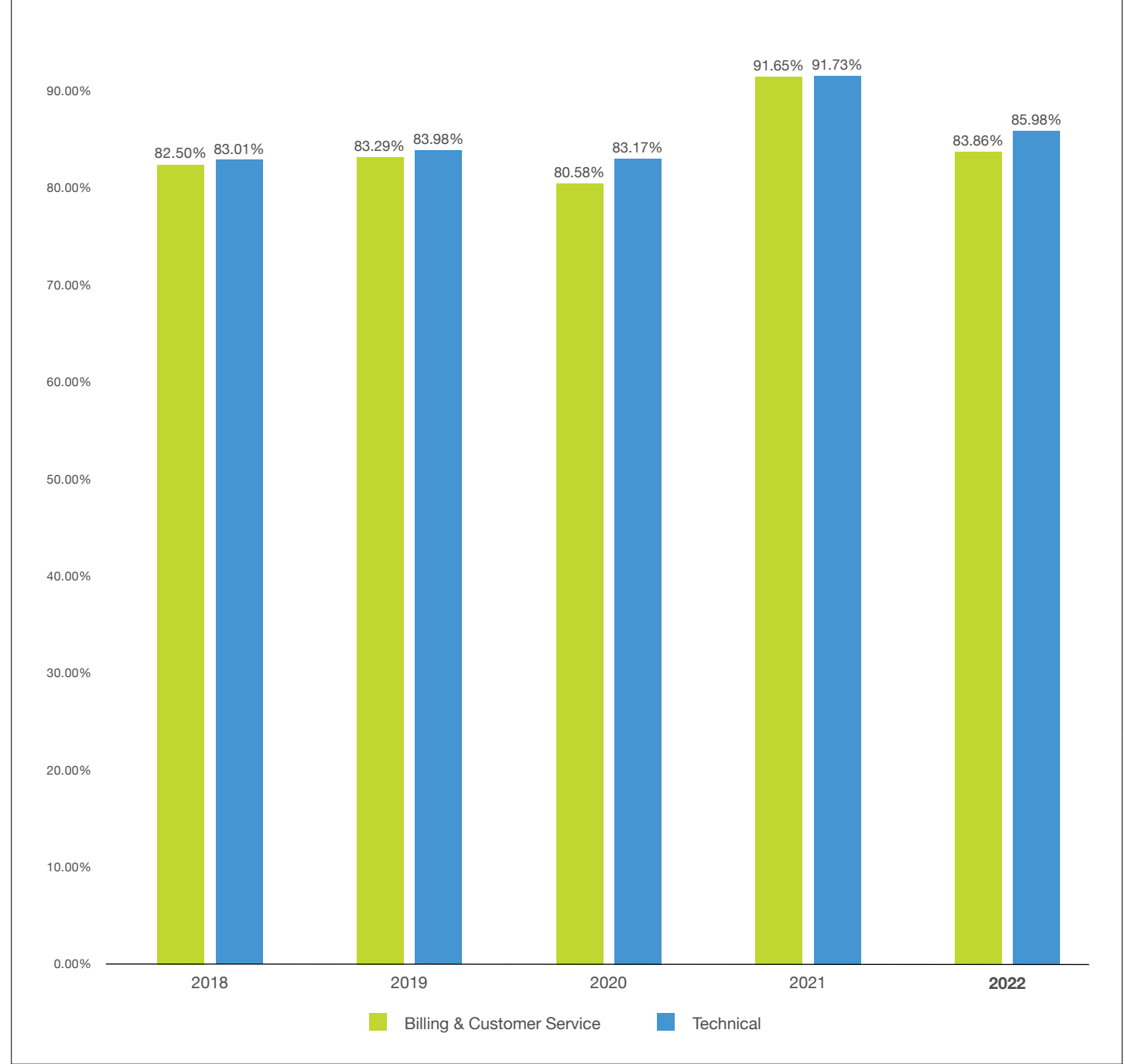
There were no substantiated complaints regarding breaches of customer privacy and losses of customer data in 2022.

Customer Service - No. of Calls Handled by Sarawak Energy Call Centre 2018 - 2022



418-1 Our Performance Data

Customer Service - Overall Service Level by Sarawak Energy Call Centre 2018 - 2022



**Notes:**  
 1. For Billing and Customer Service, our customer care executives offer assistance and handle enquiries associated with new applications, billing and meter related issues, as well as general enquiries (office location, counter operating hours, tariff, etc).  
 2. For Technical, we primarily cover outages, streetlight and other technical issues such as vegetation clearing, voltage issue, slanting/broken pole or wire, vandalism etc.



EU3, EU4  
Our Performance Data

Customers' Data

Disclosure					GRI
<b>Number of Residential, Industrial, Institutional and Commercial Customer Accounts</b>					EU3
<b>Grid / Non-Grid No. of Customers Accounts Ending 2022</b>					
Grid	Tariff	No. of Active Customers' Account	No. of Inactive Customers' Account	Total No. of Customers' Account	
Grid	C1	103,925	6,539	110,464	
Grid	C2	20	1	21	
Grid	C3	39	1	40	
Grid	DOM	613,603	22,129	635,732	
Grid	I1	946	17	963	
Grid	I2	30	3	33	
Grid	I3	87	2	89	
Grid	I4	15	0	15	
Grid	PL	12,109	227	12,336	
Non-Grid	C1	4,240	188	4,428	
Non-Grid	DOM	21,277	924	22,201	
Non-Grid	I1	24	0	24	
Non-Grid	PL	314	7	316	
<b>Total</b>		<b>756,629</b>	<b>30,038</b>	<b>786,662</b>	

