TENAGA NASIONAL
Better. Brighter.

75
1949-2024

LEADING THE ENERGY TRANSITION FOR A SUSTAINABLE TOMORROW

SUSTAINABILITY REPORT
2024

Cover Rationale

The cover of TNB's Sustainability Report 2024, themed **"Leading the Energy Transition for a Sustainable Tomorrow,"** visually represents the company's commitment to shaping a low-carbon, digitally connected energy future. Through elements such as renewable energy sources, smart grids, electric mobility, and green landscapes, the design highlights TNB's leadership in driving sustainable progress. It reflects a balanced approach that prioritises innovation, environmental stewardship, and community impact—reinforced by the 75th Anniversary emblem that anchors the company's legacy and forward momentum.

Scan this QR code to view it online or visit

www.tnb.com.my

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- SR Social & Relationship Capital
- IC Intellectual Capital
- MC Manufactured Capital
- HC Human Capital
- NC Natural Capital

STRATEGIC PILLARS

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- DE Develop Energy Transition Network
- DS Dynamic Energy Solutions
- DR Drive Regulatory Evolution

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Environmental

- MM 2 Energy Transition and Innovation
- MM 6 Biodiversity and Environmental Management
- MM 3 Climate Change and Emissions

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Governance

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- MM 4 Reliable Energy and Fair Tariff
- MM 10 Cybersecurity Management
- MM 7 Customer Experience and Satisfaction

SDGs

Report Scope and Boundaries

This Sustainability Report (Report) shares our sustainability strategies, initiatives and performance for the financial year ending 31 December 2024. Through our various efforts, TNB aspires to be a leading energy provider of sustainable energy solutions supported by our sustainability pillars - Environmental, Social and Governance (ESG).

The scope and basis of the Report for 2024 encompass the activities of the TNB Company and its subsidiaries (TNB Group) in accordance to our corporate structure. This Report provides information on active subsidiaries with effective holding, and excludes joint ventures and vendor activities unless explicitly stated otherwise.

We endeavour to be transparent and balanced in disclosing matters deemed material. Relevant targets and three (3) years of historical key performance indicators have been established, tracked and disclosed to the best of our ability.

This Report adheres to the Bursa Malaysia Main Market Listing Requirements (MMLR) and the following:

In accordance with:	With reference to:	In alignment to:	In contribution to:	With reference to:
Bursa Malaysia Sustainability Reporting Guide (3rd Edition)	Global Reporting Initiative (GRI) Standards and GRI Electric Utilities Sector Disclosures	Task Force on Climate-related Financial Disclosures (TCFD) Framework	United Nations Sustainable Development Goals (UN SDGs)	Sustainability Accounting Standards Board

We recognise the global shift towards the International Sustainability Standards Board (ISSB) standards in sustainability reporting and have begun aligning with the ISSB standards in this year's report. As such, we have referenced, where relevant, the Sustainability Accounting Standards Board (SASB) for Electric Utilities & Power Generators per the recommendation of the ISSB in reporting in alignment with the International Financial Reporting Standards (IFRS) for Sustainability. In addition to this, we have also referenced, where relevant, the IFRS climate-related disclosures (IFRS S2).

Our Sustainability Performance

ENVIRONMENTAL

Metric
GHG Scope 1 emissions (in mil tCO_2e) and intensity (in tCO_2e/MWh)

2024	2023
38.75 **0.5571**	38.92 0.5465

Remarks
We reduced our Scope 1 emission by 0.04% however our Scope 1 emission intensity had increased by 1.9% compared to the previous year

Metric
GHG Scope 2 Emissions (in mil tCO_2e)

2024	2023
0.321	0.39

Remarks
We reduced our Scope 2 emission by 17% compared to the previous year

Metric
GHG Scope 3 Emissions (Business Travel, and Employee Commuting, in mil tCO_2e)

2024	2023
0.098	0.1

Remarks
We decreased our Scope 3 emissions (Business Travels, and Employee Commuting) by 2% compared to the previous year

Metric
Total energy consumption within TNB (in GJ)

2024	2023
320,997,148	404,523,322

Remarks
We reduced our energy consumption by 20% compared to the previous year

Metric
Total fuel consumption within the organisation from non-renewable sources (in GJ)

2024	2023
561,841,541	648,769,282

Remarks
We reduced our energy consumption by 20% compared to the previous year

Metric
Renewable Energy (RE) installed capacity (in MW)*

2024	2023
4,152	3,989

Remarks
We increased our RE installed capacity by 4% compared to the previous year

Metric
Hazardous waste recycling rate (including coal ash)

2024	2023
55.58%	47.42%

Remarks
We increased our hazardous waste recycling rate by 17% compared to the previous year

Metric
Total water consumption from all areas (in megalitres)

2024	2023
9,234	10,096

Remarks
We reduced our water consumption by 8.5% compared to the previous year

** RE capacity is calculated using the equity capacity approach. Data for FY2023 has been reinstated to adhere to this approach.*

OUR SUSTAINABILITY PERFORMANCE

SOCIAL

Metric
Annual employee turnover rate

2024	2023
3.06%	3.30%

Remarks
We reduced our employee turnover rate by 7% compared to the previous year

Metric
Women in workforce

2024	2023
21.70%	21.60%

Remarks
We increase the percentage of women in our workforce rate by 0.4% compared to the previous year

Metric
Lost Time Injury Frequency Rate (LTIFR) for TNB Emplioyees

2024	2023
0.87	0.74

Remarks
Meet the target of <1.0

Metric
LTIFR for TNB Contractors

2024	2023
0.53	0.27

Remarks
Meet the target of <1.0

Metric
Number of employees trained on health and safety standard*

2024	2023
13,973	12,192

Remarks
Increased numbers of employees trained on health and safety standards by 14.6% compared to the previous year

Metric
Average hours of training per employee (in hours)

2024	2023
50.47	46.80

Remarks
Increased average training hours per employee by 7.4% compared to the previous year

Metric
Total amount invested in the community (in RM million)**

2024	2023
63.78	99.04

Remarks
-

Metric
Total number of beneficiaries***

2024	2023
79,581	6,635

Remarks
-

* *Reinstatement for FY2023, due to alignment with BURSA guidelines with focus on health and safety training.*
** *Data disclosed for FY2023 includes educational support to Yayasan Tenaga Nasional (YTN), Universiti Tenaga Nasional (UNITEN), and Corporate Social Responsibility (CSR) initiatives. The total amount invested to the community has included educational support from YTN and UNITEN to the children of TNB employees.*
*** *The beneficiary data for FY2024 reflects the total number of beneficiaries, rather than group beneficiaries as reported in FY2023.*

GOVERNANCE

Metric
Women on Board of Directors

2024	2023
33.33%	45.45%

Remarks
Meet the target >30%

Metric
Percentage of division/subsidiary assessed for risk related to corruption

2024	2023
100%	97%

Remarks
Increased percentage of division/ subsidiaries assessed for risk related to corruption by 3% compared to the previous year

Metric
Percentage of employees undergone anti-corruption training

2024	2023
100%	74.48%

Remarks
Increased number of employees underwent anti-corruption training by 34% compared to the previous year

Metric
Anti Bribery Management System Internal Audit (ABMS)

2024	2023
100%	100%

Remarks
Maintained ABMS audit coverage compared to the previous year

Metric
Spending on local vendors (in RM billion)*

2024	2023
19.21	17.18

Remarks
Increased spending on local vendors by 11.8% compared to the previous year

Metric
Number of substantiated complaints concerning breaches of customer privacy and losses of customer data

2024	2023
0	0

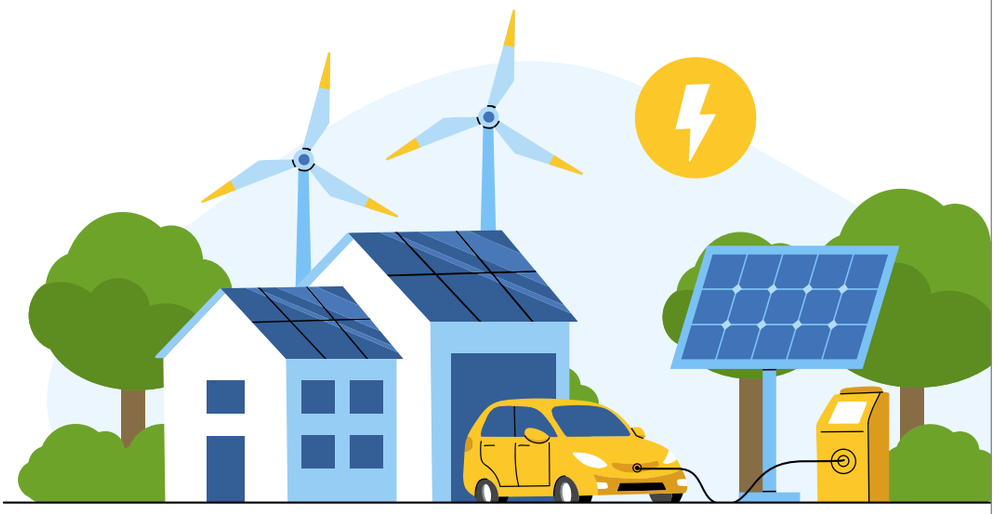
Remarks
Maintained zero complaints concerning breaches of customer privacy and losses of customer data

Metric
Numbers of vendors undergone anti-corruption training

2024	2023
1,237	267

Remarks
Four times increased compared to previous year on number of vendors undergone anti-corruption

** Data disclosed for FY2023 is based on spending under TNB Group, including fuel purchases.*



ESG Rating

TNB remains steadfast in its commitment to managing ESG matters and transparently disclosing sustainability information to our stakeholders to facilitate decision making and assessment. We have dedicated significant efforts to our sustainability strategy and implementations to ensure enhanced disclosures. We leverage rating agencies' assessments to improve our sustainability strategy and operational frameworks. By engaging with diverse business operations across TNB, we formulate targeted action plans to address ESG concerns effectively.

TNB made significant achievements in improving our ESG rating scores across several leading ESG indices, as a result from our effective ESG management and relentless efforts in this space.

MSCI

We elevated our rating in the Morgan Stanley Capital International (MSCI) ESG Ratings to A as of February 2025, after consistently maintaining BBB rating since the year 2019. This achievement signifies TNB's persistence in effectively managing significant ESG risks and opportunities, demonstrating a commitment to aligning with global standards and best practices. There has been noteworthy score enhancements in the Environmental pillar, specifically in Water Stress and Toxic Emission & Waste, and in Corporate Behaviour under the Social Pillar. Our intensified efforts in these areas underscore our unwavering dedication to advancing our environmental management and corporate governance.

TNB's MSCI ESG Rating Score =
A as of February 2025

SUSTAINALYTICS

Morningstar Sustainalytics ESG Risk Ratings provides a multi-dimensional assessment of a company's exposure to industry-specific material ESG risks and its management of those risks. TNB achieved a notable improvement in this rating, by recording 26.3 (medium risk) compared to 30.4 (high risk) in 2023. This improved rating highlights TNB's continued efforts to strengthen ESG governance, mitigate material sustainability risks, and embed responsible practices across our operations—reinforcing our commitment to long-term value creation and resilience.

TNB's Sustainalytics ESG Rating Score =
26.3 as of May 2025

FTSE RUSSELL

The FTSE Russell is designed to highlight companies that demonstrate a leading approach to addressing ESG risks. The index serves as tools in the creation of index-tracking investments, financial instruments or fund products focused on sustainable investment, identifying companies with specific environmental and social practices, referencing evolving global ESG standards, and benchmarking performance of sustainable investment portfolios.

TNB achieved a significant improvement in its FTSE Russell ESG rating, scoring 3.5 compared to 3.2 in 2023, an improvement of 6% in terms of scoring. This upward trend reflects our strengthened ESG practices, particularly in governance, environmental stewardship, and stakeholder engagement.

TNB's FTSE Russell ESG Rating Score =
3.5 as of June 2024

TNB's FTSE4Good ESG Rating Grading Band =
3 star as of June 2024

CDP

CDP operates a global disclosure platform that enables companies, cities, states, and regions to measure and manage their environmental risks and opportunities across climate change, water security, and deforestation. TNB's CDP score maintained at C for both Climate Change and Water topics, reflecting our persistent approach to improve on environmental transparency, risk management, and alignment with global best practices in sustainability disclosure. In 2024, TNB disclosed on water topic for the first time.

TNB's CDP Climate Change Score for Climate Change topic =
C

TNB's CDP Climate Change Score for Water topic =
C

Looking ahead, TNB remains unwavering in its dedication to sustainability, continuously seeking new opportunities to drive positive impact and exceed ESG expectations.

Awards and Recognitions

In our pursuit of becoming the best sustainable energy solutions provider in Malaysia and globally, we received various awards and recognitions on both local and international platforms.

Energy Transition & Innovation

- ESRI International User Conference 2024, San Diego International Convention Center in California, USA - TNB's Grid Division won Special Achievement in GIS (SAG) award at the ESRI International User Conference.
- Enlit Asia 2024: Power & Energy Awards – Winner, Energy Storage – Community Energy Storage Systems – Winner, Transmission & Distribution Networks – Advanced Metering Infrastructure
- World's First Operational GIS-ADMS Integrated Network Model Automation – Recognition from Schneider Electric & General Electric
- International Invention, Innovation, Technology Competition & Exhibition (ITEX) 2024 – Gold Medal – AR Work Guidance App for Maintenance & Inspection (Manual AR) – Silver Medal – AI Gen Knowledge Repository Platform: NOKT
- Top 20 Most Admired Shared Service Centre/Global Business Service in the world
- SSON Impact Awards – Best Shared Services Team 2024 (Gold Winner)
- PC.Com Awards 2024 – Best Public Utility App – myTNB
- Malaysia Technology Excellence Awards 2024 – IoT – Energy Award – Infrastructure Technology – Utilities Award

Environment

- Anugerah Langkawi – Kelestarian Alam Sekitar 2024
- Green Building Index (GBI) Platinum Certification
- The Edge Malaysia-Institute of Landscape Architects Malaysia Sustainable Landscape Awards 2024 – Gold for Landscape Design TNB Platinum Bangsar

Social

- CX Asia Excellence Award 2024 – Best Employee Experience Award (Silver Winner)
- CXP Best Customer Experience Awards 2024 – Winner
- GCA Graduates' Choice Award 2024 – Private Higher Education Institution Award (Winner)
- Malaysian Industrial Safety and Health Association (MiSHA) Excellence Awards 2024 – Gold for Behavioural Based Safety Management – Gold for Office Management
- ESG Positive Impact Awards 2023 – Talent Management (Silver Award)

Governance

- The Edge Malaysia ESG Awards 2024 – Silver Award in the Best Performer by Sector (Utilities)
- The Brand Laureate Awards 2024 – Nation Branding – Manufacturing – Sustainable Power Solutions
- The Asset Triple A Awards – Best Sustainability SUKUK – Utilities Malaysia (2 Billion Ringgit Four-Tranche Sustainability Wakalah Sukuk)

Joint Leadership Statement

TAN SRI ABDUL RAZAK BIN ABDUL MAJID
Chairman

2024 marked a pivotal chapter for Tenaga Nasional Berhad (TNB), as we not only accelerated our strategic response to the global energy transition but also commemorated our 75th anniversary a powerful milestone that underscores our enduring contribution to Malaysia's development. Amidst escalating climate urgency, evolving stakeholder expectations, and rising energy demand, we remained steadfast in our purpose: to deliver fair, reliable, and sustainable energy solutions that create and protect long-term value for the nation and its people. Our efforts in 2024 reflected disciplined execution, strong stakeholder engagement, and a deepened commitment to advancing Malaysia's net zero goals.

We made strong strides in advancing corporate sustainability reporting by taking early action to adopt the International Sustainability Standards Board (ISSB) disclosure frameworks. This proactive step, taken ahead of the national implementation timeline under Malaysia's National Sustainability Reporting Framework (NSRF), demonstrates our leadership in embedding globally aligned climate-related disclosures and reinforces our transparency and accountability to stakeholders.

DELIVERING LONG-TERM VALUE THROUGH PURPOSE-LED PERFORMANCE

We closed the year with a strong 18.5% growth in Earnings Before Interest and Tax (EBIT), reaching RM8.72 billion, up from RM7.36 billion in 2023. This performance reflects the resilience of our business model, underpinned by disciplined execution of our Reimagining TNB 2.0 (RT2.0) strategy, robust regulatory fundamentals, and strategic capital deployment throughout Regulatory Period 3 (RP3).

These strong results not only enabled us to deliver long-term value to our shareholders, but also empowered us to reinvest meaningfully in national infrastructure, accelerate our energy transition agenda, and uplift the communities we serve, ensuring inclusive and sustainable growth across our value chain.

OPERATIONALISING THE ENERGY TRANSITION AT SCALE

TNB plays a central role in delivering Malaysia's national energy transition. Guided by our Net Zero 2050 commitment and supported by national policy frameworks such as the National Energy Transition Roadmap (NETR) and the Hydrogen Economy & Technology Roadmap (HETR), we are accelerating clean energy deployment, enhancing grid resilience, and scaling customer-centric energy solutions. These priorities are operationalised through our Reimagining TNB 2.0 (RT2.0) strategy a long-term transformation

DATUK IR. MEGAT JALALUDDIN BIN MEGAT HASSAN
President/Chief Executive Officer

blueprint anchored on three strategic pillars: Delivering Clean Generation, developing a Flexible and Resilient Grid, and Driving Customer-Centric Solutions. Through this integrated approach, we are not only reengineering our utility model for a low-carbon future, but also upholding our commitment to Create and Protect Value for all stakeholders from investors and regulators to customers, communities, and future generations.

During RP3, we invested RM23.6 billion in capital expenditure, expanding our Regulated Asset Base from RM61.3 billion in 2022 to RM68.8 billion in 2024. Concurrently, we advanced our renewable energy (RE) strategy, securing 13.3GW in RE capacity 6.8GW domestically and 2.1GW internationally, with 8.9GW Framework, signalling a clear and proactive commitment to responsible capital mobilisation for green, transition, and social impact projects. This pioneering initiative positions TNB at the forefront of sustainable finance in Southeast Asia, enabling the alignment of funding mechanisms with our broader decarbonisation goals while reinforcing transparency, accountability, and long-term stakeholder value creation. To further accelerate sustainable financing in the region we launched ASEAN's first Transition Finance Framework, signalling a clear commitment to responsible financing for green and social impact projects.

In alignment with Malaysia's broader ambitions to accelerate the energy transition, TNB continues to play a catalytic role not only in deploying RE at scale but also in pioneering next-generation innovations that will define the future of the energy landscape.

To support national RE targets and enhance system flexibility, TNB is spearheading several high-impact initiatives, including the City of Elmina smart energy ecosystem a model for integrated urban sustainability as well as the Corporate Green Power Programme (CGPP), which enables commercial users to access clean electricity through Virtual Power Purchase Agreements (VPPAs).

In parallel, we are advancing the development of Battery Energy Storage Systems (BESS), hydrogen pilots, and solar-hydro hybrid technologies. These efforts reflect our strategic commitment under the RT2.0 transformation roadmap and exemplify our 2024 Sustainability Reporting (SR) theme to Create and Protect Value, ensuring that TNB remains at the forefront of a decentralised, digitalised, and decarbonised energy future.

JOINT LEADERSHIP STATEMENT

In 2024, we operationalised our Carbon Emission Management Strategy, targeting a 5% annual reduction in emissions. This effort yielded 8.46 million tonnes of avoided CO_2e by year-end.

ADVANCING DECARBONISATION AND CLIMATE RESILIENCE

In 2024, we operationalised our Carbon Emission Management Strategy, targeting a 5% annual reduction in emissions. This effort yielded 8.46 million tonnes of avoided CO_2e by year-end. Aligned with this strategic direction are TNB's targeted investments in grid flexibility, high-efficiency technologies, and nature-based carbon offset solutions all of which are essential enablers in achieving a just and orderly energy transition. These investments not only support the decarbonisation of our energy system but also ensure that the national grid remains resilient, adaptable, and capable of integrating increasing volumes of RE.

This alignment is critical in translating Malaysia's policy aspirations such as those outlined in the NETR, into tangible outcomes that create and protect long-term value for all stakeholders, from communities and industries to future generations. Under NETR, TNB is proud to champion three strategic flagship projects: Hybrid Hydro-Floating Solar (HHFS), Centralised Solar Park (CSP) and Co-Firing with Hydrogen and Ammonia. These initiatives reflect our commitment to advancing low-carbon energy innovation and position TNB at the forefront of shaping a dynamic, decentralised, and resilient energy future for Malaysia.

To ensure long-term organisational resilience, we enhanced our Business Continuity Management Framework, aligning it with the ISO 22301:2019 standard for security and resilience in societal systems. integrated spatial risk data and conducted full-scale simulation exercises with National Disaster Management Agency (NADMA) and Majlis Keselamatan Negara (MKN), who both operate under the Prime Minister's Department of Malaysia. Together, NADMA and MKN serve as key partners in enhancing TNB's climate resilience and emergency readiness, enabling proactive and coordinated responses to extreme weather events and other systemic risks to further strengthen our response to climate threats.

Our commitment to ESG excellence received significant external validation in 2024. TNB's MSCI ESG rating was upgraded from “BBB” to “A”, underscoring the tangible progress we have made in enhancing our sustainability performance, governance practices, and disclosure standards. This recognition reflects the sustained efforts across our organisation to integrate ESG principles into every facet of our strategy and operations.

PROTECTING NATURAL CAPITAL AND DRIVING CIRCULARITY

TNB's commitment to environmental stewardship progressed meaningfully in 2024. We introduced the TNB Biodiversity Framework, aligned with the Kunming-Montreal Global Biodiversity Framework and Malaysia's National Policy. Guided by a four-stage mitigation hierarchy – 'avoid, minimise, restore, and offset', TNB adopts a comprehensive approach to managing and mitigating environmental impacts throughout the lifecycle of our operations and projects. This structured framework ensures that potential ecological harm is first proactively prevented, then reduced where avoidance is not possible, followed by active restoration of affected environments, and finally, offset through measurable conservation or biodiversity enhancement initiatives, we invested RM3.68 million into biodiversity restoration across high-impact zones, including habitat rehabilitation in Cameron Highlands and community fish sanctuaries in Royal Belum.

Our sustainability journey also embraces circular economy principles, promoting resource efficiency and waste minimisation throughout our operations. We achieved a 3.67% reduction in hazardous waste, with over 55% recycled, and exceeded targets for our Uniforms and Fabrics Recycling Campaign, diverting over 75 tonnes of materials. Innovations such as food waste bioreactors further advance waste-to-energy applications within our operations. These efforts not only reduce environmental impact but also enhance operational resilience and resource sustainability ensuring that TNB contributes meaningfully to a cleaner, more sustainable future for Malaysia.

2025 AND BEYOND: ANCHORED BY RP4, DRIVEN BY PURPOSE

Looking forward, our focus remains on accelerating growth while protecting long-term value across the energy eco-system. Under RP4, with a total CAPEX allowance of RM42.8 billion, we will deploy up to RM20 billion in 2025 comprising approximately RM12 billion in regulated business and RM8 billion in non-regulated investments.

Our priorities include:

- 2.8GW in new RE capacity, including the UK's first 102MWp solar greenfield project and 135MWp under the Corporate Green Power Programme (CGPP)
- A pioneering initiative by TNB designed to enable businesses to directly access and procure clean energy. CGPP thus plays a critical role in scaling demand for renewable energy, fostering private sector involvement in green energy solutions and accelerating the country's decarbonisation efforts.
- Expanded grid reliability and smart infrastructure, enabling integration of 4.0GW of upcoming demand from data centres.
- Customer-centric innovation, with more than 250 new EV charge points, 100MWp rooftop solar and digitalised efficiency tools via the myTNB app.

These efforts are underpinned by ISSB-aligned reporting systems, organisation-wide capacity building and a unified commitment to embed climate accountability across our governance, operations and decision-making. As we advance into RP4, we do so with renewed purpose to create and protect value for our stakeholders, our nation and generations to come.

EMPOWERING COMMUNITIES, ENABLING PROGRESS

In 2024, we continued to reinforce our role in nation-building by strategically investing RM11.2 billion in infrastructure and contributing over RM870 million in taxes and zakat. Our RM140.9 million in CSR spending was purposefully directed towards education, environmental sustainability and social upliftment, aiming to create lasting positive impacts. These efforts empower targeted communities by enhancing access to essential services, improving quality of life and fostering opportunities for inclusive growth thereby building stronger, more resilient societies that contribute to Malaysia's long-term sustainable development.

Through Yayasan Tenaga Nasional (YTN), we disbursed RM41.5 million in scholarships to 1,582 students, with over 20,000 beneficiaries since inception. Education, particularly in STEM, remains a vital enabler of our future energy workforce.

We also delivered 962 homes under the Home for the Needy programme and supported rural development through RM39.9 million in electrification and lighting projects, significantly enhancing the quality of life and safety for underserved communities while fostering greater social equity and inclusion across Malaysia.

The 300MW Nenggiri Hydro Project demonstrates our commitment to inclusive development, benefiting over 1,200 Orang Asli residents, with RM59 million allocated for resettlement and RM3.5 million for skills and income support.

Internally, we strengthened workforce protection through an enhanced Labour Rights Policy and embedded Human Factor Analysis (HFA) in safety systems, reinforcing a safer, more inclusive work environment that promotes employee well-being and operational excellence.

Our TNB Women in Energy Network (TWiEN) continues to champion inclusion and leadership among women in the energy sector, fostering a more diverse and equitable workforce that drives innovation and reflects the communities we serve.

Together, these initiatives embody our commitment to create and protect value - not only by driving economic growth but by uplifting communities, fostering social inclusion and nurturing a sustainable future. By empowering people and strengthening societal resilience, we ensure that TNB's progress translates into meaningful, long-lasting benefits for Malaysia, aligning our purpose with the nation's aspirations for shared prosperity and a just energy transition.

IN GRATITUDE AND FORWARD RESOLVE

Our achievements in 2024 are a reflection of the talent, passion and dedication of the warga TNB and the unwavering support of the Government, regulator, shareholders, partners and customers. On behalf of the Board and Management, we extend our heartfelt appreciation, to all who continue to place their trust in us.

As we move forward, we remain guided by a clear purpose “Leading the Energy Transition for a Sustainable Tomorrow” committed to delivering secure, inclusive, and future-ready energy for all Malaysians.

Together, we will continue to create and protect value whilst building a better and brighter future for our nation, our environment and generations to come.

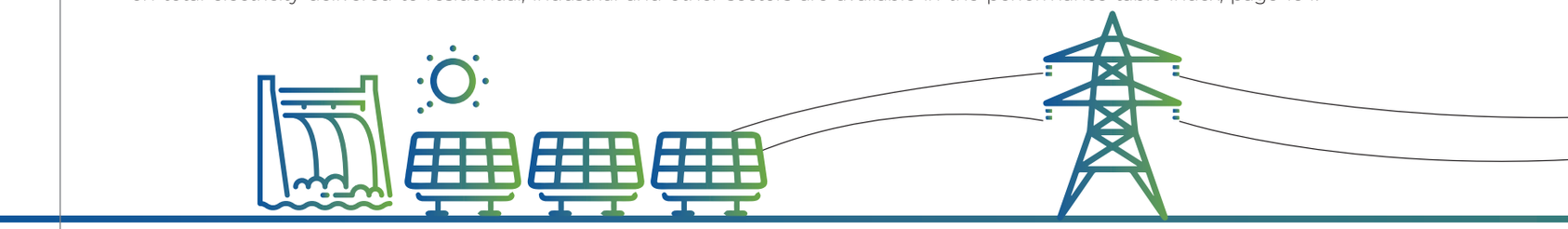
TAN SRI ABDUL RAZAK BIN ABDUL MAJID
Chairman

DATUK IR. MEGAT JALALUDDIN BIN MEGAT HASSAN
President/Chief Executive Officer

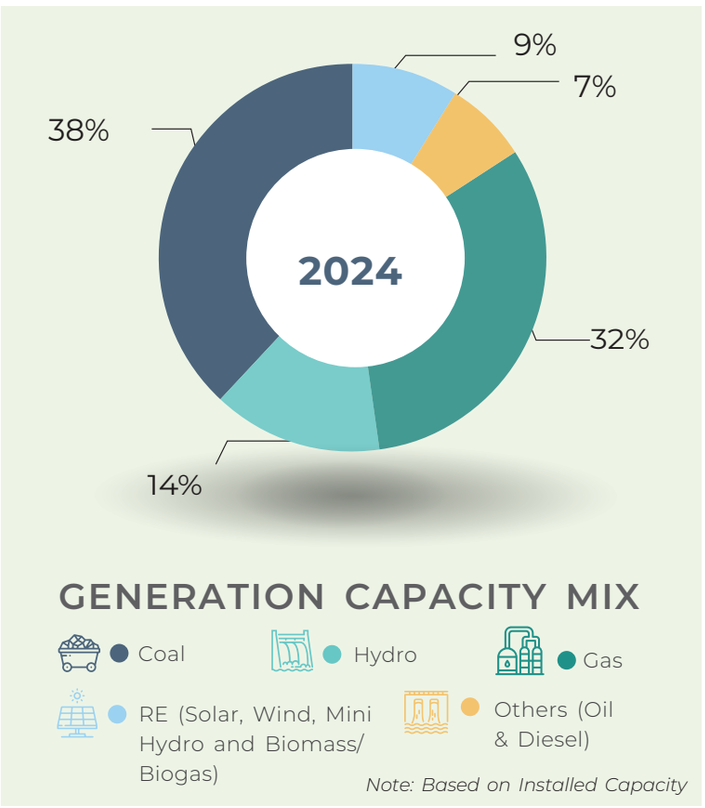
We Are TNB

[SASB: IF-EU-000.A, SASB: IF-EU-000.B, SASB: IF-EU-000.C]

For over 75 years, TNB plays a pivotal role in supporting the country's energy transition and grown to become the largest electricity utility in Malaysia. Listed on the Main Market of Bursa Malaysia, TNB is a vertically integrated electricity supply company with operation covering generation, transmission, distribution and retail of electricity, serving over 10 million customers across Peninsular Malaysia, Sabah and beyond. We are fully dedicated to serving our customers in industrial, commercial, residential and other segments in providing RE. Details on total electricity delivered to residential, industrial and other sectors are available in the performance table index, page 164.



POWER GENERATION



TNB owns and operates power generation asset portfolio located in Peninsular Malaysia and Sabah (via Sabah Electricity Sdn. Bhd. (SESB)) and in international markets including Kuwait, Pakistan and Cambodia under the New Energy Division (NED), reflecting diversified business activities. In line with the Group's Net Zero 2050 aspiration, we are transitioning towards cleaner energy solutions.

TNB, through its subsidiary TNB Power Generation Sdn. Bhd. (TPGSB), is the Malaysia's largest power producer, contributing around 54% generation market share in Peninsular Malaysia. TPGSB also offers asset management, operation & maintenance (O&M), maintenance, repair & operation (MRO), diagnostics, and engineering, procurement, construction, & commissioning (EPCC) services, reinforcing its operational strength.

Guided by our mission to deliver a “Better. Brighter. Future”, we are striving for a fair and responsible energy transition through decarbonisation efforts, enhancing energy security, and fostering innovation. In 2024, we had grown our RE portfolio in local and international markets totalling 4,152MW of installed capacity (equity capacity approach) and continue exploring for new clean energy developments opportunities in countries such as the United Kingdom, Australia, Türkiye, Kuwait, and Saudi Arabia.

GRID

TNB through its Grid Division is responsible for ensuring the safe, reliable, and economical operation of the electricity transmission system guided by the Malaysian Grid Code and regulatory requirements. The Division manages and operates TNB’s National Grid, comprising the 132kV, 275kV and 500kV transmission network. Its core functions include strategy formulation, system planning, engineering, project management, maintenance, and wayleave management. The National Grid is interconnected with regional systems: to the north with Thailand’s Electricity Generating Authority of Thailand (EGAT) via a 300MW HVDC link and a 132kV HVAC overhead line (80MW); and to the south with Singapore’s transmission system at Senoko via 230kV submarine cables with the capacity of 2 x 550 MVA providing a firm capacity of 200MW.

