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# SUSTAINABILITY STATEMENT



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# OUTLINING THE SCOPE AND BOUNDARIES OF THIS STATEMENT

This report has been prepared in accordance with Bursa Malaysia's Main Market Listing Requirements (MMLR), with reference to local sustainability guidelines as well as international reporting frameworks as shown below :
















Reporting Framework, Scope and Boundaries	
	Bursa Malaysia Sustainability Reporting Guide (3 <sup>rd</sup> Edition)
	Global Reporting Initiative (GRI) Standards GRI Electric Utilities Sector Disclosures
	Task Force on Climate-related Financial Disclosures (TCFD) framework
	United Nations Sustainable Development Goals (UN SDGs)

The scope and boundary of sustainability disclosures covers the activities of TNB and its subsidiaries ("TNB Group"). Where information is unavailable, we will cover at a minimum, our core and non-core business operations in Peninsular Malaysia under the purview of TNB divisions ("TNB Company"). Unless otherwise stated, this Statement excludes joint ventures and supplier activities.

This Sustainability Statement has not been subjected to an external verification process. Concurrently, we are preparing for internal assurance in FY2023 and to obtain external assurance in due course.

Our Statement contains data from the full Financial Year of FY2022 from 1 January 2022 to 31 December 2022. Please refer to our upcoming Sustainability Report 2022 for further information.

## ESG SCORECARD FOR FY2022

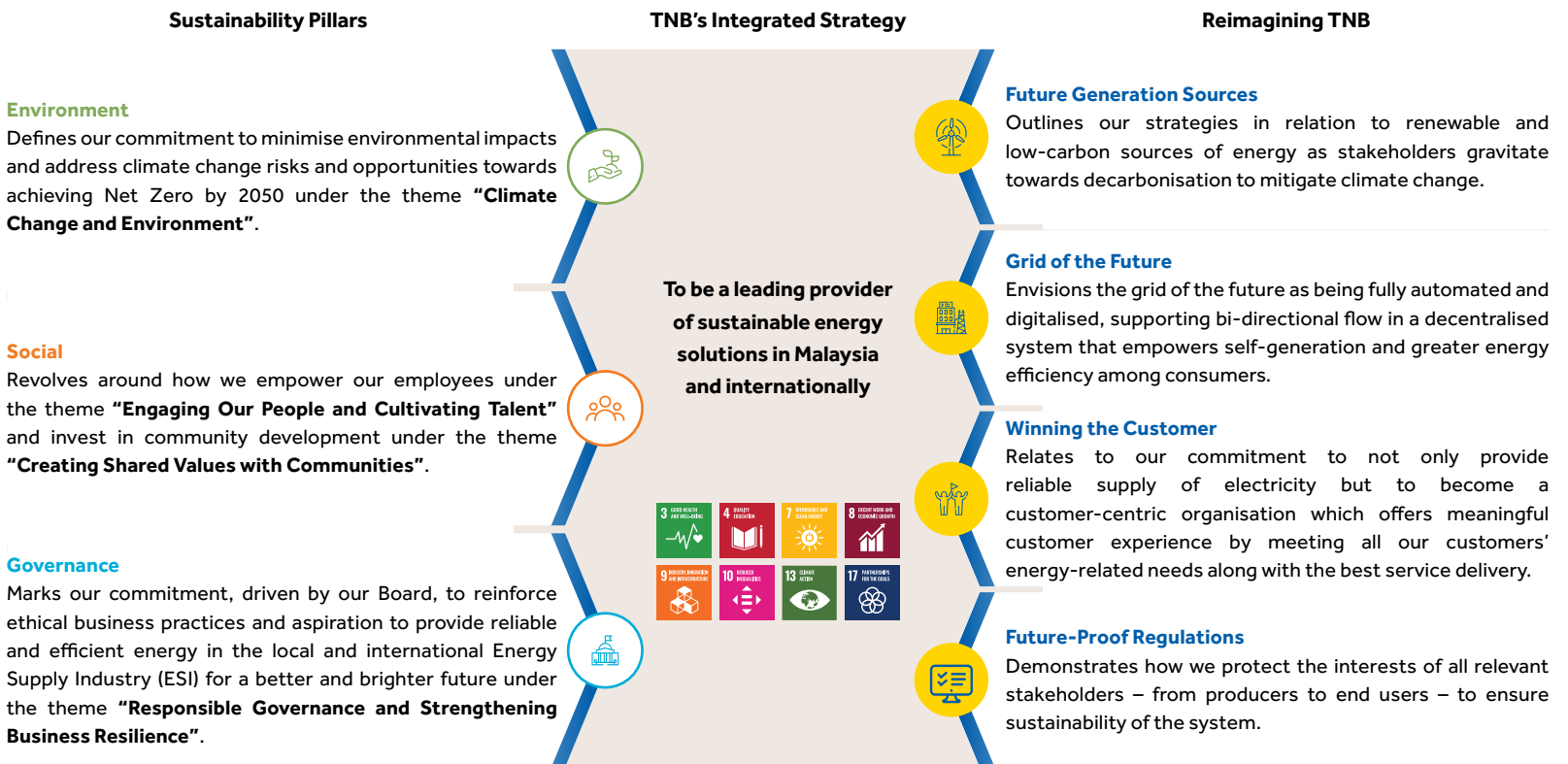
ENVIRONMENT					
	Total renewable energy capacity			GHG Emissions Intensity <sup>1</sup>	
	<b>3,780 MW</b>			<b>0.55 tCO<sub>2</sub>e/ MWh</b>	
	Avoided Emission			GHG Emission (Scope 1 and 2) <sup>1</sup>	
	<b>7,295,145 tCO<sub>2</sub>e</b>			<b>38.90 MtCO<sub>2</sub>e</b>	
				Scheduled Waste Generation	
				<b>74,150 tonnes</b>	
SOCIAL					
	Total contribution to community development programmes			Lost Time Injury Frequency (LTIF) Rate	
	<b>RM12.20 million</b>			<b>0.82</b>	
				Fatalities	
				<b>2</b> TNB contractors	
				Learning and Development Investment	
				<b>RM161 million</b>	
				Employee Engagement Score (EES)	
				<b>86.6%</b>	
GOVERNANCE					
	Equivalent Availability Factor (EAF) <sup>1</sup>			System Average Interruption Duration Index (SAIDI) <sup>1</sup>	
	<b>83.20%</b>			<b>45.06</b> minutes/customer/year	
				System Availability <sup>1</sup>	
				<b>99.79%</b>	
				Customer satisfaction index <sup>1</sup>	
				<b>87%</b>	
				Percentage spent on local suppliers <sup>1</sup>	
				<b>95.14%</b>	

<sup>1</sup> TNB operations in Peninsular Malaysia

# CHAMPIONING SUSTAINABILITY AT TNB

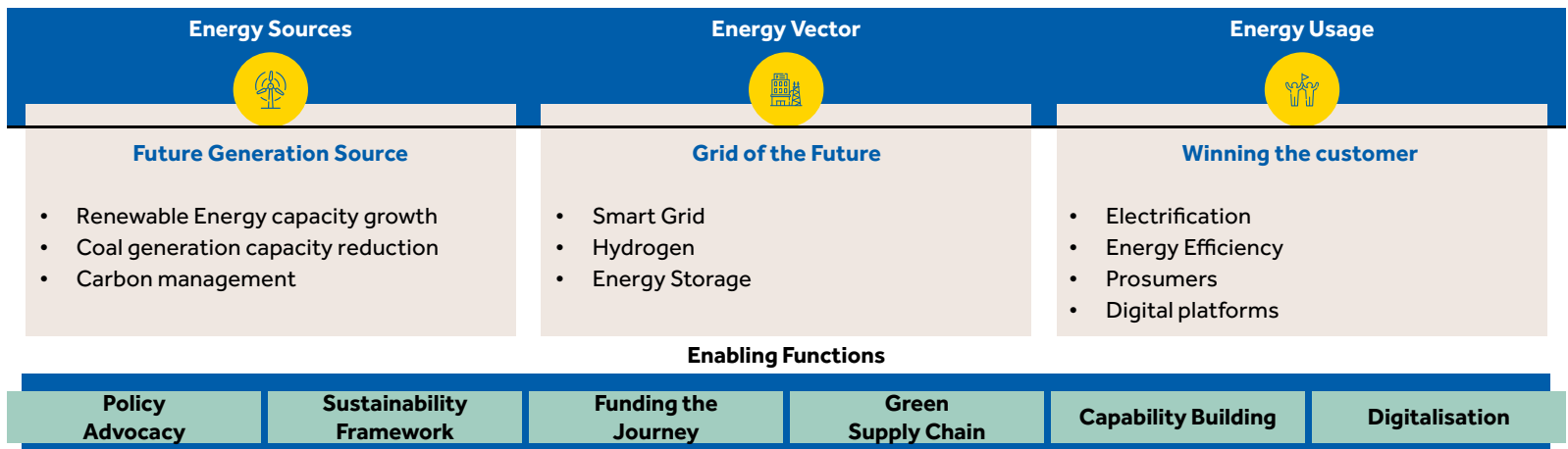
## TNB'S SUSTAINABILITY STRATEGY

Our integrated sustainability strategy connects sustainability pillars - Environmental, Social and Governance (ESG) matters with our corporate strategy : Reimagining TNB 2025 (RT) to enable us to contribute to the United Nations Sustainable Development Goals (UN SDGs) and be a leading provider of sustainable energy solutions in Malaysia and internationally. We have prioritised eight (8) SDGs to deliver sustainable value, empowering both our people and the wider community. TNB Sustainability Pathway 2050 (SP2050) which was developed in 2021 has enabled the Group to advance its Energy Transition (ET) Plan in 2022.



*For more information on TNB corporate strategy, please refer to Achieving Our Strategic Ambitions section, pages 38-53.*

TNB's ET Plan is an extension of the RT, focusing on three (3) strategic pillars supported by key enablers in shifting from fossil-based energy mix to greener energy sources. These initiatives cut across the electricity value chain, from transitioning power generation to cleaner sources; enhancing the Grid of the Future (GoTF) to enable more green solutions; and facilitating consumer participation in the energy transition, including through digitalisation and electrification.



*For more information on TNB Energy Transition Plan, please refer to Climate Strategy section, pages 94-95.*

## CHAMPIONING SUSTAINABILITY AT TNB

### Feature Story 1

#### STRENGTHENING AND PROMOTING STRATEGIC PARTNERSHIPS

Partnerships unlock growth opportunities in high-value market segments which are beyond the traditional electric utility value chain. In driving innovative solutions towards decarbonisation and energy transition in Malaysia, TNB has established strategic partnerships and collaboration with both public and private entities, especially with key players in the energy sector industry.

FY2022

### Highlight

TNB Fuel Services Sdn Bhd (TNBF) established a strategic partnership by signing a three-year memorandum of understanding (MoU) with three (3) local companies, MNA Fuel Services Sdn Bhd, Itochu (M) Sdn Bhd and Cement Industries of Malaysia Bhd. This entails a study on the development of biomass pellets produced from bamboo plants for use in power generation activities, research of ammonia supply chain as a new source of fuel and collaboration in various development areas including the supply of fuel, alternative raw materials, research and technical skills sharing, with the partners respectively.



TNBF signed a MoU with MNA Fuel Services Sdn Bhd, Itochu (M) Sdn Bhd and Cement Industries of Malaysia Bhd.

TNB is stepping up its responsible energy transition agenda through collaborative partnerships to promote the development of innovative solutions. The table below outlines TNB's partnership and collaboration in 2022.

Moving forward, we will continue to explore opportunities for strategic partnerships with potential in creating growth and value for our stakeholders.

#### Strategic partnership and collaboration

#### Description

1

TNB and PETRONAS partnership for green hydrogen and Carbon Capture, Utilisation and Sequestration (CCUS)

TNB and PETRONAS have signed a MoU to explore the development of new green technologies including green hydrogen ecosystem and CCUS.

2

TNB and Ipoh City Council (MBI) in MoU to Help Realise Ipoh as A Low Carbon Smart City and "Bestari Sejahtera" by 2030

TNB is committed to helping Ipoh to achieve its aspiration of becoming a smart, livable, resilient and sustainable city by 2030. In February 2022, TNB established a strategic partnership with the MBI to supply energy efficiency products and services as well as a Supply Agreement for Renewable Energy (SARE) with TNB's wholly owned subsidiary, GSPARX Sdn. Bhd. (GSPARX) for RE solutions to promote sustainable and green living.

This partnership will drive the installation of photovoltaic solar systems, smart LED street lighting, energy performance and monitoring system, electric vehicle charging ecosystem and smart meters, which are key initiatives in establishing Ipoh as a Smart City.



## CHAMPIONING SUSTAINABILITY AT TNB

## Feature Story 1

## STRENGTHENING AND PROMOTING STRATEGIC PARTNERSHIPS

## Strategic partnership and collaboration

## Description

3

TNB and Gamuda Land partners in the delivery of Malaysia's first solar powered electron stations

TNB entered into a strategic partnership with Gamuda Land in October 2022 to build two (2) TNB Electron Stations for electric vehicle charging at Gamuda Land's property development projects in Selangor. This will be the first TNB Electron stations with multiple chargers in one site and will be situated in Gamuda Cove in Southern Klang Valley and Gamuda Gardens in Northern Klang Valley. The stations are targeted to serve local communities as well as patrons to the theme parks and recreational areas within Gamuda Land developments.

4

TNB partners with S P Setia Bhd (S P Setia) to provide smart energy and renewable energy solutions

TNB is partnering with S P Setia to provide smart energy and renewable energy (RE) solutions for future property developments. The MoU was signed to enable the installation of rooftop solar PV system as well as ensuring properties are future-ready to support the installation of EV chargers and battery solutions in S P Setia's upcoming residential and commercial development projects.

5

TNB Power Generation Company Sdn. Bhd. (TNB GenCo), IHI Corporation and PETRONAS collaborate in Co-Firing Technology for Carbon-Free Ammonia

TNB GenCo, IHI and PETRONAS are collaborating on Co-Firing Technology for Carbon-Free Ammonia. The MoU includes a feasibility study on ammonia co-combustion in coal-fired power generation systems as part of initiatives to decarbonise the country's power sector. The scope of the study covers exploring the technology of co-firing ammonia at coal power plants in Malaysia and evaluating the technology and economics across the entire ammonia supply chain which includes green ammonia production from renewable energy sources and blue ammonia from natural gas.

6

TNB GenCo, Malaysia Solar Resources and Sungrow signed MoU for floating solar feasibility study

Conduct a feasibility study on the floating solar potential at hydro dams and opportunity to collaborate as a local floaters manufacturer.

7

TNB GenCo collaborated with Malaysian Space Agency (MYSA) to develop remote sensing-based application using a spatial database

This MoU aims to strengthen the use of remote sensing technology in the management of TNB's hydroelectric catchment areas in Malaysia. Through this strategic partnership, MYSA has developed and operated the TNB Hydro Dam Catchment Area Monitoring System (THyCAS) since 2020. The THyCAS system uses space technology (GPS) and other related technologies (GIS and ICT) which has been deployed in Perak, Kelantan, Pahang and Terengganu. With this system in place, the planning, management and monitoring of TNB's hydro dam catchment activities can be implemented more efficiently, effectively and systematically.

8

GSPARX Sdn. Bhd collaborates with AEON CO. (M) BHD. to install building integrated photovoltaic (BIPV) carpark

AEON CO. (M) BHD. has experienced a successful reduction of up to RM185,000 monthly in electricity bills since January 2022, thanks to the implementation of Solar PV by GSPARX which is a wholly owned subsidiary of TNB. GSPARX offers expert services from consultation, installation, maintenance and monitoring which guarantees optimal functioning of the solar PV system. This solution enables businesses to save 40-50% on their electricity bills without any upfront costs.

# RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE



## Related Material Matters

- Responsible Business and Financial Performance
- Reliable Energy and Fair Tariff
- Cybersecurity Management
- Sustainable Supply Chain

TNB's Board of Director at the FY2022 Annual General Meeting (AGM).

## Feature Story 2

### ACCELERATING RESPONSIBLE ENERGY TRANSITION

As we move forward into the 21<sup>st</sup> century, the need for a just transition towards sustainable and decarbonised energy systems has become increasingly urgent. The energy supply industry plays a crucial role in this transition. The energy sector has been a significant contributor to greenhouse gas emissions and the shift towards renewable energy sources is necessary to reduce the nation's carbon footprint. To achieve a successful energy transition, it is essential to understand the challenges and opportunities that lie ahead.

With the presence of diverse socio-economic challenges and anticipated uncertainties in the present business environment, TNB acknowledges the need for substantial investment, innovation, as well as cross-sector and cross-border collaborations to facilitate a just transition. TNB, is taking the lead to spearhead the nation's decarbonisation agenda through its Energy Transition Plan towards a more sustainable and resilient energy future. Showcasing our commitment to execute this strategy, TNB has allocated RM14 billion of the Group's total budgeted Capital Expenditure (CAPEX) for 2025 towards its energy transition initiatives.

## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

## Feature Story 2

## ACCELERATING RESPONSIBLE ENERGY TRANSITION

## Accelerating Decarbonisation

TNB is dedicated to achieving decarbonisation and a just energy transition through the implementation of initiatives aimed at reducing emissions and driving business growth. These strategies encompass the early retirement of coal plants, upgrading of existing plants with cleaner technology and collaborating with strategic partners to diversify its power generation portfolio towards cleaner and renewable sources. TNB will also prioritise the adoption of clean energy technologies such as hydro power, CCUS, hydrogen fuel and Small Modular Reactors. Furthermore, these initiatives are anticipated to expedite the economic feasibility of green technology adoption across the nation and beyond.



For more information on CCUS, please refer to Feature Story 3 : Decarbonisation through Innovative Solutions : Carbon Capture section, pages 83-84.

## Expanding Renewable Energy Portfolio

TNB is expanding its portfolio of renewable energy (RE) through solar and wind energy assets (onshore and offshore), both domestically and internationally, as well as investing in energy storage. We aspire to achieve 7,000 MW of RE installed capacity by 2030 and to capture over 14,000 MW of RE installed capacity by 2050.



For more information, please refer to Sustainable Business Expansion section, pages 75-77.

As the custodian of Malaysia's power infrastructure, TNB is committed to developing and investing in enhancing the grid and network infrastructure in Peninsular Malaysia. Our investments in grid modernisation and digitalisation efforts will lead to improved grid flexibility and regional interconnections, making it easier to integrate Variable Renewable Energy (VRE) and Distributed Energy Resources (DER). We are also committed to minimising our impact on the environment by carefully managing land use, preserving forests and utilising cleaner and greener technologies in modernising the grid.



For more information, please refer to Smart Grid section, pages 73-74.

At TNB, we recognise the significant role that our customers can play in the energy transition journey. TNB encourages customers to take on an active role in monitoring their electricity consumption through smart meters and generating their own renewable electricity as prosumers. We aim to increase the adoption of electric vehicles by developing the EV ecosystem and digital interaction platforms.



For more information, please refer to Electrification section, pages 98-100.

## Modernisation of Grid of the Future

## Empowering Customers in the Energy Transition

To lead the Energy Transition and to drive the Green Economy, we have outlined the following priorities

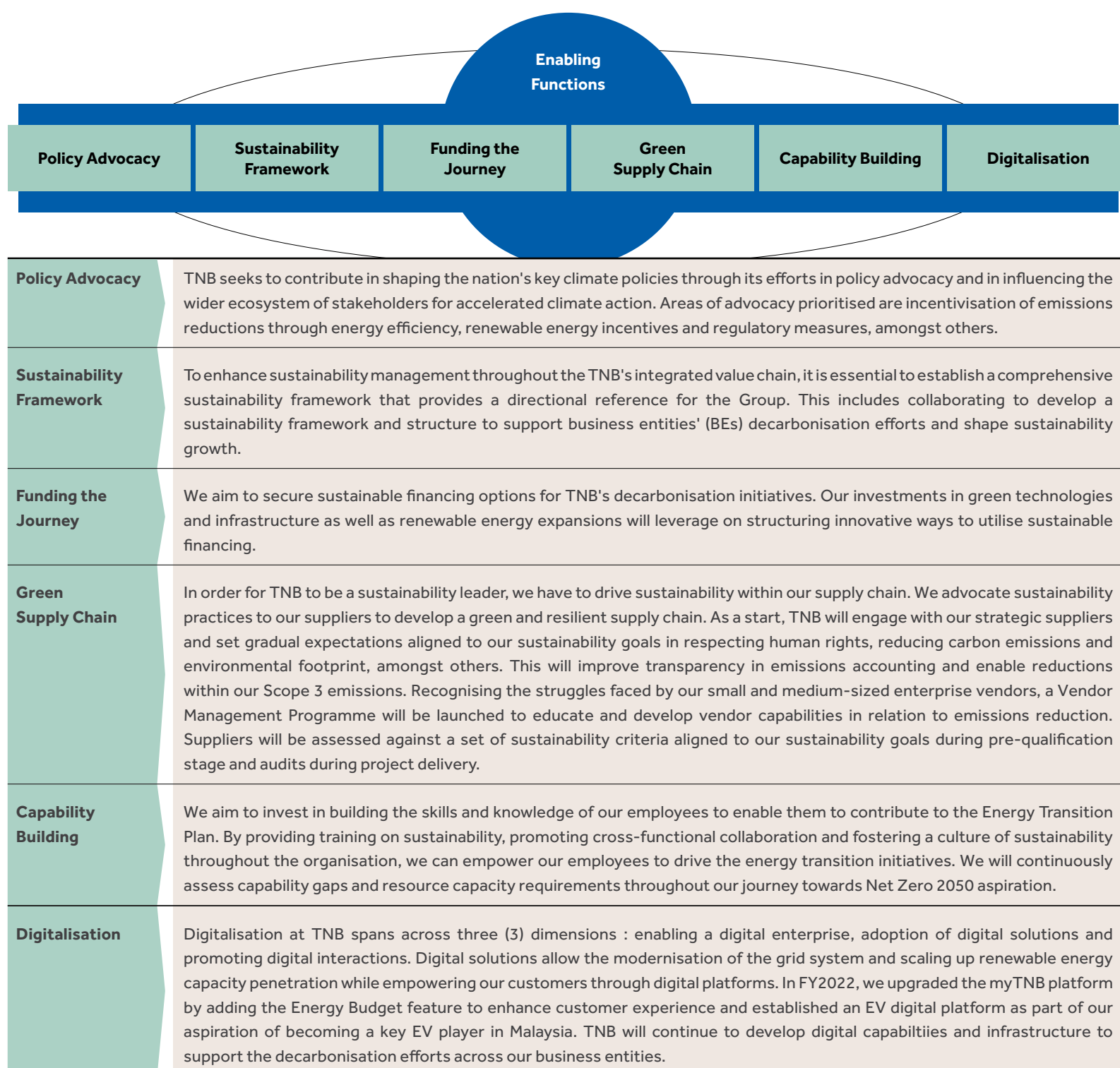


## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

### Feature Story 2

#### ACCELERATING RESPONSIBLE ENERGY TRANSITION

In order to remain competitive and meet the expectations of our stakeholders, it is crucial for TNB to develop a comprehensive plan that prioritises sustainability and builds resilience towards climate-related risks. In pursuit of these objectives, TNB has identified six (6) key enablers that can support the execution of the Energy Transition Plan :



## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

### SUSTAINABLE INFRASTRUCTURE AND ECOSYSTEM

TNB's key focus is to accelerate the energy transition and address climate change by digitalising the utilities industry, utilising efficient technology and exploring greener energy sources for enhanced power security.

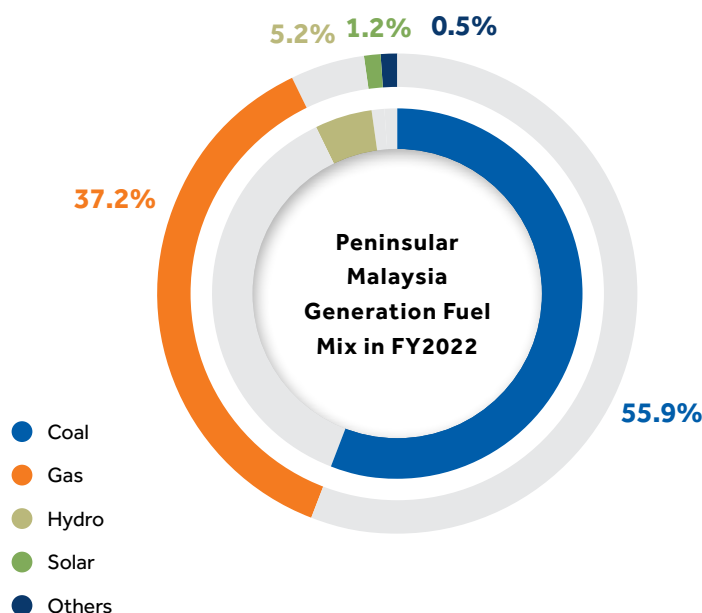
#### GENERATION FUEL MIX

As part of its 12<sup>th</sup> Malaysia Plan, the Malaysian Government has pledged to become a carbon-neutral country by 2050, ahead of COP26. To achieve this goal, the Government has committed to ending the construction of new coal-fired power plants. As a result, it is expected that the proportion of electricity generated from coal will decrease gradually in the coming years.

In balancing the energy trilemma, the Generation Development Plan will be based on a guiding principle of optimum fuel mix to achieve a *Herfindahl-Hirschman Index* (HHI)  $\leq 0.5$ . This would ensure optimum power security by providing adequate diversification of fuel and resources.

TNB's generation fuel mix depends on the Peninsular Malaysia's Generation Development Plan as approved by the Planning and Implementation Committee for Electricity Supply and Tariff (JPPPET), which is chaired by the Ministry of Natural Resources, Environment and Climate Change (NRECC). This plan is developed based on the underlying principle of balancing the security of electricity supply, affordability and environmental sustainability. TNB's target on renewable energy growth aligns with the nation's goal of increasing renewable energy capacity and reducing the greenhouse gas emission intensity of GDP by 45% by 2030.

Our two-prong strategy in greening our generation mix emphasises on reducing our coal capacity in a gradual manner while increasing our renewables energy portfolio.



#### SMART GRID

The Grid of the Future (GoTF) strategy, which is a part of TNB's Energy Transition Plan, aims to modernise and digitalise our grid and distribution infrastructures to support increased integration of distributed generations and renewables. This will lead to enhanced reliability and efficiency of our distribution network and system in delivering services to our customers. This is achieved by better management of distributed generation and possible interconnections with other countries. Additionally, digitalisation opens up possibilities to offer new products and services to meet our customers' needs and expectations.

TNB plans to invest a total of RM21 billion of Capital Expenditure (CAPEX) over a period of three (3) years from 2022 until 2024 in strengthening the grid and reliability of energy supply.

We strive to meet the increasing demand for cleaner electricity contributed by electrification and population growth by accelerating the integration of clean energy within the grid infrastructure. In tandem with this, we are expanding grid accessibility to connect new loads and data centres from potential customers and smart cities in new development areas that will also spur national economic growth.

We facilitate customer participation from two (2) dimensions :

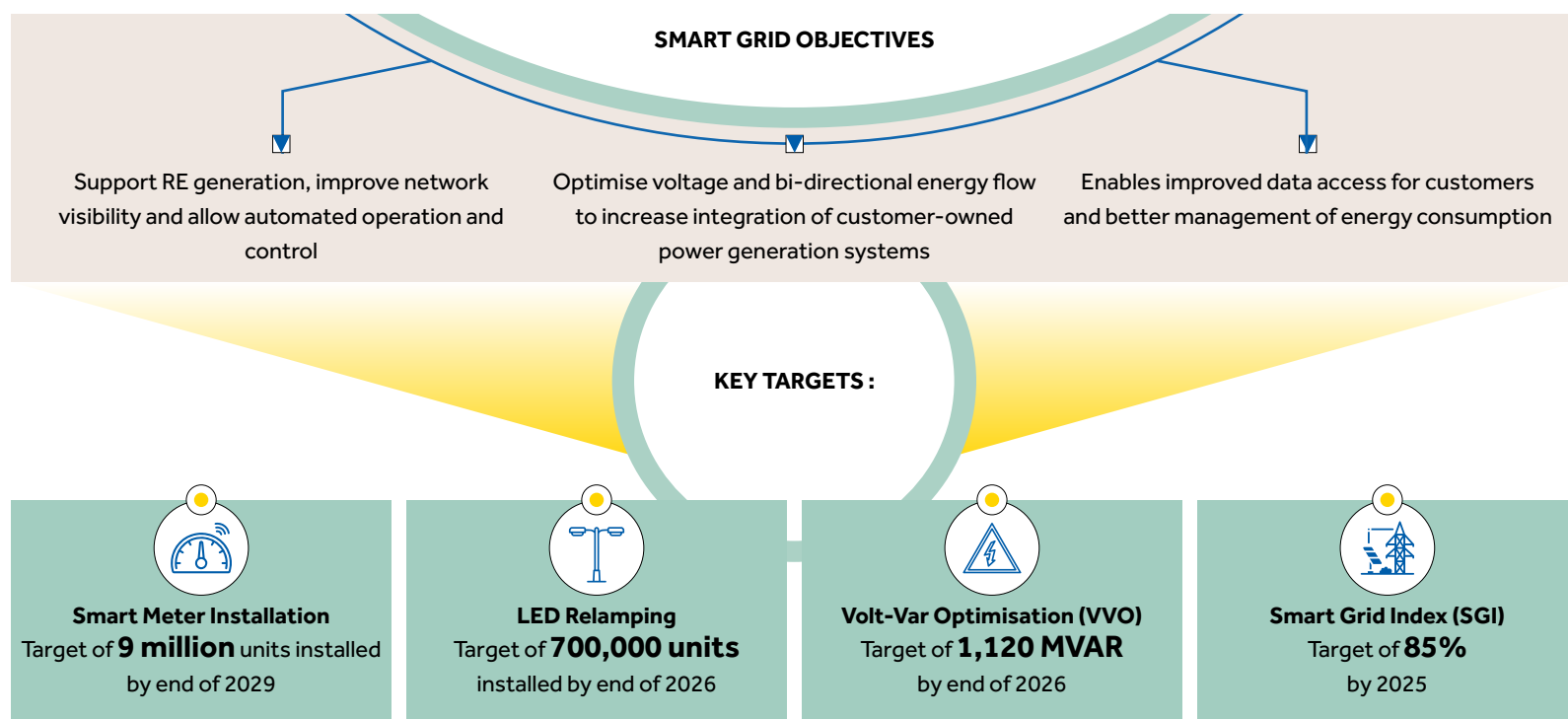
- Encouraging efficient electricity usage; and
- Self-generation of electricity. We enable customers to optimise their energy consumption using real-time electricity consumption data collected from Smart Meters and fed into myTNB app.

The installation of rooftop solar at customer's premises via initiatives such as Supply Agreement for Renewable Energy (SARE) and GSPARX to self-generate electricity on the other hand will encourage the growth of prosumers among TNB's customers.

TNB has made progress in integrating renewable energy into the grid by partnering with commercial customers to provide green energy solutions to reduce load on the grid, as well as conducting research and studies to identify suitable renewable energy solutions to increase RE capacity.

## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

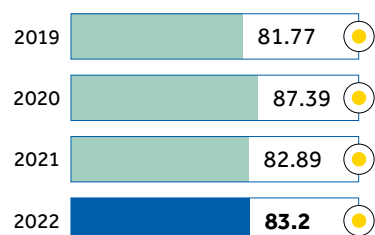
### SUSTAINABLE INFRASTRUCTURE AND ECOSYSTEM



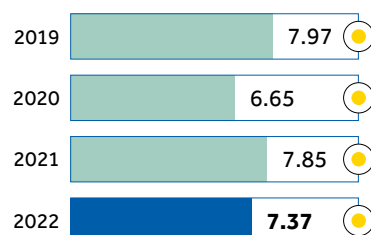
As part of the GoTF, over 2.6 million smart meters have been installed to date. The result of the massive efforts and investments by TNB is manifested through an improvement of the Smart Grid Index (SGI) to 71.4% this year as compared to the preceding year. We aim to achieve a SGI of 85% by 2025. With our ongoing initiatives and strategies in place, we are confident of achieving this target.