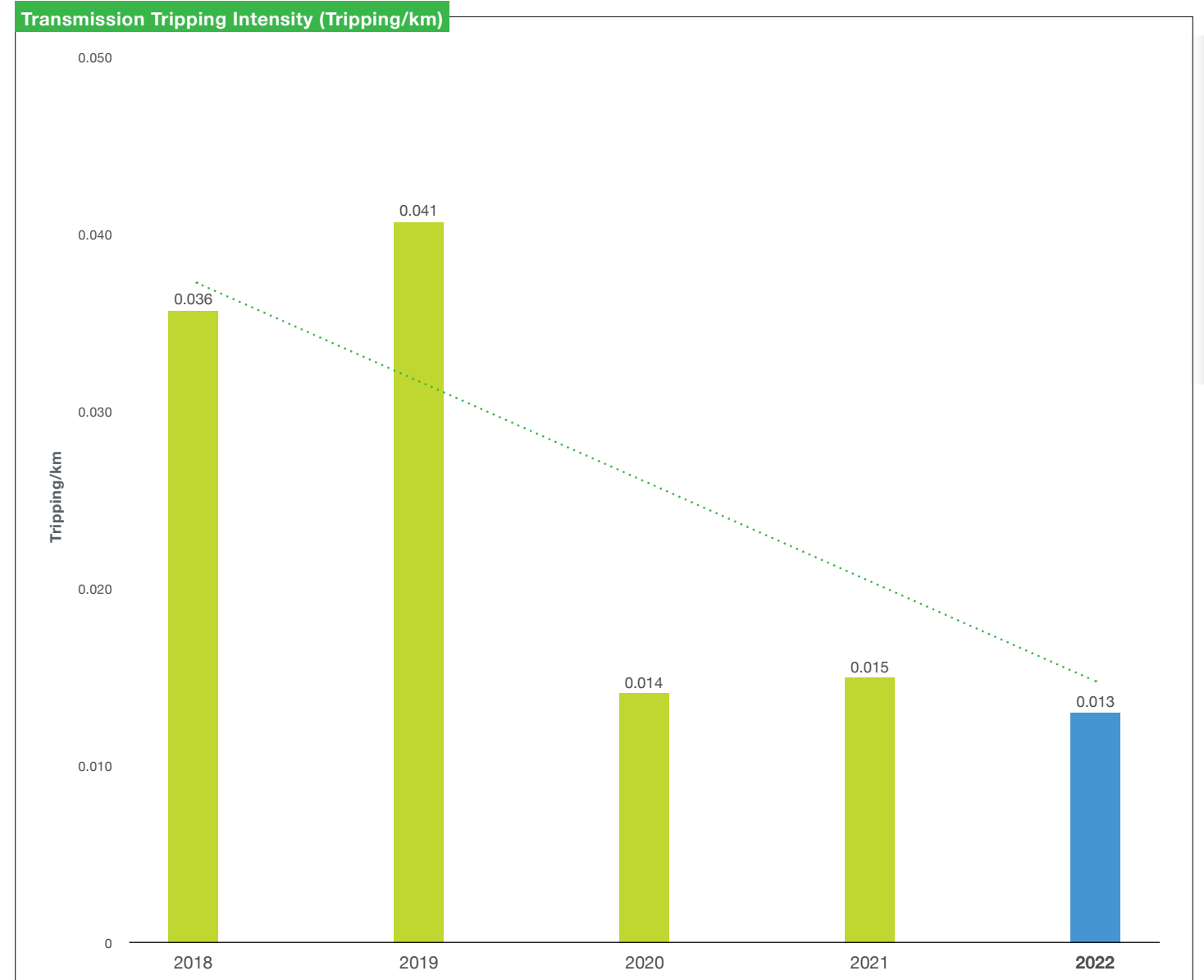
Transmission and Distribution Lines

Disclosure								GRI
<b>Length of Above and Underground Transmission and Distribution Lines by Regulatory Regime</b>								EU4
<b>Total Length of Distribution Lines in 2022</b>								
Region	Unit	33kV Distribution		11kV Distribution		415V Distribution		
		O/H	U/G	O/H	U/G	O/H	U/G	
WR Kuching	km	1,164.65	859.04	2,295.05	2,003.25	5,579.07	1,779.19	
WR Sri Aman	km	869.66	148.12	1,592.96	186.22	1,628.34	144.01	
CR Sarikei	km	387.71	66.35	523.78	114.31	1,292.19	141.12	
CR Sibu	km	1,349.76	1,181.65	1,745.47	1,260.30	3,916.89	1,189.62	
NR Bintulu	km	885.43	240.63	303.14	450.66	527.44	252.30	
NR Miri	km	414.06	665.08	713.19	724.74	2,846.57	640.86	
NR Limbang	km	122.37	16.10	745.79	78.66	588.07	39.04	
<b>Total</b>	<b>km</b>	<b>5,193.63</b>	<b>3,176.97</b>	<b>7,919.38</b>	<b>4,818.14</b>	<b>16,378.57</b>	<b>4,186.14</b>	
<b>Total Length of Transmission Lines in 2022</b>								
Category	Unit	500kV energised at 275kV		275kV	132kV			
Overhead	km	753.00		3,100.32	1,152.72			
Underground	km	-		-	23.47			
<b>Total</b>	<b>km</b>	<b>753.00</b>		<b>3,100.32</b>	<b>1,176.19</b>			

EU12  
Our Performance Data

Transmission Tripping Intensity

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Total Distance</b>							EU12
Transmission	km	2,224.80	2,404.76	4,707.46	5,033.05	5,029.51	
<b>Number of Transmission Tripping</b>							
Substation	Number	22	29	15	12	15	
Transmission	Number	58	69	53	64	49	
<b>Total</b>	<b>Number</b>	<b>80</b>	<b>98</b>	<b>68</b>	<b>76</b>	<b>64</b>	
Transmission Tripping Intensity	Tripping/km	0.036	0.041	0.014	0.015	0.013	