Total Transmission Network:
29,518.87km

Peninsular Malaysia
26,371.48km

SESB
3,147.39km

Total Transmission Substations:
543 units

Peninsular Malaysia
494 units

SESB
49 units

Total Transmission Transformers:
1,497 units

Peninsular Malaysia
1,393 units

SESB
104 units

System Minutes:

Peninsular Malaysia
0.0019 minutes
2023: 0.483 minutes

Sabah
0.548 minutes
2023: 16.83 minutes

WE ARE TNB

DISTRIBUTION NETWORK

TNB through its Distribution Network division is responsible for planning, constructing, operating, maintaining, and managing the assets of the 33kV, 11kV, 6.6kV, and 0.4kV distribution network across Peninsular Malaysia.

SAIDI:

Peninsular Malaysia
47.88 minutes
2023: 46.10 minutes

Sabah
203.65 minutes
2023: 266.37 minutes

Total Distribution Transformers:
114,767 units

Peninsular Malaysia
105,556 units

SESB
104 units

Smart Meter Deployed:
4.5 million
as at 31 December 2024

Total Distribution Substations:
99,374 units

Peninsular Malaysia
90,142 units

SESB
49 units

Distribution Network:
708,763km

RETAIL

Established in 2018, TNB's Retail Division is dedicated to creating value for customers, employees and shareholders by delivering customer-centric experiences across all engagement channels: Click, Call, Come Over and Go Over. This is enabled through a nationwide presence comprising 13 state offices, 126 Kedai Tenaga and 3 Careline offices.

With a mandate that goes beyond energy, the division also develops smart energy solutions tailored to diverse customer segments, from large corporations and Small and Medium Enterprises (SMEs) to micro-businesses and residential users, supporting their transition towards a smarter, more sustainable energy lifestyle.

No. of Customers:

Peninsular Malaysia
10.41 million

Sabah
0.71 million

CSI:
87%

Customer Exp. Index **95%**

Total Electricity Sales:
RM54,545.7 million

Total Energy Units Sold:
137,165.62 GWh

WE ARE TNB

OUR PURPOSE

Together we brighten lives through innovative and sustainable solutions towards a better world

OUR ASPIRATION

To be a leading provider of sustainable energy solutions in Malaysia and internationally

Integrity

- We uphold the highest ethical standards and do what is right, all the time
- We are fair, honest and transparent in everything we do
- We always seek to achieve mutual benefit for the country, company and customers

Collaborative

- We trust each other, believe in teamwork and win together as one company
- We proactively help each other, communicate clearly and provide constructive feedback
- We embrace diversity and inclusivity and we value outside-in perspectives

Forward Thinking

- We are bold, challenge the status quo and encourage agility and innovation
- We commit to ensuring the sustainability of TNB in all aspects
- We make informed decisions and learn from our mistakes

Professionalism

- We take full ownership and accountability for our actions
- We consistently demonstrate high performance and productivity
- We are result-focused and carry out our duties with discipline

Customer Centricity

- We seek to truly understand customers' needs and always stay a step ahead
- We continue to build trust by delivering on our promises
- We look for unexpected ways to delight our customers

OUR CUSTOMER PROFILE

[SASB: IF-EU-000.A]

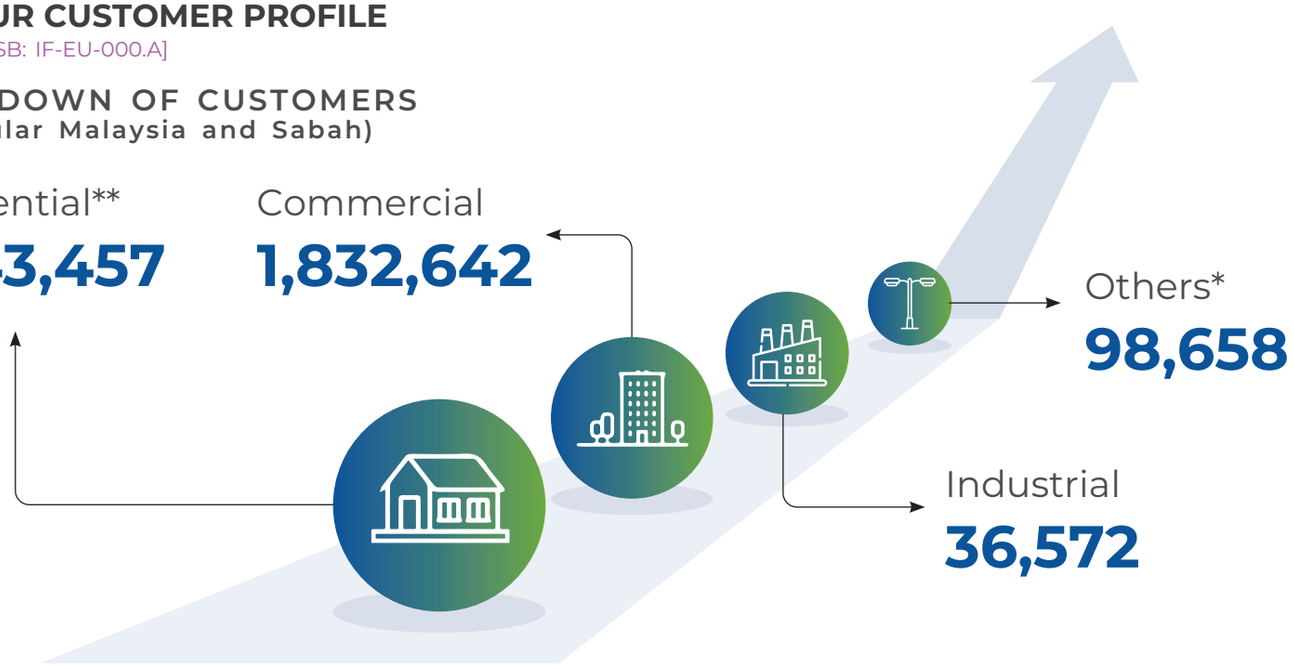
BREAKDOWN OF CUSTOMERS
(Peninsular Malaysia and Sabah)

Residential**
9,143,457

Commercial
1,832,642

Others*
98,658

Industrial
36,572



** Others include Mining, Agriculture, RE, Free Unit and Street Light.*
*** Residential (Tariff A – Domestic).*

INDUSTRIAL

Our industrial customers are manufacturers of goods and services. While they are the smallest segment of our customers in terms of quantity, they account for the largest share of our electricity sales.

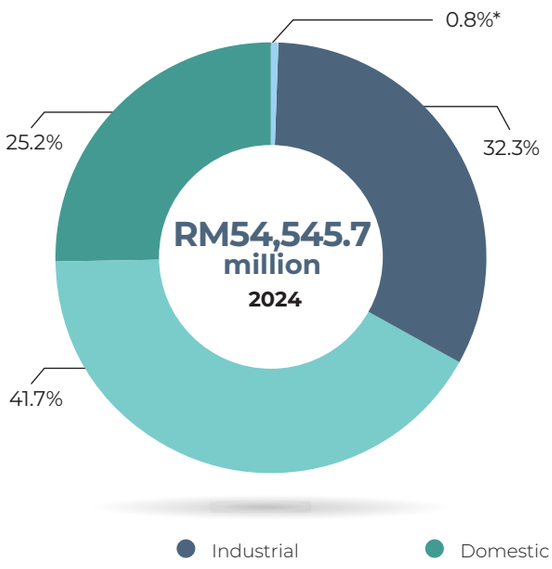
COMMERCIAL

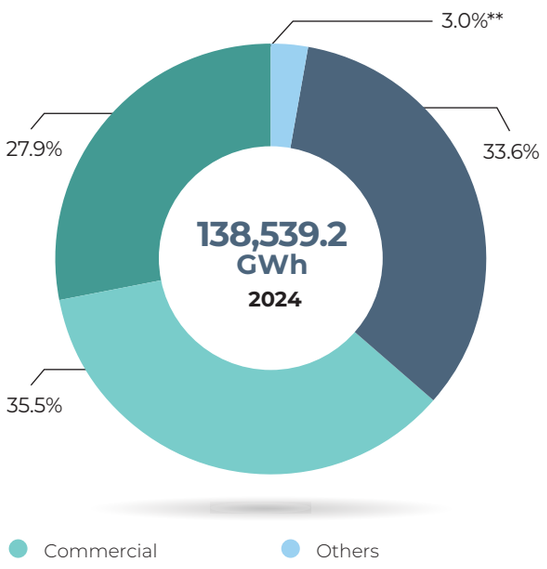
Our commercial customers are mainly involved in business and trading activities that drive the country's economy and are the biggest contributor to our electricity sales.

RESIDENTIAL

Our residential customers make up the largest customer segment in terms of quantity, representing over 82% of our 11.12 million customers. We empower them to manage their energy consumption and encourage them to adopt a smarter and greener lifestyle

GROUP SALES OF ELECTRICITY (BY SECTOR)





* *Others include Agriculture, Mining, Public Lighting, Accrued Revenue, Energy Export, TNBI, Other Regulatory Adjustments and Tariff Support Subsidy & Fuel Subsidy – SESB*

** *Others include Agriculture, Mining, Public Lighting, Energy Export and TNBI.*

Memberships and Associations

We value the connections nurtured through our memberships and affiliations and have cultivated partnerships with various associations and organisations. These connections are instrumental in keeping us abreast of industry trends, broadening our networks, sharing expertise and accessing valuable skills, knowledge and collaborative opportunities. This section shows our participation and contributions to organisations, associations and networks related to sustainable development. We believe that by being part of these alliances, we can play a pivotal role in shaping a sustainable future, propelling us forward on our journey towards energy transition.

HAPUA
HEADS OF ASEAN POWER UTILITIES AND AUTHORITIES

The Heads of ASEAN Power Utilities and Authorities (HAPUA), is a prominent international organisation in Southeast Asia, fosters collaboration among members to enhance regional energy security and electricity supply reliability. Malaysia is part of the Association of Southeast Asian Nations (ASEAN) member countries.

TNB's Achievement/Contribution:

We collaborated with HAPUA to conduct a joint feasibility study exploring a cross-border electricity interconnection between Sumatra, Indonesia and Peninsular Malaysia. This partnership involved Indonesia's PT Perusahaan Listrik Negara (PLN) and the ASEAN Centre for Energy (ACE). The initiative is crucial for integrating renewable energy sources and driving economic growth across ASEAN.

Through HAPUA we also collaborated with several dialogue partners and international organisations, including Japan, Korea, China, Australia, United States of America, Russia, ASEAN Secretariat, ACE, International Energy Agency (IEA), Economic Research Institute for ASEAN and East Asia (ERIA) and ASEAN Energy Market Integration (AEMI). Our current focus is to support ASEAN Economic Community through ASEAN energy market integration by succeeding in the implementation of ASEAN Power Grid (APG) as HAPUA is assigned based on Memorandum of Understanding (MoU) of APG as it is the most important element of energy connectivity in this region.

CAN ceo action network

CEO Action Network (CAN) is led and operated by private sector leaders to influence policies and drive actions for accelerating sustainable development and business practices in Malaysia and beyond.

TNB's Achievement/Contribution:

TNB has participated in a series of engagement sessions and collaborated with leading corporations and agencies to send a strong signal to the market of CAN members' traction and commitment to sustainability.

30%+ Club PATH TO PARITY

The 30% Club, Malaysia Chapter, advocates for at least 30% representation of women on the Board of Directors and in senior management.

TNB's Achievement/Contribution:

- As a member, we aim to achieve at least 30% representation of women by FY2025.
- 33% of TNB's Board of Directors are female directors.
- As of 2024, there are 24.8% women representation in senior management.

MYZEVA
Malaysia Zero Emission Vehicle Association

Malaysia Zero Emission Vehicle Association (MyZEVA) provides a platform to promote the use of Battery Electric Vehicles (BEVs) to relevant stakeholders.

TNB's Achievement/Contribution:

TNB is a founding member of MyZEVA and actively collaborates with MyZEVA by providing technical expertise, industry know-how, facilities and participating in programmes which contributed to the development of BEVs in Malaysia.

MPIA, a non-profit organisation, promotes the growth of Malaysia's photovoltaic (PV) industry by providing a collaborative platform for manufacturers, developers, researchers and policymakers. Through networking events and knowledge-sharing initiatives such as conferences and workshops, MPIA advances the solar energy sector and facilitates capacity building within the industry.

TNB's Achievement/Contribution:

- TNB's wholly owned subsidiary, GSPARX, is a registered member of MPIA.
- GSPARX invest and market solar PV systems for retail electricity customers, aligning with MPIA's vision by unlocking value in the local renewable energy market.
- By joining this MPIA community, TNB Integrated Learning Solution (ILSAS) has access to industry insights and trends, networking and partnerships, expansion of training offerings, contribution to national energy goals, enhanced brand image and credibility and new business and funding opportunities.

The Malaysia Association of Energy Service Companies (MAESCO) focuses on providing services and expertise in energy efficiency to end users from all sectors in order to strengthen the energy services industry.

TNB's Achievement/Contribution:

TNB provides assistance and support for the development of energy services.

TNB Fuel Sdn. Bhd. (TNBF) has engaged with the Malaysian Biomass Industries Confederation (MBIC), an organization that represents and supports the biomass industry in Malaysia. Its primary functions include advocating for the interests of its members by engaging with government bodies, policymakers and other stakeholders to influence policies and regulations that affect the biomass industry.

TNB's Achievement/Contribution:

Collaborate in promoting the growth and development of the biomass industry in Malaysia by supporting initiatives that enhance the industry's competitiveness and sustainability.

Our Sustainability Journey

As a leading provider of energy solutions, we are committed to steering towards sustainability locally and internationally. With our eyes set on Reimagining TNB 2.0, we are driving towards our Net Zero aspiration by 2050, propelling ourselves towards ESG excellence.

In light of the pressing need for environmental action, it has become more evident than ever that adopting sustainable practices is crucial. TNB acknowledges this imperative and is taking proactive measures to tackle these challenges head-on, guided by the TNB Sustainability Framework and Policy, which were approved by TNB Board of Directors in 2024.

The TNB Sustainability Policy is driven by a commitment to ethical, responsible and sustainable practices. This policy sets a course for environmental, social and governance excellence, aligning with legal requirements and international standards. Our aim is to drive positive changes in the communities we serve, ensuring that our actions are sustainable and have a positive impact through fourteen (14) key focus areas in the Environmental, Social and Governance pillars in the TNB Sustainability Framework.

TNB SUSTAINABILITY FRAMEWORK

To Be a Leading Provider of Sustainable Energy Solutions in Malaysia and Internationally

TNB Sustainability Policy
(Strategic Policy)

TNB Sustainability Disclosures
are aligned with

Standards

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

Guides

(i) TNB Materiality Matrix
(ii) Financial Times Stock Exchange-4Good Bursa Malaysia Index (FTSE4GBM)
(iii) Morgan Stanley Capital International (MSCI) ESG Rating

TNB Sustainability Pillars
(Operational Policy Statements, Procedures & Guidelines on ESG focus area)

Environmental (E)

1. Carbon Emissions
2. Water Stress
3. Biodiversity & Land Use
4. Opportunities in Renewable Energy
5. Toxic Emissions & Waste

Social (S)

6. Human Capital Development
7. Health & Safety
8. Labour Rights
9. Privacy & Data Security
10. Supply Chain Management
11. Community Relations

Governance (G)

12. Corporate Governance
13. Corporate Behaviour
14. Risk Management

2016

Reimagining TNB

- Introduced Reimagining TNB, our corporate strategic plan

2017

Sustainability at the core

- Formalised the Sustainability
- Development Committee (SDC) and published first standalone Sustainability Report
- Commenced carbon footprint assessment
- Established the TNB Green Energy
- Development Fund to channel profit after tax towards Green Energy projects annually

2018

Innovation

- First rollout of smart meters as part of Advanced Metering Infrastructure
- Incorporation of GSPARX Sdn Bhd to promote self-generation from solar energy by facilitating the Net Energy Metering (NEM) scheme and Supply Agreement for Renewable Energy (SARE)

2019

Alignment with international sustainability standards

- Sustainability Report prepared in accordance with the GRI Standards: Core Option
- Enhanced disclosure based on the TCFD framework

2020

Refreshed corporate strategy – Reimagining TNB 2025

- Unveiled new aspiration "To be a leading provider of sustainable energy solutions in Malaysia and internationally"

2021

Positioning for the Future

- Unveiled the TNB Sustainability Pathway 2050

2022

Moving forward towards energy transition

- Embarked on TNB's energy transition plan
- Established the Sustainability & Energy Transition Council (SETC)

2023

Catalysing Sustainability

- Established the Sustainability Division
- Established the Board Sustainability & Risk Committee (BSRC)
- Enhanced Environmental Policy
- Refreshed corporate strategy – Reimagining TNB 2.0

2024

Strengthening sustainability governance

- Establishment of TNB Sustainability Policy, TNB Sustainability Framework, TNB Labour Rights Policy Statement
- Concluded Regulatory Period 4 (RP4)
- Established Transition Finance Framework
- Established Carbon Management Strategy

2025

Shifting to Energy Transition

- Scaling up renewable energy generation
- Support the realisation of 8% national energy savings target
- Transitioning to ISSB reporting standards in line with the NFRS

2035

Accelerate decarbonisation efforts

- 35% emissions intensity reduction by 2035
- Halve coal generation capacity by 2035
- Energy Transition (ET) upskilling and reskilling

2050

Net Zero by 2050

- Achieve net zero emissions and be coal-free

Strengthening Our Sustainability Governance

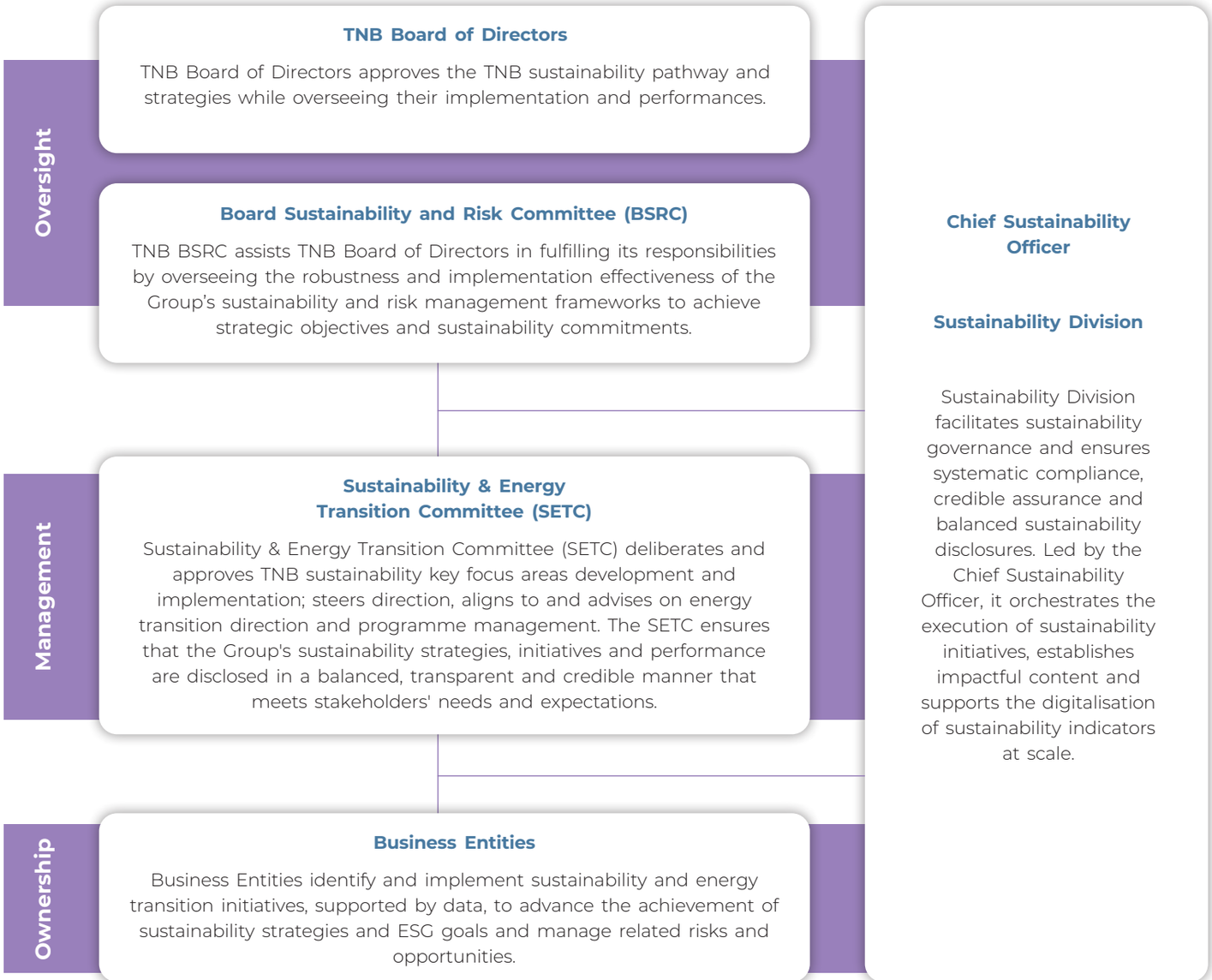
[IFRS S1: 27a; IFRS S2: 6a]

A strong leadership and sustainability governance structure is vital to spearhead our sustainability agenda and to provide clear and definitive guidance to achieve our net zero aspirations.

Our Board comprises accomplished professionals from diverse sectors, including finance, risk, legal, audit, investment, sustainability, engineering, human resources and project management, providing effective oversight and strategic guidance on sustainability and climate-related matters. Detailed biographies of the Board members are available in TNB Sustainability Report 2024 performance table index page 167 to page 168 and in the TNB Integrated Annual Report (IAR) 2024 from page 158 to page 170.

Our sustainability governance forms a part of the TNB Governance Framework that is aligned with the principles of the Malaysian Code on Corporate Governance (MCCG). The TNB Sustainability Governance Structure is in place to facilitate oversight, strategic management and implementation of sustainability strategies and initiatives at all levels.

TNB Sustainability Governance Structure



BOARD SUSTAINABILITY AND RISK COMMITTEE (BSRC)

The BSRC actively oversees the implementation of sustainability and risk management initiatives in the Group to drive business and sustainability performance for the achievement of objectives and targets. In 2024, the BSRC held 12 meetings to oversee sustainability and risk-related matters. These meetings were structured with pre-set agendas, relevant documentation and updates on previous actions. Key personnel including the President/CEO, Chief Sustainability Officer and Chief Risk Officer were present, alongside other invited experts. Action items from each meeting were documented and shared with Management for execution and the BSRC Chairman provided regular updates to the Board to facilitate broader deliberation on strategic matters.

KEY ACTIVITIES AND RISK OVERSIGHT

The BSRC plays an integral role in executing the Group's risk management responsibilities. It endorses and monitors the TNB Risk Management Framework and assesses 11 Key Risk Indicators (KRIs) through the TNB Risk Dashboard. The committee also reviews business entity risk profiles, project-specific risks, particularly those related to the NETR and risks tied to investment, safety, legal issues and cybersecurity. Several decision milestones were made in 2024 related to sustainability development:

- On governance and framework, BSRC approved the TNB Sustainability Policy and Framework that guides the TNB's sustainability goals, Carbon Management Strategy that set a target of 5% annual emission intensity reduction and Labour Rights Policy promoting ethical labour practices.
- On disclosures, BSRC endorsed the digitalisation of sustainability data process to improve data reporting and decision-making and TNB Sustainability Statement and Report 2023 aligning with respective standards and guidelines.

Refer to TNB Integrated Annual Report 2024 on Statement on Risk Management and Internal Control (SORMIC) for more information.

SUSTAINABILITY & ENERGY TRANSITION COMMITTEE (SETC)

[IFRS S1: 27b; IFRS S2: 6b]

In 2024, the SETC accomplished the following key milestones:

- Enhanced the Terms of Reference to provide the SETC with approving authority to drive the implementation of sustainability initiatives across the Group across the Group, thus the Sustainability & Energy Transition Council was revised to Sustainability & Energy Transition Committee.
- SETC approved the following frameworks, policies and targets for Group-wide implementation:
  - TNB Carbon Management Strategy
  - Carbon Emission Intensity Reduction Target
  - TNB Labour Rights Policy Statement
  - TNB Biodiversity Framework
  - Vendor Grievance Procedure

In total, SETC had deliberated 50 sustainability related proposals in the year 2024, which increased by twice compared with the previous year.

Topics	Number of proposals deliberated in SETC	
	FY2023	FY2024
Energy Transition & Innovation	10	**4**
Climate Change mitigation and adaptation	2	**7**
Natural resource management	1	**4**
Waste management	0	**2**
Biodiversity management	0	**2**
Sustainable supply chain	1	**0**
Sustainability social engagement and awareness programme	3	**2**
Sustainability disclosures and reporting	1	**10**
Sustainability governance and framework	5	**9**
Sustainability performance	1	**8**
Integrity and ethics	1	**2**
TOTAL	**25**	**50**

STRENGTHENING OUR SUSTAINABILITY GOVERNANCE

ACHIEVING ESG TARGETS THROUGH PERFORMANCE AND PURPOSE

[IFRS S1: 27a (v); IFRS S2: 6a (v)]

In 2024, sustainability-related Key Performance Indicators (KPIs) were further enhanced and embedded within the Board and senior management's performance evaluation scorecard to drive group-wide accountability in steering our sustainability performance. Sustainability performance objectives relating to the ESG pillars are tied to the President/CEO and top management KPIs, as shown below. The TNB KPI on ESG rating scores reflects evaluations by credible rating agencies, encompassing both TNB performance and management across environmental, social, and governance pillars, which covers the topics of carbon emissions, water stress, opportunities in renewable energy, toxic emissions and waste, human capital development, corporate governance, and corporate behaviour.

	KPI	Senior Managements																	
		CEO	MD TPGSB	CGO	CDNO	CReO	CNEO	CFO	CSVO	CRSMO	CPeO	CPO	CIO	CGBSO	CSO	CoSec	CRO	CIA	CIDO
	TNB ESG Rating Score	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Environment	Renewable Energy Growth	✓					✓												
Environment	Carbon Emissions Rating/ Score		✓																
Environment	National Energy Transition Projects		✓			✓	✓		✓	✓									
Environment	Battery Storage (Grid-connected)			✓															
Environment	Data Centre Power Usage Effectiveness												✓						
Social	Lost-Time Injury Frequency Rate (LTIFR)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Social	Energy Literacy									✓									
Social	Human Capital Development Rating/Score										✓								
Governance	Integrity Health Index	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Governance	Corporate Governance Rating/Score															✓		✓	
Governance	Corporate Behaviour Rating/Score											✓							

The TNB monopole tower, rising beside the iconic Penang Bridge, reflects engineering excellence and a commitment to sustainability.

Aligning Our Impact with Global Goals

TNB prioritises SDGs and provides performance goals contributions through investments, solutions and business practices. Eight (8) of the 17 goals guide our sustainability agenda: SDG 3, “Good Health and Well-being”; SDG 4, “Quality Education”; SDG 7, “Affordable and Clean Energy”; SDG 8, “Decent Work and Economic Growth”; SDG 9, “Industry, Innovation and Infrastructure”; SDG 10, “Reduced Inequalities”; SDG 13, “Climate Action”; SDG 17, “Partnerships for the Goals”

We align our metrics, targets and key initiatives for each material matter with the global agenda. The table below showcases our performance thus far and defines our future focus areas for our long-term sustainability commitment.

SDG 3
Good Health and Well-being

We ensure the safety and long-term well-being of our workforce. Pursuing this goal allows us to focus our efforts on preventing the loss of lives and ensuring that our people are well taken care of while working at TNB.

SDG targets and indicator

- Target 3.6 – Halve the number of global deaths and injuries from road traffic accidents
  Indicator 3.6.1 – Death rate due to road traffic injuries
- Target 3.8 – Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all
  Indicator 3.8.1 – Coverage of essential health services

TNB’s Metrics and Targets:

- Zero fatalities

TNB Material Matters:

MM 5 Safety, Health and Well-being

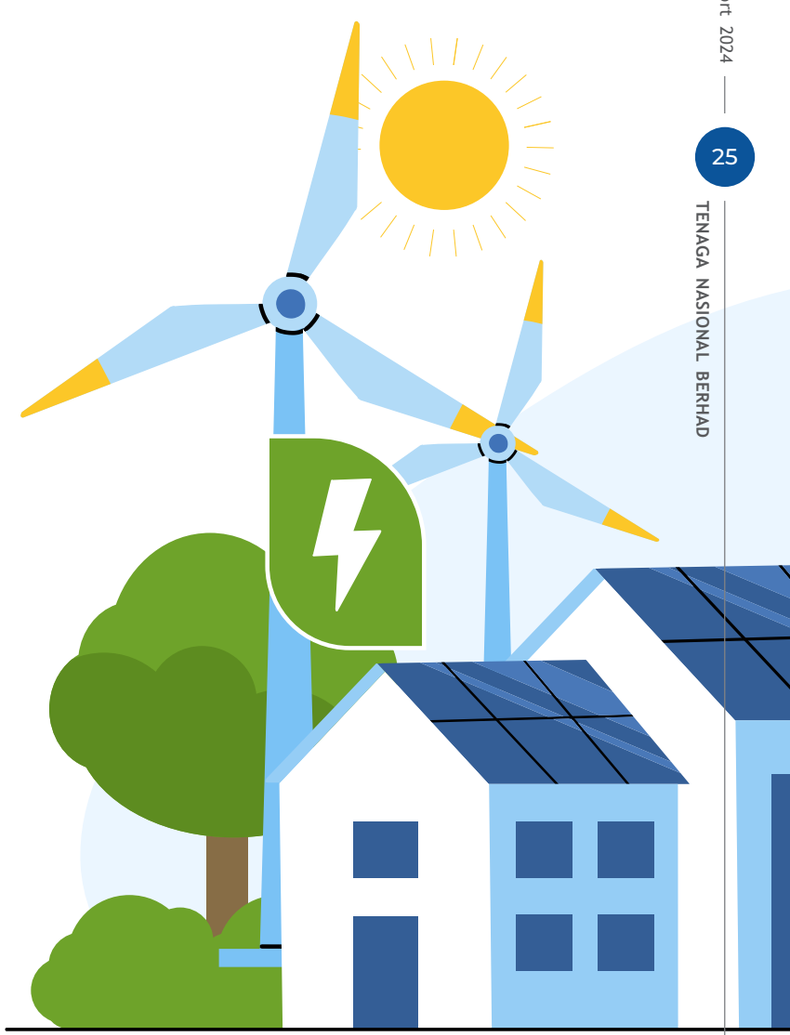
MM 11 Labour Rights and Employment Culture

FY2024 performance:

- Related to indicator 3.6.1 – Number of motor vehicle fatalities: 0
- Related to indicator 3.8.1 – Provide employees and dependents with free medical treatment and medicine

Focus beyond FY2024:

- Continue to enhance our HSE standards and procedure to reduce fatalities and injuries
- Continue to provide safe, effective and reliable medical care to employees



ALIGNING OUR IMPACT WITH GLOBAL GOALS

SDG 4
Quality Education

We believe that quality education is the key to socioeconomic upliftment and it should be equitable to all. Thus, our educational development programmes focus on providing opportunities to underprivileged communities in hope of transforming lives.