### OUR PERFORMANCE FOR FY2022

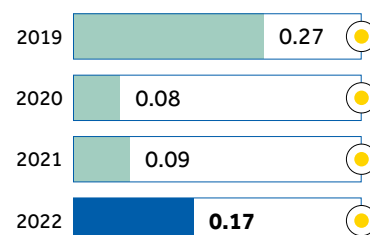
#### EQUIVALENT AVAILABILITY FACTOR (EAF) (%)



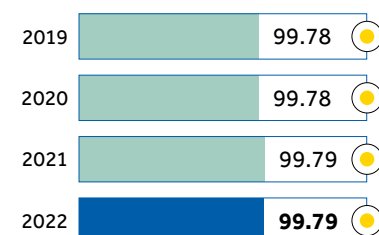
#### EQUIVALENT UNPLANNED OUTAGE FACTOR (EUOF) (%)



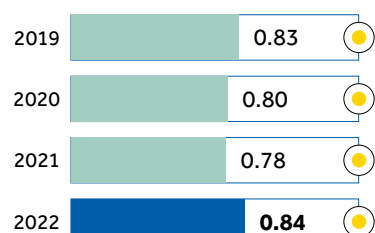
#### TRANSMISSION SYSTEM (MINUTES)



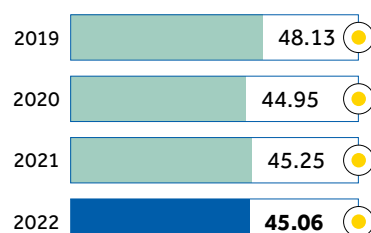
#### PERCENTAGE OF SYSTEM AVAILABILITY (%)



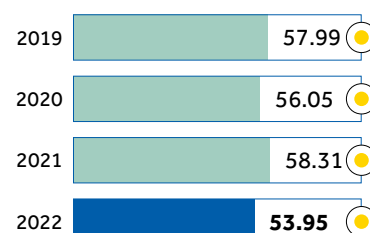
#### SYSTEM AVERAGE INTERRUPTION FREQUENCY INDEX (SAIFI)



#### SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI)



#### CUSTOMER AVERAGE INTERRUPTION DURATION INDEX (CAIDI)



## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

## SUSTAINABLE BUSINESS EXPANSION

Our aspiration to become a leading provider of sustainable energy solutions aligns with our Energy Transition Plan, which we believe will create value for our stakeholders, spur growth in the energy industry and enhance our customer experience through diversified products and services. To ensure successful delivery of these strategic outcomes, we empower and provide support to relevant business entities to enable them to effectively execute plans and initiatives.


TNB is fully committed to reduce 35% of its carbon emission intensity by the year 2035 via adoption of new emerging technologies such as ammonia, biomass, hydrogen co-firing and Carbon Capture, Utilisation and Storage. These initiatives were intensified across TNB's business unit, divisions and subsidiaries.

We aim to deliver our SP2050 initiatives through a multi-faceted approach. The areas of focus for our energy transition strategy are as follows :

- 1) Reduce Coal Capacity
- 2) Expand TNB's Low Carbon Generation Portfolio
- 3) Increase Adoption of Cleaner Fuel and Green Technology
- 4) Accelerate Green Technologies via Strategic Partnership
- 5) Increase operational efficiency

With regards to our energy transition strategy, our primary goal is to maintain the highest level of reliability excellence in our generation capabilities. This will enable us to uphold the availability and reliability of our critical assets while transitioning towards more sustainable energy sources.

Additionally, we strive to align our efforts with the objective of achieving net-zero emissions. In effort to reduce emission, TNB carbon management plan outlines three (3) key components : reduce, capture and offset emissions.

 For more information, please refer to Carbon Management section, page 95.

TNB's multi-faceted approach towards energy transition :

1.

#### Reduce Coal Capacity

Retiring selected coal plants, earlier, than the expiration of their Power Purchase Agreements (PPA), subject to shareholders' agreements and approvals from the relevant authorities and regulators. Feasibility study of coal plants co-firing with ammonia, biomass and coal are ongoing for Jimah East Power (JEP) – 2,000 MW, Kapar Energy Ventures (KEV) – 2,200 MW and Janamanjung – 4,080 MW.

2.

#### Expand TNB's Low Carbon Generation Portfolio

On the domestic front, development of Nenggiri hydro plant is expected to commence commercial operations in 2027. The hydro plant is expected to mitigate 0.3 million tonnes CO<sub>2</sub> yearly. Furthermore, the Energy Commission (EC) has approved TNB's Hydro Life Extension Programme for six (6) stations in the Sungai Perak Power Stations (SSJ Sungai Perak), with an investment of RM5.8 billion. This programme is set to begin in FY2022. As a result, we have increased renewables installed capacity to 3,780 MW representing a growth of 8% compared to FY2021. Overall, these domestic and international RE developments reflect our commitment to expanding its renewable energy portfolio and contributing to a more sustainable future.

On the international front, our New Energy Division (NED) was formed to venture and explore international opportunities. NED plans to expand renewable energy assets through strategic collaborations, mergers and acquisitions and asset development with leading renewable energy companies. We aim to realise our energy transition aspiration and provide better access to new technologies and markets while at the same time leveraging on opportunities to enhance capabilities and knowledge.

In FY2022, NED made significant progress in expanding its renewable energy portfolio. Through its subsidiary, NED has acquired CEI UK Ltd and added 97.3 MW onshore wind portfolio in the UK, increasing Vantage's installed capacity by 22% to 530 MW. In addition, GMR Energy Trading Limited, another shareholding company that operates in India, has successfully commissioned the 180 MW Bajoli Holi hydro power plant in June 2022. In parallel, TNB leveraged on secondment opportunities in enhancing our people's capabilities.

As the ASEAN Power Grid strengthens the ties among ASEAN nations, TNB is simultaneously increasing its renewable energy presence in the ASEAN markets through gas and hydropower projects with a target share of 360 MW share by 2030 and 800 MW capacity by 2050.





## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

### SUSTAINABLE BUSINESS EXPANSION

3.

#### Increase Adoption of Cleaner Fuel and Green Technology

TNB will construct gas-fired combined cycle gas turbine (CCGT) including hydrogen-ready technology plants, which are expected to be commissioned from 2030 and beyond.

4.

#### Accelerate Green Technologies via Strategic Partnership

TNB plans to collaborate with strategic partners in leveraging technology, expertise and capital to drive the energy transition. TNB GenCo is currently collaborating with Original Equipment Manufacturers (OEMs) of existing power plants in exploring future opportunities.

Strategic partnerships play a vital role in expediting TNB's venture into new green technology development and deployment in the power generation sector as well as provide better access to new technologies and markets.

5.

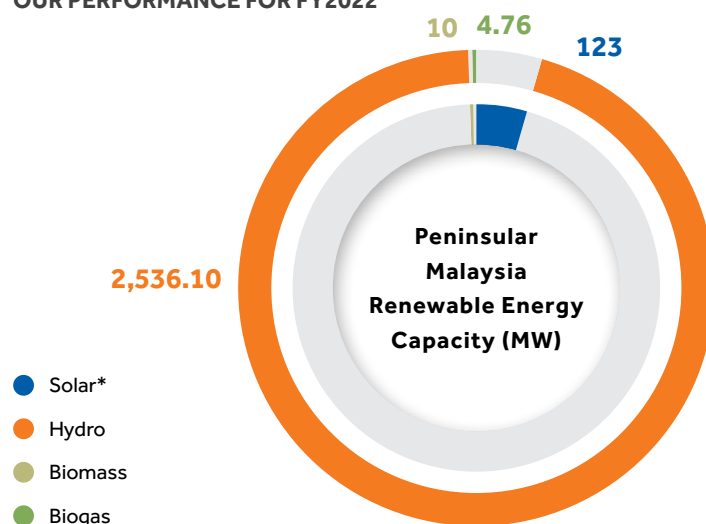
#### Increase operational efficiency

TNB aspires to become one of the top power generation solutions provider that sustainably delivers value to all stakeholders by focusing on key strategic initiatives : Turnaround Excellence, Productivity Uplift and Asset & Service Expansion while sustaining business-as-usual performance within Power Purchase Agreement (PPA) levels. This allows us to utilise our current assets for value uplifts while reducing environmental footprint of older and inefficient assets.

Our strategic imperatives under the ET Plan will enable us to deliver on our interim emission intensity target reduction of 35% by 2035 and put us on track to achieve our Net Zero aspiration by 2050.

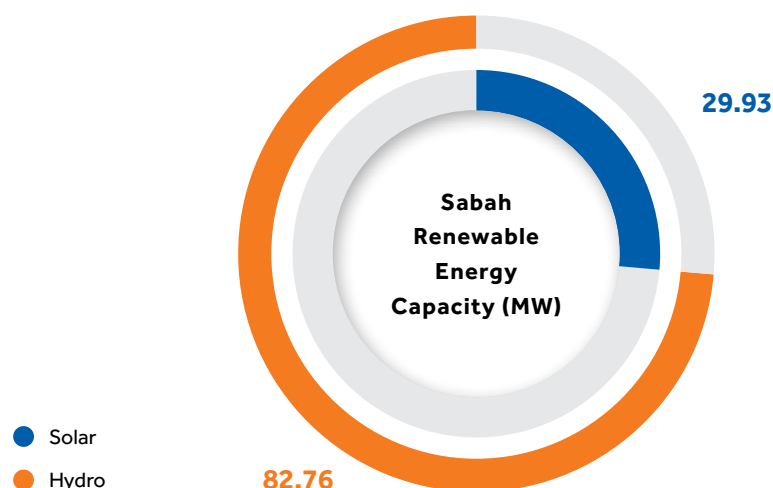
**i** For more information on Renewable Energy Growth Strategy, please refer to Energy Transition Pillar 1 : Future Generation Sources section, pages 94-96.

#### OUR PERFORMANCE FOR FY2022

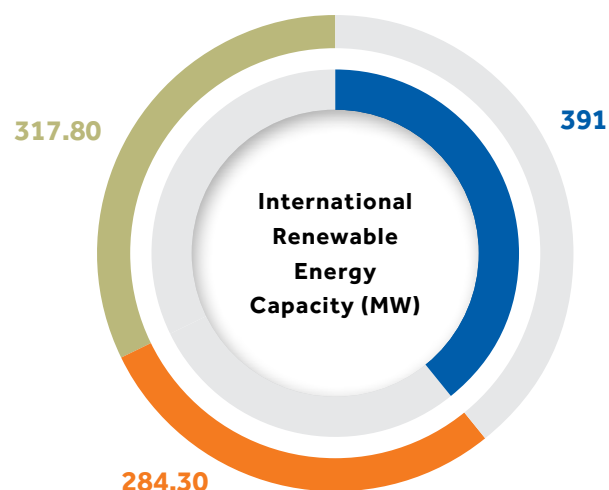


- Solar\*
- Hydro
- Biomass
- Biogas

\* Exclude rooftop solar owned by GSPARX



- Solar
- Hydro



- Solar
- Wind
- Hydro

## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

### SUSTAINABLE BUSINESS EXPANSION

To ensure consistent business growth and support our Energy Transition Plan, we have assembled a pipeline of cleaner and renewable energy projects in both the domestic and international markets.

Key Activities	Description
<b>New Combined Cycle Power Plant, Kapar</b>	A proposal for development of a greenfield project that is marked for a combined cycle gas-fired plant, replacing KEV coal capacity and supplying cleaner electricity.
<b>Solar Greenfield Development, UK</b>	TNB has plans to develop Solar greenfield projects and co-located battery energy storage systems, which includes the acquisition of a Ready-to-Build (RTB) stage 102 MW solar and 65 MW co-located battery storage portfolio developed by JBM Solar in the UK. These plans present opportunities for environmental initiatives that align with TNB's wider biodiversity agenda.
<b>LSS4 Solar Farm development</b>	TNB through its wholly owned Special Purpose Vehicle company, TNB Bukit Selambau Solar Dua Sdn Bhd (TBSS2) has secured financing of up to RM185 million for its third Large Scale Solar (LSS) project in Bukit Selambau, Kuala Muda, Kedah under the Government's Large-Scale Solar 4 (LSS4) programme.

### EXPANDING ENERGY SERVICES

Our wholly owned subsidiary, TNB Energy Services Sdn. Bhd. (TNBES) offers solutions for grid and distribution as well as energy services such as energy audits, efficiency and performance contracting. TNBES aims to secure projects worth up to RM 1.9 billion by 2027 from TNB Distribution Network (TNB DN), TNB Grid and electricity customer markets. To reach this goal, TNBES will focus on developing new capabilities, implementing new technology, increasing visibility and fostering innovation. Digitalisation will also play a crucial role in enhancing operational efficiencies and reducing costs. Key projects undertaken by TNBES include :

Key Activities	Description
<b>Advance Metering Infrastructure (AMI)</b>	TNB is currently expanding the deployment of installation for Advance Metering Infrastructure (AMI) project in RP3 and enhancing feeder identification works. TNBES provides smart meter installation services.
<b>Distribution Network Infrastructure</b>	Upgrading of TNB Distribution Network (TNB DN) infrastructure in providing the basic necessity of access to energy through rural electrification.
<b>RE and Off Grid Power Plants</b>	Operation and maintenance for solar hybrid stations, mini hydro stations and biogas plants throughout Malaysia owned by TNB/TNB DN.
<b>Street Lighting</b>	Upgrade and install LED street lighting in ensuring safer community through brighter surroundings.
<b>Integrated Facilities Management (IFM)</b>	IFM at Platinum Campus, which is certified with Green Building Index (GBI) platinum rating.
<b>Supervisory Control and Data Acquisition (SCADA)</b>	Automated system for fast service restoration in the event of 11kV system breakdown. This improves customer experience and business continuity.
<b>Reliability</b>	Visual inspection and thermal imaging of the Grid Infrastructure to ensure reliability.
<b>Engineering, Procurement, Construction and Commissioning (EPCC)</b>	Design, build and implement RE Plants and Interconnection Infrastructure.
<b>Operation &amp; Maintenance (O&amp;M)</b>	Operate and maintain RE Plants including TNB Grid and TNB DN infrastructure.
<b>Energy Services</b>	Reduce energy consumption and optimise energy usage for commercial and industrial clients through power quality and power system study.

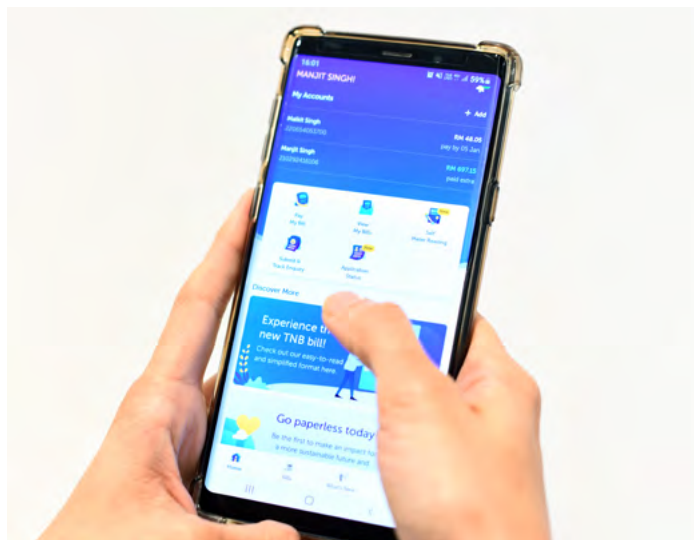
## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

### CUSTOMER CENTRICITY

Our business purpose centres on our customers. We are dedicated to providing our customers with reliable, affordable and long-term services and solutions. We accomplish this by consistently engaging with our customers effectively, all the while preserving their trust in the quality of our products and services.

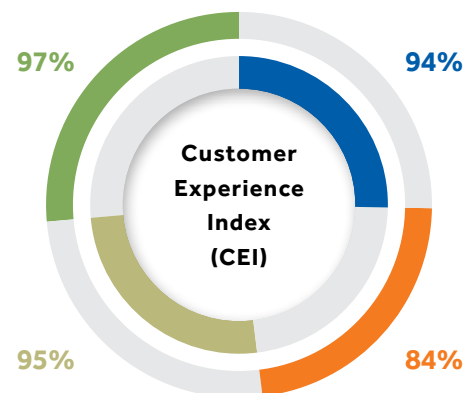
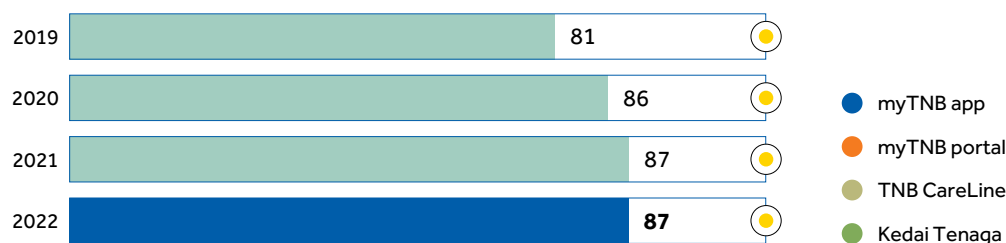
#### CUSTOMER ENGAGEMENT AND SATISFACTION

While we have four (4) main communication channels : Click, Call, Come Over and Go Over, we have experienced a significant growth in our Click channel over the years, with the myTNB platform garnering 6.3 million subscribers, representing 63% of our customer base. In FY2022, we achieved a customer interaction index of 90.76%, compared to 89.90% in 2021. The majority of respondents who were satisfied with our customer interactions were digital users, reinforcing our engagement strategy with digital platform users. For customers who prefer in-person transactions, we made it possible to also book appointments for Kedai Tenaga visits through the myTNB web portal.



#### CUSTOMER SATISFACTION INDEX (CSI)

(%)

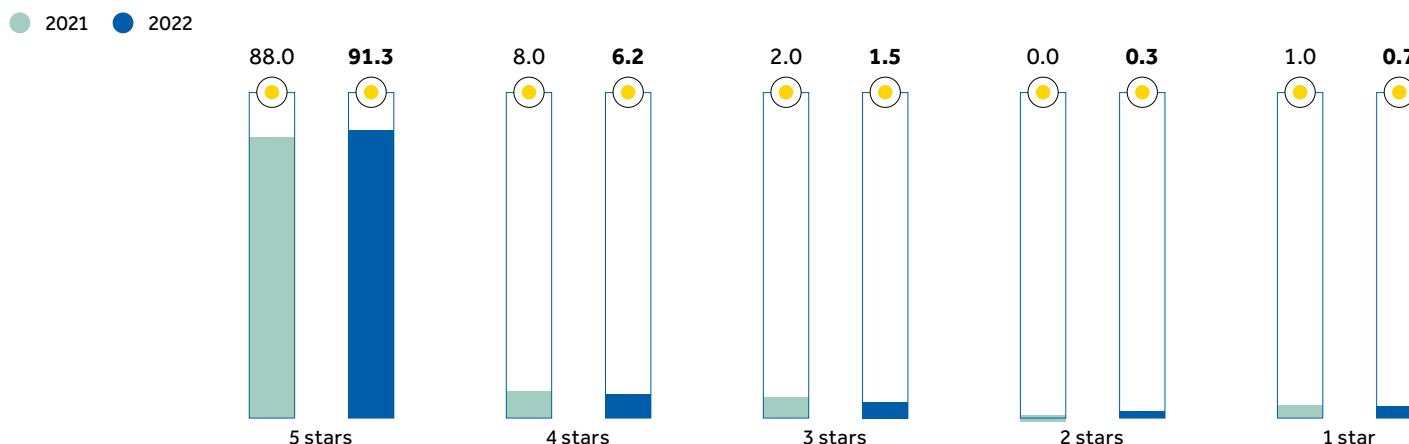


TNB has maintained 87% satisfaction in the Customer Satisfaction Index (CSI) for FY2022. We have successfully achieved the CSI target for FY2022 which was at 86%. The CSI methodology is based on customer segments such as Small Medium Enterprise (SME), Residential, Government and Large Business segment.

#### OUR PERFORMANCE FOR FY2022

##### myTNB APP FEEDBACK

(%)

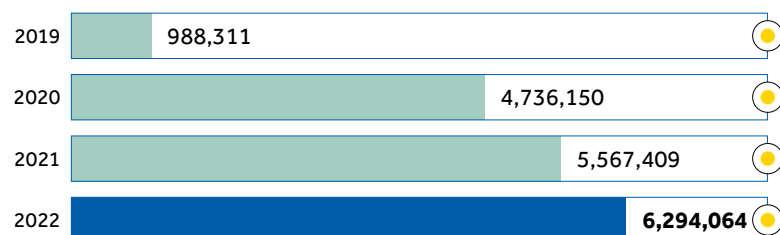


## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

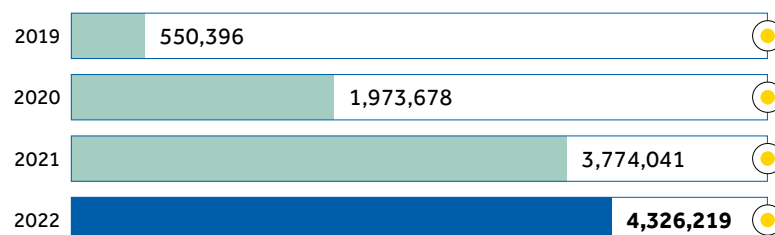
## CUSTOMER CENTRICITY

Feedback on our myTNB app has also achieved an impressive 91.29% of 5 Star ratings received in FY2022 as compared to the 88.2% in FY2021. The number of customers registered on the web and app has also increased in FY2022 to 2.69 million and 5.44 million respectively as compared to FY2021 being 2.36 million and 4.70 million respectively.

## NUMBER OF CUSTOMER SUBSCRIBED TO myTNB



## NUMBER OF ACCUMULATIVE DOWNLOADS OF THE myTNB MOBILE APPLICATION



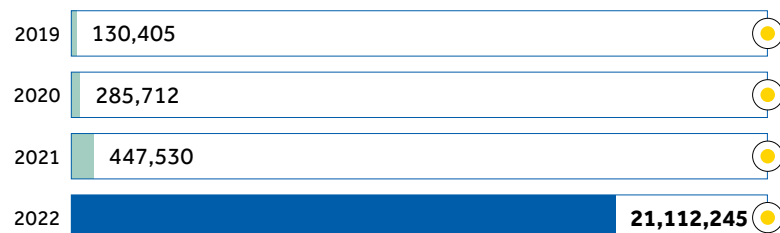
## NUMBER OF COMPLAINTS RECEIVED



## PERCENTAGE OF COMPLAINTS RESOLVED (%)



## NUMBER OF SERVICE REQUESTS RECEIVED



## PERCENTAGE OF SERVICE REQUEST RESOLVED (%)



## DIGITALISING CUSTOMER SERVICES

To support our digitalisation efforts, we are continuously upgrading our digital customer platforms to offer more services that meet the needs and expectations of our customers. Our digitalisation initiatives for customers in FY2022 include :

## myTNB Energy Budget

Enables myTNB smart meter customers to effectively manage their energy usage according to their consumption habits. The Energy Budget feature allows customers to manage their electricity consumption by setting threshold alerts. It proactively engages customers with automated push notifications through myTNB when they reach certain threshold levels (75% and 100%) of their overall budget. In FY2022, TNB had rolled out a new Energy Budget feature in myTNB apps to all residential smart meter customers nationwide. Around 178,000 customers had subscribed to the Energy Budget of which 95% of them have managed to reduce a total of 5.38 GWh which is equivalent to around 1,255 tonnes of CO<sub>2</sub> emission avoidance.

## Digital Billing and Bill Redesign

Enhanced customer satisfaction and engagement by introducing a user-friendly digital billing layout and enabling customers to make informed choices by opting-in for digital billing and thus becoming more environmental friendly. Around 43,000 customers had successfully opted into digital billing.



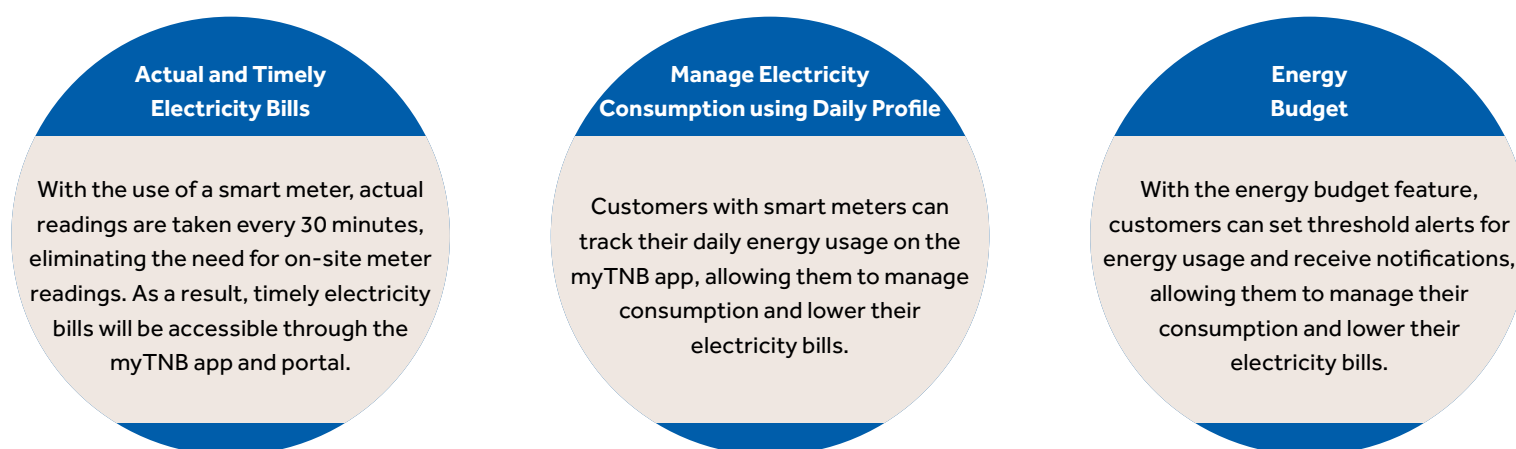
## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

### CUSTOMER CENTRICITY

#### ELEVATING CUSTOMER EXPERIENCE THROUGH CUSTOMER EMPOWERMENT

TNB is vested in enabling greater customer participation in the energy transition journey, facilitated by the Advanced Metering Infrastructure (AMI). The AMI is a smart and integrated system which provides customers with greater control and transparency over their energy consumption. With near real-time access to energy usage data through myTNB web portal and myTNB apps, customers can make informed decisions about their energy usage and adjust their consumption behaviour accordingly. Prudent consumption patterns potentially result in cost savings and a more sustainable lifestyle.

Besides elevating customer experience by providing customers with the ability to monitor their electricity usage, smart meters are also able to monitor bi-directional energy from DER = Distributed Energy Resources such as rooftop solar and electric vehicles. TNB would be able identify issues within the grid in relation to power quality to consumers and understand consumer habits through the AMI and therefore enabling TNB to further improve its services. In 2022, AMI installations exceeded the 2022 target of 600,000 units by installing a total of 838,830 units, with a budget utilisation of RM511.52 million. The AMI deployment in Malaysia has been recognised internationally, as TNB recently won the "Energy Advocate of the Year" award in the smart grid category at Enlit Asia.



#### CUSTOMER PRIVACY

As we improve our customers' experience through digitalisation, we are committed to safeguarding their data privacy from cybersecurity risks and threats. We continuously implement various cybersecurity measures to safeguard our customers' data. The measures include robust initiatives identified in our cybersecurity operating model as well as compliance with the regulations such as Personal Data Protection Act (PDPA) and industry standards such as Payment Card Industry Data Security Standard (PCIDSS). We remain vigilant in our efforts to protect our customers' data from unauthorised access and use.

#### EMPOWERING CUSTOMERS TOWARDS ENERGY TRANSITION

We believe that our customers can play a role in supporting the energy transition by making smart choices and participating in the various Renewable Energy (RE) and Energy Efficiency (EE) programs that we have planned. Our key initiatives for FY2022 include :

Key Activities	Description	Key Contribution
<b>Feed-in Tariff (FIT) Programme</b>	A mechanism granted to selected customers to export all solar energy produced to the TNB grid at a fixed price.	9,482 FIT projects have been commissioned with an installed capacity of 558.09 MW.
<b>Net Energy Metering (NEM) Scheme</b>	Allows customers in Peninsular Malaysia to export excess energy produced from their solar PV systems back to the grid.	14,015 NEM participants making up a total capacity of 698.64 MW.

## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

## CUSTOMER CENTRICITY

Key Activities	Description	Key Contribution
<b>Green Electricity Tariff (GET)</b>	<p>GET is a government initiative to provide any electricity customer an option to obtain renewable energy supply to reduce their carbon footprint.</p> <p>All consumers are eligible for the GET programme which are available in 100 kWh blocks for residential consumers and 1,000 kWh blocks for non-residential consumers at a rate of 3.7 sen/kWh.</p> <p>Consumers enrolled in the GET programme will receive internationally recognised Renewable Energy Certificate (REC) at the end of the calendar year.</p>	In FY2022, GET was fully subscribed from the annual quota of over 4,000,000 MWh.
<b>Supply Agreement for Renewable Energy (SARE)</b>	TNB offers beyond-the-meter scheme, which is a SARE that consists of Power Purchase Agreement (PPA) and Metering, Billing & Collection Agreement in one comprehensive document.	In FY2022, 723 contracts were secured by commercial and industrial customers through SARE. This resulted in a total SARE contracted capacity of 252.34 MWp.
<b>Rooftop Solar PV (GSPARX)</b>	<p>GSPARX is committed to generating new revenue stream for TNB as a preferred choice for one-stop rooftop solar solutions in Malaysia. The potential for rooftop solar projects in Peninsular Malaysia is immense, as it can generate up to 32,000 MW of electricity. Through GSPARX, we empower customers to transition to prosumers through self generation of electricity.</p> <p>GSPARX allows customers (residential, commercial and industrial) to install Solar PV at zero upfront cost and enjoy savings via self-consumption.</p>	<p>In FY2022, GSPARX obtained 248 MWp of rooftop solar PV projects that includes government buildings, universities, commercial and industrial segments.</p> <p>GSPARX has installed solar PV systems at 16 sites within UPM Serdang campus, comprising various buildings including a mosque, rooftop carpark and a floating solar system, making the project the largest solar installation amongst public institutions of learning in Malaysia.</p>
<b>Pelan Jalinan Digital Negara (JENDELA)</b>	Allo Technology Sdn. Bhd. (Allo) aims to extend TNB's fibre coverage throughout Peninsular Malaysia and support the JENDELA programme to build a robust digital infrastructure and bridge the digital divide between the rural and urban communities.	FY2022, Allo completed 178,514 home passes under the JENDELA programme across Melaka, Perak, Kedah, Penang, Selangor, Kuala Lumpur and Johor. Allo aims to expand our network coverage to over 600,000 premises by 2027.

