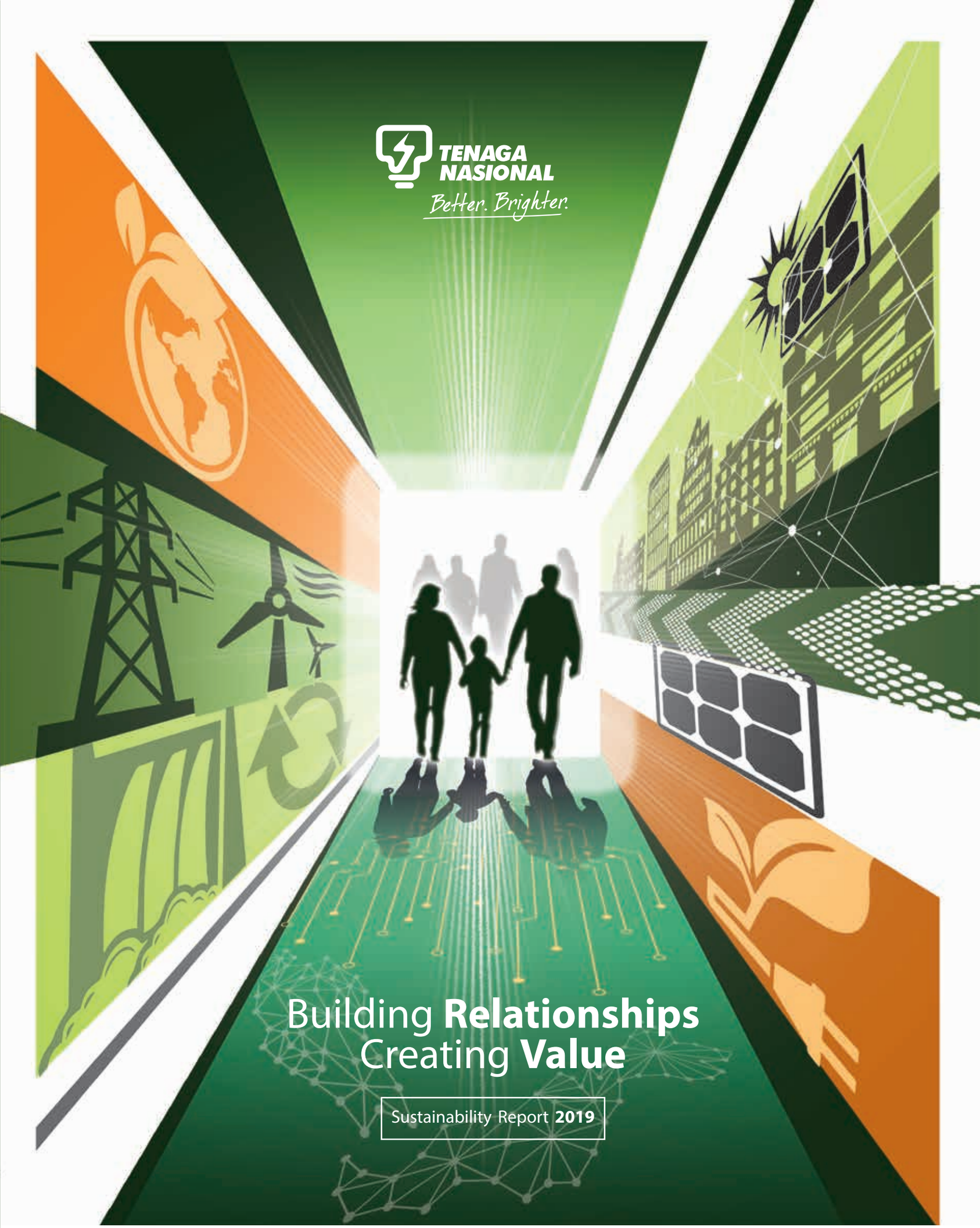


Building **Relationships** Creating **Value**

Sustainability Report **2019**

Inside this Report

SUSTAINABILITY REPORT

1 About This Report

2 President/Chief Executive Officer's Message

6 About TNB

8 Our Value Chain

10 Sustainability at TNB

SPIRIT OF RESPONSIBILITY

18 Our Governing Principles

EMPOWERING THE NATION

22 Delivering Sustainable Value

35 Feature Story: Reliable Energy With Affordable Tariffs

36 Customer Centricity

41 Feature Story: Smart Meters

ENVIRONMENTAL STEWARDSHIP

42 Minimising Environmental Impacts

46 Climate Change

51 Feature Story: myGreen+ And mGATs

EMBRACING RELATIONSHIPS

52 Enhancing Capabilities

62 Prioritising Health, Safety And Personal Well-Being

68 Strengthening Partnerships Brightening Surrounding Communities

70 Feature Story: Rural Electrification

81 Feature Story: My Brighter Future

82 Performance Table

94 GRI Standards Aspect Boundary

95 GRI Standards Content Index

Sustainability Report

At Tenaga Nasional Berhad (TNB), we believe that sustainability is integral to our strategy to be amongst the top utility companies globally. We are committed to operating as a socially and environmentally responsible organisation, nurturing world-class talents and harnessing innovation and technology for continuous growth.

ABOUT THIS REPORT

This is our third annual Sustainability Report, in which we aim to provide clear and transparent information on how we manage our material sustainability matters. We also include our performance, targets and initiatives that are integrated within our corporate and sustainability strategy. Moving forward, we will continue to reflect on our sustainability management and make commitments to our ever-evolving sustainability journey to create and maintain long-term value for our stakeholders.

Our sustainability pillars are the cornerstone of sustainability at TNB:

Governance

Marks our commitment, driven by our Board to reinforce ethical business practices and forward-looking culture under the theme ***'Spirit of Responsibility'***.

Economic

Defines our continued aspiration to provide reliable and efficient energy in the local and international Electricity Supply Industry (ESI) for a better and brighter future under the theme ***'Empowering the Nation'***.

Environmental

Defines our commitment to minimise our environmental impact wherever we operate under the theme ***'Environmental Stewardship'***.

Social

Revolves around how we develop long-term and meaningful relationships with our customers, employees and communities to enhance their trust under the theme ***'Embracing Relationships'***.

This report should be read in conjunction with TNB's Integrated Annual Report (IAR) 2019 and Corporate Governance and Financial Statements (CGFS) 2019, which provide more detailed information on our business and operations. Key sustainability initiatives and performance highlights across our sustainability pillars can also be found in the Sustainability Statement section of our IAR 2019.

REPORTING FRAMEWORK

This report has been prepared in accordance with the GRI Standards: Core option and the supplement dedicated to Electric Utilities (EU) issued in 2013 by the GRI (Electric Utilities Sector Disclosures). It also refers to Bursa Malaysia Securities Berhad's ("Bursa Malaysia") Main Market Listing Requirements and Bursa Malaysia's Sustainability Reporting Guide 2nd Edition. This report discloses various qualitative and quantitative data on our economic, environmental and social performance as we continue to align our sustainability practices to the United Nations Sustainable Development Goals (UN SDGs). Additionally, we are currently studying the adoption of Task Force on Climate-Related Financial Disclosures (TCFD) framework.

As we progress in our sustainability reporting journey, we aspire to implement best practices for our sustainability disclosures. We have sought external assurance for our financial data only. We acknowledge the credibility of independent verification and will review the need to engage an external assurer for our report in the coming years.

REPORTING SCOPE AND BOUNDARY

The scope and boundary of the information in this report covers TNB's key business, mainly comprising:

- TNB Company, which is defined as all TNB divisions. We have highlighted instances where the scope has been extended to TNB Group, which covers TNB Company and its subsidiaries
- Operations in Peninsular Malaysia

We have also indicated where our disclosures cover international operations. The scope excludes joint ventures and supplier activities, unless otherwise stated.

For more information on the boundary of our material matters, please refer to GRI Standards Aspect Boundary on page 94.

REPORTING PERIOD

The reporting period covers TNB's Financial Year of 2019 (FY2019), which is from 1 January 2019 to 31 December 2019. Where data for FY2019 is not available, the most recent data is provided. Our last sustainability report was published in August 2019.

For comparative purposes, three (3) years of historical quantitative data are disclosed for selected indicators. Following a change in TNB's financial period in 2017, sustainability performance data for the period 1 September 2017 to 31 December 2017 are also disclosed in this report. This is denoted in the relevant quantitative data disclosures.

We value our stakeholders' feedback to continuously improve our reporting and sustainability practices. Should you have any comments or queries regarding this report, please write to the Head of Sustainability at sustainabilityhq@tnb.com.my.

President/Chief Executive Officer's Message

DATUK SERI AMIR HAMZAH AZIZAN
President/Chief Executive Officer

We are pleased to present the third edition of TNB's Sustainability Report, where we share our progress and achievements in creating value for all our stakeholders across the four pillars of our Sustainability Strategy, namely Governance, Economic, Environmental and Social.

As the largest electricity utility in Malaysia, we play a significant role in nation-building, and are mindful of our responsibility towards our stakeholders. We are humbled and thankful for the privilege to touch millions of lives each day through our services and network. We are committed to catalyse positive outcomes through our sustainability initiatives, which are closely aligned with the interests and needs of our stakeholders.

THE INDUSTRY WE OPERATE IN

The global electricity supply industry is transforming as traditional utility business models are increasingly challenged by decarbonisation, decentralisation, digitalisation and deregulation, known as the "4Ds". In response, the industry has to demonstrate resilience through greater cost and energy efficiency as we adapt to open markets and invest in low-carbon energy generation while maintaining supply security.

In our 70 years of service, we have witnessed many transformations in our external environment and demonstrated the ability to adapt to change as well as industry reforms. Anticipating the current reform initiatives as far back as 2016, we developed proactive measures through a strategic 10-year blueprint to ensure TNB's relevance amid the changing landscape.

To support the Government and Regulators in the roll-out of MESI 2.0, we have provided the industry and market insights necessary for its design and implementation. During the year, we showcased the feasibility of the Government's vision for a liberalised fuel market by successfully procuring liquified natural gas (LNG) cargo through the Third Party Access (TPA) system. We also commenced preparations to establish our two (2) subsidiaries, TNB Power Generation Sdn. Bhd. and TNB Retail Sdn. Bhd. in 2020 and 2021, respectively. With their own dedicated board and management, these subsidiaries will further optimise our core operations and enhance our overall competitiveness in the market.

SAFEGUARDING AFFORDABILITY, SUSTAINABILITY AND SECURITY OF ELECTRICITY SUPPLY

To carefully balance the energy trilemma, we are committed to safeguarding the reliability of the electricity supply at affordable and fair tariffs, while minimising our environmental footprint.

In Malaysia, the cost of electricity, or tariff, is determined by the Government's Incentive Based Regulation (IBR) framework. Under IBR, the Imbalance Cost Pass Through (ICPT) is a mechanism that reviews tariffs every six (6) months to allow for the pass-through of changes in fuel and generation costs to customers in Peninsular Malaysia via surcharges or rebates. We strive to play our part to minimise costs and deliver the best possible tariffs to our customers. This is achieved primarily through efficient fuel procurement and operations. Tariffs are usually set over a three-year Regulatory Period (RP) and, in 2019, we submitted the RP3 (from 2021 to 2023) proposal to the Government. However, at the time of writing this Report, the Energy Commission and TNB are in discussions on the possibility of delaying the start of RP3 until 2022 in order to ensure continued accessibility of electricity supply in light of the uncertainties in the economy arising from the COVID-19 pandemic.

In FY2019, we have achieved significant progress in operational excellence, which is important in ensuring the reliability of our electricity supply for end users. We have our ongoing power plant assessments and upgrades to drive greater efficiency. Through the business turnaround programme, we continuously seek asset optimisation opportunities to improve the performance of our power plants. This year, we expanded the programme to include three (3) hydro and four (4) thermal plants, which has resulted in approximately RM123 million in cost savings.

We continue to grow our low-carbon generation portfolio, which comprises cleaner conventional assets and renewables to achieve our renewable energy (RE) target capacity of 1,700MW by 2025. Commercialisation of the Jimah East Power Plant in Port Dickson, Negeri Sembilan with a capacity of 2 x 1,000MW marks the expansion of our Ultra-Supercritical Coal-Fired (USC) power plants. Additionally, our Southern Power Generation combined-cycle gas turbine-Fired (CCGT) plant in Pasir Gudang, Johor, with a capacity 2 x 720MW, is now 98% complete. Both these plants utilise technologies that have higher thermal efficiencies compared to their conventional counterparts. We are also on track to complete and commercialise our second Large Scale Solar (LSS) plant in Bukit Selambau, Kedah, with an expected capacity of 30MW. As at end of 2019, this project was 87% completed.

Commercialisation of our Jimah East Power Plant in Port Dickson marks the expansion of our low carbon generation portfolio.

OFFERING INNOVATIONS TO OUR CUSTOMERS

Top priority is given to provide our customers with the best experience. We endeavour to meet and exceed their expectations through innovation in our solutions, which extend beyond kWh offerings. Our efforts have not been in vain, as reflected by TNB maintaining a commendable score of 8.1 in our Customer Satisfaction Index (CSI) for four (4) consecutive years.

We are channelling more focus towards digitalising our services by implementing smart solutions and services that would empower customers to manage their energy consumption more effectively. Through our Advanced Metering Infrastructure (AMI), we have deployed a total of 281,066 smart meters in Melaka and selected locations in Klang Valley.

Meanwhile, we are leveraging our fibre optic infrastructure to provide affordable access to high-speed broadband services through the National Fiberisation and Connectivity Plan (NFCP). The success of our pilot project in Jasin, Melaka has encouraged us to expand the roll-out of our high-speed broadband network infrastructure to Peninsular Malaysia.

We are also partnering with Government agencies and private companies to create a wider ecosystem for RE and energy efficiency (EE) investments amongst our customers. This year, we were pleased to see an increase in the uptake of RE self-generation through Net Energy Metering (NEM) and Supply Agreement for Renewable Energy (SARE). For NEM, our customer base has increased to 1,273, contributing to generation capacity of 74.5MW while through SARE, we secured 74 contracts with our commercial and industrial customers.

President/Chief Executive Officer's Message

Our second LSS project is currently under construction in Bukit Selambau, Kedah and it is expected to generate 30MW by end of 2020.

To further promote RE, we launched myGreen+ and the Malaysia Green Attribute Tracking System (mGATS) during the International Greentech and Eco Products Exhibition and Conference Malaysia (IGEM) 2019. myGreen+ allows customers to subscribe to green energy from the grid, facilitated by mGATS, a systematic platform that enables them to purchase Renewable Energy Certificates (REC) directly from RE generators. With approximately 700,000 RECs issued this year, we believe that this service will gain significant traction in times to come.

Additionally, we continue to improve our customer service by releasing an improved myTNB mobile application and portal as well as engaging with customers on EE solutions. We conducted 39 EE awareness programmes and campaigns to increase literacy and awareness for our customers and expanded it to include government agencies, NGOs, community leaders, universities, schools, as well as TNB employees.

ADDRESSING CLIMATE CHANGE AND TNB'S ENVIRONMENTAL FOOTPRINT

Over the years, the average annual temperature in Malaysia has steadily increased, giving rise to electricity demand. As this demand will only escalate, we have developed plans to help mitigate greenhouse gas (GHG) levels and redefined our "Greenhouse Gas" material matter to "Climate Change". This reflects our progressive efforts to address what has become one of the most pressing global issues.

Our newly-introduced GHG Emissions Management System (GEMS) enables us to effectively monitor and track our GHG emissions. We have successfully mitigated 5.38 million tCO_2e of GHG emissions in 2019. Moving forward, we are setting 2018 as our baseline year to help us formulate impactful emission reduction plans and targets. We are also studying the adoption of the Task Force on Climate-Related Financial Disclosures (TCFD) to better understand the risks and opportunities caused by climate change.

In line with the Government's low-carbon agenda, we have installed 29 electric vehicle (EV) charging stations nationwide this year, in collaboration with Malaysia Green Technology and Climate Change Centre (MGTC). We also planted over 4,200 mangrove saplings as part of our carbon mitigation and biodiversity restoration efforts. This is especially valuable to Malaysia as mangrove forests not only serve as natural carbon sinks, but they also protect coastal areas from erosion and tidal waves.

We are proactively managing the environmental footprint of our operations by working closely with the Department of Environment (DOE) to monitor our natural resource consumption and responsible waste management. Meanwhile, we continue to identify endangered animal species and monitor their population size within our areas of operation under our flagship biodiversity initiative, the International Union for Conservation of Nature (IUCN)'s Red List study. This year, we channelled approximately RM7.7 million to all study sites, including an additional site at the Sungai Perak Hydroelectric Station.

DEVELOPING A FUTURE-READY WORKFORCE

We strive to uphold our reputation as an "Employer of Choice", with our primary focus on employee development and well-being as this is integral in promoting agility and strengthens our preparedness for business transformation.

This year, our employees spent 1.09 million hours in our capability development programmes aimed at upskilling and cultivating future leaders. Through our Leadership Development Centre (LDC), we enrolled 32 employees into the Master of Business Administration (MBA) programme, offered by Universiti Tenaga Nasional (UNITEN) in partnership with Melbourne Business School, University of Melbourne, Australia.

In FY2019, we expanded the Division Academy platform to develop Subject Matter Experts (SMEs) in the Grid, Distribution and Retail divisions, in order to accelerate development of technical industry competencies amongst our workforce. In addition, our Transformation Accelerator Strategy has identified specific members of our workforce to spearhead value creation within TNB, in line with RT.

As part of promoting employees' physical and emotional well-being, our offices feature childcare facilities for peace of mind of young parents, as well as gyms and cafeterias certified as "healthy" by the Ministry of Health. We saw a total turnout of 18,360 employees in our TNB Family Wellness Days and no less than 11,800 employees have downloaded the BookDoc mobile application, which encourages a healthy lifestyle.

OUR ROLE IN NATION-BUILDING

As a responsible corporate citizen, we are committed to nation-building through capacity enhancement and socioeconomic upliftment. This year, we are proud to have contributed approximately RM40.25 million to our programmes and sponsorships.

Our university, UNITEN, which has achieved top 200 ranking amongst Asian universities, plays a key role in developing young talents and next generation of leaders through the provision of market-driven academic programmes, conducive campus environment and strong relationship with industries. Through our Institut Latihan Sultan Ahmad Shah (ILSAS), we support the Government's PROTÉGÉ programme by providing experiential training for graduates from B40 families. In addition, we offer financial assistance to underprivileged students through our Yayasan Tenaga Nasional (YTN) scholarships and convertible loans. In 2019, the second year of YTN's *Dermasiswa* My Brighter Future programme, we disbursed close to RM21 million in scholarships to 3,592 students pursuing tertiary studies in Science, Technology, Engineering and Mathematics (STEM).

At the same time, we continue to collaborate with Government agencies and foundations to support community development. We advocate equal learning opportunities by sponsoring educational fees and supplies for students from marginalised communities through our *Ceria ke Sekolah* and B40 Programme. We also facilitate accessibility to electricity through our Rural Electrification Programme and Village Street Lighting Project, which together have benefitted over 7,900 villages.

SUPPORTING THE SAFETY OF OUR PEOPLE AND THE NATION

As we produce this Sustainability Report, the world is grappling with the COVID-19 pandemic which is affecting lives and livelihoods. Due to the Movement Control Order (MCO) by the Government, there is great uncertainty as to the growth of our national economy, including the electricity supply industry. At the same time, it is critical that we ensure the security of supply during this difficult period, especially to hospitals and other providers of essential services, as well as to the majority of the population who are currently working from home.

While keeping the lights on, we have put in place all the necessary measures to protect the safety and well-being of our employees who continue to work, and also members of the community with whom they have had contact. We are proud of the commitment, diligence and enthusiasm demonstrated by our people in delivering our essential service nation-wide.

I would like to recognise and acknowledge those who continue to work tirelessly even as they face the risk of exposure to COVID-19 in order to ensure reliability and stability of electricity supply to the nation. This is a display of unparalleled bravery that I truly value and appreciate.

Aside from coordinating our workforce, TNB has pledged RM150 million to support the Government's Economic Stimulus package (PRIHATIN) which aims to reduce the financial strain on our customers. The investment will be directed to electricity bill rebates ranging from 15% to 50% for our domestic customers from the period of 1 April 2020 until 30 September 2020, and those amongst the B40 group will benefit from the highest rebate of 50%. We will do everything within our means to stand by the Government and the *rakyat* to get through this challenging time.

OUTLOOK

TNB will continue to integrate sustainability into our business strategy to ensure business resilience and drive stakeholder value creation. We look forward to the advancements in the industry as we believe that these will bring greater operational efficiency while promoting the nation's transition to a low carbon economy. Recognising that sustainability is a journey, we remain committed to aligning our sustainability strategy to the global efforts of the United Nation's Sustainable Development Goals (UN SDGs) to generate positive economic, environmental and social outcomes for all stakeholders.

Minister of Energy and Natural Resources, Datuk Dr Shamsul Anuar Nasarah visited National Load Despatch Centre and expressed confidence in the preparedness of TNB during the COVID-19 movement control order (MCO).

DATUK SERI AMIR HAMZAH AZIZAN
President/Chief Executive Officer

About TNB

TNB is the nation's leading electricity utility, with over 9.2 million customers from the domestic, commercial, industrial sectors, amongst others, primarily in Peninsular Malaysia.

We strive to develop innovative products and enhance our services by leveraging our technological and industry expertise. In doing so, TNB will be well-equipped for the evolving energy landscape. We take pride in contributing to nation-building through our role as Malaysia's main provider of reliable and affordable electricity, whether it is to homes, businesses or industries.

OUR VISION

TO BE AMONG THE LEADING CORPORATIONS IN ENERGY AND RELATED BUSINESSES GLOBALLY

OUR MISSION

WE ARE COMMITTED TO EXCELLENCE IN OUR PRODUCTS AND SERVICES

OUR BUSINESS AND OPERATIONS

Headquartered in Kuala Lumpur, our business activities represent the entire electricity production and supply value chain, comprising Generation, Grid, Distribution Network and Retail operations. We recognise how key factors, such as new technologies, increased market competitiveness, changing stakeholder expectations and climate change, will disrupt business as we know it. However, TNB is ready to meet these challenges as we expand our low-carbon electricity generation portfolio and focus on creating positive environmental and social change as we drive greater business sustainability.

OUR CORPORATE STRATEGY

We continue to drive Reimagining TNB (RT), a 10-year strategic plan from 2016 to 2025, to achieve our aspiration to become a leading global electricity utility. Based on four (4) key pillars, RT focuses on diversifying and decarbonising our generation sources, creating a digitalised, efficient grid, and offering the best customer service. With its implementation reaching the half-way mark, we are pleased with the progress made and feel confident that our strategy will position TNB favourably to capture new opportunities and create value for all our stakeholders.

Strategic Pillar	Top Priorities	Outlook
Future Generation Sources The future of generation lies in renewable and low-carbon sources of energy as stakeholders gravitate towards decarbonisation to mitigate climate change.	• Growing TNB's renewable capacity • Diversification of capacity into selected internal strategic markets • Improving performance of existing generation fleet	• Operationalisation of the Southern Power Generation plant in Pasir Gudang, Johor, expected for July 2020. It will be the world's first Combined Cycle Gas Turbine (CCGT) plant to use 9HA.02 gas turbine technology with efficiency exceeding 60%. • Completion of the Ulu Jelai-Telom transfer tunnel scheme by August 2020. This project is expected to increase the amount of firm energy by 40% for the Ulu Jelai Hydroelectric plant. • Establishment of a new subsidiary, TNB Power Generation, to manage all of TNB's domestic generation assets, alongside the existing TNB Repair and Maintenance Sdn. Bhd. (REMACO) and Integrax Berhad.
Grid of the Future The grid of the future is fully automated and digitalised, supporting bidirectional flow in a decentralised system that empowers self-generation and greater energy efficiency amongst consumers.	• Upgrading existing network infrastructure into a smart, automated and digitally-enabled network • Optimising network's productivity, efficiency and reliability • Drive innovation in our electricity grid to transform customer experience	• Roll out of 15 strategic initiatives for 2020 and beyond in order to achieve our transmission grid strategic plan. In 2020, the focus will be on completing the 500kV grid superhighway interconnections, which form the backbone of our Grid of the Future. • Deployment of Advanced Metering Infrastructure (AMI) to improve billing and meter quality, and deliver MESI 2.0 reforms on retail liberalisation. • Discussions on development plans for Regulatory Period 3 (RP3).
Winning the Customer We believe it is imperative to not only provide reliable supply of electricity but to become a customer-centric organisation which offers meaningful customer experience by meeting all our customers' energy-related needs along with the best service delivery.	• Enhance experience through all customer journeys • Growth through innovation of new solutions and service offerings • Strengthen digital presence via digital solutions, interactions and enterprise	• Continuous development of new solutions, concurrent with enhancements of existing offerings, such as rooftop solar and smart home solutions. • Deployment of our NFCP network in 2020 to cover approximately 100,000 premises that utilise our 18,000km of fibre network across Peninsular Malaysia.
Future Proof Regulations We believe that the energy industry in Malaysia is standing at the cusp of a transition to more sustainable model, it is therefore important to protect the interests of all relevant stakeholders – from producers to end users – to ensure a successful transition.	• Working together with key stakeholders towards a stable and sustainable regulatory landscape	• Corporate restructuring that will include the establishment of two (2) subsidiaries to better manage our generation and retail businesses. • Continuation of our transformation journey under RT. • Syndication with Government and Regulators on the role the Malaysian Electricity Supply Industry can play in driving Malaysia's Energy Transition while combating the effects of the current global pandemic. • Overall support of the design and implementation of Government's aspirations.

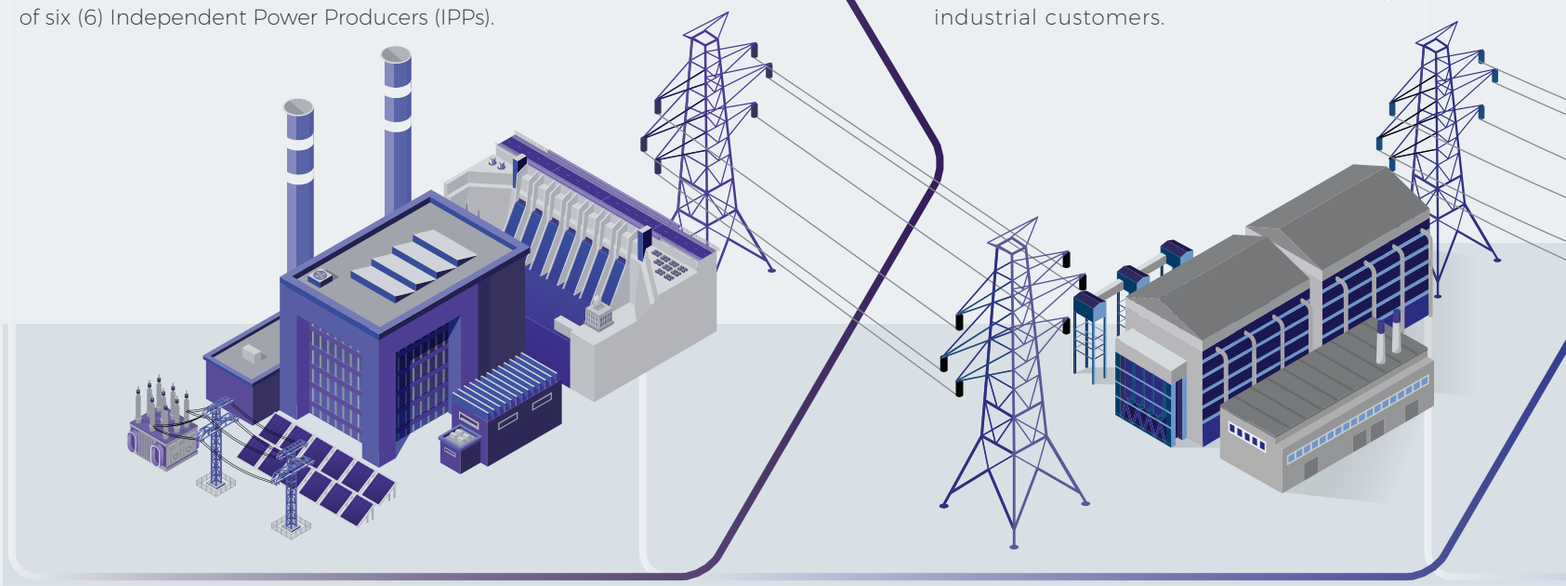
Our Value Chain

GENERATION

As the key component of our electricity production, the Generation Division is entrusted to operate and maintain TNB's portfolio of power generating assets, comprising thermal generation facilities and major hydro-generation schemes in Peninsular Malaysia. In addition, the Division also supports the operations and maintenance of six (6) Independent Power Producers (IPPs).

GRID

The Grid Division owns and manages the National Grid which transmits electricity produced by our Company and IPPs throughout Peninsular Malaysia with the Distribution Division's network and large industrial customers.



TOTAL DOMESTIC GENERATING CAPACITY

10,617.53MW

for wholly-owned power plants in Peninsular Malaysia

GAS

3,951.43MW

COAL

4,080.00MW

LARGE HYDRO

2,536.10MW

SOLAR

50.00MW

MAXIMUM DEMAND ON 18 APRIL 2019

18,566MW

for Peninsular Malaysia

LENGTH OF DOMESTIC TRANSMISSION NETWORK

23,964 Circuit-KM

for wholly-owned transmission network in Peninsular Malaysia

DOMESTIC TRANSMISSION SUBSTATIONS

456 Units

for wholly-owned transmission network in Peninsular Malaysia

NUMBER OF TRANSMISSION TRANSFORMERS OPERATED

1,304 Units

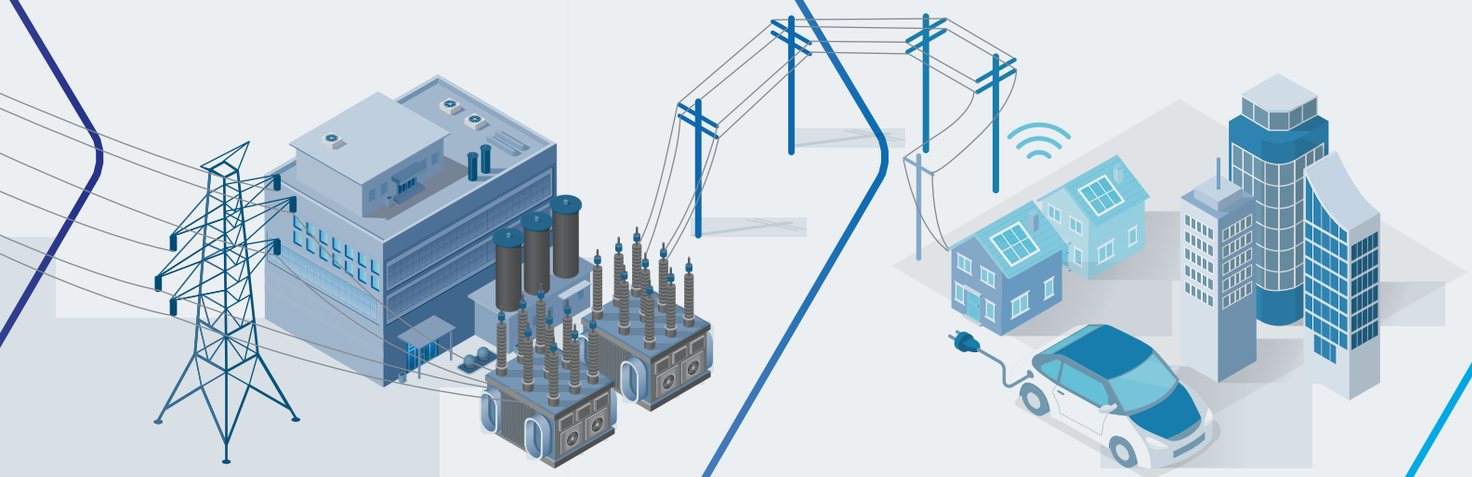
for wholly-owned transmission network in Peninsular Malaysia

DISTRIBUTION NETWORK

The Distribution Network Division is responsible for the asset lifecycle of the Nation's distribution electricity supply system to end users ensuring reliable electricity supply to businesses and homes.

RETAIL

The Retail Division strives to win our customers by building long-term and meaningful relationships through continuous ongoing customer centric approaches.



LENGTH OF DOMESTIC DISTRIBUTION NETWORK

683,008 Circuit-KM

for wholly-owned distribution network in Peninsular Malaysia

DISTRIBUTION SUBSTATIONS

83,467 Units

for wholly-owned distribution network in Peninsular Malaysia

NUMBER OF DISTRIBUTION TRANSFORMERS OPERATED

89,720 Units

for wholly-owned distribution network in Peninsular Malaysia

SERVICE RELIABILITY

System Average Interruption Duration Index (SAIDI)

48.13 min/cust/yr

for Peninsular Malaysia

SERVICE INTERRUPTION

System Average Interruption Frequency Index (SAIFI)

0.83 frequency/cust/yr

for Peninsular Malaysia

UNITS SOLD IN 2019

116,525.41GWh

sales by wholly-owned retail in Peninsular Malaysia

TOTAL NUMBER OF CUSTOMERS

9,248,922

in Peninsular Malaysia

DOMESTIC

7,553,229

COMMERCIAL

1,575,198

INDUSTRIAL

30,520

OTHERS*

89,975

** Others consist of mining, street lighting, agriculture, RE generators*

Sustainability at TNB

KEY MILESTONES

We strive to anticipate the latest challenges, seize opportunities and meet stakeholder expectations to pave the way for our business sustainability. We have evolved from philanthropy to becoming an organisation that delivers impactful, long-term value for our business and stakeholders. Purpose-driven, we actively embrace a sustainability approach to ensure commercial viability without compromising on the needs of future generations.