EU11, EU26

## Our Performance Data

## System Efficiency

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>Total Average Energy Efficiency</b>							EU11
<b>Plant Type - Coal</b>							
Sejingkat Power Corp.	%	26.39	27.25	25.11	26.83	21.18	
PPLS Power Generation	%	31.80	30.72	32.62	22.00	28.59	
Mukah Power Sdn. Bhd.	%	32.70	31.90	33.01	32.19	32.28	
Balingian Power Generation	%	-	35.58	31.85	35.22	37.64	
<b>Plant Type - Natural Gas</b>							
Sarawak Power Generation	%	38.59	40.25	38.68	32.72	38.50	
Kidurong Power Generation 1	%	-	-	-	44.78	41.72	
Kidurong Power Generation 2	%	-	-	-	-	49.73	
Bintulu PS	%	21.70	21.22	21.03	21.85	14.11	
Miri PS	%	21.89	21.28	21.44	21.79	14.45	
<b>Plant Type - Diesel</b>							
Sg Biawak PS	%	24.05	22.14	17.86 <sup>a</sup>	20.48 <sup>a</sup>	21.68 <sup>a</sup>	
Limbang PS	%	34.88	34.69	34.58	33.81	32.61	
Lawas PS	%	34.69	34.40	34.37	33.31	32.01	

**Notes:**  
1. Total average energy efficiency for Sarawak Energy thermal power plants connected to Main and Northern grids.  
<sup>a</sup> Plant on standby mode.

## Electrification

Disclosure	Unit	2018	2019	2020	2021	2022	GRI
<b>New households connected</b>							EU26
Normal Rural Electrification Scheme (RES)	Number	3,990	5,239	3,186	4,010	3,437	
Hybrid Programmes	Number	270	483	70	115	13	
SARES	Number	1,448	3,122	3,354	1,912	2,061	
<b>Total</b>	<b>Number</b>	<b>5,748</b>	<b>8,844</b>	<b>6,610</b>	<b>6,037</b>	<b>5,511</b>	

EU30

## Our Performance Data

## Average Plant Availability Factor

Year	2018	2019	2020	2021	2022	GRI				
<b>Category</b>	<b>Equivalent Availability (%)</b>	<b>Forced Outage (Hours)</b>	<b>Equivalent Availability (%)</b>	<b>Forced Outage (Hours)</b>	<b>Equivalent Availability (%)</b>	<b>Forced Outage (Hours)</b>	EU30			
<b>Plant Type: Hydro</b>										
Batang Ai HEP	92.10	3.90	83.83	172.22	91.40	122.04	95.89	19.04	88.78	46.24
Murum HEP	96.08	170.94	85.09	1,076.91	94.85	250.51	93.69	295.29	98.22	187.38
Bakun HEP	92.23	23.37	97.13	482.17	94.84	284.22	95.68	278.59	93.88	475.46
<b>Plant Type: Coal</b>										
Sejingkat Power Corp	88.45	340.77	73.32	3,998.20	82.88	1,187.65	83.32	1,573.05	78.94	376.48
PPLS	88.63	433.95	89.56	1,191.70	90.34	400.93	95.36	44.48	80.72	509.46
MPG	79.33	547.42	75.43	519.98	87.73	220.67	86.36	452.72	76.67	861.27
BPG	-	-	41.48	5.88	97.04	182.72	73.41	1,053.22	78.20	776.03
<b>Plant Type: Natural Gas</b>										
SPG	88.61	87.63	88.25	252.24	72.04	282.87	61.55	877.16	92.31	1,298.48
Bintulu SESCO	91.17	196.93	91.10	642.26	87.04	237.44	95.02	1,458.72	89.74	2,649.46
Kidurong Power Generation 1	-	-	-	-	-	-	87.48	1,835.77	56.85	799.77
Kidurong Power Generation 2	-	-	-	-	-	-	-	-	88.36	42.52
Miri SESCO	77.96	712.03	93.48	273.45	88.81	2,108.05	82.32	5,446.14	56.29	21,492.05
<b>Plant Type: Diesel</b>										
Sg Biawak SESCO	87.12	4,106.30	99.06	32.29	98.79	0.00	89.34	0.00	63.85	6,303.75
Limbang SESCO	95.08	1,336	97.05	221	97.48	120.00	86.87	10,627.00	79.33	22,459.00
Lawas SESCO	76.26	-	74.57	1,560	95.59	114.00	82.02	137.00	84.53	4,615.00

(Former EU8)

## Our Performance Data

## R&amp;D Expenditure

No.	Project	Approved Budget (RM)	GRI
<b>Research and Development Projects for 2022</b>			(Former EU8)
1	Integration of Smart and Low Cost Sensor	15,000.00	
2	Development of 3D Printing System	12,000.00	
3	Development of AI Robotic System	25,000.00	
4	Semandang Microgrid Project	3,429,087.92	
5	Modeling and Simulation Tools for DER	584,600.00	
6	Solar-Hydrogen in Rural Electrification	525,375.33	
7	Transformer Oil & Lubricating Oil Laboratory	280,000.00	
8	New Laboratory	40,000.00	
9	Hyd. Env. Sci. Research Programmes	10,000.00	
10	GHG Monitoring of HEPs (CP)	280,000.00	
11	Water Power Prototype & Research Programme	60,000.00	
12	SE R&D Laboratory 2.0	26,000.00	
13	Grid Connected Energy Storage System	200,000.00	
14	Gasification Plant at Paloh Power Station	314,744.00	
15	Refurbishment of Kalamuku MH - E&M Works	295,760.00	
16	Energy Efficiency and Energy Management Initiatives	200,000.00	
17	Proposed Microgrid Study- HIL Testing	87,000.00	
18	Laboratory Information Management System (LIMS) Software	1,010,000.00	
19	Safety Line System at Menara Sarawak Energy	40,000.00	
20	Lightning Research Study on 275kV TL	200,000.00	
21	PV and Microhydro integration for Rh Bada	20,000.00	
22	Proposed Test Bench for Governor Testing	625,000.00	
<b>Total</b>		<b>8,279,567.25</b>	