We have also taken steps to increase energy efficiency awareness among our customers through key initiatives :

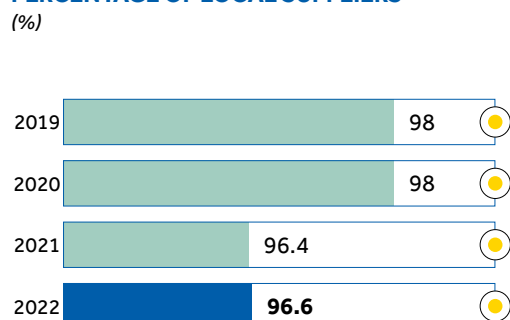
Initiative	Our Performance in FY2022
<b>Sustainability Achieved Via Energy Efficiency (SAVE) 3.0</b>	We supported the Government through the promotion of the SAVE 3.0 programme which offers a RM400 e-rebate programme for households that purchase energy efficient that has undergone a performance test for energy efficient appliances that received a 4 or 5-star energy efficiency labels from the Energy Commission (ST).
<b>Energy Efficiency Awareness Programmes</b>	In collaboration with <i>Persatuan Pengguna Islam Malaysia</i> (PPIM), we conducted <i>Kempen Kesedaran dan Didikan Pengguna Bijak Tenaga</i> via seven (7) videos posted on PPIM social media platforms to raise awareness related to electricity and saving energy. Additionally, we organised <i>Kuasa Di Tangan Anda</i> seminar programme from May to October 2022, in collaboration with Ministry of Higher Education (MOHE) and <i>Jabatan Pendidikan Politeknik dan Kolej Komuniti</i> (JPPKK), which involved conducting 10 seminars at eight (8) Polytechnics and two (2) Community Colleges. These seminars outreached to 1,362 student participants and helped them gain a better understanding about energy efficiency, electrical regulations and safety practices.

## RESPONSIBLE GOVERNANCE AND STRENGTHENING BUSINESS RESILIENCE

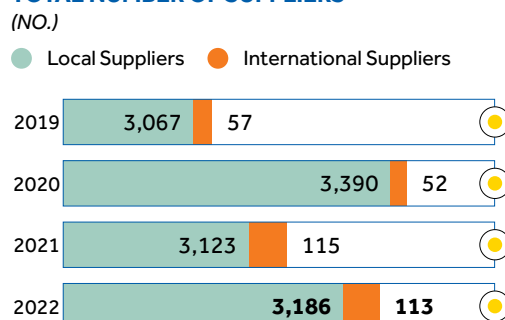
### SUSTAINABLE SUPPLY CHAIN

TNB aims to establish a sustainable supply chain ecosystem that upholds high standards of ethics, integrity and transparency. By integrating digitalisation into the procurement process and digitally transforming business processes, we hope to reduce the time spent on manual procurement systems. We support local Malaysian suppliers and understand the importance of our role in strengthening the local value chain ecosystem.

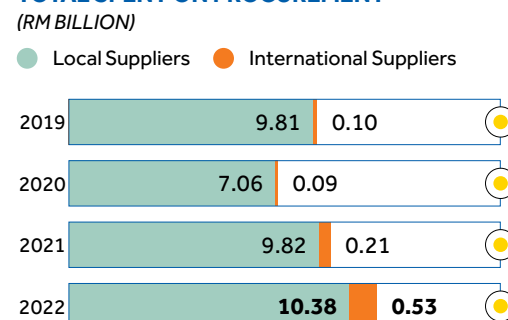
#### PERCENTAGE OF LOCAL SUPPLIERS (%)



#### TOTAL NUMBER OF SUPPLIERS (NO.)



#### TOTAL SPENT ON PROCUREMENT (RM BILLION)



#### PROCUREMENT & SUPPLY CHAIN (P&SC) 2.0

TNB has enhanced its P&SC organisational structure and operational model to support future-proofing initiatives and digital capability advancement. FY2022, P&SC has successfully completed and launched the Procurement Cycle Digitalisation (PCD) 2.0, a digital management platform that facilitates the End to End work flow in procurement and supply chain in TNB. To advance further, P&SC will upgrade the Procurement Backbone system that will position P&SC as a strategic business partner for procurement, aiding TNB in achieving its sustainability goals.

The new Procurement Backbone will improve the performance of P&SC's three functional pillars : Category Excellence (CATEX), Key Account and Service Excellence (KASE) and Supplier Excellence & Ecosystem Development (SEED). Additionally, it will increase P&SC efficiency through more accurate and holistic analysis, category management and cost/market intelligence. The Procurement Backbone will have advanced capabilities and functionalities supported by automation, analytic capabilities, Artificial Intelligence (AI) and Machine Learning (ML) which will ensure seamless operation and excellent customer experience.

Key areas of the Procurement Backbone :



# CLIMATE CHANGE AND ENVIRONMENT



## Related Material Matters

- Climate Change and Emission
- Energy Transition and Innovation
- Environmental Management

*TNB holds a stake in offshore wind turbines owned by Blyth Offshore Demonstrator Ltd (BODL) through its wholly owned subsidiary, Vantage RE Ltd.*

## Feature Story 3

### DECARBONISATION THROUGH INNOVATIVE SOLUTIONS : CARBON CAPTURE

Being a prominent power utility player, we acknowledge the significance of tackling climate-related risks for business resilience and addressing the interests of our stakeholders. We strive to minimise our carbon footprint as well as capitalising on decarbonisation opportunities. In line with our net zero aspiration, we have designed a holistic carbon management strategy that focuses on reducing emissions, capturing emissions and offsetting remaining emissions, net of reductions, via high-quality and credible carbon credits.

Since 2011, TNB has been extensively involved in research and development (R&D) as well as innovative projects to uncover promising initiatives and technologies through our research division, TNB Research

Sdn. Bhd. While amplifying efforts to reduce carbon emissions, in tandem, TNB has recognised carbon capture and utilisation (CCU) as a critical solution for the removal of emissions. TNB has made significant progress in the field of CCU R&D whereby our pilot plants has achieved promising results of absorbing up to 90% of carbon emissions from our coal-fired power plant flue gas. Nonetheless, we are refining the implementation of CCU technology on a larger-scale, with a focus on enhancing its economic viability and exploring its full potential. We believe that by working together with industry partners, academic institutions and government agencies, we can accelerate progress towards our commitment of SP2050.

Our CCU R&D journey thus far covers the following areas :

#### 1. Chemical Approach

Our research focuses on optimisation of chemical-based post combustion carbon capture process to reduce the energy requirement of CCU. We have completed five (5) projects with our chemical-based R&D facilities.

Through R&D at our pilot plants, we are able to absorb 90% of carbon emissions from coal fired power plant flue gas. Reduction of energy requirement was also observed through the optimisation of capture process. We hold two (2) patents and numerous publications in relation to our completed projects.



## CLIMATE CHANGE AND ENVIRONMENT

## Feature Story 3

## DECARBONISATION THROUGH INNOVATIVE SOLUTIONS : CARBON CAPTURE

## 2. Biological Approach

We have completed seven (7) projects using the direct carbon utilisation from flue gas emission through microalgae photosynthesis process, producing biomass as by-product. Our research includes monetisation of the biomass which can be cultivated and post processed for downstream applications :

## First pilot algae bio-CCU technology in Malaysia

tested with actual flue gas from live coal fire power plant

Development of

## Microalgae Mass Cultivation and Monitoring Training Module

for local and international participants

## Four (4)

local marine species of microalgae has been identified to capture CO<sub>2</sub>

Able to capture up to

## 2.3g CO<sub>2</sub>/litre

from 4,500 litre of outdoor microalgae culture facility

## 3. Carbon Utilisation Approach

Carbon utilisation is the process of converting captured CO<sub>2</sub> into useful products such as chemicals, fuels and construction materials. We are conducting R&D on CO<sub>2</sub> Utilisation using Renewable Energy (CURE), where CO<sub>2</sub> from our thermal power plant is combined with hydrogen to produce methane as an alternative fuel. The project utilises green hydrogen which is produced using renewable energy. The products from carbon utilisation have the potential to create new revenue streams for TNB when commercialised.

FY2022

## Highlight

### Partnering for a Sustainable Malaysia : Spearheading New Green Technologies in Malaysia

In accelerating decarbonisation in the energy sector, TNB has signed a MoU with PETRONAS to explore new green technologies against a mutually beneficial ambition of supporting the national aspiration to be a carbon neutral nation by 2050. The first initiative under the MoU is a collaborative study on the development of green hydrogen ecosystem and CCUS leveraging on TNB's power plant assets. The collaboration seeks to develop green hydrogen fuel for power generation and intensify efforts to co-create a green hydrogen ecosystem to provide cleaner energy solutions for Malaysia and international markets.

TNB plans to invest RM6.3 billion in the rebuild of TNB's retired Sultan Ismail Power Station in Paka, Terengganu using high-efficient Combined Cycle Gas Turbine by 2029 towards cleaner energy production. Paka power plant serves as a unique pioneering

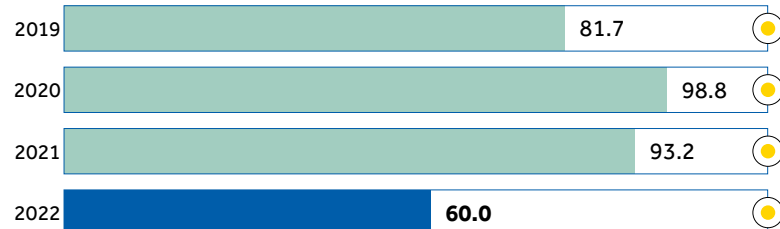


project in deploying green technologies that may be utilised in future power plants. The MoU will also include evaluating integrated onshore and offshore CO<sub>2</sub> facilities.

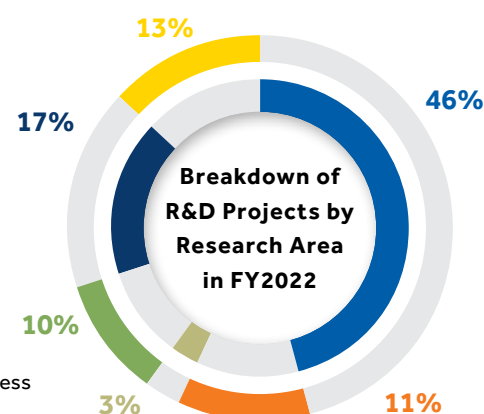
## CLIMATE CHANGE AND ENVIRONMENT

## ONGOING INNOVATION, RESEARCH AND DEVELOPMENT

TNB has been actively investing in R&D of new technologies which can assist in climate change mitigation. Commencing this year, we have centralised our R&D, innovation and technology expenditure under TNB Technology Fund, governed by the Technology Council. This fund is responsible for managing projects that promote the Energy Transition agenda, enabling greater focus on impact of investment. Although our investment in research and development decreased in FY2022 in comparison to previous years, we have entered into several MoUs, strategic partnerships and collaborations, providing additional resources for the ET agenda. For the year 2023, we have allocated RM60 million towards research and development efforts related to the Energy Transition.

R&D INVESTMENT  
(RM MIL)

- RE and Energy Storage
- Decarbonisation
- Electric Mobility
- Smart City
- Digitalisation
- Strengthening Core Business



Key Activities	Description
Renewable Energy	<p><b>Solar PV Cooling Technology</b></p> <p>TNB Research Sdn Bhd (TNBR) has successfully developed two (2) types of retrofit PV cooling systems (active and passive cooling systems), which improve the energy yield of the PV system.</p> <p><b>Biogas production via Co-Digestion Technology using Palm Oil Mill Waste</b></p> <p>TNB has concluded research on biogas production using anaerobic co-digestion method on a combination of substrates containing Palm Oil Mill Effluent (POME), empty fruit bunch (EFB) fibres and decanter cake. The research project determined biogas potential from different combination ratio of these substrates and provided recommendations to optimise the current biogas facility.</p> <p><b>Biogas source from non-POME organics</b></p> <p>TNBR is collaborating with other divisions, subsidiaries and external parties to carry out feasibility study of biogas plants from non-POME organics, such as food and animal waste.</p> <p><b>Biodiesel Fuel for Greener and Sustainable Power Generation</b></p> <p>This research aims to develop a fully automated, large-scale biodiesel processing unit to produce biodiesel from waste cooking oil for TNB Fleet Management, as well as to assess the potential savings from using biodiesel blended diesel in TNB mobile gensets and TNB vehicles.</p> <p><b>Small hydropower solution</b></p> <p>TNBR collaborated with Sedania Technologies Sdn Bhd to develop small hydropower for installation at Gunung Pulai water treatment plant and Seluyut Dam.</p> <p><b>Melaka Smart Grid Demonstration</b></p> <p>TNBR partnered with Malaysian Industry-Government Group for High Technology (MIGHT) and Majlis Perbandaran Alor Gajah (MPAG) for rooftop solar PV System installation.</p> <p><b>Exploring suitable crop alternatives for biomass energy generation</b></p> <p>TNBR has developed a technology that improves the fuel properties of empty fruit bunch (EFB) for power generation.</p>

## CLIMATE CHANGE AND ENVIRONMENT

Key Activities	Description
Renewable Energy	<b>Pyrolysis of Organic and Plastic waste to Bio-oil (Waste-to-Energy)</b> TNB is exploring waste to energy system which aims to divert the organic and plastic waste from the municipal solid waste (MSW) in landfills for this project. A trial of the systems is currently in progress.
	<b>Green Hydrogen</b> The research is in its initial stages whereby we are studying the potential use of Two Stage Anaerobic Digestion Technology (TSAD) on organic waste.
	<b>Floating Solar</b> TNB has also made use of its ash pool at Sultan Azlan Shah Power Station in Manjung Perak to construct its pilot floating solar plant with an installed capacity of 105.12 kWp. The 175-hectare pond which is a dumping ground for ash from the power plant, can now be potentially used as a floating solar farm to generate energy of at least 100 MW. TNB is also conducting a feasibility study on floating solar potential at hydro dams with local solar EPCC and solar float manufacturers.
Decarbonisation	<b>Carbon Capture, Utilisation and Storage (CCUS)</b> TNB has been conducting CCUS studies since 2021, including chemical, biological and utilisation approach. <i>For more information on our CCUS R&amp;D, please refer to Feature Story 3 : Decarbonisation Through Innovative Solutions : Carbon Capture section on pages 84-85 for more details.</i>
	<b>Developed an algorithm for palm oil plant optimisation</b> TNBR partnered with Sime Darby to achieve optimum output of oil extracted from palm oil plants.
	<b>Empty Fruit Bunch (EFB) Co-firing Feasibility Study</b> TNBR has embarked on a collaborative effort with TNB GenCo in carrying out a feasibility study for co-firing high quality empty fruit bunch (EFB) pellets in a power plant.
	<b>Ammonia-Biomass Coal Firing (ABC) Feasibility Study</b> GenCo, JEP, Mitsui & Co and Chugoku collaboratively agreed to conduct a feasibility study on co-firing of biomass and ammonia in Jimah East Power Sdn. Bhd. to reduce our coal usage in tandem with efforts to reduce the emissions from plant operations. The first phase of the feasibility study has been completed in FY2022 and we are currently embarking on the second phase, which focuses primarily on small-scale ammonia, biomass and coal firing.
	<b>Research Collaboration agreement for joint development of battery energy storage system</b> TNBR partnered with Korean Technology Partner Research for joint development of battery energy storage system.
Biodiversity	<b>Hydroelectric Dams Impact on Wildlife Diversity</b> TNBR and PERHILITAN conducted a comprehensive environmental impact analysis for the impact on wildlife diversity and sustainability due to construction and impoundments of hydroelectric dams.
Water Management	<b>Water Stress Assessment</b> TNBR has also conducted assessment on potential water stress of its selected thermal power plants in Peninsular Malaysia. The assessment covers the water footprint and identifying various mitigation measures to reduce water consumption and achieve minimum water discharge. The outcome is to install a water reclamation plant to recycle water discharged from the thermal power plants and explore alternative water resources.
Building Resilience Towards Natural Disasters	<b>Monitoring Flood Risk with the Latest Climate Technology</b> TNB collaborated with Jabatan Pengaliran & Saliran (JPS) and Malaysia Meteorology Department (MetMalaysia) to introduce the Flood Analysis and Risk Assessment (FARA) as a measure to monitor and analyse rainfall and water level in operating areas, as well as weather forecast information which is subsequently sent out to our Operation Team. We utilise information gathered from JPS website and geo-spatial mapping to identify and trigger flood warning to our team.

## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE

As an energy utility company, we recognise the impact on climate change that we contribute, as well as the threats of climate change to our existing infrastructure as well as our business sustainability. To ensure continuous and reliable supply of electricity to the nation, we are actively transforming and decarbonising our operations.

Since 2019, TNB has voluntarily adopted the Task Force on Climate-related Financial Disclosures (TCFD) framework to address potential climate-related physical and transition risks and opportunities on our business strategy, as well as the resulting financial impact.

## Core Elements of Recommended Climate-Related Financial Disclosures



## CLIMATE GOVERNANCE

The Board is committed to strategically integrate sustainability across TNB's business and advancing our sustainability efforts, including climate-related matters. They will deliberate and approve the sustainability strategy and pathway while overseeing TNB's implementation and performance on sustainability – these include the materiality assessment, Energy Transition Plans and TNB Sustainability Pathway 2050 (SP2050).

TNB's Sustainability Governance outlines clear roles and responsibilities in relation to sustainability and climate change for each level of leadership. The establishment of the Sustainability and Energy Transition Council (SETC), chaired by the CEO and composed of TNB's corporate senior management team is tasked to oversee the progress of sustainability

and energy transition development and implementation. Business Units are responsible for managing sustainability and climate risks and opportunities as well as monitoring performance of related initiatives rolled out by TNB in their respective units. Business Units are required to report their sustainability performance to SETC on a regular basis.

The Corporate Strategy and Sustainability Department is assigned as SETC secretariat and administers council meetings and ensures that decisions are clearly communicated to respective parties.

Principles to guide climate action, particularly on GHG emissions, are covered under our Environmental Policy, Environmental Management System, Sustainability Energy Management (SEM) Framework based on the ISO 50001:2011 Energy Management System, ASEAN Energy Management System (AEMAS) and Grid Green Code of Conduct.



For more information on sustainability governance, please refer to Creating Value Through Strong Governance section, pages 162–163.



## CLIMATE CHANGE AND ENVIRONMENT

### OUR RESPONSE TO CLIMATE CHANGE

#### CLIMATE SCENARIO


Since 2021, we have conducted climate scenario analysis with reference to the IPCC RCP scenarios and Network of Central Banks and Supervisors for Greening the Financial System (NGFS) scenarios. TNB's climate change scenario analysis considers the following pathways :

Types of scenarios	Scenario Description	Temperature increase by 2100	Transition Consequence
<b>Business-as-usual</b>  IPCC Representative Concentration Pathways (RCP) 8.5/4°C (high emission scenario)	The 'Business as usual' scenario suggests a likely outcome if society does not make concerted efforts to cut greenhouse gas emissions.	>4°C	High
<b>Limited Mitigation</b>  IPCC Representative Concentration Pathways (RCP) 6.0/3°C (moderate emission scenario)	The scenario suggests a future in which greenhouse gas emissions continue to rise at a moderate rate but stabilised at 2070.	2.6°C	Moderate
<b>Strong Mitigation</b>  NGFS' Nationally Determined Contributions (NDCs) scenario	The NDC scenario includes all pledged policies even if not yet implemented, based on the trajectory associated with global NDC commitments to limit the impact of climate change.	2°C to 3°C	Moderate
<b>Aggressive Mitigation</b>  NGFS' Net Zero 2050 scenario	An ambitious scenario that limits global warming to 1.5°C through stringent climate policies and innovation, reaching net zero CO <sub>2</sub> emissions around 2050.	1.5°C to 2°C	Low

With reference to the scenario pathways above, we have identified both climate-related transition and physical risks and opportunities and the potential impact on our business across our operations over short-term, medium-term and long-term horizon. Overall, TNB will have high exposure to most transition risks identified by 2050 and this will be addressed via TNB's Strategic Pillars to ensure TNB maintains its competitive edge and remains resilient.

#### TRANSITION RISKS AND OPPORTUNITIES

Transition risk refers to risks related to the transition to a low-carbon economy. Given Malaysia's commitment to carbon neutrality by 2050, policy and regulatory changes are expected to be key drivers of decarbonisation. Due to the nature of long asset life of our utilities, TNB is exposed to the key transition risks outlined below.




Transition Risk	Impact	Division impacted	Net Zero <sup>1</sup>		NDC <sup>2</sup>		Management Approach
			2030	2050	2030	2050	
Policy and legal							
<b>Carbon price</b>  Introduction of carbon pricing mechanisms on carbon emissions	Increase in operational expenditure Decrease in revenue	Group	●	●	●	●	TNB is minimising exposure to risks through responsible decarbonisation based on our Energy Transition strategy.   For more info, please refer to Energy Transition Pillar 1 : Future Generation Sources, pages 94-96.

Legend : ● Risk exposure is low    ● Risk exposure is moderate    ● Risk exposure is significant    ● Risk exposure is high

1. Net Zero Scenario is aligned to commitments countries are making, going beyond NDCs to achieve Net Zero Emissions by 2050 and restrict warming to well below 2°C (i.e. Paris Accord)
2. Nationally Determined Contributions (NDCs) is based on the trajectory associated with global commitments that are aligned to current Nationally Determined Contributions (NDCs) to limit the impact of climate change.

## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE


Transition Risk	Impact	Division impacted	Net Zero <sup>1</sup>		NDC <sup>2</sup>		Management Approach
			2030	2050	2030	2050	
Policy and legal							
<b>Emissions reporting obligations</b>  Increased expectations from regulatory bodies for companies to track and publicly report on emission	Penalties for non-disclosure	GenCo and NED	🟡	🔴	🟢	🟡	TNB is reskilling talent with skills required across our Energy Transition with focus on analytics and strategy development capabilities.
<b>Exposure to litigation</b>  Fines and judgments driven by environmental and climate activism	Increase in operational expenditure	Group	🟡	🟢	🟡	🟢	TNB is minimising exposure to risks through responsible decarbonisation based on our Energy Transition strategy.   For more info, please refer to Feature Story 6 : Prioritising People : Safeguarding Safety and Well-Being, pages 94-96.
Technology							
<b>Low carbon technology</b>  Deployment of low emissions technology to meet decarbonisation commitments	Increase in Capital Expenditure (CAPEX)	GenCo and NED	🔴	🟡	🔴	🟡	TNB is maximising opportunities by increasing renewable energy, hydrogen-related technology and energy storage.   For more info, please refer to Energy Transition Pillar 1 : Future Generation Sources, pages 94-96.
<b>Talent</b>  The requirement to upskill and reskill talent to navigate new and emerging technologies	Increase in operational expenditure	GenCo	🟡	🔴	🟡	🔴	TNB is reskilling our talent with skills required across our Energy Transition strategy.
Market							
<b>Reduction in market share</b>  Changes in market demand or consumer sentiment from specific market (e.g. wholesale) which has a higher margin	Decrease in revenue	GenCo	🟡	🔴	🟢	🟡	TNB is minimising exposure to risks through responsible decarbonisation based on our Energy Transition strategy. TNB is also expanding the business beyond the meter involving the customers as prosumers in our Energy Transition journey.   For more info, please refer to Energy Transition Pillar 3 : Winning the Customer, pages 98-100.
<b>Shift in customer behavior</b>  Changing customer behavior and preference for low carbon options	Decrease in revenue	Retail	🟡	🔴	🟢	🟡	

Legend : ● Risk exposure is low ● Risk exposure is moderate ● Risk exposure is significant ● Risk exposure is high

1. Net Zero Scenario is aligned to commitments countries are making, going beyond NDCs to achieve Net Zero Emissions by 2050 and restrict warming to well below 2°C (i.e. Paris Accord)
2. Nationally Determined Contributions (NDCs) is based on the trajectory associated with global commitments that are aligned to current Nationally Determined Contributions (NDCs) to limit the impact of climate change.

## CLIMATE CHANGE AND ENVIRONMENT










## OUR RESPONSE TO CLIMATE CHANGE

Transition Risk	Impact	Division impacted	Net Zero <sup>1</sup>		NDC <sup>2</sup>		Management Approach
			2030	2050	2030	2050	
Market							
<b>Stranded assets</b>  Assets that have suffered from unanticipated or premature write-downs or devaluation due to change of demand	Decrease in revenue	GenCo	●	●	●	●	TNB is minimising exposure to risks through responsible decarbonisation based on our Energy Transition strategy.   For more info, please refer to Energy Transition Pillar 1 : Future Generation Sources, pages 94-96.
<b>Divestment</b>  Increased investor scrutiny over uncertain future sustainable earnings and their commitments to responsible financing leading to investment sell-off	Increase in cost of capital	GenCo	●	●	●	●	

Legend : ● Risk exposure is low ● Risk exposure is moderate ● Risk exposure is significant ● Risk exposure is high

1. Net Zero Scenario is aligned to commitments countries are making, going beyond NDCs to achieve Net Zero Emissions by 2050 and restrict warming to well below 2°C (i.e. Paris Accord)
2. Nationally Determined Contributions (NDCs) is based on the trajectory associated with global commitments that are aligned to current Nationally Determined Contributions (NDCs) to limit the impact of climate change.















Climate change is a key risk driver for the electric utility sector. It does, however, present opportunities in the transition to a low-carbon economy.

Transition Opportunities	Impact	Division impacted	Net Zero		NDC		Management Approach
			2030	2050	2030	2050	
Products and Services							
<b>Electrification</b>  Introduction of EV policy aimed at increasing electric vehicle uptake	Increased revenue from growth opportunities for e-Mobility services (EV charging infrastructure)	Retail					TNB is maximising opportunities through our Energy Transition strategy.   <i>For more info, please refer to the 3 pillars of our Energy Transition strategy – Future Generation Sources, Grid of the Future and Winning the Customer , pages 94-100.</i>
<b>Renewable energy growth</b>  Acceleration of renewables expansion in regional and international markets, leading to increased revenue	Increased revenue	GenCo, NED, Retail					

Legend : ● Risk exposure is low ● Risk exposure is moderate ● Risk exposure is high

## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE

Transition Opportunities	Impact	Division impacted	Net Zero		NDC		Management Approach
			2030	2050	2030	2050	
Products and Services							
<b>Low carbon options</b>  Opportunities beyond the kWh solutions (EE, rooftop solar, storage) due to a shift in customer behaviour (prosumers) leading to creation of new revenue streams	Creation of new revenue streams	Retail, Transmission and Distribution					TNB is maximising opportunities by our Energy Transition strategy.   For more info, please refer to the 3 pillars of our Energy Transition strategy – Future Generation Sources, Grid of the Future and Winning the Customer, pages 94-96.
<b>Diversification of business activities</b>  Diversifying business activities through the use of distributed generation, hydrogen, O&M as green technologies emerge (e.g. hydrogen, storage, CCU) through partnerships	Creation of new revenue streams	Group					
Energy Source							
<b>Shift towards decentralisation</b>  Increasing system efficiencies through the reduction of peak load to reduce transmission losses and allow for the extension of generational assets	Reduced operational expenditure and increased profit margins	GenCo, NED, Transmission and Distribution					TNB is maximising opportunities via our Energy Transition strategy.   For more info, please refer to the 3 pillars of our Energy Transition strategy – Future Generation Sources, Grid of the Future and Winning the Customer, pages 94-100.

Legend : ● Risk exposure is low ● Risk exposure is moderate ● Risk exposure is high

## PHYSICAL RISKS

Physical risks refer to risk related to the physical impact of climate change. Physical climate scenario modelling was carried out for three (3) power plants (Manjung, SPG and Sultan Mahmud (SM)) and a selection of 100 substations in 2021. The scenario modelling analysed climate-related failure and damage risks at each grid point of the asset sites selected to identify the spatial distribution of the eight (8) climate risks across each site. The summary of the outcome of the scenario modelling for TNB's assets are as follows :

- 100 substation : Riverine flooding is the dominant hazard
- Manjung : Coastal inundation is the clear dominant hazard
- SPG : Coastal inundation is the dominant hazard. Surface water flooding is the next most significant hazard
- SM : Riverine flooding is the dominant hazard

*For more information on the above physical risk assessment and outcome, please refer to TNB Sustainability Report 2021, page 59.*

## CLIMATE CHANGE AND ENVIRONMENT

### OUR RESPONSE TO CLIMATE CHANGE

Based on the physical risk assessment conducted in 2021, risks related to flood, heat, dry spells and coastal inundation presents the highest risk to TNB's plants. Floods at dam catchments increase water storage in the hydropower dams and subsequently can lead to dam overflow and structure failure. On the other hand, a prolonged dry spell will reduce the water storage of dams, leading to insufficient water for operating hydropower plants. Meanwhile, both floods and dry spells also affect the operation of thermal power plants. Dry spells will disrupt the cooling process of the plants, while floods will affect the infrastructure at the plants.

In FY2022, we delved deeper into the assessment of 21 thermal power plants and 12 hydropower plants in Peninsular Malaysia against these risks based on the RCP 6.0 rainfall projection and RCP 8.5 coastal inundation projection to comprehend the exposure of our power plants and substations to the effects of climate change.

Type of asset	Region	RCP 6.0		IPCC RCP 8.5/4°C			Potential impact
		No. of plants exposed to floods by 2100	No. of plants exposed to dryspell by 2100	No. of plants exposed to coastal inundation and floods in 2022	No. of plants exposed to coastal inundation and floods in 2050	No. of plants affected by coastal inundation and floods in 2100	
Hydropower Plants	Perak	4	4				<ul style="list-style-type: none"> <li>Reduced revenue from decreased production capacity</li> <li>Increased operating costs</li> <li>Increased insurance premiums and potential for reduced availability of insurance on assets in "high-risk" locations</li> <li>Increased capital costs (e.g., damage to facilities)</li> </ul>
	Kelantan	1					
	Pahang	4	4				
	Coastal	3					
Thermal power plant	Kelang	1	1	1	1	1	
	Coastal	9	5	2	5	7	
Substations				4137	4991	8003	

With the high exposure of our plants to floods, coastal inundation and dry spells, we are guided by our current adaptation measures to minimise the impact of these risks. With the possibility of increased exposure and impact severity, we are committed to improve our adaptation plans.