TNB'S SUSTAINABILITY MILESTONES

1970's

- Our training institute, Institut Latihan Sultan Ahmad Shah (ILSAS), was set up in 1976.
- First Grid connection was made from the West Coast to the East Coast, supplying Kuantan and Pekan.
- The National Load Despatch Centre (NLDC) was established in 1978.

1980's

- Construction of Kenyir Dam, the largest hydroelectric scheme in Peninsular Malaysia, began. Operation Jumbo was carried out to relocate elephants trapped by rising waters on man-made islands in the lake. The dam was completed in December 1985.
- *Kilat* Club (now Sport Management Unit) was established to mark our commitment to the National Hockey Development Programme.

1990's

- Lembaga Letrik Negara (National Electricity Board) was corporatised as Tenaga Nasional Berhad in 1990 and listed on the Kuala Lumpur Stock Exchange in 1992.
- Our foundation, Yayasan Tenaga Nasional (YTN), was established in 1993 to support Corporate Social Responsibility (CSR) programmes that benefit the underprivileged. Amongst its many successful social outreach programmes include education and healthcare sponsorships.
- Incorporation of TNB Research Sdn. Bhd. in 1993 to spearhead research and development programmes.
- Universiti Tenaga Nasional (UNITEN) was established in 1997 as an academic and research institute.
- TNB's Occupational Health and Safety Policy was launched.

2000's

- Village Street Light Project was launched in 2002 to ensure public areas in villages are lit at night to support safe activities.
- Initiation of the Community Outreach Programme, a platform for TNB's management to engage with the community.
- Together with the Kuala Selangor District Council, the Kampung Kuantan Firefly Conservation Project was launched in 2005.
- Launch of *Projek Baiti Jannati* in 2007, through which TNB renovates the homes of underserved communities, equipping them with electricity, water and proper sanitation.
- Roll-out of the Online Bill payment service in January 2009 allowing customers to view and pay bills online.
- Tree for a Tree programme was introduced in 2009, to offset carbon emissions and re-green and re-energise public areas.

2010 – 2019

- Introduction of Customers First Programme and Customer Charter in 2010.
- Our Corporate Integrity Pledge was introduced in 2011 to promote integrity, transparency and good governance.
- Introduction of Green Energy Policy in 2011 to support the national green agenda via sustainable, efficient operations and delivering green energy through technologies and investments.
- Launch of TNB-World Wildlife Fund (WWF) Malaysia Earth Hour Awareness Campaign in 2013.
- Launch of 'Reimagining TNB'.
- TNB became one of the first in Malaysia to embark on ISO 37001:2016 Anti-Bribery Management System certification in 2016.
- Development of our first Large Scale Solar (LSS) Farm in Sepang, Selangor with generating capacity of 50MW in 2017. The LSS was fully operational by end 2018.
- Formalisation of Sustainability Development Committee (SDC) to review, evaluate and advise on sustainability and green energy related initiatives.
- Establishment of the Green Energy Development Fund in 2017 by SDC to channel 1% to 2% of TNB's profit after tax towards non-commercially feasible Green Energy projects annually.
- Started carbon footprint assessment in 2017 and TNB continues to monitor and update through a GHG emissions management platform.
- First roll-out of smart meters in 2018 under the Advanced Metering Infrastructure initiative.
- Introduction of Supply Agreement with Renewable Energy by Ministry of Energy, Science, Technology & Climate Change (MESTECC) in October 2018 during the launch of IGEM 2018 as an initiative to increase renewable energy usage in Malaysia to 20% by 2025.
- Incorporation of GSPARX Sdn. Bhd. in 2018 to promote self-generation from solar energy.
- Launch of Malaysia Green Attribute Scheme (mGATs) and myGreen+ in 2019 to encourage the uptake of renewable energy.
- Launch of the second LSS Farm in Bukit Selambau, Kedah in 2019 with an expected generating capacity of 30MW.

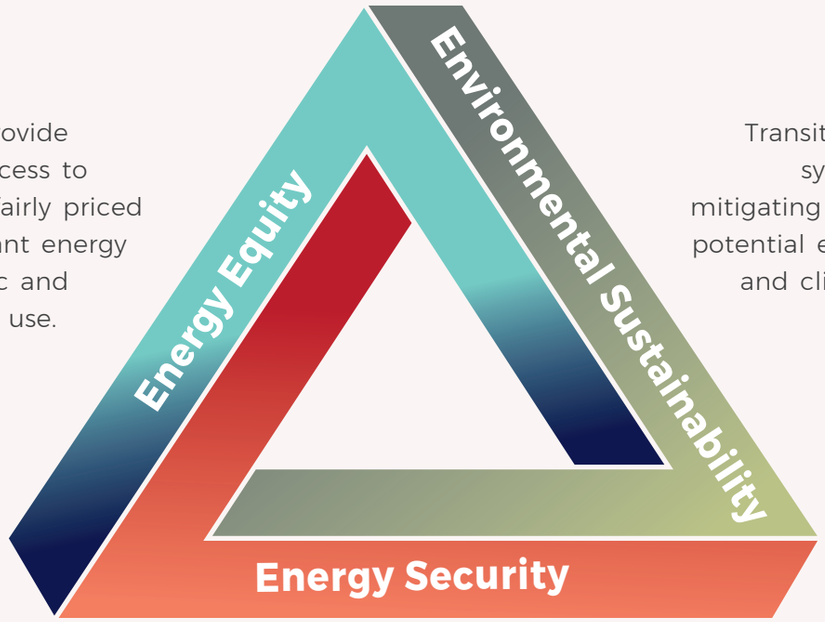
Sustainability at TNB

MANAGING SUSTAINABILITY

Driven by the unprecedented scale of climate change, the world is transitioning from a carbon-intensive energy system to a low-carbon and renewables-driven future. Progress towards a sustainable energy future, however, needs to be delicately balanced against the imperative to develop and sustain the well-being of the nation and communities. The World Energy Council's "Energy Trilemma" illustrates this challenge through three (3) core dimensions: Energy Security, Energy Equity and Environmental Sustainability. TNB's response has been to adopt a balanced approach as outlined below:

The Energy Trilemma

Ability to provide universal access to affordable, fairly priced and abundant energy for domestic and commercial use.



Transition of energy system towards mitigating and avoiding potential environmental and climate change impacts.

Capacity to meet current and future energy demand reliably, withstand and recover swiftly from system shocks with minimal disruption to supplies.

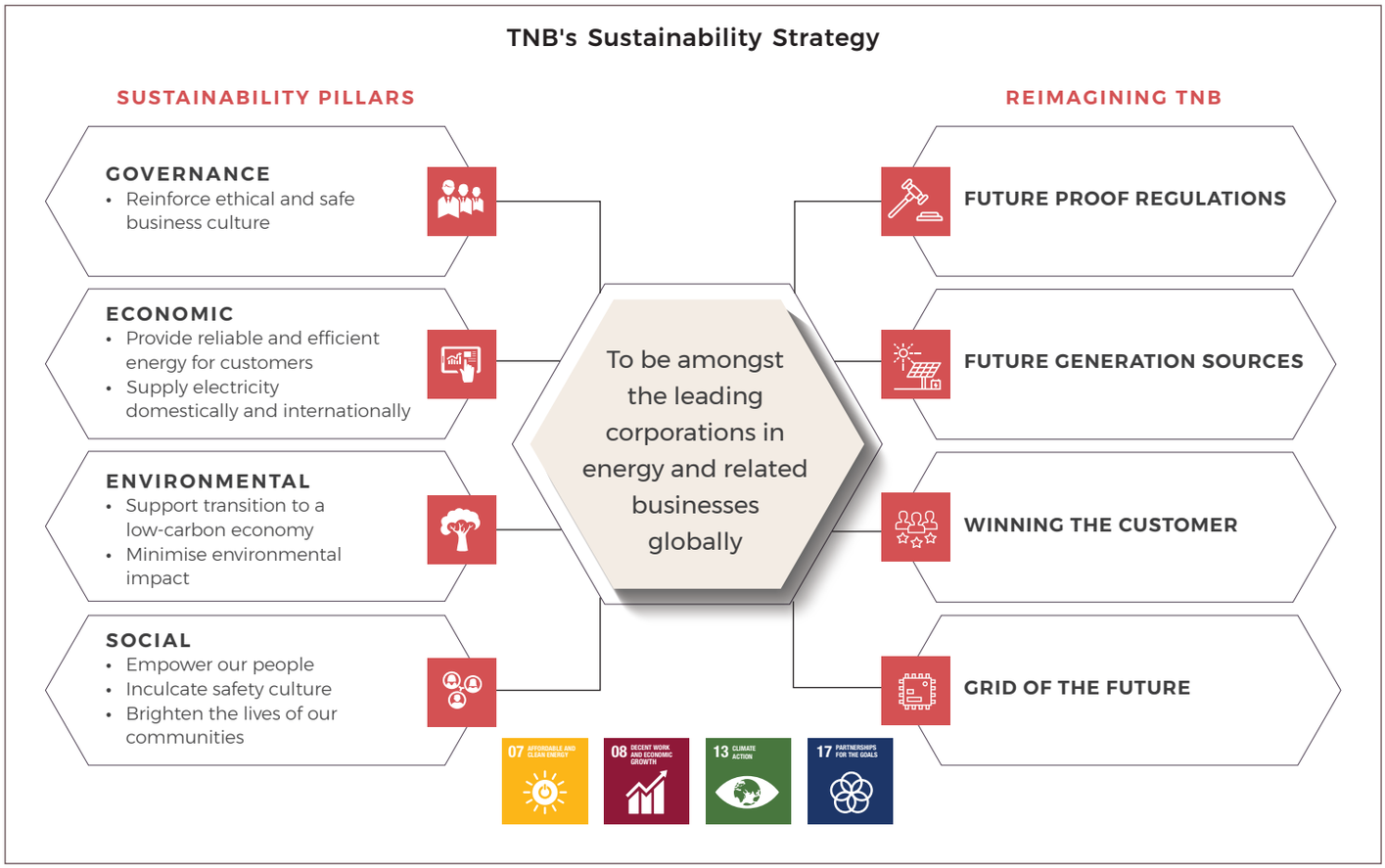
Source: World Energy Council

TNB's Approach

TNB remains steadfast in providing affordable electricity to the public while improving service quality and minimising environmental impacts. As such, we take the following approach to address the energy trilemma:

- Upgrading infrastructure to ensure the reliability of current and future electricity supply
- Optimising system efficiency to provide affordable and fair tariffs
- Venturing and investing in renewable energy and cleaner power assets

In 2018, we took the progressive step to align our sustainability pillars to our corporate strategy for greater integration of sustainability into our core business areas. Our strategy guides the manner in which we embed sustainability within our daily operations. It outlines the issues and opportunities that are most material to our business and our stakeholders, thus reflecting the areas in which we can deliver the greatest positive impact.



Our sustainability strategy is also aligned with the UN SDGs, a global agenda by the United Nations to guide countries, communities and organisations in driving positive social, economic and environmental outcomes for current and future generations. In this regard, we have continued our direct contributions to four (4) of the UN SDGs, namely Goal 7 (Affordable and Clean Energy), Goal 8 (Decent Work and Economic Growth), Goal 13 (Climate Action), and Goal 17 (Partnerships for the Goals). Achieving the UN SDGs will require a collective effort involving the public and private sectors. Determined to play our part, we aim to engage closely with the Government and continue to assess our business and operations to further align our aspirations and contributions.

For more information on TNB's contribution to the UN SDGs, please refer to the "What Matters to Us" section on page 16 of this report.

Sustainability Governance

TNB's sustainability governance reflects our commitment as a Group to integrate sustainability into our strategies, policies and operations. Our Group-wide sustainability is overseen by the TNB Board of Directors ("the Board") who is also cognisant of the importance of integrating sustainability in the strategic direction of the organisation, decision-making processes and operational performance. TNB's sustainability initiatives and performance fall under the purview of the relevant management committees, including the Sustainability Development Committee (SDC), chaired by the President/ Chief Executive Officer.

The SDC's role is to review, evaluate and advise on sustainability and green energy-related initiatives prior to further review from other relevant committees, including the Board. Decisions to escalate issues to higher approving authorities are subject to our Procurement & Supply Chain Policy and Procedures, and Limits of Authority (LOA) guidelines.

Sustainability initiatives and their implementation are cascaded to divisions and subsidiaries for incorporation into their respective business and operational areas.

In FY2019, the SDC has discussed the following matters, including, but not limited to:

- Review of material matters
- Sustainability disclosures
- Sustainability projects under TNB Green Energy Development Fund (TGEDF)
- GHG emissions assessment and monitoring
- TNB's contributions to the UN SDGs, the Shared Prosperity Vision 2030 (SPV 2030) and future plans
- Climate-related disclosures and alignment to the TCFD

Sustainability at TNB

TNB'S STAKEHOLDER ENGAGEMENT APPROACH

Stakeholder engagement is an essential component of our sustainability strategy. We value the insights and inputs of our stakeholders, whether they influence or are affected by our business. We engage with our key stakeholders through various channels to gain a deeper understanding of their concerns and better equip the business to respond to them. Regular engagement ensures that TNB stays abreast of current and emerging issues to achieve our long-term economic, social and environmental goals. The tables below showcase our key stakeholders, how we engage with them, their areas of interest or concern, and how we address them.

Customers

Our customers comprise domestic, commercial and industrial customers, including Small & Medium-sized Enterprises and large corporations

Engagement Platforms	Frequency of Engagement	Areas of Interest or Concern	Our Response by Topic	Value Created for Stakeholders
• Customer service outlets • Call centre • myTNB mobile application and online portal • Customer surveys • Social media • Roadshows • Campaigns	• Ongoing • Ongoing • Ongoing • Ongoing • Ongoing • As needed • Ongoing	• Accessible and reliable supply of electricity • Affordable electricity tariffs • Energy efficiency • Billing and payment platforms • New technologies (e.g. smart meters) • Customer service • Green energy/Renewable Energy (RE)	• Delivering Sustainable Value, page 22 • Customer Centricity, page 36	• Providing innovative products and services • Enhancing customer experience • Supporting energy efficiency efforts amongst customers

Government

The Malaysian Federal and State Governments, parliamentarians, municipal councils, regulators and federal & state agencies

Engagement Platforms	Frequency of Engagement	Areas of Interest or Concern	Our Response by Topic	Value Created for Stakeholders
• Meetings and briefings • Site visits • Round table sessions • One-to-one engagements • Outreach programmes	• Monthly • As needed • As needed • Ongoing • Ongoing	• Regulatory and operational compliance • Regulatory framework (including Malaysia Energy Supply Industry (MESI) 2.0 and Renewable Energy Transition Roadmap) • Social and environmental risk of new projects and development • Disaster management • Cyber security risks and initiatives • New initiatives and technology • Nation-building initiatives, including community development • Security and reliability of supply • Accessibility of electricity supply • Affordable tariff	• Our Governing Principles, page 18 • Delivering Sustainable Value, page 22 • Strengthening Partnerships Brightening Surrounding Communities, page 68	• Contributing to socioeconomic development • Partnering with Government to enhance the future of the industry • Contributing to fiscal revenue through tax payments

Investors

Institutional and retail investors, analysts and potential investors with interest

Engagement Platforms	Frequency of Engagement	Areas of Interest or Concern	Our Response by Topic	Value Created for Stakeholders
• Financial results announcements • Annual and Sustainability Reports • Investor relations events, conferences and roadshows • One-to-one and group engagements • Site visits • Annual General Meeting (AGM) • Investor Relations Corporate Day	• Quarterly • Annually • Based on Investor Relations annual programme • Quarterly • Once/twice a year • Annually • Annually	• Group business strategy and internal reorganisation • Malaysia Electricity Supply Industry (MESI) 2.0 reform • Changes in the regulatory framework and electricity supply industry • Operational and financial performance • Current and future Environment, Social & Governance (ESG) efforts	• Delivering Sustainable Value, page 22 • Our Governing Principles, page 18 • Customer Centricity, page 36 • Minimising Environmental Impacts, page 42 • Climate Change, page 46 • Enhancing Capabilities, page 52 • Prioritising Health, Safety and Personal Well-Being, page 62 • Strengthening Partnerships Brightening Surrounding Communities, page 68	• Effectively managing our business and executing our strategies for future business growth • Providing attractive dividends to investors

Employees — Our 36,307 full-time employees in TNB Group, excluding contractors

Engagement Platforms	Frequency of Engagement	Areas of Interest or Concern	Our Response by Topic	Value Created for Stakeholders
• One-to-one engagements • Townhalls • *Turun padang* and other outreach programmes • Online portal (intranet), newsletters, emails and TV TNB • Employee surveys • Corporate Social Responsibility (CSR) events • Social media	• Ongoing • Annually • As needed • Ongoing • Biannually • Ongoing • Ongoing	• Talent and skill development • Career development • Employee well-being and workplace culture • Health and safety • Employee satisfaction • Employee engagement on TNB's strategies and initiatives	• Enhancing Capabilities, page 52 • Prioritising Health, Safety and Personal Well-Being, page 62	• Providing extensive training and capability development programmes • Driving a positive, high-performing culture amongst all employees • Promoting fair career advancement opportunities based on merit

Trade Unions — Three (3) registered unions and two (2) workers associations that cover all executive and non-executive employees

Engagement Platforms	Frequency of Engagement	Areas of Interest or Concern	Our Response by Topic	Value Created for Stakeholders
• Joint meetings and engagement sessions • Negotiations • Collective agreements • One-to-one engagements	• Annually • As needed • As needed • As needed	• Employee welfare and issues • Collective bargaining • Employee engagement on TNB's strategies and initiatives	• Enhancing Capabilities, page 52	• Fostering open communication and strong relationships with employees • Safeguarding employees' interests and needs

Vendors — 4,750 contractors and suppliers

Engagement Platforms	Frequency of Engagement	Areas of Interest or Concern	Our Response by Topic	Value Created for Stakeholders
• One-to-one engagements • Training and workshops • TNB Vendors Day • Outreach programmes	• As needed • As needed • Annually • Annually	• Training and capability development • Industry support for business growth • Potential health and safety impacts • Procurement processes	• Delivering Sustainable Value, page 22 • Prioritising Health, Safety and Personal Well-Being, page 62	• Supporting development of the local supplier ecosystem

Communities — Local communities in or near areas where we operate, including those affected by our operations

Engagement Platforms	Frequency of Engagement	Areas of Interest or Concern	Our Response by Topic	Value Created for Stakeholders
• Outreach programmes • CSR events • Townhalls • Dialogue sessions • Sporting events	• As needed • Ongoing • As needed • As needed • Annually	• Community development and support • Communication on development plans and projects • Potential health and safety impacts • Potential environmental impacts	• Strengthening Partnerships Brightening Surrounding Communities, page 68 • Minimising Environmental Impacts, page 42	• Contributing to the upliftment of society through business and corporate responsibility initiatives • Connecting underserved areas • Protecting the safety of communities in where we operate

Non-Governmental Organisations (NGOs) — Consumer associations, environmental groups and chambers of commerce

Engagement Platforms	Frequency of Engagement	Areas of Interest or Concern	Our Response by Topic	Value Created for Stakeholders
• One-to-one engagements • Outreach programmes • Seminars and knowledge sharing sessions • Collaboration sessions	• As needed • Ongoing • Ongoing • As needed	• Affordable tariffs • Innovation in technology and renewable energy • Sustainability and potential environmental impacts • Quality of service • Supply reliability	• Delivering Sustainable Value, page 22 • Minimising Environmental Impacts, page 42	• Advocating solutions to be utilised amongst our people as well as customers

Sustainability at TNB

WHAT MATTERS TO US

Our Material Matters and Commitment to the UN SDGs

Our materiality assessment workshop was conducted in FY2017 (ending 31 August 2017) to identify material sustainability matters that could have significant economic, environmental and social impacts, both to our business and to our stakeholders. We conduct an annual review of our material matters to determine their importance by considering various factors that would impact TNB, including the latest industry trends, regulations and sustainability issues, as well as our stakeholders' interests and concerns. In FY2019, we reviewed the material matters with Top Management and the SDC, and have concluded that all existing material matters remain our priorities. As we recognise the urgency and significance of climate change towards the industry and our business, we have redefined the "Greenhouse Gas (GHG) Emissions" material matter to "Climate Change", as approved and endorsed by the SDC. This is to reflect our progressive efforts in line with the Government's commitment to the Paris Agreement.

We disclose our management of material matters through our eight (8) topics under four (4) sustainability themes: Spirit of Responsibility, Empowering the Nation, Environmental Stewardship and Embracing Relationships. We also continue to map our relevant direct or indirect contribution to the UN SDGs against each topic.

Section	Topics	Material Matters	Contribution to SDGs
Governance Spirit of Responsibility	**Our Governing Principles** Promoting ethical and safe practices is driven by the Board and shared by our management and employees to reinforce sound business and forward-looking culture.	• Responsible and Ethical Business Practices	**Indirect SDGs:** 16
Economic Empowering the Nation	**Delivering Sustainable Value** Regulatory changes in the energy landscape, along with the shift in focus towards renewable energy and digitalisation require TNB to be both cost-effective and efficient to remain competitive.	• Business and Financial Performance • Energy Efficiency • Fuel Mix Policy • Efficient Technology and Innovation • Asset Optimisation • Cyber Security Management • Sustainable Supply Chain • Reliable Energy and Fair Tariffs • Renewable Energy • Safety and Emergency Preparedness	**Direct SDGs:** 7 8 13 **Indirect SDGs:** 9 12
	Customer Centricity We seek to win customer trust and loyalty over the long-term through effective engagement, quality of service and exceptional customer experience.	• Customer Experience • Energy Efficiency	**Direct SDGs:** 7 8 13 17 **Indirect SDGs:** 12 16
Environmental Environmental Stewardship	**Minimising Environmental Impacts** TNB strives to protect and conserve the environment in our operations and decision-making in line with our commitment for continuous improvement of environmental performance.	• Environment Management • Biodiversity Management • Natural Resource Consumption • Waste Management	**Direct SDGs:** 8 **Indirect SDGs:** 3 6 12 15
	Climate Change We are committed towards a low-carbon economy by embracing and supporting renewable energy generation and energy efficiency to reduce greenhouse gas emissions.	• Climate Change • Renewable Energy • Energy Efficiency	**Direct SDGs:** 7 8 13 17 **Indirect SDGs:** 12 15
Social Embracing Relationships	**Enhancing Capabilities** Our people are essential to TNB's success. We strive to continually strengthen our leadership, enhance employee performance and develop talent.	• Diversity and Inclusion • Workplace Culture • Employee Engagement • Capability Development	**Direct SDGs:** 8 **Indirect SDGs:** 4 5 10
	Prioritising Health, Safety and Personal Well-Being We prioritise our employees' occupational health and safety, and well-being as it not only facilitates higher workplace productivity but it also builds their sense of confidence and security.	• Safety and Emergency Preparedness • Health and Well-being	**Direct SDGs:** 8 **Indirect SDGs:** 3 11
	Strengthening Partnerships Brightening Surrounding Communities We strive to make people's lives better and brighter by equipping them with necessary and relevant skills, sustaining the environment and enhancing their livelihood. We engage in a wide range of programmes that seek to leave a long-lasting positive impact on people and communities.	• Community Development • Education • Stakeholder Relationship	**Direct SDGs:** 8 17 **Indirect SDGs:** 1 4 10 11

For more information on our contributions to the four (4) UN SDGs, please refer to page 17.

LINKING OUR PERFORMANCE TO GLOBAL AGENDAS

We are committed to help achieve the UN SDGs and support the national and global agenda for sustainable development. As a testament to our commitment, we have mapped selected sustainability performance indicators against four (4) UN SDGs in which we can add the most value and directly contribute to. Moving forward, TNB will also continue to align our strategies, material matters, key performance indicators (KPIs) and targets with the UN SDG agenda.

SDG 7: Affordable and Clean Energy

Ensure access to affordable, reliable, sustainable and modern energy for all

Achieving this goal will contribute to economic, environmental, social development and well-being. We are focused on this goal by prioritising energy efficiency, clean energy technology and related infrastructure.

Relevant performance indicators:

- Equivalent Availability Factor (EAF) **83.35%** Performance for wholly-owned power plants in Peninsular Malaysia
- System Average Interruption Duration Index (SAIDI) in Peninsular Malaysia at **48.13** minutes/customer/year
- System Availability **99.78%**
- Domestic renewable energy generation capacity **85.39MW**

For more information on our operational performance in FY2019, please refer to the "Delivering Sustainable Value" section on page 28.

SDG 8: Decent Work and Economic Growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

We have always placed great importance in creating employment opportunities that value and respect human rights. This goes well beyond legal compliance or upholding our reputation, as we also strongly believe that this is the backbone of positive business performances across our value chain.

Relevant performance indicators:

- Total number of new hires in FY2019 by TNB Company **1,398**
- Employability rate within six (6) months upon graduation for UNITEN graduates **94%**
- Revenue for FY2019 **RM50,939.70** million
- Total training hours (general and leadership) **1.09** million hours

SDG 13: Climate Action

Take urgent action to combat climate change and its impacts

We support Malaysia's commitment to the Paris Climate Change Agreement signed at COP 21, recognising the increasing importance of mitigating and adapting to climate change. In this regard, we seek to reduce our GHG emissions intensity and the environmental impacts resulting from our operations.

Relevant performance indicators:

- Total GHG emissions mitigation **5.38 million** tCO_2e *Total GHG emissions mitigation in FY2018 was 5.75 million tCO_2e*
- Energy savings from TNB buildings **1,325,323kWh** *Data has been restated from IAR 2019 due to errata*
- GHG emissions intensity **0.56** tCO_2e/MWh *GHG emissions intensity in FY2018 was 0.57 tCO_2e/MWh*
- TNB's target to grow renewable energy capacity to **1,700MW** both domestically and internationally by 2025

SDG 17: Partnerships for the Goals

Strengthen the means of implementation and revitalise the global partnership for sustainable development

We will continue to form partnerships with all stakeholders including Government agencies, industry experts, businesses and NGOs, both within and outside the energy sector. This is to meet future electricity demands in a sustainable manner, as well as to give back to the community.

Relevant performance indicators:

- Total contribution to community development programmes **RM40.25** million
- TNB's partnership with *Yayasan Kebajikan Nasional* (YKN) and Institut Jantung Negara Foundation (IJNF) for Better Brighter Shelter programme focusing on upgrading the dormitories and transit homes for hospitals
- TNB's partnership with telecommunication companies for the National Fiberisation and Connectivity Plan
- TNB Energy Services Sdn. Bhd. (TNBES) partnership with Malaysian Green Technology and Climate Change Centre (MGTC) to install electric vehicle (EV) charging stations nationwide. To date, 29 stations have been installed

SPIRIT OF RESPONSIBILITY

Our Governing Principles

Promoting ethical and safe practices is driven by the Board and shared by our management and employees to reinforce sound business and forward-looking culture.

KEY FY2019 HIGHLIGHTS:

Full roll out of TNB Corporate Integrity Management System (TCIMS)	Introduced new reporting channel for whistleblowing	4,538 employees attended the Integrity Engagement Programme (IEP)

Related Material Matter(s):

- Responsible and Ethical Business Practices

MESYUARAT AGUNG TAHUNAN
Tenaga Nasional Berhad Ke - 29
14 Mei 2019

SPIRIT OF RESPONSIBILITY

Our Governing Principles

CORPORATE GOVERNANCE

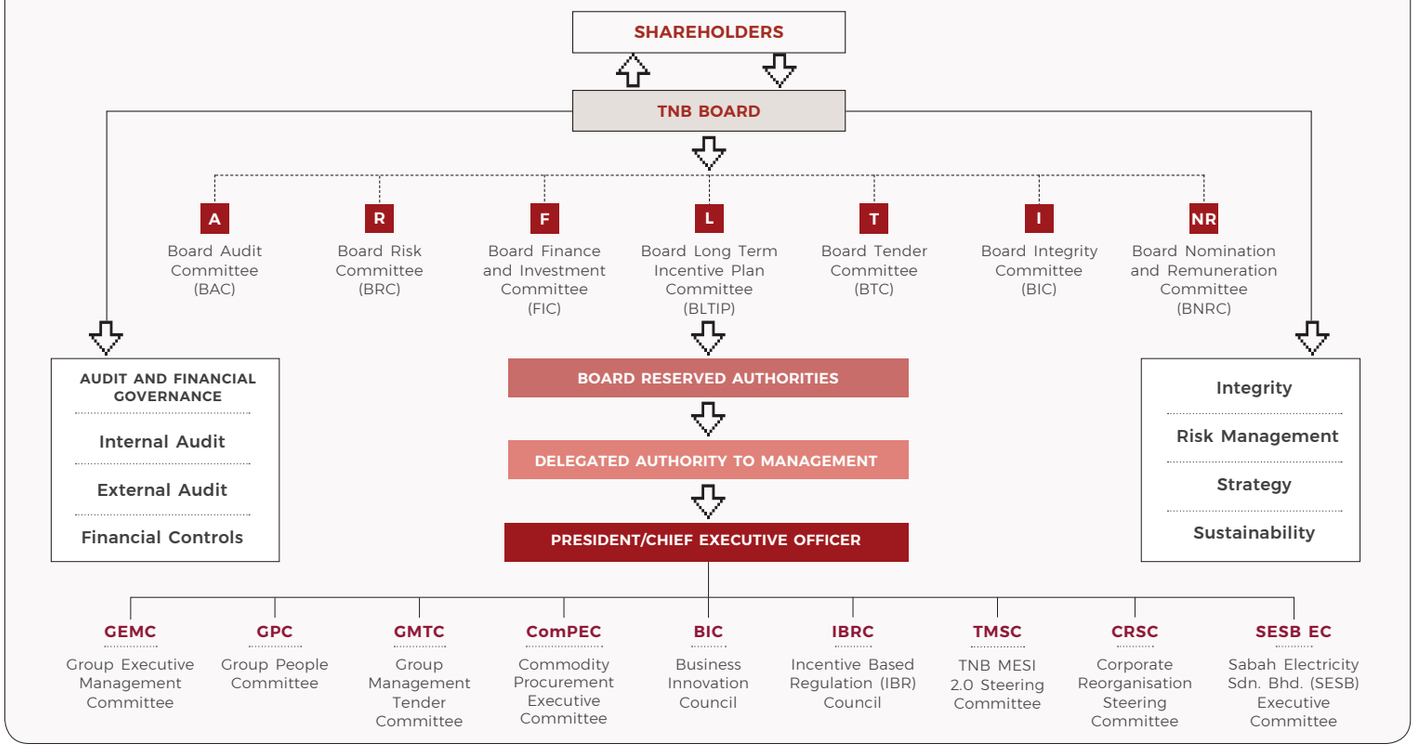
TNB is committed to conducting our business responsibly and with integrity to strengthen our stakeholders' confidence. The Board is cognisant of its crucial role in demonstrating strong corporate governance and they are guided by a high standard of ethical conduct in accordance with the Code of Ethics for Company Directors as established by the Companies Commission of Malaysia. The Board also ensures that TNB's Shared Values are cascaded effectively to all employees within the Group.

TNB's Shared Values

We value the importance of having clear accountability and communication across our business, and comply with the relevant regulations in all countries where we operate. In Malaysia, these include the Malaysian Code on Corporate Governance 2017 (MCCG), the Companies Act 2016 and Main Market Listing Requirements of Bursa Malaysia Securities Berhad. Our Corporate Governance Model is based on the principles of MCCG, which underpins the way we operate and defines the conduct we expect from our employees and external parties across the organisation. It provides guidance for ethical decision-making, ensures the interests of all stakeholders are considered and protected, and that we execute our business strategies within a framework of prudent and effective controls.

This section should be read in conjunction with the CGFS 2019 and the Corporate Governance (CG) Report, both of which are available in our website. The CG Report elaborates on the Company's application of the MCCG for the Financial Year under review.

TNB's Corporate Governance Model



Our Board of Directors and employees are expected to abide by TNB's Code of Ethics ("the Code"), amongst other Group policies and procedures. These internal control principles contain strict guidelines on business integrity and govern the way we interact within the Company as well as with our shareholders, suppliers and local communities. In particular, the Code provides a set of provisions covering compliance with laws and regulations, sound employment practices, confidentiality, privacy, conflicts of interest, giving and accepting business courtesies as well as the protection and proper utilisation of TNB's assets and resources.

For more information on our Code of Ethics, please refer to page 62 of the CGFS 2019.

We conduct regular reviews of our corporate governance practices to stay up-to-date with the regulatory environment. This puts us in a strong position to reflect best practices, regulations and expectations to reinforce the robustness of our corporate governance.