# Notes & References

Symbol	Description
*	The data has been assured by a third party. Read the Independent Assurance Report on pages 226-232.
<sup>1</sup>	The data has been assured by a third party for Sustainability Report 2021.
<sup>2</sup>	The data has been assured by a third party for Sustainability Report 2020.
<sup>3</sup>	The data has been assured by a third party for Sustainability Report 2019.
<sup>4</sup>	The data has been assured by a third party for Sustainability Report 2018.
<sup>5</sup>	The data has been assured by a third party for Sustainability Report 2017.
<sup>6</sup>	The data has been assured by a third party for Sustainability Report 2016.
<sup>7</sup>	The data has been assured by a third party for Sustainability Report 2015.
<sup>8</sup>	The data has been assured by a third party for Sustainability Report 2014.



www



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# Independent Third Party Assurance Statement

Independent Third Party Assurance Statement



## INDEPENDENT ASSURANCE OPINION STATEMENT

Statement No.: **SRA-MY 798239**

### Sarawak Energy Berhad (SEB) Sustainability Report 2022

The British Standards Institution is independent of Sarawak Energy Berhad (hereafter referred to as "SEB" in this statement) and has no financial interest in the operation of SEB other than for the assessment and verification of the sustainability statements contained in this report.

This independent assurance opinion statement has been prepared for the stakeholders of SEB only for the purposes of verifying its statements relating to its environmental, social and governance (ESG), more particularly described in the scope, below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by SEB. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to SEB only.

#### Scope

The scope of engagement agreed upon with SEB includes the following:

The assurance covers part of the report and focuses on systems and activities during the period from 1<sup>st</sup> January 2022 to 31<sup>st</sup> December 2022 (the "**Reporting Year**"), for the following sustainability subject matter.

1. Main Grid CO<sub>2</sub> Emissions Intensity (tCO<sub>2</sub>eq/MWh) for the financial year 2022:
  - Fuel consumption (FC<sub>j</sub>)
  - Net energy generated (NEG<sub>j</sub>)
  - Net calorific value (NCV<sub>j</sub>)
2. Northern Grid CO<sub>2</sub> Emissions Intensity (tCO<sub>2</sub>eq/MWh) for the financial year 2022:
  - Fuel consumption (FC<sub>j</sub>)
  - Net energy generated (NEG<sub>j</sub>)
  - Net calorific value (NCV<sub>j</sub>)
3. Direct Emissions (Scope 1) Intensity (tCO<sub>2</sub>eq/ RM Millions of Revenue) for the financial year 2022:
  - Main, Northern, Stand-Alone Grid and Company Owned Vehicles Emissions (tCO<sub>2</sub>eq)
  - Revenue (RM Million)

4. Direct Emissions (Scope 1) Intensity (tCO<sub>2</sub>eq/ RM Millions of Total Investment<sub>LCG</sub>) for the financial year 2022:
  - Main, Northern, Stand-Alone Grid and Company Owned Vehicles Emissions (tCO<sub>2</sub>eq)
  - Total Investment in Low Carbon Generation (RM Millions of Total Investment<sub>LCG</sub>)

*Note: LCG - Low Carbon Generation*

5. Renewable Energy Generation Intensity (RM Millions of Revenue<sub>ES</sub> / MWh) for the financial year 2022:
  - Revenue<sub>ES</sub> (RM Million)
  - Net energy generated (NEG<sub>j</sub>) – Hydropower (MWh)

*Note: ES – Electricity Sales*

6. Scope 2 - Buildings & offices (tCO<sub>2</sub>eq) for the financial year 2022

7. Scope 3 - Business air travel (tCO<sub>2</sub>) for the financial year 2022

8. Total Water Withdrawal by Source (m<sup>3</sup>) for the financial year 2022:
  - Municipal water (m<sup>3</sup>)
  - Natural water (m<sup>3</sup>) and Operating hours (Hrs)

9. Scheduled Waste Generation Intensity (Tonne/GWh) for the financial year 2022:
  - Volume of waste generated (Tonne)
  - Gross electricity generated (GEG<sub>j</sub>)

10. Annual Water Volume for Electricity Generation (Million m<sup>3</sup>) for the financial year 2022:
  - Operating hours (Hrs)

11. Economic Value Retained (RM) for the financial year 2022

12. Total Value of Tenders Awarded to Local Sarawakian Companies (RM) for the financial year 2022:
  - Operations (RM)
  - Capital works (RM)

13. Loss Time Injury Frequency Rate (LTIFR) for the financial year 2022:
  - Total loss time injury cases
  - Total man hours (Hrs)

14. Sarawak Electrification Coverage (%) for the financial year 2022:
  - Rural electrification coverage (%)



## Independent Third Party Assurance Statement

## Independent Third Party Assurance Statement

The evaluation of the nature and extent of the SEB's adherence to all four AA1000 AccountAbility principles and the reliability of specified sustainability performance information in this report as conducted in accordance with type Type 2 Moderate Level (Limited Assurance) of AA1000AS v3 sustainability assurance engagement.

### Opinion Statement

Based on our work described in the verification report, nothing has come to our attention that causes us to believe that data and information stated in the SEB's Sustainability Report is not correctly presented or with omission, in any material respects or that Inclusivity, Materiality Responsiveness and Impact based on AA1000 criteria are not correctly addressed.

We conclude that the sustainability subject matter of the Report provides a fair view of SEB's sustainability programmes and performance in the Reporting Year. We believe that the economic, social and environment performance disclosures are accurate and are supported by robust internal verification processes.