Floods	Dry spells
Management approach	
<p>Our current adaptation measures include :</p> <ul style="list-style-type: none"> <li>An integrated catchment management policy, procedures and guidelines to regulate power supply among the catchments during floods;</li> <li>Flood drills to improve the standard operating procedures, better manage critical situations and safely restore the electricity supply;</li> <li>Integrated Community-Based Disaster Management (ICBDM) programme;</li> <li>Prompt shutdown of affected substations through early warning systems to avoid/prevent damages;</li> <li>Installation of protective measures around the substations such as flood walls, flood gates, flap gates and pumping systems to reduce the water level inside the substation area; and</li> <li>Raised heights of transmission towers.</li> </ul>	<p>Our current adaptation measures include :</p> <ul style="list-style-type: none"> <li>Temporary storage tanks or/and alternative water sources (groundwater, treated saline water and recycled brackish groundwater and municipal wastewater) as an addition to the existing water sources and increasing storage volumes to ensure ample water supply to thermal power plants at all times.</li> </ul>



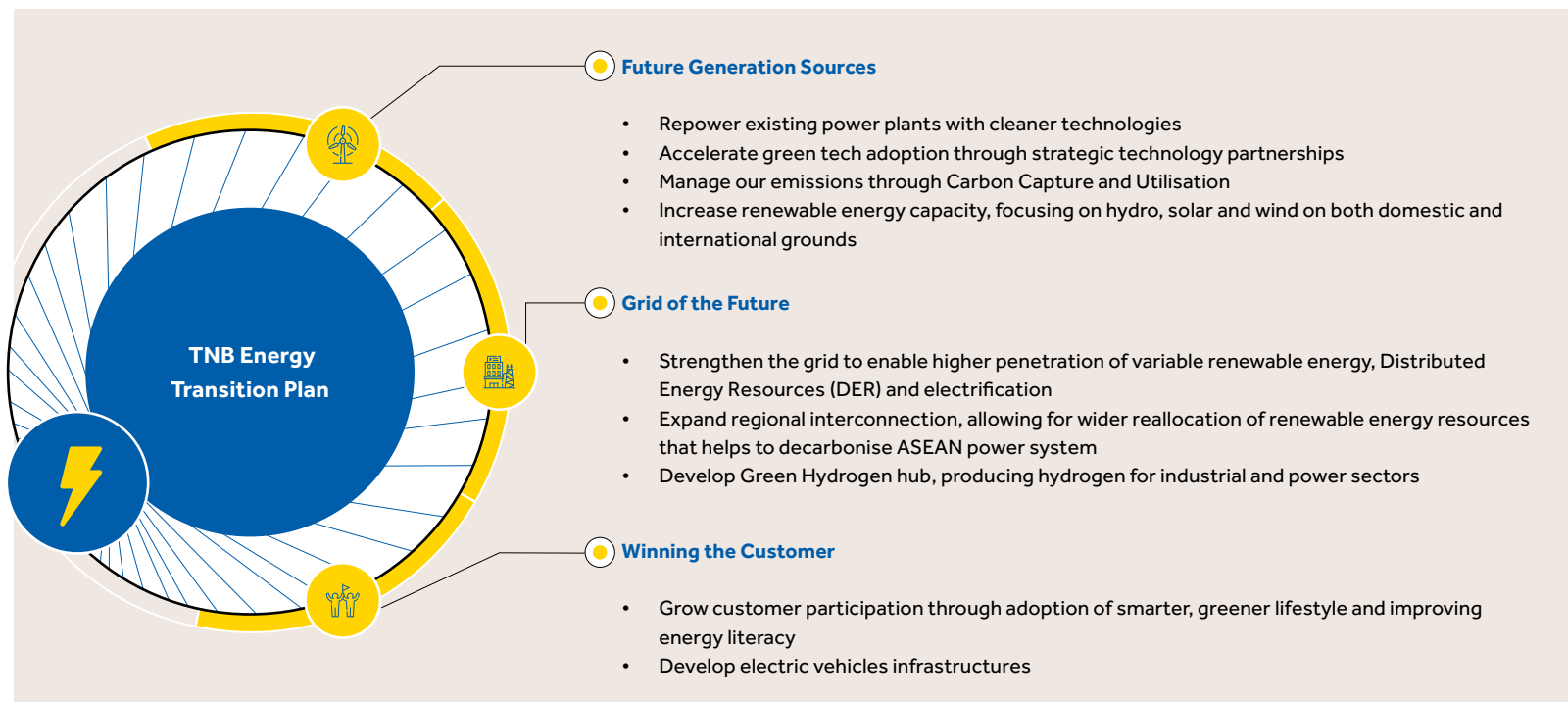
## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE

Floods	Dry spells
<b>Future adaptation plans</b>	
<p>TNB will consider potential adaptation measures for hydropower plants including :</p> <ul style="list-style-type: none"> <li>• Incorporate climate change factors into new site assessments and adopting new design standards taking into account projected increasing flood risks;</li> <li>• Incorporate flood protection measures into plant design for protecting the key infrastructures such as intake structure, power house, etc.;</li> <li>• Increase dam height and existing spillway discharge capacity wherever permitted structurally;</li> <li>• Further enhance flood management plans with precision real-time monitoring and early warning systems;</li> <li>• Continue development of integrated reservoir inflow and flood forecasting for the downstream area;</li> <li>• Enhance satellite-based monitoring for hydro and thermal power plants;</li> <li>• Continue basin-wide management strategies that take into account the full range of downstream environmental and human water uses may prove necessary;</li> <li>• Restore, improve management and use of upstream catchments such as afforestation to reduce sedimentation; and</li> <li>• Implement Risk Informed Decision Making (RIDM) approach to ensure Sustainable Hydropower Dam Safety Management.</li> </ul>	<p>TNB will consider potential adaptation measures for thermal power plants including :</p> <ul style="list-style-type: none"> <li>• Install monitoring systems on source water supplies and develop standard operating procedures for low water conditions;</li> <li>• Ensure proper design of cooling water intake and discharge systems;</li> <li>• Enlarge or retrofit cooling systems such as water-saving cooling technology to overcome water stress issues;</li> <li>• Diversify energy sources and/or the inclusion of supplemental technologies that are less dependent on water for cooling purposes;</li> <li>• Incorporate climate change factors into site assessments to avoid siting new plants in water-stressed areas;</li> <li>• Promote demand management and end-use energy efficiency measures.</li> </ul>

## CLIMATE STRATEGY

The Plan is supported by three (3) RT2025 key pillars outlined below.

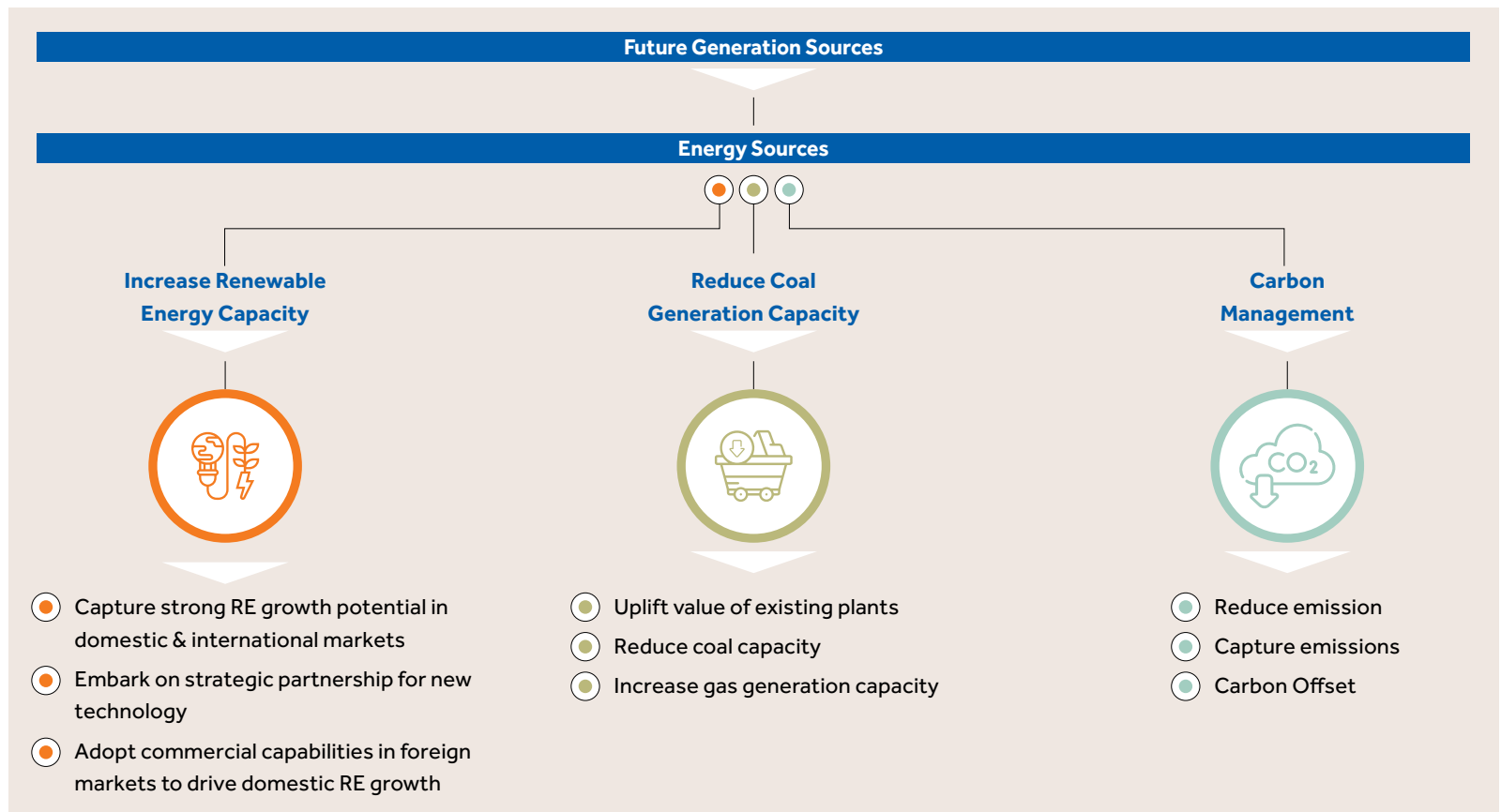


## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE

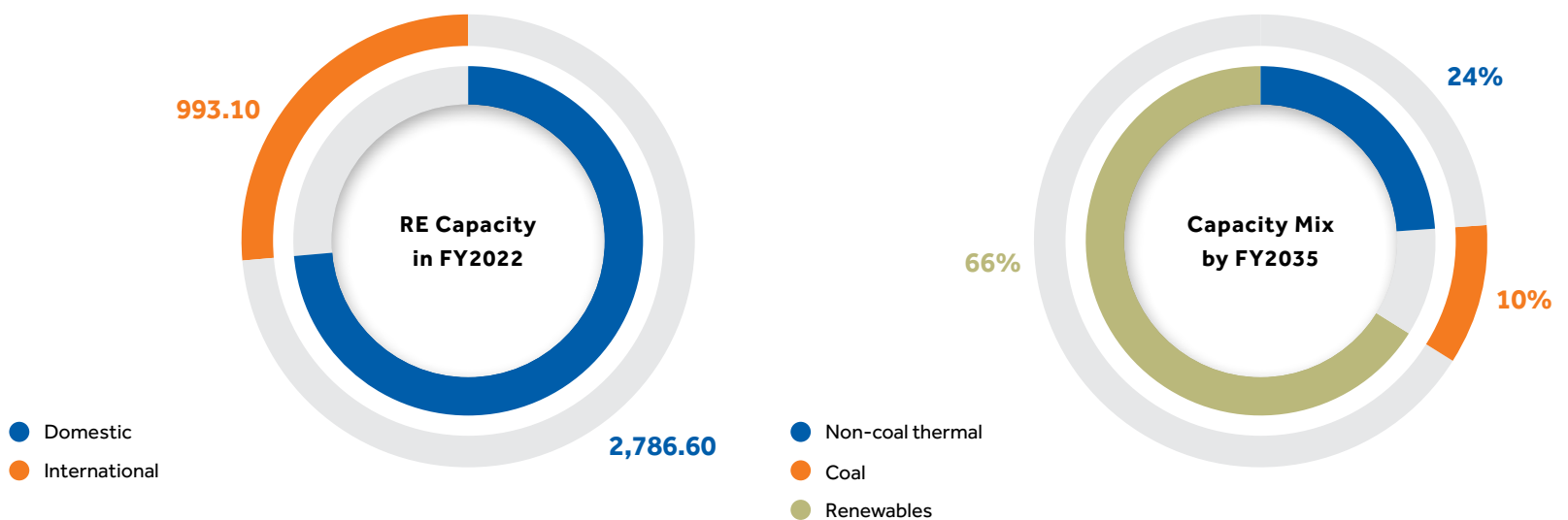


## ENERGY TRANSITION PILLAR 1 : FUTURE GENERATION SOURCES



## Increase Renewable Energy Capacity

In FY2022, TNB's RE capacity has reached 3,779.7 MW, a growth of 8% compared to FY2021 and we believe that we are on track to achieving our goal.



## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE

Expansion of international RE asset is a top priority for TNB as a growth enabler that will help our business thrive in the long-term by significantly ramping up our RE installed capacity to capture 66% of capacity mix by 2035. Our New Energy Division (NED) is positioned to grow RE portfolio in targeted international markets through strategic partnerships. NED oversees two (2) key entities responsible to explore opportunities at different market regions; Vantage RE to focus on UK and Europe markets and TNB Renewables that focus on the domestic and Southeast Asia market. NED targets to achieve an installed capacity of renewable energy of 14.3 GW by 2050 with an estimated equity investment of RM30 billion. Additionally, our subsidiary, Sabah Electricity Sdn. Bhd, (SESB) has set a target of 110 MW of RE installed capacity by 2025 from the current capacity of 99.84 MW.

In FY2022, Vantage RE has been awarded the Right-To-Build (RTB) for the construction and commissioning of 102 MW solar farms in the UK. The project also includes an option to develop 65 MW co-located Battery Energy Storage Systems (BESS), which upon development may enhance TNB's revenue streams through participation in ancillary services and the capacity market. This investment represents a significant milestone for TNB as it broadens into RE greenfield development in the UK. The solar farms are expected to achieve Commercial Operation Date (COD) by Q1 2024 and will be built on two sites. This project will provide stable long-term revenues under a 15-year Contract-for-Difference (CfD) subsidy scheme. Upon its commissioning, it is forecasted to generate enough clean energy to meet the equivalent annual needs of over 37,000 homes and save over 46,750 tonnes of CO<sub>2</sub> per annum compared to fossil fuel generation. Both sites also offer opportunities for environmental initiatives to promote biodiversity net gains, supporting TNB's wider biodiversity agenda. In 2023, we will broaden our focus beyond ASEAN and explore potential projects in Asia Pacific and Oceania to pursue opportunities in achieving out 2025 RE target.



For more information on our strategy to increase our renewable energy capacity, please refer to Sustainable Business Expansion section, pages 75-77.

## Reduce Coal Generation Capacity

TNB has committed to no longer investing in greenfield coal plants. Jimah East Power Plant, which was commissioned in 2019, is the last coal plant in our generation portfolio to be commissioned. The existing coal-fired plants will be phased out upon expiry of their Power Purchase Agreements (PPA), with consideration for early retirement. For plants retiring before 2030, TNB has planned to re-power them using natural gas. We have recently received a Letter of Intent (LOI) from the Ministry of Natural Resources, Environment and Climate Change for the development of 2.1 GW combined-cycle power plant in Kapar, which is slated for a commercial operation date by 2031. Prior to that, we have received an LOI to repower the retired 1,400 MW Paka gas power plant with cleaner technology.

Beyond this, we are exploring other solutions and technologies to enable low-carbon fuel sources to be deployed at coal-fired power plants to help us decarbonise further. A key step we have taken is a joint-collaboration with PETRONAS Gas and IHI Corporation for a feasibility study on ammonia co-combustion in coal-fired power generation systems. The feasibility study was successfully completed and the outcome derived from pilot-scaled combustion testing programme at TNBR has proven the feasibility of the technology.

## Carbon Management

TNB's Carbon Management approach focuses on three (3) key pillars - **Reduce Emission, Carbon Capture and Carbon Offset**.

- 1) Reduce Emission** : TNB reduces emissions by reducing absolute emissions and emission intensity, phasing out coal capacity, increasing renewable energy capacity generation and increasing operational efficiency across the value chain.
- 2) Carbon Capture** : We have identified carbon capture and storage (CCS) as a solution in decarbonising the power sector and we are committed to play an active role in advancing this technology. To demonstrate our commitment, TNB has inked a Memorandum of Understanding (MoU) with PETRONAS to explore the application of CCS solutions in accordance with the National Energy Policy 2022-2040. In preparation of Malaysia's carbon taxonomy, our Universiti Tenaga Nasional (UNITEN) is conducting a study on carbon market opportunities.
- 3) Carbon Offset** : Carbon credits enable a company to offset a portion of its carbon emissions. TNB's stance is to reduce and capture emissions before looking at purchasing viable, high quality carbon credits. Additionally, TNB is exploring the development of carbon credit through removal or avoidance projects. The sale of these credits can then be used to support the energy transition at TNB.



For more information on CCUS, please refer to Feature Story 3 : Decarbonisation Through Innovative Solutions : Carbon Capture section, pages 84-85.

## CLIMATE CHANGE AND ENVIRONMENT

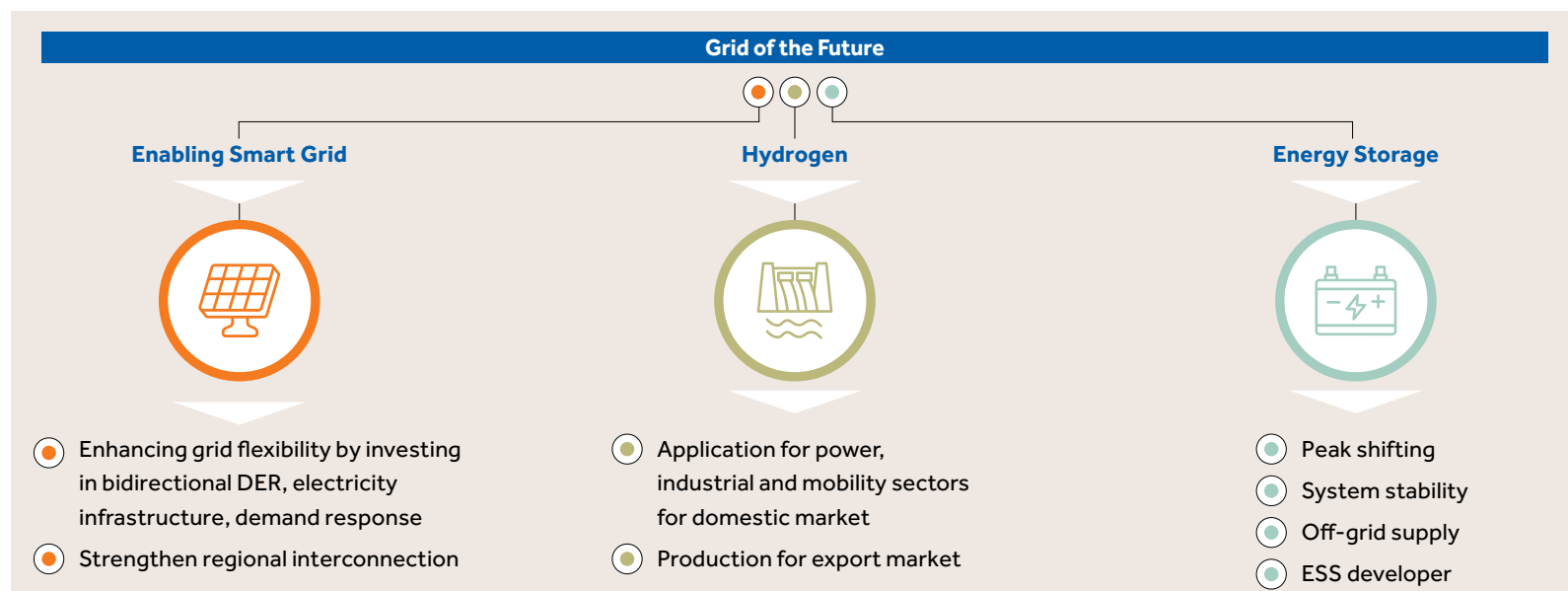
## OUR RESPONSE TO CLIMATE CHANGE

TNB currently has a healthy pipeline of upcoming renewable energy and green technology projects to support the **Future Generation Sources** pillar :

Project	Description	Commercial Operation Date (COD)	Emission Avoidance (Equivalent to CO <sub>2</sub> emission)
<b>Renewable Energy</b>	TNB Bukit Selambau 2 (LSS@MENTARI Scheme) <b>50 MW</b>	2023	0.08 million tCO <sub>2</sub> e/year
	Sungai Perak Hydro Life Extension Programme <b>650.75 MW</b>	2025	0.5 million tCO <sub>2</sub> e/year
	Nenggiri Hydro Project <b>300 MW</b>	2027	0.3 million tCO <sub>2</sub> e/year
	Solar Greenfield development, UK <b>102 MW</b>	2024	0.05 million tCO <sub>2</sub> e/year
<b>Green</b>	New Combined Cycle Power Plant at Paka <b>1,400 MW</b>	2030	3.2 million tCO <sub>2</sub> e/year
	New Combined Cycle Power Plant, Kapar <b>2,100 MW</b>	2031	4.7 million tCO <sub>2</sub> e/year



## ENERGY TRANSITION PILLAR 2 : GRID OF THE FUTURE



## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE



## ENERGY TRANSITION PILLAR 2 : GRID OF THE FUTURE

## Smart Grid Enhances Grid Flexibility

TNB will continue to prioritise investing into modernising our world class national grid into Grid of the Future – a smart grid which remains reliable, resilient, smart with digital technology and flexible in meeting the country's needs for energy transition. A smart grid is an advanced electricity network that incorporates the use of digital technologies to improve the efficiency, reliability and resilience of the grid. It allows for two-way communication between the grid and Distributed Energy Resources (DER), as well as real-time monitoring and control of the electricity flow. Expanding regional interconnection allows for a wider reallocation of RE resources that helps decarbonise the ASEAN power system.

Leveraging on the smart grid, DER can provide energy to the grid during periods of high demand and absorb excess energy during periods of low demand. Also, this helps to balance the grid and reduce the need for conventional power plants to ramp up or down production. This enables the grid to allow higher penetration rates of intermittent renewable energy sources, improve the efficiency of energy consumption while maintaining the high performance of the conventional power plants.

TNB is planning to invest a total of RM21 billion capital over a period of 3 years until 2024 in strengthening the grid and ensuring reliability of energy supply. Our grid reliability performance is exemplified by the fact that the recovery time has not surpassed our most recent approved Guaranteed Service Levels (GSL).

## Hydrogen Fuel of the Future

TNB's strategy is to repower retired coal and gas plants with combined-cycle gas turbines (CCGTs) equipped with hydrogen-ready technology, as hydrogen is regarded as the fuel of the future, particularly green hydrogen produced from renewable energy sources. As such, a sustainable and economically viable supply of green hydrogen is required. TNB will undertake research on the production of green hydrogen using electrolyzers that are more efficient in an effort to reduce the levelised cost of energy for green hydrogen.

In parallel, TNB will collaborate with PETRONAS to develop the green hydrogen ecosystem by 2030. The ecosystem includes the whole value chain from the supply of green electricity, electrolyzers, compression, storage to transportation.

## Energy Storage Provides Security

To support the National Energy Policy 2022-2040 and Malaysia's vision to include more renewable energy sources into our generation mix, battery storage plays a crucial role in our nation's grid reliability. By storing energy during period of low demand and releasing it during periods of high demand, battery storage can help to stabilise the grid and improve the overall efficiency of the power system.

TNBR has an ongoing pilot project for Virtual Power Plant (VPP) technology, which utilises software and energy storage to enable peer-to-peer generation among energy prosumers and demand response control for system stability in the future. TNB and South Korean companies invested USD 7 million in R&D on this project in order to better regulate the supply of electricity from renewable sources during peak demand on the national grid. The VPP project involves installation of four (4) battery energy storage systems (BESS) with a total of 2 MW capacity.

TO ACCELERATE TNB'S DIGITALIZATION JOURNEY,  
FOCUSING ON ENERGY TRANSITION AND SUSTAINABILITY  
between  
Tenaga Nasional Berhad and Microsoft Malaysia  
13 September 2022



TNB is partnering with Microsoft Corp to collaborate on discovering and validating potential opportunities through a series of projects over a period of two (2) years, to accelerate digital transformation to support TNB's Grid of the Future strategic pillar.

The MoU also covers digital skills and development initiatives for TNB employees where technical and digital competencies in using Microsoft tools and cloud services of varying complexity will be provided for both IT and non-IT roles within the Company.



For more information on our Smart Grid initiatives, please refer to Smart Grid section, page 73-74.

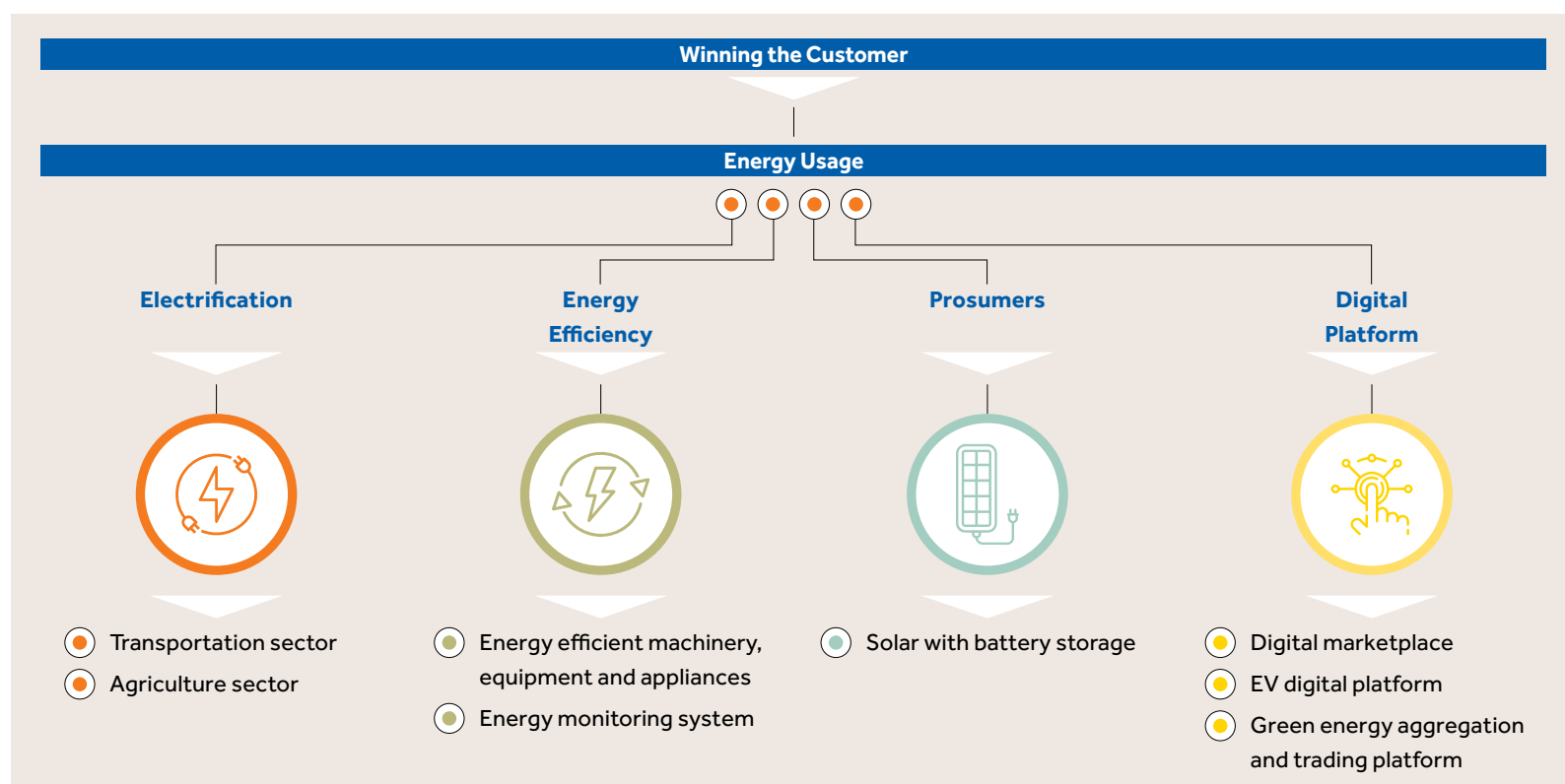


## CLIMATE CHANGE AND ENVIRONMENT

### OUR RESPONSE TO CLIMATE CHANGE



#### ENERGY TRANSITION PILLAR 3 : WINNING THE CUSTOMER



#### Electrification

TNB is ready to lead Malaysia's transition towards low-carbon mobility. Understanding the increasing demand for electric vehicles and the current state of EV infrastructure in Malaysia, TNB aspires to play an active role in building charging infrastructure within strategic locations and delivering the right type of charging facilities needed. TNB has made provisions for 3,300 charging points across the country by 2025 and 18,000 charging points by 2030. TNB will be investing RM22 million in 2023 and RM90 million in the span of 3 years (2022-2024) to uplift the development of the EV ecosystem in Malaysia. TNBX Sdn. Bhd. (TNBX) plays an important role to position TNB in the EV marketplace as the Charge Point Operator (CPO), while Tenaga Switchgear Sdn. Bhd. (TSG) functions as a manufacturer of equipment and charger for TNB Electron stations. In 2023, we plan to deploy EV charging stations along Peninsular Malaysia's highways and trunk roads to enable seamless travels for Battery Electric Vehicle (BEV) owners throughout Peninsular Malaysia.

In building up the EV ecosystem, we have initiated strategic discussions via various platforms to bring EV players together and collaborate towards common objectives. This includes building charging infrastructure, fostering coalitions among EV players, sponsoring EV-related studies, electrification of TNB's own fleet and reskilling of employees for the electric vehicle (EV) industry. In 2023, ILSAS has established Electric Vehicle (EV) Training Hub to provide reskilling for the EV industry, focusing on fundamental knowledge such as basic battery storage and EV technology where the training sessions are certified by International bodies.

Our ongoing and new initiatives on low carbon mobility includes :

#### TNB and Sime Darby Motors Malaysia to explore various initiatives to accelerate the adoption of EV

TNB and Sime Darby Motors (SDM) Malaysia, have entered into a MoU in a collaboration to support the country's low carbon mobility ambitions. The collaboration will explore various initiatives to accelerate the adoption of electric vehicles (EV) as well as ensuring a network of highly efficient EV charging infrastructure and digital platform. The collaboration also aims to identify other energy-efficient and renewable energy initiatives to optimise the cost of EV charging infrastructure and to reduce carbon emissions.

## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE

## TNB and Majlis Amanah Rakyat (MARA) collaborate for the development of EV charging infrastructure and learning

TNB and MARA entered into a strategic collaboration to install photovoltaic solar system panels for the generation of clean electricity at MARA educational institutions (IPMa) and the development of EV charging infrastructure for the operation and management of MARA Liner buses. The chargers are MARA Group's first DC fast chargers with a capacity of 120 kW for its MARA Liner pilot project in Langkawi. This electric bus project is a showcase of sustainable development agenda and is a major contribution towards realising Langkawi Low Carbon island vision. The MoU also includes the provision of telecommunication services and internet access at MARA educational institutions by TNB subsidiary, Allo Technology Sdn Bhd and the development of human capital with a target of over 30,000 students and trainees in the field of Technical and Vocational Education and Training (TVET), which will be empowered under the MARA and TNB ecosystem. The collaboration is in line with the National Renewable Energy Policy 2025 under the Sustainable Energy Development Authority (SEDA) Malaysia.

## TNB MoU with Gamuda Land for EV charging infrastructure

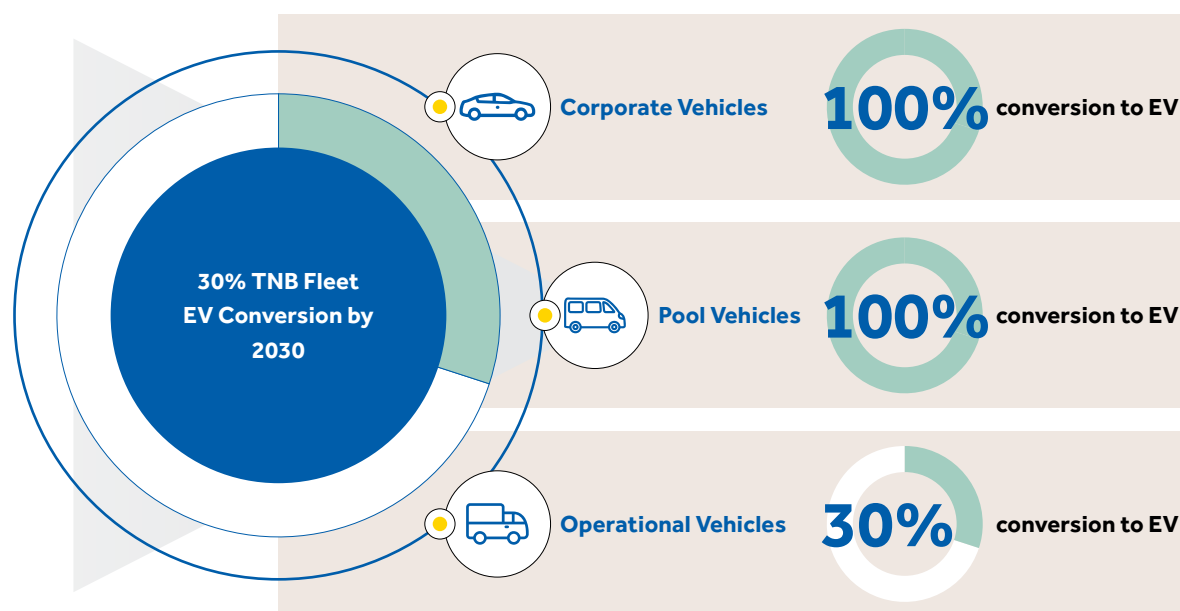
TNB has inked an MoU with Gamuda Land to build two (2) electron stations for electric vehicle (EV) charging at Gamuda Land's property development projects in Selangor. Malaysia's first electron stations will be developed at Gamuda Cove in southern Klang Valley and Gamuda Gardens in northern Klang Valley for communities in the projects and visitors to the water theme park at Gamuda Cove.