SDG targets and indicator

- Target 4.3 – Equal access to affordable and quality technical, vocational and tertiary education
  Indicator 4.3.1 – Participation rate of youth and adults in formal and non-formal education and training
- Target 4.4 – Increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
  Indicator 4.4.1 – Proportion of youth and adults with skills
- Target 4.5 – Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
  Indicator 4.5.1 – Parity indices for all education indicators

TNB's Metrics and Targets:

- Number of students and trainees in TNB education and learning centres
- Expenditure on scholarships and convertible loans

TNB Material Matters:

MM 8 Community Development and Social Impact

MM 11 Labour Rights and Employment Culture

FY2024 performance:

- Related to indicator 4.3.1 – Number of students enrolled in UNITEN: 5,967
- Related to indicator 4.3.1 – Number of scholarship and convertible loan recipients: 2,587
- Related to indicator 4.3.1 – Expenditure on scholarships and convertible loans: RM46.04 million
- Related to indicator 4.5.1 – Number of recipients of My Brighter Future (myBF) programme for B40 households: 968 recipients

Focus beyond FY2024:

- Continue to provide financial and non-financial support to develop future talent
- Enhance our education facilities through digitalisation

SDG 7
Affordable and Clean Energy

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.

SDG targets and indicators:

- Target 7.1 – Ensure universal access to affordable, reliable and modern energy services
  Indicator 7.1.1 – Proportion of population with access to electricity
- Target 7.2 – Increase substantially the share of renewable energy in the global energy mix
  Indicator 7.2.1 – Renewable energy share in the total final energy consumption
- Target 7.3 – Double the global rate of improvement in energy efficiency
  Indicator 7.3.1 – Energy intensity measured in terms of primary energy and GDP

TNB's Metrics and Targets:

- Increase RE capacity to 8.3GW by 2025
- Maintain System Average Interruption Duration Index (SAIDI) under 50 minutes/customer/year through SAIDI 50 initiative
- Achieve 85% on the Smart Grid Index by 2030

TNB Material Matters:

MM 4 Reliable Energy and Fair Tariff

MM 2 Energy Transition and Innovation

MM 3 Climate Change and Emissions

FY2024 performance:

- Related to indicator 7.1.1 – Total customers in Peninsular Malaysia: 11,111,329 customers
- Related to indicator 7.1.1 – Smart Grid Index (%): 80.4
- Related to indicator 7.1.1 – SAIDI in Peninsular Malaysia (minutes/customer/year): 47.88
- Related to indicator 7.2.1 – Total renewable energy generation capacity (MW): 4,152
- Related to indicator 7.3.1 – Energy intensity ratio for the organisation (GJ/ MWh): 4.30

Focus beyond FY2024:

- Address the energy trilemma effectively through the development of IBR's Regulatory Period 4 (RP4)
- Grow TNB's domestic and international RE assets
- Enhance and modernise our asset and infrastructure to support energy transition
- Adopt and promote energy efficiency throughout our value chain

SDG 8
Decent Work And Economic Growth

We promote sustainable business performance and create employment opportunities. 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.

SDG targets and indicators:

- Target 8.5 – Achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value Indicator
- Target 8.5.2 – Unemployment/employment rate, by sex, age and persons with disabilities
- Target 8.6 – Substantially reduce the proportion of youth not in employment, education or training
  Indicator 8.6.2 – Proportion of youth (aged 15-24 years) not in education, employment or training
- Target 8.8 – Protect labour rights and promote safe and secure working environments for all workers
  Indicators 8.8.1 – Fatal and non-fatal occupational injuries of workers

TNB's Metrics and Targets:

- Zero fatalities
- LTIFR <1.0
- Continue in tax and zakat contributions
- Continue TNB PROTEGE-Ready To Work (RTW) Programme

TNB Material Matters:

MM 1 Responsible Business and Financial Performance

MM 8 Community Development and Social Impacts

MM 11 Labour Rights and Employment Culture

FY2024 performance:

- Related to indicator 8.5.2 – Number of differently abled employees: 31
- Related to indicator 8.6.1 – Cumulative number of PROTÉGÉ trainees: 6,610 trainees
- Related to indicator 8.6.1 – Number of new hires below the age of 35: 1,214 employees
- Related to indicator 8.8.1 – Number of fatalities (TNB employees; TNB contractors): 4
- Related to indicator 8.8.1 – LTIFR: 0.87

Focus beyond FY2024:

- Sustain strong revenue growth that subsequently leads to high tax and zakat contributions
- Prioritise training and capabilities building to elevate skill development
- Continue both financial and non-financial support in enhancing the quality of education for all

SDG 9
Industry, Innovation and Infrastructure

We recognise the importance of having in place a strong, robust infrastructure that is flexible enough to transition into the new energy landscape while fostering innovation. As part of our commitment to achieving this, we are ramping up our R&D efforts, investing in renewable energy and green technologies, and accelerating digitalisation to mitigate climate change and adapt to new market directions.

SDG targets and indicators:

- Target 9.4 – Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes
  Indicator 9.4.1 – CO_2 emission per value added
- Target 9.5 – Enhance scientific research, upgrade technological capabilities
  Indicator 9.5.1 – Research and development expenditure
  We build infrastructure and develop innovation to accommodate socioeconomic growth and low-carbon transition of the nation

TNB's Metrics and Targets:

- Install 10.4 million smart meters across Peninsular Malaysia in phases under Advanced Metering Infrastructure (AMI) initiative by 2030

Material Matters:

MM 2 Energy Transition and Innovation

MM 3 Climate Change and Emissions

FY2024 performance:

- Related to indicator 9.4.1 – Cumulative number of smart meters installed: 4,498,715
- Related to indicator 9.4.1 – Number of smart meters installed in FY2024: 949,226

Focus beyond FY2024:

- Explore new business models for energy storage solutions
- Provide investment to uplift the EV development and ecosystem in Malaysia
- Continue to fund R&D into new emerging technologies that support our current business and future business areas including decarbonisation, RE, energy storage, electric mobility, smart cities and digitalisation

ALIGNING OUR IMPACT WITH GLOBAL GOALS

SDG 10 Reduced Inequalities

We strongly believe in an equal society and aim to provide support to disadvantaged and impoverished communities through our corporate social responsibility programmes as well as expanding our grid infrastructure to allow equitable access to electricity. We also strive to provide equal opportunity in recruitment and career development for all our employees.

SDG targets and indicators:

- Target 10.3 – Ensure equal opportunity and reduce inequalities of outcome
  Indicators 10.3.1 – Proportion of population reporting having personally felt discriminated
- Target 10.5 – Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations
  Indicators 10.5.1 – Financial soundness indicators

TNB Material Matters:

- MM 8 Community Development and Social Impacts
- MM 11 Labour Rights and Employment Culture

TNB's Metrics and Targets:

- Increase the percentage of women in senior management roles
- Proper handling of grievance mechanism

FY2024 performance:

- Number of substantiated complaints concerning human rights violations: 0 complaints
- TNB Group gearing ratio: 47.8%

Focus beyond FY2024:

- Continue to empower women's employability and presence in management level through talent and training programmes

SDG 13 Climate Action

We support Malaysia's commitment to becoming a carbon-neutral nation by as early as 2050, recognising the increasing importance of mitigating and adapting to climate change. In this regard, we seek to reduce our greenhouse gas (GHG) emissions intensity and the environmental impact resulting from our operations.

SDG targets and indicators

- Target 13.2 – Integrate climate change measures into national policies, strategies and planning
  Indicator 13.2.2 – Total greenhouse gas emissions per year
- Target 13.3 – Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
  Indicator 13.3.1 – Extent to which education for sustainable development are mainstreamed in the organisation

TNB Material Matters:

- MM 3 Climate Change and Emissions
- MM 2 Energy Transition and Innovation

TNB's Metrics and Targets:

- 5% emissions intensity reduction, from base year FY2024
- 35% emissions intensity reduction by 2035, from base year FY2020
- Halve coal generation capacity by 2035
- Net zero emissions and coal-free by 2050
- Reskill and upskill TNB's employees to support TNB's sustainability plan and energy transition

FY2024 performance:

- Related to indicator 13.2.1 – GHG emissions intensity: 0.5571 million tCO_2e/MWh

Focus beyond FY2024:

- Implement ET plan and monitor performance
- Reskill and upskill TNB employees to support energy transition plan, which contributes to climate change mitigation and adaptation
- Account for Scope 3 GHG emissions

SDG 17
Partnership for the Goals

We will continue to forge partnerships with key 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.

SDG targets and indicators:

- Target 17.1 – Strengthen domestic resource mobilisation, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection
  Indicator 17.1.1 – Revenue as a proportion of GDP
- Target 17.17 – Encourage and promote effective public, public/private and civil society partnerships, building on the experience and resourcing strategies of partnerships
  Indicator 17.17.1 – Amount committed to public-private partnerships for infrastructure and development

TNB Material Matters:

MM 1 Responsible Business and Financial Performance

MM 9 Sustainable and Responsible Supply Chain

MM 8 Community Development and Human Rights

TNB's Metrics and Targets:

- Commit 1% of our Profit After Tax (PAT) to community development programmes
- Establish a wide range of partnerships to promote accessible and clean energy as well as uplifting the communities

FY2024 performance:

- Related to indicator 17.17.1 – Percentage of PAT spent on community programmes: 2.9%
- Related to indicator 17.17.1 – Total contribution to community development/ community investment programmes: RM63.78 million
- Related to indicator 17.1.1 – Ratio of Group revenue over Malaysia GDP: around 2.9%

Focus beyond FY2024:

- Explore innovative and new technologies through strategic partnerships with public and private entities to accelerate energy transition
- Strengthen collaborations for community development and environmental management

Our Value Creation Model

OUR CAPITALS... → **...ENABLE VALUE-ADDING...** → **...ACTIVITIES**

Inputs

FC FINANCIAL
- Shareholders' Funds: **RM62,569.7 million**
- Effective Weighted Average Cost of Funds: **4.8%**
- Total Borrowings: **RM57,406.6 million**
- Cash and Cash Equivalents: **RM19,601.1 million**

MC MANUFACTURED
Power Generation Assets
- Thermal Generation Capacity (Equity-Based Ownership)
  - Coal-Fired Plants: **6,790MW**
  - Gas-Fired Plants: **5,140MW**
  - Oil, Diesel & Solar Hybrid: **237MW**
- Renewable Energy Capacity (Equity-based Ownership)
  - Large Hydro: **2,614MW**
  - Solar, Mini Hydro, Wind & Biomass/Biogas: **1,515MW**

Power Network Assets
- Transmission Lines: **29,519km**
- Transmission Substations: **543 units**
- Distribution Network Lines: **738,028km**
- Distribution Network Substations: **99,374 units**

HC HUMAN
- Staff Expenditure: **RM3,719.5 million**
- Average Training Hours per Employee per Year: **50.47 hours**
- Total Training Hours: **1,346,477 hours**
- Investment in Learning and Development: **RM197.5 million**
- Employees Completed Learning & Development Program: **26,678**

IC INTELLECTUAL
- Investment in Research & Development: **RM110.9 million**
- Operational and Service Innovations
- Established Green Lane Pathway to Streamline On-boarding Process for Data Centres

SR SOCIAL & RELATIONSHIP
- Total Customers:
  - Peninsular Malaysia: **10.4 million**
  - Sabah & F.T Labuan: **0.7 million**
- Donation and sponsorship for well-being, education, sports and environment: **RM140.9 million**

NC NATURAL
- Coal: **366,740,751GJ**
- Natural Gas: **193,211,458GJ**
- Diesel: **1,387,891GJ**
- Biomass: **980,948GJ**
- Oil: **487,249GJ**

Note: The above data is "for local only and based on equity-basis"

OUR STRATEGY PILLARS

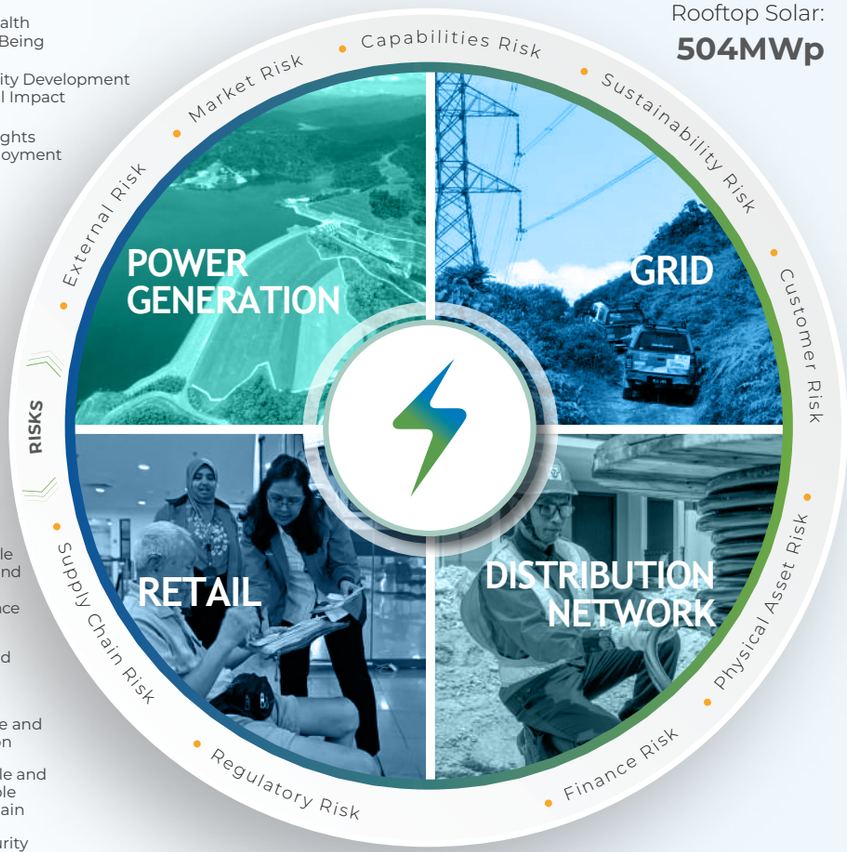
- **DC** Deliver Clean Generation
- **DE** Develop Energy Transition Network
- **DS** Dynamic Energy Solutions
- **DR** Drive Regulatory Evolution

MATERIAL MATTERS

Environmental
- MM 2 Energy Transition and Innovation
- MM 3 Climate Change and Emissions
- MM 6 Biodiversity and Environmental Management

Social
- MM 5 Safety, Health and Well-Being
- MM 8 Community Development and Social Impact
- MM 11 Labour Rights and Employment Culture

Governance
- MM 1 Responsible Business and Financial Performance
- MM 4 Reliable Energy and Fair Tariff
- MM 7 Customer Experience and Satisfaction
- MM 9 Sustainable and Responsible Supply Chain
- MM 10 Cybersecurity Management



KEY MARKET TRENDS

- Surge in Data Centre Demand
- Renewable Energy Expansion
- Grid Modernisation and Flexibility
- Electrification of Transportation
- Energy Transition Policies and Incentives
- Regional Energy Collaboration

Outputs

PRODUCTS &

Total Electricity Sold:
138,539.2 GWh

Rooftop Solar:
504MWp

WASTE &

Waste Generated

Hazardous Waste:
895,038 metric tonnes

Non-Hazardous Waste:
958 metric tonnes

GOVERNANCE Supported by strong governance and effective Board leadership – Robust Corporate Governance Ecosystem

SERVICES

myTNB App:
7.26 million subscribers

Smart Meters Installed:
4,498,715 units

EV Charge Points Installed by TNB Electron:
66 units

Other Businesses:
Manufacturing, Infrastructure, Services, Education, and Research

EMISSIONS

Greenhouse Gas (GHG) Emission – Direct (Scope 1):
38.75 million tCO_2e

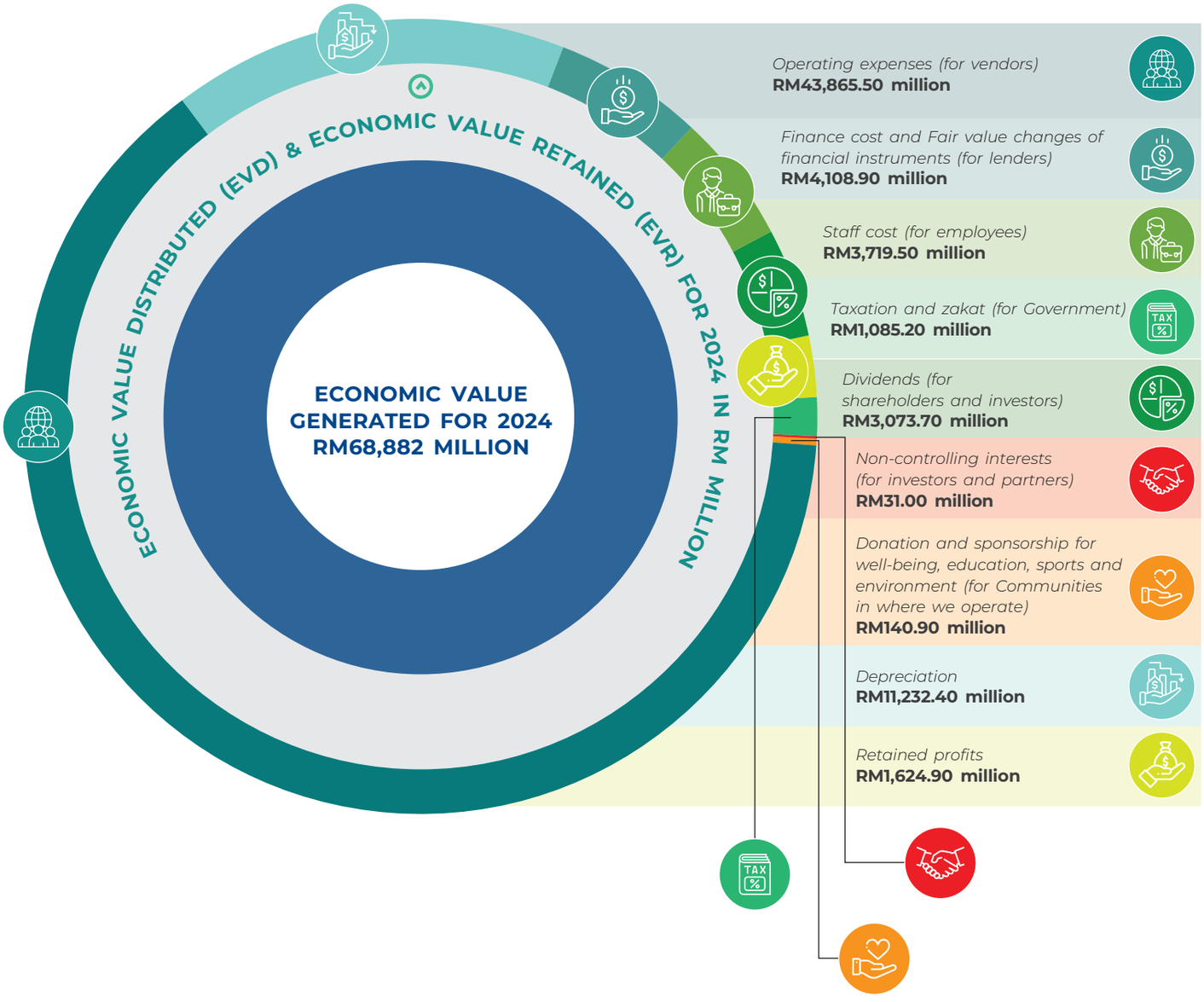
Outcomes	Stakeholders	UNSDG	Trade-Offs
FC FINANCIAL • Revenue: **RM56,737.1 million** (2023: RM53,066.9 million) • Operating Profit: **RM8,720.1 million** (2023: RM7,356.9 million) • Net Profit Attributable to Owners of the Company: **RM4,698.6 million** (2023: RM2,770.3 million) • Total Dividend: **RM2,964.6 million** (2023: RM2,662.2 million)	S2 S3 S4	7 9 8	TNB strategically balances reinvestment and shareholder returns to sustain financial strength. While energy transition investments may impact short-term returns, they unlock long-term value, support business resilience and enable scalable clean energy solutions aligned with national policy and global decarbonisation goals.
MC MANUFACTURED • Equivalent Availability Factor (EAF) for Power Generation – Peninsular Malaysia: **81.17%** (2023: 83.26%) | Sabah: **77.56%** (2023: 78.74%) | International: **95.64%** (2023: 95.76%) • System Minutes for Grid – Peninsular Malaysia: **0.0019 minutes** (2023: 0.483 minutes) | Sabah: **0.548 minutes** (2023: 16.83 minutes) • System Average Interruption Duration Index (SAIDI) for Distribution Network – Peninsular Malaysia: **47.88 minutes** (2023: 46.10 minutes) | Sabah: **203.65 minutes** (2023: 266.37 minutes)	S3 S6 S8	9 15 11	TNB prioritises infrastructure modernisation and reliability upgrades to enhance long-term system efficiency and grid resilience. While this requires upfront CAPEX, it ensures sustainable service delivery, supports renewable integration and positions TNB for future-ready operations.
HC HUMAN • People Experience (PX)/Employee Engagement Score (EES): **89.7%** (2023: 86.0%) • Organisational Competency Index (OCI): **88.3%** (2023: 87.8%) • Lost Time Injury Frequency rate (LTIFR): **0.87** (2023: 0.74)	S2 S4 S5	4 8 5	Strategic workforce transformation through upskilling, diversity and safety excellence ensures long-term capability and engagement. While reskilling and organisational restructuring require ongoing investment, they enhance talent agility and drive a high-performance culture aligned with the Group's energy transition goals.
IC INTELLECTUAL • R&D Technology Solution and Services: **15** (2023: 14) • Revenue from Commercialisation of Technology Solution & Services: **RM13.5 million** (2023: RM4.1 million) • Employees Upskilled in Energy Transition Capabilities: **4,989** (2023: 1,896) • Smart Grid Index (SGI): **80.4%** (2023: 78.6%) • Ranking in Global Strongest Utilities Brand: **Ranking 2** (2023: Ranking 2)	S1 S2 S5 S8	4 12 9	TNB channels resources into research and development and digital innovation to accelerate decarbonisation and operational excellence. This forward investment may trade off short-term gains but enables long-term competitive advantage, technological leadership and value creation across the energy ecosystem.
SR SOCIAL & RELATIONSHIP • Successful Graduates Under Yayasan TNB: **1,874** (2023: 2,160) • Tax and Zakat contributions: **RM1,085.2 million** (2023: RM770.0 million) • Customer Satisfaction Index (CSI): **87%** (2023: 88%) • Regulatory Relationship Strength Index (RRSI): **94%** (2023: 92%) • Energy Literacy Level under Malaysia Energy Literacy Program (MELP): **73.4%** (2023: 69.8%)	S3 S6 S7	10 17 11	TNB fosters trust with stakeholders through inclusive programmes and transparent engagement. While expanding stakeholder programmes requires time and resources, it strengthens the licence to operate, deepens partnerships and enables Just Transition outcomes for communities and customers alike.
NC NATURAL • GHG Emissions Intensity: **0.5571 tCO_2e/MWh** (2023: 0.5465 tCO_2e/MWh) • Total Rainwater Harvested for TNB Platinum: **8,233,250 litres** (2023: 5,703,020 litres) • TNB's Fleet Electrified: **157** (2023: 105) • Trees Planted Nationwide: **92 acres** (2023: 55 acres)	S3 S6 S7	7 15 13	In reducing environmental impact and enhancing stewardship of natural resources, TNB invests in cleaner energy and efficient practices. These actions may involve trade-offs with legacy assets but are vital for long-term sustainability and aligning with national and global climate ambitions.

For more information on Stakeholders, refer to the Focus on What Matters to our Stakeholders with our Sustainability Agenda Report section of Sustainability Statement, which can be found on page 33 to page 36.

Delivering Economic Value Supported by Robust Governance

TNB generates economic value primarily through its electricity generation and distribution operations, serving over 10 million customers in Peninsular Malaysia and maintaining a vast infrastructure of substations and transmission lines. We stand guided by our robust governance framework and commitment in creating and sharing economic values to all of our esteemed stakeholders. Our economic value distribution benefits a wide range of stakeholders, including shareholders such as investors and sovereign pension funds that receive significant dividend payments, employees whose livelihoods depend on our operations and thousands of vendors engaged through contracts and supply chains. As a responsible business entity, we are able to provide stable dividend payouts and committed to our dividend policy of 30% to 60% of dividend payout ratio, that subsequently contribute to national economic growth and social welfare, as well as supporting the communities and the underprivileged.

Our success in delivering substantial values on the local economy is supported by the commitment and capability of supply chain and in 2024 we continue to spend more than 35% on our local vendors. We continue to reinvest more than 1% profit-after-tax (PAT) towards environmental and community-related programmes, as a part of our responsibility to ensure community socio-economic growth. Overall, TNB balances value creation with responsible distribution to shareholders, employees, vendors and the broader community, reinforcing its critical role in the economy and energy sector where we operate.



Stakeholder Engagement

TNB has an extensive network of stakeholders that contribute to our business, as well as those who are impacted by our operations. We highly value all our stakeholders and seek to create better relationships with them through continuous engagement, dialogues and transparent communication in our dealings. The ultimate objective is to create value for each stakeholder group, building trust and credibility whilst ensuring our actions are aligned with their needs and expectations.

Engagement Frequency

DY Daily MO Monthly B Biannually AN As needed QT Quarterly O Ongoing AL Annually ATT All the time

S1 CUSTOMERS

Residential and non-residential customer segments encompassing the commercial and industrial sectors, such as Government, Large Businesses, and Micro, Small, and Medium Enterprises (MSMEs).

Engagement Platform	Engagement Frequency
One-Stop Centres (Kedai Tenaga)	ATT
Call centre	ATT
myTNB mobile application and online portal	ATT
Customer surveys	ATT
Social platform activities	ATT
Roadshows	AN
Campaigns	AN
One-to-one engagements	AN
Email	AN

Areas of Interest or Concern	Our Response
• New technologies such as the implementation of smart meters and their offerings, smart solutions, solar solutions and platform solutions • Enhanced customer experience and service delivery • Accessible, affordable and reliable supply of electricity • Regulated and non-regulated innovative solutions • Energy solutions and green products • Take-up rates on green/sustainable solutions • Matters related to Personal Data Protection Act (PDPA) compliance	• Customer Experience and Satisfaction, pages 112-117 • Reliable Energy and Fair Tariff, pages 80-84 • Energy Transition and Innovation, pages 51-66 • Cybersecurity Management, pages 131-133

S2 EMPLOYEES

A total of 34,938 full-time employees (contractors excluded) in TNB Group.

Engagement Platform	Engagement Frequency
Townhall sessions	AL
Turun Padang, Sesi Sampai & Santai, Sesi FB Live, brown-bag sessions and other outreach programmes	O
Online portal (intranet), newsletters, emails and digital boards	ATT
People Experience Survey	AL
One-to-one engagements	AN
Social platform activities	AN
Corporate Social Responsibility (CSR)	AN
Webinars	AN

Areas of Interest or Concern	Our Response
• Performance, rewards and benefits • Safety and health • Employee well-being and workplace culture • Talent and skills development • Employee satisfaction • TNB strategies and initiatives	• Labour Rights and Employment Culture, pages 134-143 • Safety, Health and Well-Being, pages 85-92 • Community Development and Social Impact, pages 118-125

STAKEHOLDER ENGAGEMENT

Engagement Frequency

DY Daily MO Monthly B Biannually AN As needed QT Quarterly O Ongoing AL Annually ATT All the time

S3 GOVERNMENT AND REGULATORS

The Malaysian Federal and State Governments, parliamentarians, municipal councils and regulators.

Engagement Platform	Engagement Frequency
Meetings and briefings	O
Site visits	AN
Round-table sessions	AN
One-to-one engagements	O
Outreach programmes	O
Summits/conferences	AL
Feedback sessions	AL AN

Areas of Interest or Concern	Our Response
• Regulatory and operational compliance • Changes in the regulatory framework and electricity supply industry • Disaster management and cybersecurity management • Nation-building initiatives that stimulate economic growth through green energy and job opportunities, and benefit the rakyat's well-being • Energy trilemma (Security, Affordability, Sustainability) • ESG and Energy Transition initiatives • Development programmes for local Bumiputera vendors • Rural development initiatives	• Responsible Business and Financial Performance, pages 40-50 • Reliable Energy and Fair Tariffs, pages 80-84 • Cybersecurity Management, pages 131-133 • Climate Change and Emission, pages 67-79 • Energy Transition and Innovation, pages 51-66 • Community Development and Social Impact, pages 118-125

S4 INVESTORS

Institutional and retail investors, analysts and potential investors with interest.

Engagement Platform	Engagement Frequency
Quarterly and Full Year Financial Results disclosures	QT AL
One-to-one engagement/group meetings with the investment community	O
Investor conferences and Non-Deal Roadshows	AL
Annual General Meeting	AL
TNB corporate website's Investor Relations section	AN
Bursa filings and Press Releases	AN
Integrated Annual Report and Sustainability Reports	AL
Email updates to the investment community	AN

Areas of Interest or Concern	Our Response
• Business strategy and performance such as overall electricity demand growth and grid readiness • National Energy Transition Roadmap (NETR) Flagship catalyst projects, Market Aggregator (ENEGEM) and Third-Party Access (TPA) and tariff reforms • Regulatory framework (Incentive Based Regulation, Regulatory Period 4 and Imbalance Cost Pass-Through mechanism) • Energy Transition (ET) Plan initiatives and progress such as decarbonisation strategy, Renewable Energy growth opportunities and capital expenditure plan for ET • Financial management including key areas such as financial sustainability, returns, fuel margins, working capital management initiatives, gearing, financial position (analysis), and dividend	• All with reference to TNB Material Matters, pages 37-190

Engagement Frequency

DY Daily MO Monthly B Biannually AN As needed QT Quarterly O Ongoing AL Annually ATT All the time

S5 TRADE UNIONS AND ASSOCIATIONS

Three (3) registered unions and two (2) workers associations covering all categories of employees.

Engagement Platform	Engagement Frequency
Joint Consultative Council (JCC) at corporate, business entity and local levels	O
Negotiations for Collective Agreements (CA)	AN
Syndication and engagements	AN

Areas of Interest or Concern	Our Response
• Mitigation and resolution of issues • Employee health and well-being • Company strategies and initiatives • Impact of new policies or policy revision to employees	• Safety, Health and Well-Being, pages 85-92 • Labour Rights and Employment Culture, pages 134-143

S6 COMMUNITIES

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

Engagement Platform	Engagement Frequency
Outreach programmes	MO
CSR programmes	MO
Townhall sessions	QT
Dialogue sessions	AN
Sporting Events	DY

Areas of Interest or Concern	Our Response
• Public facilities and basic infrastructure • Compliance with legal and regulatory requirements • Accessible and reliable supply of electricity • Energy literacy • Development of National Sport – Hockey	• Community Development and Social Impact, pages 118-125 • Reliable Energy and Fair Tariff, pages 80-84

STAKEHOLDER ENGAGEMENT

Engagement Frequency

DY Daily MO Monthly B Biannually AN As needed QT Quarterly O Ongoing AL Annually ATT All the time

S7 NON-GOVERNMENTAL ORGANISATIONS (NGO) & ASSOCIATIONS

Consumer associations, think tank groups, environmental groups, chambers of commerce, and international associations, for example, the Heads of ASEAN Power Utilities/Authorities (HAPUA) and Association of the Electricity Supply Industry of East Asia and Western Pacific (AESIEAP).

Engagement Platform	Engagement Frequency
One-to-one engagements	AL AN
Outreach programmes	AN
Seminars	AN
Collaboration sessions	AN
Social media	AN
Meetings and knowledge-sharing sessions	B

Areas of Interest or Concern	Our Response
• Affordable tariff • Innovation in technology and RE • Quality of service • Supply reliability • Current and planned ESG efforts • Energy literacy • Environment and occupational safety and health • Compliance with legal and regulatory requirements	• Reliable Energy and Fair Tariff, pages 80-84 • Energy Transition and Innovation, pages 51-66 • Biodiversity & Environmental Management, pages 93-111 • Safety, Health and Well-Being, pages 85-92

S8 VENDORS

A total of 3,848 active vendors.