RISK MANAGEMENT AND INTERNAL CONTROLS

We are committed to embedding risk management practices across all our business operations and decision-making processes as risk management is pivotal to the achievement of our objectives. Our TNB Risk Management Framework has been developed in line with the ISO 31000:2018 Risk Management – Guidelines. It provides a structured and consistent approach to risk management across the organisation for informed decision-making. In FY2019, our Board Risk Committee approved a revision to our Risk Management Framework to ensure alignment with the second edition of ISO 31000:2018.

Our Risk Management Framework describes our Risk Assessment Process to identify, evaluate and treat risks for the achievement of business objectives. This process is applied by respective business units across TNB Group in a systematic and iterative manner, taking into account key stakeholders' inputs, to develop their risk registers. The risks identified or reviewed are registered and approved by relevant risk owners in the TNB Risk Information System (TRIS), a real-time platform for monitoring and reporting risks.

Our risk management and internal control systems are designed to manage risks within acceptable levels. They provide reasonable rather than absolute assurance against any material losses, misstatements or other significantly adverse consequences due to inherent limitations in the system, including but not limited to human error and the potential impact of unforeseen circumstances beyond TNB's control.

We go beyond compliance and conduct periodic reviews of risks to ensure relevance and effectiveness. In upholding high standards, the Management and Board regularly review and approve Group policies, codes and procedures as continual improvement for risk mitigation.

For more information, please refer to the Statement on Risk Management and Internal Control section on pages 54 to 59 of the CGFS 2019.

Instilling a Culture of Integrity

We instil a culture of excellence amongst our people throughout the organisation. This is supported through regular communication of our five (5) Shared Values: Integrity, Customer Focus, Business Excellence, Caring and Safety. The Shared Value of Integrity itself comprises of five (5) principles as depicted below:

Five (5) Principles of Integrity

Complying with local and international standards, we have zero tolerance for bribery and corruption. We have retained our ISO 37001:2016 Anti-Bribery Management System certification and are also implementing TNB Corporate Integrity Management System (TCIMS) across the Group to drive an integrity-based culture. TCIMS supports our internal integrity culture by enabling us to prevent, detect and respond to bribery or corruption in compliance with anti-bribery laws.

To further reinforce an integrity-based culture, our Procurement and Supply Chain division as well as three (3) wholly-owned subsidiaries, Malaysia Transformer Manufacturing Sdn. Bhd., TNB Repair and Maintenance Sdn. Bhd. and TNB Fuel Services Sdn. Bhd. were also ISO 37001:2016 certified in FY2019.

This year, there was an update to the Whistle Blowing procedure. Whistleblowers now have an option to make a direct report to five (5) key personnel, in addition to the current channels of the Whistle Blowing Information System.

For more information, please refer to https://www.tnb.com.my/ethics-governance/whistle-blowing/.

In promoting accountability, we require all employees to sign the Integrity Pledge and declare any conflict of interest. They also attend mandatory trainings and awareness sessions to understand the different forms of bribery and how these impact individuals, the community and business. In FY2019, 55 Integrity Engagement Programme (IEP) sessions were conducted across the Group and participated by 4,538 employees. Another of our key initiatives includes the TNB-MACC Corruption Prevention Programme, a strategic collaboration with the Malaysian Anti-Corruption Commission (MACC) to provide anti-corruption education and to shape a high-integrity workforce. The programme, held in four (4) series from July to November 2019, was participated by 200 employees. We are also currently developing an e-learning module focused on integrity to be launched in 2020, as it will be a more effective learning platform.

We will continuously emphasise working with integrity in TNB and treat it as part of our DNA.

EMPOWERING THE NATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

13 CLIMATE ACTION

Delivering Sustainable Value

Regulatory changes in the energy landscape, along with the shift in focus towards renewable energy and digitalisation require TNB to be both cost-effective and efficient to remain competitive.

KEY FY2019 HIGHLIGHTS:

Implemented the National Fiberisation and Connectivity Plan (NFCP) pilot project in Jasin, Melaka	Jimah East Power (2 X 1,000MW) commercially operational in FY2019	RM9.28 billion spent on local suppliers

Related Material Matter(s):

- Business and Financial Performance
- Energy Efficiency
- Fuel Mix Policy
- Renewable Energy
- Reliable Energy and Fair Tariffs
- Asset Optimisation
- Safety and Emergency Preparedness
- Cyber Security Management
- Efficient Technology and Innovation
- Sustainable Supply Chain

EMPOWERING THE NATION

Delivering Sustainable Value

OVERVIEW OF OUR ENERGY INDUSTRY LANDSCAPE

We stay true to our strategic blueprint, Reimagining TNB, in order to achieve our aspiration of becoming one of the top 10 global electricity utilities by 2025. We also recognise the important role that sustainability plays in achieving our goal and guiding our business through current and future industry challenges.

FY2019 marks another year of success as we have achieved strong financial growth across our domestic and international businesses. This has allowed us to continue to create value for our key stakeholder groups through maximised value distribution.

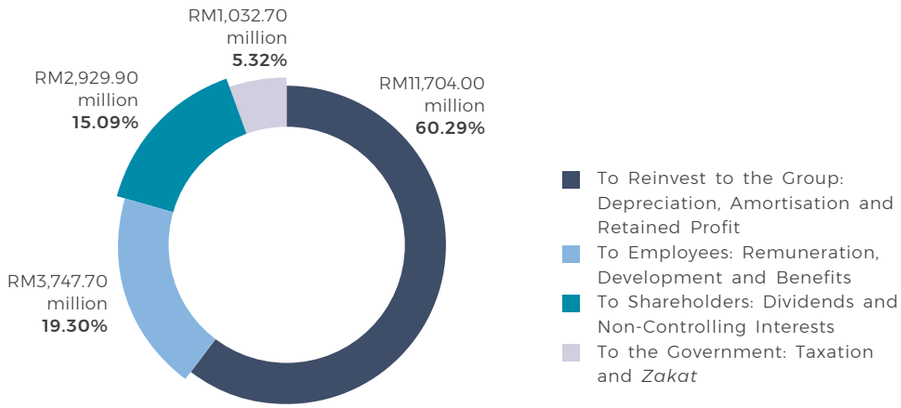
To read more on TNB's business performance and our value distribution to stakeholders, please refer to the Performance Review section on pages 62 to 74 of IAR 2019.

Awards won:

"Most Outstanding Utility Sector in Malaysia"

Asia Money Awards 2019

Value Distribution to Stakeholders in FY2019

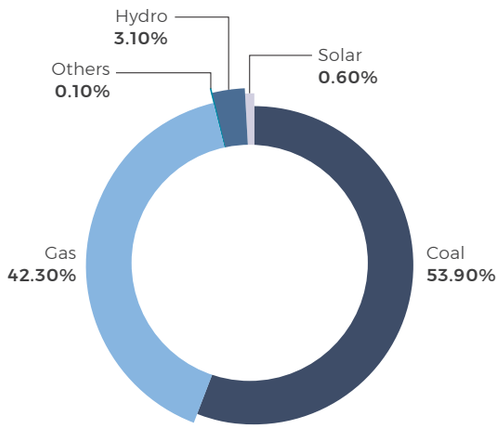


Generation Mix

We are actively diversifying our local generation portfolio to meet current and future needs in a reliable, affordable and sustainable manner. The generation mix in Peninsular Malaysia is a result of the optimal generation capacity development plan, established by the Planning & Implementation Committee for Electricity Supply and Tariff *(Jawatankuasa Perancangan dan Pelaksanaan Pembekalan Elektrik dan Tarif*, JPPPET) under the purview of the Ministry of Energy and Natural Resources *(Kementerian Tenaga dan Sumber Asli*, KeTSA). This plan aims to strike a delicate and optimal balance between economic, environmental and energy security.

In FY2019, gas and coal continued to dominate the generation mix in Peninsular Malaysia at about 42% and 54%, respectively. While our current business will operate in accordance to this scenario, we strive to expand our low-carbon generation assets.

Generation Mix in Peninsular Malaysia for FY2019



This is done by leveraging on cleaner and more efficient power generation technology, as well as reducing our dependency on fossil fuels by developing and investing more in RE assets.

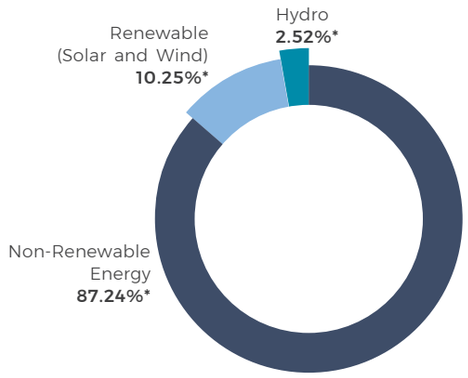
TNB also actively supports the ASEAN Power Grid (APG), an initiative to strengthen cross-border interconnections amongst neighbouring countries to enhance regional energy security and improve access to electricity. In 2017, Malaysia entered into a two-year agreement with Lao PDR and Thailand for a Power Integration Project, the first multilateral energy trading initiative in the region. The project allows Malaysia to purchase up to 100MW of hydro power from Lao PDR via Thailand. Given its successful implementation, a two-year extension was agreed by all parties and a supplementary agreement was signed in 2019 to allow for the purchase of up to 300MW of electricity from 1 January 2020 until 31 December 2021. Another APG-related initiative involves the interconnection between Peninsular Malaysia and Singapore. TNB and Singapore Power have agreed to upgrade existing transmission lines connecting both countries to enhance mutual energy transfer and trade.

Our International Portfolio

TNB has an international presence with equity ownership in energy-related assets across strategic markets including Turkey, Saudi Arabia, Pakistan, India and the United Kingdom (UK). While our international generation portfolio largely comprises non-renewable energy sources, it has been an avenue to expand our RE generation and contribute towards achieving our RE installed capacity target of 1,700MW by 2025 in local and international markets.

For more information of TNB's domestic and international RE portfolio, please refer to the 'Delivering Sustainable Value' section on page 26.

TNB's International Generation Portfolio



** Data has been restated due to errata*

TNB'S INTERNATIONAL PORTFOLIO

VORTEX SOLAR INVESTMENTS S.A.R.L.
TNB Shareholding: 50%
Generation Capacity:
365MW

TENAGA WIND VENTURES UK LIMITED
TNB Shareholding: 80%
Generation Capacity:
26.1MW

UNITED KINGDOM

GAMA ENERJI ANONIM SIRKETI
TNB Shareholding: 30%
Generation Capacity:
117.5MW
131.3MW
853MW

TURKEY

LIBERTY POWER LIMITED
TNB Shareholding: 100%
Generation Capacity:
235MW

PAKISTAN

SAUDI ARABIA

SHUAIBAH INDEPENDENT WATER & POWER PROJECT (IWPP)
TNB Shareholding: 6%
Generation Capacity:
1,190MW

WATER DESALINATION
Capacity:
1,039,000m³/day

INDIA

GMR ENERGY LIMITED
TNB Shareholding: 30%
Generation Capacity:
26MW
1,650MW
623MW

Legend

Solar
Hydro
Gas
Water Desalination
Wind
Coal
Oil

EMPOWERING THE NATION

Delivering Sustainable Value

HOW WE GENERATE ENERGY

We remain steadfast in achieving our strategic plans over the coming years, and one of the key areas to strengthen our future growth is the expansion and diversification of our generation capacity. We will continue to assure sustainable electricity supply for the nation by venturing into low-carbon power generation as well as RE technologies. Our current power generation portfolio includes new gas and coal power plants which run at higher efficiency, leading to cleaner operations and lower GHG emissions as compared to older technology. In FY2019, TNB's low-carbon portfolio included 119 RE plants (mini hydro, solar and wind) and 12 large hydro plants, located domestically and internationally.

Cleaner Power Generation

One of our most significant achievements in FY2019 was the commissioning of our newest power plant, Jimah East Power (JEP) in Negeri Sembilan. JEP utilises the Ultra-Supercritical Coal-Fired (USC) technology with a capacity of 2 x 1,000MW. The technology is more efficient with 40% thermal efficiency, in comparison to conventional coal-fired power plants that have 36% thermal efficiency. This is TNB's third USC plant and the fourth one in Malaysia, which has contributed to the increase in TNB's installed capacity from 12,369.53MW to 13,469.53MW.

Meanwhile, the Southern Power Generation CCGT plant at Pasir Gudang, Johor that is due for completion by July 2020 uses the 9HA.02 gas turbine technology. It is expected to achieve a combined-cycle thermal efficiency exceeding 60%, which is higher than the conventional gas-fired power plants thermal efficiency and helps to reduce GHG emissions.

Renewable and Green Energy

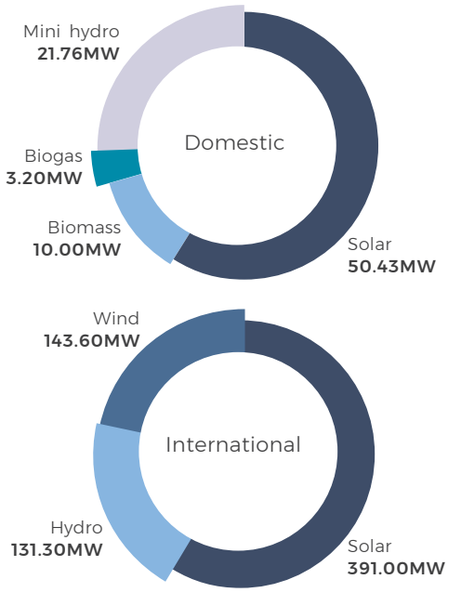
TNB aspires to be a key player in the domestic and global RE markets. We believe that this aspiration will bring benefits to our business and the well-being of our stakeholders through the conservation of finite fuel resources and climate change mitigation. We continue to work towards achieving our RE target of 1,700MW installed capacity by 2025, both domestically and internationally. This will contribute to the Government's target of 20% RE generation capacity mix by 2025.

To achieve our RE target, we continue to aggressively venture into the domestic and international renewables market which are led by TNB Renewables Sdn. Bhd. (TRe) and International Asset Group (IAG), respectively. Through IAG, we have invested in RE, including solar and wind energy, across the United Kingdom, Turkey and India.

In Malaysia, we have commissioned our first Large-Scale Solar (LSS) photovoltaic (PV) plant in Sepang, Selangor. The plant can generate up to 50MW and runs reliably with a measured System Availability of over 99%. Our second LSS is currently under construction in Bukit Selambau, Kedah. This plant can generate up to 30MW and is scheduled to be completed by the end of 2020.

Our 30MW LSS in Bukit Selambau, Kedah will further boost TNB's RE installed capacity once commissioned by end of 2020.

TNB's RE Portfolio for FY2019



Other Key Highlights in FY2019

TNB partnered with government and private bodies to install solar PV panels on Government buildings, residential units, educational institutions as well as commercial and industrial properties. These partnerships have enabled us to secure peak generation of close to 25MW through more than 100 projects.

GSPARX Sdn. Bhd. (GSPARX) facilitates the implementation of the Net Energy Metering (NEM) scheme and Supply Agreement for Renewable Energy (SARE). GSPARX has secured rooftop solar PV projects totalling to about 25MW in FY2019. To date, 0.43MW worth of solar PV projects have been completed and entered the domestic RE mix.

The construction of our new mini hydroelectric station at Sungai Tersat, Kuala Berang, Terengganu with a designed capacity of 4MW is 70% completed and is expected to operate in 2020.

TNB is collaborating with Public Works Department (*Jabatan Kerja Raya,* JKR) on RE in four (4) areas: promotion of green technology by focusing on public awareness and outreach; smart nation by embarking on Industrial Revolution 4.0 smart city solutions; precision operation by optimising asset management; and research excellence by conducting continuous research in RE technology.

TNB Green Energy Development Fund (TGEDF)

TGEDF was set up in 2017 to provide financial resources for selected projects related to low carbon technology and the development of green economy. In FY2019, RM25 million was allocated to fund these projects. The table below highlights some of the ongoing projects:

Project	Description	FY2019 Status/Highlights
Smart UniverCity	Aims to create a smart campus by utilising technology and innovation. *For more information on Smart UniverCity, please refer to the "Strengthening Partnerships Brightening Surrounding Communities" section on page 76.*	• Focuses on smart energy generation through on-campus RE plants. • Utilises smart technology to manage facilities and improve energy efficiency. • Implements smart education through digital learning using technology-enabled classrooms.
Maverick, Home of the Future	Showcases a net zero energy home that integrates RE and energy efficient technologies to power the household with near zero energy usage from the grid.	• Completed in April 2019, the Net Zero Energy Home in Cyberjaya uses RE technology such as solar PV, solar tree, solar tiles and RE battery storage. It is also equipped with an EV charging station powered by the grid.
Expansion of EV Charging Network through Utilisation of Unbudgeted Earnings	Expands the EV charging network by: • Developing an IT system for EV charging stations; • Collaborating with industry players to develop the EV charging market; and • Helping MGTC expand its existing EV charging infrastructure under their ChargEV programme.	• 29 EV charging stations have been installed to date.
TNB Centre of Excellence (CoE) for Solar Energy at the LSS site in Sepang	Serves as a training centre for solar energy development and technology which is open to TNB employees and external participants from both the public and private sectors.	• The CoE's Smart Gallery will showcase Smart Building Energy systems, solar PV Smart Simulation Application, Virtual Reality via drone technology and interactive learning experiences through digital technology.
Smart Street Light Showcase at UNITEN Putrajaya Campus	Showcases a street lighting system integrated with communication facilities that allow it to perform various functions such as brightness control, surveillance and digital street signs.	• The smart street lights will improve on-campus security and reduce light pollution at night. Use of low-wattage LED lights will provide cost-savings and reduce carbon emissions.

PRIORITISING OPERATIONAL RELIABILITY AND PERFORMANCE

Given our responsibility to provide reliable electricity, it is imperative that our operations across the value chain performs smoothly, efficiently and exceptionally. We rely on the synergy between our asset optimisation plans and Business Continuity Management (BCM) Framework to drive this agenda. The systems in place have resulted in continuous improvement in our operational performance.

For instance, both our System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) have indicated greater reliability in our distribution network. For our Generation division, the decreased Equivalent Availability Factor (EAF) is due to both planned and forced outages in our TNB Janamanjung and Kapar Energy Ventures plants. Though we have managed to bring both units back online, these events serve as a reminder that we need to consistently improve and strengthen our operational reliability to reduce and avoid future disruptions.

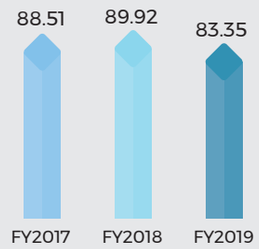
For more information on our performance and initiatives, please refer to our Strategic Review section on pages 50 to 51 of IAR 2019.

EMPOWERING THE NATION

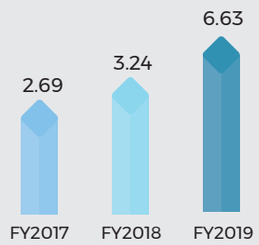
Delivering Sustainable Value

Operational Performance for Peninsular Malaysia

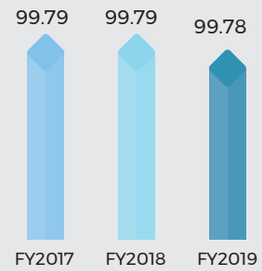
Equivalent Availability Factor (EAF) (%)*



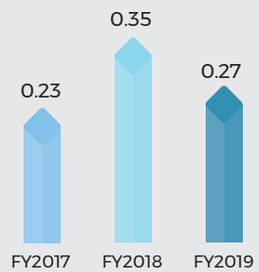
Equivalent Unplanned Outage Factor (EUOF) (%)*



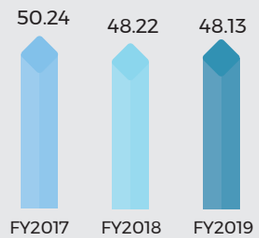
System Availability (%)



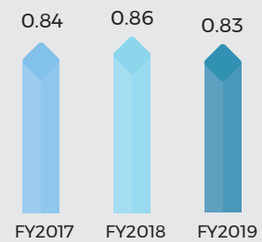
Transmission System Minutes (Minutes)



SAIDI (Minutes/Customer/Year)



SAIFI (Frequency/Customer/Year)



** Performance for wholly-owned power plants in Peninsular Malaysia*

Asset Optimisation

Given the importance of energy to national security, our assets are classified as Critical National Information Infrastructure (CNII). We recognise our responsibility to ensure this infrastructure is maintained and protected, hence we have adopted a holistic asset management approach to fulfil this need.

Our Asset Management Plan is an effective asset management system with ISO 55001:2014 Asset Management certification that provides TNB with the roadmap to achieve the greatest value from physical assets by optimising cost, risk and performance across the asset lifecycle. Under this plan, we outline the implementation activities necessary to realise TNB's asset management policy, strategy and objectives. We have also implemented the Asset Performance Management System (APMS) as part of our enterprise asset management solution to establish and verify a holistic view of asset management throughout its lifecycle, thus, facilitating analysis of investments, risks and opportunities, as well as performance and sustainability.

We continue to undertake the following asset management and optimisation initiatives for FY2019:

Project	Description	FY2019 Status/Highlights
Preventive Maintenance (PM) and Condition-Based Maintenance (CBM)	Ensures assets are in optimal condition by monitoring certain indicators for signs of decreasing performance or potential failure.	Several initiatives were implemented in our Grid division to reduce downtime caused by defective and problematic equipment, repetitive failure modes as well as mitigation of common mode downtime events.
SAIDI 50 Initiatives	Enables early detection of defects, asset replacement and introduction of new technologies. Focuses on reduction in frequency and duration of planned/ unplanned outages.	This initiative is 91% complete, with action plans identified to close the gaps and achieve 100% completion in 2020.
Business Turnaround Programme	Aims to unlock asset potential and enhance performance of TNB's generation power plants through cost savings, cost avoidance and better inventory management.	48 out of the 502 initiatives registered have been executed, and 21% of the total potential value creation has been realised.
Intelligent Predictive and Diagnostic Monitoring (IPDM) System	Utilises a software that enables plant operators to detect anomalies in the operations of major assets, thus allowing for early preventative actions.	The system is now implemented in the standard functioning of power plants and have resulted in the saving of approximately RM4.4 million of potential cost avoidance.
Asset Mid-life Overhaul	Enables safer and more cost-efficient equipment maintenance.	Performed during the mid-life of an equipment to avoid high corrective work costs. This includes parts replacement, retrofitting, servicing, and adopting new design and technology.
Drones	Enhances land planning functions and Geospatial Information System (GIS) data.	Integrated drone imagery processing for route and site selection planning within GIS portal and established automatic selection of multiple route alignment for new transmission lines.
Online Monitoring System for Gas Analysis	Assesses the condition of transformer bushings and gas-insulated switchgears.	Completion of specification for transformer and communication system. 21 online gas analysis and five (5) bushing monitoring systems were installed during Regulatory Period 2.
Automatic Fault Analysis and Fault Location Identification System	Assists operation and maintenance team for faster decision-making during restoration processes.	The pilot project was successfully implemented and has proven effective in assisting system restoration by providing fast and online information during system disturbance.

Business Continuity Management (BCM)

Our BCM Framework has been designed to provide a structured approach in managing business continuity in TNB Group. Effective BCM enables prompt and effective response and recovery in a crisis and ensuring continuity of essential services while protecting human life and safeguarding assets and the environment. In FY2019, we published the 2nd edition of our Corporate BCM document in alignment with the Group's risk appetite. The new edition includes revisions and improvements of crisis triggers and escalation, crisis command structure and crisis communication.

The effectiveness of our BCM Framework is tested annually through communication, functional and full-scale drills that simulate scenarios affecting business operations. In FY2019, four (4) corporate BCM drills were successfully conducted. Continuous BCM training is provided to business units by our Risk Management Department to enhance the competencies of BCM practitioners across the Group.

Each business unit utilises the BCM Framework as the focal point of reference in formulating and implementing their respective BCM strategy and practices, which are tailored to their business objectives and critical functions. For example, customised business continuity plans are in place for our power plants and cyber security management.

EMPOWERING THE NATION

Delivering Sustainable Value

Emergency Preparedness

All TNB power plants require an ERP to ensure their resilience in avoiding disruption to the power generation business. The effectiveness of ERP is measured by the ability of the emergency management team to carry out a timely and appropriate response. All power plants are required to design, implement and conduct regular tests on the effectiveness of their ERP through drills against various plant-specific emergency scenarios. In FY2019, Generation division conducted 12 such drills under their ERP.

We also conducted Integrated Community Based Disaster Management (ICBDM) exercises together with local agencies at our hydroelectric power plants, as a subset of ERP. These exercises are designed specifically for communities who live in close proximity of our hydroelectric power plants and aim to educate the local residents on the procedures and actions to be taken in the event of any disaster. Examples of activities under ICBDM include evacuation drills as well as dam safety awareness briefings and workshops, as showcased below:

Key ICBDM Activities Conducted in FY2019

Cyber Security Management

Cyber security at TNB encompasses the protection of data integrity and accessibility to ensure uninterrupted power supply from our power transmission system. We are safeguarded by our Cyber Security Operation Model (CSOM) and are ISO 27001:2013 Information Security Management System certified. We conduct regular audits at the National Load Despatch Centre on relevant critical infrastructure.

Our cyber security governance is cascaded to the divisional level throughout the business, with committees specifically tasked to oversee policies, mitigation actions and response plans, as well as initiatives to strengthen our defence against cyber threats. In FY2019, we conducted one cyber drill exercise covering critical business areas across the organisation. This included periodic cyber-attack simulations, cyber security awareness sessions for our employees, and an internal cyber security conference.

Awards won:

"Cyber Security Project of the Year 2019"
Cyber Security Awards Night held by CyberSecurity Malaysia

"Share Guide Association Malaysia (SGAM) IT Users Group"
SGAM ICT Conference and Awards 2019 held by SGAM

UTILISING INNOVATIVE TECHNOLOGY TO PROVIDE EXCELLENT OPERATIONAL PERFORMANCE

At TNB, we are strengthening the resilience of our business infrastructure through innovation and digitalisation. We are moving towards greater technology integration to deliver increased flexibility and develop products and services that are more accessible to our customers. The implementation of the Grid of the Future involves the digitalisation of our grid system to accommodate and meet emerging industry demands.

The following projects contribute to the enhancements of our grid infrastructure:

Project	Description	FY2019 Status/Highlights
Distributed Generation (DG) Infrastructure	Enhances network visibility, transparency and reliability for all DG connections.	Network visibility enhancements include: • Upgrading of sensors and transducers in the related equipment to enable bi-directional power flow monitoring • Installation of Supervisory Control and Data Acquisition (SCADA) at all medium-voltage (MV) connected DG (RE) for monitoring & visibility
Advanced Metering Infrastructure (AMI)	Enhances meter monitoring and management functions, such as remote meter readings, load profiling, load management and breakdown detection.	Deployment of smart meters continued in Melaka (Phase 1), while deployment in Klang Valley (Phase 2) commenced in November 2019. In FY2019, there were 281,066 smart meters installed primarily in Melaka. Moving on, the next phase of installation will be in selected areas in Klang Valley, with a target to install 1.2 million smart meters by 2020. *For information on smart meters, please refer to the "Feature Story: Smart Meters" section on page 41 of the report.*
Mobility Solutions	Increases work efficiency amongst field employees.	There is a roadmap to roll out mobility solutions for projects linked to distribution automation, asset management systems, substation maintenance systems and information systems.
Volt-VAr Optimisation	Enables TNB to perform control and system network optimisation, which improves electricity supply quality, increases its efficiency and provides electricity savings to customers.	This project has delivered a total of 272MVAr, which is an increase from 113MVAr in FY2018.
Geospatial Information System (GIS)	Provides accurate location information to manage, operate and analyse TNB's network assets.	Successfully rolled out 11kV CPP Online Approval function and 33kV CPP function to APP users nationwide. GIS also successfully rolled out 11kV CPP functions to APP and AD users in Selangor, Perlis, Pulau Pinang, Kelantan and Melaka. Medium voltage data production has been completed for all states in Peninsular Malaysia.
Distribution Automation	Provides real-time management of network operations.	To date, 22% out of the 72,729 11kV substations have been equipped with SCADA.

EMPOWERING THE NATION

Delivering Sustainable Value

Completion of Kuala Perlis-Langkawi Submarine Cable

As part of TNB's capital expenditure to strengthen the country's electricity infrastructure, particularly the Grid connectivity, we are enhancing the fully automated electric system in Langkawi by installing a 26.5km submarine cable.

The expansion of this 132kV submarine cable is expected to improve the reliability, quality and efficiency of electricity supply to Langkawi, which already has two (2) existing submarine cables. The new cable insulation utilises cross-linked polyethylene insulation material, which is more efficient, cost effective and environmentally friendly than previous oil-filled cable insulation.

Work to lay the submarine cable was completed in 2019.

Digital Connectivity

Our improvements in digitalisation does not focus solely on our electricity infrastructure but it has also contributed to enhancing Malaysia's telecommunication networks.

We have completed the NFCP Pilot project at Jasin, Melaka in FY2019 to test the technical, safety and security aspect of the open-access network and to assess commercial viability of the wholesale broadband business. The project enabled 1,100 homes with better broadband coverage with a speed of up to 1Gbps.

We are also in partnership with telecommunication companies to leverage our network infrastructure and widen the coverage of broadband service nationwide. We are extending our high-speed broadband network to 15,000 more premises in Melaka and 24,000 homes as well as 200 offices in Cyberjaya and Kuala Lumpur's Bangsar South.

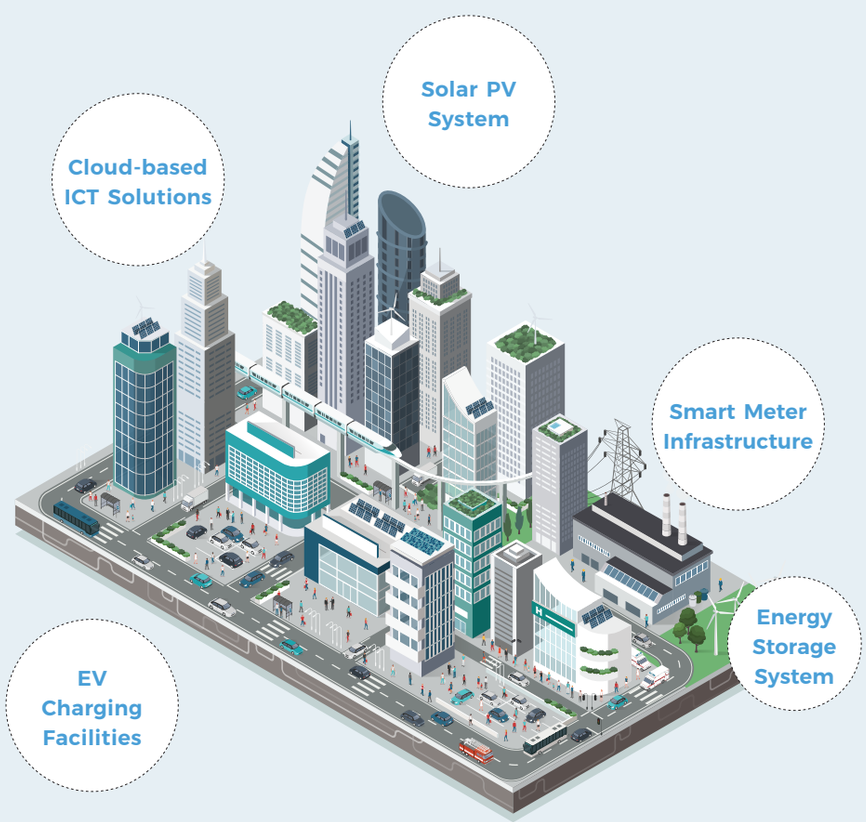
Contributing to Smart Cities in Malaysia

Our research arm, TNB Research Sdn. Bhd. (TNBR), has been appointed to carry out projects related to Smart Cities. This is in line with our vision of developing the Grid of the Future and complements the Government's Smart Cities agenda. TNBR's Smart Cities project utilises the following technologies:

Community Scale Energy Storage System (CESS) for TNB's Energy Management Programme	• Provides a cost effective method to manage system maximum demand, energy efficiency and voltage regulation. It also provides an alternative in utilising energy generated from RE. • Integrated CESS will be applied to TNB's distribution networks.
Smart Street Lighting System	• Enables the detection of street light failures, thus ensuring faster issue resolution. • Pilot installation of 300 lights was successful.
Solar PV System	• Extensive studies related to the installation of solar PV systems, including Large-Scale Floating Solar PV Systems.
Distribution Automation Scheme	• Enables intelligent electronic devices and solutions for distribution network to restore electricity supply through automated power transfer in the event of any disruption. • Pilot demonstration of a conceptual semi-centralised distribution automation solution with communication, IT and data analytics was completed.