## TNB collaborates with PLUS Malaysia in developing EV charging station network

TNB and PLUS Malaysia collaborated to reduce carbon emissions on PLUS highways through three sustainability initiatives – the development of charging station network, installation of energy efficiency monitoring and solar photovoltaic systems at selected R&Rs along the PLUS highway network. Fast EV charging points were installed at some RSAs along PLUS' North South Expressway (NSE) and Lebuh raya Pantai Timur 2 (LPT2). In FY2022, TNB launched three (3) EV charging stations dubbed "TNB Electron" at RSA Ayer Keroh Northbound, Tapah Northbound and Paka Eastbound which are equipped with Direct Current Fast Charger (DCFC) for pilot testing. TSG and TNBX will be involved in development and operations of the Electron stations.

## TNB and Malaysia Automotive, Robotics and IOT Institute (MARii) partnership to develop the EV Ecosystem

TNB and MARii are in a Research and Development partnership to develop EV Telematics and Internet of Things (IoT) as part of the EV ecosystem. The partnership aims to set up Co-Joined Research and Reports to develop comprehensive telematics and IoT solutions related to EV ecosystem. It also focuses on the use and development of technologies to monitor and manage identified EV parameters for EV and EV Charger utilisation.



Through the Fleet Management Department (JFM), TNB set a target to replace 30% of its vehicles with electric vehicles (EV) by 2030, through three phases. Phase 1 (introducing EVs at TNB) and Phase 2 (introducing TNB operational EVs) have been implemented, with 15 vehicles from TNB fleet being replaced with EVs thus far. Currently, JFM is planning the implementation of Phase 3, to replace operational vehicles with EVs with an emphasis in strategic locations.

To facilitate the transition of EV replacement in TNB's fleet, TNB is also installing EV chargers at TNB premises, with a total of 13 installed chargers in FY2022.

## CLIMATE CHANGE AND ENVIRONMENT

### OUR RESPONSE TO CLIMATE CHANGE

#### Energy Efficiency


TNB actively assesses and adopts efficient technologies and ensures that all plants are properly maintained and where possible, upgraded to maintain their efficiency. To improve energy efficiency, TNB systematically assesses and adopts efficient technologies whilst pursuing operational excellence by undertaking plant-level business turnaround, improving the overall production processes, ensuring all power plants are promptly overhauled and adequately maintained and implementing technical upgrades, where possible. Increasing energy efficiency enables our power plants to conserve energy, allowing efficient use of the fuels we burn and reduces our overall emission intensity. TNB's aim has always been to harness as much energy as possible from each unit of fuel burned. This will enable us to minimise our environmental footprint and fuel costs. To deliver a sustainable low carbon future, we have been modernising our fleet by retiring inefficient and ageing Combined Cycle Gas Turbine (CCGT) plants and replacing them with best-in-class and highly efficient technologies. For example, our newest addition power plant that was commissioned in 2021, the 1,440 MW Sultan Ibrahim Power Plant in Pasir Gudang utilises the first-of-its-kind turbine technology with a net thermal efficiency of 60%, thus contributing to a lower carbon footprint.

TNB is continuously growing and expanding its energy efficiency expertise including conducting energy audits and integrating energy efficiency improvements. This service is conducted throughout TNB's assets such as buildings, fuel stations and fuel terminals and subsequently integrates energy efficiency improvements.

#### Prosumers


Over the years, through various RE programmes in Malaysia, we have seen an increasing shift from consumer to prosumer. An electricity prosumer refers to a consumer who also generates their own electricity, typically through the adoption of rooftop solar. This allows for a more efficient and resilient energy system, as the electricity generated by prosumers can be used to meet the needs of their own households or businesses, as well as to supply excess electricity to the grid during times of high demand.

With TNB's strategic pillar of Grid of the Future, the smart grid is expected to be able to support a higher volume of bi-directional power sources from prosumers' own distributed energy sources and renewable energy.

 For more information on our prosumers initiatives, please refer to Customer Centricity section pages 78-80.

#### Digital Platform

TNB complements its initiatives with digital platforms such as myTNB mobile application and TNBX EV application. These technologies are recognised as the key milestone of empowering customers towards the sustainable energy industry of the future.

 For more information on our prosumers initiatives, please refer to Empowering customers towards energy transition under the Customer Centricity section pages 80-81.

For more information on our Smart Meter initiatives, please refer to Elevating Customer Experience Through Customer Empowerment under the Customer Centricity section page 80.

### CLIMATE RISK MANAGEMENT

TNB business entities are guided by the TNB Risk Assessment Process that provides a structured approach to identify, analyse, evaluate and treat risks. TNB business entities apply the process in a systematic, iterative and collaborative manner, drawing on the knowledge and views of stakeholders to develop their respective risk profiles. Climate related risks are integrated in our 10 strategic risks covering external, sustainability, market, customer, finance, capabilities and regulatory risk categories. Moreover, climate-related risks and opportunities are managed in accordance with the ISO 14001:2018 Environmental Management System.

In addition to the above, climate related risks and opportunities are assessed using scenario analysis, across short-term, medium-term and long-term horizons considering the expected lifetime of the assets or activities.

In managing the climate risks along with other business risks, the Board Risk Committee (BRC) oversees the establishment and implementation of the TNB Risk Management Framework that is embedded into the culture, processes and structures of the Group and is responsive to changes in the business environment. Sustainability and climate risks are included as part of the enterprise risk management process.

Following the TNB Risk Assessment Process, risks identified by business entities are registered and monitored through the TNB Risk Information System (TRIS), an online real-time tool and risk database that is accessible to all employees. Risks are reviewed annually by business entities with participation and eventual approval from the risk owners.

Half-year risk reports are submitted by business entities to the Risk Management Department for consolidation. Group-wide consolidated half-year risk reports, which include reports of emerging risks and climate related risks, are deliberated and endorsed by the Group Risk Management Working Committee (GRMWC) for onward internal dissemination.

 For more information on risk management, please refer to our Statement on Risk Management and Internal Control on pages 201-207.

## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE

## METRICS AND TARGETS

The SP2050 enabled us to establish clear climate related targets :

Reduction of Scope 1 emission intensity of

**35%**

by 2035 and net zero emission by 2050,  
compared to base year 2020

FY2022 Performance :

**2%**

reduction from the 2020 baseline

Reduction of coal capacity of

**50%**

by 2035 and 100% by 2050, compared to  
base year 2020

FY2022 Performance :

TNB to reduce

**14%**

of coal capacity by 2030

Revenue from coal generation plants does  
not exceed

**25%**

of our total revenue

FY2022 Performance :

**24%**

of total revenue from coal generation plants

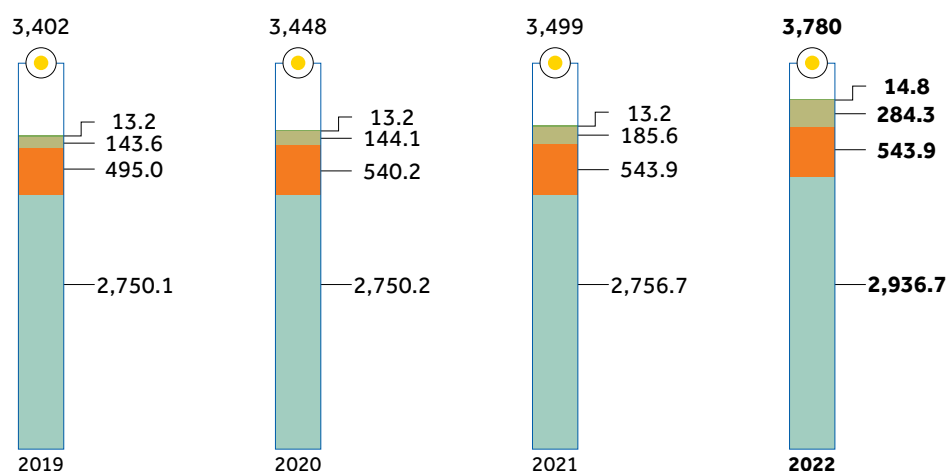
## Renewable Energy Installed Capacity

In FY2022, our installed capacity for renewable energy is 3,780 MW. With NED's strategy in expanding our renewable capacity, we are on track to achieve our 2030 aspiration of 7,000 MW.

## INTERNATIONAL AND DOMESTIC RENEWABLE ENERGY INSTALLED CAPACITY

(MW)

● Hydro ● Solar ● Wind ● Other (Biomass and Biogas)



## CLIMATE CHANGE AND ENVIRONMENT

### OUR RESPONSE TO CLIMATE CHANGE

#### Greenhouse Emissions

We utilise our GHG Emissions Management System (GEMS), a web-based data input and processing system for regular monitoring of Scope 1 and 2 emission data. We intend to expand the monitoring of our other environmental data via GEMS progressively.

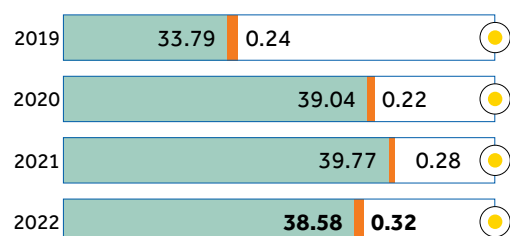
In FY2022, our Scope 1 and Scope 2 emissions has decreased due to higher operation of our gas and hydro power plants.

We are in the process of assessing our Scope 3 emissions focusing on several categories relevant to our business. We will commence Scope 3 emission disclosures in FY2023.

#### SCOPE 1 AND 2 GHG EMISSIONS

(million tCO<sub>2</sub>e)

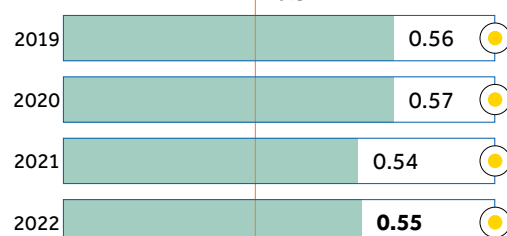
● Scope 1 ● Scope 2



#### GHG EMISSIONS INTENSITY (SCOPE 1)

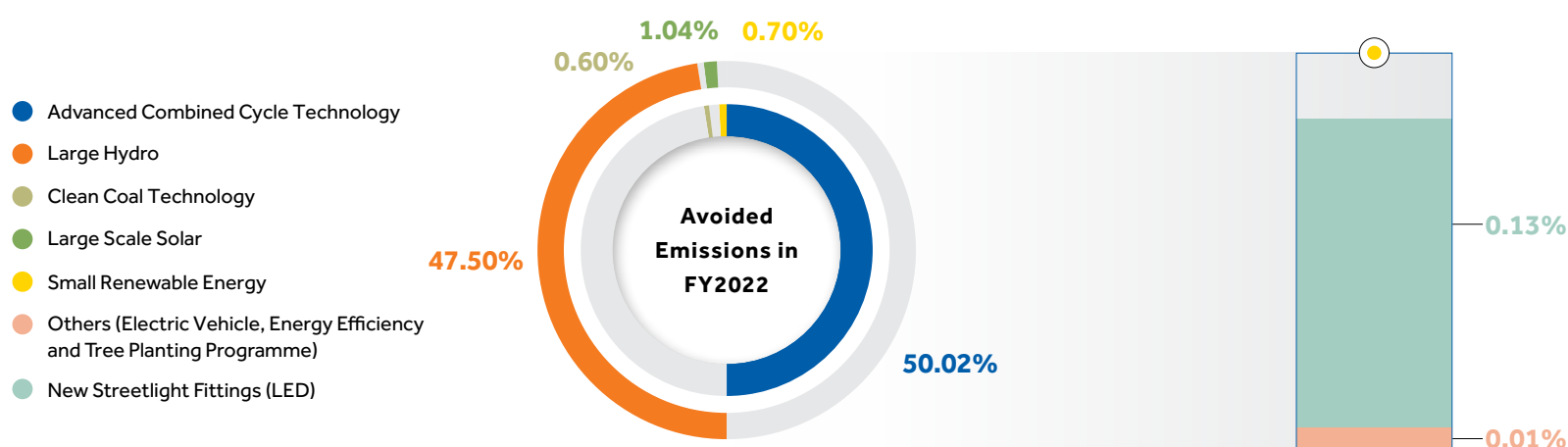
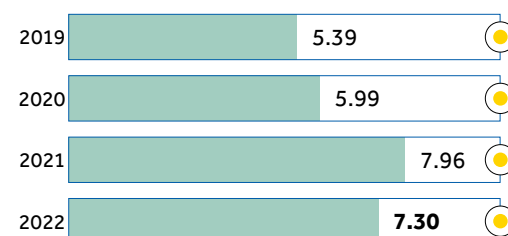
(tCO<sub>2</sub>e/MWh)

Target by 2035  
0.37



#### AVOIDED EMISSIONS

(million tCO<sub>2</sub>e)



The following guidelines and methodologies are utilised in preparing our GHG emissions calculation :

- GHG emissions methodologies applied were 2006 IPCC Guidelines for National Greenhouse Gas Inventories, GHG Protocol and Clean Development Mechanism (CDM).
- Consolidation of data was based on equity share approach.
- GHG emissions are assessed annually for TNB operations in Peninsular Malaysia only.

Our GHG emission assessment was subjected to a verification and assurance process based on ISO 14064-1:2018 part 1 (Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals) and part 3 (Specification with guidance for the verification and validation of greenhouse gas statements).



## CLIMATE CHANGE AND ENVIRONMENT

## OUR RESPONSE TO CLIMATE CHANGE

## Reducing Our Coal Capacity

We are actively reducing our coal capacity through ongoing initiatives under our **Future Generation Sources** strategy and we are on track to achieving our target of reduction of coal capacity by 50% by 2035 and 100% by 2050, compared to baseline of year 2021. We continue to maintain our revenue from coal generation plants to be below 25% of our total revenue in FY2022.

## GROUP REVENUE\*

(%)

● Coal ● Renewable Energy ● Others\*\*



\* Total revenue includes ICPT

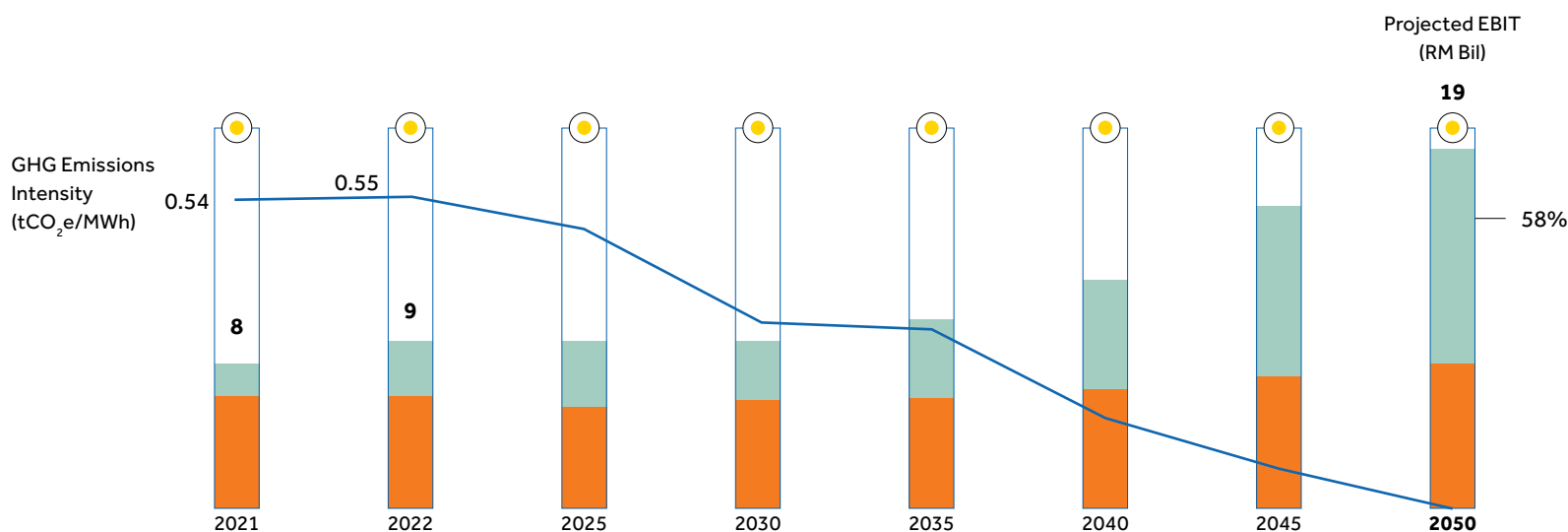
\*\* Others include revenue from regulated business, subsidiaries and generation from gas

We recognise the importance of investing in our ET strategy to achieve our SP2050 ambition. While the transition to low carbon may require substantial investments, we believe that these investments in capitalising the low carbon economy and diversifying our revenue streams will ultimately increase our earnings in the long run. TNB's ET strategy could grow TNB's Earnings Before Interest and Taxes (EBIT) up to 140% to RM19 billion by 2050 as we decarbonise our carbon footprint at the same time.

## PROJECTED EBIT (RM BIL) AND GHG EMISSION INTENSITY

(tCO<sub>2</sub>e/MWh)

● Future Generation Sources & New Green Business ● Grid of the Future — Emission Intensity



**i** For more information on other climate related indicators and performance, please refer to Minimising our Environmental Impact section pages 105-110.

## CLIMATE CHANGE AND ENVIRONMENT

### Feature Story 4

#### OUR FLAGSHIP GREEN BUILDING - TNB PLATINUM CAMPUS

TNB Platinum Campus, our new headquarters located at Jalan Bangsar, Kuala Lumpur consists of four (4) Office Towers, a Convention Centre, Childcare and Pelitawanis and Central Plaza. The horizontal tower connects all four (4) offices and the convention centre. In the intersections between blocks, high-ceilinged atria in the spaces create a continuous horizontal plane that enhances the scheme's connectivity. At the lower levels of the horizontal tower, it includes link bridges, stairs and collaborative areas that emphasise its communal functions, distinct from the more specialised departmental requirements above. The central plaza with an arcing forecourt of generous landscaping and foliage consolidates the connectivity as a hub to its four (4) cascading office blocks, convention centre and ancillary buildings.

Envisioned as a sprawling campus, the design is aimed to create a contemporary and futuristic workplace that meets the requirements of the highest rating under the Green Building Index (GBI), the Platinum certification. The green features include green-roofed buildings oriented to the sun's path to reduce the amount of solar heat gain; double-glazed facades with low emissivity that not only help control heat and noise but also harvest natural daylight; and overhangs that provide shade and improve thermal comfort. This sustainable architecture is expected to bring about a transformative change in its workplace culture and workforce development.

TNB Platinum Campus is designed according to GBI principles with the following key design features :

Energy Efficiency	Responsible Material Selection	Occupant Safety & Comfort
<ul style="list-style-type: none"> <li>• <b>25%</b> less electricity consumption compared to conventional building designs.</li> <li>• Exceptional building envelop for both glazing and roof to <b>reduce external heat transmissibility</b>.</li> </ul>	<ul style="list-style-type: none"> <li>• More than <b>10%</b> recycled content in construction material.</li> <li>• More than <b>50%</b> of the timber used has Forest Stewardship Council (FSC) &amp; Malaysian Timber Certification Council (MTCC) Certified.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Excellent</b> daylighting and external views with less obstruction to the glazing.</li> <li>• <b>Reducing</b> harmful indoor pollutants by avoiding usage of hazardous chemicals such as Volatile Organic Compound (VOC) and formaldehyde.</li> </ul>
Water Efficiency	Innovation	
<ul style="list-style-type: none"> <li>• Usage of <b>highly efficient water fittings</b> throughout the building to reduce potable water consumption.</li> <li>• <b>Rainwater harvesting system</b> to be used for irrigation.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>EV charging station.</b></li> <li>• <b>Automated Waste Management System (AWCS).</b></li> <li>• <b>Photovoltaic system</b> with capability to cater up to 10% of the building's electricity consumption.</li> </ul>	



The new TNB Platinum buildings are environmentally friendly in design with energy efficient and water efficient features.

#### Additional Green Building Features

- Automation include lighting zoning control, motion sensors and daylight sensors.
- Integrated Building Management System Energy Sub-Metering System.
- At least 2% reused building materials utilised during construction.
- More than 50% of the construction material is a regional material (500km radius from project site).
- Carbon dioxide monitoring and control to avoid CO<sub>2</sub> level exceeding 1000ppm.
- Provides occupants thermal comfort and ease of control.
- Enables adjustments to the background noise level for occupant comfort with acoustic treatment.
- Parking guidance system for non-allocated parking.
- Energy and water usage display.
- Deployment of metering and leak detection system for domestic water supply to avoid water wastage.
- Grey water recycling system to reduce potable water consumption.

## CLIMATE CHANGE AND ENVIRONMENT

## MINIMISING OUR ENVIRONMENTAL IMPACTS

TNB strives to minimise the environment impacts caused by our business operations and value chains, in line with our commitment to progressively improve our environmental performance.

## GOVERNING ENVIRONMENTAL MATTERS

The generation of electricity from our thermal plants inevitably leaves a large environmental impact, in the form of carbon release, water consumption for power plants and fuel consumption. Our environmental management is principally guided by TNB Environmental Policy which was reviewed in FY2021 to reflect the latest changes in environmental requirement and emerging issues.

The Health, Safety and Environmental (HSE) Council oversees the Group's environmental performance and compliance.

Six (6) divisions divisions in TNB have been certified ISO 14001:2015 compliant in Environmental Management System (EMS). We are also guided by TNB's Health Safety and Environmental Management System (HSEMS) which outlines environmental risk identification and control requirements across all divisions, departments and business units in TNB. The introduction of HSEMS has strengthened the governance of environmental management across the Group.

Since 2021, Guided Self-Regulation (GSR), the self-monitoring environmental management tool, has been implemented across all TNB divisions and subsidiaries. The GSR scoresheet has been analysed for gaps in order to continuously enhance our operations.

Our overall commitment towards reducing our environmental impact is encapsulated in our comprehensive environmental management policies and guidelines :

- TNB Environmental Policy 2021
- Environmental Impact Assessment (EIA) Guidelines 2022
- 2<sup>nd</sup> Edition of Scheduled Waste Guidelines 2021
- Polychlorinated Biphenyls (PCB) Guidelines 2021
- e-Waste Management Policy 2022
- Grid Division Green Code Conduct

In supporting our Net Zero by 2050 aspiration, the Grid Division introduced its Grid Green Code Conduct. The Green Code Conduct shows our commitment towards ESG that mirrors our efforts to create a greener future. We aim to lead as a green responsible grid owner by reducing our climate footprint and promoting sustainability through the supply chain.

## Grid Division Green Code of Conduct 2021 - 2050



## Align with TNB's Net Zero by 2050 aspiration

*TNB Grid aims to lower its SF6 emissions by recycling and replacing SF6 gas in its assets. Additionally, TNB Grid will tackle losses through the adoption of new technologies.*

▣ FY2022 Performance :

**3,266 kg SF6 gas recycled**



## Achieve zero pollution impact on nature

*Manage potential pollutants from TNB transformer operations while leveraging new environment friendly products to reduce the impact of pollution.*

▣ FY2022 Performance :

**100%** of transformers were tested for Polychlorinated biphenyl (PCB) and no contamination was found.



## Achieve 30% reduction in deforestation by 2050

*To minimise the impact of deforestation in accordance with the environmental standards and promoting biodiversity.*

▣ FY2022 Performance :

**Continuously**

conserving forests by reducing deforestation from grid development activities.

## CLIMATE CHANGE AND ENVIRONMENT

### MINIMISING OUR ENVIRONMENTAL IMPACTS

TNB Grid Initiatives and FY2022 key highlights are outlined below :

Grid Division Initiatives	FY2022 Highlights
<b>GHG Reduction</b>	<ul style="list-style-type: none"> <li>Gas Insulated Switchgear (GIS) refurbishment and sulphur hexafluoride (SF6) leak management to achieve &lt;0.5% SF6 leak rate.</li> <li>SF6 Gas Recycling and Reconditioning Centre to promote circular economy by reusing recycled and reconditioned SF6 gas without the need to purchase new gas or dispose used and poor quality gas.</li> <li>Replacement of old R22 air conditioners as part of energy efficiency efforts to reduce impact to environment.</li> <li>Change of CO<sub>2</sub> firefighting system to environmentally neutral inert gas system.</li> </ul>
<b>Pollutant Management Initiatives</b>	<ul style="list-style-type: none"> <li>Replacement of Oil Impregnated Paper (OIP) to Resin Impregnated Paper (RIP) transformer bushing replacement to reduce the impact of pollution from bushing failure.</li> <li>Elimination of PCB content in oil-filled transformer that has dangerous impact on the environment and our health.</li> <li>Usage of bio-based ester oil for new transformer to be implemented in the year 2024 to reduce the impact of pollution.</li> <li>Transformer oil-water separation pit for better effluent management.</li> </ul>
<b>Deforestation Control Initiatives</b>	<ul style="list-style-type: none"> <li>Environment Impact Assessment (EIA) process improvement in project delivery.</li> <li>Tree Hyperspectral Identification System (Thysis) that will identify endangered species to ensure less impact of deforestation and preserve biodiversity and natural habitats during project development.</li> </ul>

Our Approach and Key Highlights	Our Performance in FY2022												
<h3>Water Management</h3> <p>We closely monitor our water withdrawal at operational sites to minimise the risk of water overuse and contamination. In addition, we investigate any deviation from the norm in water consumption at all power plants and carry out any necessary mitigation measures and implementation plans.</p>	<p>There is a slight increase in total water withdrawal for FY2022 compared to FY2021, due to increasing business operations and office occupancy post COVID-19 pandemic.</p> <h3>TOTAL WATER WITHDRAWAL ACROSS TNB'S OPERATIONS</h3> <p>(Megalitres)</p> <p>● Peninsular Malaysia ● SESB</p> <table><tr><td>2019</td><td>7,269</td><td>785</td></tr><tr><td>2020</td><td>7,065</td><td>725</td></tr><tr><td>2021</td><td>7,771</td><td>660</td></tr><tr><td>2022</td><td>9,821</td><td>709</td></tr></table>	2019	7,269	785	2020	7,065	725	2021	7,771	660	2022	9,821	709
2019	7,269	785											
2020	7,065	725											
2021	7,771	660											
2022	9,821	709											

## CLIMATE CHANGE AND ENVIRONMENT

## MINIMISING OUR ENVIRONMENTAL IMPACTS

## Our Approach and Key Highlights

## Fuel Management

TNB is committed to ensuring a sustainable, reliable and cost-effective fuel supply and consumption for power generation.

In line with SP2050, TNBF has launched an in-house sustainability framework in December 2022 to be the sustainable fuel thought leader and supplier for the regulated industry.

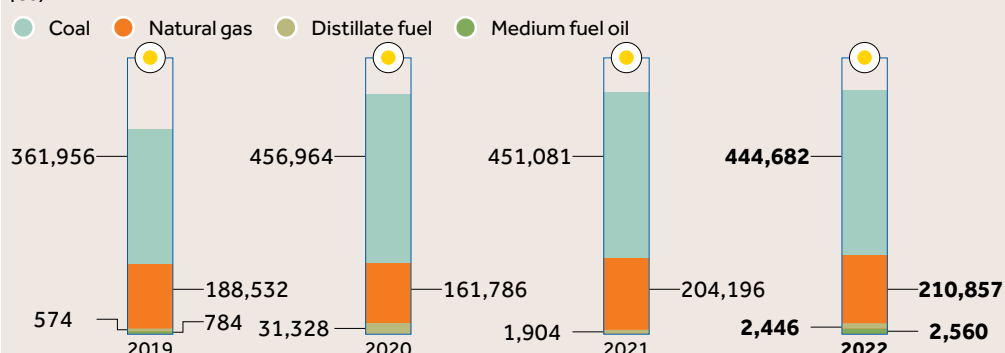
In addition, we have optimised our plants to ensure they operate at optimal efficiency.

## Our Performance in FY2022

Fuel consumption from non-renewable sources to power the generation plants are shown below. In an effort to reduce coal capacity, we continue to explore the viability of increasing natural gas in our energy mix as a transition fuel while we research the commercialisation of green fuel.

## TOTAL FUEL CONSUMPTION

(GJ)



## Energy Management

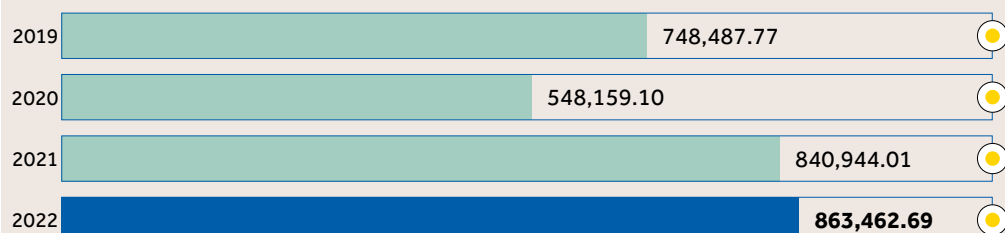
At TNB, we integrate energy efficiency initiatives and programmes across our buildings.

TNB new buildings including Balai Islam and TNB Platinum campus incorporated energy efficiency design features as an effort to reduce our energy consumption.

There is a slight increase in total energy consumption for FY2022 compared to FY2021, due to increasing business operations and office occupancy post COVID-19 pandemic.

## TOTAL ENERGY CONSUMPTION

(MWh)



## Waste Management

We manage all hazardous waste centrally in accordance with our Health, Safety and Environment (HSE) guidelines on Scheduled Waste Management, which are in compliance with regulatory requirements set by Department of Environment (DOE).

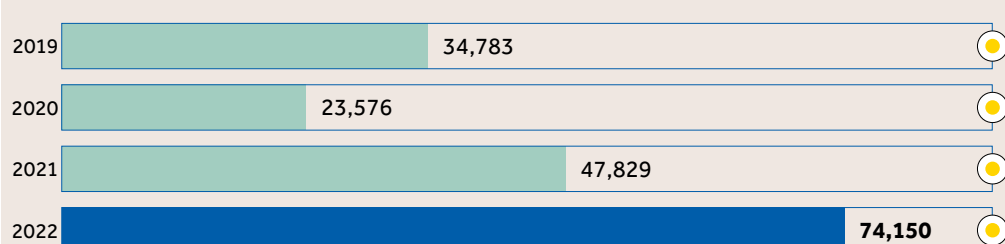
We continuously improve our waste management process through site inspection and internal audit.

In FY2022, we have developed our E-Waste Management Policy which is enforced across all TNB premises. All electronic waste categorised under SW110 will be managed and disposed in accordance with DOE guidelines. To track our progress, we are in the process of developing an online reporting system for E-Waste inventory.

TNB monitors its scheduled waste generation directed to disposal and diverted from disposal regularly. The scheduled waste are disposed responsibly through licensed waste contractors.