Engagement Platform	Engagement Frequency
Engagement sessions	AN
Road Tour Dialogues	AN
Vendor training and awareness	AN
Joint Operations Centre	AN

Areas of Interest or Concern	Our Response
• Industry support for business growth through technology and solutions • New business opportunities and future developments • Training and capability development • Safety and health • Procurement processes • Fraud and bribery awareness	• Sustainable and Responsible Supply Chain, pages 126-130 • Responsible Business and Financial Performance, pages 40-50 • Safety, Health and Well-Being, pages 85-92

TNB Materiality Assessment

Our sustainability agenda is centred around material ESG matters as outlined in our materiality matrix. To ensure our approach remains relevant and responsive to evolving trends and stakeholder expectations, we conduct a comprehensive materiality assessment every two (2) years. In 2024, we conducted a comprehensive materiality assessment, adhering to the guidelines of the Bursa Sustainability Reporting Guide (3rd Edition) which comprises of three (3) phases.

PHASE 1: IDENTIFICATION OF STAKEHOLDERS & MATERIAL SUSTAINABILITY MATTERS

Our material sustainability matters are aligned with our strategic goals, which are the Reimagining TNB (RT) 2.0 and achieving Net Zero by 2050. We also incorporate insights from our eight key stakeholder groups to ensure that our sustainability efforts are aligned with their priorities and expectations. We also benchmark identified material sustainability matters against leading global power utilities and Government-Linked Companies.

To prioritise these material sustainability matters, weightages are accorded to each stakeholder group, reflecting their priorities and importance to TNB.

PHASE 2: PRIORITISATION OF MATERIAL SUSTAINABILITY MATTERS

The relative importance of material matters is assessed based on two considerations:

(i) significance/magnitude of the impact of the material matter to the Company; and
(ii) influence on the assessment and decisions of stakeholders.

To prioritise the identified material sustainability matters, we engaged in focus group discussions with employees who regularly interact with stakeholders and analysed data and feedback from engagement sessions with stakeholder groups that were conducted throughout the year.

As a result, a materiality matrix that prioritises the relative importance of each material matter to the Company and stakeholders is derived.

PHASE 3: REVIEW AND VALIDATION OF OUTCOMES

The materiality matrix is deliberated, reviewed, validated and approved by the following levels of authority:

Committee	Action
Sustainability Division Management	Deliberate
Sustainability & Energy Transition Committee (SETC)	Review
Board Sustainability & Risk Committee (BSRC)	Validate
Board of Directors	Approve

Harnessing the winds of change: Advancing towards a sustainable future through international renewable energy ventures.

TNB MATERIALITY ASSESSMENT

MATERIALITY MATRIX

Our Materiality Matrix 2024 renews our focus on matters that are material to the Group, which sets the basis of our Sustainability Statement, including disclosure of relevant indicators measuring our sustainability performance.

Eleven (11) material matters are depicted in the matrix below with shifts in priority for four (4) matters and refinement of two (2) matters compared to the previous year. The definition of these material matters are as per stipulated below:

MM 1 **Responsible Business & Financial Performance** – Commitment to responsible business practices while maintaining solid financial performance. Our goal is to ensure long-term resiliency by leveraging our core operations and new opportunities to grow in a sustainable manner.

MM 2 **Energy Transition & Innovation** – Malaysia's energy transition (ET) efforts to achieve Net Zero by 2050 will shift the nation's generation mix from fossil fuel-driven energy to renewable and green energy.

MM 3 **Climate Change & Emissions** – Supporting Malaysia's commitment to Paris Agreement and seek to mitigate our GHG emissions and environmental impacts, as well as adapting to climate-related risks (global temperatures, seawater levels, floods and heat waves and soil movement).

MM 4 **Reliable Energy & Fair Tariff** – Commitment to providing secure and reliable electricity to the nation while balancing the energy trilemma of energy security, affordability and sustainability.

MM 5 **Safety, Health & Well-being** – Safeguarding the lives of both our employees and contractors through robust occupational safety and health systems as well as best practices is one of our top priorities.

MM 6 **Biodiversity & Environmental Management** – Dedication to responsible environmental management resonates through tangible actions and ongoing initiatives, particularly in the areas of emissions, biodiversity, waste management and water management.

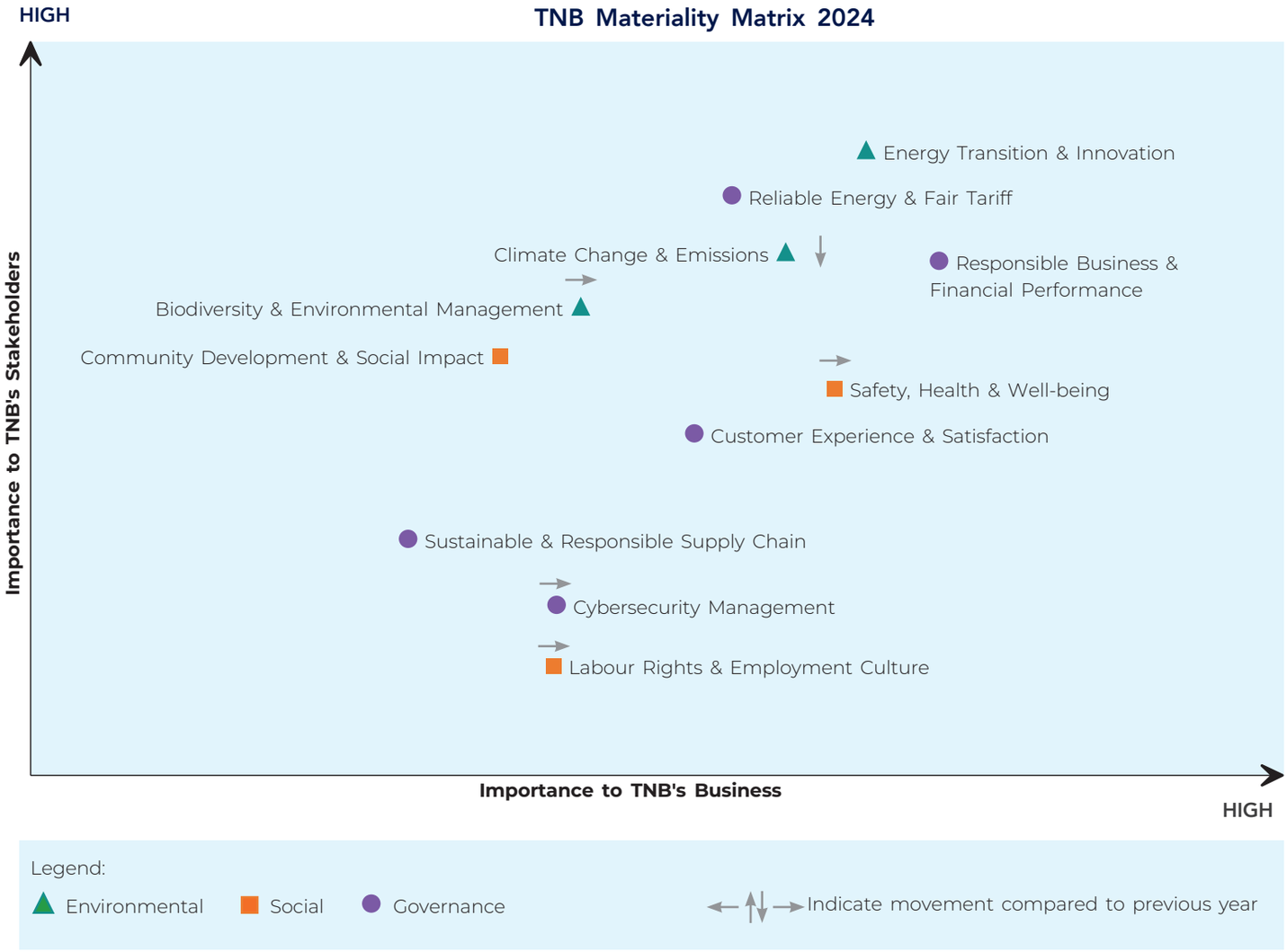
MM 7 **Customer Experience & Satisfaction** – Serving our diverse range of customers with quality products and services. In recent years, we have also sought to empower our customers with smarter and greener solutions.

MM 8 **Community Development & Social Impact** – Aspiration to drive progress and bring positive impact to the community through various corporate responsibility programmes.

MM 9 **Sustainable & Responsible Supply Chain** – Advocating sustainability practices across the ecosystem, from raw material extraction to end-of-life disposal. We support local Malaysian suppliers and set gradual expectations aligned with our sustainability goals in respecting human rights and reducing carbon emissions and environmental footprint, among others.

MM 10 **Cybersecurity Management** – Cybersecurity management aims to protect data confidentiality and integrity, as well as ensuring the availability of our critical Information Technology (IT) and Operational Technology (OT) systems.

MM 11 **Labour Rights & Employment Culture** – TNB firmly believes that every individual deserves equal opportunities and a supportive work environment. We strive to create an inclusive workplace where all employees can thrive and contribute their unique perspectives and talents.



Outcomes of our 2024 Materiality Assessment

- "Responsible Business & Financial Performance", "Energy Transition & Innovation" and "Reliable Energy & Fair Tariff" remain key priorities to TNB and stakeholders.
- "Climate Change and Emissions" has lowered in priority from stakeholders' perspective, reflecting enhanced stakeholders' confidence in our journey towards achieving our carbon emissions goals in view of the government's commitment to the NETR projects and progress of initiatives in the TNB Energy Transition Plan.
- "Safety, Health & Well-being" has shifted to a higher priority for TNB with our commitment towards enhanced data analytics and focused strategies in ensuring the safety and well-being of our employees, contractors and the public.
- The material matter related to "Environmental Management" has been refined to "Biodiversity & Environmental Management" and has increased in priority to TNB, reflecting our elevated attention on environmental management, particularly in biodiversity from a project-specific focus to company-wide principles and practices.
- "Cybersecurity Management" has shifted to a higher priority for TNB, reflecting our commitment to continually safeguard and strengthen the resiliency of national critical infrastructure.
- The material matter related to our employees has been refined to "Labour Rights and Employment Culture" and has increased in priority reflecting the importance we place in safeguarding our labour force and improving employee experience.
- The material matter related to community development has been refined to "Community Development and Social Impact" reflecting the importance we place in ensuring our community-focused initiatives benefit or uplift societies impacted by our operations.

MM 1

Responsible Business and Financial Performance

WHY IS IT IMPORTANT?

Conducting our business in a responsible and ethical manner with strong governance and financial performance is essential to generate economic value to the nation and exceeding shareholders expectations.

We are committed to upholding responsible business practices while maintaining solid financial performance. Our strategy aims to foster long-term resilience by leveraging our core activities and exploring new growth opportunities sustainably, while delivering values to our shareholders. Our corporate governance structure complies with the Malaysian Code on Corporate Governance (MCCG) and aligns with international best practices and standards in the areas of good governance, compliance and transparency to effectively facilitate our business operations and growth.

With a strong governance structure, the TNB's Board of Directors and Management play active roles in making strategic decisions to support TNB's position as a leader in the energy sector, enhancing value and providing stable financial returns to our shareholders. We remain committed to our dividend policy which aims to provide stable and sustainable dividends, while maintaining an effective capital structure that supports our growth and expansion strategies. As a result of a solid corporate governance system that defines roles and responsibilities, the BSRC oversee the main sustainability and climate-related decisions aimed at creating value for shareholders over the long term, in cognisant of the environmental and social impacts.

Opportunities

- Build long-term stakeholder trust via ethical transparency and financial excellence.
- Strengthen human governance principles among employees, embedding a sound ethical foundation.
- Gain greater access to sustainable financing, appealing to ESG-conscious investors.

Risks

- Challenges in comprehensively enforcing ethical best practices throughout the value chain.
- Potential erosion of stakeholders' confidence and trust arising from incidents of unethical practices.

MANAGEMENT APPROACH

[IFRS S1: 27a]

Our governance structure reflects our commitment for strong financial performance while ensuring excellence in corporate governance. Key elements of our governance structure include clear roles and responsibilities of TNB Board of Directors and sub-Boards, which includes the Board Sustainability and Risk Committee (BSRC) and the Board Integrity Committee (BIC).

See page 22 in Sustainability Report 2024, Section "Strengthening Our Sustainability Governance" for TNB Sustainability Governance Structure.

See IAR 2024 page 156 for details of the TNB Corporate Governance, which includes the roles and responsibilities of TNB Board of Directors and sub-Boards, and page 228 for our financial performance.

RISK MANAGEMENT FRAMEWORK

Risk management at TNB is guided by the TNB Risk Management Framework, which aligns with the principles and guidelines of ISO 31000:2018, "Risk Management Guidelines." This framework provides a structured and consistent approach to managing risks across the Group, ensuring value creation and protection through its key elements. It is approved by TNB Board of Directors and undergoes an annual review to maintain its effectiveness.

The execution of the TNB Risk Management Framework is outlined in the following 4 risk governance documents:

- TNB Risk Management Framework
- TNB Risk Management Policy
- TNB Risk Assessment Process
- Key Risk Indicator

See IAR 2024 page 219 for the Statement on Risk Management and Internal Control (SORMIC).

MM1: RESPONSIBLE BUSINESS AND FINANCIAL PERFORMANCE

CORPORATE POLICIES AND GUIDELINES

Group-wide policies and procedures have been approved by the TNB Board of Directors/Management to ensure ethics and internal control principles and mechanisms are embedded in business operations. These policies and procedures are consistently reviewed for relevance and effectiveness. Among others, the Group policies and procedures in place are:

Governance, Ethics and Compliance

- TNB Code of Business Ethics
- TNB Ethics & Integrity Policy
- TNB Anti-Bribery Policy
- TNB Gifts, Hospitality and Related Benefits Policy
- TNB Conflicts of Interest Policy
- TNB Whistleblowing Policy
- TNB Confidentiality Policy
- TNB Limits of Authority
- Integrity Pact and Committee Integrity Pledges Policy

Risk, Security and Operational Policies

- TNB Risk Management Policy
- TNB Personal Data Protection Policy
- TNB Security Policy
- TNB Investment Process Control: Updated Investment Process and Investment Risk Methodology
- TNB ICT Security Policy and ICT Codes of Practice
- TNB Group Financial Policies and Procedures
- Distribution Network Division Asset Management Policy
- Grid Division Asset Management Policy
- TPGSB Asset Management Policy

People and Workplace Policies

- TNB Diversity & Inclusion Policy
- TNB Group Human Resource Circulars and Guidelines
- TNB Communication Policy
- TNB Disciplinary Management Code
- TNB Safety & Health Policy
- TNB Labour Rights Policy Statement

Sustainability and Sustainable Procurement

- TNB Sustainability Policy
- TNB Environmental Policy
- TNB Procurement and Supply Chain Policy and Procedures
- Sustainable Procurement Code of Conduct

For more information on our policies, please visit [link].

REMUNERATION POLICY & APPROACH

TNB Board of Directors, with the assistance of the Board Nomination and Remuneration Committee (BNRC), reviews the overall remuneration policy for Non-Executive Directors, Executive Directors and Top Management. The policy aims to attract, retain and motivate executives and Directors who will create sustainable value and generate returns for the Company. The remuneration package is structured to link rewards to corporate and individual performance, reflecting the contributions towards the Group's achievements for the year.

To ensure accountability from all management levels and to steer the Group's sustainability performance, performance objectives relating to sustainability, including ESG rating, health and safety measures, integrity health index and the growth of TNB's renewable energy capacity, are tied to the President/CEO and Top Management Key Performance Indicators (KPI). TNB aims to implement a phased approach linking remuneration to key ESG KPIs and climate-related disclosures in line with the ISSB S2 reporting recommendations.

LIMITS OF AUTHORITY

The Limits of Authority lays down guiding principles governing decision-making throughout the Group, emphasising the escalation and reporting procedures to TNB Board of Directors. Delegating authority is a key aspect, with the Board entrusting the President/CEO and other Executives to oversee the Company's day-to-day activities. This delegation includes the responsibility to recommend and approve both monetary and non-monetary limits of authority for operational and management decisions before execution. The Limits of Authority strikes a balance between effective oversight and empowering the Management with appropriate accountability.

TNB CODE OF BUSINESS ETHICS (COBE)

We have established a comprehensive TNB Code of Business Ethics (COBE), approved by TNB Board of Directors, which applies to all directors and employees at all levels. It outlines the ethical principles and expected behaviours in engagements with our stakeholders including shareholders, customers, vendors and the communities in which we operate.

The COBE includes guidelines on conflicts of interest, giving and accepting business courtesies and the use of company assets and resources with care. It governs our decision-making and conduct, reinforcing our commitment to integrity. The TNB COBE was last reviewed in 2023 and further reviews will be made as and when needed. The BIC oversees the effective implementation of TNB COBE to ensure compliance with relevant laws and regulations, sound employment practices, confidentiality and privacy.

ANTI-MONEY LAUNDERING AND ANTI-TERRORISM FINANCING

We strictly prohibit money laundering or terrorism financing offences in our business operations. Any suspicious, irrelevant or unusual transactions are immediately reported to the Management and TNB Board of Directors, for necessary actions.

TNB CORPORATE INTEGRITY MANAGEMENT SYSTEM (TCIMS)

We are committed to adhering with guidelines required by the Malaysian Anti-Corruption Commission (MACC). The TCIMS is designed to foster an integrity-based culture across the TNB Group by mitigating the risk of misconduct and corruption in compliance with international anti-bribery standards.

The TCIMS consists of the following four (4) policies:

a) Anti-Corruption through TNB Anti-Bribery Policy

TNB upholds a zero-tolerance approach to bribery and corruption where we explicitly state that bribery and corruption are strictly prohibited in all forms, including offering, giving, soliciting or accepting bribes. This policy applies equally to all our business dealings with commercial business associates (vendors, consultants, joint venture partners, consortium partners, advisors, agents), government entities and countries worldwide without exception.

b) Conflict of Interest (COI) Policy

This policy requires TNB Board of Directors and all employees to declare any potential, perceived, or actual conflicts of interest promptly, using established mechanisms. This policy applies to TNB and its Subsidiaries, encompassing the Board of Directors, Key Senior Management and all personnel. TNB regards conflicts of interest as a serious matter, reflecting its commitment to ESG principles and sustainable governance. All employees, including directors and top management sign an Integrity Pledge, declare COI annually, and disclose their interests particularly in competing businesses to ensure transparent and ethical decision-making.

In 2024, we enhanced this policy by emphasising the roles and responsibilities of TNB Board of Directors and key senior management, including subsidiaries, in alignment with the MMLR. In addition, the guideline on COI Management for Board of Directors and key senior management was established to facilitate conflict of interest management process. The enhanced COI Policy and guideline were reviewed by an independent third party, endorsed and approved by TNB BIC and TNB Board of Directors.

MM1: RESPONSIBLE BUSINESS AND FINANCIAL PERFORMANCE

Responsible Parties	Responsibilities
Board of Directors, Key Senior Management, TNB Personnel and its Subsidiaries	• Responsible for adhering to the principles and rules set out in this policy. • Responsible for regularly declaring COI (Annually and as and when required) using the appropriate Disclosure Form.
Company Secretary (CoSec)	• Handles COI declarations for the TNB Board of Directors. • Responsible for reporting to the BAC any COI situation arises on bi-annual basis and as and when required.
Group People Division (GPD)	• Manages COI declarations for Key Senior Management. • Upon compilation of COI declaration and mitigation for Key Senior Management, GPD shall forward the COI report to CoSec for reporting to the BAC, on bi-annual basis and as and when required. • Responsible for ensuring that new TNB Personnel receive a copy of this policy and are provided access to the COI disclosure system during the onboarding process. • Inform the new TNB Personnel that any actual, potential or perceived conflicts should be declared. The Integrity Department (ID) will work with GPD to ensure the relevant materials are provided to the new personnel.
Board Integrity Committee (BIC)	• Responsible for providing the policies and guidance on COI. • Work with the BAC which oversees and manages the policies and guidance on COI. • The BIC shall obtain the approval of the BAC of such policies and guidance on COI.
Board Audit Committee (BAC)	Responsible for reviewing and reporting to TNB Board of Directors any COI situation that arises, persists, or may arise together with the measures to resolve, eliminate or mitigate such conflicts, in the BAC report, on bi-annual basis and as and when required.
Integrity Department (ID)	Responsibility for overseeing the implementation, communication, monitoring and updating of this policy and shall report to BIC.
Subsidiaries	Where a Subsidiary has its own Board of Directors, the CoSec of that Subsidiary shall be responsible for Board of Directors statutory declaration at Subsidiary Board of Directors, CoSec of that Subsidiary shall forward the COI report to CoSec for reporting to the BAC, on bi-annual basis and as and when required.

c) Gifts, Hospitality and Related Benefits Policy

This policy outlines strict guidelines on the acceptance of gifts and hospitality, aiming to ensure transparency in all interactions with external parties. It includes provisions for political donations which are strictly overseen by TNB BIC. In 2024, no political contributions were made.

Within TNB's comprehensive Gifts, Hospitality and Related Benefits Policy, we provide clear guidance to both our internal and external stakeholders, delineating the parameters for gifts, monetary or otherwise, donations and hospitality services. Our employees are actively encouraged to embody transparency in all dealings with external parties. This encompassing policy includes a dedicated section on Political Donations, meticulously overseen by TNB BIC. Upholding stringent requirements, we proudly affirm that, to date, TNB BIC has not sanctioned any political donations. At TNB, ethical engagement is a steadfast commitment to principled conduct and transparent corporate citizenship.

d) Whistleblowing Policy

The whistleblowing policy embodies TNB's commitment to maintaining an open working environment in which employees, contractors and members of the public are able to report instances of unethical, unlawful or inappropriate conduct on a confidential basis without any fear of intimidation or reprisal. In 2024, the whistleblowing management process was reviewed by an independent third party with positive observation. The procedure to report suspicious and unethical conduct is outlined in the policy. The whistleblowing channel is proactively communicated to employees via internal communication channels and to the public via the TNB website. An independent investigation team investigates all reported concerns and, where applicable, provides feedback regarding the investigation's outcome. The objectives of the whistleblowing policy are as follows:

- To encourage employees to report unacceptable conduct without fear of retaliation
- To provide employees and contractors with a supportive working environment in which they feel able to raise issues of legitimate concern to them and to TNB
- To protect the complainants' identity (by all means possible) who report unacceptable conduct in good faith

TNB BIC serves an oversight role to ensure the consistent and effective implementation of reporting mechanisms through regular monitoring and evaluation.

Reporting Channels

If you have any complaints for employee misconduct, our whistleblowing channels are as follows:

Email to one (1) of the designated officers by using the Whistleblowing Complaint Form, available in Malay & English:

1. ***Ong Ai Lin***
   Senior Independent Non-Executive Director
   ongailin.integrity@tnb.com.my
2. ***Ahmad Petra Firdaus***
   Chief Integrity Development Officer
   petrafirdaus.integrity@tnb.com.my
3. ***Hasbah Hasbullah***
   Senior Manager (Financial Integrity)
   hasbahh.integrity@tnb.com.my

Online Whistleblowing Information System (WBIS): https://wbis.tnb.com.my

Whistleblowing toll free number: 1-800-888-862

CORRUPTION RISK ASSESSMENT & ETHICAL AUDITS

Corruption and fraud risk exposures are continuously assessed across all TNB business operations to identify vulnerabilities such as bribery, abuse of power, theft, false claims, cheating and disciplinary issues. These assessments help uncover root causes and inform the implementation of effective mitigations, thereby strengthening our culture of integrity.

To systematise risk monitoring, a total of 1,458 business ethics-related causes identified in operational processes are registered and tracked in the TNB Risk Information System (TRIS). Risk controls are implemented by the respective business entities and related risk ratings and mitigations are digitalised for more efficient oversight.

TNB's Organisational Anti-Corruption Plan (OACP) outlines targeted initiatives to prevent corruption and integrity violations, while promoting transparency and accountability across the organisation. Complementing this, regular workshops on fraud and bribery risk are conducted for high-risk business functions.

To ensure the continued effectiveness of our ethical standards, we conduct annual internal and external audits of our Anti Bribery Management System (ABMS), covering all business areas. These audits assess compliance with internal policies and evaluate the effectiveness of risk controls and mitigations on corruption risk exposures including fraud and bribery identified through periodic assessments.

MM1: RESPONSIBLE BUSINESS AND FINANCIAL PERFORMANCE

All ABMS audits are carried out by independent internal and external experts to ensure objective, unbiased evaluations. Findings from these audits are reported to the Integrity Committee for review and to the Business Integrity Committee (BIC) as the governing body.

ABMS Audit and Fraud Risk Assessments	FY2022	FY2023	FY2024
ABMS Certification/Recertification Audits by SIRIM	Nil	2	2
ABMS Internal Audits (Division/Department)	20	21	18
ABMS Internal Audits (Subsidiary)	Nil	5	6
Corruption and Fraud Risk Assessments (Division/Department)	21	21	23*
Corruption and Fraud Risk Assessments (Subsidiary)	16	16	95**

** Due to the restructuring, there is total 23 divisions in 2024 and we conducted the risk assessments to all the 23 divisions.*
*** In 2024, our subsidiary Sabah Electricity (SESB) registered their individual departments as part of the total Corruption and Fraud Risk Assessment, where previously in 2022 and 2023 SESB reported as one entry into the system. Given this breakdown in SESB, there is a significant increase in the corruption and fraud risk assessments (subsidiary) conducted in 2024.*

By upholding our Business Ethics Policies & Practices and subjecting our operations to rigorous audits and reviews, TNB reinforces its unwavering commitment to ethical conduct, responsible governance and continuous improvement.

STRENGTHENING TNB INTEGRITY CULTURE

TNB endeavours to impact the business environment where it operates. This may include extending its integrity programme to non-Controlled Organisations, suppliers and contractors, seeking to work with companies who have a similar commitment and supporting initiatives in the private and public sectors which are likely to improve the integrity of its operating environment.

TNB actively promotes ethical business practices and expects our suppliers to comply with all applicable laws and regulations. Our rigorous vetting process and ongoing monitoring efforts are designed to support a fair and competitive procurement process, free from corruption. By collaborating with suppliers who share our commitment to ethical conduct, we aim to create sustainable value and trust for all stakeholders. Together, we can build a stronger, more responsible business ecosystem.

Ethical Behaviour Training & Communication

A comprehensive training plan on ethical behaviour is outlined in our annual Training & Communication Plan (TCP). The TCP is an important component in our strategy to foster a strong integrity culture. This comprehensive plan includes ethical standards training for Board of Directors, employees, contractors and vendors. The training elements in TCP, among others, include integrity seminars tailored for TNB Board of Directors and top management, Integrity e-learning for all employees, contractors and vendors, and in-person awareness sessions with employees. The TCP also covers communication strategies such as publications of integrity bulletins and e-posters communicated through internal channels. The progress and effectiveness of the TCP is periodically reported to the BIC.

Training and Communication Plan (TCP)

TNB's commitment to ethical standards is integral to our broader goal of fostering a sustainable and responsible future. Through our Training & Communication Plan (TCP), we aim to build a strong culture of integrity by equipping all levels of the organisation and our external stakeholders with the knowledge and tools to uphold ethical conduct.

The TCP is a key pillar of TNB's anti-corruption strategy, supporting compliance with Section 17A of the MACC Act 2009 and the TRUST principles. It is designed to close gaps identified through the annual Integrity Health Index (IHI) and includes a wide range of targeted initiatives for the Board of Directors, senior management, employees, contractors and vendors.

Key initiatives under the TCP include:

- Mandatory Integrity e-learning modules for all employee categories and active vendors (renewable every three years);
- Annual seminars for TNB Board of Directors and top management, with a focus on topics such as corporate liability and governance (e.g., in 2023, corporate governance law);
- Integrity awareness sessions for employees across all levels;
- Internal publications such as monthly integrity bulletins, e-posters and updates on the organisation's intranet.

Training modules cover essential topics including the Anti-Bribery Policy, Gifts, Hospitality and Related Benefits Policy, Conflicts of Interest Policy, Whistleblowing Policy and lessons learned from past misconduct cases.

In 2024, the TCP delivered 16 initiatives, with 100% of permanent and contract employees and 1,237 vendors participating in the anti-corruption training, reflecting our proactive approach to promoting ethical behaviour throughout the organisation. Progress and effectiveness of the TCP are reviewed periodically and reported to TNB BIC, ensuring ongoing governance and accountability.

For our performance on anti-corruption training, please refer to our performance tables at the end of this chapter.

Human Governance through the TNB Disciplinary Management Code

In 2024, TNB strengthened its commitment to ethical conduct and accountability through enhancements to the TNB Disciplinary Management Code, as approved by TNB BIC. These updates place greater emphasis on human governance, prioritising corrective and reinforcement measures over purely punitive responses.

This human-centred approach reflects TNB's belief that disciplinary actions should support behavioural improvement and long-term integrity, while still upholding accountability.

TNB maintains a zero-tolerance stance on unethical behaviour. In 2024, four confirmed corruption cases involving four employees were dealt with in accordance with the revised Code, resulting in disciplinary actions including dismissal. These actions demonstrate TNB's unwavering commitment to transparency, good governance and ethical standards.

Integrity Pledge and Conflict of Interest (COI) Declarations

In 2024, 100% of our permanent and contract employees completed the Integrity Pledge and COI declarations. Employees declare COI annually and whenever there is any conflict of interest.

Integrity Pact for Vendors

TNB upholds high ethical standards in all procurement activities through its Procurement Code of Conduct, which applies to Directors, employees, suppliers, contractors and their personnel. This Code emphasises core principles such as integrity, accountability, fairness and a zero-tolerance approach to bribery and corruption in supplier relationships. It is reviewed regularly to ensure alignment with evolving regulations, reputational expectations and business dynamics.

Complementing this, the Procurement & Supply Chain Policy and Procedures offer comprehensive guidance to ensure that procurement practices deliver optimal value, support business objectives and reflect leading industry standards. These procedures also reinforce TNB's commitment to corporate governance and customer value creation.

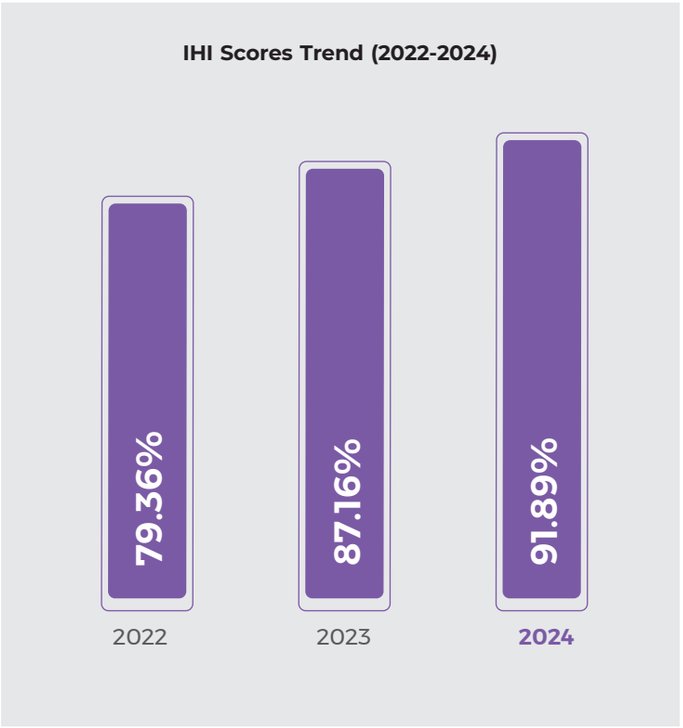
To further embed ethical conduct in commercial dealings, all vendors are required to sign an Integrity Pact – a legally binding agreement that commits them to:

- Adhere to ethical procurement practices,
- Declare compliance with governance requirements, including anti-corruption laws and conflict of interest policies,
- Uphold confidentiality; and
- Report any misconduct and actions taken.