Smart Grid Demonstration Project for Sustainable City Development in Melaka

TNBR entered into a strategic partnership with the Malaysia Smart Cities Alliance (MSCA), and was also appointed as project partner to deliver the Smart Grid Demonstration Project in Melaka under the Global Environment Facilities 6 (GEF6) for the United Nations Industrial Development Organization (UNIDO). The GEF6 programme is in collaboration with the Malaysia Industry Government Group for High Technology (MIGHT). The Smart Grid Demonstration Project aims to reduce GHG emissions for sustainable city development by using the following tools:



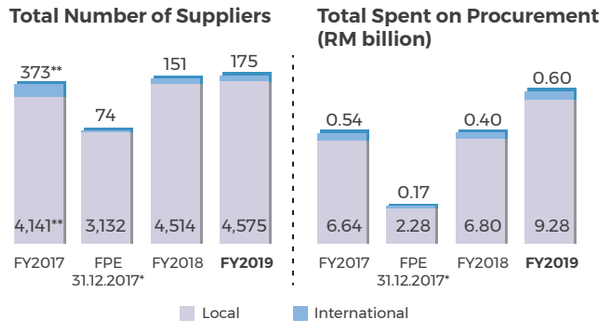
EMPOWERING THE NATION

Delivering Sustainable Value

SUSTAINABLE SUPPLY CHAIN

TNB upholds high standards of ethics, integrity and transparency to ensure a sustainable supply chain. Guided by the Group's Procurement & Supply Chain Policy and Procedures, and the Procurement Code of Conduct to realise our values of treating all our suppliers with respect and integrity.

We support Malaysian suppliers and play a role in strengthening the local value chain ecosystem. This year, approximately 96% of our procurement spend was channelled to local suppliers. We also support our suppliers through capability development for improved business performance and service delivery. In addition to extending business opportunities and monitoring the performance of our suppliers, we have collaborations and provide technical as well as financial support.

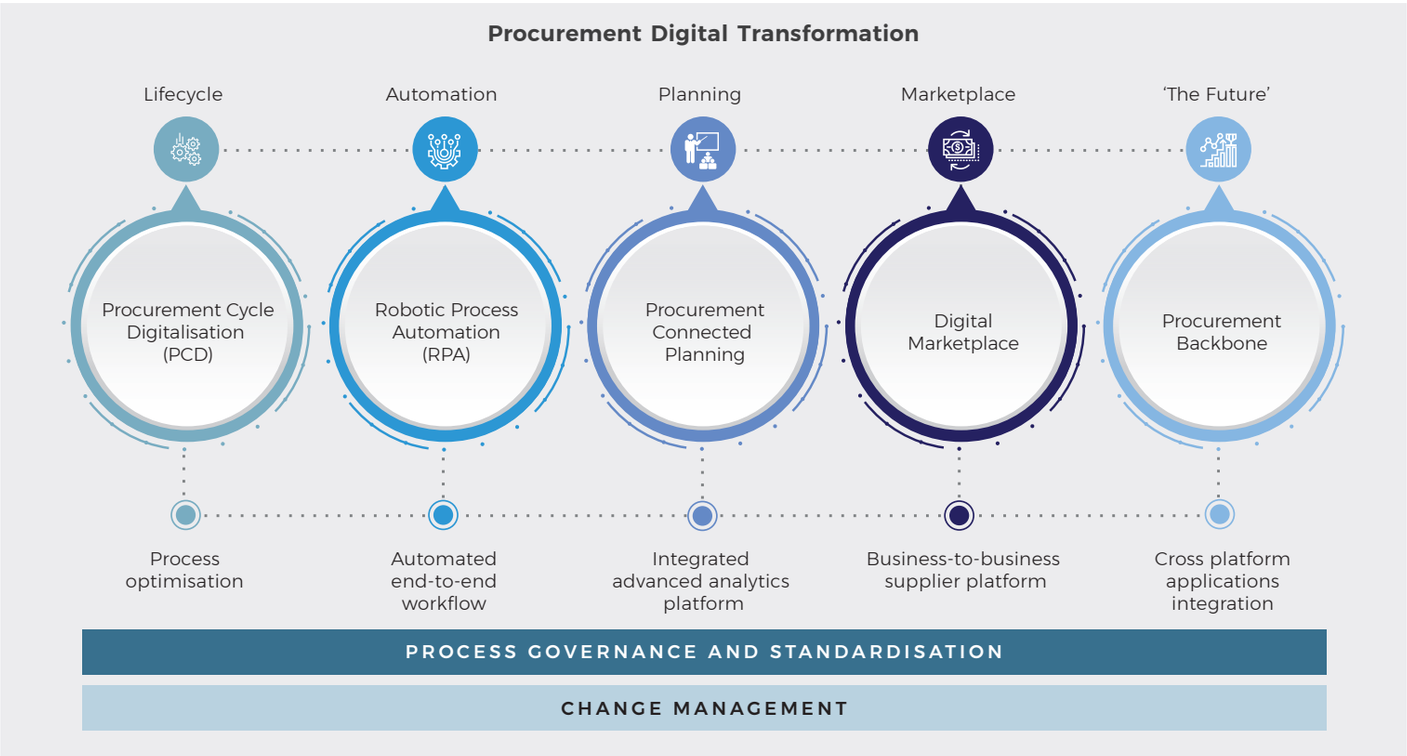


* *FPE31.12.2017 denotes 1 September 2017 to 31 December 2017*

** *Data has been restated due to errata*

Digitalising Procurement

We have fully achieved our Procurement Transformation Programme (PTP), which was established to propel TNB to become a leading example in procurement practices. As we aspire to achieve greater efficiency in our procurement processes, we are embarking on a digital transformation. Towards this end, in FY2019, we rolled out a digital transformation plan across five (5) aspects of our procurement practices, as outlined below:



We launched the Procurement Cycle Digitalisation, a unified platform to enhance our end-to-end procurement and supply chain life-cycle processes. This platform will accelerate digitalisation, catalyse higher productivity and promote good governance and transparency. Our web portal and mobile application went live in 2019, while the full roll-out of the platform is expected to be completed in 2020.

We also rolled out the Procurement Connected Planning platform to facilitate proper planning of procurement and delivery. The platform will enable effective contract monitoring, auto-forecasting of future trends, single source monitoring via the supplier's delivery performance report and visibility of stock at all storage locations. Users will thus be able to make better-informed decisions on their procurement practices.

FEATURE STORY:

RELIABLE ENERGY WITH AFFORDABLE TARIFFS

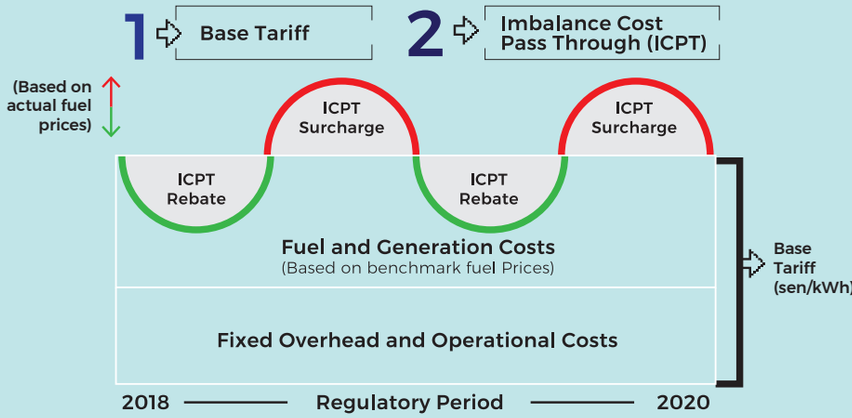
SPV2030 Strategic Thrust 6: Regional Inclusion

UN SDG: Goal Seven (7)

As the national electricity provider, TNB is committed towards contributing to Goal 7 of the UN SDGs by providing access to affordable, reliable and sustainable energy for all. TNB is delicately balancing the energy trilemma to deliver a high quality supply and service while assisting in the transformation of MESI to the benefit of Malaysian customers. In pursuing clean energy, TNB also balances the accessibility and security of electricity supply to achieve the nation's long-term development goals and ensure the upliftment of all communities. This goal is in line with the Government's SPV 2030 Strategic Thrust (ST) 6 on regional inclusion by providing affordable and reliable energy.

The electricity tariff model is subject to the Government's regulatory mechanism, featuring the Incentive Based Regulation (IBR) framework. IBR is a framework for electricity tariff setting, with built-in incentives to improve efficiency of regulated entities and give greater transparency for customers. Under IBR, tariffs comprise the base tariff and Imbalance Cost Pass-Through (ICPT). The base tariff rate is maintained over a three-year period, while ICPT, which includes rebates or surcharge, is reviewed every six (6) months.

UNDER IBR, THE ELECTRICITY TARIFF CONSISTS OF TWO COMPONENTS:



Source: www.energywatch.com.my

Base tariff is set to reflect the base cost for fuel and generation, the capital cost, as well as the operation, maintenance and administration costs of all the regulated business entities. ICPT, on the other hand, is another element in the electricity tariff which acts as an adjustment mechanism to reflect changes in fuel and generation costs in customers' tariffs. This is to ensure financial sustainability and reliability of supply in the system.

If global fuel prices and generation costs decrease, the difference between the price and cost assumptions and the base tariff will be reflected through rebates for customers and thus, reduce their electricity bill. Conversely, an increase in global fuel prices and generation costs cause a surcharge to be imposed on customers. Subject to Government's approval, any surcharge as a result of additional fuel and generation costs may be cushioned by the *Kumpulan Wang Industri Elektrik* (KWIE). Domestic customers with a monthly consumption of more than 300kWh are subjected to the ICPT mechanism. However, to lessen the burden of lower-income groups, domestic customers with a monthly consumption of 300kWh and below are not affected by the ICPT mechanism.

For more information on the ICPT rebates and surcharges to customers, please refer to https://www.tnb.com.my/faq/tariff/.

Additionally, in lower-income households, the Government has a targeted assistance programme to finance their monthly electricity bills, with a subsidy of up to RM40. Those eligible to the subsidy mainly comprise underprivileged and hardcore poor communities who are registered in the *eKasih* system.

The contribution of IBR and ICPT aims to safeguard our customers' access to affordable energy while supporting a sustainable energy industry. This is to ensure financial sustainability of the system and give greater transparency and certainty in tariff setting to the customers.

EMPOWERING THE NATION

7 AFFORDABLE AND CLEAN ENERGY | 8 DECENT WORK AND ECONOMIC GROWTH | 13 CLIMATE ACTION | 17 PARTNERSHIPS FOR THE GOALS

Customer Centricity

We seek to win customer trust and loyalty over the long-term through effective engagement, quality of service and exceptional customer experience.

KEY FY2019 HIGHLIGHTS:

Customer Satisfaction Index (CSI) at 8.1	281,066 customers equipped with smart meters primarily in Melaka, with a limited number in Klang Valley	39 Energy Efficiency programmes conducted for industrial, commercial and domestic customers

Related Material Matter(s):

- Customer Experience
- Energy Efficiency

TENAGA
NASIONAL

EMPOWERING THE NATION

Customer Centricity

WINNING AND SUSTAINING OUR CUSTOMERS

The opening up of the retail space through MESI 2.0 in the future will allow customers to have more choices in obtaining their electricity supply. This portrays a change in the industry landscape that has positioned our customers to play a bigger role in the electricity supply and demand mechanics, leading to higher service expectations that require new and efficient solutions.

We have always taken pride in serving our diverse range of customers with quality products and services, mindful of the importance of fulfilling their needs and continuously finding ways to enhance the customer experience. In recent years, we have also sought to empower our customers with smart solutions that will help them thrive in a more liberalised market.

TNB Customers in Peninsular Malaysia in FY2019

Domestic
7,553,229

We supply most of Malaysia's 32 million population.

Commercial
1,575,198

Customers that carry out commercial activities.

TOTAL
9,248,922

Industrial
30,520

Customers that manufacture goods and services and account for most of our electricity sales.

Others
89,975

Customers from the agricultural and mining sectors, street lighting and RE generators.

Customer Engagement and Satisfaction

We engage regularly with our customers to strengthen their trust in us. Insights garnered from our stakeholder engagements help to improve existing services and develop new solutions. To widen our customer reach, we have put in place various customer interaction through "click, call and come over" platforms, extending these in recent years to include social media, such as Twitter and Instagram, which have become the preferred communication channels.

Our annual Customer Satisfaction Index (CSI) is the primary platform to gauge how happy our customers are with our service delivery and solutions. Several aspects are included in the assessment, such as TNB's reputation, branding, reliability of electricity supply and energy efficiency as well as the customer service experience. The survey is targeted at our domestic, commercial and industrial customers, and is conducted at the national and state levels. In FY2019, we scored 8.1 in our CSI for the fourth consecutive year.

TNB Customer Interaction Channels

Click:
- myTNB Mobile Application
- myTNB Portal
- Social media (@TNBCareLine)
- SMS
- Write-in (email)
- Web Chat

Call:
- Contact Centre & Interactive Voice Response (IVR)

Come Over:
- Kedai Tenaga
- Kiosk
- 3rd Party Services
- Key Account Managers

Customer Feedback Management

Our Customer Feedback Management enables us to understand all critical issues raised by our customers and take proper measures for it to be resolved timely. In 2019, we have made enhancements to our feedback mechanisms, including enabling SMS notifications for complaints and channels for feedback on specific services.

Safeguarding Customer Privacy

With the greater integration of technology in people's lives as well as big data trends, protecting our customers' data and security is becoming top priority. Data privacy and access are managed through the CSOM, our Personal Data Protection Policy and strict security controls. TNB acts in compliance with all regulations, including the Personal Data Protection Act (PDPA) 2010. We remain vigilant against the risk of unlawful access and use of our customers' data.

For more information on TNB's Personal Data Protection Policy, please refer to https://www.tnb.com.my/terms-policy/personal-data-protection-policy-pdpa/.

To date, we have implemented over 100 security controls to strengthen our online payment security through the Payment Card Industry Data Security Standard (PCI DSS). So far, there have been no reported complaints regarding the breach of customer privacy or loss of customer data.

For more information on cyber security, please refer to the "Delivering Sustainable Value" section on page 30.

Key Enhancements to Customer Feedback Management in FY2019

SMS notifications enabled for complaints and service request acknowledgements and completion

"On hold by customer" feature added for customer requests and complaints that are not ready to be processed or delayed

New category added for Smart Meters

Rerouting capability added for complaints and service requests from one unit to another without having to complete and recreate new ones

BEYOND THE kWh SERVICES

We constantly look for new ways to enrich the lives of our customers. We empower them with tools to navigate the complexities of the electricity supply industry and adopt a customer-led approach to improve customer experience. Leveraging our energy efficiency (EE) and RE solutions, we are equipping them for the future of the electricity supply industry.

Enabling Smarter Choices for Our Customers

Our smart solutions for customers comprise the AMI initiative, including the deployment of smart meters, and several EE solutions to promote a more sustainable lifestyle.

For more information on smart meters, please refer to the "Feature Story: Smart Meters" section on page 41.

For non-domestic customers, we offer a solution for our customers to monitor and manage their energy consumption via our Maevi-B Smart Energy Management platform. Maevi-B is a cloud-based smart energy management platform which allows its users to monitor, analyse and manage the energy consumption of all their assets in real-time from a single location, no matter where they are. Customers who have adopted the platform since it was officially launched in August 2019 have seen up to 800MWh in electricity savings.

For more information on Maevi-B, please visit http://maevib.com/.

We also offer Energy Performance Contracts (EPC) to improve EE through investment in energy efficient equipment. To date, about RM3 million in contract value has been signed between TNBES and facility owners.

In FY2019, we also conducted 39 EE awareness programmes for various key stakeholders, including our commercial, industrial and residential customers, Government agencies, NGOs, community leaders, university and school students as well as our employees. In addition to EE talks, gallery walks and leaflets, we organised a "Know Your Power – Save Our Planet" campaign as our 2019 flagship programme with the aim to educate Malaysians on how power saving efforts can safeguard environmental sustainability. In conjunction with this campaign, we organised the TNB Energy Night Run.

For more information on the TNB Energy Night Run, please refer to the "Prioritising Health, Safety and Personal Well-Being" section on page 67.

EMPOWERING THE NATION

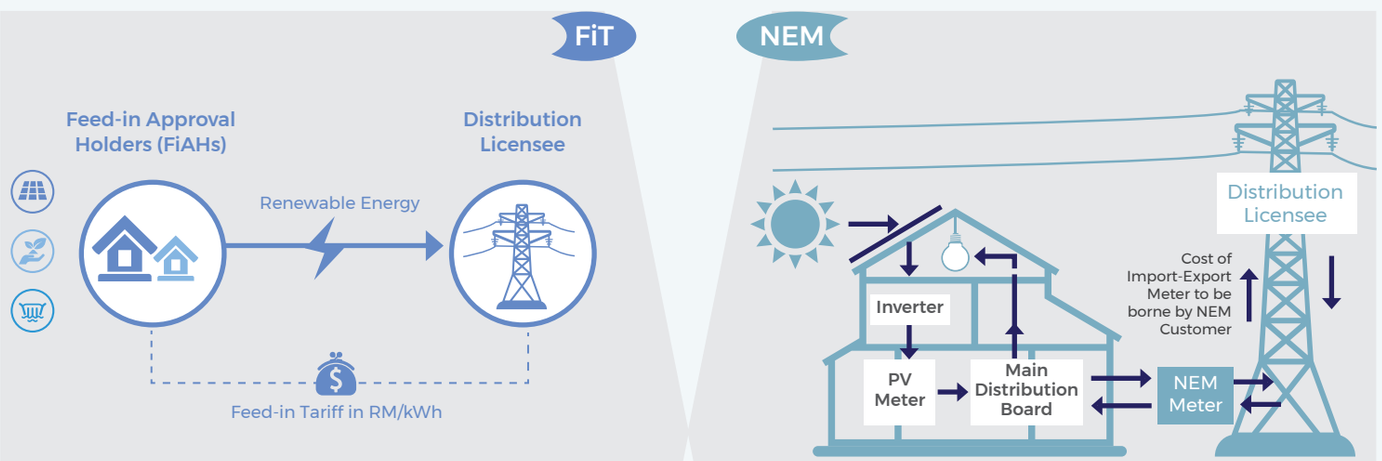
Customer Centricity

Encouraging the Local RE Market through Facilitating Customers' Needs

In support of the Government's initiatives to drive RE development in Malaysia, we provide our customers with several avenues for RE generation and supply, including the Feed-in Tariff (FiT) programme and the NEM scheme.

The FiT enables owners of solar PV systems with Feed-in Approvals to supply electricity to the grid at a fixed price. To date, 9,105 FiT projects have been commissioned with an installed capacity of 521MW. Meanwhile, NEM promotes a prosumer ecosystem by allowing customers to export excess energy produced from their solar PV systems on their rooftops or premises to the grid on a "one-on-one" basis. As of 2019, we have secured 1,273 participants with a total capacity of 74.5MW. Through GSPARX and TNBX, we have implemented beyond-the-meter transactions for SARE, such as Power Purchase Agreement (PPA). This year, 74 contracts have been secured by our commercial and industrial customers through SARE while 69 residential customers have acquired solar PV panels through an outright purchase, both contributing to about 25MW of RE generating capacity. This is a substantial increase from the 1.3MW worth of secured solar PV projects in FY2018. We also offer a self-consumption scheme (SELCO), enabling customers to generate electricity for their own use.

Both FiT and NEM involve customers generating their own electricity from RE sources and selling it to the grid, either in full or excess generation. Further comparison of the schemes can be seen below:



- Introduced in 2011 for several RE resources including solar, mini hydro, biomass and biogas.
- Applicable to FiAH registered with Sustainable Energy Development Authority (SEDA).
- The RE quota for solar has been removed, but maintained for other RE sources.
- FiAH can sell electricity to Distribution Licensees (i.e. companies that distribute electricity) at a fixed premium rate (the FiT rate), for a fixed period of time.

- Introduced in 2016 for solar PV rooftops only.
- Applicable for TNB customers in Peninsular Malaysia who are registered with SEDA.
- Electricity produced from the installed solar PV system will be consumed by the producer first, and any excess will be exported to TNB on a "one-on-one" offset basis*.

* *Every 1kWh exported to the grid will be offset against 1kWh consumed from the grid.*

For more information, please refer to www.seda.gov.my.

Additionally, in FY2019, we introduced myGreen+ and mGATS, which are expected to boost green energy development in Malaysia. myGreen+ provides customers with the option of purchasing green energy without having to install RE fittings while mGATS allows customers to purchase Renewable Energy Certificates (REC).

For more information on myGreen+ and mGATS, please refer to the "Feature Story: myGreen+ and mGATS" section on page 51.

FEATURE STORY:

SMART METERS

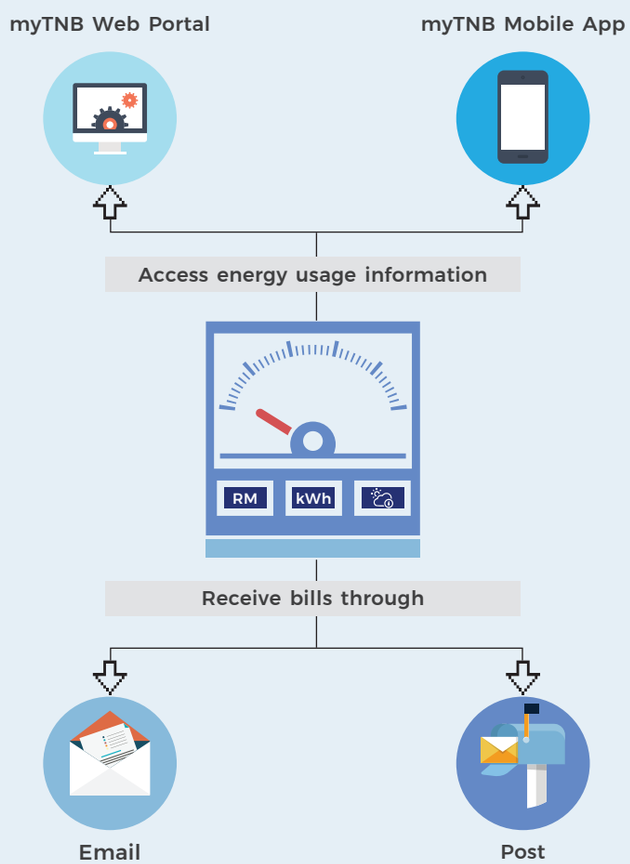
SPV2030
Strategic Thrust 2:
Key Economic Growth

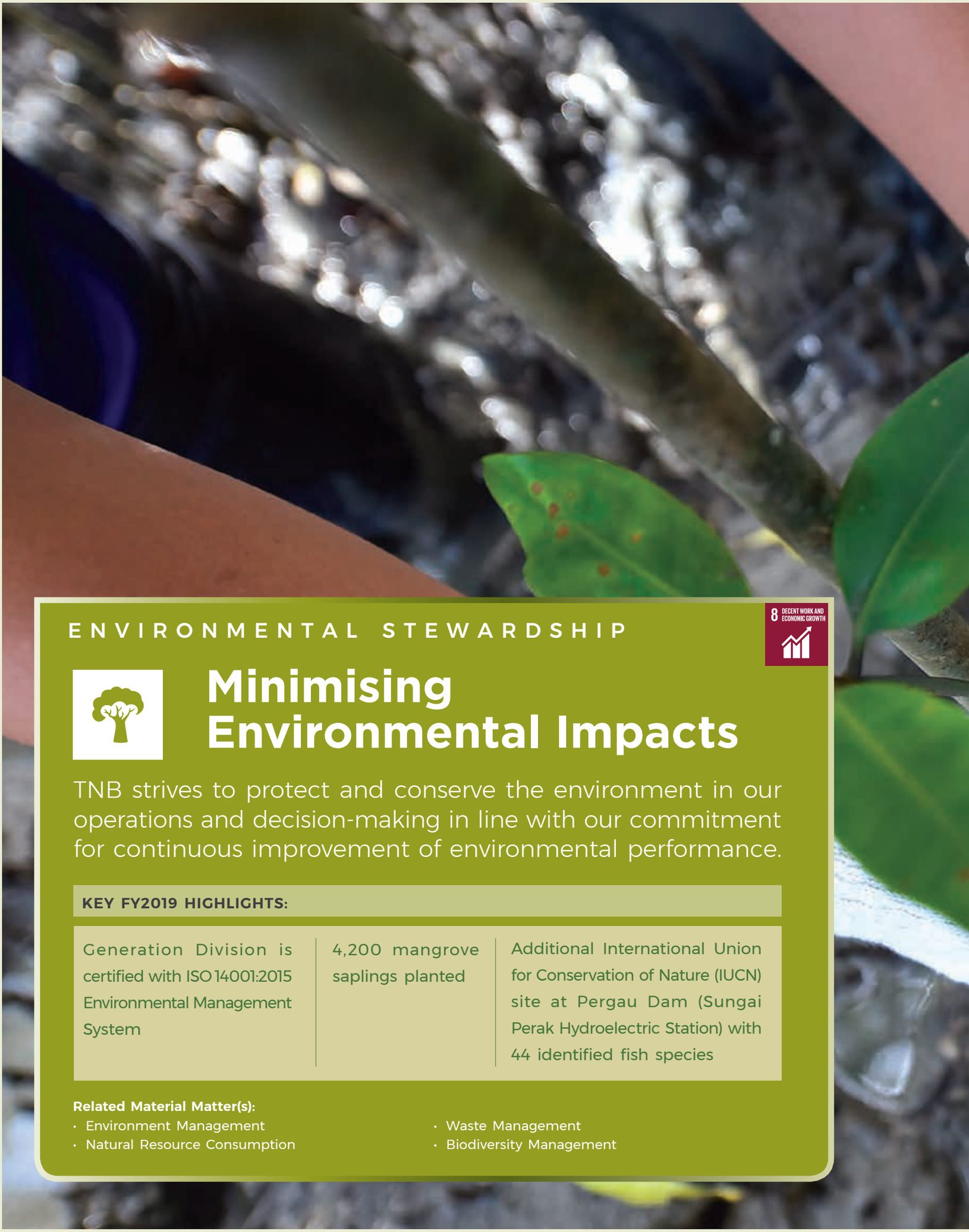
UN SDG:
Goal Eight (8)

In view of Reimagining TNB's transition towards Grid of the Future journey, TNB is diligently implementing AMI, also known as smart meters, to help improve our service efficiency and provide new customer experience through digitalisation. The initiative aligns with TNB's commitment towards Goal 8 of the UN SDGs and SPV 2030's ST2 by driving productivity and digital innovation, and key economic growth activities.

Compared to the conventional electricity meter, smart meters are equipped with additional digital and telecommunication facilities for two-way communication. This enables the smart meter to record customers' electricity usage and automatically communicates the information daily through various channels, primarily using Radio Frequency (RF) and to a lesser extent Power Line Carrier (PLC) and Cellular Network technologies. This information is available through myTNB mobile application and myTNB web portal (data down to 30-minute intervals), allowing customers to easily track their previous days' consumption data. Through these applications, customers are empowered to manage their energy consumption more efficiently, resulting in a reduction of electricity bills and carbon footprint.

TNB has set a target of installing 9 million smart meters across Peninsular Malaysia in phases under the AMI initiative by year 2026. A total of 281,066 smart meters were successfully installed primarily in Melaka and with limited numbers in Klang Valley as of December 2019. Phase 2 of the initiative targets to install 1.2 million smart meters in selected urban areas by 2020.





ENVIRONMENTAL STEWARDSHIP

8 DECENT WORK AND ECONOMIC GROWTH

Minimising Environmental Impacts

TNB strives to protect and conserve the environment in our operations and decision-making in line with our commitment for continuous improvement of environmental performance.

KEY FY2019 HIGHLIGHTS:

Generation Division is certified with ISO 14001:2015 Environmental Management System	4,200 mangrove saplings planted	Additional International Union for Conservation of Nature (IUCN) site at Pergau Dam (Sungai Perak Hydroelectric Station) with 44 identified fish species

Related Material Matter(s):

- Environment Management
- Natural Resource Consumption
- Waste Management
- Biodiversity Management

ENVIRONMENTAL STEWARDSHIP

Minimising Environmental Impacts

GOVERNING ENVIRONMENTAL MATTERS

Protecting the environment in areas where we operate is one of our key priorities to maintain business sustainability. In view of the importance of environmental conservation, our Generation Division is certified with ISO 14001:2015 Environmental Management System.

This year, we have included environmental standard requirements under our Health, Safety and Environment Management System (HSEMS). The objective is to enhance our environmental governance by clearly outlining responsibilities and accountabilities across all levels of our employees.

For more information on TNB's HSEMS, please refer to the "Prioritising Health, Safety and Personal Well-Being" section on page 64.

We comply with all environmental laws and regulations, while also adopting the Guided Self-Regulation (GSR) in 2017. The GSR programme was launched by the Department of Environment (DOE) to help organisations regulate their own environmental performance and compliance. It includes environmental mainstreaming tools, such as guidance on Environmental Policy, Budgeting, Facility and Transparency. Under this programme, our real-time power plant emissions data is linked to the DOE's monitoring system for effective reporting on compliance. In FY2019, we expanded the GSR to several divisions and subsidiaries as part of a broader initiative to cover all divisions and subsidiaries.

Our environmental performance is overseen by the Environmental Management Committee, which comprises the Environmental Performance Monitoring Committee and the Environmental Regulatory Compliance Monitoring Committee.

NATURAL RESOURCES MANAGEMENT

The nature of our business requires us to utilise natural resources, mainly fuel and water, on a large scale. These resources are essential to generate electricity, and we are aware of the importance of managing our consumption not just for business sustainability, but also the impact that it has on the environment.

Consistent with the Government's fuel mix policy in addressing the energy trilemma, coal and gas are used extensively in our power generation. Along with increasing electricity demands, we have inevitably seen an increase in coal consumption, particularly sub-bituminous coal. To minimise our environmental impact, particularly our emissions footprint, we use the latest USC-fired technology to increase the thermal efficiency such that more energy can be extracted from the same volume of fuel.

We also use natural gas supplied through pipes to generate electricity in our gas power plants. While natural gas is a cleaner fossil fuel that produces less emissions than other fossil fuels, such as coal and oil, our utilisation of enhanced gas turbine technology with better thermal efficiency (of approximately 60%) results in higher energy extraction. We are thus able to reduce our consumption of natural gas.

Our Temengor Hydroelectric dam is one of the major nature reserve for flora and fauna in Perak.

In certain circumstances, such as during fuel curtailment and maintenance, we use distillate and medium oil fuel which are secondary fuels.

For more information on our cleaner power generation, please refer to the "Delivering Sustainable Value" section on page 26.

We continue to implement initiatives to enhance our resource efficiency. The use of water in our operations is not only for the generation of hydroelectric power but it is also a significant component of thermal power plants as it facilitates steam generation and acts as a cooling agent. We withdraw our water from various sources, such as surface water, groundwater, seawater and third-party water.

We make sure to carefully monitor our water consumption. All our power plants have a system that tracks water consumption monthly under the plant optimisation and waste minimisation programme, in compliance with ISO 14001:2015. Any high water consumption that deviates from the norm will be investigated and followed up with an action and mitigation plan. In FY2019, our total water consumption across all TNB operations came up to 7,269.26 megalitres, a decrease of about 9.7% from a total of 8,047.94 megalitres in FY2018.

WASTE MANAGEMENT

We seek to practise optimal waste management which entails reducing waste generation within our business and ensuring safe disposal, where applicable. Our centralised waste management system and practices comply with relevant regulations. We work closely with DOE to ensure that our wastes and effluents are managed and disposed as per their regulatory requirements. Our Health, Safety and Environment (HSE) Guidelines on Scheduled Waste Management, along with optimisation programmes, further guide our waste management practices.

This year, we provided more recycling bins to contribute to waste segregation at source. We collaborated with multiple vendors on various waste management initiatives, including recycling waste oil, recovering and recycling faulty transformers, and the partial recovery of e-waste.

BIODIVERSITY MANAGEMENT

The nature and scale of our operations, as well as the geographical spread, will raise inherent environmental challenges. Conservation and management of environmental risks are not only essential to ensure our long-term business sustainability, but they also benefit the communities where we operate.

TNB works with environmental and governmental organisations, such as the Forest Research Institute of Malaysian (FRIM), Department of Wildlife and National Parks Peninsular Malaysia (PERHILITAN), Forestry Department Peninsular Malaysia and Department of Fisheries Malaysia, to understand how we can better protect biodiversity hotspots and contribute to the well-being of our communities. This year, we continued our International Union for Conservation of Nature (IUCN)'s Red List studies at the Hulu Terengganu Hydroelectric Station, Sungai Perak Hydroelectric Station (Temenggor Dam), and Sungai Perak Hydroelectric Station (Pergau Dam). In FY2019, a total of RM5.68 million, RM0.26 million and RM1.76 million were spent on these three (3) sites, respectively.