Our work was carried out by a team of sustainability report assurors in accordance the AA1000 Assurance Standard v3. We planned and performed this part of our work to obtain the necessary information and explanations. We considered to provide sufficient evidence that SEB's description of their approach to AA1000 Assurance Standard and their self-declaration of compliance with the GRI standards were fairly stated.

### Methodology

Our work was designed to gather evidence on which our conclusion is based. We undertook the following activities:

- a top-level review of issues raised by external parties that could be relevant to SEB's policies to check on the appropriateness of statements made in the report.
- discussion with managers and staff on SEB's approach to stakeholder engagement. We had no direct contact with external stakeholders.
- interview with staff involved in sustainability management, report preparation and provision of report information.
- review of key organizational developments.
- review of supporting evidence for claims made in the reports.
- an assessment of the SEB's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality, Responsiveness and Impact as described in the AA1000 AccountAbility Principles Standard.

### Conclusions

A detailed review against the AA1000 AccountAbility Principles of Inclusivity, Materiality, Responsiveness and Impact and the GRI Standards is set out below:

### Inclusivity

The Report has reflected the fact that SEB is seeking the engagement of its stakeholders. The participation of stakeholders has been initiated in developing and achieving an accountable and strategic response to sustainability. The reporting systems are being developed to deliver the required information. There are fair reporting and disclosure for economic, social and environment information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers SEB's principle of Inclusivity.

### Materiality

SEB publishes sustainability information that enables its stakeholders to make informed judgments about SEB's management and performance. In our professional opinion, the report adheres to the principle of Materiality and identifies SEB's material aspects by using appropriate methods of materiality analysis and demonstrating material issues in a matrix form. Areas for enhancement of the report were adopted by SEB before the issuance of this statement. However, the future report should be further enhanced by the following areas:

- Updating the materiality assessment survey, as it has not been updated for a considerable period.

### Responsiveness

SEB has implemented practices that respond to the expectations and perceptions of its stakeholders. These include sustainability reporting for both internal and external stakeholders. In our professional opinion, SEB adheres to the principle of Responsiveness. Areas for enhancement of the Report were adopted by SEB before the issuance of this statement.

### Impact

SEB has demonstrated a process on identify impacts that encompass a range of environmental, social and governance topics, and fairly represented the impacts in the report. These processes enable SEB to assess its impact and disclose them in the sustainability subject matter of the report. In our professional opinion, SEB adheres to the principle of Impact. Areas for enhancement of the report were adopted by SEB before the issuance of this statement.

### GRI Sustainability Reporting Standards

SEB provided us with their declaration reporting with reference to the GRI Standards of compliance within GRI Standards-Universal Standards 2021. Based on our review, we confirm that social responsibility and sustainable development disclosures with reference to the GRI Standards are reported. In our professional opinion the declaration covers the SEB's social responsibility and sustainability issues.

### Assurance Level

The moderate (limited) level of assurance provided is in accordance with AA1000 Assurance Standard v3 in our review, as defined by the scope and methodology described in this opinion statement.

### Responsibility & Limitations

This Sustainability Report is the responsibility of the SEB's management as declared in the responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.



Independent Third Party Assurance Statement

Independent Third Party Assurance Statement

**Competency and Independence**

The assurance team was composed of Lead Auditors and Carbon Footprint Verifiers experienced in industrial sector, and trained in a range of sustainability, environmental and social standards including AA1000 AS, ISO14001, ISO14064, ISO 45001 and ISO 9001. BSI is a leading global standards and assessment body founded in 1901.

For and on behalf of BSI:



Ms Evelyn Chye  
Managing Director

06 December 2023

Verifier of the Report:



Mr. Shaiful Rahman  
Lead Assuror



Appendix 1: Summary of SEB's Selected Disclosures for Year 2022

Key performance indicators	Value	Units
Main Grid CO <sub>2</sub> Emissions Intensity (tCO <sub>2</sub> eq/MWh) for the financial year 2022:	0.199	tCO <sub>2</sub> eq/MWh
<ul style="list-style-type: none"> <li>Fuel consumption (FC<sub>i</sub>)                             <ul style="list-style-type: none"> <li>Coal: 3,087,236.06 Tonne</li> <li>Natural Gas: 42,464,815.69 MMBtu</li> <li>Diesel: 27,887,522.36 Litre</li> </ul> </li> <li>Net energy generated (NEG<sub>i</sub>)</li> <li>Net calorific value (NCV<sub>i</sub>)                             <ul style="list-style-type: none"> <li>Coal: 16,547.56 kJ/kg</li> <li>Natural Gas: 38.16 MJ/Nm<sup>3</sup></li> <li>Diesel: 35.86 MJ/Litre</li> </ul> </li> </ul>	32,589,023.94	MWh
Northern Grid CO <sub>2</sub> Emissions Intensity (tCO <sub>2</sub> eq/MWh) for the financial year 2022:	0.611	tCO <sub>2</sub> eq/MWh
<ul style="list-style-type: none"> <li>Fuel consumption (FC<sub>i</sub>) Diesel: 40,863,919.00 Litre</li> <li>Net energy generated (NEG<sub>i</sub>): 170,647.84 MWh</li> <li>Net calorific value (NCV<sub>i</sub>)– Diesel: 35.10 MJ/Litre</li> </ul>		
Direct Emissions (Scope 1) Intensity (tCO <sub>2</sub> eq/ RM Millions of Revenue) for the financial year 2022:	947.53	tCO <sub>2</sub> eq/ RM Millions of Revenue
<ul style="list-style-type: none"> <li>Main, Northern, Stand-Alone Grid and Company Owned Vehicles Emissions (tCO<sub>2</sub>eq): 6,599,448.39</li> <li>Revenue (RM Million): 6,964.87</li> </ul>		
Direct Emissions (Scope 1) Intensity (tCO <sub>2</sub> eq/ RM Millions of Total Investment <sub>LCCG</sub> ) for the financial year 2022:	659.67	tCO <sub>2</sub> eq/ RM Millions of Total Investment <sub>LCCG</sub>
<ul style="list-style-type: none"> <li>Main, Northern, Stand-Alone Grid and Company Owned Vehicles Emissions (tCO<sub>2</sub>eq): 6,599,448.39</li> <li>Total Investment in Low Carbon Generation (RM Millions of Total Investment<sub>LCCG</sub>): 10,004.17</li> </ul>		
Renewable Energy Generation Intensity (RM Millions of Revenue / MWh) for the financial year 2022:	0.000287	RM Millions of Revenue / MWh
<ul style="list-style-type: none"> <li>Revenue (RM Million): 6,939.60</li> <li>Net energy generated (NEG<sub>i</sub>) – Hydropower (MWh): 24,167,727.13</li> </ul>		
Scope 2 - Buildings & offices (tCO <sub>2</sub> eq) for the financial year 2022	12,809.42	tCO <sub>2</sub> eq
Scope 3 - Business air travel (tCO <sub>2</sub> ) for the financial year 2022	1,922.01	tCO <sub>2</sub>
Total Water Withdrawal by Source (m <sup>3</sup> ) for the financial year 2022:		
<ul style="list-style-type: none"> <li>Municipal water (m<sup>3</sup>): 2,551,254.66</li> <li>Natural water (m<sup>3</sup>): 1,232,081,395.62</li> <li>Surface Water (River Water): 4,467,750.00</li> <li>Operating hours (Hrs): 59,482</li> </ul>		m <sup>3</sup> m <sup>3</sup> m <sup>3</sup> Hours