TNB's Code of Business Ethics and Procurement Code of Conduct are publicly accessible on the Company's website at https://www.tnb.com.my/ethics-governance/tnb-code-of-business-ethics and https://www.tnb.com.my/ethics-governance/board-charter/#spcc

Integrity Health Index

The Integrity Heath Index (IHI) is measured annually and is a KPI of our top management. It holistically assesses our integrity, health status and performance in the dimensions of integrity infrastructure, corporate culture and ethical conduct, integrity learning and development and communication mechanisms. Gaps identified from the assessment are addressed through specific strategies for improvement. In 2024, the overall TNB IHI score was recorded at 91.89%, an improvement from the previous year.



MM1: RESPONSIBLE BUSINESS AND FINANCIAL PERFORMANCE

SHAPING THE INTEGRITY CULTURE: OUR ACTIVITIES IN 2024

At TNB, we firmly believe that integrity is the cornerstone of sustainable growth. By investing in the development of our workforce, we are not only enhancing our operational excellence but also reinforcing our commitment to creating a fair and transparent business environment.

Certified Integrity Officer (CeIO) programme

In 2024, Integrity Department in collaboration with the Malaysian Anti-Corruption Academy (MACA) successfully carried out the Certified Integrity Officer (CeIO) programme involving 41 participants comprising middle management and top management from both Integrity Department and TNB subsidiaries. The programme aims to equip participants with comprehensive understanding of anti-corruption principles, laws and best practices, cultivate strong ethical leadership among participants to inspire integrity within their teams and organisations and foster an organisational culture that prioritises ethical behaviour and transparency as well as reducing the risk of corruption.

Approval of the TNB Disciplinary Management Code

In 2024, Board Integrity Committee of TNB has approved the reviewed Disciplinary Procedure by introducing the TNB Disciplinary Management Code with the objectives to institutionalise integrity culture in the company's day to day business operation by emphasising on human governance practices, ensuring that our approach to disciplinary actions is rooted in corrective and reinforcement measures rather than punitive responses, enhance the accountability in collaboration with all divisions, departments and unions.

Through this commitment, TNB aspires to lead by example in the energy sector, promoting sustainability not just in our environmental practices but also in our governance and ethical conduct.

Review of TNB's Whistleblowing Management System

As part of TNB's continuous commitment to ensure good corporate governance and ongoing practice of good culture and behaviour amongst its employee, TNB had appointed an independent party to review the company's whistleblowing management system covering the following areas:

i. Governance & oversight function in handling of complaints and whistleblowing
ii. Case management
iii. Monitoring & reporting
iv. Benchmarking study with relevant companies of approximately similar size to TNB
v. Survey to assess how TNB staff views the whistleblowing arrangements

Subsequent to the assessment, the overall result indicates that TNB's current system aligns closely with industry practices, revealing no significant deficiencies in its whistleblowing or management systems and respondents (TNB staff) expressed high confidence in TNB's commitment to address ethical concerns.

STRUCTURED POLICIES, PROCEDURES AND GUIDELINES ON TAX MANAGEMENT

TNB has established structured policies, procedures and guidelines to oversee tax compliance, planning and risk management. The Chief Financial Officer oversees these activities and the Board Audit Committee reviews key tax initiatives, including the Tax Corporate Governance Framework, Base Erosion Profit Shifting, and e-invoice implementation. For significant transactions or decisions, TNB Board of Directors approval is sought. TNB's Group Financial Policies and Procedures (GFPP) provide detailed guidelines to streamline tax compliance across the Group, ensuring uniformity and accountability.

TNB values its relationship with tax authorities and actively engages in constructive dialogue to support the development of effective tax systems and legislation. We are committed to transparency and cooperation with tax authorities, including the Inland Revenue Board of Malaysia and the Royal Malaysian Customs Department, during tax audits and information requests.

TNB Transition Finance Framework

In September 2024, we became the first electricity utility company in ASEAN to establish our Transition Finance Framework. This framework serves as a set of guidelines to strengthen the connection between TNB's financing and its energy transition strategy, outlining criteria for both existing and new projects to support the energy transition in line with relevant market best practices, including the ASEAN Taxonomy for Sustainable Finance Version 2 and the ASEAN Transition Finance Guidance. Developed with Maybank Investment Bank Berhad as our Sustainability Framework Adviser, the framework has received a Second-Party Opinion from Morningstar Sustainalytics, affirming its alignment with global sustainability standards.

MM1: RESPONSIBLE BUSINESS AND FINANCIAL PERFORMANCE

TNB Power Generation Sdn. Bhd. (TPGSB) Sustainability Sukuk Framework

Prior to the establishment of the TNB Transition Finance Framework, TNB had started to embed sustainability financing requirements for project funding. The TPGSB Sustainability Sukuk Framework, launched in April 2022, governs the issuance of Sustainability Sukuk Wakalah by TPGSB. The framework has been expanded to encompass the development and operation of other renewable energy projects or assets, in addition to the Nenggiri Hydroelectric Power Plant Projects, reinforces TPGSB's role in upholding TNB's sustainability pillars in becoming a socially and environmentally responsible organisation and the achievement of the selected UN SDGs.

MARC Ratings Berhad ("MARC") as the independent external reviewer has assigned a "Gold" rating to TPGSB Sustainability Sukuk Framework reflecting the view that the use of proceeds would provide relevant social and environmental benefits that support six of the 17 UN SDGs.

Building on this foundation, TNB is progressing to set up a new Sukuk Programme up to RM10 billion that incorporate Transition Finance Framework in the first half of 2026. This will be one of the financings initiative under the Transition Finance Framework, enabling TNB to issue Green, Social and Sustainability (GSS) Sukuk, including Transition-themed Sukuk. Utilisation of the proceeds will focus on funding TNB's CAPEX requirement, including:

- Green Projects – Renewable energy, energy efficiency, green buildings, clean transportation
- Transition Projects – Low-carbon power generation
- Social Projects – Basic infrastructure, employment and education access

By integrating sustainability into our financial strategy, TNB is not just financing growth – we are leading Malaysia's transition to a low-carbon economy. This framework cements our role as a pioneer in responsible financing, setting a precedent for other energy players across ASEAN.

OUR PERFORMANCE

PERFORMANCE : BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
Anti-Corruption							
GRI 205-1	C1(a)	**Percentage of employees that have received training on ethics and anti-corruption by employee category**					
		Senior Management	%	1.57	1.01	1.26	
		Executive	%	7.74	17.39	27.16	
		Non-Executive	%	31.72	56.09	71.58	
		Total	**%**	**41.03**	**74.48**	**100.00**	100
GRI 205-2	C1(b)	**Total percentage of operations assessed for risks related to corruption**					
		Total percentage of operations assessed	%	–	97	100	100
GRI 205-3	C1(c)	**Confirmed incidents of corruption and actions taken**					
		Total number of confirmed incidents of corruption	Number	1	5	4	Zero

For more metrics on Anti-Corruption, Board of Directors, Non-Compliance and Business Performance, please refer to our performance tables on pages 154-158, 161-163, 167-168.

MM 2

Energy Transition and Innovation

WHY IS IT IMPORTANT?

Advancing the energy transition through innovation is essential to achieving climate targets, future-proofing the grid and sustaining energy security. By empowering customers with smarter, cleaner energy solutions and digital transformation, TNB strengthens its position as a progressive utility committed to low-carbon growth.

Malaysia's energy transition is accelerating, with a bold target of achieving Net Zero emissions by 2050 and 70% installed renewable energy capacity. At the heart of this transformation is the National Energy Transition Roadmap (NETR), anchored by ten (10) flagship projects – three (3) of which are led by TNB. These include pioneering efforts in hybrid hydro-floating solar PV, large-scale solar parks and co-firing with hydrogen and ammonia. Beyond these, TNB continues to champion initiatives such as residential solar, EV charging infrastructure and carbon capture and storage (CCS).

TNB's Energy Transition Plan, aligned with its broader Reimagining TNB 2.0 (RT 2.0) strategy, cuts across the electricity value chain through three (3) strategic pillars: decarbonising power generation, building a more flexible and interconnected grid, including cross-border capabilities and empowering electrification across sectors, while supporting the rise of energy prosumers. This integrated approach is designed to meet national decarbonisation goals while balancing the energy trilemma: security, affordability and sustainability.

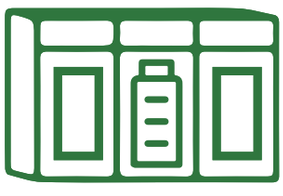
Driving these ambitions are high-impact investments in innovation, digitalisation and strategic partnerships. Through action and collaboration, central to TNB's strategy, we hope for a cleaner, smarter and more inclusive energy ecosystem for Malaysia through advancements in technology, process and business model.

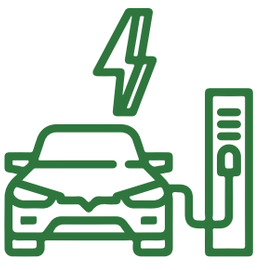
Opportunities

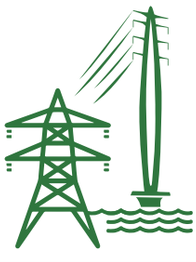
- Enhance grid stability and optimise energy flow through a flexible and interconnected grid and continuous innovation.
- Diversify energy mix through clean and renewable sources to reduce reliance on fossil fuels and enhance energy resilience.
- Empower greater electrification such as expansion of EV charging stations.

Risks

- Increased complexity in the grid network may lead to interoperability or integration challenges.
- High upfront investment costs for grid upgrades and innovative solutions to enhance resiliency.







MM2: ENERGY TRANSITION AND INNOVATION

MANAGEMENT APPROACH

[IFRS S1: 33a, IFRS S1: 33b; IFRS S2: 14a, IFRS S2: 14c]

As Malaysia's national electricity provider, we at TNB recognise our role to embrace, enable and empower energy transition in the country. Our Energy Transition Plan cuts across the energy value chain, which includes transitioning to clean energy sources, developing the energy transition network and offering innovative customer solutions that promote efficient energy usage.

TNB ENERGY TRANSITION PLAN

Accelerate generation decarbonisation

1. Decarbonise thermal plants while ensuring security of supply
2. Explore, invest and develop RE
3. Invest in clean tech at scale (e.g., hydrogen, ammonia co-firing, CCUS)
4. Expand RE generation focus markets

Develop flexible and cross-border grid

1. Enhance Smart & Autonomous Grid & Distribution Network (e.g., DER integration, self-healing grid)
2. Deploy flexible solutions (e.g., grid-scale storage, community storage)
3. Deliver Renewable Energy Zones
4. Catalyse ASEAN Power Grid

Empower cross-sector electrification and prosumers

1. Electrify mobility through grid upgrades and charging station construction
2. Scale industrial electrification solutions
3. Power rapid data centre growth
4. Support power-intensive hydrogen economy
5. Unlock energy management solutions for prosumers through:
   - Solar Rooftop
   - Energy Efficiency

ACCELERATE GENERATION DECARBONISATION

We have begun delivering solutions that allow us to transition to cleaner energy sources while ensuring reliable energy to Malaysians.

As part of our Net Zero goals, we aim to scale up our renewable energy capacity to 22 GW by 2050, both domestically and internationally, thus enabling large-scale deployment of clean energy across our operations. To this end, we actively engage in programmes such as the National Energy Transition Roadmap (NETR), Large Scale Solar (LSS), Corporate Renewable Energy Supply Scheme (CRESS) and Corporate Green Power Programme (CGPP). In 2024, we have already operationalised 4,152 MW of renewable energy.

For more information about our generation decarbonisation strategy, please refer to MM3 Climate Change and Emissions.

DEVELOP FLEXIBLE AND CROSS-BORDER GRID

To accelerate the transition toward a low-carbon future, TNB is strengthening the resilience and adaptability of its power grid to support growing renewable energy (RE) integration. A flexible and interconnected grid is essential for balancing the intermittent nature of clean energy sources while ensuring stable and efficient power delivery to customers. Additionally, advancing cross-border grid connectivity will unlock opportunities for regional energy sharing, contributing to greater energy security and decarbonisation across Southeast Asia.

Key initiatives under this effort include:

- Catalysing the ASEAN Power Grid initiative by supporting regional interconnection infrastructure, enabling electricity trade and clean energy flows across neighbouring countries.
- Enhancing our smart and autonomous distribution network to enable real-time monitoring, remote control and intelligent decision-making for improved grid efficiency and reliability.
- Launching flexible energy solutions, including grid-scale and community-level battery storage, to store excess renewable energy and provide backup during peak demand or outages.
- Delivering Renewable Energy (RE) zones and large-scale solar parks to centralise clean energy generation and improve grid planning and connection efficiency.

During Regulatory Period 3 (RP3), TNB invested RM20.73 billion to enhance grid infrastructure and ensure reliable energy supply. In 2024 alone, the Grid Division and Distribution Network Division invested RM2.49 billion and RM6.15 billion, respectively, to secure, modernise and maintain the national grid. Looking ahead to Regulatory Period 4 (2025–2027), we plan to scale up investments to strengthen grid readiness and enable greater integration of renewable energy into the system.

Progressing ASEAN Power Grid Development For Enhanced Regional Connectivity

As a key player in ASEAN's energy sector, TNB actively supports the ASEAN Power Grid (APG) agenda, fostering greater regional connectivity and energy security. We are collaborating with neighbouring countries to explore new interconnections, focusing on feasibility studies and future capacity planning.

The APG has the potential to promote cross-border energy exports and ensuring more reliable and green energy delivery in the ASEAN region.

ASEAN Power Grid (APG) Capacity Expansion Potential

Estimated Total Capacity
386GW by 2025

Total Regional Capacity
649GW by 2040

Potential Variable Renewable Energy (VRE)
126GW by 2040

In 2024, TNB has initiated a preliminary feasibility study for a Sarawak-Peninsular Malaysia Interconnection with a 1000 MW capacity, which is expected to be completed in 2025. The project aims to leverage Sarawak's hydropower potential to supply electricity to Peninsular Malaysia, potentially benefitting both regions.

We aim to enhance the existing Peninsular Malaysia-Thailand interconnection capacity to 1,000 MW by 2031. We are preparing for future capacity needs upon the expiration of the current 300 MW HVDC under the System Interconnection Agreement (SIA) with EGAT in 2027.

We are working with Singapore to establish a second interconnection link targeting 1,000 MW capacity by 2031 and expanding power trade via the Energy Exchange Malaysia (ENEGEM).

We are also exploring a potential new interconnection with Sumatera, Indonesia, targeting 2,000 MW by 2033, alongside resource-sharing initiatives to increase renewable energy integration and improve energy security. Together with Indonesia's PT Perusahaan Listrik Negara (PLN), we are conducting feasibility studies, supported by a U.S. Trade and Development Agency (USTDA) grant and coordinated by the ASEAN Centre of Energy (ACE), to enhance energy security and increase renewable energy integration across the region.

In line with Malaysia's Cross-Border Electricity Sales (CBES) RE Scheme approved in 2023, ENEGEM has become a strategic platform for cross-border renewable energy trading. A total of 300 MW is allocated for RE export under CBES RE Scheme, with cross border green electricity sales starting with a 100MW pilot run, utilising existing interconnections between Peninsular Malaysia and Singapore. ENEGEM, operated by Single Buyer, serves as a centralised marketplace for green electricity trading, employing a bidding mechanism to manage cross-border RE sales and green attributes.

Through its inaugural auction in June 2024, 50 MW was successfully sold to Singapore, leveraging on surplus renewable energy generation. TNB continues to support ENEGEM's operations which contribute to bolstering Malaysia's cross-border electricity integration and advancing ASEAN's regional cooperation on renewable energy trading.

MM2: ENERGY TRANSITION AND INNOVATION

POWERING THE FUTURE WITH SMART GRID

The transition from conventional fossil fuel-based energy sources to cleaner and more sustainable alternatives is fundamentally reshaping the structure and demands of the electricity grid. Distributed Energy Resources (DERs) - such as rooftop solar panels – are essential in fostering a more decentralised and flexible energy landscape. Unlike the traditional one-way flow of energy from centralised power plants to consumers, DERs enable a bi-directional flow of electricity, allowing consumers to become producers – otherwise known as prosumers – who actively engage in both the production and consumption of electricity.

To manage these evolving dynamics effectively, TNB is advancing its smart grid initiatives to modernise the national grid and enhance its ability to support high DER integration. These efforts are aligned with TNB's ambition to be ranked among the top 20 utilities globally on the Smart Grid Index by 2030.

In 2024, TNB achieved a score of 80.4% in the Smart Grid Index (SGI), which benchmarks ninety two (92) utilities across thirty six (36) countries and markets. The SGI is a global assessment tool that evaluates the intelligence and maturity of electricity grids based on seven (7) key dimensions: monitoring and control, data analytics, supply reliability, distributed energy resources integration, green energy adoption, grid security and customer empowerment and satisfaction. TNB's strong performance reflects its ongoing commitment to digital transformation and grid modernisation.

This ambition is guided by three (3) core Smart Grid objectives:

01
To support renewable energy generation and improve grid visibility through automation and control

02
To optimise voltage and enable bi-directional energy flows for better integration of customer-owned generation systems

03
To empower customers with improved data access for smarter energy management

Key Targets

Top 20 Utilities
by end of 2030

LED Relamping target of
700,000 units
installed by end of 2026

Volt-Var Optimisation (VVO) targets of
1,120 MVAR
by end of 2027

Smart Meter Installation target of
10.4 million units
installed by end of 2030

TNB has also set key targets to support this transformation: the installation of 700,000 LED street lighting units by 2026, the deployment of 1,120 MVAR in Volt-Var Optimisation (VVO) systems by 2027 and the rollout of 10.4 million smart meters across Malaysia by 2030. These initiatives will collectively enhance operational efficiency, grid flexibility and customer engagement as part of Malaysia's broader energy transition.

OPTIMISING OUR NETWORK ASSETS

We have implemented a range of initiatives to optimise our network assets in line with ISO 55000 Asset Management standards, reinforcing our commitment to operational excellence and long-term asset sustainability. Key smart grid initiatives include the expansion of Advanced Metering Infrastructure (AMI), the deployment of real-time network monitoring and control systems, and the optimisation of distribution network assets through advanced asset performance management and data analytics. Following the introduction of our enhanced Asset Management Policy, several critical projects have been implemented to fortify and streamline our network.

Advanced Metering Infrastructure (AMI)

Advanced Metering Infrastructure (AMI) plays a pivotal role in enhancing TNB's Smart Grid capabilities, particularly by enabling greater customer empowerment and energy transparency. In 2024, we successfully installed 949,226 smart meters, on track to meet our target of 888,000, bringing our total installations to 4,498,715 across Klang Valley, Melaka, Kedah, Johor, Penang and Pulau Tenaga Hijau. TNB aims to install a total of 10.4 million smart meters in Peninsular Malaysia by end of 2030. To achieve this target, we are conducting comprehensive reskilling and upskilling programmes to support competency and capability building. In 2024, we trained 13,700 installers and staff through these programmes.

The AMI opens up new capabilities and functionalities, transforming the grid into smarter, more advance and efficient through digitalisation. The system allows our customer to monitor their electricity usage in 30-minute intervals, fostering more informed and sustainable energy choices.

These advancements are driving tangible outcomes: RM74 million in national energy savings through improved user behaviour, 165 million kWh of energy conserved and 115,000 tons of carbon emissions avoided, equivalent to the carbon sequestration of 1.3 million tree seedlings grown over ten (10) years. This initiative aligns closely with the Malaysia Energy Literacy Program (MELP), aiming to cultivate energy-conscious behaviour among Malaysians.

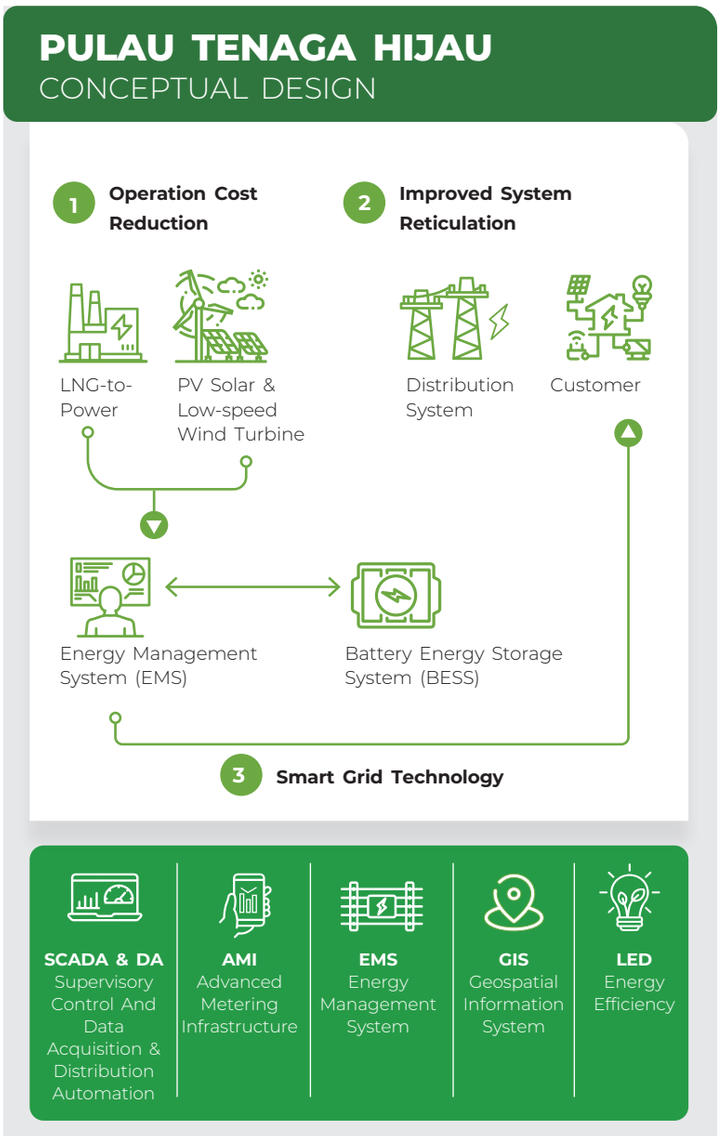
Moving forward in Regulatory Period 4, smart meters would continue to be installed in Selangor, Johor and Negeri Sembilan. AMI is expected to further enable us to introduce innovative features such as remote energisation and de-energisation, improving service reliability and enabling flexible prepayment schemes in the future.

For our metrics on AMI, please refer to the performance tables at the end of this chapter.

Pulau Tenaga Hijau

Pulau Tenaga Hijau (PTH), also known as the Smart Green Island project, is one of our initiatives aimed at using clean and hybrid energy systems to promote the conservation of the islands' natural environment and habitats. The PTH Project is anchored on three strategic pillars:

1. Reduction of Operational Cost – by replacing diesel with sustainable energy sources,
2. Smart Technology – for better control, visibility and efficiency,
3. System Reticulation – optimising the grid layout to improve reliability and integration of renewables.



MM2: ENERGY TRANSITION AND INNOVATION

Key development in 2024:

- Pulau Tioman was confirmed as the third PTH, with RM8.42 million approved under RP4 for a 1MWh BESS and a 420kWp solar PV system, incorporating a Community Energy Storage System (CESS). The solar PV will be relocated to Stesen Janakuasa Luarbandar Pulau Tioman, with full commissioning planned in 2025. Interim smart grid upgrades include 19 Online Feeder Pillars, fibre infrastructure and a Distribution Intelligent System (DIS).
- In Pulau Redang, a 120kWp Building Integrated Photovoltaics (BIPV) system at Sekolah Kebangsaan Pulau Redang was successfully commissioned, supplying up to 110kWac of zero-carbon electricity directly into TNB's grid and doubling as a pedestrian walkway roof. Although the school does not directly consume the generated power, the initiative strengthens Malaysia's sustainability goals and raises local awareness.
- Pulau Perhentian and Redang, with six (6) online feeder pillars installed (two (2) in Perhentian, four (4) in Redang) for enhanced smart grid monitoring. The BIPV system at Pulau Perhentian Mosque continues its good performance since commissioned in 2023, with an option for adding energy storage system in near future.

Reduced Cost Operation

- **30 November 2023**
  120kWp Building Integrated Photovoltaic (BIPV) in Masjid Pulau Perhentian
- **30 April 2024**
  120kWp Building Integrated Photovoltaic (BIPV) in Sekolah Kebangsaan Pulau Redang

Smart Grid Technology

Online Feeder Pillar

- **2** Units in Pulau Perhentian
- **4** Units in Pulau Redang
- **19** Units in Pulau Tioman
- Distribution Intelligent Switch (DIS) in Pulau Rendang

LED Streetlighting

- **52** Units in Pulau Perhentian
- **128** Units in Pulau Redang
- **637** Units in Pulau Tioman

Meter Pintar

- **321** Units in Pulau Perhentian
- **526** Units in Pulau Redang
- **1,642** Units in Pulau Tioman

Geographic Information System (GIS)

- **100%** Pulau Redang & Pulau Perhentian
- **61%** Pulau Tioman

This initiative was driven by comprehensive planning with proactive engagements and collaboration with multi-agencies, relevant authorities to facilitate effective execution of the project. Aligned with the broader energy transition timeline under the PTH Project, TNB aims to maximise solar deployment beyond 2027 through Distributed Energy Resources (DER) programmes. These efforts will support self-generation and reduce reliance on fossil fuels at the customer level. The project is expected to generate widespread socio-economic and environmental benefits, contributing to national goals for a sustainable and inclusive energy future.

COUNTRY

1. A leader in low carbon footprint & smart energy at the ASEAN level.
2. Align with RMK-12: Accelerating Green Growth to increase Environmental Sustainability.
3. Driving an educational system that is based on green technology and new technology.
4. Conservation of the environment including coral reefs.

GOVERNMENT

1. Become a pillar in the implementation of the "green initiative" in the islands.
2 Encourage new innovations i.e.: Smart Green Island.
3. Mobilising the development of reliable electricity supply to drive economic growth.

STATE

1. The first Smart Green Island in ASEAN will be a new attraction for the tourism industry.
2. Stimulating the economy on the islands.
3. Promote green energy capabilities in the islands.

CONSUMER

1. Availability and reliability of a better electricity supply system.
2. Reducing the operating costs of business operators in the island.
3. Users are able to manage and plan energy use more efficiently (EE).
4. Real time visibility and online transactions can be enjoyed by users.

PTH benefits' across different sectors

MM2: ENERGY TRANSITION AND INNOVATION

Distribution Automation (DA): Real-time Network Monitoring and Control

Distribution Automation (DA) forms a critical foundation in TNB's journey toward building a fully integrated Smart Grid. By leveraging advanced control, monitoring and communication technologies, DA significantly enhances the operation and management of power distribution networks. Its core objectives include minimising outage durations, improving power quality and maximising the efficiency of distribution assets. Importantly, DA equips TNB's Control Centres with enhanced capabilities to monitor and manage the integration of Distributed Energy Resources (DER), fostering a more resilient and responsive grid. Beyond technical performance, Distribution Automation also contributes to safer working conditions by reducing the risk of accidents among operational personnel, supporting both operational excellence and workforce well-being.

We are actively accelerating the deployment of Distribution Automation (DA) across our substations, with a strong focus on enabling advanced remote monitoring and control capabilities. These upgrades are integral to improving the efficiency, responsiveness and reliability of our power distribution network. By enhancing real-time visibility and operational control, DA supports faster outage restoration, optimised asset utilisation and improved service continuity, directly benefiting our customers. As part of our long-term grid modernisation strategy, we aim to expand DA coverage to 64% by 2027 and reach 84% by 2030, strengthening the foundation for a smarter, more resilient energy system. The table below highlights key milestones that reflect our ongoing progress in DA implementation.

Metric	Progress
Typical Restoration Time	Most outages restored within 15 minutes
New Substations Equipped with DA (2024)	4,565 substations (serving ~500,000 customers)
Cumulative DA Coverage (as of 2024)	32,905 substations (serving ~3.6 million customers)

Voltage and Reactive Power Management

Volt-Var Optimisation (VVO) optimises voltage and reactive power management in the distribution network, to achieve network loss savings, enhance voltage stability and minimise the impact of renewable energy integration. By keeping voltage levels more stable and efficient, VVO helps reduce electricity losses and improve the overall performance of the grid, especially as more renewable sources like solar and wind are added. This initiative is expected to reduce losses by 1.61 GWh through planned capacitor bank installations. In 2024, we commissioned 140 MVAR. Cumulatively, 890 MVAR have been installed, representing 79.5% progress toward our goal of 1,120 MVAR by 2027.

Online Feeder Pillar (OFP)

The Online Feeder Pillars (OFP), also known as Smart Feeder Pillars enable near real-time, remote monitoring of energy flow within distribution networks. These smart devices help TNB monitor electricity usage and flow across neighbourhoods or industrial areas. Through continuous data transmission, OFP enhances network visibility, allowing accurate and efficient energy distribution and management. This leads to quicker responses to faults, reduced downtime and better service reliability for customers.

Power Quality Management System (PQMS)

The Power Quality Monitoring System (PQMS) comprises of online power quality recorders installed at TNB's *Pencawang Masuk Utama* (PMU) and *Pencawang Pembahagian Utama* (PPU), that detects, records and diagnose the occurrence of the quality of power disturbances in the Distribution Networks (DN) that can affect the operations of TNB prime customers. The quality of power disturbances detected are power outages, voltage regulation (under/over voltage), frequency regulations (under/over frequency), voltage sags etc. These disturbances, if unmanaged, can damage equipment or disrupt operations, especially for large commercial and industrial users. The data from the power quality recorders are stored in the PQMS servers. By using this real-time data and maintaining direct communication channels with customers (such as WhatsApp groups), TNB can quickly alert affected parties, assist in restoration and help minimise operational losses. With the PQMS data and via WhatsApp groups with customers, TNB can provide immediate information to prime customers that have experienced operation interruptions and assist them in the restoration process and thus reducing their operation losses.

PQMS monitors the performance and operations of PMU and PPU, ensuring reliable power supply to our customers.

Power Quality Monitoring System Web (PQMSWeb)

The Power Quality Monitoring System Web (PQMSWeb) is designed to compile all data from PQMS servers, to allow reporting and documentation of complaints from TNB prime customers as well as preparation of reports for customers and Energy Commission. This web-based platform acts as a central dashboard, making it easier to track, analyse and respond to power quality issues. By streamlining reporting and documentation, PQMSWeb supports faster resolution of customer concerns and ensures regulatory compliance with transparent, data-driven reporting.

Advanced Distribution Management System (ADMS)

Advanced Distribution Management System (ADMS) integrates various utility system applications, offering automated capabilities for efficient outage restoration and distribution grid optimisation. ADMS acts as a smart control centre that helps TNB detect, respond to and prevent issues in the power grid. This system reduces technical losses, enhances work safety and strengthens grid resilience against natural disasters and other disruptions, ensuring a reliable power supply to end users. From 31 December 2024, ADMS has been integrated with Geographic Information System (GIS) to cater for the requirement of the medium voltage data for the Distribution System Operator (DSO) in managing the medium voltage distribution network. This integration enhances the accuracy and speed of decision-making by linking grid data with physical locations on a map, enabling quicker troubleshooting and more efficient network planning.

Mapping the Future: GIS in Distribution Network

The primary goal of implementing a Geographic Information System (GIS) within the distribution network is to systematically map network assets in relation to customer locations, power lines, infrastructure and distributed energy resources (DERs). This comprehensive digital mapping allows TNB to visualise the entire electricity network in real time, improving the efficiency, reliability and responsiveness of grid operations. This comprehensive mapping is crucial for improving the management and optimisation of the entire distribution network.

In December 2024, the GIS for the distribution network has successfully completed 100% of its medium voltage (MV) data mapping. This dataset includes 90,142 substations interconnected with 126,403 kilometres of MV underground cables and 17,179 kilometres of MV overhead lines, covering whole Peninsular Malaysia. This coverage ensures near-complete visibility of the grid at the MV level, supporting faster fault detection and more reliable power delivery. Additionally, 45% of the low voltage (LV) data has been completed in the GIS, establishing connections between LV assets and networks to approximately 4.5 million out of a total of 10.2 million customers in Peninsular Malaysia.