## TOTAL SCHEDULED\* WASTE GENERATED

(Metric Tonnes)



\* We refer to DOE's terminology of scheduled waste which means waste that has hazardous characteristics and thus has the potential to negatively affect the environment and public health



## CLIMATE CHANGE AND ENVIRONMENT

## MINIMISING OUR ENVIRONMENTAL IMPACTS

## Our Approach and Key Highlights

## Biodiversity Management

In FY2022, we increased our efforts in conserving biodiversity surrounding our operation sites :

## Nenggiri Hydroelectric Project

- TNB conducted a study on threatened flora species (based on the International Union for Conservation of Nature's (IUCN) Red List of Threatened Species) found at the project site area.
- TNB has also developed a Wildlife Management Plan with consultation from Jabatan PERHILITAN that will outline implementation steps in monitoring and managing wildlife.

## Sungai Perak Hydroelectric Station – Temenggong Dam

- TNB conducted a study on threatened flora species based on the IUCN's Red List of Threatened Species found at the Temenggong Dam.

## Cameron Highlands – Jor and Ringlet Lakes

- TNB is running a Pilot Development of Habitat Rehabilitation and Restoration for Sediment Deposit Area in Cameron Highlands. This project is in collaboration with the Pahang State Forestry Department to rehabilitate and restore dredging disposal sites at Jor and Ringlet Lakes.
- The pilot development aims to identify suitable tree species and soil treatment required, as well as identification of routine practices that will enhance tree growth.

## Bukit Selambau Large – Scale Solar (LSS) Plant

- TNB's study to manage human-macaque conflict through Behavioral Ecology and DNA Metabarcoding has concluded in 2022.
- The results of the study has allowed TNB to understand the daily activity, behaviour and dietary requirements of the macaques which will be utilised to reduce human-macaque conflicts.

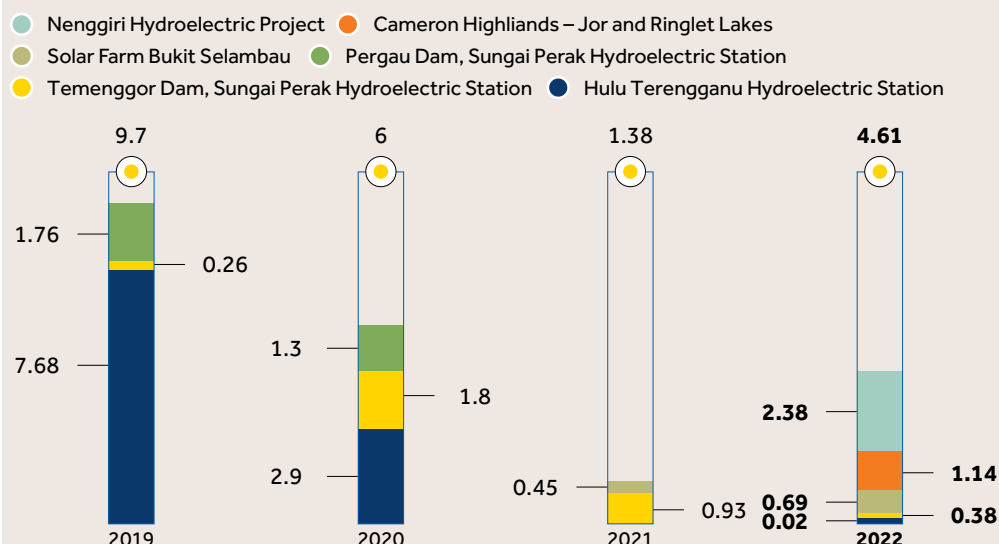
## Hulu Terengganu Hydroelectric Station

- TNB conducts annual assessment on changes in aquatic life population.
- The findings from the annual assessment are important for us to understand and evaluate impacts from the station's operation to surrounding aquatic habitat.

## Our Performance in FY2022

In FY2022, a total of RM4.61 million was spent on biodiversity studies at Nenggiri Hydroelectric Project, Cameron Highlands – Jor & Ringlet Lakes, Solar Farm Bukit Selambau, Temenggong Dam and Hulu Terengganu Hydroelectric Station.

## TOTAL SPEND (RM MILLION) ON BIODIVERSITY STUDIES



## KEY FINDINGS OF TNB'S IUCN RED LIST STUDIES AS OF FY2022

Site	Species Group	Number of Species								Total Expenditure in FY2022 (RM'mil)
Nenggiri Hydroelectric Project	Fish	0	1	0	0	28	4	0		2.38
	Bird	1	4	8	31	142	0	0		
	Terrestrial	6	21	7	13	95	4	4		
	Flora	1	2	3	10	137	7	658		
Cameron Highlands – Jor and Ringlet Lakes	Fish	0	0	0	0	0	0	0		1.14
	Bird	0	0	0	0	0	0	0		
	Terrestrial	0	0	0	0	0	0	0		
	Flora	0	73	168	20	533	0	0		
Bukit Selambau Large – Scale Solar (LSS) Plant	Fish	0	0	0	0	0	0	0		0.69
	Terrestrial	0	1	0	1	0	0	0		
Sungai Perak Hydroelectric Station (Temenggong Dam)	Fish	1	0	0	1	57	2	2		0.38
	Terrestrial	20	32	46	0	0	0	0		
	Flora	20	32	103	47	0	0	3339		

● Critically Endangered (CR) 
 ● Endangered (EN) 
 ● Vulnerable (VU) 
 ● Near Threatened (NT) 
 ● Least Concern (LC) 
 ● Data Deficient 
 ● Not Evaluated

## CLIMATE CHANGE AND ENVIRONMENT

## MINIMISING OUR ENVIRONMENTAL IMPACTS

## Our Approach and Key Highlights

SESB conserves the forest and wildlife of Sabah through a joint partnership with the Sabah Forestry Department (SFD).

## Our Performance in FY2022

SESB recognises the importance of conservation of our natural environment for future generations and is proud to contribute to organisations that share the same values and objectives. As part of the commitment, SESB has contributed RM20,000 to Sabah Wetlands Conservation Society (SWCS) to fund their operations. SWCS aims to promote the conservation of wetlands in Sabah and the variety of plants, birds and other living organisms that call these wetlands home.

In addition, SWCS is committed to raising public awareness and appreciation of wetlands, as well as encouraging public involvement in protecting them. Furthermore, SWCS manages the Kota Kinabalu Wetlands as a model wetland centre for the purpose of conservation, education, recreation, tourism and research. By demonstrating the importance of wetlands through practical examples, they hope to inspire others to take action to protect wetlands in their own communities.

## SITE AND HABITAT PROTECTION

At TNB, we implement preventive and restorative measures to reduce our impact on local biodiversity, including minimising our operations within areas of high biodiversity value. However, there are several areas in which TNB conducts its activities and are home to an abundance of flora and fauna. Some species in these areas are protected under domestic and/or international declarations by public authorities.

Our current activities situated in areas of high biodiversity value has either commenced prior to the issuance of declarations of protections or after exhaustive analysis of alternatives and environment assessment with oversight from competent authorities where it was determined that there were no viable alternatives. The following table outlines the TNB facilities located within or adjacent to protected areas of high biodiversity value and our key ongoing initiatives on habitat protection and restoration :

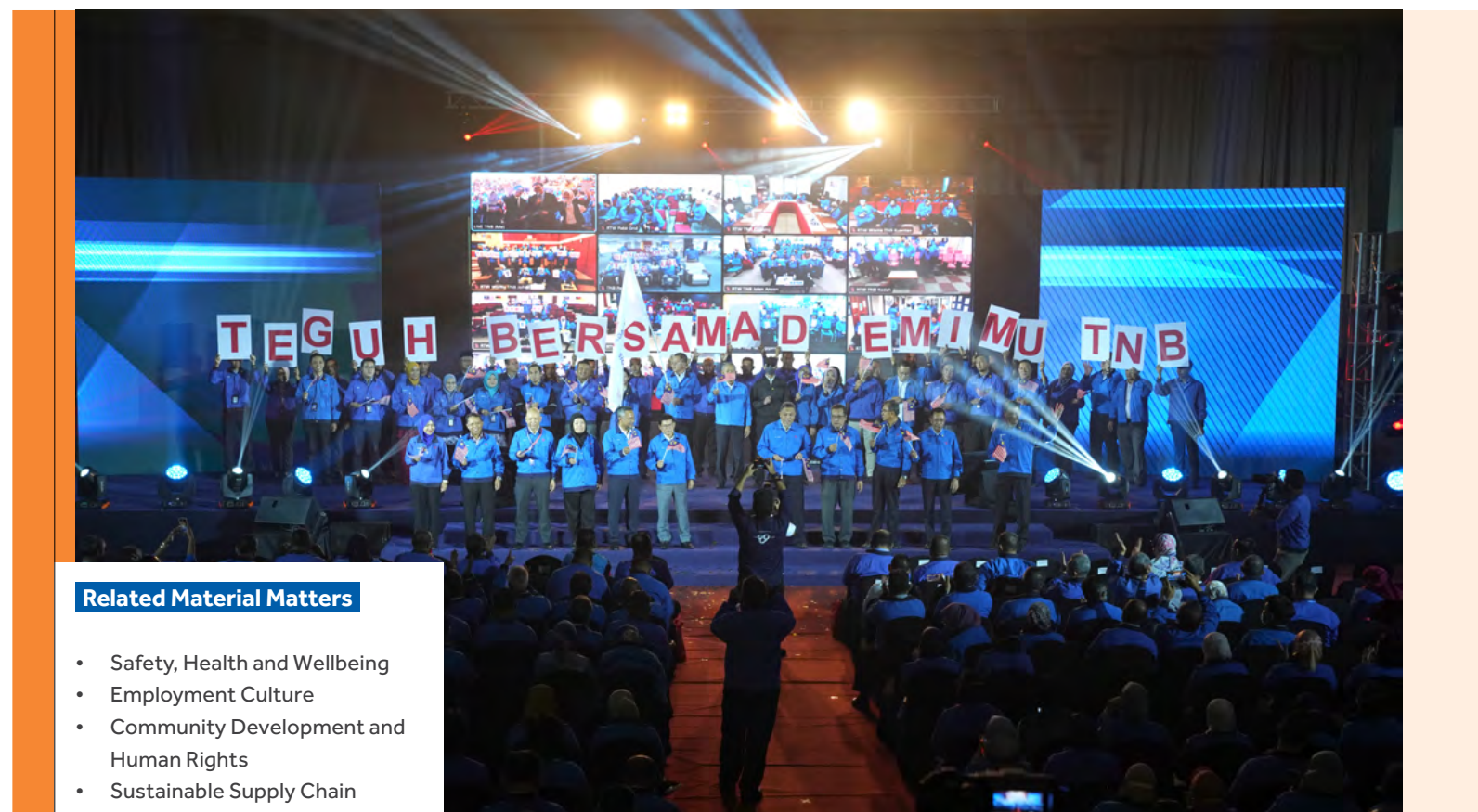
Project, Location and Area	Biodiversity Value	Methodologies	Third Party Partnerships
<b>Fish Management &amp; Eco – Tourism</b>  Sungai Tiang, Royal Belum State Park (12 km)	<ul style="list-style-type: none"> <li>IUCN Red List.</li> <li>Aquatic freshwater fauna.</li> <li>Culture and tradition of Jahai Tribe.</li> </ul>	<ul style="list-style-type: none"> <li>Release of fish fry at Tiang River.</li> <li>Quarterly fish and water quality assessment.</li> <li>Tourist satisfaction surveys.</li> </ul>	<ul style="list-style-type: none"> <li>Perak State Parks Corporation : monitoring implementation progress.</li> <li>Fishery Department of Perak : provided fish fry for the sustainability efforts of the fish sanctuary.</li> <li>Department of Orang Asli Development Perak : provided additional funding, moral and material support such as boats, and ICT equipment for the successful implementation of this project.</li> <li>Malaysia Co-Operative Societies Commission : Provide skill and technical development through various training initiatives.</li> </ul>

## CLIMATE CHANGE AND ENVIRONMENT

## MINIMISING OUR ENVIRONMENTAL IMPACTS

Project, Location and Area	Biodiversity Value	Methodologies	Third Party Partnerships
<b>Sediment Deposit Habitat Rehabilitation and Restoration</b>  Jor Lake (20.23 hectares) and Ringlet Lake (87.34 hectares), Cameron Highlands	<ul style="list-style-type: none"> <li>IUCN Red List.</li> <li>Tree species available within PDA3 of dumping site Jor (HS Bukit Tapah) and Cell 5 of dumping site Jasik (HSK Ringlet).</li> </ul>	<ul style="list-style-type: none"> <li>Terrestrial Flora Revegetation.</li> <li>Biomass Estimation.</li> <li>Carbon sink extrapolation.</li> <li>Cost Benefit Analysis.</li> </ul>	<ul style="list-style-type: none"> <li>Forestry Department of Pahang: commitment to rehabilitate the disposal area with Eucalyptus.</li> <li>Forestry Department of Pahang : TNBR to seek agreement to utilise suitable land for control plot within Cameron Highlands area as in kind contribution and support for this study.</li> </ul>
<b>Human – Monkey Conflict Management</b>  Solar Farm : TNB Bukit Selambau LSS Plants Adjacent Areas (600 hectares)	<ul style="list-style-type: none"> <li>IUCN Red List.</li> <li>National Policy on Biological Diversity (NPBD) 2016-2025.</li> <li>National commitment to the Convention on Biological Diversity (CBD).</li> </ul>	<ul style="list-style-type: none"> <li>Fecal sampling of existing monkey population for DNA sequencing works.</li> <li>Social survey to understand community's perception.</li> <li>Behavioural study of the monkey population.</li> <li>Installation of electric fence as per Energy Commission Guidelines.</li> </ul>	Department of Wildlife and National Parks : <ul style="list-style-type: none"> <li>Collaboration to eradicate monkey population as a last option if all mitigation measures applied are unsuccessful.</li> <li>Inputs on Management Plan document.</li> <li>Supported awareness session conducted with local community.</li> </ul>
<b>Manage and mitigate impacts on wildlife population due to project development</b>  Nenggiri Hydroelectric Project Site Area	<ul style="list-style-type: none"> <li>IUCN Red List.</li> </ul>	<ul style="list-style-type: none"> <li>Data collection using satellite collar and camera traps.</li> <li>Wildlife inventory.</li> <li>Wildlife conflict and management.</li> <li>Habitat rehabilitation and wildlife corridor.</li> </ul>	Department of Wildlife and National Parks : gathering input on Wildlife Management Plan.

# ENGAGING OUR PEOPLE AND CULTIVATING TALENT



## Related Material Matters

- Safety, Health and Wellbeing
- Employment Culture
- Community Development and Human Rights
- Sustainable Supply Chain

## EMPLOYMENT MANAGEMENT AND GROWTH

In TNB, our people stand at the core of our operations. Their efforts and diligence in contributing towards TNB's aspirations whilst upholding company values are highly appreciated. In FY2022, there has been a heightened awareness in operationalising the sustainability agenda in tandem with TNB's journey to achieve net zero emissions. This requires more proactive initiatives in building up the needed talent and right skillset for our employees. Numerous initiatives and measures have been put in place to retain and attract employees. Along with that, we aim to cultivate a strong culture of diversity, professionalism, leadership and competency in our workforce.

### CREATING A CONDUCTIVE WORKPLACE

In the countries where we operate, we comply with all relevant labour laws and we support the rights of freedom of association and collective bargaining. Additionally, our executive and non-executive employees' rights are well-protected through our unions, which enable us to

provide better working conditions. We uphold human rights by treating all employees with respect and have zero tolerance for discrimination, harassment, or bigotry, ensuring fair and humane treatment of everyone.

From January until December 2022, TNB conducted a pilot phase of TNB Ways of Working (TWOw), which involved more than 8,500 people from selected departments from eight (8) divisions and subsidiaries. Depending on the nature of the job (i.e., field force, office-based or customer-facing), a suitable hybrid work arrangement encompassing options to Work In Office (WIO), Work From Home (WFH), Work Home Based (WHB). Three (3) key elements of TWOw implementation are flexible and hybrid working location (WIO & WFH), flexible and staggered working hours, as well as smart casual dress code. At the end of the pilot programme, it was approved for implementation throughout TNB effective 1 January 2023. This aligned with TNB's timeline to implement flexible working throughout the organisation and to comply with the amendment of Malaysia's Employment Act 1955 which begins in January 2023.

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

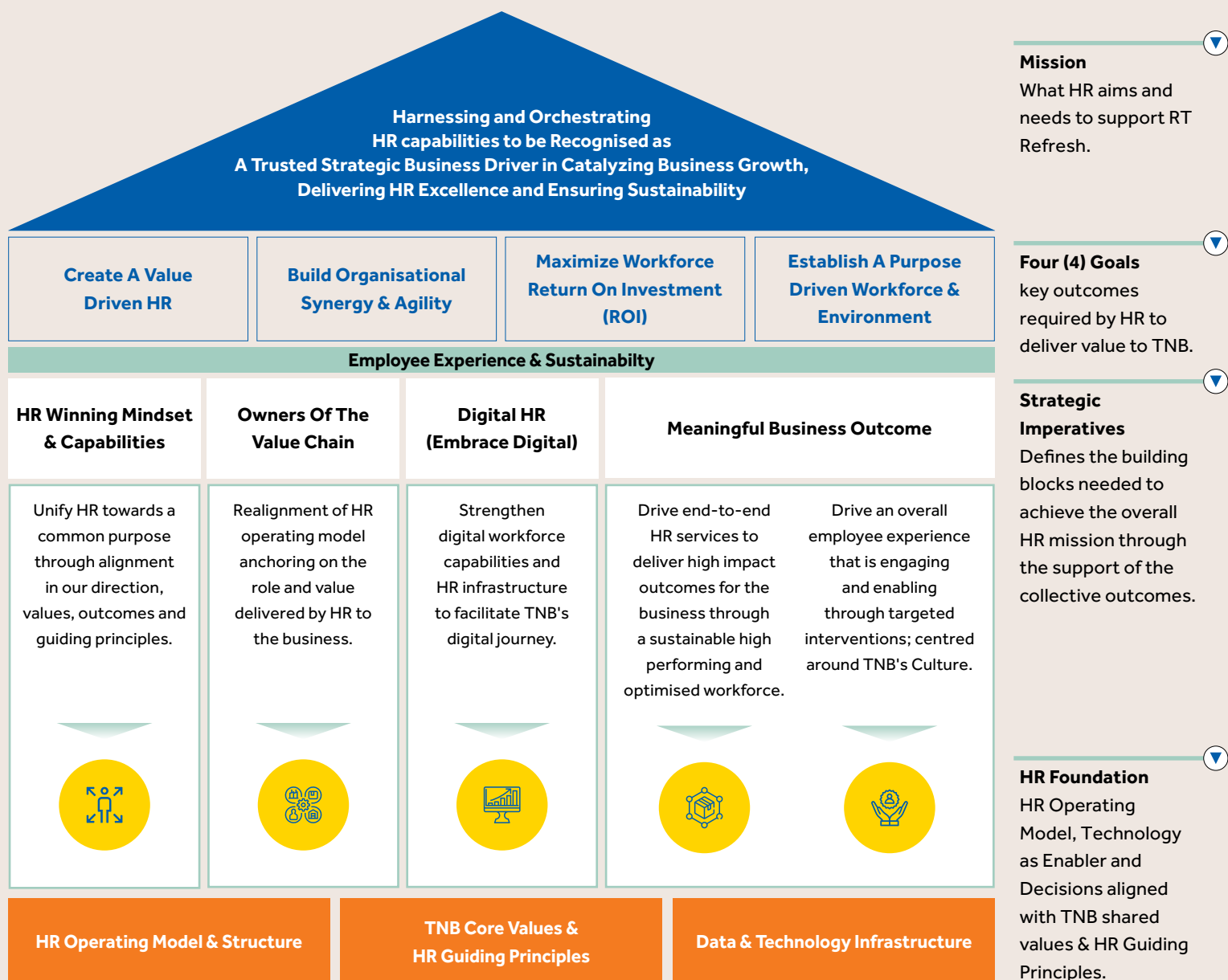
### EMPLOYMENT MANAGEMENT AND GROWTH

#### HR GUIDING PRINCIPLE AND STRATEGY

We continue to execute the intended action plan guided by our HR Master Plan support and align to our Transformation Journey – Reimagining TNB (RT) through our Human Resources (HR) strategy which comprises the HR Leap 6, HR Guiding Principles and the HR Master Plan 2020 – 2025. In 2022, we revised our mission statement as part of our commitments in building up our workforce in meeting the Company's sustainability agenda throughout the organisation. The revised mission statement is "Harnessing and Orchestrating HR capabilities to be Recognised as A Trusted Strategic Business Driver in Catalysing Business Growth, Delivering HR Excellence and Ensuring Sustainability". We continue to create new initiatives and measures to ensure the sustainability of our workforce and operations.

#### HR Master Plan 2020-2025

Building blocks to deliver the desired outcomes in support of Reimagining TNB's Aspiration and Towards High Performing Culture





## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPLOYMENT MANAGEMENT AND GROWTH

Reimagining Culture (RC) was established in FY2020 to redefine our core values and culture – Integrity, Collaborative, Professionalism, Customer-centricity, Forward thinking and Mindfulness – that would drive our business transformation along with the development for high performance culture. As part of this journey, we launched our TNB Identity comprising our Purpose, Aspirations, Culture and Behaviours.

- 1 Established **Corporate and Divisional High Performance Culture Action Plan** which entails programmes and initiatives to be conducted to drive High Performance Culture in TNB throughout FY2022.
- 2 On-going communication efforts on the **TNB Identity** at Corporate and Divisional Levels via Internal Bulletins, Facebook and other platforms. We also embedded elements of TNB Identity in the TNB Appointment and Offer letters as well as People Development courses and trainings.
- 3 Organised **Majlis CEO Turun Padang & Pengiktirafan Wira Budaya** which aims to provide recognitions to employees that have demonstrated exemplary acts and contributions beyond their essential duties through their involvement towards the Company, community, country and at the international level guided by the TNB Core Values. Sessions were held at four (4) states with accumulated attendees of 1,723. During those sessions, 55 employees were awarded with the Wira Budaya award based on the specific TNB Core Values.
- 4 Organised **Majlis Anugerah Kecemerlangan TNB 2022 (ACE TNB 2022)**, an appreciation ceremony held to recognise the contribution and service of TNB employees identified from all divisions, departments and subsidiaries within TNB. Awards presented include Anugerah Wira Budaya Kebangsaan, Anugerah Kecemerlangan Pekerja, Anugerah Nampak, Dengar dan Rasa Selamat (NDRS), Anugerah TNB Performance Leaderboard, and Anugerah Khas Presiden.
- 5 Conducted **Change Engagement Circle (CEC)**, which are quarterly engagement sessions with representatives from all divisions and subsidiaries, to update and share on High Performance Culture initiatives and programmes.

### TALENT RETENTION AND ATTRACTION

At TNB, we value the retention and attraction of good talent. To support employees in working as effectively and efficiently as possible in line with TNB's business strategic objectives and goals, we developed TNB Performance Management as an integrated and continuous approach. In promoting healthy and constructive relationships between immediate managers and subordinates, performance discussions are mandated throughout the management cycle. Through these discussions, employees are empowered to constantly strive for improvement, measure progress and work towards achieving better career progress.

Our approach in managing and nurturing our human resources :

Approach	Key highlights for FY2022
Talent attraction, recruitment and retention is vital to build a strong workforce pipeline	<p>We conducted various programmes and initiatives to retain and develop our talent pool :</p> <ul style="list-style-type: none"> <li>95 employees were enrolled in Transition Leadership Programme.</li> <li>1,438 training programmes were conducted for TNB employees.</li> <li>5,800 individuals were certified as Orang Kompeten Suruhanjaya Tenaga (OKST) certification holders.</li> <li>183 employees obtained non-technical certification, such as ACCA, CPA and CIMA.</li> <li>In FY2022, Distribution Network Engineering Centre (DEC) conducted DEC Executive Attachment programme, which successfully attracted 60 talents into DEC Graduates pools.</li> </ul>



## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPLOYMENT MANAGEMENT AND GROWTH

Approach	Key highlights for FY2022
<b>We offer employees a competitive benefits package to maintain employee morale and attract and retain talent</b>	<p>We have developed a compelling Employee Value Proposition (EVP) which is a competitive remuneration and benefit package that supports work-life balance as well as the mental and physical health of our employees that includes :</p> <ul style="list-style-type: none"> <li>• Competitive benefits package.</li> <li>• Childcare facilities and nurseries.</li> <li>• Housing accommodation and quarters for employees.</li> <li>• Counselling services.</li> <li>• Sports and recreational facilities.</li> <li>• Career and development opportunities.</li> <li>• Religious facilities.</li> <li>• The EVP Policy was established in April 2022 for all TNB employees and serves as a guide and reference for TNB subsidiaries appointed employees.</li> </ul>
<b>Hiring of gig workers (On Demand Free Agents)</b>	<ul style="list-style-type: none"> <li>• TNB has started the hiring of gig workers, providing flexible short term employment opportunities since 2018.</li> <li>• TNB On Demand Free Agent (ODFA) guideline was developed to specify the provisions for appointment of ODFA in TNB. This guideline does not apply to TNB's subsidiaries but may be used as a reference, subject to their respective terms and conditions.</li> <li>• An ODFA refers to a free agent, freelancer, or gigger hired by TNB on a contract for service basis. The establishment of this contract for service is between TNB and the respective appointed ODFA individual.</li> <li>• An appointed ODFA is not considered as an employee and is therefore not covered under the Industrial Relations Act and Employee Act.</li> </ul>
<b>Employee engagement for open communication and sharing of different perspectives</b>	<ul style="list-style-type: none"> <li>• We encourage two-way communication with our employees through various engagement channels.</li> <li>• Grievance mechanisms are outlined in our Grievance policy which is supported by our Whistleblowing policy and channels such as the Whistleblowing Information System (WBIS). This serves as a safe platform for employees to channel their feedback and concerns.</li> <li>• Our extensive workforce is represented by three (3) Registered Unions and two (2) Workers Associations comprising both executives and non-executive employees. We have always maintained harmonious relations with the unions and are pleased to note that our union leaders are actively involved in all employee engagement sessions such as labs, syndications, joint meetings and technical/field trips.</li> <li>• Through our biannual Employee Engagement Survey (EES) and Culture Barometer, we are able to gain an understanding of our strengths and areas for improvement. Our engagement scores have been improving across all surveys conducted. The EES and Culture Barometer conducted in December 2022 received a score of 86.6% in comparison to the previous score of 85% in 2021.</li> <li>• In FY2022, we have maintained a low turnover rate of 3.93% which reaffirms our exemplary efforts in employee management.</li> </ul>
<b>Using digital platforms to attract talented workforce</b>	<ul style="list-style-type: none"> <li>• We have conducted talent and workplace showcase under Employee Branding strategy such as promotion through social media platforms and participation in industry awards events.</li> <li>• We also engaged with future talents through our postings on social media via Instagram@electrifyingcareers to showcase TNB's initiatives as well as to promote job openings to the public.</li> </ul>

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

## EMPLOYMENT MANAGEMENT AND GROWTH

## Feature Story 5

## EMPOWERING OUR PEOPLE

We encourage our employees to embark on lifelong learning, enabling them to achieve their personal and career goals. We aspire to be a learning organisation, focused on creating, acquiring and transferring knowledge and skills that continuously evolves with new business needs and global trends. We are committed to ensure that all our employees have access to learning and development opportunities. We aim to develop our employees' capabilities and ensure they carry out their roles to meet TNB's strategic objectives primarily, considering global trends and predictions for the future. This is achieved through huge allocation and funding of various learning programmes and initiatives in various learning institutions under TNB.

## Learning and Development Investment

**RM 161 million**

## Total Learning and Development hours

**1,024,777 learning hours**

## TNB Top Talent Development Programmes

*Development programmes that aim to develop a surplus of leaders that embody TNB identities*

- 130 talents were equipped with Individual Development Plan (IDP), which resulted in 97.6% critical positions that have ready successors and 86.7% succession realisation.
- 6 women from TNB successors have completed Women Leadership Accreditation Certificate Programme.

## Upskilling and Reskilling Programmes

*Programmes targeted to upgrade employee skills*

- A total of 749 staff were enrolled in upskilling/reskilling programmes.

## Reskilling employees for energy transition

*Programmes targeted to upgrade employee skills especially in energy transition-related skills*

- Solar technology training : 21 people.
- Smart meter training : 332 people.
- ILSAS EV Training Hub to provide reskilling training for the EV industry.

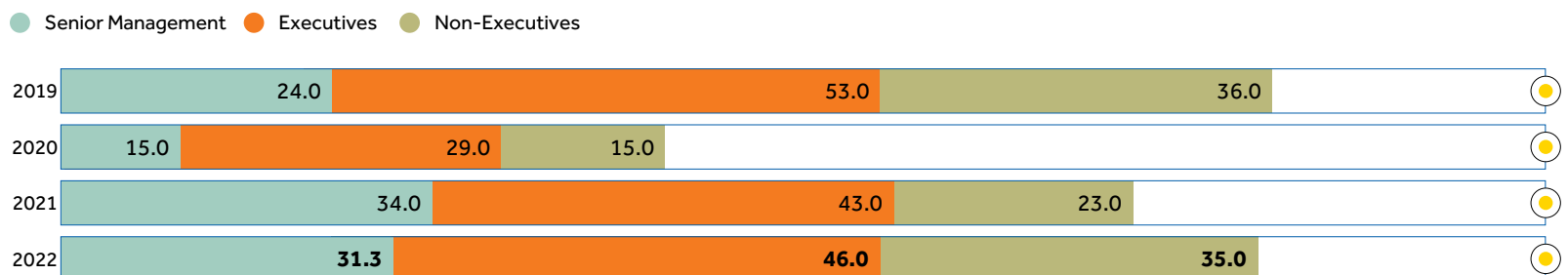
## Digital Skills Training

*Digital learning solutions for TNB employees*

- 821 sessions conducted with 15,178 participants from TNB employees.