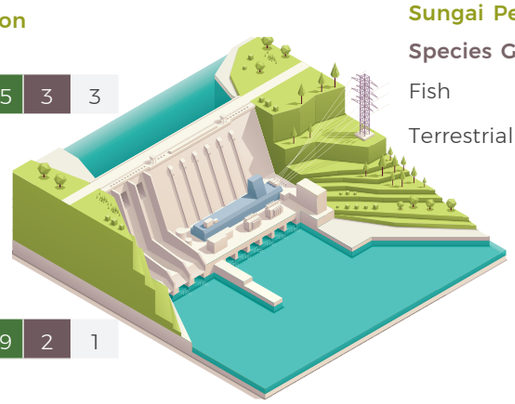
Key Findings of TNB's IUCN Red List Studies as of FY2019

Site:
Hulu Terengganu Hydroelectric Station

Species Group	Number of Species						
Fish	0	0	0	0	45	3	3
Terrestrial	N/A*						

Site:
Sungai Perak Hydroelectric Station (Temenggor Dam)

Species Group	Number of Species						
Fish	0	0	0	0	39	2	1
Terrestrial	N/A*						



Site:
Sungai Perak Hydroelectric Station (Pergau Dam)

Species Group	Number of Species						
Fish	0	0	0	0	40	2	2
Terrestrial	0	3	0	6	41	1	3

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

** There is no quantitative data for FY2019 as the study on terrestrial species for the site were concluded in FY2018.*

These hydroelectric stations continue to pursue and implement other biodiversity-related initiatives, as highlighted below:

Site	Initiatives carried out in FY2019
Hulu Terengganu Hydroelectric Station	• Forest rehabilitation: Seedlings from forest trees and grass were replanted to promote forest regeneration in a disturbed site • Kelah Sanctuary: The Tagal system was implemented at Sungai Tembat and Sungai Sireh • Environmental Education and Awareness Camp was organised for secondary school students
Sungai Perak Hydroelectric Station	• Establishment of *Taman Perlindungan Ekosistem Sultan Ismail Petra* at Pergau Dam is still at the early stages of implementation • Pergau Scientific Expedition 2019: This was participated by local universities, PERHILITAN and FRIM and the data obtained was used to facilitate the State Government's plan to gazette *Taman Perlindungan Ekosistem Sultan Ismail Petra* as a State Park • Developed Fish Resources Management Plan for sustainable hydroelectric operation and a business model to create potential economic growth for the local community via the Community Based Tourism (CBT) programme. This is a continuity study for a project on natural resources conservation of Royal Belum State Park, which was completed last year

We take pride in the fact that many of our biodiversity initiatives have created social benefits. For instance, TNBR has initiated sport fishing using the catch and release method at the lakes formed by hydro dams. Primarily intended to prevent overfishing, the initiative also benefits the local communities as they can generate income from the eco-tourism activity. An example that showcases this is at Hulu Terengganu, where there was a cumulative gross income from this eco-tourism of RM115,852 from the period of June 2018 to June 2019.

We are also pleased with the continued success of our mangrove planting initiative that has been implemented since 2013. Starting off as an effort to replenish the mangrove ecosystem surrounding our operations in Manjung, Perak, run by TNB Janamanjung Sdn. Bhd. (TNBJ), it has been expanded to other sites. Mangrove trees are crucial to Malaysia's coastal ecosystem and offer various benefits, from providing protection against coastline erosion and saltwater intrusion to being a breeding ground for various aquatic species. We continue to be responsible in preserving mangrove ecosystems that have been impacted by our operations. To date, 9,200 mangrove saplings have been planted under this initiative which has grown to include various community-based activities.

To read more on this initiative, please refer to the "Strengthening Partnerships Brightening Surrounding Communities" section on page 74.

ENVIRONMENTAL STEWARDSHIP

Climate Change

We are committed towards a low-carbon economy by embracing and supporting renewable energy generation and energy efficiency to reduce greenhouse gas emissions.

KEY FY2019 HIGHLIGHTS:

5.38 million tCO_2e GHG emissions mitigated	Rolled out the GHG Emissions Management System (GEMS)	Wisma TNB Jalan Anson won First Runner Up in the National and ASEAN Energy Awards 2019 for Energy Management in Building

Related Material Matter(s):

- Climate Change
- Renewable Energy
- Energy Efficiency

ENVIRONMENTAL STEWARDSHIP

Climate Change

ADDRESSING CLIMATE CHANGE

Climate change mitigation and adaptation are both equally important and time-sensitive in tackling today's climate crisis. As a response, the Malaysian Government remains committed to achieve its target of reducing 45% of GHG emissions intensity by 2030 relative to the emissions intensity of GDP in 2005. This consists of 35% on an unconditional basis and a further 10% upon receipt of climate finance, technology transfer and capacity building from developed countries. TNB is supportive of the Government's goal as we transition towards a low-carbon economy. This approach addresses our stakeholders' concerns while ensuring business resilience against climate change.

Our mitigation efforts are reflected in carbon footprint monitoring, expansion of low-carbon, and cleaner power generation assets, as well as EE practices. We have also intensified our research and development (R&D) focus on alternative energy production and carbon capturing methods.

This year, we are looking to address climate change in a more holistic manner by studying the adoption of the TCFD framework. The framework offers recommendations for disclosing clear, comparable and consistent information about the risks and opportunities presented by climate change through the aspects of Governance, Strategy, Risk Management, and Metrics and Targets. Adoption of these recommendations is expected to help TNB demonstrate better responsibility and foresight in consideration of climate issues, leading to smarter, more efficient allocation of capital, while smoothening the transition to a more sustainable, low-carbon economy.

In FY2019, TNBR initiated a study based on the framework, which included multiple engagements through workshops and knowledge sharing sessions with management and executives of relevant divisions to seek feedback and raise awareness on climate change. The study involves a climate scenario analysis and an Energy Transition assessment to understand and test potential futures for the business. It will not only enable TNB to achieve a holistic understanding of emerging issues that will affect our business, but it will also improve capabilities within the organisation, anticipate key climate risks and opportunities, and enhance business resilience.

The management of climate-related matters is currently under the purview of the SDC, with oversight from the Board.

OUR GHG EMISSIONS

Monitoring GHG emissions helps us to identify, measure and track GHG emitted by our business activities. In FY2019, we enhanced our GHG emissions management by introducing GEMS, a web-based data input and processing software that calculates GHG emissions across our operations.

Our GHG emissions assessment covers Scope 1 (Direct Emissions) and Scope 2 (Indirect Emissions). Since 2017, our total emissions and emissions intensity have been increasing due to the addition of a new power plant which was necessitated by increasing demand for electricity, thus resulting in higher cumulative generation output.

We have also expanded our RE generation assets to increase our GHG mitigation efforts. Our LSS plant in Sepang has been fully operational since the end of FY2018, generating more than 110GWh per year. In FY2019, we have mitigated approximately 57,174 tCO_2e of GHG emissions. Our second LSS in Bukit Selambau will be fully operational by the end of FY2020 and is expected to mitigate about 35,840 tCO_2e of GHG emissions.

GHG Emissions**	Unit	FY2017	FY2018	FY2019
Scope 1	million tCO_2e	33.1	37.0	33.5
Scope 2	million tCO_2e	0.40	0.09***	0.11***
Emissions mitigated	million tCO_2e	6.70*	5.75	5.38
Emissions intensity	tCO_2e/MWh	0.54	0.57	0.56

* *This data has been restated due to additional emission mitigation from advanced combined cycle technology (TNB Prai Sdn. Bhd.) and electric vehicles.*

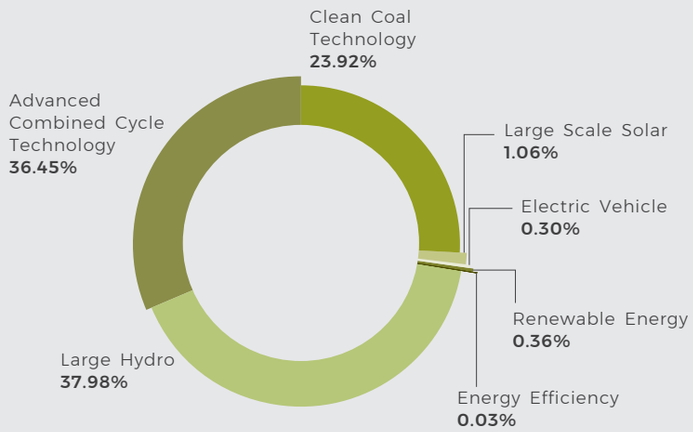
** *This data is for TNB Company only.*

*** *Data based on new calculation method.*

Our other RE assets, such as mini hydro, biomass, biogas, solar hybrid plants and TNB-owned NEM, have contributed to our GHG emissions mitigation efforts where approximately 19,238 tCO_2e of GHG emissions were avoided in 2019. Likewise, our low-carbon power generation assets, such as large hydro and cleaner fossil fuel power plants, also play a significant role in mitigating GHG emissions.

For more information on our low-carbon generation, please refer to the "Delivering Sustainable Value" section on page 26.

GHG Emissions Mitigated in FY2019



Carbon Mitigation Research and Development

TNBR's Renewable Energy and Green Technology unit conducts R&D to support the Group's green initiatives which includes projects focused on reducing GHG emissions. Amongst its RE generation and carbon capturing projects include the following:

Carbon Capture and Utilisation through Crops Plantation	Research on the effectiveness of CO_2 capture and utilisation by crops using the greenhouse farming system.
Floating Solar PV System (FSPV) on Coal Ash Pond	Development, installation and operation of FSPV on unutilised coal ash ponds at coal-fired power plants. The pilot FSPV at TNB Janamanjung plant has been connected to the Grid, with a generation capacity of 105kWp.
Non-Thermal Plasma Assisted Biogas Synthesis System	Development of a non-thermal plasma system to produce chemicals from biogas such as converting carbon dioxide into gaseous fuel to be used in boilers.

ENVIRONMENTAL STEWARDSHIP

Climate Change

Managing Energy Efficiency

Energy efficiency plays an important role in mitigating climate change by promoting prudent and effective energy consumption. Since 2014, TNB's buildings and power plants have been undergoing EE improvement programmes via systematic performance management. Initiatives in the pipeline include improvement of equipment and enhancement of employees' EE competencies. As a result of our ongoing programmes, we recorded a total of 1,325,323kWh of energy savings this year.

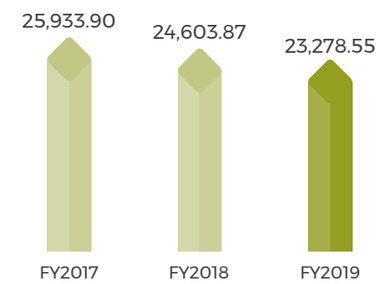
In FY2019, we developed a Sustainability Energy Management (SEM) Framework based on the ISO 50001:2011 Energy Management System and ASEAN Energy Management System (AEMAS) to promote energy efficiency in our buildings and reduce our emissions.

We also carried out EE initiatives in our offices by refurbishing and retrofitting various facilities. Through our Energy Efficiency Rewards Programme that started in 2014, we have mitigated a total of 914.47 CO_2/MWh of GHG emissions from TNB's 12 main buildings across Peninsular Malaysia this year.

Our EE retrofitting efforts have been recognised by national and international organisations. In FY2019, the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) awarded Wisma TNB Jalan Anson as the First Runner Up in the National Energy Awards 2019 for Energy Management in Buildings and Industries – Small/Medium Building category. This same building went on to win the First Runner Up in the ASEAN Energy Awards 2019 for Energy Management in Buildings and Industries under the Small/Medium Building category, awarded by the ASEAN Centre for Energy.

In terms of capacity building, we provide EE trainings for our employees and conducted programmes to develop more energy managers.

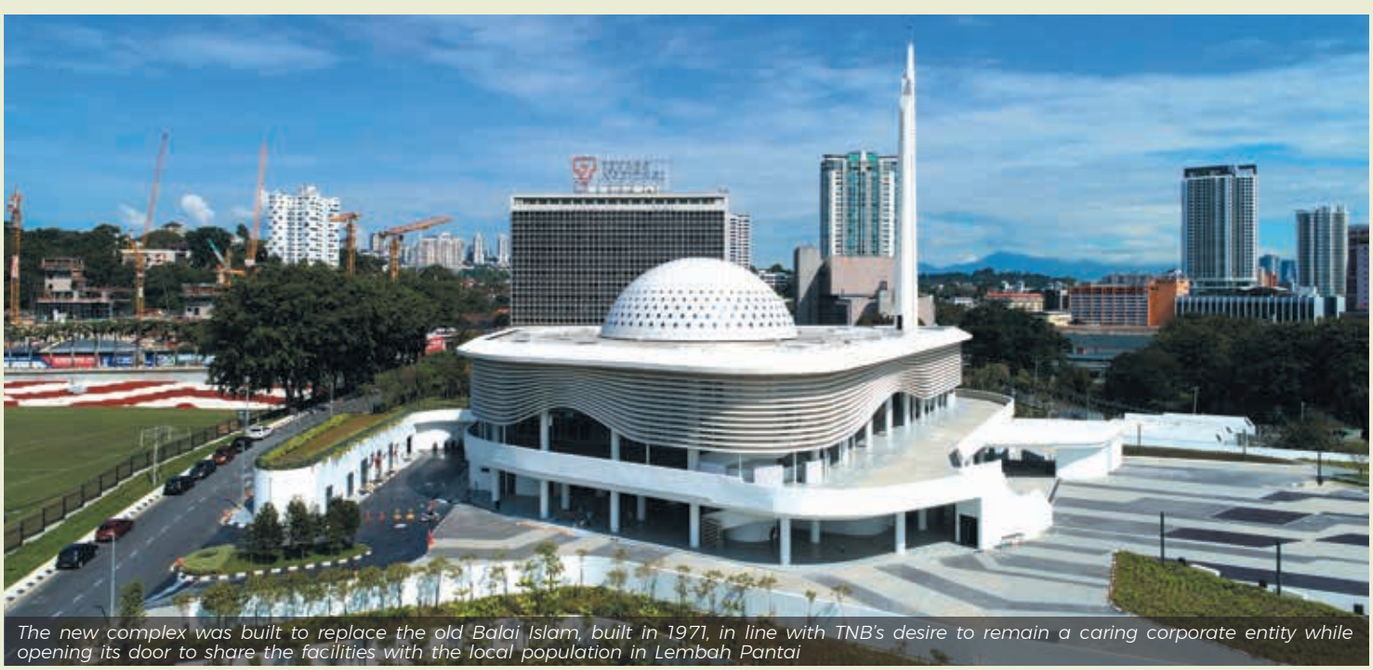
Energy Consumption for 12 TNB Buildings* (MWh)



** Please refer to the Performance Table on page 85 for the full list of buildings.*

An-Nur Balai Islam Complex

The An-Nur Balai Islam Complex located at TNB headquarters was completed in FY2019 and designed to fulfil the Green Building Index (GBI) Certification from Malaysia Green Building Council. The complex includes a large prayer hall that can accommodate 2,850 pax (*Jemaah*) in both the air-conditioned and terrace areas, two-level car park podium, motorcycle parking space, a podium rooftop event space, six (6) units of *Imam* quarters, a multipurpose hall, a cafeteria, an office for the Islamic Affairs Unit (*Unit Hal Ehwal Islam*) and a funeral management area. The complex is also surrounded by a 1.74-acre lush greenery area. To reduce its carbon footprint, the Complex utilised recycled and local materials as well as incorporated EE features, such as sub-meters, which enable detailed monitoring of energy consumption. It is also equipped with rainwater harvesting and recycling infrastructure to reduce potable water consumption.



The new complex was built to replace the old Balai Islam, built in 1971, in line with TNB's desire to remain a caring corporate entity while opening its door to share the facilities with the local population in Lembah Pantai

FEATURE STORY:
myGreen+ AND mGATS

SPV2030 Strategic Thrust 6: Regional Inclusion

UN SDG: Goal Thirteen (13)

In line with Malaysia's ratification of the 2015 Paris Agreement, TNB is committed towards a low carbon economy by embracing and supporting RE energy generation and reduction of GHG emissions. We are cognisant of our role to assist the Government's target to achieve 20% RE generation capacity mix by 2025, while also contributing to the Goal 13 of the UN SDGs on Climate Action and SPV2030's ST 6 in promoting regional inclusion via green energy accessibility.

In 2019, TNB introduced the Malaysia Green Attribute Tracking System, (mGATS) and myGreen+ schemes to encourage the uptake of RE. mGATs provides a platform for corporations that generate RE, retailers and customers, to trade energy harvested from renewable sources through the Renewable Energy Certificate (REC). The REC is a certificate that represents the delivery of 1MWh of green energy to the grid and the bearer of REC can directly sell green energy to buyers through mGATS. In 2019, TNB issued approximately 700,000 RECs.

The myGreen+ scheme was introduced as an option for customers to opt for green energy without having to spend on the high initial investment of rooftop solar or other forms of RE generation. This scheme offers customers a premium tariff of 8 sen/kWh in 100kWh per block through a subscription certificate issued by TNB. Since its launch in October 2019, a total of 1,016MWh units were subscribed to myGreen+ by customers in supporting green energy.

For more information on these two (2) programmes, please refer to https://www.tnb.com.my/mygreenplus/.

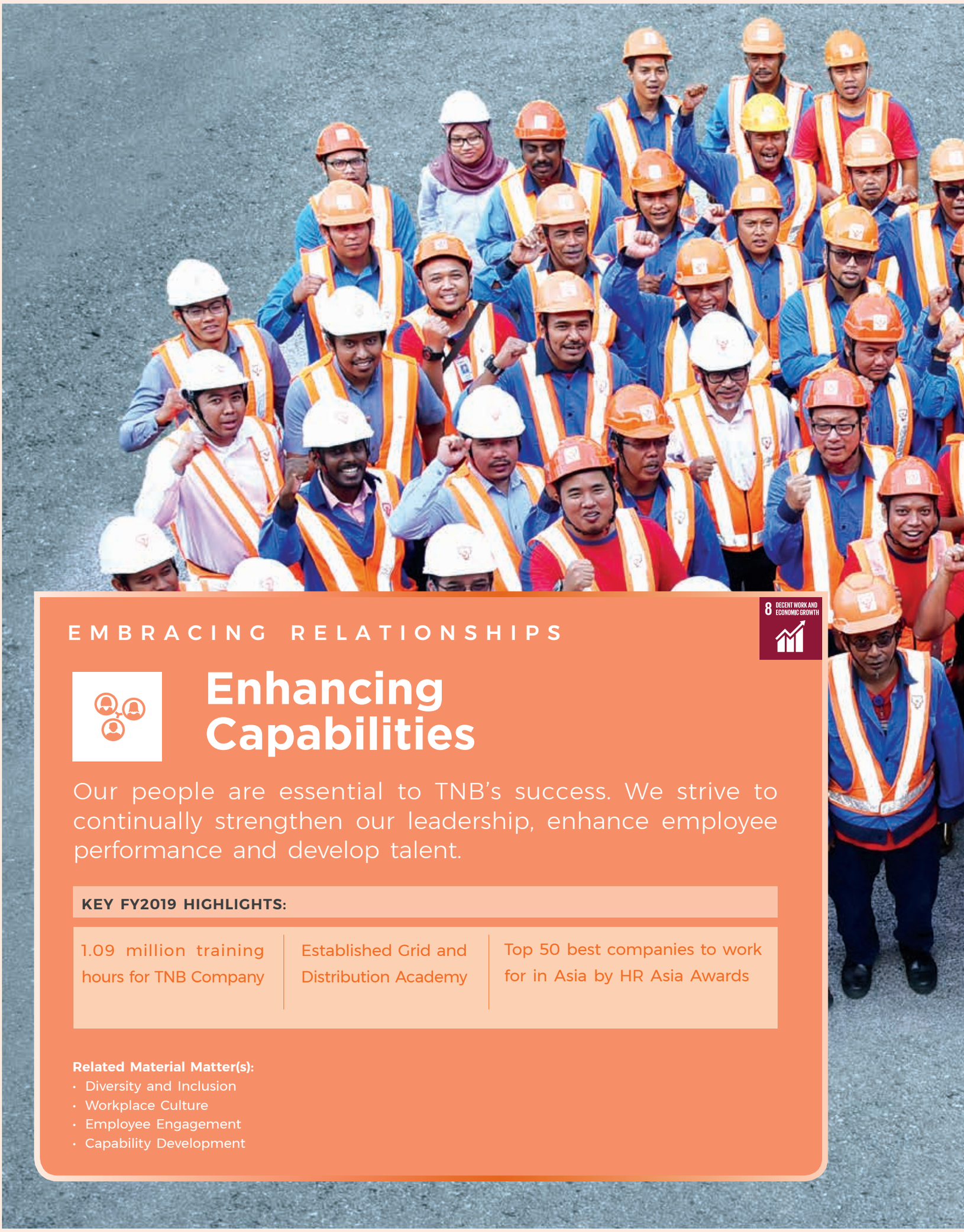
myGreen+ Updates as of FY2019:

Total Opening Quota (MWh)
37,267

Subscriptions (MWh)
1,016

No. of Customers Subscribed
44

Available Quota (MWh)
36,251



EMBRACING RELATIONSHIPS

8 DECENT WORK AND ECONOMIC GROWTH

Enhancing Capabilities

Our people are essential to TNB's success. We strive to continually strengthen our leadership, enhance employee performance and develop talent.

KEY FY2019 HIGHLIGHTS:

1.09 million training hours for TNB Company	Established Grid and Distribution Academy	Top 50 best companies to work for in Asia by HR Asia Awards

Related Material Matter(s):

- Diversity and Inclusion
- Workplace Culture
- Employee Engagement
- Capability Development

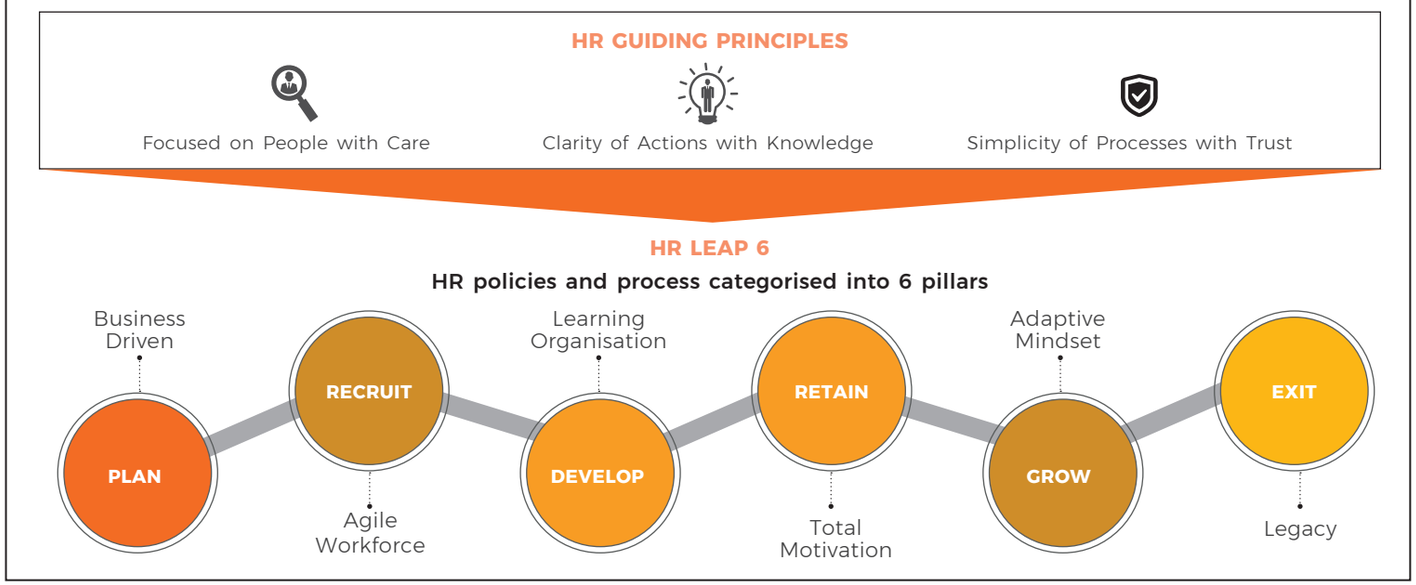
EMBRACING RELATIONSHIPS

Enhancing Capabilities

We are committed to attract, develop and retain the right talent as we recognise that the capability of our employees and workplace culture are key components in delivering our Reimagining TNB strategy. We have been recognised as an "Employer of Choice" and are driven to consistently prove it. In FY2019, we were ranked amongst the "Top 50 Best Companies to Work For in Asia" by the HR Asia Awards. This was just the latest in a string of HR awards we have garnered.

Our Human Resources (HR) strategy, HR Leap 6 was launched in FY2018 and comprises guiding principles that aligned our capability development with Reimagining TNB. The six (6) pillar strategy guides the formation and review of our HR Policies and Processes and cultivates a high-performing culture. This has helped to enhance our talent management system while improving our employees' experience.

HR Leap 6 Implements the HR Guiding Principles



In FY2019, we embarked on a journey to develop a new 5-year HR Strategic Plan comprising an improved HR Operating Model and a detailed implementation plan from 2020 to 2025. We have been conducting internal engagement sessions with senior management and HR leaders to review our existing HR Operating Model and identify key focus areas.

Recognising that having the right workplace culture is important to embed the organisation with shared values, we have initiated the Reimagining Culture to redefine TNB's purpose, aspiration and core values in view of our business transformation. Since the inception of Reimagining Culture, syndication sessions were held with top management and 20 Reimagining Culture workshops were conducted involving 435 employees at all levels to help develop our culture narrative.

For more information on our Shared Values, please refer to the "Spirit of Responsibility" section on page 20.

We have received a number of awards in FY2019 that highlight our successful actions to promote a positive work environment, as below:

People-related Awards

Graduate Choice Award
Champion – GLC Company

HRD World Congress & MIHRM (Malaysia)
Malaysia's Best Employer Brands Awards

Best Companies to Work For in Asia
Amongst Top 50 out of 350 Companies

HR Development (Minister Awards)
Champion – Large Service Sector

HRD World Congress (Mumbai, India)
Best HR Organisation to Work For

HR Asia Recruitment Award
Bronze – Most Innovative Recruitment Strategy (in-house)

HR Excellence Award
Silver for Excellence in Employer Branding

TALENT ATTRACTION AND RECRUITMENT

We are not only focused on recruiting talents with the relevant skills, but also individuals who share the same values as our organisation.

Key Talent Recruitment Initiatives in FY2019:

- Participation in local career fairs (International Islamic University Malaysia (IIUM), National Defence University of Malaysia (UPNM), University Malaysia Terengganu (UMT), and Sunway University).
- Strategic partnership with iCube, a UK-based student society to brand TNB in innovation.
- University relationships, such as "Tea with Tenaga" and career talks.

CAREER DEVELOPMENT AND TRAINING

Capability development is an essential part in helping TNB achieve sustainable business growth and sustainability. We strive to create a High-Impact Learning Culture that recognises the value of learning and provides our people with extensive opportunities for career growth. Our learning and development programmes contribute significantly to the creation of an exceptional workforce.

We believe that learning and development is most effective through experiential and practical programmes. As such, employees are provided with on-the-job learning, including "stretch assignments" that are supported by the right mix of coaching and classroom-based learning.

Since 2018, individualised "Learning Journeys" have been rolled out for all employees, providing them with the opportunity to discuss career aspirations and carve out their chosen career path. Where applicable, employees will also be supported to obtain accreditations and certifications. As of FY2019, the Learning Journeys have been fully implemented across core divisions, and are being rolled out in other divisions.

In FY2019, over RM183 million was invested in Learning and Development related initiatives and there was an average of 6 man-days of training per employee in TNB Company. In addition, RM10 million was spent training 705 youths through the Professional Training and Education for Growing Entrepreneurs (PROTÉGÉ), Government's initiative to upskill graduates who have yet to gain employment.

Career Development and Training Highlights

Total **1,085,160** training hours by TNB Company

New targeted interventions involving business simulation and gamification introduced based on Competency Gap Analysis

38,000 hours for Leadership Training

More than **RM183 million** invested in training and development

EMBRACING RELATIONSHIPS

Enhancing Capabilities

Career Enhancement Management (CEM)

TNB's CEM is a platform that helps to closely align our employees' roles to their specific skillsets and competencies throughout their employment up until their planned retirement. In periods of transition, affected employees will participate in upskilling workshops based on the requirements of their new roles. Several CEM development programmes were held in FY2019 that focused on mindset change, teamwork and preparation for retirement.

Programme	Description
Mindset Change	Equip employees with the right mindset towards change, including viewing challenges as opportunities.
Business Acumen	Enhance strategic and competitive mindset of employees by encouraging them to think like business owners and take accountability of their decisions.
Team Enhancement	Develop high performing teams by encouraging shared commitments towards a common purpose and building effective communication.
Pre-Retirement	Prepare affected employees for retirement by promoting physical wellness, managing finances, encouraging involvement in social work and building entrepreneurial skills.
Project Assignment Forums	Promote leadership, accountability and intrapreneurship amongst employees. The forums serve as platforms with story-sharing and exhibits showcasing traits that drive value creation and focus on enhancing employees' understanding of projects, resulting in more impactful project assignments.
Safety Culture Workshop	Promote a culture that prioritises safety by inculcating the values of Tenaga Safety Culture in employees' daily tasks, activities and future roles.

CEM Highlights

38 project assignments in CEM platform

2,889 employees attended CEM development programmes

CEM Engagement Score of **91.4%**

In FY2019, our CEM engagement score increased to 91.4% from 90.3% in FY2018, indicating our employees' continued satisfaction with the programmes offered by CEM and their effectiveness in enabling smooth career transitions.

Division Academies

The division academies were established to accelerate the development of technical capabilities in TNB. The initiative is a collaboration with TNB Integrated Learning Solution Sdn. Bhd. (ILSAS) to develop Subject Matter Experts (SMEs) who will be able to provide on-the-job technical training and upskilling within their respective divisions. SMEs play a significant role in the Division Transformation Programme by helping to deliver sustained high business performance. Initially implemented for our Generation, Grid and Distribution Network divisions, the programme has since expanded to include our Retail division in FY2019.

The following divisions have set up their respective academies, and the key highlights for FY2019 include:

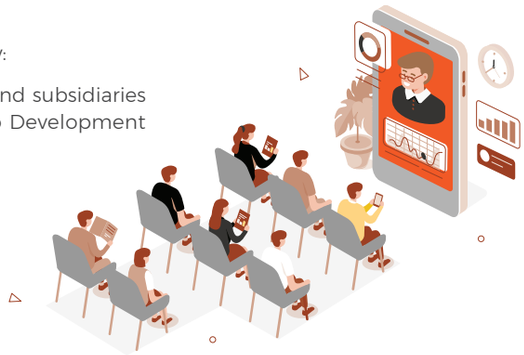
Division Academies According to Business Functions

Generation

FY2019 Highlights

Programmes under Generation Academy:

- **47 participants** from various divisions and subsidiaries graduated from Generation Leadership Development (GLD) programme
- **40 participants** from non-executive level graduated from SME Batch 6
- **40 participants** from executive level graduated from SME Batch 7



Distribution Network

FY2019 Highlights

Leadership development training to contribute to Distribution Network financials

- **30 executives** attended the first batch of training. The outcome included setting KPIs for savings in operating expenditure

Retail

FY2019 Highlights

Skills development programme on capability, customer, innovation and engagement through Retail Academy

- **142 employees** have successfully completed Module 1 which comprised classroom and online-based learnings and engagement with Retail Leaders, amongst others.

Grid

FY2019 Highlights

Leadership and business acumen skills development programme

- **32 executives** attended this 16-week programme
- **21 cost-efficiency projects** were initiated

Division academies were introduced with the objective to produce "Subject Matter Experts" who are equipped with specialised skill sets.

Digitalisation of our Workplace

At TNB, digital technology is used consistently to improve our operational efficiency in line with Industrial Revolution 4.0. We are increasingly using big data and internet of things (IoT) to optimise electricity production and consumption, enhance asset management, facilitate process automation and improve reliability of electricity supply.

Employees are equipped with the necessary competencies on the latest technologies and innovation through regular trainings, workshops and online courses. As drones are widely used in our operations, particularly for quality assurance and quality control inspections, relevant employees are trained on how to handle and fly them safely, as well as to use the drone software and flight planning. Meanwhile, employees involved in the AMI initiative will be required to attend smart meter training programmes covering installation, management, smart billing, supply automation and outage management.

EMBRACING RELATIONSHIPS

Enhancing Capabilities

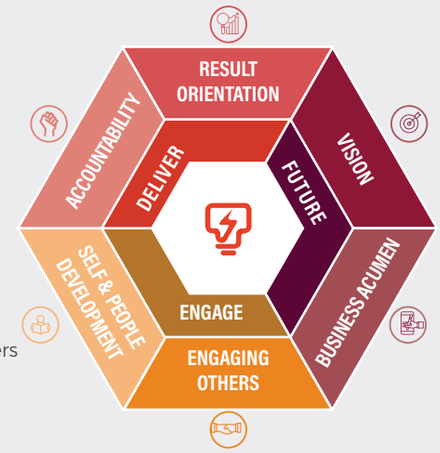
Leadership Development

Leadership development is an integral part of structured succession planning at TNB. As such, we have identified Internal Leadership Competencies established under TNB People Matters Better Brighter (PMBB) and integrated these desired skills and qualities within our employees' Competency Assessment and Technical Competencies. This assures the establishment of a strong network of capable and confident leaders. Courses under PMBB are based on the dimensions of Future, Engage and Deliver and aim to equip employees with the necessary skills in leadership, business acumen, engagement and communication in preparation for leadership roles within TNB.