OPTIMISING GRID ASSETS AND EFFICIENCY

As one of the recognised top performers in the International Transmission Operation & Maintenance Study (ITOMS), we continue to be a leader among international transmission utilities. One significant stride in our journey has been the integration of IEC61850 technology, pivotal for the modernisation of digital substations.

Digital Twin

TNB is venturing into the use of digital twins, a virtual representation of physical assets that mirrors their real-world behaviour to meet the growing demands of modern energy infrastructure. By deploying digital twins, TNB aims to gain deeper insights into asset performance, predict potential failures, and optimise maintenance strategies. The Digital Twin includes various elements that support its implementations.

Substation Digital Intelligent Infrastructure (SDII)

Development of an open data platform to provide ready access to quality real-time data, through leveraging TNB's internal Real-Time Application Platform (RTAP) and Intelligent Electronic Devices (IED) within grid substations. The deployment of SDII is a leap forward, providing real-time data integration and insights that drive better operational decisions. These technologies have not only enhanced our grid's efficiency but have also set a high standard for asset management and preventive maintenance.

Self-Healing Grid and Grid Integrated Special Protection Scheme

The enhancement of our Self-Healing Grid capabilities through the Wide Area Intelligent System (WAIS) underscores our proactive approach to managing the complexities of the grid. Since 2010, TNB Grid Division has implemented Special Protection Schemes (SPS) to enhance grid reliability and prevent cascading outages. To address challenges posed by network expansion and renewable energy integration, the Integrated SPS Digital Twin was launched. This in-house innovation simulates and optimises the entire SPS system using real-time data, enabling proactive issue resolution and enhanced grid management.

MM2: ENERGY TRANSITION AND INNOVATION

Automatic Fault Analysis (AFA) and Asset Performance Management System

AFA is TNB's internally developed system that provides automatic detection and detailed fault analysis to improve decision making by operation and maintenance teams during unplanned outage and restoration processes. Improvements in response time during unplanned outages and restoration processes. Additionally, there have been efficiency improvements with less patrolling time during the Overhead Line (OHL) fault locating process, as well as a reduction in multiple site visits during preliminary investigations upon tripping. Furthermore, the increased availability of OHL corridors and a reduction in capital expenditure (CAPEX) through the implementation of an optimum disturbance recording modular installation.

Advancements in the AFA system have resulted in more efficient fault location identification and enhanced decision-making processes.

Asset Performance Management System (APMS)

The Asset Performance Management System (APMS) is a key enabler in strengthening TNB's asset maintenance strategy, helping to ensure the reliability of critical infrastructure across the transmission and distribution network. By providing real-time insights into the condition of assets through indicators like the Asset Health Index (AHI) and Asset Risk Index (ARI), APMS supports smarter, risk-based maintenance planning.

Asset Investment Planning Management

Complementing these technological upgrades, the Asset Investment Planning Management (AIPM) system facilitates a strategic analysis of investment opportunities, enhancing the grid reliability and operational capabilities.

Generation Connection Management System (GCMS)

To facilitate easier applications of grid-connected projects, Grid is embarking on the Generation Connection Management System (GCMS). The GCMS is a digital platform that allows external parties (consultants/developers) to submit applications for Power System Study and Model Validation in grid-connected projects in Peninsular Malaysia. The GCMS platform automates generator application processes, enhancing efficiency, data security and overall productivity.

Geospatial Land Value Information (GeoLVI)

Geospatial Land Value Information (GeoLVI) in Grid Land Planning System (GLPS) is a platform to store land transactional value with geolocation hence capable to do geospatial & statistical (land value analysis) for proposed Annual Transmission Development Plan (ATDP) & Target Network Project (New Subs & OHL). The land value data will be used as a reference to estimate the land cost for future Projects.

Nested Drone

With the growing number of substations in the Grid Division, adopting advanced technologies like drones has become essential for efficient and routine inspections. By integrating the substation inspection process into a digital platform with visual analytics, we aim to enhance productivity and operational efficiency. Leveraging a data-driven approach, Grid Division is pioneering the use of nested drone technology to revolutionise substation inspections, ensuring higher precision and improved outcomes.

Flexible Energy Storage Solutions

Utility Scale Battery Energy Storage System

To meet escalating energy demands and the nation's goal of integrating up to 6 GW solar penetration by 2025, we are advancing the deployment 100 MW/400 MWh of utility scale Battery Energy Storage Systems (BESS) at Santung, Terengganu to ensure the security, reliability and stability of the national grid. We have initiated preliminary feasibility studies and obtained Suruhanjaya Tenaga approval to implement the project with targeted completion by December 2026. We are also actively participating in open bidding programmes of other utility-scale BESS projects by the Energy Commission to enable the acceleration of renewable energy in Malaysia.

As part of our global business expansion, we are also planning to install BESS at Eastfields and Bunkers Hill in the United Kingdom, with capacities of 25 MW and 40 MW, respectively. These systems will support two (2) greenfield solar power plants totalling 102 MWp. These BESS projects offer key benefits, including grid stabilisation, peak load management, and carbon emissions reduction.

In East Malaysia, our subsidiary Sabah Electricity Sdn. Bhd. (SESB) is developing a 100MW/400MWh BESS in the East Coast of Sabah that is expected to be completed by mid of 2025. The system will provide peak shaving and/or load shifting function with configuration for additional functions such as spinning reserve, frequency/voltage regulation, and enables higher integration of intermittent renewables. The operation of the system is expected to increase Sabah's electricity grid reserve margin at peak period as well as increase higher integration of solar energy sources such as Large Scale Solar (LSS).

Community Energy Storage System (CESS)

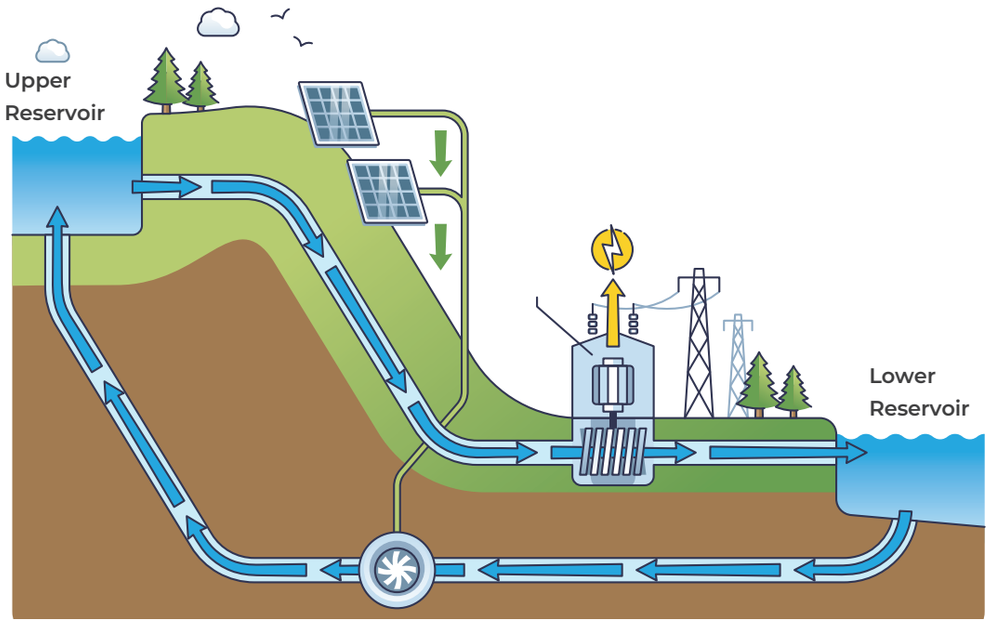
We have successfully implemented three (3) CESS projects in Elmina Township in collaboration with Sime Darby Property Berhad. These systems allow more integration of solar rooftop PV in Elmina. CESS harnesses green energy from PV sources by storing excess energy generated during periods of high availability and releasing the stored energy during peak demand or when renewable sources are not producing. This leads to a more stable and reliable grid with a higher share of clean energy sources.

Installed at Elmina Ilham Residence, these lithium-ion battery units, with capacities ranging from 76.8 kWh to 170 kWh will store excess green energy generated from rooftop solar panels during daytime and use the energy at night for localised consumption for the respective area. A new technical specification for CESS 150 kW 430 kWh has been developed for future installation of CESS.

Community Energy Storage Solutions (CESS).

Long Duration Energy Storage (LDES)

TNB is exploring a LDES solution with a potential of 1,750MW at our hydro power plants utilising Hydro Energy Storage System (HESS). Technically, HESS stores energy by pumping downstream water at the hydro plant back into the dam during periods of excess energy generated from non-dispatchable renewable resources such as Solar PV. The stored water can be utilised to generate electricity in stabilising the grid due to the dynamics of Renewable Energy generation and electricity demand, and assist in restoring the power system in the event of blackout. Additionally, HESS can complement the intermittency power generation caused by solar PV thus allowing higher capacity of solar PV to connect with the Grid, supporting the National Energy Transition Roadmap's goals.



HESS uses a system of two interconnected reservoirs with one at a higher elevation than the other. During the period of surplus energy (pumping mode) water is pumped from lower reservoir to upper reservoir using excess energy from solar. Whereas during the period of excess demand (generating mode), water is released from the upper reservoir and flows down through turbines to generate electricity.

MM2: ENERGY TRANSITION AND INNOVATION

EMPOWERING CROSS-SECTOR ELECTRIFICATION AND PROSUMERS

Dynamic Energy Solutions

Consumers play a crucial role in driving a successful energy transition. In 2024, we made significant strides in creating a sustainable transportation ecosystem, encouraging the adoption of renewable energy and empowering consumers through green mobility digital solutions.

TNB's 10-year roadmap for Malaysia's EV Industry

"SEED" 2022-2024

CHARGING INFRA
- Business model as charge point operator
- Partnership
- Platform and mobile app

ADVOCACY
- Local authorities on EV charges permit
- EV charging rate incentives study
- Submission of paper to the government
- Industry coalition

R&D
- Smart charging
- Network impact

INITIATE
- TNB fleet electrification
- Staff incentive
- Langkawi as EV hub
- Reskilling by ILSAS

"DEPLOY" 2025-2027

- Build up EV charging points
- Operate EV charging network

Initiate R&D on Vehicle-to-Grid (V2G) and autonomous vehicle

Electrify TNB's fleet (30%)

"SCALE" 2028-2030

One-stop EV solutions provider

- Advocating for autonomous vehicle
- Leverage Vehicle-to-Grid technology

Electrify TNB's fleet (30%)

Electrification of Mobility through Grid Upgrades and Charging Infrastructure Development

TNB plays a vital role in developing the battery electric vehicle (BEV) ecosystem by ensuring that the grid and network are equipped to meet the increasing demand for charging infrastructure. Reinforcing our commitment to this sector, TNB has allocated RM90 million for investments from 2022 to 2025.

As a founding member of the Malaysia Zero Emissions Vehicle Association (MyZEVA), TNB collaborates with the Malaysian government and regulatory bodies to shape the nation's EV landscape. MyZEVA unites more than 50 stakeholders to advocate for BEV policies and initiatives. It serves as a central hub for research and industry insights, supporting policy proposals such as EV charging system safety guides, incentives for EV manufacturers and inputs for the *Garis Panduan Perancangan Petak Pengecasan Kenderaan Elektrik* (GPP EVCB). TNB's involvement in MyZEVA strengthens its commitment to advancing sustainable transportation in Malaysia.

In 2024, TNB signed strategic Memorandum of Understanding (MoUs) with AEON/AEON BiG, PETRON and BHPetrol to accelerate electric vehicle (EV) adoption in Malaysia. These partnerships align with the National Energy Transition Roadmap (NETR) and the country's net-zero aspirations by strengthening infrastructure readiness and making EV ownership more accessible and cost-effective.

The collaboration focuses on the following key areas:

- Deployment of TNB Electron charging stations at selected outlets and stations to expand the national EV charging network.
- Installation of solar photovoltaic (PV) systems to generate clean energy and reduce operational expenditure at partner locations.
- Conducting joint studies to support the integration of renewable energy solutions across the partners' operations.
- Facilitating the adoption of Malaysia Renewable Energy Certificates (mREC) to help reduce greenhouse gas emissions and promote environmental sustainability.

This partnership reflects TNB's growing role in shaping a robust and integrated EV ecosystem by expanding its charging infrastructure across highways, malls, commercial hubs and residential zones. In 2024, TNB has successfully built 66 charging points across Peninsular Malaysia, with plans for accelerated rollout. By integrating clean energy solutions and fostering cross-sector collaboration, TNB is positioning itself as a trusted energy partner in Malaysia's transition to sustainable mobility.

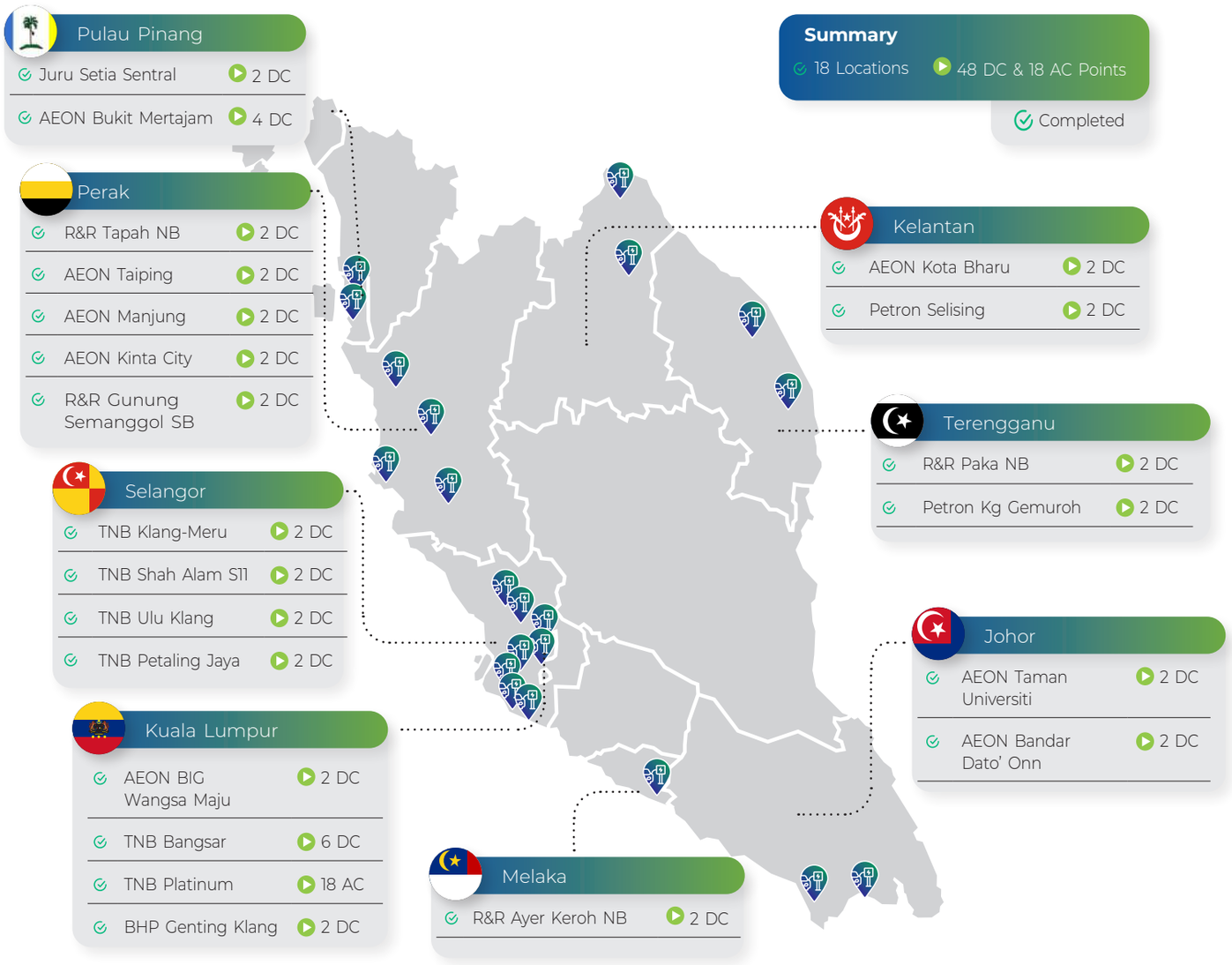
BEV CHARGING INFRASTRUCTURE

In supporting the growing demand for charging points, TNB focuses on two (2) key roles.

1. Supplying electricity infrastructure to Charge Point Operators (CPOs) via the EV Green Lane initiative. The EV Green Lane Initiative, designed to streamline the supply process and reduce lead times, has achieved an average processing time of 20 days for applications without substations and 50 days for those with substations.
2. Installing EV Charge Points under the brand name of TNB Electron. RM90 million has been budgeted, in which 66 charge points have been installed in 2024 and another 250 planned for installation by the end 2025.

TNB is promoting the growth of BEV ecosystem in Malaysia.

In 2024, TNB has successfully built 66 charging points across Peninsular Malaysia.



Completing the ecosystem, TNBX Sdn Bhd functions as our charging point operator in the EV market, while Tenaga Switchgear Sdn Bhd (TSG) as Engineering, Procurement, Construction and Commissioning (EPCC) partner, for TNB Electron stations.

MM2: ENERGY TRANSITION AND INNOVATION

ADVANCING GREEN MOBILITY THROUGH ELECTRIC VEHICLE (EV) TALENT DEVELOPMENT

In alignment with Malaysia's national energy transition agenda, TNB Integrated Learning Solution Sdn. Bhd. (ILSAS) is dedicated to raising awareness and cultivating new talent in the battery electric vehicle (BEV) sector through innovative and future-focused learning interventions.

To accelerate progress, ILSAS has established strategic partnerships with key industry stakeholders, including the Malaysian Green Technology and Climate Change Corporation (MGTC) and Bermaz Auto Berhad. These collaborations have enabled impactful capacity-building initiatives designed to equip participants with industry-relevant, future-ready skills within the EV ecosystem.

From 2022 to 2024, more than 173 individuals have benefited from the ILSAS EV training programmes – demonstrating a clear and growing interest in green mobility capabilities.

Looking ahead, TNB ILSAS is committed to positioning itself as Malaysia's premier EV training hub. This includes forging new strategic collaborations with Weststar to strengthen capacity building for TNB EV fleet initiative under Fleet Management Department, in support of the national goal to decarbonise the transport sector and foster a sustainable, future-ready workforce.

POWERING RAPID DATA CENTRE GROWTH

Green Lane Pathway

Data centres are energy intensive facilities, requiring substantial and uninterrupted power to run the server and cooling systems. The Green Lane Pathway initiative emphasises efficient and sustainable solutions for data centre operations, aligning with global trends towards greener technology. It facilitates the smooth setup of data centres in Malaysia through:

- Fast-Track Electricity Supply: Data centres can connect to the power grid three (3) times faster than usual, reducing setup time from 36-48 months to 12 months.
- One-Stop Centre (OSC): This facility provides dedicated support for data centre investors, simplifying the onboarding process and expediting related approvals.

TNB has experienced a notable increase in demand for electricity connections from data centres with 37 Electricity Supply Agreements (ESA) for a total demand of 5,765 MW signed in 2024.

In 2024 alone, we completed 9 data centre electricity supply projects, with a total energy demand of 1,236 MW. Since the establishment of the Green Lane Pathway, we have successfully completed eighteen (18) supply connections, meeting a demand of 1,856 MW.

SUPPORTING THE POWER-INTENSIVE HYDROGEN ECONOMY

As part of our broader goal, the company is actively supporting the development of Malaysia's hydrogen economy as a decarbonisation strategy. In partnership with PETRONAS, a joint feasibility study on green hydrogen was completed in 2024, paving the way for a Strategic Collaboration Agreement to develop an end-to-end green hydrogen value chain and position Peninsular Malaysia as a regional hydrogen hub. Complementing this, TNB Research launched a pilot project to produce approximately 125,000 Nm^3 of green hydrogen annually using solar-powered electrolysis, with initial use in generator cooling and further applications under exploration.

For more information about our role in the hydrogen economy, please refer to MM3: Climate Change and Emissions.

UNLOCKING ENERGY MANAGEMENT SOLUTIONS FOR PROSUMERS

Rooftop Solar

In 2024, Ministry of Energy Transition and Water Transition (PETRA) launched Net Energy Metering (NEM) 3.0 and the Solar for Rakyat Incentive Scheme (SolaRIS) to encourage domestic customers to install solar PV systems. NEM 3.0 enables consumers to generate their own electricity from solar energy and export excess power back to the grid with a quota of 2,400 MW, where installed capacity is 1,468 MW in 2024. Leveraging this initiative, we continue to offer solar rooftop solutions through our subsidiary, GSPARX Sdn. Bhd.

The SolaRIS scheme is open to Malaysian citizens on a one-time basis per individual. In 2024, 19,081 customers received the SolaRIS rebate totalling RM76.2 million, administered by TNB.

As part of Malaysia's progressive energy transition agenda, PETRA is poised to introduce the Community Renewable Energy Aggregation Mechanism (CREAM)—a transformative initiative that will unlock the potential of underutilised residential rooftop spaces for clean energy generation. Set to be implemented based on the open grid access concept, CREAM will allow homeowners to lease their rooftops to third parties for the development of decentralised solar PV systems. These systems will generate and supply green electricity to local consumers via the existing distribution grid.

The mechanism presents a compelling opportunity for renewable energy developers to consolidate rooftop areas in line with regulatory requirements, fostering a new model of community-based energy production. CREAM is also expected to offer corporates the ability to procure locally sourced green electricity, further supporting Malaysia's broader decarbonisation objectives. With guidelines to be finalised by the Energy Commission in 2025, CREAM is set to enhance economic participation at both community and industry levels.

Prosumer Programme	Status
Rooftop Solar (via GSPARX) Through GSPARX, we empower customers by encouraging them to become prosumers through self-generated electricity. GSPARX allows customers (residential, commercial and industrial) to install solar PV at zero upfront cost and enjoy savings via self-consumption.	GSPARX has secured a total of 340MWp cumulatively of rooftop solar PV projects at government buildings, universities, commercial and industrial segments and successfully installed around ~105MWp for SARE and Outright Purchase projects.
Supply Agreement of Renewable Energy (SARE) SARE offers through TNBX, provides a seamless billing experience to both customers and asset owners, as it is a comprehensive agreement covering metering, billing and collection services and solar PV system offerings.	We have secured a cumulative capacity of 264MWp across 695 solar projects through SARE agreements.
SuriaShield TNBX, a subsidiary focusing on sustainable energy solutions, has launched SuriaShield to provide residential solar PV insurance.	In FY2023, 348 customers subscribed to SuriaShield as their trusted partner in protecting and maintaining their solar PV assets.

Refer to MM7 (Customer Experience and Satisfaction) on pages 112-117.

CUSTOMER EMPOWERMENT THROUGH DIGITALISED LIFESTYLES

Our customers play a crucial role in driving the energy transition through informed decisions and active participation in renewable energy and energy efficiency initiatives. In 2024, 7.26 million customers are enjoying solutions provided through the myTNB app. The combination of smart meter functionality and myTNB app enables customers to monitor their energy consumption in near real-time, effectively manage their budgets and track their electricity usage, facilitating efficient energy management.

Refer to MM7 (Customer Experience and Satisfaction) on pages 112-117.

Enhancing Customer Experience Through MyDigital ID

MyDigital ID is a government-backed digital identity initiative aims to enhance online service authentication by providing individuals with a secure and reliable digital identity. Aligning with this initiative, TNB has successfully implemented MyDigital ID as an additional login option, enhancing customer experience and cybersecurity.

This implementation received positive feedback from our customers, where a survey finding shows that over 90% of new and existing users would start using MyDigital ID as their main login method and would recommend MyDigital ID to other TNB customers. All the surveyees also agreed that the login option provides better and more convenient login experience.

Differentiated Solutions for Targeted Customers

Corporate Renewable Energy Supply Scheme (CRESS)

The Corporate Renewable Energy Supply Scheme (CRESS), introduced by Ministry of Energy Transition and Water Transformation (PETRA), is designed to enhance the adoption of green energy by allowing participants to supply or purchase green electricity through open access to the grid network with a pre-determined System Access Charge. CRESS enables Green Consumers to contract directly with Renewable Energy Developers (REDs) for green electricity and associated Renewable Energy Certificates (RECs). By participating in CRESS, Green Consumers can meet their sustainability objectives by offsetting their carbon emissions.

As Malaysia's national utility and the owner of the grid network, TNB plays a significant role in ensuring the success of this initiative. TNB is committed that the national grid remains reliable, resilient and capable of accommodating the growing volume of applications under CRESS, as more solar players participate in this initiative.

DRIVING INNOVATION FOR ENERGY TRANSITION

Our research and development in new technologies and innovations towards energy transition are overseen by the TNB Technology Committee. Its primary role is to drive innovation as we progress in our energy transition journey. This committee oversees our R&D and innovation strategy and policy, as well as the effective implementation of our technology roadmaps.

In 2024, the Technology Committee approved twelve (12) projects, with a total investment of RM79.2 million, for high-impact projects to innovate and advance all parts of the energy value chain, such as Carbon Capture, Utilisation and Storage (CCUS), hydrogen, energy storage systems, renewable offshore floating solar, interconnector, wave energy, alternative fuel co-firing and artificial intelligence. For more information on the projects can refer to MM3.

MM2: ENERGY TRANSITION AND INNOVATION

Energy Transition Innovation Solutions through Research and Development by TNB Research Sdn Bhd (TNBR)

Development of Tenaga – Predictive Emissions Monitoring System (T-PEMS)

T-PEMS is a predictive emissions monitoring system for power plant emissions that utilises artificial intelligence and data analytics techniques, optimising the effectiveness of the emissions monitoring system and demonstrating TNB's commitment to meeting regulatory compliance requirements. The system was successfully developed, tested and commissioned at two (2) turbine units at Sultan Ibrahim Power Plant (SIPP), Pasir Gudang and one gas turbine unit at Tuanku Jaafar Power Station (TJPS), Port Dickson, with high accuracy levels that comply with United States Environmental Protection Agency (USEPA) requirements. T-PEMS is certified as an alternative to gas analysers or Continuous Emissions Monitoring System (CEMS) for emissions compliance for gas turbine power stations in Malaysia.

Research on IoT Equipped Medium Voltage (MV) Switchgears for Grid of the Future Integration

As a part of Grid of the Future Integration, TNBR conducted research on the application of Internet of Things (IOT) on several MV switchgears at PPU Tasik Tambahan, PPU Kompleks Sukan, SSU Matrade, PMU Bandar Tun Razak and PMU KLCC. From this research, we have managed to reduce operational and maintenance cost through smart asset maintenance driven by analytics, triggers and notifications to detect early anomaly detection and avoid for potential load loss at selected substations.

Research on transformer oil using palm oil resources

TNBR has established a strategic collaboration with MPOB in developing palm oil refining and processing technology for electrical applications, while also engaging in joint research with academic institutions to improve the formulation of palm oil for long-term use. Additionally, the energy industry and electrical equipment manufacturers are involved in testing and adapting this technology within the grid system.

OUR PERFORMANCE

PERFORMANCE : ADDITIONAL INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target
G4 – EU29	–	RE Capacity	MW	3,780	3,989*	4,152*	8.3GW by 2025*
	–	Number of smart meters (AMI) installed	Number	838,830	873,740	949,226	360,000 annually
		Cumulative number of smart meters (AMI) installed	Number	2,675,749	3,549,489	4,498,715	10.4 million by end of 2030
–	–	Cumulative number of EV charging point	Number	3 DC	14 DC	48 DC	200 by 2025 (cumulative)
				3 AC	18 AC	18 AC	

**RE capacity is calculated using the equity capacity approach. Data for FY2023 has been reinstated to adhere to this approach.*

Note:
- *MW = Megawatt ; GW = Gigawatt*
- *Reinstated data on RE Capacity for FY2023*
- *Additional indicators disclosed to support the narrative and the target setting as per TNB's specific target.*

For more metrics on Customer Accounts and Business Performance, please refer to our performance tables on pages 154-158, 164-166.

MM 3

Climate Change and Emissions

WHY IS IT IMPORTANT?

The intensifying impacts of climate change pose significant financial, operational, legal and reputational risks that can impact long-term stability and profitability. Our decarbonisation efforts are anchored on the TNB carbon management strategy that focuses on reducing emissions and renewable energy growth.

Taking a decisive step towards combating climate change, Malaysia has developed the National Climate Change Policy 2.0 that is anchored on the principle of common but differentiated responsibilities. In TNB, we acknowledge the impact we have on climate change as well as the threats of climate change to our business. We consistently assess climate-related risks and opportunities to our assets, business operations and growth, with a robust climate adaptation and mitigation plan to enhance business resiliency.

The TNB Energy Transition Plan, which cuts across the electricity value chain, continues to direct focused efforts in addressing climate change and GHG emissions reduction as we transition to a low-carbon economy. In the spirit of Just Transition, we believe that building a strong and positive relationship with stakeholders and strategic partners is essential in view of the complexity and uncertainties inherent in energy transition.

[IFRS S2: 33h, IFRS S2: 36b]

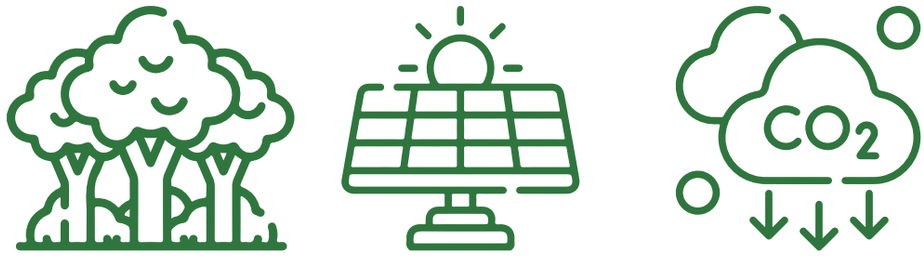
In support of targets outlined in the Paris Agreement and United Nations 2030 Agenda as well as Malaysia's Nationally Determined Contribution (NDC) to reduce economy-wide carbon intensity against GDP by 45% by 2030 compared to 2005, we set a target to reduce our annual carbon emissions intensity for Scope 1 by 5% annually beginning in the year 2024. This annual target reflects our steadfast commitment to achieve 35% carbon emissions intensity reduction by 2035 and net zero by 2050. To meet this target, we devised Carbon Management Strategy and Renewable Energy (RE) Capacity Expansion in focusing key areas to reduce emissions.

Opportunities

- Expansion of renewable energy portfolio and capitalising on green financing opportunities.
- Proactive adoption of innovative decarbonisation technologies and initiatives across the TNB value chain.
- Establish TNB as a leader in low-carbon technologies such as hybrid hydro-floating solar and hydrogen/ ammonia co-firing.

Risks

- Technological uncertainties as key decarbonisation technologies are still in early stages of development or deployment and consequently their commercial viability is yet to be verified.
- Significant initial financial cost for low-carbon technology development and implementation.
- Skills gap as the transition to a low-carbon economy requires a workforce with new and specialised skills.



MM3: CLIMATE CHANGE AND EMISSIONS

MANAGEMENT APPROACH

[IFRS S1: 33a, IFRS S1: 33b]

SERVING MALAYSIA'S ECONOMIC GROWTH WHILE REDUCING EMISSIONS

As Malaysia's economy progresses, electricity demand has shown consistent growth. Historical trends reveal that the national power sector's emissions has risen in tandem with GDP and electricity demand. From 2018 to 2024, Malaysia's GDP grew at a Compound Annual Growth Rate (CAGR) of 3.9%, surpassing the power sector's absolute emissions CAGR of approximately 1% and TNB's own absolute emissions CAGR of 0.8%. This indicates that TNB's absolute emissions has been contained at a slower rate compared to the growth in GDP working towards a greener fuel mix.