## EMPLOYMENT MANAGEMENT AND GROWTH

## AVERAGE HOURS OF LEARNING BY EMPLOYEE CATEGORY (HOURS)



Our learning and development initiatives developed to enhance existing talent :

## Initiative

## Key highlights for FY2022

## Division Academies

Participants of Academy in Business Entities

- GenCo Academy : 69 participants
- Grid Academy : 25 participants
- Distribution Network (DN) Academy : 32 participants
- Retail Academy : 3,214 participants
- HR Academy : 30 participants
- ILSAS (TOT certified) : 794 participants

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPLOYMENT MANAGEMENT AND GROWTH

Initiative	Key highlights for FY2022
<b>Upskilling &amp; Reskilling Programmes</b> Programmes targeted to upgrade employee skills especially in energy transition-related skills	<ul style="list-style-type: none"> <li>A total of 749 staff were enrolled in upskilling/reskilling programmes in FY2022, namely :               <ul style="list-style-type: none"> <li>PPKK - Program Pendidikan Kemahiran Ketukangan</li> <li>PPKJ - Program Pendidikan Kemahiran Jurutematik</li> <li>PPPS - Program Pendidikan Penyelenggara Stor</li> <li>PPPT - Program Pendidikan Pembantu Tadbir</li> <li>Conversion Programme - Juruteknik Mechanical to Electrical</li> </ul> </li> <li>63 people underwent Conversion Programmes to facilitate continued employability among TNB employees.</li> <li>32 employees benefitted from the Degree reimbursement programme, with a total of RM413,000 invested for partial course fee sponsorship to assist executives in their professional advancement.</li> <li>55 employees participated in the Transition Leadership Programme for Executive programme with a total of RM328,000 investment, whereas 40 employees participated in the Transition Leadership Programme for Non-Executive programme with a total of RM173,000 investment.</li> <li>332 people underwent reskilling programmes to train meter operators on ways to install and collect readings from smart meters, in an effort to support transition towards smart meter &amp; digital billing.</li> <li>ILSAS conducted training for 21 individuals on solar technology for TNB Reskilling Programme.</li> <li>The newly launched ILSAS EV Training Hub is expected to provide reskilling training for the EV industry, focusing on fundamental knowledge covering basic battery storage and EV technology. This will align with the government's initiative to improve EV technology in the country.</li> </ul>
<b>Digital Skills Training</b> A collaboration with ILSAS to accelerate digital learning solutions for TNB employees. A wide variety of e-learning modules allows employees to pace their learning and development	<ul style="list-style-type: none"> <li>TNB aims to fulfil the demand for digital talents across TNB business entities through the development of internal talent.</li> <li>TNB will implement a series of development programmes for three job roles in the organisation, namely Data Scientist, Data Analyst and Data Engineer, in order to establish the Digital Academy.</li> <li>Many face to face (f2f) classroom activities were enhanced to provide a digital learning option, or an alternative hybrid approach combining the best of both approaches.</li> <li>Digital learning platform and contents employed include bite-sized learning, webinars, virtual learning and e-learning.</li> <li>ILSAS e-Learning Programme : 821 sessions conducted with 15,178 participants from TNB employees.</li> </ul>
<b>TNB Leadership Development</b>	<p><b>TNB Leadership Competencies :</b></p> <ul style="list-style-type: none"> <li>Conducted continuous leadership learning and development initiatives such as Leadership Webinar series featuring internal and external speakers on various current and future leadership topics. This year, 26,900 employees participated in the programme with a total of RM77,380 in investment. TNB conducted 68 webinars to date. 21 webinars were conducted in FY2022.</li> <li>Developed First-Time Manager Programme (FTM) for 55 aspiring managers to re-strategise (review) development content for 144 Young Executive Development Programme (YEDP) participants to strengthen leadership capabilities when employees transition to different roles within the organisation.</li> <li>Provided Informal Learning through Group Coaching in FTM.</li> </ul> <p><b>TNB Leadership Development Centre</b></p> <ul style="list-style-type: none"> <li>52 talents participated in strategic management breakouts.</li> <li>20 talents placed in roles along pathways leading to critical positions.</li> <li>44 talents participated in strategic dialogues with Board members.</li> <li>525 top management and talents participated in premium leadership webinars and training.</li> <li>6 women successors have completed ASB - WLF Women Leadership Accreditation Certificate Programme, a collaboration between ASB and MIT Sloan.</li> <li>100% of 130 talents were equipped with Individual Development Plan (IDP), which resulted in 97.6% critical positions with ready successors and 86.7% succession realisation. They were chosen through 10 sessions of TNB's Group-wide Succession Management Committee's deliberation.</li> </ul>

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPLOYMENT MANAGEMENT AND GROWTH

Initiative	Key highlights for FY2022
<b>TNB Reskilling Malaysia Programme</b> Spearheaded by ILSAS, this initiative provides job matching opportunities to unemployed members of the public as well as training of necessary skills for their new roles	<ul style="list-style-type: none"> <li>Introduced in 2020, the programme helps empower and provide reskilling for retrenched and unemployed Malaysians.</li> <li>5,827 participants from the programme were successfully matched with employers during the year.</li> <li>5,072 participants successfully completed the training.</li> <li>More than RM45 million has been allocated for the programme.</li> </ul>
<b>Digital Learning Initiatives</b> Utilising various platforms and content providers to conduct learning courses for TNB employees virtually	<b>TNB Corporate Digital Learning Platform Experience (LXP) :</b> <ul style="list-style-type: none"> <li>Digital Learning experience with external content providers and platforms.</li> <li>A robust strategy to ensure the success of delivery and cultivating self-directed and self-paced digital learning culture in TNB.</li> <li>TNB LXP aims to provide TNB Executives with external content provider via its digital platform.</li> <li>LinkedIn Learning enrolment for 1,000 executives in Pilot Phase prior to roll out for the whole company in 2023.</li> </ul>
<b>Graduate and Apprenticeship Programme</b> The PROTÉGÉ programme creates a pool of competent, well trained, knowledgeable and skilled graduates through industrial attachment	<ul style="list-style-type: none"> <li>The PROTÉGÉ programme (previously known as SL1M) supports the Malaysian Government and the Ministry of Entrepreneur Development and Cooperatives (MEDAC) initiative to create a pool of skilled graduates through industrial attachments that will help them to attain relevant competencies to enhance their marketability and employability.</li> <li>Since November 2011, TNB has trained about 6,110 trainees with RM143 million investment from AAIBE (RM66.5 mil) and TNB (RM76.5 mil) and the average employability rate (FY2011 - FY2021) was 73%.</li> <li>TNB has trained 547 PROTÉGÉ trainees during the year.</li> <li>TNB has managed to secure RM12.13 million from Akaun Amanah Industri Bekalan Elektrik (AAIBE) to fund the implementation of PROTÉGÉ Phase 8 programme.</li> <li>At the end of the programme, TNB PROTÉGÉ trainees were able to acquire new skills and gain industrial exposure from both soft-skills training and On-the-Job Training throughout the 8-month period.</li> </ul>

### ADVOCATING FOR DIVERSITY AND INCLUSIVENESS

We embrace diversity and inclusivity among our employees, as part of our human rights efforts. This allows us to gain perspectives from different viewpoints, enabling our employees to feel trusted and appreciated for their ideas, presence and contributions to the organisation regardless of their age, gender, religious affiliation and disability.

Diversity and inclusion are specifically highlighted in the new TNB Identity. It is stipulated in one of the TNB Core Values which is Collaborative, where we embrace diversity and inclusivity and value outside in perspectives. This reflects its importance for TNB, now and moving forward by leveraging a greater variety of perspectives and more comprehensive viewpoints, as well as talents that enable us to have higher flexibility in adapting to dynamic markets, as well as promoting creativity and innovation. We also want to ensure our diversity and inclusivity efforts empowers our people to feel that their ideas, presence and contributions are truly valued, regardless of their position or entities in the organisation, to deliver and contribute towards TNB's greater good.

In FY2022, the Group's Human Resource Division introduced its Diversity and Inclusion Policy to further improve diversity and inclusivity within its workforce. This policy aims to address the gaps related to this matter.

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPLOYMENT MANAGEMENT AND GROWTH

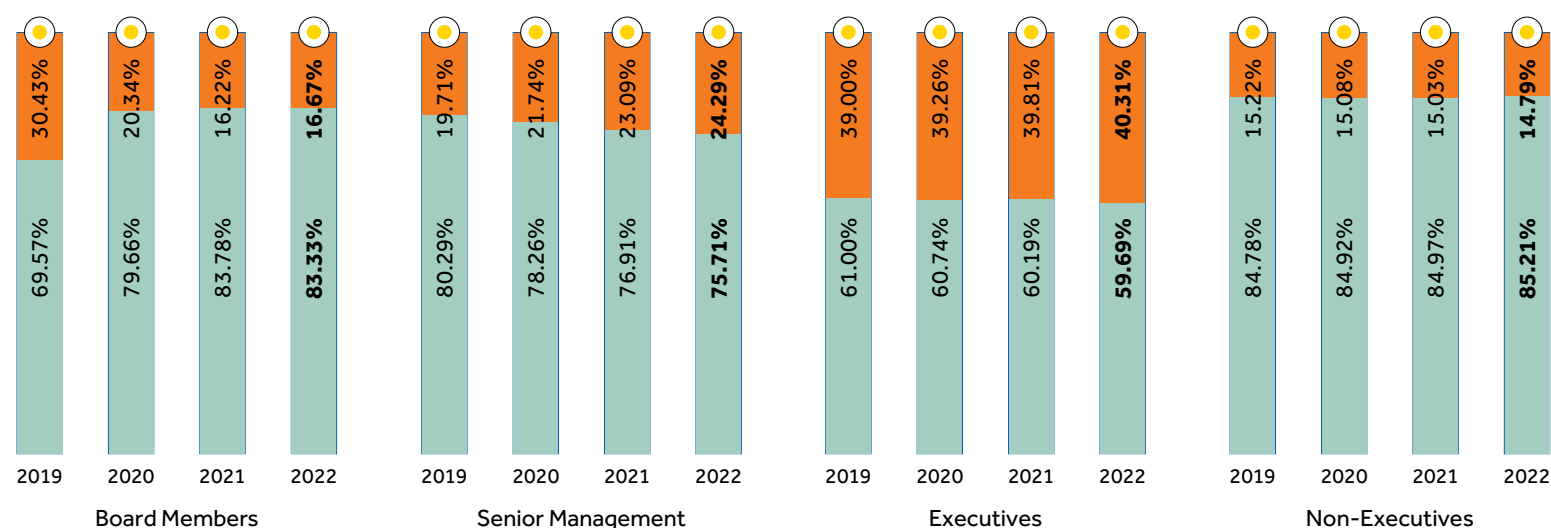
#### OUR PERFORMANCE FOR FY2022

	FY2019	FY2020	FY2021	FY2022
Total TNB Group Employees	36,307	35,576	34,938	<b>34,699</b>

#### GENDER DIVERSITY BY RANK

(%)

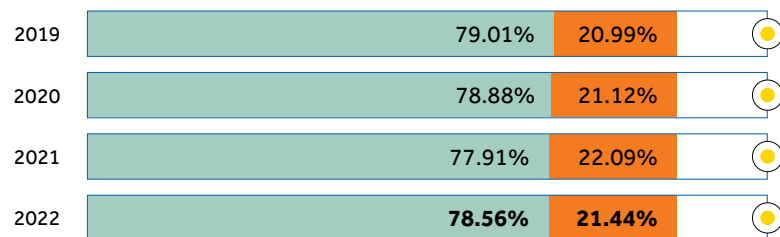
Male Female



#### EMPLOYEE BREAKDOWN BY GENDER

(%)

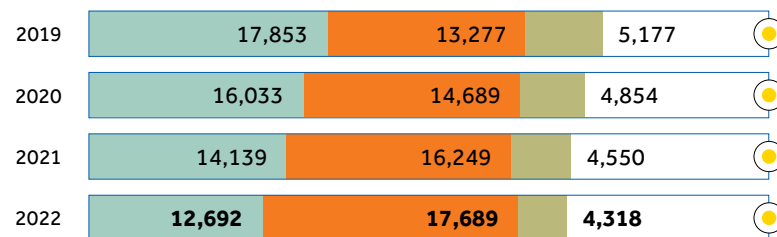
Male Female



#### EMPLOYEE BY AGE GROUP

(NO.)

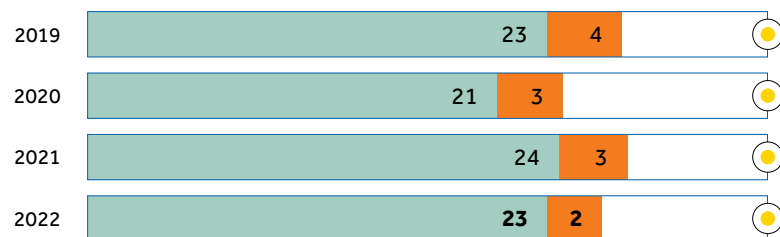
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#### DIFFERENTLY ABLED EMPLOYEES BY GENDER

(NO.)

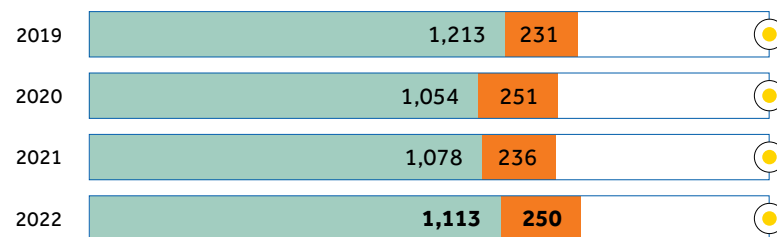
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#### EMPLOYEE TURNOVER BY GENDER

(NO.)

Male Female



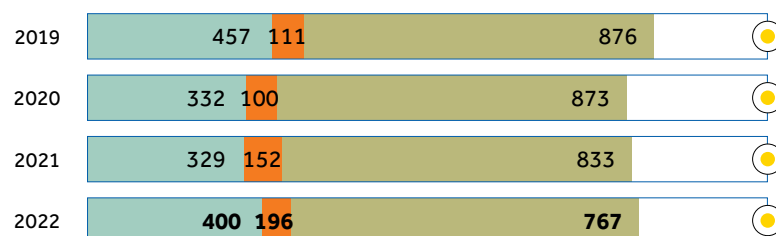
## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPLOYMENT MANAGEMENT AND GROWTH

#### EMPLOYEE TURNOVER/ATTRITION BY AGE GROUP

(NO.)

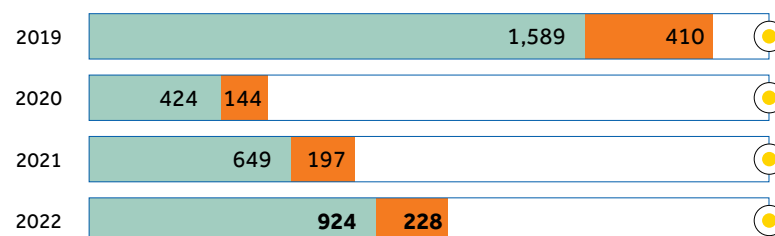
● &lt; 35 ● 36-50 ● &gt; 50



#### NEW HIRES BY GENDER

(NO.)

● Male ● Female



#### EMPLOYEE BY TYPE OF EMPLOYMENT

(NO.)

● Permanent employees ● Contract/Temporary employees



### EMPLOYEE ENGAGEMENT

Employee engagement is an essential aspect that drives TNB's success. We believe that engaged employees are more motivated, productive and committed to delivering their tasks and roles. They feel appreciated and are willing to go the extra mile to perform their job and duties, resulting in improved work quality, customer service, work efficiency and performance, as well as a healthy work culture. Furthermore, engaged employees are likely to stay with the Company, reducing turnover and serving as TNB's ambassadors and advocates. Formal and informal engagement sessions are conducted across different levels of employees, supplemented by communication through various print, social media and audio-visual channels, both online and offline.

This year, we conducted TNB Employee Engagement Survey (EES) and Culture Barometer as a form of employee pulse check to assess and measure the awareness, understanding, attitude and ambassadorship amongst our employees towards the TNB Identity, which consists of TNB's Purpose, Aspiration and Core Values. This survey, which was initiated in 2020, also focused on measuring the extent of our employees' engagement with TNB. The survey also served its purpose to identify the efficacy of programmes and initiatives that have been organised to drive High Performance Culture in TNB. By soliciting feedback from the employees and taking their suggestions into account, we aim to continuously foster a culture that is more responsive to the needs and concerns of our employees.

Following the result of the survey, a workshop was conducted with representatives from each division, department and subsidiaries to look for trends and patterns in the survey results and identify areas for improvements to increase employee engagement. Based on the results of the survey and the areas identified for improvements, each representative is responsible to develop a plan to address the issues and enhance employee engagement. The plan is aligned together with the initiatives and programmes planned to drive High Performance Culture within TNB. Additionally, constant follow up and measure of progress was done to ensure initiatives and programmes were executed accordingly.



## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPLOYMENT MANAGEMENT AND GROWTH

We engaged and communicated with our employees through several platforms :

Initiative	Description
Face-to-face	Staff gatherings, outreach sessions, morning talks, online engagements, meetings.
Intranet	News from TNB Group and Divisions are channeled via respective intranet subpages to ensure effective and targeted communication.
Publications	Various bulletins from Corporate Communications and various Divisions are communicated on Tenagawan Daily (newsletter) sent via email to all staff and published on TNB's internal social media group (Facebook).
TV TNB	TV sets strategically located in office lobbies, common areas such as lift lobbies and cafeterias, etc.
Social Media	Active interactions between TNB staff and management representatives in TNB Powerfaces Facebook group.
Engagement with Employee Representatives	<ul style="list-style-type: none"> <li>Through Unions, employees raised issues on staff benefits in the Collective Agreement negotiation platform.</li> <li>Engagement sessions with all TNB's Unions &amp; Associations on the amendment of the Employment Act 1955.</li> </ul>

### Key Highlights For FY2022

# 10

Women leaders were featured in TNB's Women's Day Celebration

A Board Engagement Programme was conducted focusing on women's leadership. The programme consisted of

# 40%

women attendees throughout the organisation

We continue to be a member of the

# 30% Club

which advocates for at least 30% women's representation on all boards and in top management globally

A Diversity and Inclusion (D&I) policy was launched in 2022 which explicitly details TNB's commitment to ensuring a diverse and inclusive workplace without consideration of age, gender, race, religion, nationality, background or previous experiences. This will also attract talents from diverse backgrounds. The effectiveness of the policy will be gauged on yearly surveys conducted by Group HR. Additionally, the Employee Experience Policy was established to cover the Employee Experience phase starting from Plan, Recruit, Develop, Retain, Growth and Exit, which is aligned with the six (6) pillars of HR Leap 6 to complement GHR's strategy and operating model.

PLAN	Business Driven	RETAIN	Total Motivation
RECRUIT	Agile Workforce	GROW	Adaptive Mindset
DEVELOP	Learning Organisation	EXIT	Legacy

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

## EMPLOYMENT MANAGEMENT AND GROWTH

## Key Highlights

For FY2022

The D&I Policy Statement focuses on :

Membership of TNB Top Management Group

Diversity of employees in terms of background

Expatriate recruitment

Fair & equitable treatment and job opportunities for persons with disabilities (PWDs)

Employee participation in career development

Prioritising safety, health and well-being

Promoting the practice of TNB's Core Values

Creating a safe and free workplace atmosphere from any form of harassment whether verbal, physical, visual or statements in the form of discrimination

Appreciating and rewarding employees based on their contributions towards the Company

In FY2022, TNB Group saw an increase in the number of women in senior management roles from 100 people in FY2021 to

**103**  
people

We continue to provide employment opportunities for

**25**

Persons With Disabilities (PWD) as at FY2022

TNB supports the right to freedom of association and collective bargaining and promotes

**equal pay**

for men and women based on their roles and responsibilities, as outlined in our HR manuals and Collective Agreement (CA) document. The Company maintains a basic salary and remuneration ratio of 1:1.



TNB conducted annual ethical standard training for all their employees, contractors and vendors based on the Training & Communication Plan (TCP). The progress is reported to the Board Integrity Committee (BIC) quarterly. The TCP is designed to meet the demands of Integrity Development to carry out integrity related training. This includes introducing an Integrity e-learning module for vendors. The TCP was also developed to close the gaps resulting from the IHI survey conducted by the Integrity Department. A total of 16,588 participants attended the training, accumulating 77,095 training hours.

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### Feature Story 6

#### PRIORITISING PEOPLE : SAFEGUARDING SAFETY AND WELL-BEING

At TNB, we place high importance in ensuring the safety of our employees and providing them with a safe working environment. This can be seen clearly through the improvement of our HSE performance in FY2022, where we successfully achieved our target of reducing LTIF to <1.00, recording LTIF of 0.82 in FY2022 compared to 1.03 in FY2021. TNB also recorded zero (0) employee fatalities and two (2) contractor fatalities when conducting operations on sites last year. This can be attributed to the effectiveness of the many guidelines, policies and training undertaken by the Group HSE to safeguard our employees that is in line with our values in ensuring the well-being for all.



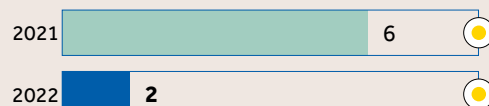
#### Lost Time Injuries Frequency (LTIF)

LTIF target of <1.0 has been achieved



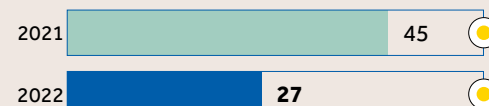
#### Zero Fatalities Target

Employee and contractor fatalities has reduced over the years



#### Reduction of LTIF of traffic incidents

Motor Vehicle Incidents reduced by 40%



In FY2022, the Intervention Stop Work (ISW) guidelines was put into effect, allowing all employees and contractors to take responsibility for their safety and trigger a stop work intervention under unsafe work conditions. The guidelines mandates employees and contractors to identify unsafe work behaviour, conditions, or activities that do not follow existing compliance requirements.

TNB introduced the HSE Wallet Application to enable easier and timely reporting of these potential incidents. A total of 263,900 reports has been lodged, indicating that awareness on employee safety and wellbeing continues to be taken seriously. These initiatives have received positive reviews from our workforce, as it has helped to keep them safe throughout their time working on sites.

To appreciate the effort of our employees in sustaining high HSE performance and driving the safety culture transformation, the *Nampak, Dengar dan Rasa Selamat* (NDRS) Awards recognition programme was implemented. Under NDRS Awards programme, we have the NDRS League Awards, Potential Incident (PI) Reporting Awards, Authorised Person (AP) & Competent Person (CP) Awards as well as the Best Safety Health Committee (SHC) Awards. This prestigious NDRS Leagues Award was presented to the league champions on 6 September 2022 during the *Hari Anugerah Kecemerlangan TNB*.

#### Intervention Stop Work (ISW) Guidelines

The guidelines highlight unsafe work behaviour, conditions, or activities that do not comply to safety standards for employees and contractors

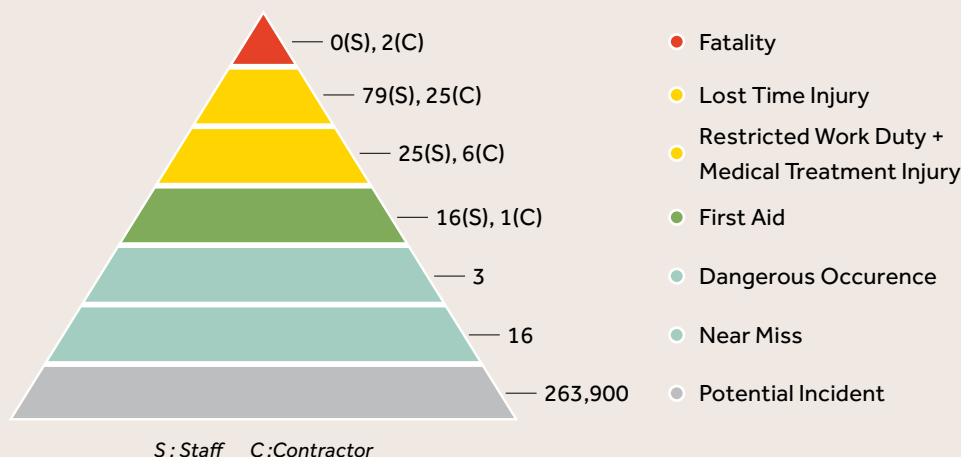
#### HSE Wallet Application

Digital platform that enables timely reporting for employees to report hazards and potential incidents

#### *Nampak, Dengar dan Rasa Selamat* (NDRS) Awards

To recognise our employees efforts in sustaining high HSE performance

#### Incidents reported according to incident categories



#### ENHANCING OCCUPATIONAL HEALTH AND SAFETY PRACTICES

Safeguarding the lives of both our employees and contractors through robust occupational safety and health systems and best practices is one of our top priorities. We strongly advocate and implement strong safety standards to prevent occurrence of work-related injuries and illnesses, as well as to achieve our targets of having zero fatality at the workplace and maintaining our Lost Time Injury Frequency (LTIF) rate at below 1.0. We are also well prepared in dealing with emergency situations that may cause potential impact to health, safety as well as the environment.

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPHASIS ON HEALTH, SAFETY AND WELL-BEING

#### IMPLEMENTING SAFETY CULTURE

We believe that safety at our workplace goes beyond standards and policies and should be embedded as a culture within our organisation. In 2021, we attained our targeted Proactive Safety Culture Level whereby our Safety Culture Assessment (SCA) score was 4.02. The assessment is due every two years, with the next assessment due in year 2023, holding the aim to achieve a higher score.

#### FY2022 Approach

#### Key Highlights

##### Tenaga Safety Culture

We have implemented nine (9) Safety Culture Values Activation & Spiritual hour sessions in FY2022 focusing on divisions and subsidiaries that have recorded fatality cases, LTIF more than 1.0 and high numbers of compounds issued in the previous year. This is to instil and sustain the safety culture values of Nampak, Dengar & Rasa Selamat (NDRS) in the hearts and minds of employees at all times.

We have implemented, the NDRS Awards recognition program i.e NDRS League Awards, PI Reporting Awards, Authorised Person (AP) & Competent Person (CP) Awards as well as the Best Safety Health Committee (SHC) Awards to recognise the efforts and contributions of our employees in elevating HSE performance.

A new initiative introduced under the NDRS (Education) is the HSE Culture Change Agent (HSE CCA) programme which was launched by the HSE Department of TGBS in collaboration with TNB ILSAS on 20 June 2022. The objective of implementing this programme is to inculcate the HSE culture among all TNB employees and subsidiaries. The appointed HSE CCA will play a role as a liaison for interaction and communication of the HSE culture, monitor and evaluate aspects of safety in the workplace and support and encourage the implementation of HSE initiatives. A total of 51 HSE CCA were appointed. A comprehensive plan covering governance, engagements and promotion, competency, rewards and recognition were crafted with HSE CCA to ensure the sustainability and expansion of this programme in TNB.

##### Life Saving Rules (LSR)

TNB has established nine (9) lifesaving rules as part of injury prevention measures

#### Core Rules



Isolate, earth and  
test before touch



Valid permit to  
work mandatory

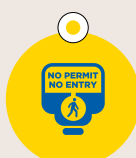


Wear arc flash suit  
when switching

#### Supplementary Rules



Use fall  
protection



Obtain  
authorisation  
before entering  
confined space



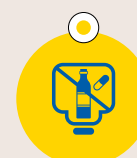
Wear helmet/  
safety belt. No  
speeding



Caution.  
Suspended load



No phones  
while driving



No drugs.  
No alcohol

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPHASIS ON HEALTH, SAFETY AND WELL-BEING

#### FY2022 Approach

#### Key Highlights

##### Risk Assessment

In TNB, all work-related hazards are identified, its related risks are assessed and relevant controls to eliminate hazards and reduce risks are determined. This is performed throughout the Company with reference to the Hazard Identification, Risk Assessment and Determining Control (HIRADC) procedure. To determine the controls required to eliminate hazards and reduce risks, a hierarchy of controls such as elimination, substitution, engineering control, administrative control and Personal Protective Equipment (PPE) is used. The effectiveness of the risk assessment is reviewed annually, or when there are incidents and changes in work processes. Additionally, PI reported in the digital platform also will be assessed to alleviate any potential risk.

The Hazard Identification, Risk Assessment and Risk Control (HIRARC) was developed based on the HIRARC Guideline from Malaysia's Department of Occupational Safety and Health (DOSH). Training on HIRARC was conducted periodically with employee & employer representatives. Gaps from these risk assessments were translated as input for improvement in the future. Additionally, any industrial hygiene and occupational health assessments like the CHRA, NRA and ERA are conducted by competent persons registered with DOSH.

These gaps from risk assessments are evaluated through the HSE management system (HSEMS) audit, inspection and enforcement activities. Gaps identified during the audit, inspection and enforcement activities are closely followed up using NCR online system. All these findings are presented in the quarterly DOSH meetings.

##### Risk assessments conducted by TNB include conducting :

- HSE Risk Assessment (HSERA), Environmental Impact Assessment (EIA), Quantitative Risk Assessment (QRA), Fire Risk Assessment (FRA) and Process Hazard Analysis (PHA) as a standard procedure.
- Chemical Health Risk Assessment (CHRA) for any work activities that relates to hazardous chemicals.
- Noise Risk Assessment (NRA) to identify work related activities with exposure to noise.
- Ergonomic Risk Assessment (ERA) to identify ergonomic related risks at the workplace.

##### Improvements on Ergonomic Risk Assessment (ERA)

As we have almost 20,000 employees using computers as daily, HSE has developed an e-learning module on office ergonomics in the TNB Learning Management System (LMS) to educate all TNB office workers to improve their posture when using computers at workstations. This will help TNB staff to maintain good physical health. As of 31 December 2022, 11,693 TNB staff have completed the e-learning module. In order to tighten TNB's HSE standard, new specifications for office workstations have been developed in collaboration with TNB Property Service Department (PSD) to ensure the new TNB Platinum Campus, Bangsar is provided with the highest ergonomic standard workstation.

##### Improvements on Chemical Health Risk Assessment (CHRA)

Completion and rolldown of Online Chemical Register is a best practised initiative in ensuring only approved chemicals are used in TNB operations. Three (3) divisions in TNB have been approved by JKKP Malaysia to implement Generic Chemical Health Risk Assessment (CHRA).

#### Our Approach

#### Key Highlights for FY2022

##### HSE Digitalisation (eHSE online system)

In line with greening our office practises, we continue to take strides towards digitalising our HSE practises by progressively rolling out modules in preparation for the full implementation of our eHSE online system in FY2022.

##### Key highlights for FY2022 include :

- Enhancement of HSE wallet platform that allows all TNB staffs to report any potential incidents (PI) at their workplace. The objective of this process is to promote intervention of any PI.
- Introduced three (3) new modules in eHSE online system consisting of Legal Compliance, Inspection Module & We Care *Kami Kisah*. The online systems are currently conducted as pilot projects at a few divisions/departments in TNB.



## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPHASIS ON HEALTH, SAFETY AND WELL-BEING

#### Our Approach

#### Key Highlights for FY2022

##### Health, Safety and Environmental Management System (HSEMS)

We are guided by TNB's Safety and Health Policy to implement our safety governance framework. The TNB Health, Safety and Environment Management System (HSEMS) has progressively been cascaded across divisions to ensure standardisation of HSE management and governance across the Group.

Since the introduction of HSEMS in year 2019, rolldown to divisions and subsidiaries are still ongoing. Along with that, HSE Corporate Audit has been conducted at a few divisions/departments to measure compliance status based on HSEMS elements.

The TNB Group HSE Council, which is supported by division-level HSE Committees, convenes quarterly to discuss safety performance, mitigation measures and the overall strategic direction for HSE management at TNB.

##### Key highlights for FY2022 include :

- HSE Corporate audit has been conducted for TNB divisions to measure compliance based on HSEMS elements.
- TNB Stop Work Policy has been reviewed and endorsed by our CEO on 30 August 2022.
- Three (3) TNB HSE Council was held quarterly as a form of HSE top management review platform. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> meeting was conducted on 4 February 2022, 28 April 2022 and 31 October 2022.
- Contractors under the Distribution Network Division are required to provide safety quality assurance through self-declaration of safety compliance before commencing work.

##### Accident reduction programmes

The TNB Safety Information System (TSIS) captures reports of incidents and near misses which are then investigated for corrective and preventive actions for improvement to be identified and taken. The Intervention Stop Work (ISW) programme was developed to ensure our workers are able to safely remove themselves from work situations that they believe could cause injury or ill health.

##### Key highlights for FY2022 include :

- Endorsement of Intervention Stop Work (ISW) guideline. Through this guideline, all TNB employees and contractors can rightfully issue a stop work order at any premise or workspace, given that any unsafe behaviour, unsafe conditions, or regulatory non-compliance are detected.
- *Ops Sikap* is an initiative that has been proposed during HSE Lab 2022. The purpose of implementing this initiative is among the identified quick wins to maintain LTIF performance until the end of 2022 by monitoring HSE compliance at work sites. In FY2022, 15 inspections were carried out and four (4) stop work orders were issued. The results of this initiative showed positive outcomes as the LTIF ratings in November 2022 stood at 0.86 and decreased to 0.82 in December 2022. HSE Compliance among staff has improved over time. However, there is still a lot of room for improvement for HSE compliance by contractors. All staff and contractors are encouraged to continue practicing safe work practises to reduce the risk of accidents at the work site.
- A webinar on Fatigue Management was held to educate staff on ways to manage fatigue and work stress to subsequently improve their work quality.
- SUTRa (Station Under The Radar) is a new initiative introduced to assist business units, zones and sub-zones to increase the level of compliance with legislation and Distribution Network's (DN) internal directives towards the achievement of zero fatal accidents in DN. It was carried out in key locations, namely Kelantan and Kedah. This initiative resulted in TNB receiving no compounds or lawsuits in year 2022 in these locations.



## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPHASIS ON HEALTH, SAFETY AND WELL-BEING

#### EMERGENCY RESPONSE – FLOOD

We intensified our flood preparations as the country received warnings of flash floods across the country from the Department of Meteorology. Since July 2022, we undertook efforts to reduce water levels in hydroelectric dams, construct retaining walls at the entrance of main intake substations and raise the level of equipment platforms at identified flood prone areas. These steps will assist in preventing flood damage to TNB's operations. Machinery and assets, such as mobile and portable generators, were also put on standby and ready to be deployed when needed. Additionally, employees undergo flood response training even before the start of the monsoon season to ensure that they are able to handle unprecedented situations in case of emergency. Personnel from DN division were engaged as part of the Security Emergency Team to provide round-the-clock assistance to affected customers.

As flood levels rose in several areas of Peninsular Malaysia, we took proactive measures to shut down affected power substations, due to safety considerations. We are saddened to report that an incident involving electrocution of three (3) people occurred on 19 December 2022. This incident happened while they were wading floodwaters near their house in Tumpat, Kelantan. Members of the public are reminded to exercise caution to avert electrical hazards during floods and report to TNB for further action. We have also published flood safety guidelines on our online platform for public action.

#### EMERGENCY RESPONSE – EQUIPMENT FAILURE

This year, an isolated case of blackout caused by equipment failure in one of our substations had caused blackouts in several parts of the country. The blackout occurred in July and had affected our customers in several areas of Klang Valley, Negeri Sembilan, Penang, Pahang and Johor. Power was restored within 20 minutes from the occurrence of the incident. The quick restoration of power supply proved that TNB's continued improvement of the national grid supply, including our smart grid, is able to overcome problems of power supply efficiently. An investigation was carried out by Energy Commission on this incident and has confirmed that TNB was clear from any misconduct and adheres to its best practices and maintenance schedule.

#### EMERGENCY RESPONSE – CREW FATALITY

On 18 April 2021, a fatality incident involving Distribution Network division's field crew member occurred in Kuala Lipis, Pahang. The crew member was electrocuted while working on an electric pole. The victim was given emergency CPR rescue until paramedics arrived. The victim was rushed to the hospital for further treatment and passed away on the same day.

Measures were quickly taken to ensure no reoccurrence of a similar incident, whereby all DN division workers were ordered to stand down by Chief Distribution Network Officer (CDNO). An Incident Alert report was issued on the next day together with a stop work order also issued for all electrical work by DN division nationwide to ensure the safety of workers while tools and equipment were inspected.

The incident case has since been concluded. Contributions from Tabung Prihatin DN were channelled to the victim's family by Head of Zone Asset (HoZA) East on 29 April 2021 to assist the family.

### OUR PERFORMANCE IN FY2022

We have seen an improvement in our safety performance reflected by the decrease in our Group-wide Lost Time Injury Frequency (LTIF) from 1.03 in FY2021 to 0.82 in FY2022.

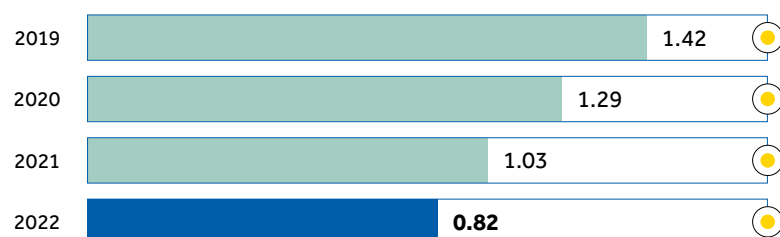
Indicators	2019	2020	2021	2022
Lost Time Injuries (LTI) Frequency Rate of employees	1.42	1.29	1.03	0.82
Fatalities of employees	2	1	2	0
Lost Days Severity Rate (per million-man hours)	153.14	93.09	87.12	16.69

## ENGAGING OUR PEOPLE AND CULTIVATING TALENT

### EMPHASIS ON HEALTH, SAFETY AND WELL-BEING

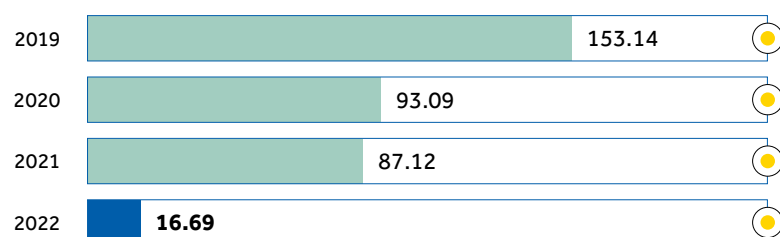
#### LOST TIME INJURIES (LTI) FREQUENCY RATE OF EMPLOYEES

(Per million-man hours)

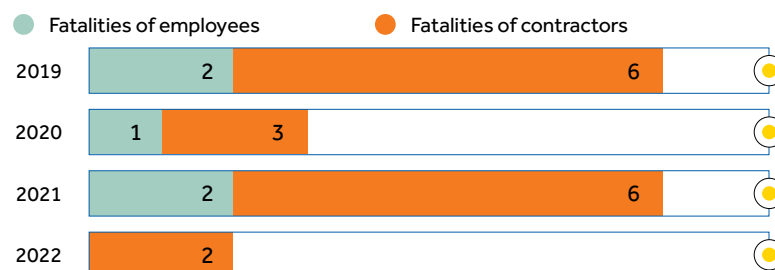


#### LOST DAYS SEVERITY RATE OF EMPLOYEES

(per million-man hours)



#### NUMBER OF FATALITIES



Total Recordable Incident and Number of Potential Incident Reported for FY2022.

Indicators	2022
Total recordable incident	120
Number of Potential Incident Reported	263,900

In 2022, 12% (4,047) of total employees completed HSE trainings, achieving a cumulative of 27,252.5 training hours.

Training	2019	2020	2021	2022
Number of employees completed HSE training	4,539	1,027	5,943	4,047
Percentage of employee trained	16	4	22	12
Training Hours	69,190	16,813	103,225	27,253

We also reduced motor vehicle accidents from 45 cases in FY2021 to 27 cases in FY2022. Meter reading accident also reduced by 50% this year.

We are however deeply saddened to report that there were two (2) work-related fatalities this year involving two (2) contractors. In our efforts to mitigate these events in the future, we are enhancing our safety procedures and conducting more safety awareness and training sessions across the Group. These include :

- Enhancing safety management procedures, especially for contractors
- Strengthening competencies of contractors
- Continual improvement of our eHSE online system

#### SUPPORTING EMPLOYEES HEALTH AND WELLNESS

As part of our commitment towards Environmental, Social & Governance (ESG) initiatives, TNB encourages our employees to lead an active lifestyle that will nurture good health, promote work-life balance and overall well-being.

Various wellness initiatives conducted for our employees such as :

- Basic health screening for all our employees nationwide to monitor their health status.
- Subscription to the BookDoc mobile application to encourage employees to be active by tracking their daily steps.
- Anugerah Piala Presiden – An annual TNB-wide awards ceremony to reward top steppers in various categories.
- Wellness Wednesday programmes in collaboration with our panel hospitals on health-related topics.
- Empower Your Health programmes to encourage a healthy lifestyle among TNB employees.

In recognition of our commitment and initiatives to improve our employees' well-being, TNB has won Gold in the Activ@Work Challenge Perkeso Award for three (3) consecutive years in a row. This award is presented by the Social Security Organisation (PERKESO).

# CREATING SHARED VALUES WITH COMMUNITIES

## CREATING SHARED VALUES WITH COMMUNITIES

### Feature Story 7

### ENHANCING THE WELL-BEING OF ORANG ASLI COMMUNITIES



As part of TNB's continuous goals to build sustainable communities, we have launched a new initiative to provide scholarships to Orang Asli children. This special scholarship will provide monetary assistance to help Orang Asli children from B40 households to further their studies up to tertiary level. It is also part of TNB's commitment to improve the lives of Orang Asli settlement communities living near TNB operation centres.

The Jabatan Kemajuan Orang Asli (JAKOA) were roped in to propose potential scholarship receivers and 10 students were chosen to be enrolled into business and accounting programmes at Diploma levels in UNITEN's Sultan Haji Ahmad Shah Campus (KSHAS). Through this initiative, TNB aspires to uplift the communities through higher education and open up more job opportunities in order to deliver improvement in socioeconomic levels, towards a better future.

In addition to our decarbonisation initiative, Nenggiri Hydroelectric Project (HEP) engaged the local communities including the Orang Asli communities residing in Gua Musang, Kelantan with the aim to positively impact these communities in our operating areas. During the development phase, we will continue to ensure that their welfare and well-being are addressed within our best capabilities. The project will address several issues that have been plaguing the area, such as reducing the impacts of floods in the state, improving irrigation systems and clean water supply, as well as better access to amenities, jobs and entrepreneurial opportunities. TNB continues to engage with stakeholders, such as local communities and regulators to ensure their interests and concerns are communicated and taken care of. This project will also align with the government's agenda of increasing green power generation from RE sources.

## CONTRIBUTING TO COMMUNITY DEVELOPMENT

We believe in building the nation through provision of reliable and affordable electricity, as well as contributions that engage and develop the community. We aspire to drive progress and bring positive impact in the community through our various programmes.

In FY2022, we invested a total of RM12.20 million into community programmes which were allocated according to the four (4) focus areas of :

### SOCIAL



We believe that capability, social and community development supports livability and enhances livelihood by uplifting the economic and social quality of life.

**FY2022 Contributions :**  
**RM4.27 million**

### ENVIRONMENT



We believe that the future of our planet and next generation depends on our responsible behaviour today.

**FY2022 Contributions :**  
**RM0.48 million**

### GOVERNANCE



We believe that education can transform lives of not just one individual but families and generations.

**FY2022 Contributions :**  
**RM2.27 million**

### SPORTS



We believe that sports play an important role to unify our community and build a healthy nation.

**FY2022 Contributions :**  
**RM5.18 million**

## CREATING SHARED VALUES WITH COMMUNITIES

## CONTRIBUTING TO COMMUNITY DEVELOPMENT

## ECONOMIC AND SOCIAL TRANSFORMATION

We strive to accelerate growth in local communities by conducting initiatives parallel to the needs of the people.

## Community and Rural Development

## Rural Electrification (BELB) Programme



TNB, with support from Ministry of Rural And Regional Development, supplies power to rural areas such as villages and Indigenous People settlements that are not within the operational area of local authorities through the Rural Electrification Programme (BELB). We connect these villages to our grid lines, where possible. For settlements too remote to be connected to our grid lines, we utilise off-grid alternatives such as solar hybrids, generator sets and mini hydro. In FY2022, we have improved connectivity of around 18 villages.

## Village Street Lighting (LJK) Programme



The government introduced the Village Street Lighting (LJK) programme in 2002 with the purpose to ensure public areas in remote villages are well lit at night, facilitating community safety. Since 2002, 420,696 streetlights were successfully installed.

## Sumbangan Kendaraan Terpakai

Through this initiative, TNB spent RM205,837 to acquire and donate six (6) used vehicles, consisting of one (1) pick-up truck, four (4) funeral vans, and one (1) passenger van to underprivileged communities and NGOs.

Through this initiative, TNB spent

**RM205,837**

to acquire and sustainability

donate

**6**

used vehicles

consisting of

**1**

pick-up truck

**4**

funeral vans

**1**

passenger van

## Sumbangan Komputer Riba Terpakai

This initiative was introduced to provide laptops and tablets to students from low-income families. TNB contributed RM40,700 for this initiative.

## Pos Kawalan Tempat Kejadian (PKTK) in Lembah Bertam, Cameron Highlands

As a contribution to the local community of Lembah Bertam, Cameron Highlands, TNB allocated RM2.58 million to construct a multipurpose hall that will serve as a community centre and emergency assembly point for the local community during floods or other natural disasters. This hall includes facilities such as a covered futsal court, operations room and prayer room. The facility, which will be managed by the Cameron Highlands District Council (CHDC), was handed over in 2022. As of FY2022, RM2.41 million has been spent on the development of this project.

TNB contributed

**RM40,700**

for Pos Kawalan Tempat Kejadian (PKTK) in Lembah Bertam, Cameron Highlands

## CREATING SHARED VALUES WITH COMMUNITIES

### CONTRIBUTING TO COMMUNITY DEVELOPMENT

#### Promoting Energy Efficiency

##### LED Streetlight Replacement Programme

Since 2018, we have begun replacing High-Pressure Sodium Vapour streetlights with LED lights which are more cost and energy efficient. The lower wattage from LED lights resulted in an estimated kWh and cost savings of about 30%-40%. In FY2022, this initiative was introduced in 10 more cities, with an additional 50,866 lights installed across Peninsular Malaysia, bringing the cumulative total up to 595,427 units.

The lower wattage from LED lights resulted in an estimated kWh and cost savings of about

**30%-40%**

#### Providing Homes for Community Well-Being

##### Home for the Needy



Through our Home for the Needy programme, we have helped refurbish and build new homes for 40 families, mainly B40 communities and hardcore poor including single parents, senior citizens and differently-able individuals. In FY2022, we spent RM1.26 million on this initiative. This programme is carried out under two (2) concurrent projects namely Program Baiti Jannati (PBJ) and Program Mesra Rakyat (PMR). To date, we have contributed more than RM31.11 million and provided 1,287 new and refurbished homes to the needy.

##### Better Brighter Shelter



Through this programme, we provided accommodation facilities to family members of those who have come from rural areas to receive medical treatment in the city such as dormitories and transit homes. This service is provided to the underserved communities from rural areas or the outskirts of Kuala Lumpur. We partnered with Melaka Hospital's National Welfare Foundation, the National Heart Institute (IJN) Foundation and Melaka Hospital. In FY2022, around RM245,000 was allocated for this programme, with a breakdown of RM200,000 and RM45,000 spent on IJN and Melaka Hospital respectively.

### ENVIRONMENTAL SUSTENANCE PROGRAMMES WITH THE COMMUNITY

Conservation of the environment and natural resources is crucial in safeguarding both the diversity of flora and fauna, as well as the livelihoods of surrounding communities.

TNB's environmental sustenance programmes conducted are as follows :

#### Mangrove Planting Programme

As a part of our reforestation efforts, we conducted the second phase of mangrove planting programme which started in FY2021. The second phase involved planting 2,000 mangrove trees at Sg Limau, Manjung, Perak with a cost of RM100,062.



## CREATING SHARED VALUES WITH COMMUNITIES

### CONTRIBUTING TO COMMUNITY DEVELOPMENT

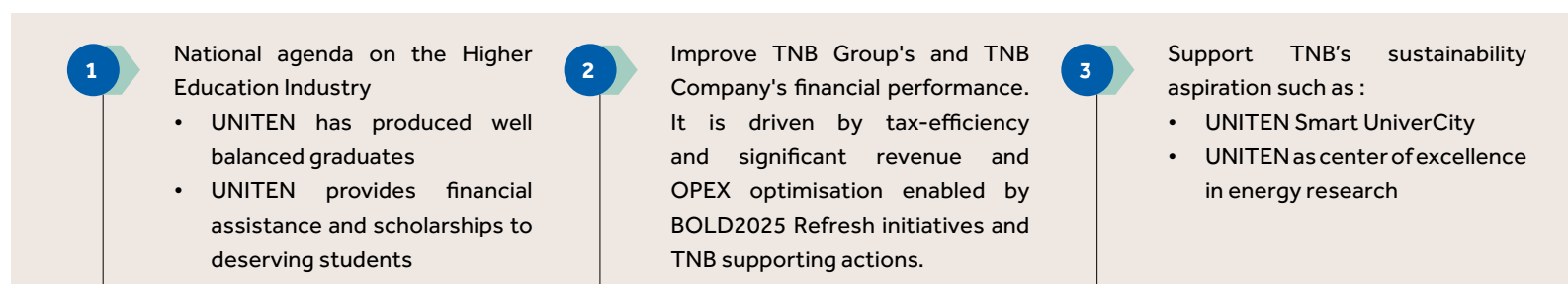
#### TRANSFORMING LIVES THROUGH EDUCATION

In FY2022, we continued our commitment to provide accessibility to quality education through significant investments in our key educational institutions – UNITEN, TNB ILSAS, Yayasan Tenaga Nasional (YTN).

#### UNITEN – THE ENERGY UNIVERSITY

The establishment of UNITEN in 1997 exemplifies TNB's unwavering commitment to provide top-notch education to the masses, aimed at producing a generation that is competitive, innovative and resilient in the long run. As part of its BOLD2025 Refresh strategic plan, UNITEN is dedicated to supporting TNB in realising this vision by offering a diverse range of academic programmes, including Engineering, Computer Science & Information Technology, Business & Accounting and Energy Economics. The university also provides cutting-edge teaching and learning facilities on campus. BOLD2025 Refresh has five (5) primary objectives – Ranking, Enrolment, Teaching, Research and Financials – and results for FY2022 show that all the five (5) goals have been accomplished.

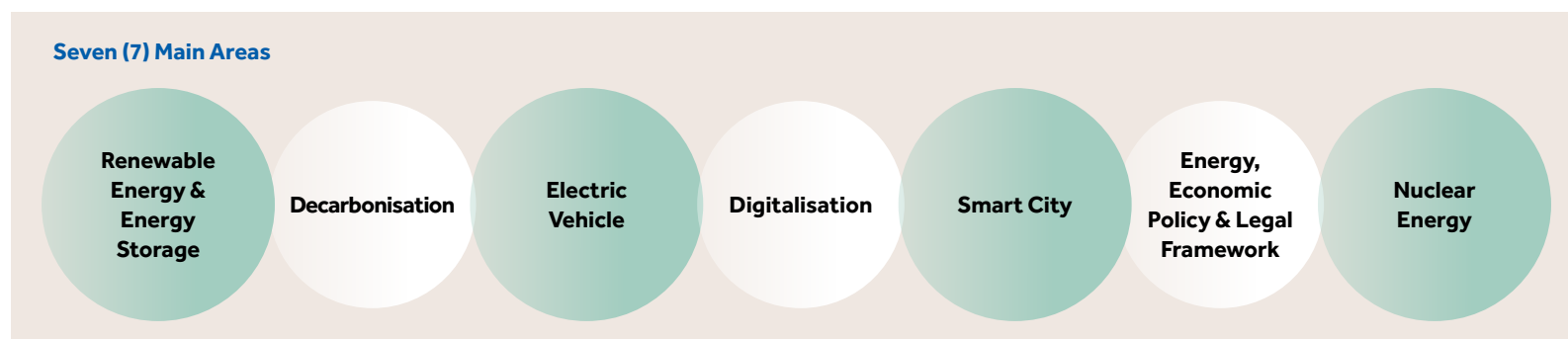
BOLD2025 Refresh is a strategic plan that comprises three strategic goals : teaching and learning excellence, research excellence and financial sustainability. Through this BOLD2025 Refresh, UNITEN contributes to TNB in aspect of :



UNITEN is also embarking on energy-related research that facilitates the solution to any operational challenges faced by TNB and the industry, as well as creating wealth from innovation. Through its financial ecosystem that involves *Yayasan Canselor UNITEN* (YCU) and *Tabung Amanah Zakat UNITEN* (TAZU), UNITEN is able to offer various scholarships and financial assistance for students to pursue their studies at UNITEN, which addresses the nationwide issue of affordability in tertiary education.

In June 2022, UNITEN established the National Energy Excellence Centre (NEC) to strengthen energy transition. This centre of excellence aims to cover issues of climate change, sustainable development and renewable energy (RE) at the national and global levels. NEC will play a strategic role in strengthening Malaysia's commitment to make the country carbon

neutral as early as 2050 and meet TNB's aspirations of achieving net zero emissions by 2050. NEC as National Key Labs will form a Strategic National Energy Framework with the target of Malaysia as an energy hub and industry players having the opportunity to become strategic partners by opening a branch or satellite incubator laboratory. Currently, UNITEN has five (5) centres of excellence namely; Institute of Sustainable Energy (ISE), Institute of Power Engineering (IPE), Institute of Energy Infrastructure (IEI), Institute of Energy Policy & Research (IEPre) and Institute of Informatics & Computing in Energy (IICE). These centres will be incorporated in the National Key Labs which will encompass other universities, local and abroad, with HICoE standard or equivalent. NEC will be focusing on seven (7) main areas :





## CREATING SHARED VALUES WITH COMMUNITIES

### CONTRIBUTING TO COMMUNITY DEVELOPMENT

This year, UNITEN awarded RM6.81 million to a total of 1,361 recipients, a decrease from the RM6.79 million awarded to 1,766 students last year.

#### UNITEN FUNDING AND SCHOLARSHIPS

UNITEN BRIGHT Scholarship	UNITEN BRIGHT B40 Scholarship	UNITEN Merit 50% KSHAS Scholarship	Dana Pendidikan UNITEN	Projek Perintis APEL MBA UNITEN
UNITEN BRIGHT/MERIT-Dato Low Tuck Kwong Scholarship	<i>Dermasiswa Yayasan Canselor UNITEN (YCU)</i>	<i>Biasiswa Pelajaran Tabung Amanah Zakat UNITEN (TAZU) (B40)</i>	<i>Biasiswa Pelajaran *TAZU (YPPB)</i>	<i>Biasiswa Pelajaran TAZU (BPT)</i>
<i>Dermasiswa B40 JPA in cooperation with YCU</i>	<i>Biasiswa UNITEN (Postgraduate) Master Talent</i>	<i>Biasiswa UNITEN (Postgraduate) PhD Talent</i>	<i>Biasiswa UNITEN (Postgraduate) Master Excellence</i>	<i>Biasiswa UNITEN (Postgraduate) PhD Excellence</i>

*\*Danasiswa Pensijilan Tahfiz TAZU (MARA)  
(Formerly known as *Dermasiswa Pelajar Cemerlang*)*

### UNITEN PERFORMANCE IN FY2022

**1,570**

graduates from UNITEN

**144<sup>th</sup>**

in the QS Asia University Rankings 2023

**96.78%**

employability rate

U.S. News & World Report

**Best Global Universities**

for Engineering 2022 #189  
(2021 edition : #227)

Among

**top 1%**

Nine (9) UNITEN researchers ranked in the top 1% by citations for fields and publication year in the Web of Science %<sup>TM</sup>

Four (4) UNITEN researchers ranked

**Top 2%**

Scientists Worldwide 2022 by Elsevier

Ranked

**#751-800**

among universities around the world by QS World University Rankings 2023

Ranked

**#2**

among ASEAN universities by Applied HE Private University Rankings 2023

## CREATING SHARED VALUES WITH COMMUNITIES

## CONTRIBUTING TO COMMUNITY DEVELOPMENT

Key Activities	FY2022 Key Highlights
<b>TNB Corporate Integrity Health Index (IHI) 2.0</b>	<ul style="list-style-type: none"> <li>The Integrity Health Index (IHI) Dashboard was first developed in 2021 as a systematic method for information gathering to assess and ascertain TNB's standings on integrity issues. The second revamped version aims to broaden the scope of IHI to include other TNB stakeholders.</li> </ul>
<b>Student Information Management System (SIMS)</b>	<ul style="list-style-type: none"> <li>The Student Information Management System (SIMS) was developed for YTN. The system integrated the functionality that previously required the use of three separate systems - Microsoft Great Plains (MSGP), MicroPac and Legal Management System (LMS).</li> </ul>
<b>Blueprint for Electrifying Public Transportation (Studies For Ministry Of Transport As Part Of TNB's EV Advocacy Programme)</b>	<ul style="list-style-type: none"> <li>The aim of this project is to develop a blueprint for electrifying public transportation. This includes conducting benchmarking studies on best practices of EV infrastructure development and electricity pricing. The study will encompass the evaluation towards social, economic and technological aspects of EV adoption in Malaysia. It also provides policy recommendation related to the economic viability of electrifying TNB's fleet of vehicles.</li> </ul>
<b>Power Studies For the Construction and Completion of LRT3 from Bandar Utama to Johan Setia</b>	<ul style="list-style-type: none"> <li>This project aims to provide design services for the power supply and distribution system of LRT3. The main scope and responsibility of this project is to perform simulation studies and analysis in the power supply and distribution system which includes, Alternating Current (AC) simulation, harmonics, protection coordination, insulation coordination, substation earthing/touch potential, lightning protection and electromagnetic compatibility studies.</li> </ul>

## TNB INTEGRATED LEARNING SOLUTION SDN. BHD. (ILSAS)

TNB ILSAS is a premier training institution for professionals in the wider power and utility industry and the official training institute for Tenaga Nasional Berhad (TNB). All of the technical capability development programmes conducted by ILSAS are in line with the Malaysia standard requirements. The training modules in ILSAS are also accredited by City & Guilds UK (for technical programmes) and Institute Leadership & Management (ILM) UK (for leadership & management training modules).

The ILSAS International Conference on Learning & Development 2022 (ICLAD2022) is an initiative designed to support the ASEAN Sustainability Pathways 2050 and serves as platform to spread awareness of ESG for a sustainable future. ICLAD aims to be the leading platform for people from various vocations to learn, discuss, present and build network with subject matters experts around the world. The 6<sup>th</sup> ICLAD conference was held on from 29 November to 1 December 2022 with the theme "Towards Energy Transition : Harmonizing With The New Norm".

The main objectives of ICLAD2022 are :

1. To support the ASEAN Sustainability Pathway 2050 and awareness of ESG for a sustainable future.
2. To equip participants with the relevant knowledge and chance to listen to different points of view, learn new ideas and trends in ESG matters from other organisations.
3. To encourage leaders and participants from other organisations to meet and establish collaboration early through networking and exchanging of ideas.
4. To elevate the motivation amongst participants to build in confidence to lead and contribute towards organisation to become a global company.
5. To provide participants with the necessary skills such as research, public speaking, critical thinking, creative thinking, system/apps development to be able to compete in the modern labour market.

2,071 participants attended the conference, with 15 keynote guests presenting at the event. The event is designed with the main objective to support the ASEAN Sustainability Pathways 2050 and an awareness of ESG for a sustainable future. We are delighted with the collaboration with PT Perusahaan Listrik Negara to co-organise the event in which strengthened the relationship between the two national utility companies.

## CREATING SHARED VALUES WITH COMMUNITIES

## CONTRIBUTING TO COMMUNITY DEVELOPMENT

## Key Highlights

In FY2022

6<sup>th</sup>

ILSAS International Conference on Learning and Development (ICLAD) was conducted under a hybrid mode and received commendable feedback from participants

Received

## Malaysia's Best Technical & Vocational Education & Training (TVET) Institution (Sustainability) 2022 Award

by Education &amp; TVET Asia

Won the Malaysia Education &amp; TVET Awards (META) 2022 for

## Malaysia Best TVET Institution (Sustainability) category

288

employees with

133

trainers

50,912

individuals trained

Received the Energy Institute Awards 2022 for

## Talent Development & Learning Category

by Energy Institute (UK)

8<sup>th</sup> Annual International Smart Grid Action Network (ISGAN) Awards (USA)  
Excellence in Smart Grid Workforce Development (Honorable Mention)

3<sup>rd</sup> place

TNB Reskilling Malaysia – In Supporting AIMI Workshop Development Programme

Intelligent Cloud Base VR LMS Technical Competency Assessment Solution

## Selangor R&D and Innovation Expo (SRIE) 2022 Award

## YAYASAN TENAGA NASIONAL (YTN)

Yayasan Tenaga Nasional (YTN) was established with the mission to transform lives through excellent education opportunities. Since its inception in 1993, YTN has been governed by a Board of Trustees and an organisation committee to provide financial assistance through the award of scholarships and study loans to suitable candidates based on merit to pursue higher education locally and abroad. To date, we have invested over RM1.80 billion in and helped over 20,500 students achieve their dreams.

The My Brighter Future (MyBF) Program is one of the initiatives set up under YTN which aims to provide opportunities to marginalised youth and families in the B40 bracket to pursue tertiary education in Science, Technology, Engineering & Mathematics (STEM) and TVET at any of seven (7) selected public universities, community colleges and polytechnic institutions in Malaysia. The MyBF Program covers tuition fees, boarding and living expenses of recipients pursuing tertiary education.

## CREATING SHARED VALUES WITH COMMUNITIES

## CONTRIBUTING TO COMMUNITY DEVELOPMENT

## Key Highlights

In FY2022

**RM45.90  
million**in financial aid provided to MyBF  
scholars**4,354**students benefitted from MyBF  
scholarshipsYTN provided a total of **RM101  
million to 5,753  
recipients**through financial aid  
and scholarship

Initiated a new student development program named

**PRIME (Professional, Reliable,  
Innovative, Marbel and Edge)**

under the MyBF Student Development Program. The objective of this programme is to build up competencies based on actual experience by students in doing social business, CSR and digital marketing.

**Scholarship  
for Orang Asli  
children**was established to provide financial  
assistance in education.

## Support for Education and Sports

**Program Ceria ke Sekolah Programme**Every year, TNB holds the *Ceria Ke Sekolah* Programme to provide the primary school students from low-income families with adequate school supplies such as school uniform, shoes, socks, school bag and stationeries. In FY2022, 4,874 students benefitted from RM1 million channelled by TNB into this programme.**PINTAR School Adoption Programme**

The PINTAR School Adoption Programme was continued in FY2022 with 11 primary schools adopted across Peninsular Malaysia. TNB allocated RM315,000 for three (3) years (until FY2023) under this programme. This year, we allocated RM318,000 for the programme, involving 150 students from standard four (4) class.

**TNB Prime Scholarship**

This education fund was established to sponsor high academic achievers regardless of household income group to further study overseas, in UNITEN and in public universities, benefitting 128 students.

## CREATING SHARED VALUES WITH COMMUNITIES

### CONTRIBUTING TO COMMUNITY DEVELOPMENT

#### Support for Education and Sports



##### TNB Shine Sponsorship

This programme provides education loan assistance for average academic achievers regardless of household income group to study in UNITEN, public universities and polytechnics around the country, benefitting 783 students.



##### Biasiswa Khas TNB for Orang Asli Children

This scholarship serves as a contribution from TNB to the local indigenous communities, especially for Orang Asli communities living in settlement locations near TNB's operational centres such as power stations and others. 10 students were sponsored to further their studies in business and accounting fields at Diploma level.



##### National Hockey Development and Thunderbolts Programme

Through this programme, TNB employees who were former national hockey players volunteered to coach promising students from *Sekolah Sukan Bukit Jalil in Kuala Lumpur, Sekolah Sukan Tunku Mahkota Ismail in Johor, Sekolah Menengah Kebangsaan Seberang in Temerloh, Pahang, Sekolah Menengah Kebangsaan Anderson in Perak and Sekolah Menengah Kebangsaan Pengkalan Permatang in Kuala Selangor, Selangor*. Since its inception in 2006, this programme has successfully nurtured several national hockey players and in FY2022, we contributed RM5.18 million.

### ENGAGING INDIGENOUS PEOPLE

Engaging with the communities we serve, including Indigenous Peoples or Orang Asli communities, is a fundamental commitment of TNB.

#### INITIATIVES TO ENGAGE INDIGENOUS COMMUNITIES

We actively engage communities, including the Orang Asli communities, who live near our operation sites and roll out initiatives with the purpose of protecting their well-being and generating socioeconomic benefits. To provide educational assistance to them, TNB has also set up a new scholarship fund to be distributed to underprivileged Orang Asli children. This makes education accessible to the Orang Asli and thereby providing an opportunity to alleviate their living standards and pursue ambitious academic and career goals.