Independent Third Party Assurance Statement

# GRI Content Index

Scheduled Waste Generation Intensity (Tonne/GWh) for the financial year 2022:	14.32	Tonne/GWh
<ul style="list-style-type: none"> <li>Volume of waste generated (Tonne)</li> <li>Gross electricity generated (GEG<sub>g</sub>)</li> </ul>	447,327.57 31,240,346.10	Tonne MWh
Annual Water Volume for Electricity Generation (million m <sup>3</sup> ) for the financial year 2022:	54,667.53	Million m <sup>3</sup>
<ul style="list-style-type: none"> <li>Operating hours (Hrs)</li> </ul>	123,724.26	Hours
Economic Value Retained (RM) for the financial year 2022	2,642.42	RM Million
Total Value of Tenders Awarded to Local Sarawakian Companies (RM) for the financial year 2022:	2,242,572,328.46	RM
<ul style="list-style-type: none"> <li>Operations (RM)</li> <li>Capital works (RM)</li> </ul>	1,947,373,513.08 295,198,815.38	RM RM
Loss Time Injury Frequency Rate (LTIFR) for the financial year 2022:	0.329	LTIs / Million Man Hours (excluding fatalities)
<ul style="list-style-type: none"> <li>Employees Only</li> <li>Contractors Only</li> </ul>	0.319 0.338	LTIs / Million Man Hours LTIs / Million Man Hours
<ul style="list-style-type: none"> <li>Total loss time injury cases</li> <li>Employees Only</li> <li>Contractors Only</li> </ul>	9 4 5	Number of Injuries Number of Injuries Number of Injuries
<ul style="list-style-type: none"> <li>Total man hours (Hrs)</li> <li>Employees Only</li> <li>Contractors Only</li> </ul>	27,334,071 12,525,628 14,808,443	Hours Hours Hours
Sarawak Electrification Coverage (%) for the financial year 2022:	99.16	%
<ul style="list-style-type: none"> <li>Rural electrification coverage (%)</li> </ul>	97.89	%



2023

For the Content Index - Advanced Service, GRI Services reviewed that the GRI content index is clearly presented, in a manner consistent with the Standards, and that the references for all disclosures are included correctly and aligned with the appropriate sections in the body of the report.

<b>Statement of use</b>	Sarawak Energy Berhad has reported the information cited in this GRI Content Index for the period 1 January 2022 to 31 December 2022 with reference to the GRI Standards.
<b>GRI 1 used</b>	GRI 1: Foundation 2021

GRI Standard	Disclosure	Location and Direct Answers	External Assurance	SDG Linkage to Disclosure	TCFD
<b>GRI 2: General Disclosures 2021</b>	2-1 Organizational details	Pg. 5			
	2-2 Entities included in the organization's sustainability reporting	Pg. 42			
	2-3 Reporting period, frequency and contact point	Pg. 4			
	2-4 Restatements of information	No restatement has been made in the reporting period			
	2-5 External assurance	Pg. 226	Yes		
	2-6 Activities, value chain and other business relationships	Pg. 5, 8-19, 21-23, 27, 29-30, 36, 40-41, 106-107, 110			
	2-7 Employees	Pg. 77, 106, 168-170, 215-217			8
	2-8 Workers who are not employees	Sarawak Energy Internship Programme offers students in their final year of tertiary education (university, college, or polytechnic) the opportunity to gain valuable on-the-job experience			
	2-9 Governance structure and composition	Pg. 43-63, 126, 216-217			
	2-10 Nomination and selection of the highest governance body	Pg. 58-61			
	2-11 Chair of the highest governance body	Pg. 58-61			
	2-12 Role of the highest governance body in overseeing the management of impacts	Pg. 58-64			
	2-13 Delegation of responsibility for managing impacts	Pg. 65-69, 126			
	2-14 Role of the highest governance body in sustainability reporting	Pg. 63-64, 69			
	2-15 Conflicts of interest	Pg. 59, 69			
	2-16 Communication of critical concerns	Pg. 65-69, 126			