Looking ahead, Malaysia's GDP is projected to continue its growth trajectory from 2025 to 2030. The ongoing energy transition is expected to result in a reduction in emissions, while still supporting positive GDP growth. TNB's emissions is anticipated to decrease further through the effective implementation of its Energy Transition (ET) Plan.

For our metrics on GHG emissions and energy use, please refer to the performance tables at the end of this chapter.

TNB promoted TNB Energy Transition Plan during United Nations Climate Change Conference of the Parties 29 (COP29).

SCOPE 1 EMISSIONS: REDUCING OUR CARBON EMISSIONS INTENSITY

[IFRS S2: 14a (v); IFRS S2: 33, IFRS S2: 36b]

Our Carbon Management Strategy is built on 3 pillars: Reduce, Capture, Off-set. These 3 pillars aim to reduce our emissions by 5% annually from 2024 to achieve our target of 35% emissions intensity reduction by 2035 and Net Zero by 2050. The TNB Carbon Management Strategy and Renewable Energy Capacity Expansion was approved by the SETC (which chaired by the President/CEO, with members from TNB top management team, to ensure executive-level responsibility for carbon management matters) and acknowledged by TNB BSRC and TNB Board of Directors. The initiatives intend to reduce carbon emissions intensity from our operations and set the stage for long-term sustainability by integrating renewable energy and innovative carbon management technologies.

TNB's Strategy to Reduce Carbon Emissions Intensity

Emissions Intensity Target | **5%** annual reduction from 2024 | **35%** reduction by 2035 | Net Zero by 2050

Carbon Management Strategy

Three (3) carbon management strategies:

- **Reduce Carbon Emissions** – Lowering carbon emissions across the company (scope 1, 2 & 3).
- **Capture Carbon Emissions** – Capturing and storing of carbon dioxide (CO_2) before it is released into the atmosphere.
- **Offset Carbon Emissions** – Offset carbon emissions with the goal of reducing overall emissions over time.

Measures:
Carbon Emissions (tCO_2e)
Carbon Emissions Intensity (tCO_2e/MWh)

Renewable Energy Capacity Expansion

Capture RE growth potential in domestic and international markets:

Local

Capture Malaysia market through TRe & TPGSB:
- Large Scale Solar (LSS)
- Corporate Green Power Programme (CGPP)
- NETR (Solar park & HHFS)
- Third-Party Access (TPA)

International

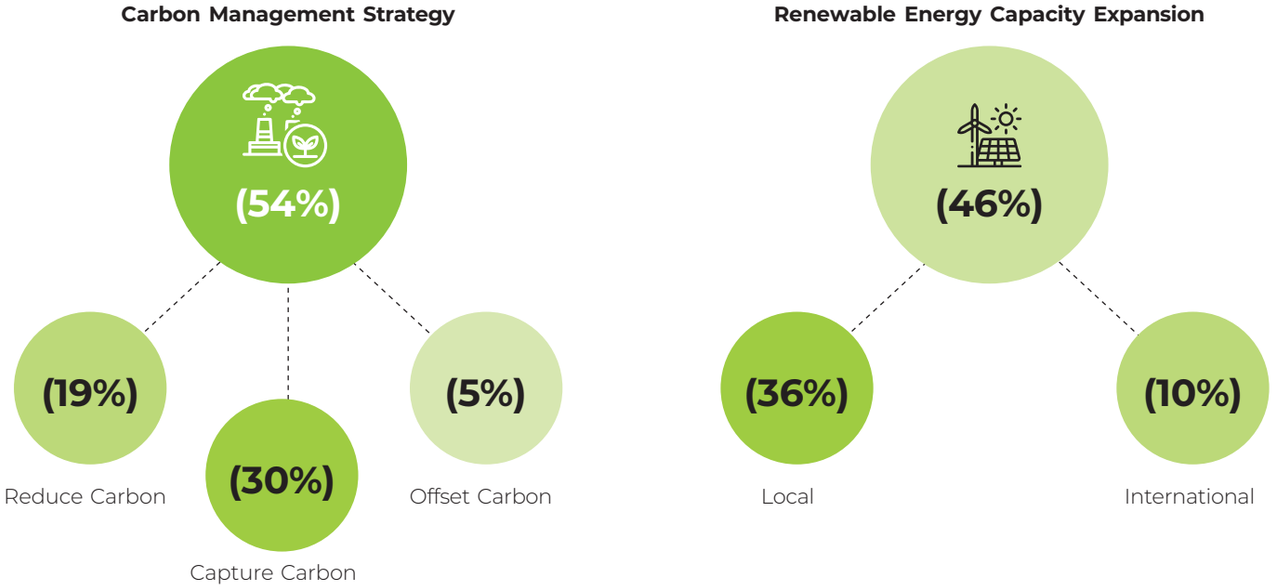
- Capture United Kingdom market through Vantage RE.
- Capture Australia market through Spark Renewables

Embark on strategic partnership for new technology, e.g., grid-scale BESS.

Measures:
RE Capacity (MW)
Net Generation from RE (MWh)

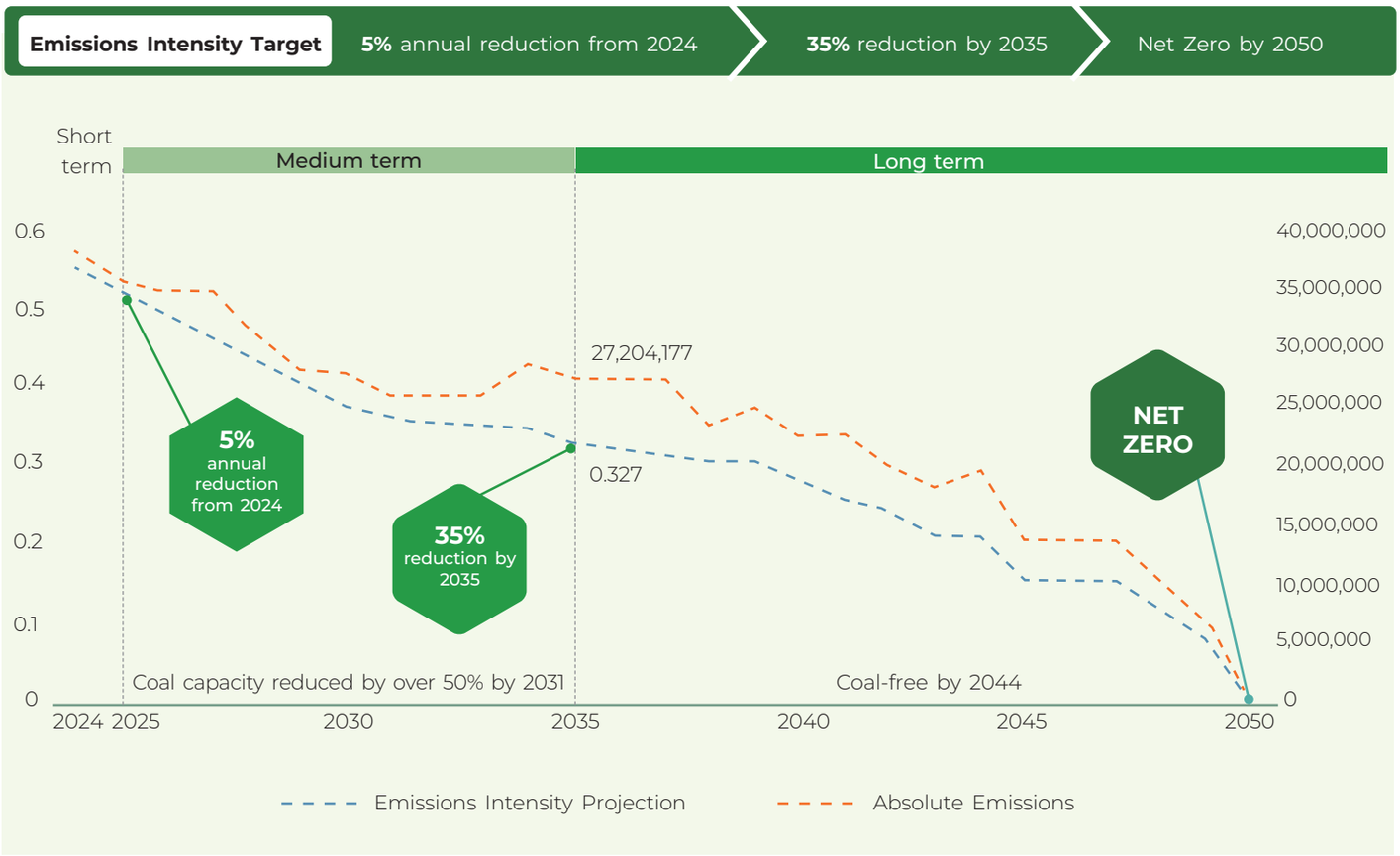
Through our Carbon Management Strategy and Renewable Energy Capacity Expansion, we project the following emissions intensity reductions by 2050 compared to 2024:

Expected Carbon Emissions Intensity Reduction by 2050 Compared to 2024



MM3: CLIMATE CHANGE AND EMISSIONS

TNB Emissions Intensity Projection 2024 to 2050



CARBON MANAGEMENT STRATEGY: REDUCE

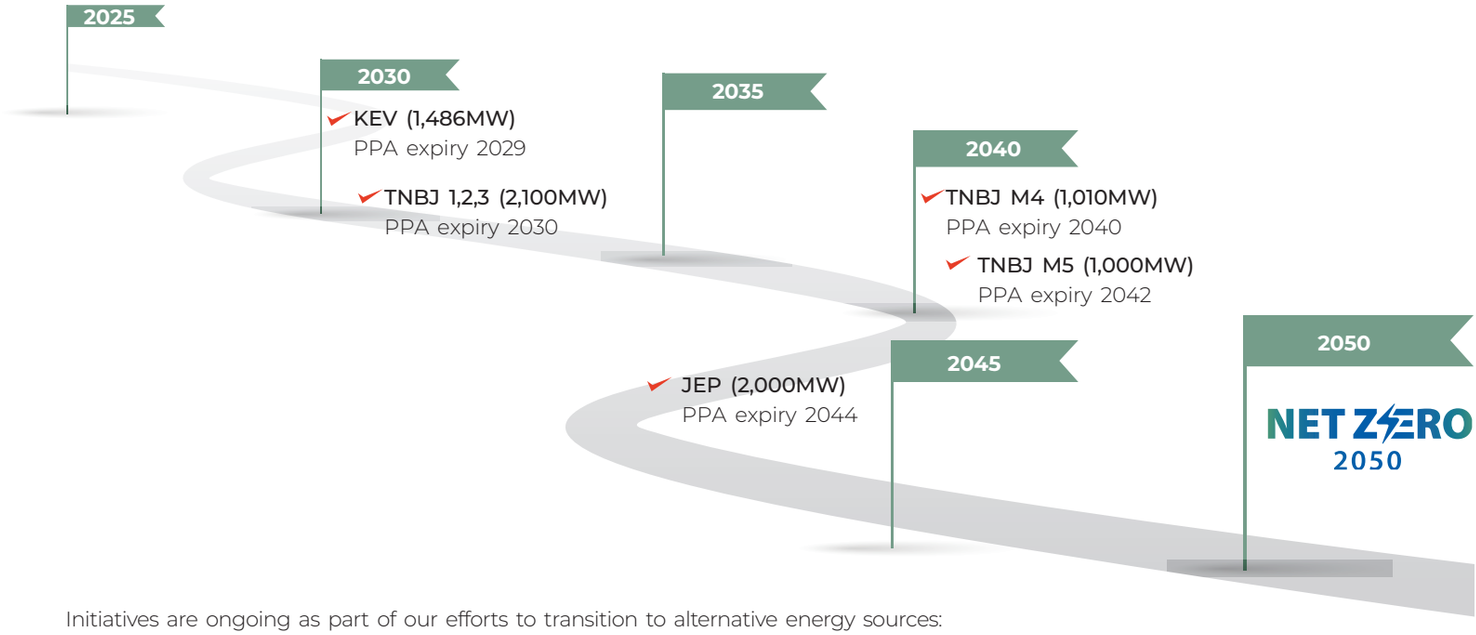
Recognising our reliance on fossil fuel generation, our primary focus is on reducing our Scope 1 emissions. Initiatives are largely focused on enhancing our plant efficiency, transitioning energy sources to phase out of coal plants and decarbonising existing thermal power plants. Through this pillar, we are committed to reducing our emissions intensity by 19% by 2050.

Enhancing Power Plant Efficiency

Carbon emissions is reduced by optimising fuel consumption at our thermal power plants to generate the same amount of electricity. To achieve this, we continuously monitor the heat rate of our thermal power plants and implement various efficiency enhancement initiatives, which include coal blending, periodic boiler cleaning, condenser cleaning and compressor washing. We also leverage on Digital Twin technology to optimise power plant performances by simulating different scenarios and identifying the most efficient operating conditions.

Transitioning Energy Sources

TNB is committed to no longer investing in greenfield coal plants since 2021. We continue to explore the feasibility of retiring our coal-fired power plants ahead of schedule, subject to shareholders' agreement and approvals from relevant authorities and regulators. This is expected to reduce emissions from our coal power plants, as they retire according to their respective Power Purchase Agreements (PPAs), as follows:



Initiatives are ongoing as part of our efforts to transition to alternative energy sources:

Hydrogen Fuel: Paving the way for a Sustainable Energy Future

Building upon the TNB-PETRONAS MOU entered in 2022 to decarbonise the energy sector, a joint feasibility study on green hydrogen as an alternative clean energy was completed in 2024. Both parties are entering into a strategic collaboration agreement to explore a joint venture for the development of an end-to-end green hydrogen value chain towards establishing Peninsular Malaysia as a green hub.

Hydrogen Production for TNB Power Plant Operations

In 2024, TNB Research Sdn. Bhd. (TNBR) initiated a project on a green hydrogen production system that is feasible, efficient and scalable for the power sector. A 500 kWp rooftop solar installation, coupled with a 1 MWh battery system, would supply the energy needed by the electrolyser to produce an estimated 125,000 Nm^3 of green hydrogen annually. The green hydrogen produced will be used for generator cooling at one of TNB's power plants, while other potential applications are being explored simultaneously.

Ammonia-Biomass Co-firing at Coal Power Plants

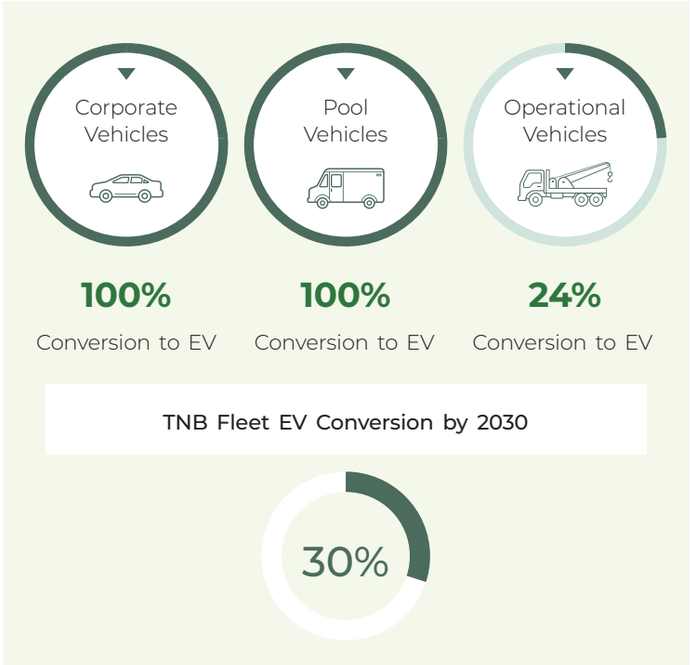
Following the successful execution of the Empty Fruit Bunch (EFB) Pellet Trial Burn at the Jimah East Power (JEP) (1,000MW Unit 2) Power Plant, further assessment and studies are ongoing to evaluate the technical behaviour under increased concentrations.

Biomass as Sustainable Fuel of the Future

In 2024, TNB Fuel Services Sdn. Bhd. (TNBF) supplied and delivered 4,305 metric tonnes of biomass in the form of EFB pellets to Tanjung Bin Power Sdn. Bhd., a subsidiary of Malakoff Berhad, as part of the co-firing project in the NETR.

EV Fleet Conversion

We target to electrify 30% of our fleet by 2030, in support of NETR's goal of 20% EV adoption by 2030. Our EV fleet conversion covers a wide range of pickups, vans, passenger cars and specialised units. We aim to replace over 1000 units to significantly reduce our Scope 1 emissions. We have already deployed 157 EVs, including 138 technical operational vehicles and 19 corporate vehicles, marking a strong start towards our fleet electrification goals.



MM3: CLIMATE CHANGE AND EMISSIONS

CARBON MANAGEMENT STRATEGY: CAPTURE

Carbon emissions from thermal power plants continue to pose a critical challenge in the transition towards a low-carbon future. In response, as part of our net zero emissions, TNB has earmarked the use of advanced carbon capture & utilisation (CCU) technologies to contribute 30% of the emissions intensity reduction by 2050. These efforts are centred on two key pathways: carbon capture, involving the development of innovative bio-based and chemical systems to absorb and capture CO_2 efficiently; followed with carbon utilisation, which explores both biological and hydrogenation-to convert captured CO_2 into valuable products. TNB Research (TNBR) has been at the forefront of this innovation since 2011, researching several CCU projects.

One of the key research projects in this field is the development of Project Dragon since June 2024 at the Jimah East Power (JEP) coal-fired power plant. This project aims to capture up to 5,000 kg of CO_2 annually using innovative amine solvent-based technology. The CO_2 gas can be utilised for various process and applications, including e-fuel (methane/methanol) production, microalgae cultivation and promoting High Growth High Value (HGHV) agriculture industry. In this respect, the project is planned to utilise captured emissions for algae, crops and e-fuel, for example, to supply higher concentration of CO_2 gas to dragon fruit plantations, the inspiration behind the project's name.

Another key research in this field is Project Chlorobloom will be launched in 2025 as an expansion of the CCU initiative through a microalgae -based CO_2 capture approach. Project Chlorobloom will utilise flue gas directly from TNB power plants to cultivate algae. The harvested biomass from microalgae cultivation can be commercialised and utilised by various industries, including aquaculture, animal feed production and bio-fertiliser manufacturing. Planned in three (3) phases (Chlorobloom 1, 2, and 3), the project will engage and empower local communities to build a self-sustaining carbon capture and utilisation (CCU) ecosystem rooted in circular economy principles. Through Chlorobloom, TNB aims to showcase the economic viability of biological carbon utilisation while fostering inclusive community participation and local value creation. Together, these projects reflect TNB's commitment to innovation-driven decarbonisation and to building scalable solutions aligned with national and global climate goals.

Advancing Carbon Capture, Utilisation and Storage (CCUS) Solutions Through Strategic Partnerships

The first stage of a CCUS joint feasibility study with PETRONAS was completed in the first half of 2024, on the costs involved in capturing carbon and transporting it to the receiving terminal for subsequent storage. In the next stage, TNB will undertake the study independently, focusing on sequestration costs and securing supportive government policy including carbon tax.

CARBON MANAGEMENT STRATEGY: OFFSET

Offset Carbon Emissions

We have been diligently investing in nature-based carbon offset initiatives to tackle hard-to-abate emissions. One of our offset strategies is reforestation, where we target to plant 40,000 trees annually, covering about 89 acres and sequestering approximately 1,600 tCO_2e. In 2024, a total of 49,214 trees were planted at 25 designated areas across the country, which is equivalent to approximately 91.65 acres and 1,968.60 tCO_2e sequestered.

Total number of trees planted:
49,214 at 25
designated areas across the country

- Areas planted:
  Approximately **91.65** acres
- Approximate sequestration:
  1,968.60 tCO_2e

For more about our offsetting strategy, please refer to MM8: Community Development and Social Impact.

We will continue to explore and invest in both nature-based and technology-based carbon offset initiatives, aiming for net zero by 2050.

Mangrove replanting helps to offset carbon emissions as well as mitigate coastal erosion.

RENEWABLE ENERGY (RE) CAPACITY EXPANSION

We aim to expand our RE capacity up to 22 GW both domestically and internationally to achieve our net zero aspiration. Domestically, through various programs such as the NETR, Large Scale Solar (LSS), Corporate Renewable Energy Supply Scheme (CRESS) and Corporate Green Power Programme (CGPP) we have operationalised 4,152 MW of renewable energy as of 2024.

As the demand for green energy in data centres continues to rise, we have a significant opportunity to enhance our renewable energy growth and work towards achieving net-zero emissions.

NETR projects

TNB is making substantial strides in its commitment to drive large-scale RE, championing two (2) flagship projects which are the Hybrid Hydro-Floating Solar (HHFS) and Centralised Solar Park (CSP) and partnering with Sime Darby for Residential Solar.

Hybrid-Hydro Floating Solar (HHFS)

Leveraging on the recently announced CRESS on 26 July 2024, as well as support from the state government, we are committed to deliver a total of 2,500MW by 2030. We are also looking at an additional 1,000MW of HHFS targeted to be completed in subsequent years.

HHFS projects at the Chenderoh and Kenyir hydro reservoirs are expected to be completed by 2026, while the HHFS at Temenggor is scheduled for completion by 2028. Our existing floating solar PV located on ash pond in Manjung comprises of 105.12kWp capacity and 100kWac pilot HHFS at Kenyir lake will serve as key references for the feasibility studies of the remaining phases of the project in the Terengganu and Kelantan schemes. As a key enabler, TNB has penned partnership with the relevant state agency, Terengganu Incorporated (TI) to ensure that the HHFS development is carried out successfully and responsibly. The commissioning of all projects is expected to avoid an estimated annual emissions of 4.44 million tCO_2e.

Centralised Solar Park

Under the NETR, our subsidiary TNB Renewables Sdn. Bhd. (TRe) is developing five (5) large scale solar parks each with a capacity of 150MWp (100MWac), totalling 750MWp (500MWac). These projects, in partnership with SMEs, cooperatives and state related entities, span across multiple states in Malaysia. The commercial operation dates are targeted in 2026 and are expected to avoid an annual emissions of 1.33 million tCO_2e.

Year	Capacity (MW)	Estimated Annual Emissions Avoidance (tCO_2e)
2026	170	301,920
2027	550	976,800
2028	750	1,332,000
2029	590	1,047,840
2030	440	781,440

**Estimated CO_2 avoidance assumes 1MW generation from RE = ~1,776 tCO_2e/year avoidance (ref: Sustainable Energy Development Authority).*

Pilot Floating Solar PV located on Kenyir dam with a capacity of 100kWac.

Phase	Capacity (MWp)	Projected COD	Estimated Annual Emissions Avoidance (tCO_2e)
1	300	2026	0.53mil
2	450	2026	0.80mil
Total	**750**		**1.33mil**

**Estimated CO_2 avoidance assumes 1MW generation from RE = ~1776 tCO_2e/year avoidance (ref: Sustainable Energy Development Authority).*

Partnership with Sime Darby Property for Rooftop Solar

TNB through its fully owned subsidiary, GSPARX Sdn. Bhd., has formed a corporate partnership with Sime Darby Property to construct the upcoming 4.5MW solar photovoltaic (PV) capacity for 450 homes in the City of Elmina and Bandar Bukit Raja, both located in Selangor.

As part of TNB's high commitment to ensure the best-in-class reliability of supply, special infrastructure has been incorporated into the distribution network in Elmina Ilham Residence, namely Community Energy Storage System (CESS), Voltage Regulated Distribution Transformer (VRDT) and online feeder pillar. This is part of the preparation for the upcoming installation of the solar PV system at the homes of City of Elmina.

In 2024, the partnership invested into ten (10) commercial sites where the solar PV installations were already rolled out, totalling 811kWp and avoiding 662 tCO_2e emissions annually.

MM3: CLIMATE CHANGE AND EMISSIONS

Other Domestic Projects

Nenggiri Hydroelectric Project

The 300 MW Nenggiri Hydroelectric Project has reached a completion status of 46.3% and is on track to achieve its Commercial Operation Date (COD) by Q2 2027. The commissioning of the hydro power plant is expected to avoid an estimated annual emissions of 0.53 million tCO_2e.

Corporate Green Power Programme (CGPP)

In 2024, we continue to develop the 90MW (154MWp) of solar generation capacity secured through the government launched CGPP. This capacity includes a wholly owned 30MW (45MWp) facility and two joint venture facilities, with a total capacity of totalling 60MW/109MWp.

Solar Rooftop

In 2024, with a total of 970 residential customers, 22 property developer customers and 132 commercial and industrial customers secured and onboard, TNB has empowered communities and businesses to embrace clean energy solutions. A total of 64.09MWp solar rooftop was successfully commissioned in 2024, contributing to a cumulative installed capacity of 168.97 MWp.

Solar Rooftop Project Type	Secured		COD*	
	MWp	Number of Customers	MWp	Number of Customers
Commercial Supply Agreement Renewable Energy (SARE)	146.11	111	49.78	79
Outright Purchase (OP): Commercial & Industrial	6.26	21	9.15	22
Outright Purchase (OP): Property Developer	1.59	22	0.44	2
Outright Purchase (OP): Residential	9.56	970	4.72	517
Total	**163.52**	**1,124**	**64.09**	**620**

** Inclusive of project secured in 2023*

International RE Project

TNB is driving international renewable energy expansion through strategic partnerships, spearheaded by 2 subsidiaries, Vantage RE in the UK and Spark Renewables in Australia.

	Solar (MWp)	Wind (MW)
Vantage RE	640.8	165.4
Spark Renewables	120.50	–

Note: The numbers above are based on aggregation.

Asset portfolio as of December 2024

In 2024, two greenfield solar power plants in the UK with a total capacity of 102 MWp are in construction with both sites targeted to achieve Commercial Operation Date (COD) by early 2025.

GHG Reduction initiatives and performance by Grid Operation

Sulphur hexafluoride (SF_6) is primarily used in the industry as an insulating medium in high-voltage switchgear and gas-insulated substations within our transmission and distribution infrastructure. However, SF_6 is a greenhouse gas with a global warming potential (GWP) approximately 23,500 times higher than CO_2. Recognising this, we have implemented measures to reduce our fugitive emissions, with a focus on recycling and reconditioning SF_6 gas.

In 2024, we successfully recycled 10,698kg of SF_6 gas, which is more than double the previous year's amount.

- Complete GIS refurbishment for three (3) substations.
- Ongoing R22 air conditioner replacement in the Northern Region.
- Completed change of CO_2 firefighting system for three (3) substations

For more information about our SF_6 recycling initiatives, please refer to MM6: Biodiversity and Environmental Management.

Our Response to Challenges and Unforeseeable Incident

As we have established our Carbon Management Strategy and committed to an annual 5% reduction in scope 1 emissions intensity starting from 2024, we acknowledge a slight increase in our 2024 emissions intensity compared to 2023. This was due to an unforeseeable incident on 4 December 2023, when our 1,000 MW TNB Manjung Unit 4 (M4) Ultra-Super Critical coal power plant faced an approximately 11-month forced outage due to steam turbine blade damage. To ensure grid system security and meet rising customer demand, higher-emissions sub-critical coal power plants were dispatched during this period.

Through a collaborative effort with the OEM and an efficient crisis recovery strategy, we successfully expedited M4's restoration by 10 days, preventing an excess emissions of approximately 329,323 tCO_2e.

To enhance the reliability of our coal power plants and prevent recurrence of similar incidents, we are implementing robust measures, including improving steam quality, conducting regular blade inspections using non-destructive testing (NDT) methods and monitoring vibrations to detect early signs of anomalies.

SCOPE 2 EMISSIONS: IMPROVING ENERGY EFFICIENCY WITHIN OUR OPERATIONS

We are dedicated to reducing our energy consumption intensity to lower our Scope 2 emissions through energy efficiency initiatives.

Improving Power Plant Auxiliary Energy Consumption

We are implementing energy efficient initiatives at our power plants for the auxiliary systems such as co-firing of high-sulfur coal with lower-sulfur brands to decrease auxiliary consumption in the Flue Gas Desulfurization (FGD) aeration fan and absorber spray pump, optimising the auto-changeover frequency of air compressors and adjusting the operation of the Main Cooling Water Pump (MCWP). By optimising these auxiliary systems, energy is utilised efficiently leading to reduced overall energy consumption.

Enhancing Energy Efficiency at TNB Office Buildings

Through the "Drip by Drip, Watt by Watt" campaign rolled out since July 2023, we are actively reducing electricity and water consumption at 109 TNB-owned offices. This campaign promotes energy conscious practices, fosters a collective commitment among TNB personnel towards resource conservation, that leads to cost savings. In 2024, our efforts have resulted in a reduction of 1,723,244kWh in electricity consumption, equivalent to an estimated reduction of 1,333 tCO_2e in Scope 2 emissions and RM877,131.00 cost savings.

Our Flagship Green Building – TNB Platinum Campus

The TNB Platinum Campus is designed in accordance with Green Building Index (GBI) principles, adopting key features such as a 25% reduction in electricity consumption compared to conventional building designs. It includes a photovoltaic system capable of supplying up to 2% of the building's total electricity needs, along with efficient energy monitoring facilitated by the Integrated Building Management System's Energy Sub-Metering System.

TNB Platinum Campus is certified with Platinum rating of GBI.

SCOPE 3 EMISSIONS: EMBRACING DIGITALISATION AND AUTOMATION

We continue to assess our Scope 3 indirect emissions for Categories 6 (Business Travel) and 7 (Employee Commuting), focusing on our operations in Peninsular Malaysia. Leveraging on current data availability and our internal monitoring systems, we are employing a distance-travelled-based methodology, which is aligned with the GHG Protocol Scope 3 Calculation Guidance (2013).

In 2024, we enhanced our data collection process through automation and integration of our human resource systems with data such as the distance from registered home addresses to the office, employee check-in/out times, work-related travel to other locations and modes of transport.

MM3: CLIMATE CHANGE AND EMISSIONS

We have established climate-related targets as milestones in realising our net zero aspirations and reaffirm our commitment to stop investing in new greenfield coal-fired power plants.

35% reduction of Scope 1 emissions intensity by 2035 and Net Zero Emissions by 2050, compared to the base year 2020

50% reduction of coal capacity by 2035 and 100% by 2050, compared to the base year 2020

Revenue from coal generation plants does not exceed **25%** of our total revenue

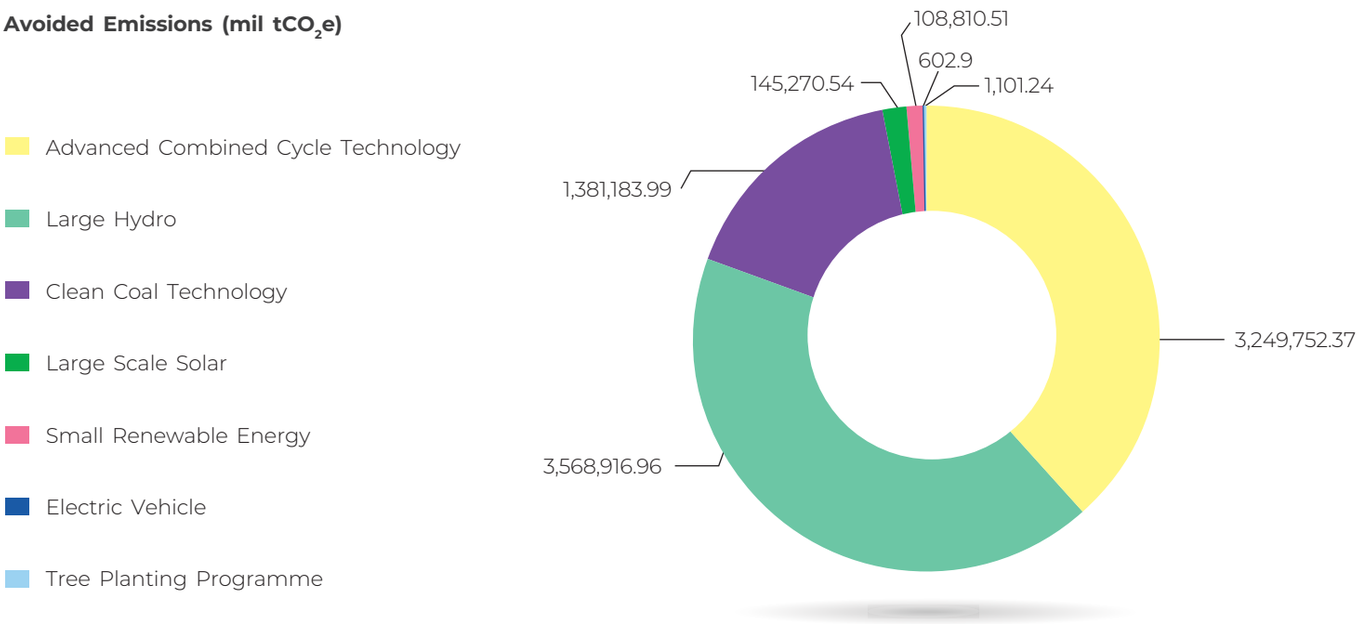
5% annual reduction of Scope 1 emissions intensity from 2024

OUR PERFORMANCE

GHG EMISSIONS AVOIDANCE

In 2024, we achieved an emissions avoidance of 8.46mil tCO_2e due to our emissions avoidance initiatives and investment in technology.