UNIFIED SET OF TNB LEADERSHIP COMPETENCIES

- Demonstrates motivation and drive to achieve challenging goals
- Plans and prioritise to deliver impactful results

- Takes ownership of decisions and follows through to deliver results
- Empowers others to take ownership by assigning authority and responsibility to appropriate resources



- Envisions TNB's strategic aspirations and translates the vision into achievable objectives
- Articulates the vision clearly to all stakeholders to gain support and inspires action to work towards a common goal

- Develops personal knowledge and skills to continuously improve and grow
- Plays an active role in developing, coaching, mentoring and motivating others

- Understands the business and able to translate needs into requirements to drive business excellence
- Processes the necessary functional/technical knowledge and skills to deliver business impact

- Builds relationships and engages in stakeholder partnerships to accomplish TNB's goal
- Remains modest by minimising pride and council in achieving results

TNB People Matters Better Brighter (PMBB)

Launched in FY2016, PMBB is a fully integrated talent management system that provides an end-to-end experience for employees to manage their own professional journey at TNB. The system allows employees to assess their capabilities and performance through our Leadership Competencies.

TNB STRATEGIC FOCUS IN PEOPLE MANAGEMENT

Reimagining TNB | **Programme Value Unlocking (VUP)**
Build Leadership at All Levels | **Becoming an Employer of Choice**

ENABLER: *Building a robust people management system and process*

OUTCOME:
- Leadership skills at all levels
- Effective talent management
- Efficient performance management
- Increase in employee engagement and collaboration
- Effective and efficient HR services

The system empowers employees to manage their own growth journey by having overview of their performance against expectations and what they can do in terms of development to close the competency gaps. PMBB was put in place to integrate and enhance HR processes across 10 modules.

10 modules

Performance and Goal | Succession and Planning | Learning Management System | Onboarding | Compensation | Recruiting Marketing | Recruiting Management | Jom | Workforce Analytic | Workforce Planning

Since FY2017, TNB's Transformation Accelerator Strategy has been supporting the delivery of Reimagining TNB by identifying candidates for the important role of Delta Leaders. Individuals chosen for this position are recognised as being able to contribute the most to TNB's value creation. They would have shown high competency in quantitative assessments and are matched to specific roles to drive this strategy. So far, 46 Delta Leaders have been identified from various divisions.

At the core of our leadership initiatives is the Leadership Development Centre (LDC), which specialises in formulating experiential leadership and development programmes catered to employees at all levels. Key leadership-related initiatives under the LDC include:

Initiative	Description	Eligibility	FY2019 Highlights
Executive Presence	Serves as a platform for TNB leaders to enhance their competencies and build strong professional presence	• Delta Leaders • Managing Directors • Senior General Managers/ Management Level	Cohort 1: 11 Delta Leaders, 2 other Management level employees Cohort 2: 6 Delta Leaders, 4 Managing Directors Cohort 3: 3 Delta Leaders, 9 other Management level employees
Thrust Think Tank	Embeds a collaborative culture, challenges leaders and builds capability. It is a continuation of Thrust Leadership from FY2018	• Delta Leaders • Managing Directors • Senior General Managers/ Management Level	Participants consist of 38 Delta Leaders, 11 Managing Directors, 6 other Management level employees
Evolution of Communication to Storytelling	Equips leaders with effective communication skills through strategic exercises in messaging frameworks and content planning and delivery	• General Managers • Project Needle Team	Participants consist of 21 General Managers from Generation division and 16 Project Needle Teams
Leadership Drive (LD)	Integrates experiential learning with classroom lessons and mission-based work assignments to train employees who demonstrate leadership potential	• Executives and Management Level	Batch One: 32 trainees Batch Two: 11 trainees Batch Three: 70 trainees
Master of Business Administration (MBA) programme	Promotes strategic thinking and equips future leaders with essential business skills. The MBA is offered by UNITEN in partnership with Melbourne Business School, University of Melbourne, Australia	• Leadership Drive Talents	32 employees expected to graduate from the fourth cohort of this programme, from February 2019 to October 2020

Performance Management

Performance management at TNB is aimed at nurturing a high-performance culture. We invest in our people to empower them with the right knowledge to overcome current and future challenges. We believe that successful learning and development is reflected in improved workplace performance and measurable business outcomes.

Our annual appraisal cycle involves discussion between managers and subordinates on their performance and development needs based on key improvement areas. Managers are required to provide regular feedback and progress reports to employees to enhance their performance. In FY2019, 100% of our employees received performance reviews.

EMBRACING RELATIONSHIPS

Enhancing Capabilities

TALENT RETENTION

Our employees form the backbone of our organisation, and are key drivers in ensuring the sustainability of our business growth. We strive to retain our employees through competitive benefits and remuneration, meaningful engagements and impactful career development. It is important for our employees to feel secure in that their well-being is safeguarded and they have exposure to the necessary learning and capability development. This has resulted in a decline of 9.8% in overall turnover in FY2019 compared to previous year.

We offer a range of employee benefits, including:

- Medical treatments that cover employees and their dependents, as well as retirees
- Childcare facilities and nurseries
- Housing accommodation and staff quarters
- Counselling services
- Sports and recreational facilities

EMPLOYEE ENGAGEMENT

We engage consistently with our employees to ensure that our workforce is energised and focused on creating positive value. Two-way communications are encouraged, leveraging various channels to provide opportunities for open discourse on their experience working at TNB.

TNB's Channels of Communication

Online/virtual

- Intranet
- Bulletins
- Tenagawan Daily newsletter
- Social Media
- TV TNB/ Info TV
- Livewire

Physical Engagements

- Townhall
- Outreach and learning sessions
- Morning talks
- Connectors

To gauge the effectiveness of our engagement platforms, we conduct a biennial Employee Engagement Survey (EES). Following the 2018 EES, an action plan workshop was conducted to address areas of improvements raised.

Subsequently, two (2) Engagement Pulse Surveys (EPS) were introduced to observe engagement patterns within TNB and identify critical areas of improvement for heads of business units. Each business unit appointed an Engagement Champion to monitor engagement activities and ensure effective execution of the process. We scored 88% and 90% in the two (2) EPS, conducted in May and August 2019, indicating that we are moving in the right direction to address our employees' needs and empowering them to strive for excellence.

Our extensive workforce is represented by three (3) Registered Unions and two (2) Workers Associations which cover executive and non-executive employees. We have always maintained a harmonious relationship with our unions and are pleased to report that our union leaders are involved in all employee engagement sessions, such as labs, syndications, joint meetings and field trips. We have also established a dedicated Industrial Relations unit under Group HR.

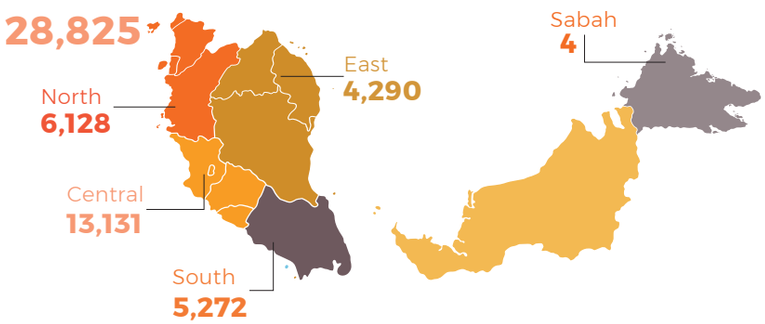
With the understanding that employees require safe channels to express their concerns or grievances, we have in place a formal grievance policy and provide a whistleblowing channel. Disciplinary matters are handled by the Integrity Department led by the Chief Integrity Development Officer (CIDO).

To read more on our Whistle Blowing procedures, please refer to the "Ethics, Integrity & Trust" section on page 62 of CGFS 2019.

DIVERSITY AND INCLUSION

TNB values diversity in the workforce and promotes an inclusive environment that respects and nurtures people of different race, gender, age, disability, religion, and life experience. Diversity in our workforce catalyses innovation which is essential to drive our business performance and better serve our customers. We are committed to provide equal opportunities and support employees of diverse abilities and backgrounds to thrive in the workplace. As a result, in FY2019, there was an increase in the percentage of women in senior management roles and the number of people with disabilities in the organisation. We are planning to organise more initiatives to promote gender diversity in the future.

Total Number of Employees for TNB Company in FY2019



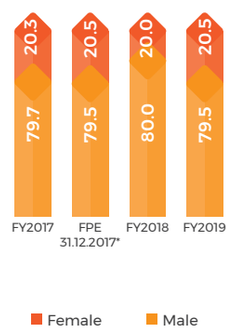
Total number of employees in TNB Group **36,307**

We strive to develop and promote people based on merit and fairness, and that is reflected in our HR system and processes. Salaries and benefits are determined by the terms and conditions stipulated in the signed collective agreements (CAs).

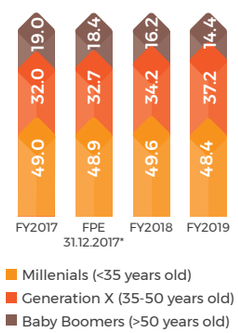
Furthermore, we continue to help employees with young families to balance family and work obligations by providing eight (8) kindergartens and eight (8) nurseries throughout our offices.

Our Employee Profile

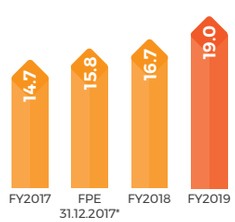
Employee Breakdown by Gender (%)



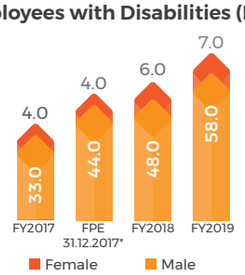
Employee Breakdown by Age Group (%)



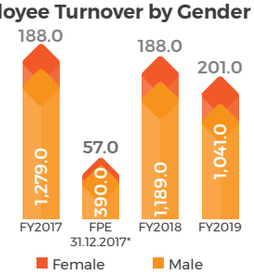
Women in Senior Management (%)



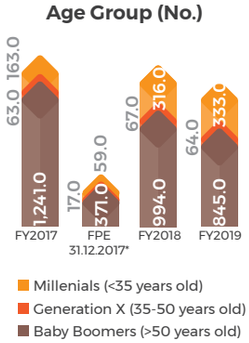
Employees with Disabilities (No.)



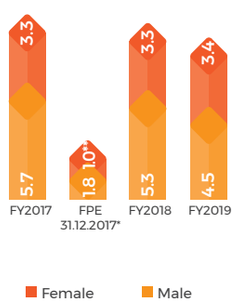
Employee Turnover by Gender (No.)



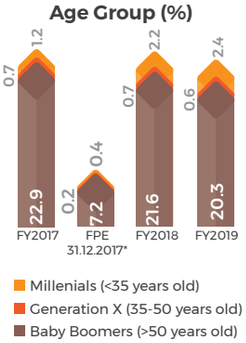
Employee Turnover by Age Group (No.)



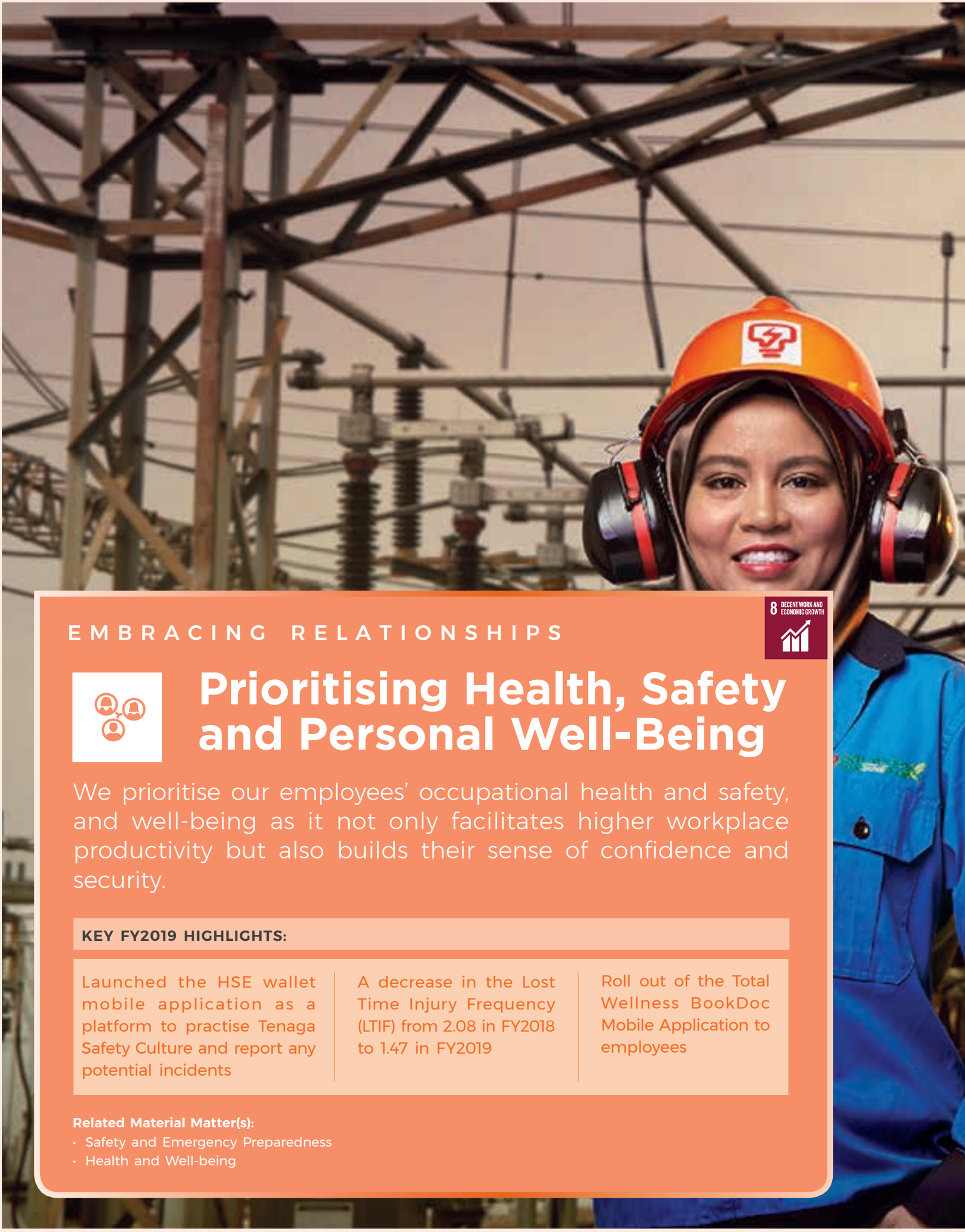
Employee Turnover Rate by Gender (%)



Employee Turnover Rate by Age Group (%)



* *FPE31.12.2017 denotes 1 September 2017 to 31 December 2017*
** *Data has been restated due to errata.*



EMBRACING RELATIONSHIPS

8 DECENT WORK AND ECONOMIC GROWTH

Prioritising Health, Safety and Personal Well-Being

We prioritise our employees' occupational health and safety, and well-being as it not only facilitates higher workplace productivity but also builds their sense of confidence and security.

KEY FY2019 HIGHLIGHTS:

- Launched the HSE wallet mobile application as a platform to practise Tenaga Safety Culture and report any potential incidents
- A decrease in the Lost Time Injury Frequency (LTIF) from 2.08 in FY2018 to 1.47 in FY2019
- Roll out of the Total Wellness BookDoc Mobile Application to employees

Related Material Matter(s):

- Safety and Emergency Preparedness
- Health and Well-being

EMBRACING RELATIONSHIPS

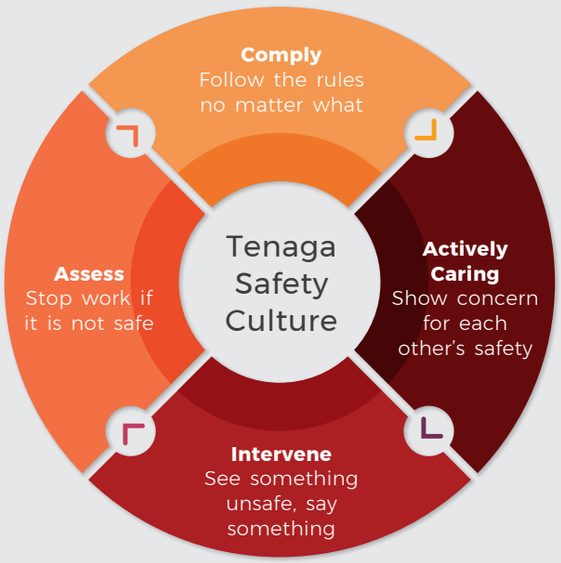
Prioritising Health, Safety and Personal Well-Being

WHAT HEALTH AND SAFETY MEAN TO US

As a responsible employer, it is important to create a safe and healthy workplace and take effort to eliminate work-related injuries and illnesses. We consistently seek to uphold high safety standards, as reflected in various accident prevention programmes and progressive certifications from OHSAS 18001:2007 Occupational Health and Safety Assessment Series to ISO 45001:2018 Occupational Health and Safety in some of our core divisions. We have policies and management systems in place, which are complemented by our efforts to instil a safety culture that encourages shared responsibility values in our employees, workers, suppliers and surrounding communities.

TNB's Safety and Health Policy guides our safety governance framework. We are also in the process of implementing the Health, Safety and Environment Management System (HSEMS) to replace our Safety Excellence Management System. This year, the first edition of the HSEMS Manual was launched by our CEO during our HSE Technical Conference, attended by all heads of business units. We established the HSEMS Implementer and HSEMS Auditor workshops to aid the implementation of the system. Six (6) sessions of the HSEMS Implementer workshops were held at ILSAS while the first HSEMS Auditor training was conducted by internal HSE committees in FY2019.

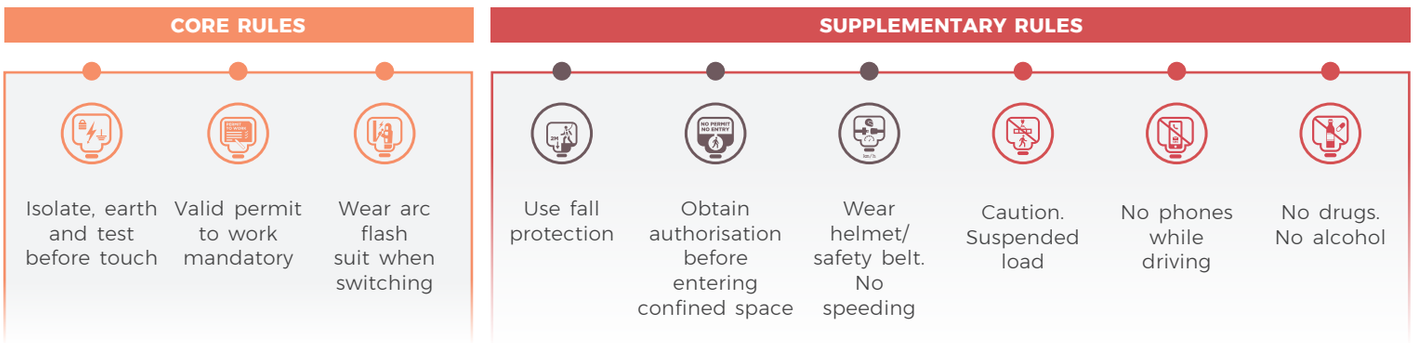
Tenaga Safety Culture



At the same time, TNB has an overarching Health, Safety and Environment Steering Committee, supported by division-level Safety and Health Committees that convene on a quarterly basis to discuss their strategic direction for HSE-related matters, safety performance and mitigations.

To cascade our safety culture to all employees and workers, we leverage our Tenaga Safety Culture (TSC) that centres around four (4) safety core values, namely Assess, Comply, Intervene and Actively Caring. TSC encourages all employees and workers to care for the safety of others and to be actively aware of potential hazards at work.

TNB's Life-Saving Rules (LSR)



We continue to implement our nine (9) Life-Saving Rules that ensure people on site as well as those on the road "Get Home Safe". We also communicate best practices and lessons learned across all our business operations through the Behaviour Based Safety programme and other safety awareness trainings.

Other initiatives to drive HSE compliance include:

- Conducting various risk assessments, such as Chemical Health Risk Assessment (CHRA) and Ergonomic Risk Assessment (ERA), amongst others, to identify critical risks in our business operations.
- Engage an in-house Occupational Health Doctor to enable the early detection of occupational diseases. This is in line with the Department of Occupational Safety & Health (DOSH)'s OSH Masterplan 2020 which focuses on mainstreaming industrial hygiene at the workplace.
- Participating in the Systematic Occupational Health Enhancement Level Programme (SOHELP), which is a strategic partnership with DOSH to increase our HSE practitioners' competency. This year, five (5) power plants were involved in the programme.

IDENTIFYING HEALTH, SAFETY AND ENVIRONMENTAL RISKS

We believe in encouraging employees and workers to take ownership in ensuring safety in their respective work areas to prevent work-related hazards or hazardous situations. Accordingly, we empower our employees and workers to play a role in identifying HSE risks. They can utilise the Hazard Identification, Risk and Determining Control (HIRADC) procedures to identify hazards at the workplace and assess the related risks. These risks are then further analysed and addressed through a hierarchy of controls before the necessary control action is identified.

Work-related hazards can be reported through various channels including the Potential Incident (PI) Platform, e-mails, Safety Quality Audit, Safety Quality Enforcement, Safety Inspection and Management by walk-about. The PI Platform is an HSE mobile application that analyses risks and recommends appropriate actions to eliminate the potential threats. Additionally, incidents or near misses are reported through the online TNB Safety Information System (TSIS) following which comprehensive risks assessments are undertaken to determine their cause and the appropriate corrective actions. Our risk assessment procedure is reviewed annually and whenever needed, such as following an accident or changes in work processes, to ensure continued effectiveness.

Safety Performance, Training and Awareness

For continual improvement of our health and safety system, we regularly engage with our employees and workers to gather their feedback. While the divisional Safety and Health Committee serves as the main channel to convey HSE-related matters, information lodged into our work hazard reporting systems, such as the TSIS and HSE Wallet, will be communicated to all relevant employees through various internal channels, including Tenaga Safety bulletin, emails and social media, to raise awareness and prevent recurrence.

We take into account current safety issues when we develop and review our safety training and awareness sessions for employees and workers. Key HSE training and awareness programmes in FY2019 included:

- HSE Technical Conference
- Gallery Walks
- AP Refresher Training
- Safety Weeks
- Safety Culture Workshop
- Contractor Engagement
- HSE 'Teh Tarik' Session
- Mega Toolbox Talk
- Tenaga Safety Culture and Spiritual Hour Programme

EMBRACING RELATIONSHIPS

Prioritising Health, Safety and Personal Well-Being

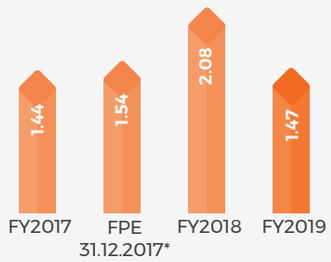
eHSE Online System

We are progressively embedding more digital technology in our HSE practices as we move towards a "Generative HSE Culture". By 2021, we aim to fully implement the eHSE online system, an integrated application that simplifies incident reporting and management of our safety system. An HSE wallet mobile application was launched to promote TSC values and encourage employees to proactively report incidents. In FY2019, a total of 72,577 incidents were reported through this application.

TNB's Safety Performance for FY2019

Number of Lost Time Injuries (LTI)	Number of Lost Days	Lost Days Severity Rate (per million man-hours)
114	2,565	33.16

Lost Time Injury Frequency (LTIF) (per million man-hours)



** FPE31.12.2017 denotes 1 September 2017 to 31 December 2017*

We have seen a decrease in the LTIF from 2.08 in FY2018 to 1.47 in FY2019. Most of the injuries were due to motor vehicle accidents and slip, trip and falls. In this regard, we seek to improve the safety habits amongst our employees and achieve our LTIF target of less than 1.0.

This year, there were zero fatality amongst our employees, which can be accounted due to the various focused initiatives conducted throughout the company. However, we regret to report four (4) fatalities this year, all involving our contractors in non-electrical works. We are deeply saddened by these incidents and understand its profound effect on all our employees and workers. Safety remains our highest priority and we need to be constantly vigilant on the safety of our employees, workers and those affected by our business

As part of our efforts to mitigate these unfortunate incidents, we conducted a thorough review of our safety procedures, while retraining all relevant employees and contractors on safety awareness and behaviours. Moving forward, we will strive to protect the safety of everyone involved across our businesses. In achieving our target of zero accidents in the future, we have proposed the implementation of a Contractors Management Roundtable (CMR), to better manage the safety and health of our contractors. The CMR aims to revise the roles and functions of relevant departments involved in managing contractors, which will be initiated in our Distribution Network division in FY2020. Progress will be monitored through our eHSE online system.

Behavioural Assessment Programme

This programme is built on the Behaviour Based Safety programme to instil a safety-drive mindset amongst meter readers who use motorcycles to carry out their jobs, and complements the Defensive Riding exercise which was rolled out in 2018. The programme is being conducted in collaboration with divisional HSE partners including Distribution Network, Generation, Energy Venture, Fleet, Corporate HSE and Billing Management. The first phase was conducted from April to July 2019 involving meter readers across 88 selected subzones. Since its implementation, we have seen a decline in reported rider accidents and we look forward to expanding the programme to cover all our subzones.

SUPPORTING EMPLOYEE HEALTH AND WELLNESS

We believe that supporting the health and well-being of our employees is an integral part of building resilience, work satisfaction and high productivity. We therefore promote physical and mental well-being amongst our employees, encouraging them to adopt a healthy lifestyle, including good work-life balance.

We provide facilities in several of our workplaces that foster good physical and mental health. Across our main offices, we have 61 gyms, each equipped with the latest equipment and in-house certified trainers. Moreover, eight (8) cafeterias carry the Ministry of Health's "Healthy" certification, indicating our healthy food options.

In 2013, we introduced a Total Wellness Programme for our employees and their families. To date, this programme and corresponding awareness sessions have been held in 159 TNB stations nationwide during which we offer health screenings. As a result, we have been able to compile basic health data of 15,687 employees.

We aim to establish Wellness Profiles for all TNB employees to serve as a platform to reach out to employees who may need support and/or help to overcome health issues. This platform will primarily monitor physical health and, depending on the employee, may also include mental health. The data will be analysed to determine each employee's current health status and predict potential health issues. Each employee's data will be treated as confidential and results obtained will be utilised for advisory and intervention purposes, should the need arises.

We are leveraging on technology to promote a healthy lifestyle through the BookDoc mobile application under the Total Wellness Programme. In FY2019, the mobile application was downloaded by over 10,000 employees. We have also launched the BookDoc Premium Programme to encourage employees to achieve 70 billion steps collectively, in conjunction with TNB's 70th anniversary. To date, a total of 11,801 TNB employees have participated in this programme.

FY2019 ACTIVITIES HIGHLIGHT

TNB Family Wellness Day

Two (2) Family Wellness Days were held during the year; the event in April 2019 attracted a turnout of 8,439 employees, while that in October 2019 saw a turnout of 9,921 employees. The events featured several booths providing sports items, health foods, and health and cancer marker screenings.

TNB Energy Night Run

The Energy Night Run was held on 27 July 2019 in conjunction with TNB's 70th anniversary to encourage a healthy lifestyle and inspire energy conservation. This event saw the participation of more than 3,500 individuals.

EMBRACING RELATIONSHIPS

Strengthening Partnerships Brightening Surrounding Communities

We strive to make people's lives better and brighter by equipping them with necessary and relevant skills, sustaining the environment and enhancing their livelihoods. We engage in a wide range of programmes that seek to leave a long-lasting positive impact to people and communities.

KEY FY2019 HIGHLIGHTS:

RM40.25 million of total contributions and sponsorships	Achieved the BOLD2025 (UNITEN's strategic plan) target to be top 200 by 2021 as UNITEN was ranked #195 for the QS Asia	212 households benefitted from *Projek Baiti Jannati* and *Program Mesra Rakyat*

Related Material Matter(s):

- Community Development
- Education
- Stakeholder Relationship

PROJEK BUTI JAUHARI @
WILAYAH PERSEKUTUAN 2019
MOHD AZ GHANI BIN DOLLAH

EMBRACING RELATIONSHIPS

Strengthening Partnerships Brightening Surrounding Communities

At TNB, we aspire to better the lives of surrounding communities by creating positive impacts and contributing to nation-building. We recognise the value of our social investments that positively influence the quality of life and resilience of communities. Our investment in community programmes, initiatives and activities help ensure that we are delivering meaningful change for our stakeholders and beneficiaries, and we also encourage our employees to get involved. We have forged partnerships with the Government and NGOs including charitable bodies. In FY2019, we invested a total of RM40.25 million to community programmes, based on our three (3) beliefs for community upliftment:

Economic and Social

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

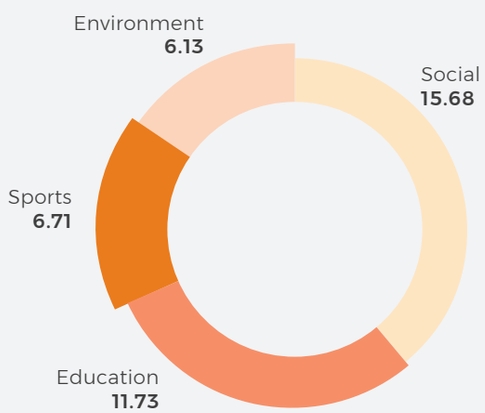
Environment

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

Education

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

Contributions in FY2019 (RM million)



FEATURE STORY:

RURAL ELECTRIFICATION

It has been our ongoing effort to make electricity accessible to as many Malaysians as possible, especially communities still without a connection to the national grid. Our strategic actions to realise this commitment contribute towards Goal 17 of the UN SDGs.

We have been working closely with the Government to provide electricity infrastructure in rural areas, *Orang Asli* settlements, small estates, islands and other remote villages. This partnership and corresponding initiatives are in line with SPV 2030's ST 2 in providing equitable economic opportunities by improving living conditions.

With the support of the Ministry of Rural Development (*Kementerian Pembangunan Luar Bandar*, KPLB), the Rural Electrification Programme (*Bekalan Elektrik Luar Bandar,* BELB) aims to supply power to villages that are beyond the operational area of local authorities. We help connect these villages to TNB's grid lines or through off-grid alternatives, such as solar hybrids, generator sets, mini hydro and the like, for settlements that are too remote to be connected to our grid lines. A total of 26 villages have benefitted from this initiative to date, allowing them to have access to basic needs for their day-to-day activities as well as to create opportunities for economic growth.

With a similar purpose, the Village Street Lighting Project (*Projek Lampu Jalan Kampung*, LJK), launched in 2002, ensures that public areas in remote villages such as police stations, religious buildings and roads, are well lit at night to support safe communal activities. Also funded by KPLB, a total of 37,835 street lights were installed in 7,911 villages at a cost of RM30.76 million.

Additionally, we continued the Home Rewiring Programme that was introduced in 2017. This programme aims to rewire, repair and extend full settlement assistance to underprivileged homes in Peninsular Malaysia. It is our target to rewire 1,000 homes through this initiative. To date, 93 homes have been refurbished under this programme, with RM306,399.00 spent in FY2019.

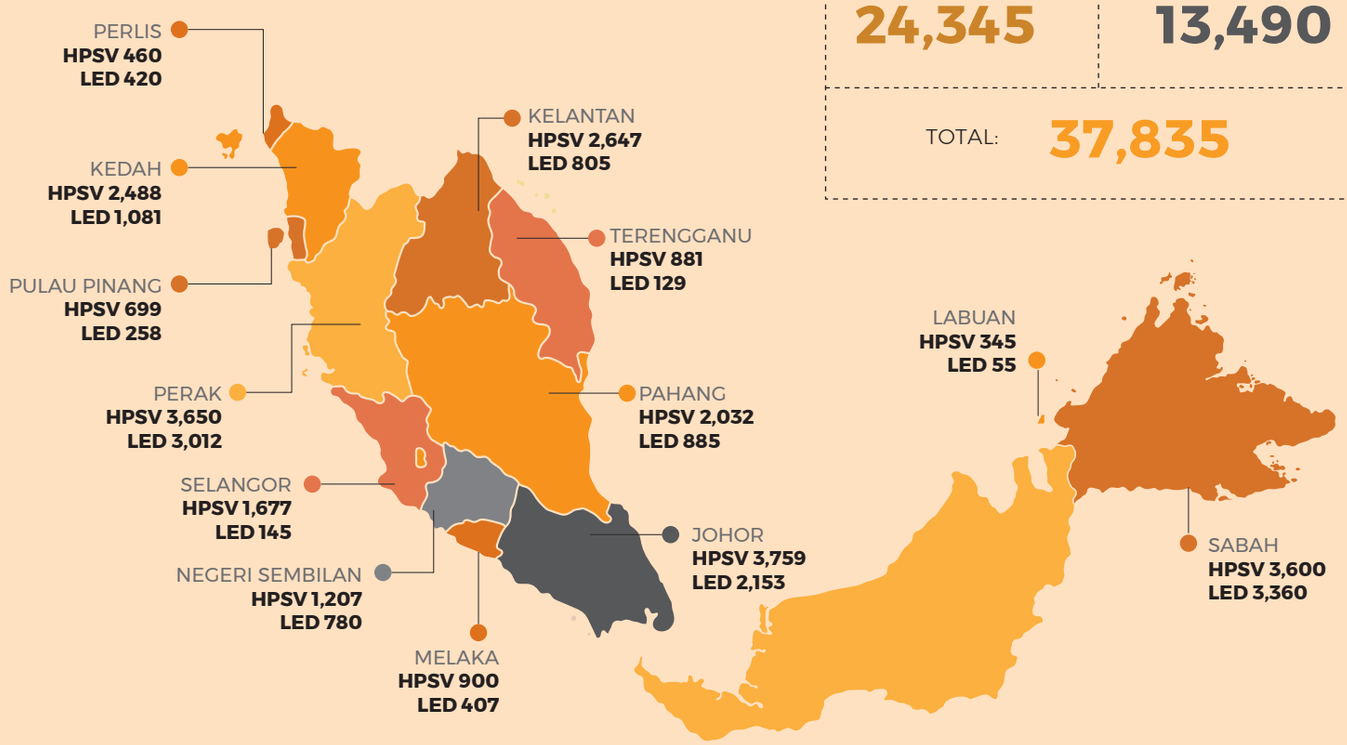
SPV2030
Strategic Thrust 2:
Key Economic Growth

UN SDG:
Goal Seventeen (17)

Village Street Lighting Project

TOTAL HPSV	TOTAL LED
24,345	**13,490**

TOTAL: **37,835**



EMBRACING RELATIONSHIPS

Strengthening Partnerships Brightening Surrounding Communities

ECONOMIC AND SOCIAL TRANSFORMATION

Homes for Basic Well-being

As part of our efforts to contribute to nation-building, TNB is driven to help raise the standard of living of marginalised communities as well as work towards sustainable development for all.