GRI Content Index

GRI Standard	Disclosure	Location and Direct Answers	External Assurance	SDG Linkage to Disclosure	TCFD
	2-17 Collective knowledge of the highest governance body	Pg. 59, 69			
	2-18 Evaluation of the performance of the highest governance body	Pg. 59			
	2-19 Remuneration policies	Pg. 68, 137			
	2-20 Process to determine remuneration	Pg. 60			
	2-21 Annual total compensation ratio	Pg. 60, 68			
	2-22 Statement on sustainable development strategy	Pg. 20-22, 24, 27, 102			
	2-23 Policy commitments	Pg. 22, 39, 68-69, 80, 84, 119		16	
	2-24 Embedding policy commitments	Pg. 22, 39, 68-69, 80			
	2-25 Processes to remediate negative impacts	Pg. 88-89, 108-125			
	2-26 Mechanisms for seeking advice and raising concerns	Pg. 17, 69, 81, 89, 101, 172, 177, 185			
	2-27 Compliance with laws and regulations	Pg. 64, 75, 162-163, 213		16	
	2-28 Membership associations	Pg. 5, 50			
	2-29 Approach to stakeholder engagement	Pg. 4, 17, 28, 66-67, 81-83, 89, 101, 172, 177, 185			
	2-30 Collective bargaining agreements	Terms as agreed in Collective Agreement are extended to all nonexecutive staff under Sarawak Energy Group.		8	
<b>GRI 3: Material Topics 2021</b>	3-1 Process to determine material topics	Pg. 4, 101			
	3-2 List of material topics	Pg. 101			
<b>Topic: Economic Performance</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 34, 140			
<b>GRI 201: Economic Performance 2016</b>	201-1 Direct economic value generated and distributed	Pg. 107, 140-141, 186	Yes	2	
	201-2 Financial implications and other risks and opportunities due to climate change	Pg. 132-133, 135-137			
	201-3 Defined benefit plan obligations and other retirement plans	Pg. 81			
	201-4 Financial assistance received from government	Pg. 29, 36, 180			

GRI Content Index

GRI Standard	Disclosure	Location and Direct Answers	External Assurance	SDG Linkage to Disclosure	TCFD
<b>Topics: • Indirect Economic Performance • Public Policy</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 8, 12, 21-23, 27-30, 94, 110, 180, 182			
<b>GRI 203: Indirect Economic Impacts 2016</b>	203-1 Infrastructure investments and services supported	Pg. 8-18, 21-24, 27-30, 36, 41, 90-91, 113-114, 117-118, 144, 180-181, 184, 186		7, 9, 11	
	203-2 Significant indirect economic impacts	Pg. 8-10, 12-13, 15, 27-29, 36-38, 41, 92, 98, 107, 117-118, 121, 180-181, 184		1, 2, 8, 10, 17	
<b>Topics: • Procurement Practices • Labour/Management Relations • Market Presence</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 29, 41, 143			
<b>GRI 204: Procurement Practices 2016</b>	204-1 Proportion of spending on local suppliers	Pg. 100, 104, 107, 143, 186-187	Yes	12	
<b>Topics: • Ethics and Integrity • Socioeconomic Compliance</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 19, 22, 69			
<b>GRI 205: Anti-corruption 2016</b>	205-2 Communication and training about anti-corruption policies and procedures	Pg. 19, 69, 80		16	
	205-3 Confirmed incidents of corruption and actions taken	Pg. 187		16	
<b>Topic: Materials</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 106			
<b>GRI 301: Materials 2016</b>	301-1 Materials used by weight or volume	Pg. 106, 138, 158, 187-189	Yes	8, 12	TCFD
<b>Topic: Water</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 29, 41			
<b>GRI 303: Water and Effluents 2018</b>	303-1 Interactions with water as a shared resource	Pg. 157, 160		6	
	303-2 Management of water discharge-related impacts	Pg. 156-157		6	
	303-3 Water withdrawal	Pg. 138, 160, 190-191	Yes	6	
<b>Topic: Biodiversity</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 105, 163-164			
<b>GRI 304: Biodiversity 2016</b>	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Pg. 89, 105, 121, 157, 165-166		6, 14, 15	
	304-2 Significant impacts of activities, products and services on biodiversity	Pg. 89, 121, 157, 165-166		6, 14, 15	



GRI Content Index

GRI Standard	Disclosure	Location and Direct Answers	External Assurance	SDG Linkage to Disclosure	TCFD
<b>Topic: Emissions</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 21, 23, 30, 108-139			
<b>GRI 305: Emissions 2016</b>	305-1 Direct (Scope 1) GHG emissions	Pg. 125, 134, 139, 191-193	Yes	3, 12, 13, 14, 15	TCFD
	305-2 Energy indirect (Scope 2) GHG emissions	Pg. 125, 134, 139, 192	Yes	3, 12, 13, 14, 15	TCFD
	305-3 Other indirect (Scope 3) GHG emissions	Pg. 125, 134, 139, 192	Yes	3, 12, 13, 14, 15	TCFD
	305-4 GHG emissions intensity	Pg. 100, 103, 107-108, 110-111, 122, 124, 135-136, 139, 191-194, 196-197	Yes	3, 12, 13, 14, 15	TCFD
	305-5 Reduction of GHG emissions	Pg. 103		13, 14, 15	TCFD
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Pg. 156, 162, 198-199		3, 12, 14, 15	
<b>Topics: • Effluent &amp; Waste • Environmental Compliance</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 162-163, 167			
<b>GRI 306: Waste 2020</b>	306-1 Waste generation and significant waste-related impacts	Pg. 162-163		12	
	306-2 Management of significant waste-related impacts	Pg. 162-163, 167		12	
	306-3 Waste generated	Pg. 138-139, 162, 200-213	Yes	12	
<b>Topic: Employment</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 168			
<b>GRI 401: Employment 2016</b>	401-1 New employee hires and employee turnover	Pg. 107, 172, 213-215		5, 8	
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	Pg. 215		8	
<b>Topics: • Occupational Health &amp; Safety • Customer Health &amp; Safety • Disaster/Emergency Planning Response</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 39, 82-83, 173-175, 177			
<b>GRI 403: Occupational Health and Safety 2018</b>	403-1 Occupational health and safety management system	Pg. 16, 39, 173, 176-177		3, 8	
	403-2 Hazard identification, risk assessment, and incident investigation	Pg. 39, 83-84, 151, 153, 176		3, 8	
	403-3 Occupational health services	Pg. 81, 83, 178-179		3, 8	