Through the Home for the Needy Programme, we provide liveable spaces for underprivileged communities that have electricity, water and proper sanitation, by refurbishing or building new homes. In collaboration with State Governments, the target beneficiaries from this programme include single parents, senior citizens and individuals with disabilities. This programme consists of the *Projek Baiti Jannati* (PBJ) and *Program Mesra Rakyat* (PMR). Since its launch, the programme has contributed a total of RM36.12 million to 899 families. In FY2019, PBJ has benefitted 181 families while PMR has helped 31 families through a total contribution of RM9.96 million.

Additionally, the Better Brighter Shelter (BBS) programme provides accommodation via dormitories and transit homes for families whose members are undergoing treatment in the hospitals. These facilities benefit families from less privileged backgrounds especially those coming from rural areas or outskirts of the capital Kuala Lumpur. Since its inception in 2017, there are two (2) Government-owned hospitals that are linked to this programme: Hospital Serdang and the National Heart Institute (*Institut Jantung Negara*, IJN). TNB has formed partnerships with the National Welfare Foundation (*Yayasan Kebajikan Negara*, YKN) for Hospital Serdang and the IJN Foundation for IJN, to focus on upgrading the dormitories and transit homes at each location respectively. In FY2019, YKN has also launched the programme in Hospital Melaka and the upgrading of the dormitories is expected to be completed by end 2020.

The dormitories at IJN can accommodate up to 52 people at a time and are available at subsidised rates. Up to RM1.4 million has been allocated for the upgrade and maintenance of the dormitories for a period of five (5) years beginning in FY2017. In FY2019, the IJN dormitories have accommodated 38,997 people. Approximately RM3.49 million has been allocated to upgrade and maintain Hospital Serdang and IJN from 2017 to 2021, as well as Hospital Melaka over the period of 2019 to 2023.

Home for the Needy programme provides a comfortable place of living which is the basis of the families' harmony.

Our "Better Brighter Anjung Kasih" in Hospital Melaka is currently underway and expected to be operational by end of 2020.

PELITAWANIS TNB

Pelitawanis was formed in 1998 to strengthen the bond amongst women at TNB, including the wives of employees. The organisation focuses on philanthropical work in community development, especially concerning the socioeconomic welfare of the less privileged. To date, there are 61 Pelitawanis branches with a total of 6,500 members.

In FY2019, Pelitawanis, together with *Persatuan Kebajikan Pekerja Islam* (PKPI) and *Pusat Islam Ibnu Khaldun* (PIIK), launched the UNI10 Care programme at UNITEN to distribute food to students, PKPI members and individuals eligible to receive *zakat*. Pelitawanis also conducted a basic entrepreneurship training called Brightpreneur@Pelitawanis Development Programme to equip new entrepreneurs with skills in business management, accounting and marketing strategy.

Energy Efficient Communities

TNB aspires to support communities by providing energy efficient infrastructure. Our programme to replace High-Pressure Sodium Vapour (HPSV) streetlights to Light Emitting Diode (LED) streetlights, which commenced in FY2018, aims to improve cost efficiency in all state capital cities across Peninsular Malaysia. LED lights are more energy and cost efficient and reduce the risk of street lighting failure from 15% to less than 1%. This contributes up to 40% in savings on electricity charges. Moreover, LED lights emit less heat and are less harmful to the environment as they do not contain mercury. They are also more durable and stable, thus reducing maintenance costs.

While this programme is expected to replace 367,000 HPSV streetlights to LED streetlights by FY2020, we have allocated resources to install an additional 212,080 of such lights to total 579,080. To date, 326,053 lights have been installed.

With the help of our subsidiary, TNBES, we have carried out a few initiatives to install RE fittings in community buildings. This includes the installation of smart solar PV system in a newly-built dementia day-care centre, *Pusat Jagaan Harian Dementia* in Perak. The installation, which supports the NEM scheme, is expected to generate about 3,900kWh per month with approximately RM2,000 cost savings from monthly electricity bills. The day-care centre will also be fitted with a home energy management system under MaEVi to facilitate efficient building management and to enable the monitoring of electricity usage.

The installation of solar PV systems at the dementia day-care centre is part of our CSR efforts to provide green solutions for the community.

EMBRACING RELATIONSHIPS

Strengthening Partnerships Brightening Surrounding Communities

ENVIRONMENTAL SUSTENANCE

We recognise our broader role in contributing to environmental resilience for the benefit of the nation and future generations. As part of our environmental stewardship, we have been carrying out conservation efforts to restore forest spaces.

TNBJ has been conducting an annual mangrove planting programme to improve the protection of coastal environments and encourage the production of sustainable fisheries in the Janamanjung vicinity. Since 2013, over 1,000 mangrove saplings are planted every year, totalling 9,200 saplings to date.

In FY2019, TNBJ's mangrove planting initiative took place at Kampung Sungai Tiram, Lekir, Perak in conjunction with our annual Janamanjung Fellowship Ride – "Cycling for Green" programme. The event drew participation from 1,400 cyclists, where some volunteered alongside our employees and local residents to plant 3,200 new saplings. We have also expanded this mangrove planting initiative to Group-wide, with 1,000 mangrove saplings planted in Hutan Simpan, Pulau Ketam, Kuala Perlis by 300 volunteers comprising TNB employees, members of the state Forestry Department and Malaysian Nature Society as well as students from Universiti Teknologi Mara, Arau and Universiti Malaysia Perlis. Over 200 villagers who also lent their hands have subsequently emphasised how the programme has positively impacted their livelihood. Rehabilitation of the mangrove forests has revitalised the crab and fish populations, stimulating more lucrative fishing opportunities.

Mangrove planting is part of our efforts towards rejuvenating forests and the surrounding areas.

Collectively, 10,200 mangrove saplings have been planted in two (2) states to date. We aim to plant up to 25,000 mangrove saplings by 2020 and include Manjung and Jimah East power stations under the programme.

TNB has also been a long-standing supporter in conserving firefly colonies in Malaysia. The project was originally a collaboration with the Selangor State Government via the Kuala Selangor District Council (*Majlis Daerah Kuala Selangor*, MDKS) to carry out the project in Kampung Kuantan which has one of the largest firefly colonies in Southeast Asia. The success of the pilot project resulted in the expansion of locations to Kampung Yak Yah, Kemaman, Terengganu, Kampung Sungai Timun, Rembau, Negeri Sembilan and Kampung Dew, Taiping, Perak. These areas are home to four (4) different firefly species, namely *P. tener, P. malaccae, P. valida* and *P. assymetria* with a collective population of more than 7,000.

This programme aims not only to conserve firefly species, but also to provide socioeconomic benefits to the local communities. We donate new boats and help to improve their English language proficiency in order to facilitate eco-tourism in the area. As a result of our conservation efforts, firefly colonies now thrive in these areas and the local communities have an additional source of income. In FY2019, approximately RM5.70 million was spent on this project, with RM1.87 million spent on R&D.

To read more on our biodiversity protection efforts, please refer to the "Minimising Environmental Impacts" section on page 45.

TNB through our subsidiary, TNB Research Sdn. Bhd., pioneered the firefly habitat research and development efforts in the country since 2017.

TRANSFORMING LIVES THROUGH EDUCATION

Firm in the belief that education is a key enabler to sustainable development, TNB makes significant investments into education through our own educational institution as well as community programmes. We aspire to create long-term positive impacts to the lives of the current and future generations.

Our education-related institutions are EduHub, which comprises UNITEN, LDC, and TNB ILSAS, and our foundation, Yayasan Tenaga Nasional (YTN).

UNITEN – The Energy University

Established in 1997, UNITEN offers opportunities to study in the field of engineering, computing and informatics, energy economics and business management to both local and international students at the tertiary education levels. UNITEN has also been a hub for energy research given TNB's position in the electricity supply industry.

In line with Reimagining TNB, UNITEN has developed a 10-year strategic plan of "Building Opportunities, Living Dreams 2025" (BOLD2025) to realise the university's aspiration to become a globally competitive, energy-focused university by 2025. Part of this journey entails revolutionising traditional teaching and learning via the adoption of technology-based classroom learning. Through its Institute of Sustainable Energy, UNITEN also strives to provide a sustainable platform for national renewable energy R&D activities.

To make education more accessible, UNITEN offers financial assistance and scholarships to eligible students. In FY2019, the university awarded 2,255 students a total of RM7.25 million in the form of study loans and scholarships, a significant increase from FY2018, when it awarded approximately RM0.55 million to 775 students. Key scholarships include *Program Biasiswa* UNITEN and *Danasiswa Tabung Amanah Zakat* UNITEN (TAZU). Students who achieve academic excellence are eligible to receive a full scholarship including living allowance under *Program Biasiswa*, while *Danasiswa* TAZU provides monetary incentives to deserving students based on their academic results.

EMBRACING RELATIONSHIPS

Strengthening Partnerships Brightening Surrounding Communities

UNITEN Highlights

Won **12 gold medals during the 30th International Invention, Innovation & Technology Exhibition (ITEX)** which is the highest number amongst all participants

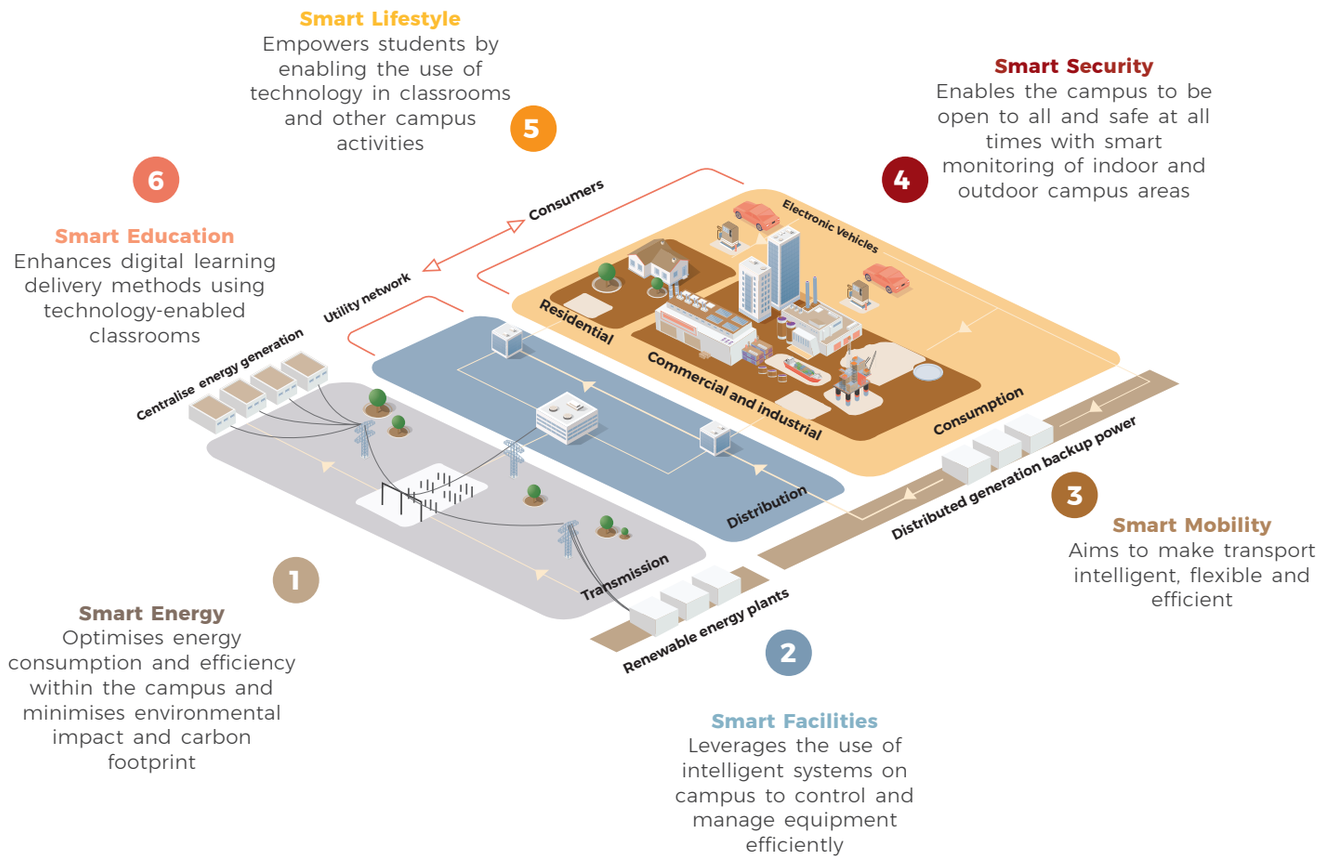
6 UNITEN researchers were awarded the prestigious Leaders in Innovation Fellowship from the Royal Academy of Engineering, United Kingdom

Top 5 in Malaysia for Engineering and Technology in Times Higher Education World University Rankings 2020

#195 in QS Asia University Rankings 2020

In line with the Government's green agenda and TNB's sustainability aspirations, UNITEN envisions its main campus to emulate a 'smart city' campus through its Smart UniverCity project. This project is a collaboration between UNITEN and TNB to enable the university to become a living lab for smart city solutions. It aims to enrich on-campus experience for students, staff and visitors through the application of technology to improve lifestyle, reduce carbon footprint and innovate solutions for the energy industry. The Smart UniverCity project focuses on six (6) smart initiatives which are highlighted below:

UNITEN Smart UniverCity



In FY2019, three (3) initiatives under the Smart UniverCity project were rolled out, namely, Smart Mobility, Smart Energy and Smart Lifestyle. Two (2) electric buses and two (2) EV charging stations have been introduced at UNITEN as part of the Smart Mobility initiative, promoting the usage of low-carbon, intelligent and energy efficient vehicles on campus. The initiative also provides opportunities for UNITEN to enhance its expertise in EV technology and gain experience in managing and maintaining EVs through joint ventures with industry players including TNB's Fleet Management Department. Through the Smart Energy initiative, UNITEN has introduced smart chillers to optimise chiller and air handling unit operations using closed-circuit television (CCTV) and video analytics. The system monitors electricity consumption to optimise operational costs while providing research opportunities on energy efficient buildings. Under the Smart Lifestyle initiative, UNITEN has launched two (2) mobile applications, UNITENLife and Boost, to facilitate cashless payments and access to latest campus-wide announcements and updates.

UNITEN Research Hub comprises six (6) entities that conduct research focusing on the well-being of society. Six (6) research programmes were launched this year with the aim to address national issues, for example environmental hazards and dengue hotspot areas, as well as ways to promote decarbonisation, EE and innovation.

TNB Integrated Learning Solution Sdn. Bhd. (ILSAS)

For more than 30 years, ILSAS has been the official training institute for TNB employees and a premier technical training institute for other professionals in the power and utility business. ILSAS is ISO 9001:2015 certified and has adopted the United Kingdom Accreditation Service (UKAS) standards for the quality of its training and administration. It has in place a business plan for 2019-2030 to become a Global Leader Learning Solutions Provider.

ILSAS currently offers advisory and consultancy services to develop specific training modules and curriculum for professionals in the electricity supply industry. In FY2019, It provided its technical expertise in the development of TNB's Centre of Excellence for Solar Energy at the LSS site in Sepang.

For more information on TNB's Centre of Excellence, please refer to the 'Delivering Sustainable Value' section on page 27.

ILSAS Highlights

ILSAS has
314 employees
consisting of **148 trainers**

Trained
61,067 individuals
in FY2019

Achieved
RM120 million
in revenue for FY2019

Award won:
"Best Exhibitor"
Human Resources Development Fund (HRDF) Conference and Exhibition 2019

Key highlights for ILSAS in FY2019 include:

Initiative	Description	Participants
Green Competency Lab	Establish a GREEN Competency Framework outlining the required skillset and respective learning journeys for employees of TNB and its subsidiaries to become 'green' competent by 2030.	13 internal parties 2 external parties
Technical Training for *Kontraktor Kerja Bumiputera* (KKB)	Training and development of TNB contractors for substation, cable laying, overhead lines (high and low voltage), streetlight installation, metering and live line work.	747 participants

ILSAS continues to maintain the following certifications and accreditations:

- Approved by the Energy Commission (EC) to carry out competency courses
- Approved as a City and Guilds (UK) Centre
- Certified as an Institute of Leadership Management (UK) Centre
- Certified as a Department of Occupational Safety and Health (DOSH) Examination Centre
- In collaboration with Sustainable Energy Development Authority (SEDA) for Solar PV Training Programme

EMBRACING RELATIONSHIPS

Strengthening Partnerships Brightening Surrounding Communities

Yayasan Tenaga Nasional

Since its establishment in 1993, YTN has been providing financial aid to various causes, organisations and communities with the primary objective of giving Malaysian youths the opportunity to pursue a brighter future through higher education. Its main focus is the YTN scholarship programmes. In addition to tertiary education, scholars have access to training sessions and skills development programmes.

YTN is governed by a Board of Trustees and supported by an organisation committee and team. They continuously engage with universities and relevant authorities to conduct programmes, such as *Dermasiswa* MyBF, that benefit the wider society.

To read more on MyBF initiative, please refer to the "Feature Story: My Brighter Future" section on page 81.

YTN FY2019 Highlights

RM66 million*
of total investments for YTN scholarships and convertible loans in FY2019

YTN supported 831* outstanding Malaysian students in FY2019 through YTN scholarships

In FY2019,
2,079* students
have benefitted from **the YTN scholarships and convertible loans** to pursue tertiary education

**Audited figures*

In FY2019, YTN's key programmes include:

Programme	Description	Participants
Nurturing Future Leaders 2019	The programme aims to encourage bright secondary school students with leadership qualities who are interested in the power and engineering sector to apply for YTN scholarships. Secondary school students from boarding schools across the nation attended the programme.	200 students
Capability Building Programme for YTN Scholars	Development programme for YTN scholars at UNITEN focusing on business and entrepreneurial skills.	101 students
Aspire to Inspire Future Power Makers	Awareness programme on ESI for counsellors from *Maktab Rendah Sains Mara* (MRSM) nationwide, with a focus on TNB's generation, grid and distribution businesses. The programme acts as a sharing session on opportunities offered to students by YTN.	53 counsellors
Corporate Social Responsibility (CSR) Smart ABC 2019	CSR-SMART ABC programme aims to improve the literacy skills of students in Pahang, including indigenous children. It involves YTN employees, YTN scholars and local teachers in Pahang teaching primary school students to read and write.	100 YTN students, 100 primary school students, 10 YTN employees and 35 local teachers from *Jabatan Pelajaran Negeri Pahang*
MYCARE Programme	In collaboration with *Jabatan Pelajaran Negeri Pahang* and Sekolah Menengah Pendidikan Khas Vokasional Kuantan, Pahang, this programme exposes students with disabilities to YTN scholars' life at university. A career workshop was conducted, and students were introduced to resume writing and mock interviews for their preferred careers.	95 participants comprising YTN scholars and secondary school students
Inspiring Better Brighter Future (IBBF)	Subject matter experts guide students on the techniques and strategies in undertaking the *Sijil Pelajaran Malaysia* (SPM), particularly in *Bahasa Melayu*, English, Science and Mathematics subjects.	100 Form 5 students of each zone (North/East/South/Central)

Educational Development Programmes

Promoting High-Quality Education in Schools

We believe that a significant component of improving access to quality education is through making improvements to schools, the leadership and teaching methods, as well as instilling a learning culture amongst students.

Our key initiative, the Trust Schools Programme, is a public-private partnership between the Ministry of Education (MoE) and Yayasan AMIR, a non-profit foundation established in 2011 by Khazanah Nasional. Teachers are introduced to new teaching and learning methods that would benefit students who are put through an effective co-curriculum framework.

TNB has also committed RM800,000 respectively to eight (8) schools to improve their curriculum delivery and enhance the school management with the view of promoting sustainable education practices. The eight (8) schools that benefitted from this programme are:

- Sekolah Menengah Kebangsaan Seri Samudera, Perak;
- Sekolah Kebangsaan Seri Samudera, Perak;
- Sekolah Menengah Kebangsaan Kg. Jawa, Selangor;
- Sekolah Kebangsaan Kg. Jawa, Selangor;
- Sekolah Menengah Kebangsaan Seri Paka, Terengganu;
- Sekolah Kebangsaan Paka 111, Terengganu;
- Sekolah Menengah Kebangsaan Jeli, Kelantan; and
- Sekolah Kebangsaan Jeli 1, Kelantan.

TNB has been a firm supporter of the Khazanah Nasional-inspired PINTAR school adoption programme since 2017.

TNB has contributed RM19.2 million to the Trust Schools Programme since 2017.

Likewise, the PINTAR school adoption programme assists under-performing schools with the view to improve the academic and extra-curricular performance. Initiatives such as motivational camps, tuition classes, examination seminars and workshops, and hockey trainings are organised at the respective schools. Since 2017, TNB has adopted 18 schools nationwide under this programme. In FY2019, up to 120 students have benefitted and TNB has contributed a total of RM2.19 million to this programme.

TNB plays a role in nurturing and empowering the next generation since the introduction of Trust Schools Programme through Yayasan AMIR in 2010.

EMBRACING RELATIONSHIPS

Strengthening Partnerships Brightening Surrounding Communities

Advocating Equal Learning Opportunities

All students deserve the opportunity to learn, however, underprivileged students face more barriers and challenges in the pursuit of education. As such, we strive to help by subsidising school fees and providing supplies.

Our annual Back-to-School programme has been rebranded to *Ceria ke Sekolah*, and it takes place before the school year starts. TNB had the privilege to sponsor school supplies, such as school uniforms, bags, shoes and stationeries. This programme caters specifically to primary school students from low-income families. In FY2019, TNB contributed RM1 million to this programme which benefitted 6,100 students in 37 locations nationwide.

Launched in 2018, TNB also carries out the B40 Programme, with a total of 150 students being "adopted" to date. This programme is for secondary school students, specifically those in Form 3, from B40 families. Three (3) schools in Kuala Lumpur are our beneficiaries: Sekolah Menengah Kebangsaan Bukit Bandaraya, Sekolah Menengah Kebangsaan Bangsar and Sekolah Menengah Kebangsaan Seri Pantai. From 2018 to 2020, each student will receive RM1,500 a year and sponsorships to attend self-development programmes organised by TNB, including motivational camps and outreach programmes. A total of RM1.28 million was contributed to this programme in FY2019.

In addition, we have launched the Better Brighter Vision programme in partnership with Tun Hussein Onn Eye Hospital to provide eye screening and corrective glasses for primary and secondary students from B40 families. We have allocated a total of RM67,000 for this programme, which has benefitted 600 students from five (5) schools in Kuala Lumpur, namely:

- Sekolah Menengah Kebangsaan Bangsar;
- Sekolah Menengah Kebangsaan Seri Pantai;
- Sekolah Menengah Kebangsaan Bukit Bandaraya;
- Sekolah Kebangsaan Bukit Pantai; and
- Sekolah Kebangsaan Bukit Bandaraya.

Back To School programme, the renamed 'Ceria Ke Sekolah' programme is part of TNB's corporate social responsibility programme (CSR) for B40 students.

The fortunate students in the Lembah Pantai constituency now have "brighter" futures, after receiving spectacles through a new aid programme called "Better Brighter Vision".

FEATURE STORY:
MY BRIGHTER FUTURE

SPV2030 Strategic Thrust 2: Key Economic Growth

UN SDG: Goal Eight (8)

We believe in the immense power of education as a catalyst for economic empowerment and social mobility. Education and leadership development largely form our efforts in social investments, in line with our commitment to realise Goal 8 of the UN SDGs by improving employability of marginalised youths through education. In addition, this resonates with the SPV 2030's ST 2 to facilitate economic growth in the long run.

One of TNB's key initiative in uplifting marginalised youths is the *Dermasiswa* My Brighter Future (MyBF) under YTN. This programme was established to promote equitable access to tertiary education, particularly for families in the B40 bracket registered under the *eKasih* scheme. In FY2019, MyBF has awarded scholarships to 3,592* students who are pursuing their tertiary studies in Science, Technology, Engineering and Mathematics (STEM) as well as Technical and Vocational Education and Training (TVET) subjects at seven (7) public universities, community colleges and polytechnic institutions in Malaysia. The MyBF scholarship covers tuition fees, boarding and living expenses throughout the duration of their studies. This enables students to have some financial security, allowing them to focus on their studies and future careers.

MyBF not only provides financial aid but also the opportunity for students to develop the necessary skills to prepare them for future success. YTN conducts multiple development programmes for MyBF recipients throughout the year. These programmes allow students to sharpen their professional and entrepreneurial skills, as well as facilitate networking sessions between scholars and industry leaders.

Muhamad Akidd Mohd Sharif, a recipient of MyBF scholarship enrolled in BSc Electrical Engineering Technology at Universiti Teknikal Malaysia Melaka (UTeM), was the first batch of MyBF beneficiaries at UTeM. "I feel very fortunate to have been offered the MyBF scholarship. I am now motivated to finish my studies and to realise my dream of becoming a professional engineer. I hope as I graduate, I will be able to support my family and empower my community by sharing my experiences. I wish to continue YTN's legacy by establishing an NGO that helps underprivileged youths gain access to tertiary education and provides opportunities to the less fortunate communities to achieve socioeconomic growth."

At TNB, we believe education is an important tool in our efforts for sustained economic growth and nation-building. Through YTN, we have invested a total of up to RM21.20 million* in FY2019, compared to RM4.69 million in FY2018 for this programme.

**Audited figures*

TNB Thunderbolt Programme develops the bright young talents and sharpens their skills further by advancing them to the National Hockey Team.

Nurturing Talents through Sports

We recognise that success is not only defined by academic excellence. It is important for individuals to develop based on their strengths and interests. Therefore, we have reached out to support students with an interest in sports, specifically hockey. We contribute towards developing individuals who display great potential in the game through the National Hockey Development and Thunderbolts Programme, whereby we adopt sports schools and coach promising individuals. They are mentored by former national one-line hockey players, who are also TNB employees. Since 2006, several national players are amongst the alumni of this programme.

The schools adopted under this programme are:

- Sekolah Sukan Bukit Jalil, Selangor;
- Sekolah Sukan Tunku Mahkota Ismail, Johor;
- Sekolah Menengah Kebangsaan Seberang, Temerloh, Pahang; and
- Sekolah Menengah Kebangsaan Anderson, Ipoh, Perak.

In FY2019, TNB sponsored RM4 million for various leagues and championships organised by the Malaysian Hockey Confederation. Additionally, up to RM2 million was contributed to workshops for TNB coaches, allowance for TNB employees involved in the programme and other activities to promote hockey in Malaysia.

Performance Table

All data presented are covering TNB Company, unless otherwise stated.

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
BUSINESS PERFORMANCE							
GENERATION							
G4 – EU1	**Generating capacity broken down by primary source and regulatory regime**						
	Gas	MW	5,023.43	4,251.43	4,251.43	3,951.43	For wholly-owned power plants in Peninsular Malaysia.
	Coal	MW	3,080.00	4,080.00	4,080.00	4,080.00	
	Large Hydro	MW	2,536.10	2,536.10	2,536.10	2,536.10	
	Solar	MW	–	–	50.00	50.00	– For wholly-owned power plants in Peninsular Malaysia. – First Large Scale Solar (LSS) plant commercialised in FY2018.
	Total	MW	10,639.53	10,867.53	10,917.53	10,617.53	For wholly-owned power plants in Peninsular Malaysia.
	Generating capacity broken down by other renewable sources with a capacity below 30MW						
	Mini Hydro	MW	21.76	21.76	21.76	21.76	For all TNB-owned stations.
	Biomass	MW	10.00	10.00	10.00	10.00	
	Biogas	MW	3.20	3.20	3.20	3.20	
TRANSMISSION AND DISTRIBUTION LINES							
	Transmission	circuit-KM	22,835	22,840	23,082	23,964	For wholly-owned transmission network in Peninsular Malaysia.
	Distribution	circuit-KM	632,929	645,257	660,038	683,008	For wholly-owned distribution network in Peninsular Malaysia.
SYSTEM EFFICIENCY							
	Generation Plant Performance						
	Equivalent Availability Factor (EAF)	%	88.51	84.96	89.92	83.35	– For wholly-owned power plants in Peninsular Malaysia. – Data for FPE31.12.2017 has been restated from 4.46 to 3.24 due to errata.
	Equivalent Unplanned Outage Factor (EUOF)	%	2.69	3.24	3.24	6.63	
G4 – EU12	**Transmission and distribution losses as a percentage of total energy**						
	Transmission and distribution network losses						
	Transmission in Malaysia	%	1.29	1.30	1.43	1.35	For wholly-owned transmission network in Peninsular Malaysia.
	Distribution in Malaysia	%	6.21	6.13	6.39	6.30	For wholly-owned distribution network in Peninsular Malaysia.
	Electricity transmission system						
	Transmission System Minutes	Minutes	0.23	0.05	0.35	0.27	In Peninsular Malaysia only.
	Percentage of System Availability	%	99.79	99.82	99.79	99.78	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
BUSINESS PERFORMANCE							
ACCESS							
G4 – EU28	**Power outage frequency**						
	System Average Interruption Frequency Index (SAIFI)	Frequency/ Customer/Year	0.84	0.29	0.86	0.83	In Peninsular Malaysia only.
G4 – EU29	**Average power outage duration**						
	System Average Interruption Duration Index (SAIDI)	Minutes/ Customer/Year	50.24	18.05	48.22	48.13	In Peninsular Malaysia only.
ECONOMIC PERFORMANCE							
GRI 201-1	**Value added**						
	Revenue	RM Million	47,416.9	15,692.2	50,392.5	50,939.7	
	Operating expenses excluding staff costs, depreciation and amortisation	RM Million	(29,212.8)	(9,689.0)	(33,677.6)	(29,624.9)	Data for FY2017 has been restated from (29,218.1) to (29,212.8) due to errata
	Net loss on impairment of financial instruments	RM Million	–	(163.4)	(487.3)	(302.4)	
	Other operating income	RM Million	1,021.3	512.6	825.1	1,131.0	
	Finance income	RM Million	237.6	94.9	423.8	525.1	
	Finance cost	RM Million	(1,456.0)	(531.4)	(1,688.5)	(3,382.7)	
	Fair value of financial instruments	RM Million	–	(7.2)	36.7	(38.0)	
	Foreign exchange gain/(loss) on borrowings	RM Million	7.9	310.2	(418.3)	113.9	
	Share of results of associates and joint ventures	RM Million	128.3	(37.0)	(182.7)	52.6	
	Value added available for distribution	RM Million	18,143.2	6,181.9	15,223.7	19,414.3	Data for FY2017 has been restated from 18,137.9 to 18,143.2 due to errata.
	Value distributed						
	To employees						
	Remuneration, development and benefits	RM Million	3,751.1	1,288.5	3,685.8	3,747.7	
	To Government						
	Taxation and *zakat*	RM Million	1,369.7	235.0	1,301.6	1,032.7	
	To shareholders						
	Dividends	RM Million	2,205.5	2,493.0	2,931.9	3,014.1	Data for FY2017 has been restated from 2,505.5 to 2,205.5 due to errata.
	Non-controlling interest	RM Million	8.1	(13.8)	21.3	(84.2)	
	To reinvest in the Group						
	Depreciation and amortisation	RM Million	6,105.0	2,049.9	6,491.3	10,188.9	
	Retained profit	RM Million	4,698.5	129.3	791.8	1,515.1	
	Total distributed	RM Million	18,143.2	6,181.9	15,223.7	19,414.3	Data for FY2017 has been restated from 18,137.9 to 18,143.2 due to errata.
INDIRECT ECONOMIC IMPACT							
GRI 203-2	**Development and impact to communities**						
	Contributions to community in charitable donations	RM Million	23.6	9.6	14.2	15.5	
	Total contributions and sponsorships	RM Million	41.8		39.3	40.3	RM41.8 million is total contributions and sponsorships for 15-months from September 2016 to December 2017.