GRI Content Index

GRI Standard	Disclosure	Location and Direct Answers	External Assurance	SDG Linkage to Disclosure	TCFD
	403-4 Worker participation, consultation, and communication on occupational health and safety	Pg. 39, 82-83, 98, 175-178, 216		3, 8	
	403-5 Worker training on occupational health and safety	Pg. 83, 89, 153, 175-179		3, 8	
	403-6 Promotion of worker health	Pg. 83, 175, 179, 215		3, 8	
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Pg. 82, 89, 175, 177-178		3, 8	
	403-9 Work-related injuries	Pg. 16, 39, 174		3, 8	
	403-10 Work-related ill health	Pg. 178-179		3, 8	
<b>Topic: Training and Education</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 76-80, 168			
<b>GRI 404: Training and Education 2016</b>	404-1 Average hours of training per year per employee	Pg. 170-171, 216-217		4, 5, 8	
	404-2 Programs for upgrading employee skills and transition assistance programs	Pg. 76-79		8	
	404-3 Percentage of employees receiving regular performance and career development reviews	100%		5, 8	
<b>Topics: • Indigenous Rights • Non-discrimination</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 82, 119, 129, 185			
<b>GRI 411: Rights of Indigenous Peoples 2016</b>	411-1 Incidents of violations involving rights of indigenous peoples	There were no identified incidents of violations involving the rights of indigenous peoples during the reporting period.		2	



GRI Content Index

GRI Standard	Disclosure	Location and Direct Answers	External Assurance	SDG Linkage to Disclosure	TCFD
<b>Topics: • Local Communities</b> • Supplier Assessment for Labour Practices					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 82, 119, 129, 185			
<b>GRI 413: Local Communities 2016</b>	413-1 Operations with local community engagement, impact assessments, and development programs	100% of Sarawak Energy's operations involves and includes local community engagement, impact assessments and development programs, particularly projects categorised under "prescribed activities" by the Natural Resources and Environment Board, Sarawak and Department of Environment.  Pg. 83, 88-89, 96-98, 121, 163, 165, 167, 177, 82-185		16	
<b>Topics: • Customer Privacy</b> • Customer Service and Satisfaction					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 41, 73, 116-117			
<b>GRI 418: Customer Privacy 2016</b>	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	There were no substantiated complaints regarding breaches of customer privacy and losses of customer data in 2022.  Pg. 218-219		16	
<b>ELECTRIC UTILITIES SECTOR DISCLOSURES</b>					
<b>Topics: • Electricity Exports</b> • Energy					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 5, 8, 12			
<b>GRI G4 Sector Disclosures: Electric Utilities</b>	EU1 Installed Capacity, Broken Down by Primary Energy Source and by Regulatory Regime	Pg. 146		7	TCFD
	EU2 Net Energy Output Broken Down by Primary Energy Source and by Regulatory Regime	Pg. 106, 124, 139, 194-195	Yes	7, 14	TCFD
	EU3 Number of Residential, Industrial, Institutional and Commercial Customer Accounts	Pg. 5, 220			
	EU4 Length of Above and Underground Transmission and Distribution Lines by Regulatory Regime	Pg. 220		7	

GRI Content Index

GRI Standard	Disclosure	Location and Direct Answers	External Assurance	SDG Linkage to Disclosure	TCFD
<b>Topics: • Availability &amp; Reliability</b> • Demand Side Management					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 8, 12, 21			
<b>GRI G4 Sector Disclosures: Electric Utilities</b>	EU10 Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime	Pg. 8, 10-12, 143-144		7	
<b>Topic: System Efficiency</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 113, 115-116, 128, 132-133, 148			
<b>GRI G4 Sector Disclosures: Electric Utilities</b>	EU11 Average generation efficiency of thermal plants by energy source and by regulatory	Pg. 222		7, 8, 12, 13, 14	
	EU12 Transmission and distribution losses as a percentage of total energy	Pg. 102, 148, 221		7, 8, 12, 13, 14	
<b>Topic: Access</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg.9, 13, 21, 28-29, 36, 38, 41, 70, 91-92, 116, 153-154, 159			
<b>GRI G4 Sector Disclosures: Electric Utilities</b>	EU26 Percentage of population unserved in licensed distribution or service areas	Pg. 9, 16, 27, 29, 36, 107, 180-181, 222	Yes	1, 7	
	EU27 Number of residential disconnections for nonpayments, broken down by duration of disconnection and by regulatory regime	Pg. 150		1, 7	
	EU28 Power outage frequency	Pg. 17, 38, 73, 147		7	
	EU29 Average power outage duration	Pg. 15, 17, 38, 73, 100, 102, 146-147		1, 7	
	EU30 Average plant availability factor by energy source and by regulatory regime	Pg. 72, 102, 146, 223		1, 7	
<b>Topic: Research &amp; Development</b>					
<b>GRI 3: Material Topics 2021</b>	3-3 Management of material topics	Pg. 19, 93, 166			
<b>GRI G4 Sector Disclosures: Electric Utilities</b>	(Former EU8) Research and development activity and expenditure aimed at providing reliability electricity and promoting sustainable development	Pg. 137, 224		7, 9, 17	



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