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

Performance Table

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
RESPONSIBLE AND ETHICAL BUSINESS PRACTICES							
SOCIOECONOMIC COMPLIANCE							
GRI 419-1	**Non-compliance with laws and regulations in the social and economic areas**						
	Total monetary value of significant fines	RM	0	0	0	0	
	Total number of non-monetary sanctions	Number	0	0	0	0	
CUSTOMERS							
CUSTOMER ACCOUNTS							
G4 – EU3	**Number of residential, industrial, institutional and commercial customer accounts**						
	Domestic	Number	6,955,595	7,171,421	7,378,425	7,553,229	– In Peninsular Malaysia only. – The category of 'Others' consists of mining, street lighting, agriculture and RE generators.
	Commercial	Number	1,427,422	1,506,108	1,553,607	1,575,198	
	Industrial	Number	27,575	28,796	29,749	30,520	
	Others	Number	70,262	81,522	77,416	89,975	
	Total	Number	8,480,854	8,787,847	9,039,197	9,248,922	
CUSTOMER EXPERIENCE							
	Results of surveys measuring customer satisfaction						
	Customer satisfaction index	N/A	8.1	–	8.1	8.1	– Surveys are conducted on an annual basis. – Data for FY2018 has been restated from 89 to 88 due to errata.
	Corporate reputation index	%	81	–	88	87	
	Complaints received	Number	45,585	9,818	35,747	45,275	
	Complaints resolved	%	98	97	99	99	
	Service request received	Number	204,209	47,540	130,405	285,712	– Data for FY2018 has been restated from 99 to 98 due to errata.
	Service request resolved	%	98	97	98	100	
	Total distributed						
PROCUREMENT PRACTICES							
GRI 204-1	**Number of suppliers and total spent**						
	Total number of suppliers	Number	4,514	3,206	4,665	4,750	– Suppliers include Malaysian suppliers and those in the areas where TNB operates internationally. – Procurement spend is for TNB Group, excluding TNB Fuel Services Sdn. Bhd. (TNBF), Petroliam Nasional Berhad (PETRONAS) and Electricity Generating Authority of Thailand (EGAT). – Data for FY2017 has been restated from 3,281 and 73 to 4,141 and 92 respectively, due to errata.
	Total spent on procurement	RM Billion	7.18	2.45	7.20	9.88	
	Proportion of spending on local suppliers						
	Total number of local suppliers engaged	Number	4,141	3,132	4,514	4,575	
	Percentage of local suppliers	%	92	98	97	96	
	Total spent on local suppliers engaged	RM Billion	6.64	2.28	6.80	9.28	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
NATURAL RESOURCE CONSUMPTION							
GRI 301-1	**Fuel consumption for power plants from non-renewable sources**						
	Coal	GJ	451,087,149.26	119,874,049.87	396,332,932.67	361,956,288.13	– Figures for FY2017 & FPE 31.12.2017 was reported based on the overall fuel consumption of TNB wholly-owned power plants in Peninsular Malaysia. – Starting from FY2018 onwards, the fuel consumption was reported based on the fuel type for all TNB power plants in Peninsular Malaysia.
	Natural gas	GJ			181,810,852.93	188,532,459.85	
	Distillate fuel	GJ			687,793.97	573,643.57	
	Medium fuel oil	GJ			307,792.80	783,847.02	
MANAGING ENERGY EFFICIENCY							
GRI 302-1	**Energy consumption within the organisation**						
	Total electricity consumption	kWh	25,933,904.00	–	24,603,872.00	23,278,549.00	– For 12 TNB buildings: Wisma TNB Jalan Timur, Wisma TNB Jalan Anson, Wisma TNB Jalan Kepong, Wisma TNB Jalan Yahya Awal, Wisma TNB Kuantan, Wisma TNB Muar, Wisma TNB Subang Jaya, Wisma TNB Seremban, Wisma TNB Ipoh, Wisma TNB Alor Setar, Wisma TNB Perlis and Wisma TNB Kota Bharu. – FY2017 was set as the base year to measure reductions in energy consumption.
GRI 302-4	**Reduction of energy consumption**						
	Amount of energy savings	kWh	–	–	1,330,032	1,325,323	
EMISSIONS							
GRI 305-1	**Direct (Scope 1) GHG emissions**						
	Total direct GHG emissions (Scope 1)	tCO_2e	33,108,297.42	–	37,030,459.66	33,467,994.02	– Our approach is aligned to the Greenhouse Gas Protocol (GHG Protocol): Corporate Accounting and Reporting Standards. Following completeness of data, our baseline year is FY2018. GHG emissions factors were based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories and global warming potential values (GWP) from IPCC 4th Assessment Report. Grid emissions factor was based on the study by Single Buyer, Malaysia. – Direct (Scope 1) and energy indirect (Scope 2) GHG emissions are assessed annually.
GRI 305-2	**Energy indirect (Scope 2) GHG emissions**						
	Electricity consumption	tCO_2e	395,506.80	–	87,150.71	107,785.96	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

Performance Table

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
EMISSIONS (continued)							
GRI 305-4	**Direct (Scope 1) GHG emissions**						
	Intensity of CO_2 emissions	tCO_2e/MWh	0.54	-	0.57	0.56	- GHG emissions methodologies applied were 2006 IPCC Guidelines for National Greenhouse Gas Inventories, GHG Protocol and Clean Development Mechanism (CDM). - Consolidation of data based on equity share. - Data for FY2017 has been restated from 5,030,079.70 to 6,703,345.15 due to additional emission mitigation from advanced combined cycle technology (TNB Prai Sdn. Bhd.) and electric vehicles.
GRI 305-5	**Reduction of greenhouse gas emissions**						
	Total CO_2 avoided	tCO_2e	6,703,345.15	-	5,750,636.42	5,375,618.09	
EFFLUENTS AND WASTE							
GRI 306-3	**Significant spills**						
	Total number of recorded significant spills	Number	1	0	0	3	- Spill 1: 0.1m^3 diesel oil spilled at work site. - Spill 2: 0.07m^3 transformer oil spilled at storage site. - Spill 3: 0.4m^3 transformer oil spilled at storage area. - The spills were due to leakage from oil tank and transformers. - Impact of the spills were quickly mitigated and there were no significant pollution at the affected sites.
	Total volume of recorded significant spills	m^3	1.80	0	0	0.57	
ENVIRONMENTAL COMPLIANCE							
GRI 307-1	**Non-compliance with environmental laws and regulations**						
	Total monetary value of significant fines	RM	0	0	0	1,000.00	
	Total number of non-monetary sanctions	Number	1	0	6	5	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
LABOUR PRACTICES AND DECENT WORK							
EMPLOYMENT							
	Total size of workforce**						
	TNB Group	Number	35,009	35,030	35,574	36,307	
	TNB Company	Number	27,990	27,995	28,371	28,825	
	Generation	Number	1,406	1,295	1,086	1,005	
	Grid	Number	2,887	2,743	2,510	2,549	
	Distribution	Number	16,402	16,445	–	–	In FY2018, Distribution division was separated into "Retail" and "Distribution Network" divisions.
	Retail	Number	–	–	4,365	4,604	
	Distribution Network	Number	–	–	11,011	11,274	
	Support/Others	Number	7,295	7,512	9,399	9,393	
	Employee Engagement Score (EES)	%	89	-	86	–	EES is conducted biennially.
GRI 102-8	**Workforce by geographical area**						
	TNB Company (Malaysia)						
	Peninsular Malaysia – East	Number	4,292	4,201	4,229	4,290	
	Peninsular Malaysia – North	Number	6,197	6,090	6,051	6,128	
	Peninsular Malaysia – South	Number	4,977	4,896	5,195	5,272	
	Peninsular Malaysia – Central	Number	12,517	12,801	12,890	13,131	
	Malaysia East – Sabah	Number	7	7	6	4	
	Total	Number	**27,990**	**27,995**	**28,371**	**28,825**	
	Workforce by contract type and geographical area						
	Permanent employees						
	Peninsular Malaysia – East	Number	4,189	4,067	3,947	3,834	
	Peninsular Malaysia – North	Number	6,041	5,891	5,620	5,404	
	Peninsular Malaysia – South	Number	4,844	4,713	4,675	4,548	
	Peninsular Malaysia – Central	Number	12,186	12,349	11,895	11,524	
	Malaysia East – Sabah	Number	7	7	6	4	
	Total (Permanent)	Number	27,267	27,027	26,143	25,314	
	Contract employees (non-permanent)						
	Peninsular Malaysia – East	Number	103	134	282	456	
	Peninsular Malaysia – North	Number	156	199	431	724	
	Peninsular Malaysia – South	Number	133	183	520	724	
	Peninsular Malaysia – Central	Number	331	452	995	1,607	
	Malaysia East – Sabah	Number	0	0	0	0	
	Total (Contract)	Number	723	968	2,228	3,511	
	Total	Number	**27,990**	**27,995**	**28,371**	**28,825**	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*
** *All TNB employees are employed as full-time*

Performance Table

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
LABOUR PRACTICES AND DECENT WORK							
EMPLOYMENT							
GRI 405-1	**Workforce by gender**						
	TNB Company (Malaysia)						
	Male	Number	22,311	22,266	22,589	22,918	
		%	79.7	79.5	80.0	79.5	
	Female	Number	5,679	5,729	5,782	5,907	
		%	20.3	20.5	20.0	20.5	
	Total	Number	**27,990**	**27,995**	**28,371**	**28,825**	
	Workforce by contract type and gender						
	Permanent employees						
	Male	Number	21,640	21,394	20,582	19,845	
	Female	Number	5,627	5,633	5,561	5,469	
	Contract employees (non-permanent)						
	Male	Number	671	872	2,007	3,073	
	Female	Number	52	96	221	438	
	Total	Number	**27,990**	**27,995**	**28,371**	**28,825**	
	Workforce by level and gender						
	Senior management						
	Male	Number	266	266	285	284	
	Female	Number	46	50	57	66	
	Executive						
	Male	Number	3,628	3,691	3,780	3,821	
	Female	Number	2,043	2,120	2,282	2,426	
	Non-executive						
	Male	Number	18,417	18,309	18,524	18,813	
	Female	Number	3,590	3,559	3,443	3,415	
	Total	Number	**27,990**	**27,995**	**28,371**	**28,825**	
	Workforce by age group						
	<35	Number	13,646	13,687	14,071	13,937	
		%	49.0	48.9	49.6	48.4	
	35 – 50	Number	8,930	9,162	9,703	10,730	
		%	32.0	32.7	34.2	37.2	
	>50	Number	5,414	5,146	4,597	4,158	
		%	19.0	18.4	16.2	14.4	
	Total	Number	**27,990**	**27,995**	**28,371**	**28,825**	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
LABOUR PRACTICES AND DECENT WORK							
EMPLOYMENT							
GRI 405-1	**Workforce by level and age group**						
	Senior management						
	< 35	Number	0	0	0	0	
	35 – 50	Number	89	88	98	106	
	> 50	Number	223	228	244	244	
	Executive						
	< 35	Number	2,609	2,663	2,805	2,733	
	35 – 50	Number	2,323	2,423	2,599	2,900	
	> 50	Number	739	725	658	614	
	Non-executive						
	< 35	Number	11,037	11,024	11,266	11,204	
	35 – 50	Number	6,518	6,651	7,006	7,724	
	> 50	Number	4,452	4,193	3,695	3,300	
	Total	Number	**27,990**	**27,995**	**28,371**	**28,825**	
GRI 102-41	**Employees covered by collective bargaining agreements**						
	Number of employees covered in TNB Company	Number	24,725	24,258	22,992	23,406	
	Percentage of employees covered in TNB Company	%	88.34	86.65	81.00	81.20	Data for FY2017 has been restated from 88.37% to 88.34% due to errata.
GRI 401-1	**Changes to size of workforce**						
	Number of new hires by gender for TNB Company						
	Male	Number	527	345	1,547	1,078	
	Female	Number	114	107	241	320	
	Total	Number	**641**	**452**	**1,788**	**1,398**	
	Percentage of new employee hires by gender for TNB Company						
	Male	%	82.22	76.33	86.52	77.11	
	Female	%	17.78	23.67	13.48	22.89	
	Number of new hires by age group for TNB Company						
	< 35	Number	629	444	1,768	1,364	Data for FY2017 has been restated from 626 to 629 due to errata.
	35 – 50	Number	10	7	18	30	
	> 50	Number	2	1	2	4	
	Total	Number	**641**	**452**	**1,788**	**1,398**	
	Percentage of new employee hires by age group for TNB Company						
	< 35	%	98.12	98.23	98.88	97.57	Data for FY2017 has been restated from 97.66 and 1.56 to 98.12 and 1.57 respectively, due to errata.
	35 – 50	%	1.57	1.55	1.01	2.14	
	> 50	%	0.31	0.22	0.11	0.29	
	Number of new hires by region for TNB Company						
	Peninsular Malaysia – East	Number	90	56	203	161	
	Peninsular Malaysia – North	Number	127	66	297	240	
	Peninsular Malaysia – South	Number	115	80	422	216	
	Peninsular Malaysia – Central	Number	309	250	866	781	
	Malaysia East – Sabah	Number	0	0	0	0	
	Total	Number	**641**	**452**	**1,788**	**1,398**	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

Performance Table

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
LABOUR PRACTICES AND DECENT WORK							
EMPLOYMENT							
GRI 401-1	**Percentage of new employee hires by region for TNB Company**						
	Peninsular Malaysia – East	%	14.04	12.39	11.35	11.52	
	Peninsular Malaysia – North	%	19.81	14.60	16.61	17.17	
	Peninsular Malaysia – South	%	17.94	17.70	23.60	15.45	
	Peninsular Malaysia – Central	%	48.21	55.31	48.43	55.87	
	Malaysia East – Sabah	%	0	0	0	0	
	Employee turnover by gender for TNB Company						
	Male	Number	1,279	390	1,189	1,041	
	Female	Number	188	57	188	201	
	Total	Number	**1,467**	**447**	**1,377**	**1,242**	
	Employee turnover rate by gender for TNB Company						
	Male	%	5.70	1.80	5.30	4.50	
	Female	%	3.30	1.00	3.30	3.40	Data for FPE31.12.2017 has been restated from 1.10 to 1.00 due to errata.
	Employees turnover by age group for TNB Company						
	< 35	Number	163	59	316	333	
	35 – 50	Number	63	17	67	64	
	> 50	Number	1,241	371	994	845	
	Total	Number	**1,467**	**447**	**1,377**	**1,242**	
	Employee turnover rate by age group for TNB Company						
	< 35	%	1.20	0.40	2.20	2.39	
	35 – 50	%	0.70	0.20	0.70	0.60	
	> 50	%	22.90	7.20	21.60	20.32	
	Employee turnover by region for TNB Company						
	Peninsular Malaysia – East	Number	295	72	217	173	
	Peninsular Malaysia – North	Number	374	123	355	272	
	Peninsular Malaysia – South	Number	267	83	239	221	
	Peninsular Malaysia – Central	Number	531	169	566	576	
	Malaysia East – Sabah	Number	0	0	0	0	
	Total	Number	**1,467**	**447**	**1,377**	**1,242**	
	Employee turnover rate by region for TNB Company						
	Peninsular Malaysia – East	%	20.11	16.11	15.76	13.93	
	Peninsular Malaysia – North	%	25.49	27.52	25.78	21.90	
	Peninsular Malaysia – South	%	18.20	18.57	17.36	17.79	
	Peninsular Malaysia – Central	%	36.20	37.81	41.10	46.38	
	Malaysia East – Sabah	%	–	–	–	–	
GRI 405-1	**Employees with disabilities by gender**						
	Male	Number	33	44	48	58	
	Female	Number	4	4	6	7	
	Total	Number	**37**	**48**	**54**	**65**	
	Women in senior management						
	Female	Number	46	50	57	66	
		%	14.70	15.80	16.70	18.90	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
LABOUR PRACTICES AND DECENT WORK							
TRAINING AND EDUCATION							
GRI 404-1	**Training hours**						
	Training hours (inc. general and leadership training)	Hours	671,112	167,700	677,960	1,085,160	
	Average training hours	Man-days per employee	8	4	8	6	
	Average hours of training by gender (inc. general and leadership training)						
	Male	Hours	8	4	8	48	
	Female	Hours	8	4	8	24	
	Average hours of training by level (inc. general and leadership training)						
	Senior management (i.e., top management, management)	Hours	8	4	8	24	
	Executive	Hours	8	4	8	53	
	Non-executive	Hours	8	4	8	36	
	General training						
	General training hours	Hours	8.880	2,120	3,120	1,047,160	
	Average general training hours	Hours	8	4	8	37	
	Programme for skills management and lifelong learning						
	Leadership training						
	Total leadership training hours	Hours	3,152	758	2,496	38,000	
	Average leadership training hours (man-days per employee)	Hours	8	4	8	8	
	Total spend on training (inc. general and leadership)	RM	165,381,626.24	67,112,700.00	142,771,483.08	183,103,277.76	
GRI 404-3	**Assessment of employees receiving regular performance and career development reviews**						
	Regular performance review (employees)	Number	27,990	27,984	28,371	28,825	
LABOUR PRACTICES AND GRIEVANCE MECHANISMS							
	Grievances about labour practices received	Number	0	0	0	0	
	Grievances about labour practices resolved	Number	0	0	0	0	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

Performance Table

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
OCCUPATIONAL HEALTH AND SAFETY							
NUMBER AND FREQUENCY OF INJURY							
	Number of fatalities						
	Employees (Electrical)	Number	1	0	0	0	
	Employees (Non-Electrical)	Number	1	0	2	0	
	Total (Company)	Number	2	0	2	0	
	Contractors (Electrical)	Number	2	0	1	0	
	Contractors (Non-Electrical)	Number	0	2	3	4	
	Total (Contractors)	Number	2	2	4	4	
	Fatality rate						
	Employees (Electrical)	per 1000	0.04	0.00	0.00	0.00	
	Employees (Non-Electrical)	per 1000	0.04	0.00	0.27	0.00	
	Contractors (Electrical)	per 1000	0.18	0.00	0.08	0.00	
	Contractors (Non-Electrical)	per 1000	0	0.07	0.10	0.40	
	Lost-time injuries						
	Generation	Number	6	2	4	1	
	Grid	Number	20	2	19	4	
	Distribution	Number	73	22	-	-	In FY2018, Distribution division was separated into "Retail" and "Distribution Network" divisions.
	Retail	Number	-	-	72	42	
	Distribution Network	Number	-	-	40	43	
	TNB Company	Number	**115**	**37**	**153**	**114**	
	Lost-Time Injuries Frequency Rate (LTIF)						
	Generation	Per million man-hours	1.09	1.54	1.49	0.42	
	Grid	Per million man-hours	2.73	0.91	3.06	0.66	
	Distribution	Per million man-hours	1.38	1.34	-	-	In FY2018, Distribution division was separated into "Retail" and "Distribution Network" divisions.
	Retail	Per million man-hours	-	-	6.88	3.72	
	Distribution Network	Per million man-hours	-	-	1.07	1.12	
	TNB Company	Per million man-hours	**1.44**	**1.54**	**2.08**	**1.47**	
	Lost days of employees						
	Generation	Number	-	2	24	19	
	Grid	Number	-	11	248	197	
	Distribution	Number	-	371	-	-	- In FY2018, Distribution division was separated into "Retail" and "Distribution Network" divisions. - Data for FY2018 has been restated from 6,585 to 6,595 due to errata.
	Retail	Number	-	-	6,595	1,019	
	Distribution Network	Number	-	-	6,454	958	
	TNB Company	Number	**-**	**476**	**13,531**	**2,565**	

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

GRI	Indicator	Units	FY2017	*FPE31.12.2017	FY2018	FY2019	Remarks
OCCUPATIONAL HEALTH AND SAFETY							
NUMBER AND FREQUENCY OF INJURY							
	Lost days severity rate of employees						
	Generation	Per million man-hours	–	1.54	8.93	7.99	
	Grid	Per million man-hours	–	5.02	40.00	32.57	
	Distribution	Per million man-hours	–	23.08	–	–	In FY2018, Distribution division was separated into "Retail" and "Distribution Network" divisions.
	Retail	Per million man-hours	–	–	617.60	90.24	
	Distribution Network	Per million man-hours	–	–	173.00	24.89	
	TNB Company	Per million man-hours	**–**	**21.45**	**195.16**	**33.16**	Data for FY2018 has been restated from 185.16 to 195.16 due to errata.
EDUCATION							
GRI 203-2	**YTN**						
	Total spend on YTN scholarships	RM Million	55.78	14.69	35.00	38.70	FY2017 and FPE31.12.2017 figures refer to total spend on YTN scholarships and convertible loans.
	YTN scholarships awarded	Number	1,963	654	816	831	
	Total spend on YTN convertible loans	RM Million	–	–	26.79	27.30	
	Students awarded YTN convertible loans	Number	–	–	1,158	1,248	
	Total spend on MyBF scholarships	RM Million	–	–	4.69	21.20	
	Students awarded MyBF scholarships	Number	–	–	945	3,592	
	UNITEN						
	Malaysian students enrolled	Number	11,371	9,301	8,703	6,314	
	International students enrolled	Number	567	472	458	621	
	Total	Number	**11,938**	**9,773**	**9,161**	**6,935**	
	Students in undergraduate programmes	Number	2,781	–	3,001	1,944	
	Students in postgraduate programmes	Number	178	–	144	92	
	Total	Number	**2,959**	**–**	**3,145**	**2,036**	
	Employability rate within 6 months	%	95.00	95.00	93.69	94.00	
	ILSAS						
	Individuals trained	Number	62,769	23,236	50,571	61,067	Based on number of internal (TNB) and external participants.
	TNB employees trained	Number	62,228	16,144	39,077	50,359	Subject to number of training programmes in ILSAS.

* *FPE31.12.2017 denotes 1 September to 31 December 2017*

GRI Standards Aspect Boundary

Material Matters	GRI Standards	Where the impact occurs
Responsible and Ethical Business Practices	GRI 419: Socioeconomic compliance	Within and outside
Business and Financial Performance	GRI 201: Economic Performance EU28: Power outage frequency EU29: Average power outage duration	Within and outside
Energy Efficiency	GRI 302: Energy	Within and outside
Fuel Mix Policy	EU1: Installed capacity, broken down by primary energy source and by regulatory regime	Within and outside
Efficient Technology and Innovation	EU12: Transmission and distribution losses as a percentage of total energy	Within
Asset Optimisation	Disclosure on Management Approach	Within
Cyber Security Management	Disclosure on Management Approach	Within and outside
Sustainable Supply Chain	GRI 204: Procurement Practices	Within and outside
Reliable Energy and Fair Tariffs	EU28: Power outage frequency EU29: Average power outage duration	Within and outside
Renewable Energy	GRI 302: Energy	Within and outside
Customer Experience	GRI 418: Customer Privacy EU3: Number of residential, industrial, institutional and commercial customer accounts DMA Demand-side Management	Within and outside
Environment Management	GRI 307: Environmental Compliance	Within and outside
Biodiversity Management	GRI 304: Biodiversity	Within and outside
Natural Resource Consumption	GRI 301: Materials GRI 303: Water and Effluents 2018 (Disclosure on Management Approach)	Within
Waste Management	GRI 306: Effluents and Waste	Within and outside
Climate Change	GRI 305: Emissions	Within and outside
Diversity and Inclusion	GRI 401: Employment GRI 404: Training and Education GRI 405: Diversity and Equal Opportunity	Within
Workplace Culture		
Employee Engagement		
Capability Development		
Safety and Emergency Preparedness	GRI 403: Occupational Health and Safety 2018 DMA Disaster/Emergency Planning and Response	Within and outside
Health and Well-being	GRI 403: Occupational Health and Safety 2018	Within and outside
Community Development	GRI 203: Indirect Economic Impacts	Within and outside
Education	GRI 203: Indirect Economic Impacts	Within and outside
Stakeholder Relationship	GRI 102-40 to GRI 102-44 Stakeholder Engagement	Within and outside

GRI Standards Content Index

GENERAL DISCLOSURES

GRI Indicator		Page Reference	Explanation for Omission
GRI 102: General Disclosures 2016			
102-1	Name of the organisation	Front cover	
102-2	Activities, brands, products and services	6-9	
102-3	Location of headquarters	6	
102-4	Location of operations	IAR 2019 (4, 10-11)	
102-5	Ownership and legal form	IAR 2019 (76), CGFS 2019 (78, 224-226)	
102-6	Markets served	8-9, IAR 2019 (10-11)	
102-7	Scale of the organisation	8-9, 61, 83, IAR 2019 (5-7)	
102-8	Information on employees and other workers	61, 87-90	
102-9	Supply chain	34, 84	
102-10	Significant changes to the organisation and its supply chain	26	
102-11	Precautionary Principle or approach	CGFS 2019 (54-59)	
102-12	External initiatives	1, 12-13, 16, IAR 2019 (2-3)	
102-13	Membership of associations	15, 72, IAR 2019 (58)	
102-14	Statement from senior decision-maker	2-5, IAR 2019 (15-23)	
102-16	Values, principles, standards and norms of behaviour	6, 20-21, 34, 54, 64, CGFS 2019 (58-59, 61-62)	
102-18	Governance structure	13, 20, IAR 2019 (77-83)	
102-40	List of stakeholder groups	14-15	
102-41	Collective bargaining agreements	89	
102-42	Identifying and selecting stakeholders	14	
102-43	Approach to stakeholder engagement	14-15	
102-44	Key topics and concerns raised	14-15	
102-45	Entities included in the consolidated financial statements	CGFS 2019 (116-124)	
102-46	Defining report content and topic Boundaries	1, 14-16, 96-100	
102-47	List of material topics	16	
102-48	Restatements of information	17, 82-84, 86, 89-90, 92-93	
102-49	Changes in reporting	1, 16	
102-50	Reporting period	1	
102-51	Date of most recent report	1	
102-52	Reporting cycle	1	
102-53	Contact point for questions regarding the report	1	
102-54	Claims of reporting in accordance with the GRI Standards	1	
102-55	GRI content index	96-100	
102-56	External assurance	1	

GRI Standards Content Index

TOPIC SPECIFIC DISCLOSURES

GRI Indicator		Page Reference	Explanation for Omission	Boundary	
				TNB Company	TNB Group
GOVERNANCE					
GRI 419: Socioeconomic Compliance 2016					
103-1	Explanation of the material topic and its Boundary	16, 20-21, 94			✓
103-2	The management approach and its components	20-21			✓
103-3	Evaluation of the management approach	20-21			✓
419-1	Non-compliance with laws and regulations in the social and economic area	84		✓	
ECONOMIC					
GRI 201: Economic Performance 2016					
103-1	Explanation of the material topic and its Boundary	16, 94			✓
103-2	The management approach and its components	IAR 2019 (30, 38-49)			✓
103-3	Evaluation of the management approach	IAR 2019 (30, 38-49)			✓
201-1	Direct economic value generated and distributed	24, 83			✓
GRI 204: Procurement Practices 2016					
103-1	Explanation of the material topic and its Boundary	16, 34, 94			✓
103-2	The management approach and its components	34			✓
103-3	Evaluation of the management approach	34			✓
204-1	Proportion of spending on local suppliers	34, 84			✓
GRI 418: Customer Privacy 2016					
103-1	Explanation of the material topic and its Boundary	16, 39, 94			✓
103-2	The management approach and its components	39, CGFS 2019 (59)			✓
103-3	Evaluation of the management approach	39, CGFS 2019 (59)			✓
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	39		✓	

GRI Indicator		Page Reference	Explanation for Omission	Boundary	
				TNB Company	TNB Group
ENVIRONMENT					
GRI 301: Materials 2016					
103-1	Explanation of the material topic and its Boundary	16, 44, 94			✓
103-2	The management approach and its components	44			✓
103-3	Evaluation of the management approach	44			✓
301-1	Materials used by weight or volume	44, 85		✓	
GRI 302: Energy 2016					
103-1	Explanation of the material topic and its Boundary	16, 50, 94			✓
103-2	The management approach and its components	44, 50			✓
103-3	Evaluation of the management approach	44			✓
302-1	Energy consumption within the organisation	50, 85		✓	
302-4	Reduction of energy consumption	50, 85		✓	
GRI 304: Biodiversity 2016					
103-1	Explanation of the material topic and its Boundary	16, 45, 94			✓
103-2	The management approach and its components	44-45			✓
103-3	Evaluation of the management approach	44-45			✓
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	45		✓	
GRI 305: Emissions 2016					
103-1	Explanation of the material topic and its Boundary	16, 48, 94			✓
103-2	The management approach and its components	44, 48			✓
103-3	Evaluation of the management approach	44, 48-49			✓
305-1	Direct (Scope 1) GHG emissions	48, 85		✓	
305-2	Energy indirect (Scope 2) GHG emissions	48, 85		✓	
305-4	GHG emissions intensity	48-49, 86		✓	
305-5	Reduction of GHG emissions	48-49, 85-86		✓	

GRI Standards Content Index

GRI Indicator		Page Reference	Explanation for Omission	Boundary	
				TNB Company	TNB Group
ENVIRONMENT					
GRI 306: Effluents and Waste 2016					
103-1	Explanation of the material topic and its Boundary	16, 44, 94			✓
103-2	The management approach and its components	44			✓
103-3	Evaluation of the management approach	44			✓
306-3	Significant spills	86		✓	
GRI 307: Environmental Compliance 2016					
103-1	Explanation of the material topic and its Boundary	16, 44, 94			✓
103-2	The management approach and its components	44			✓
103-3	Evaluation of the management approach	44			✓
307-1	Non-compliance with environmental laws and regulations	86		✓	
SOCIAL					
GRI 401: Employment 2016					
103-1	Explanation of the material topic and its Boundary	16, 54-55, 60, 94			✓
103-2	The management approach and its components	54-55, 60			✓
103-3	Evaluation of the management approach	54-55, 60			✓
401-1	New employee hires and employee turnover	61, 89-90		✓	
GRI 403: Occupational Health and Safety 2018					
103-1	Explanation of the material topic and its Boundary	16, 64, 94			✓
103-2	The management approach and its components	64-67			✓
103-3	Evaluation of the management approach	64-67			✓
403-4	Worker participation, consultation and communication on occupational health and safety	64-66		✓	
403-5	Worker training on occupational health and safety	64-66		✓	
403-6	Promotion of worker health	67		✓	
GRI 404: Training and Education 2016					
103-1	Explanation of the material topic and its Boundary	16, 55, 94			✓
103-2	The management approach and its components	54-59			✓
103-3	Evaluation of the management approach	54-59			✓
404-1	Average hours of training per year per employee	91		✓	

GRI Indicator		Page Reference	Explanation for Omission	Boundary	
				TNB Company	TNB Group
SOCIAL					
GRI 404: Training and Education 2016 (continued)					
404-2	Programmes for upgrading employee skills and transition assistance programmes	56-59		✓	
404-3	Percentage of employees receiving regular performance and career development reviews	59, 91		✓	
GRI 405: Diversity and Equal Opportunity 2016					
103-1	Explanation of the material topic and its Boundary	16, 61, 94			✓
103-2	The management approach and its components	61			✓
103-3	Evaluation of the management approach	61			✓
405-1	Diversity of governance bodies and employees	61, 88-90, IAR 2019 (80)		✓	
GRI 203: Indirect Economic Impact 2016					
103-1	Explanation of the material topic and its Boundary	5, 16, 70, 94			✓
103-2	The management approach and its components	5, 70-81			✓
103-3	Evaluation of the management approach	70-81			✓
203-2	Significant indirect economic impacts	5, 70-81, 83, 93		✓	

GRI Standards Content Index

ELECTRIC UTILITIES SECTOR DISCLOSURES

GRI G4 Indicator		Page Reference	Explanation for Omission	Boundary	
				TNB Company	TNB Group
GENERAL STANDARD DISCLOSURES					
Organisational Profile					
EU1	Installed capacity, broken down by primary energy source and by regulatory regime	8, 24-26, 82		✓	
EU3	Number of residential, industrial, institutional and commercial customer accounts	9, 38, 84		✓	
SPECIFIC STANDARD DISCLOSURE: ECONOMIC					
Demand-Side Management					
G4-DMA	Disclosures on Management Approach	39-40			✓
System Efficiency					
EU12	Transmission and distribution losses as a percentage of total energy	82		✓	
SPECIFIC STANDARD DISCLOSURE: SOCIETY					
Disaster/Emergency Planning and Response					
G4-DMA	Disclosures on Management Approach	29-30, 64			✓
Access					
EU28	Power outage frequency	9, 27-28, 83		✓	
EU29	Average power outage duration	9, 17, 27-28, 83		✓	
Provision of Information					
G4-DMA	Disclosures on Management Approach	38-39, 41			✓