Avoided Emissions (mil tCO_2e)



PERFORMANCE : BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
Energy							
GRI 302-1	C4(a)	Total energy consumption within organisation	GJ	863,462.69 (MWh)*	404,523,322	320,997,148	1% reduction annually***
Direct (Scope 1) GHG emissions							
GRI 305-1	C11(a)	Total direct GHG emissions (Scope 1)	million tCO_2e	38.58	38.92	38.75	5% reduction of emissions intensity compared to 2024
Energy indirect (Scope 2) GHG emissions							
GRI 305-2	C11(b)	Indirect (Scope 2) GHG emissions	million tCO_2e	0.292**	0.331**	0.321	1% reduction annually***
Other indirect (Scope 3) GHG emissions							
GRI 305-3	C11(c)	Business travel	million tCO_2e	–	0.037	0.035	1% reduction annually***
		Employee commuting	million tCO_2e	–	0.063	0.063	1% reduction annually***

**FY2022 data was reported according to the amount of energy consumption at TNB buildings (MWh). Data for FY2023 onwards was reported based on GRI 302-1 methodology.*

***The data was reinstated following a thorough methodology revision in alignment with GRI Standards.*

****For FY2025 target – base year target is 2024.*

Note: GJ = Gigajoule; MWh = Megawatt-hour.

MM3: CLIMATE CHANGE AND EMISSIONS

PERFORMANCE : ADDITIONAL INDICATORS

GRI	Metric	Units	FY2022	FY2023	FY2024
Energy					
GRI 302-1	Coal	GJ	444,682,239	452,842,875	366,740,751
	Natural gas	GJ	210,857,206	194,060,333	193,211,458
	Distillate fuel	GJ	2,445,795	1,846,890	1,387,891
	Residual Fuel Oil/Medium Fuel Oil	GJ	2,559,614.00	1.94	487,249
	Biodiesel (93% Fossil)	GJ	–	19,182	14,191
	Total fuel consumption within the organisation from non-renewable sources	GJ	–	648,769,280	561,841,541
	Biomass	GJ	–	1,134,665	980,948
	Biodiesel (7% Renewable)	GJ	–	1,444	1,068
	Biogas	GJ	–	222,874	–
	Total fuel consumption within the organisation from renewable sources	GJ	–	1,136,109	982,016
	Large scale solar and hydro	GJ	–	22,665,154	25,480,236
	Electricity purchased for consumption	GJ	–	1,659,736	1,408,189
	Electricity sold by the organisation	GJ	–	269,937,097	268,714,834
GRI 302-3	Energy intensity ratio for the organisation*	GJ/MWh	–	5.39	4.30
Generation					
G4-EU1	Total Installed Capacity**	MW	–	17,949.54	16,385.35
	Gas	MW	–	6,147.77	5,145.07
	Coal	MW	–	7,378.89	6,790
	Hydro	MW	–	2,666.55	2,666.56
	Diesel	MW	–	258.96	203.18
	Solar	MW	–	1,135.85	1,298.90
	Biomass	MW	–	5.00	5.00
	Biogas	MW	–	2.40	2.40
	Wind	MW	–	179.47	179.47
	Oil	MW	–	142.88	71.00
	Solar Hybrid	MW	–	31.77	23.34

** Target maintained at <6*

*** RE capacity is calculated using the equity capacity approach. Data for FY2023 has been reinstated to adhere to this approach.*

GRI	Metric	Units	FY2022	FY2023	FY2024
G4-EU2	Total Net Energy Output	GWh	–	79,535.45	73,185.02
	Gas	GWh	–	26,065.97	22,238.84
	Coal	GWh	–	44,826.58	40,678.64
	Hydro	GWh	–	6,452.92	7,148.16
	Diesel	GWh	–	365.68	532.65
	Solar	GWh	–	572.01	1,274.96
	Biomass	GWh	–	13.16	31.37
	Biogas	GWh	–	13.8	–
	Wind	GWh	–	544.43	852.24
	Oil	GWh	–	660.52	395.21
	Solar Hybrid	GWh	–	20.38	32.95
GHG Emissions Intensity					
GRI 305-4	Scope 1***	tCO_2e/MWh	0.5488	0.5465	0.5571
GHG Emissions Avoidance					
GRI 305-5	Total avoided emissions	mil tCO_2e	7.30	7.38	8.46

**** Target FY2025 is 5% reduction of emissions intensity compared to 2024.*

Note:

- *GJ = Gigajoule ; MWh = Megawatt hour ; GWh = Gigawatt-hour ; tCO_2e = metric tonnes of carbon dioxide equivalent*

For more metrics on GHG Emissions, Generation Portfolio and Energy, as well as ISSB/SASB indicators please refer to our performance tables on pages 154, 171, 175.

Calculation Methodology

[IFRS S2: 29a]

TNB's carbon management performance is measured through GHG emissions calculated in accordance with established international methodologies. These include the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the GHG Protocol and the Clean Development Mechanism (CDM) framework. Emissions data are consolidated using the equity share approach and currently cover TNB's operations in Peninsular Malaysia. Our emissions inventory includes CO_2, CH_4, N_2O, SF_6 and HFCs. For Scope 2 emissions, we calculate using location-based method.

Scope 3 GHG emissions were assessed for Category 6 (Business Travel) and Category 7 (Employee Commuting). These were calculated using a distance-travelled-based method, based on available data and the capabilities of TNB's internal monitoring systems. This approach is aligned with the GHG Protocol Scope 3 Calculation Guidance (2013).

We utilise a GHG Emissions Management System (GEMS), a web-based platform for tracking Scope 1 and 2 data, and internal monitoring systems for Scope 3 data. To quantify GHG emissions, we use the following calculation method:

Activity Data x Emissions Factor = GHG emissions

Emissions factors are sourced from internationally recognised official sources, including IPCC Guidelines, Energy Commission of Malaysia and UK Department for Environment, Food & Rural Affairs (DEFRA). All Scope 1, 2, and 3 emissions undergo internal review to enhance the accuracy and reliability of our disclosure and support continuous improvement in our carbon accounting practices.

MM 4

Reliable Energy and Fair Tariff

WHY IS IT IMPORTANT?

Reliable energy supply at fair tariff is essential for national economic growth, social equity and customer confidence - reinforcing TNB's position as a trusted national utility.

Our commitment to stakeholders extends beyond merely providing a secure and reliable electricity supply; it encompasses addressing their expectations regarding affordability and sustainability. In addressing the future of the electricity industry within Malaysia, TNB is strategically navigating the evolving regulatory and policy landscape to ensure the best outcomes for its business, stakeholders and the broader community. We recognise that achieving Just Transition relies on a strong partnership between government support, TNB's strategic actions, and the shared ambition to build a resilient, low-carbon future. As part of this, we aim for a fair & inclusive energy transition that leaves no one behind by maintaining affordability, enabling equitable access to clean energy, and creating opportunities for all segments of society. It is here that we recognise the symbiotic relationship between government support, TNB's proactive measures, and the collective move towards a sustainable energy transition.

The Malaysian government continues to show strong commitment to the Incentive-Based Regulation (IBR) framework, which has guided the electricity sector since 2014. Over three Regulatory Periods (RPs), IBR has enabled critical upgrades in grid infrastructure, improving agility, flexibility and regional interconnectivity. In December 2024, the government approved TNB's Regulatory Period 4 (RP4), allocating RM42.82 billion in CAPEX from 2025 to 2027, consisting RM26.55 billion base and RM16.27 billion contingent to accelerate the nation's energy transition.

TNB has been consistently able to meet IBR performance targets, maintaining world-class reliability through strong System Minutes and SAIDI performance. The framework also ensures fair and transparent tariff-setting that supports economic growth while balancing affordability and energy security for all Malaysians.

Opportunities

- Close collaboration with regulators to secure a transparent and fair IBR mechanism that addresses the energy trilemma.
- Enhance organisational preparedness through robust business continuity management and reinforce contingency measures to address climate-related risk exposures.
- Increase green electricity supply in the energy mix in line with the nation's energy transition goals.

Risks

- Exposures to external market forces and regulatory shifts, including challenges in government-to-government relations for regional grid interconnections.
- Challenges in maintaining grid resiliency and tariff affordability throughout the energy transition journey.



MANAGEMENT APPROACH

[SASB: IF-EU-550a.2]

ENSURING RELIABLE SUPPLY

In 2024, we maintained our world-class grid performance, recording Transmission System Minutes of 0.0019 minutes, System Average Interruption Frequency Index (SAIFI) of 0.96, System Average Interruption Duration Index (SAIDI) of 47.88 minutes[1], and Customer Average Interruption Duration Index (CAIDI) of 50.13 minutes. This reflects the effectiveness of our ISO 55001-certified Asset Management System, which applies structured, risk-based preventive maintenance supported by data analytics to ensure optimal asset performance. To further enhance grid resilience, we invested RM3.2 billion in FY2024 to reinforce the network's capacity amidst growing complexity from rising demand and increased renewable energy integration. In addition, our Distribution Automation (DA) project has enabled faster supply restoration during outages and directly benefiting our customers.

As part of our commitment to operational efficiency, we also focused on reducing technical losses across the transmission and distribution network. In 2024, total transmission and distribution losses were recorded at 1.32% and 5.84% respectively, and efforts such as Advanced Metering infrastructure (AMI), Volt-Var Optimisation (VVO) and substation upgrades are being deployed to reduce losses over time. These initiatives directly improve energy delivery efficiency and support tariff stability for end users.

Moving forward for RP4 (2025-2027), we intend to increase investments in the national grid to modernise the grid and strengthen its reliability and adaptability in addressing the challenges of Energy Transition. We believe that the demand for clean and renewable energy will continue to grow spurred by the trend in digitalisation and artificial intelligence that requires more data centres to be constructed, as such will continue to play our role in strengthening grid resiliency and reliability in delivering top notch products and services for our customers.

Looking forward, Malaysia's economic growth is projected at 4.5 %–5.5%. With the launch of RP4 and a promising 7.3% return on investment, we are provided with strong confidence to scale up.

For our performance on Customer Accounts, please refer to our performance table at the end of this chapter.

POWERING DATA CENTRES

As the world shifts towards digitalisation, the demand for data centres has surged exponentially. Malaysia, with its strategic location and expanding digital economy, is positioning itself as a hub for data centre investments. For TNB, this sector offers significant opportunities, but it also comes with a unique set of risks. Data centres require extremely high standards of power reliability, where even brief outages can result in severe operational and financial losses. Ensuring grid resilience and infrastructure readiness to meet these stringent demands is essential, as any disruption could impact TNB's credibility and deter future partnerships.

Investing in grid resilience and upgrading infrastructure to meet the demands of hyperscale data centres is crucial to mitigate this risk. To remain competitive, TNB is actively exploring collaborations with international data centre operators and global technology firms. These partnerships can unlock access to advanced technologies, industry practices and new business models. Additionally, TNB has the opportunity to diversify into specialised energy services for the data centre sector, offering renewable and competitive power solutions. By doing so, TNB can position itself as a trusted, sustainable energy partner and a key enabler in Malaysia's emerging digital economy.

To strengthen Malaysia's position as a leading data centre hub in the region, TNB introduced the Green Lane Pathway, a strategic initiative designed to provide efficient, streamlined and environmentally responsible energy solutions for data centre operators. This pathway offers efficient and environmentally responsible solutions for data centre operators by streamlining the onboarding process, expediting approvals and facilitating a smoother setup of data centre operations in the country.

A key feature of the Green Lane Pathway is its fast-track electricity supply, which connects data centres three times faster than the standard delivery time. This reduces the implementation period from a range of 36 to 48 months to just 12 months. Since the establishment of the Green Lane Pathway, we have successfully completed all 18 supply connections ahead of schedule, meeting a demand of 1,856 MW. In 2024, we completed 9 data centres electricity supply projects, with a total energy demand of 1,236 MW, which represents 66% of the total energy demand. Additionally, TNB has established a One-Stop Centre (OSC) to assist data centre investors, providing dedicated support services to attract more companies to establish their operations in Malaysia.

ROBUST BUSINESS CONTINUITY MANAGEMENT (BCM)

TNB adopts a proactive and structured approach to managing business disruptions, guided by the TNB Business Continuity Management (BCM) Framework, which is aligned with ISO 22301:2019. This framework ensures swift recovery during crisis and enables early risk identification, scenario planning, as well as continuous monitoring to prevent incidents from escalating into crisis.

[1] *Transmission System Minute is defined as the energy in Megawatt Minutes not supplied from the system to customers divided by the Annual System Peak in Megawatts for the year. System Average Interruption Duration Index, a metric used in the electricity industry to measure the average duration of power outages experienced by customers over a specific period, typically a year. SAIFI measures the average frequency of sustained interruptions per customer account occurring during the analysis period. These are key indicators applied in global Electricity Supply Industry to measure performance.*

MM4: RELIABLE ENERGY AND FAIR TARIFF

Our Emergency Response Plans (ERP) is integrated into our overall strategy ensuring that our teams are well-prepared to response swiftly and efficiently to any emergency, minimising the potential impact on service delivery. We continually review and stress-test our plan to adapt to evolving challenges. In addition, a proactive incident management approach is in place to address incidents before they escalate into major crisis. Through regular scanning and continuous monitoring, we ensure effective and efficient recovery efforts, alongside seamless communication to all relevant stakeholders. Our Emergency Response Teams (ERT) are trained and ready to act decisively, while regular scenario-based drills across the Group enhance coordination and response agility. To further strengthen resilience, we actively engage with national agencies and conduct joint simulations that enhance preparedness across Malaysia's critical infrastructure sectors. TNB's Corporate Crisis Command Structure – comprising the President/Chief Executive Officer and members of senior management—is tested annually through scheduled drills and is activated when managing potential or declared crisis, as outlined in the Corporate BCM documentation. Lessons identified through post-mortems are applied to enhance preparedness, operational coordination and organisational resilience. In addition, business entities across the Group conduct scenario-based drills to strengthen internal alignment and response capabilities. Notably, in the reporting year, targeted business continuity plans were developed and tested to ensure uninterrupted electricity supply during the Malaysian state elections in Selangor, Kelantan, Terengganu, Negeri Sembilan, Kedah and Penang.

To further enhance national-level readiness, TNB engaged in strategic collaborations with key government agencies such as the National Disaster Management Agency (NADMA) and the National Security Council (MKN). Joint desktop drills were successfully conducted, including a dam safety simulation with NADMA and a critical infrastructure security scenario with MKN – underscoring TNB's role in supporting national resilience across the power utility and broader critical infrastructure sectors.

We recognise the critical role we play in powering communities, businesses and public infrastructure. Our commitment is to maintain a reliable electricity supply during unforeseen circumstances while safeguarding the trust and well-being of those in the community who depend on our uninterrupted service. Our focus is on service recovery during emergencies and maintaining clear communication with both internal and external stakeholders.

Communicating with Our Stakeholders

Clear, timely, consistent and transparent communication is vital in managing crisis, reducing public anxiety and addressing misinformation. We have established coordinated protocols across Business Entities to ensure prompt updates, outline response actions and maintain accountability.

The TNB Careline, via social media and a toll-free number, allows the public to report issues and access information. Continuous monitoring of key events supports early crisis detection. During disruptions, we communicate through the TNB Careline Facebook page, press releases and direct updates to stakeholders like the Energy Commission and government ministries. Internal messaging ensures consistency across the organisation.

TNB Careline provides 24-hour customer service to ensure continuous support and enhanced responsiveness during electricity supply interruptions. To facilitate timely restoration of power, technical teams are strategically positioned across Peninsular Malaysia and Sabah are mobilised promptly to identify and resolve on-site technical faults, ensuring efficient and effective restoration of electricity services.

Our communication strategy ensures that key updates and critical information are prompted relayed to internal and external parties, allowing stakeholders to stay informed and make necessary decisions.

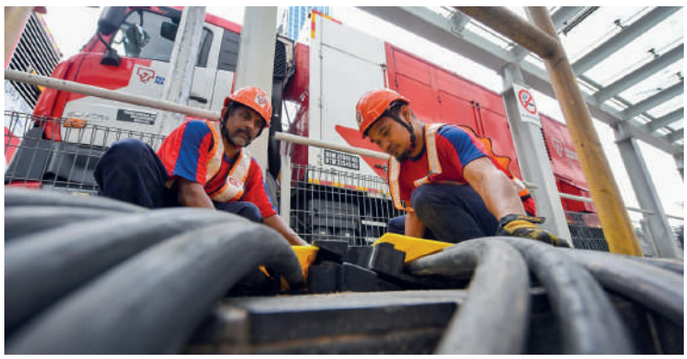
SAFEGUARDING OUR ASSETS AGAINST PHYSICAL RISKS

To bolster resilience against physical-related climate risks, we have enhanced flood preparedness and protect critical infrastructure. TNB collaborated with the Department of Irrigation and Drainage (Jabatan Pengaliran & Saliran, JPS) and the Malaysian Meteorological Department (MetMalaysia) to develop the Flood Analysis and Risk Assessment (FARA) system. This system monitors and analyses rainfall, river water levels, and weather forecasts within TNB's operational areas, enabling timely dissemination of flood alerts to operational teams. TNB has conducted targeted training and awareness workshops across various states in Peninsular Malaysia to familiarise relevant personnel with the implementation and use of FARA.

Information about rainfall, river water levels, and weather forecasts within TNB's operational areas is sourced through the JPS website and integrated with geospatial mapping to support early warning capabilities and proactive response. As part of ongoing flood preparedness, we perform continuous monitoring and forecasting of flood risks, particularly at substations supported by data from flood hazard maps (FHM), flood inundation maps (FIM), substation elevation data, and contour gap analyses. These insights are used to assess risks for both existing and planned substations, forming the basis for mitigation planning.

To test and enhance operational readiness, TNB regularly conducts Business Continuity Management (BCM) refresher sessions and BCM exercises, including simulations for desktop flood scenarios as well as by-elections (Pilihanraya Kecil). These exercises ensure that roles, responsibilities and communication flows are clearly understood and executed efficiently during real events.

For more information on climate-related risk exposures, please refer to section "Our Response to Climate Change" at page 144.

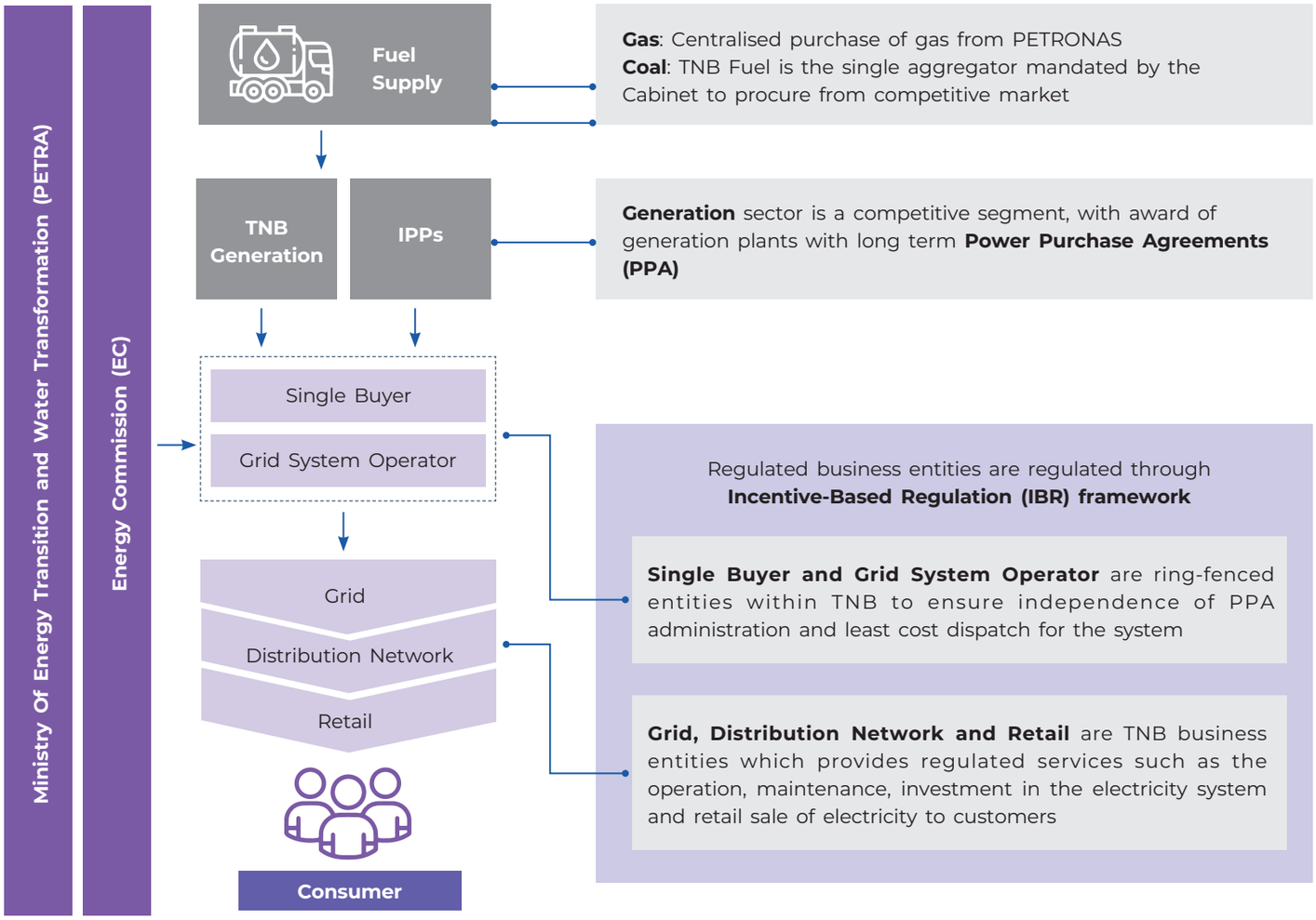


In time of needs, mobile generator set will be despatched to ensure continuous power supply to our customers.

FAIR AND TRANSPARENT TARIFF DETERMINATION

The electricity tariff structure is governed by the Energy Commission (EC) based on the IBR framework with built-in incentives to improve our efficiency and for greater tariff transparency to our customers. TNB is protected against fuel cost fluctuations with the effective implementation of the Imbalance Cost Pass Through (ICPT) mechanism within the IBR framework.

Below is the electricity ecosystem and regulatory framework which supports a transparent tariff structure:



In 2024, the government continues to uphold the Imbalance Cost Pass-Through (ICPT) mechanism, focusing on a more targeted approach for domestic customers for 1H2024. This includes the removal of rebates for domestic customers with consumption between 600 - 1,500 kWh, ensuring that subsidies were allocated more effectively to protect vulnerable groups.

Overall, the ICPT framework has played the role in maintaining the balance between ensuring a sustainable electricity supply and supporting vulnerable customers, ultimately contributing to the stability of the electricity market in Malaysia. For the upcoming period, TNB will work closely with Government to further enhance the mechanism through frequent adjustment. This ensure the mechanism to be more responsive to market conditions and reflect right price signal to the customers.

The Government has launched the Corporate Renewable Energy Supply Scheme (CRESS) in September 2024 to enhance corporate access to green electricity supply. CRESS is a strategic initiative which aims to provide corporations with greater access to green electricity, reinforcing Malaysia's commitment to a sustainable energy future. This programme leverages the concept of open grid access, enabling third parties to supply electricity to their preferred customers using the grid network under a regulated system access charge.

MM4: RELIABLE ENERGY AND FAIR TARIFF

CRESS principle ensures that energy prices are determined through voluntary agreements between parties, free from external compulsion. This concept facilitates a marketplace where the price of energy is negotiated in good faith, with both buyer and seller seeking mutually acceptable terms. The aim is to create a transparent, fair and competitive environment that ensures both sides can sustain their interests.

For the first phase, CRESS is open to high and medium voltage power consumers. This means that existing buildings, on top of buildings requiring new or additional power demand, can utilise green electricity through the CRESS policy in Malaysia.

REGULATORY ENGAGEMENT TO STRENGTHEN INSTITUTIONAL GOVERNANCE

We consistently engage with regulatory stakeholders to enhance the governance framework of the electricity sector, working towards balancing the energy trilemma. We continue to contribute to governmental studies and policy formulation, including the implementation of the National Energy Transition Roadmap (NETR) flagship projects and the CRESS.

The effectiveness of our engagement efforts is reflected in the Regulatory Relationship Strength Index (RRSI) score, which gauges the sentiment and expectations of key ministries, regulators and government agencies that directly interact with TNB. Dedicated TNB personnel engage with stakeholders at the federal and state levels to address potential issues and enhance mutual collaboration. We achieved our highest RRSI score in 2024 with an overall trust score of 94%, surpassing our target of 92%, showcasing a consistent increase since 2020.

OUR PERFORMANCE

PERFORMANCE: Additional Indicators

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
G4 – EU4	–	**Regulatory Relationship**					
		Regulatory Relationship Strength Index (RRSI)	%	85	92	94	>92
	–	**Electricity Transmission System**					
		Transmission System Minutes	Minutes (for Peninsular Malaysia operations)	0.172	0.483	0.0019	<1.5
			Minutes (for Sabah operations)	14.22	16.83	0.548	<5.0
G4 – EU29	–	**Average Power Outage Duration**					
		System Average Interruption Duration Index (SAIDI)	Minutes/ Customer/ Year (for Peninsular Malaysia operations)	45.06	46.10	47.88	≤47.00
			Minutes/ Customer/ Year (for Sabah operations)	286.21	266.37	203.65	≤220

Note:
- *Additional indicators disclosed to support the narrative and the target setting is based on industry best practices.*
- *Revision of the target for SAIDI minutes/customer/year (for Peninsular Malaysia operations), as approved by the Ministry of Energy Transition and Water Transformation (PETRA).*

For more metrics on Customer Accounts and Business Performance, as well as ISSB/SASB indicators, please refer to our performance tables on pages 154-158, 164-166.

MM 5

Safety, Health and Well-Being

WHY IS IT IMPORTANT?

Prioritising health and safety within our business operations, the surrounding communities and across the business value chain is fundamental to sustaining operational efficiency and fostering an environment of trust and accountability.

Safeguarding the lives of our employees and vendors through robust occupational safety and health management systems and best practices is one of our top priorities. We are committed to providing a safe and conducive workplace where our employees and vendors feel cared for and supported while contributing to our shared goals. As a caring and responsible organisation, our commitment to safeguarding safety and health extends to all individuals affected by our operations.

Paramount focus is given to relevant safety standards where compliance is strictly imposed to mitigate the risks associated with work-related injuries and illnesses. Regular health and safety audits and assurance works are conducted with a focus on improvement beyond compliance. By continuously refining our safety culture and conducting engagement and risk assessment with a customised approach, we strive to inculcate self-regulation at all workplaces whilst strengthening the tone from the Board of Directors and top management safety committees.

We remain vigilant and attentive to safety and well-being in our workplace, where safety is not only a corporate objective but also a commitment to mutual responsibility between the company, employees, vendors and the public.

Opportunities

- Drive safety enhancement through innovative solutions for equipment and operational processes.
- Gain predictive insights for accident prevention through digitalisation and diagnostics.
- Enhance employees' and contractors' technical and safety competencies and capabilities in engineering solutions.
- Periodic engagement with stakeholders (regulators, staff, vendors and industry players) for collaboration opportunities.

Risks

- Challenges to comprehensively adopt evolving industry practices in safety, health and well-being.
- Challenges in safeguarding public safety due to inherent risks associated with our operations.



MM5: SAFETY, HEALTH AND WELL-BEING

MANAGEMENT APPROACH

SAFETY, HEALTH & GOVERNANCE OVERSIGHT

We have strengthened our governance by enhancing the oversight and management of safety and health matters. In 2024, the Terms of Reference and membership of the TNB Health, Safety & Environment Committee (HSEC) have been enhanced with approving authority to drive the implementation of HSE across TNB. Chaired by the Chief Distribution Network Officer (CDNO) with members from the top management of key operations and corporate functions, the HSEC deliberates strategies and monitors the performance of initiatives implemented across TNB Group. The Board Sustainability and Risk Committee (BSRC) and TNB Group Executive Management Committee (GEMC), chaired by the President/Chief Executive Officer, maintain oversight of the implementation of HSE strategies and initiatives.

The updated roles and responsibilities of the HSEC are as follows:

Policy Development and Oversight	**Strategic Planning and Implementation**	**Monitoring and Evaluation**	**Compliance Assurance**	**Incident Investigation and Response**	**Training and Awareness Programmes**

We uphold rigorous safety standards with the aim of zero workplace fatality and maintaining a Lost-Time Injury Frequency Rate (LTIFR) below 1.0.

We remain guided by the TNB Occupational Safety and Health (OSH) Policy, which is signed by our President/Chief Executive Officer and is applicable to all employees and contractors. Building on our OSH Policy, every employee and contractor is authorised to speak up and halt work when health and safety is compromised through our Stop Work Policy and Intervention Stop Work Programme (ISW) without fear of repercussion. Real-time reporting and response for ISW is enabled through the HSE Wallet mobile application. We uphold a strict commitment to preventing workplace fatalities and every fatal accident is investigated and deliberated vigorously to identify root causes and actions to prevent recurrence. In the event of a fatal accident, the HSEC convenes immediately to ensure urgent mitigations are taken. The outcomes of fatality investigations are deliberated at GEMC and BSRC.

OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

We are unwaveringly committed to adhering to relevant legislation and regulations, namely the Occupational Safety and Health Act 1994, Electricity Supply Act 1990, Fire Services Act 1988, as well as the Energy Commission licensing conditions.

The Health, Safety and Environment Management System (HSEMS) provides a framework for TNB Group to ensure the health and safety of employees, contractors and the public are managed holistically and systematically, based on the principles of ISO management systems.

Our business entities that are currently certified with ISO 45001:2018 Occupational Health and Safety Management Systems are:

Business Entities Certified with ISO 45001:2018

01	TNB Power Generation Sdn. Bhd. (TPGSB)
02	Grid Division
03	Distribution Network Division
04	Project Management & Control (PMC), PSD
05	Malaysian Transformer Manufacturer (MTM) Sdn. Bhd.
06	Tenaga Cable Industries (TCI) Sdn. Bhd.
07	Tenaga Switchgear (TSG) Sdn. Bhd.
08	Sabah Electricity (Generation, Transmission and Distribution Divisions)

HAZARD IDENTIFICATION, RISK ASSESSMENT AND INCIDENT INVESTIGATION

Safety & Health Risk Assessments

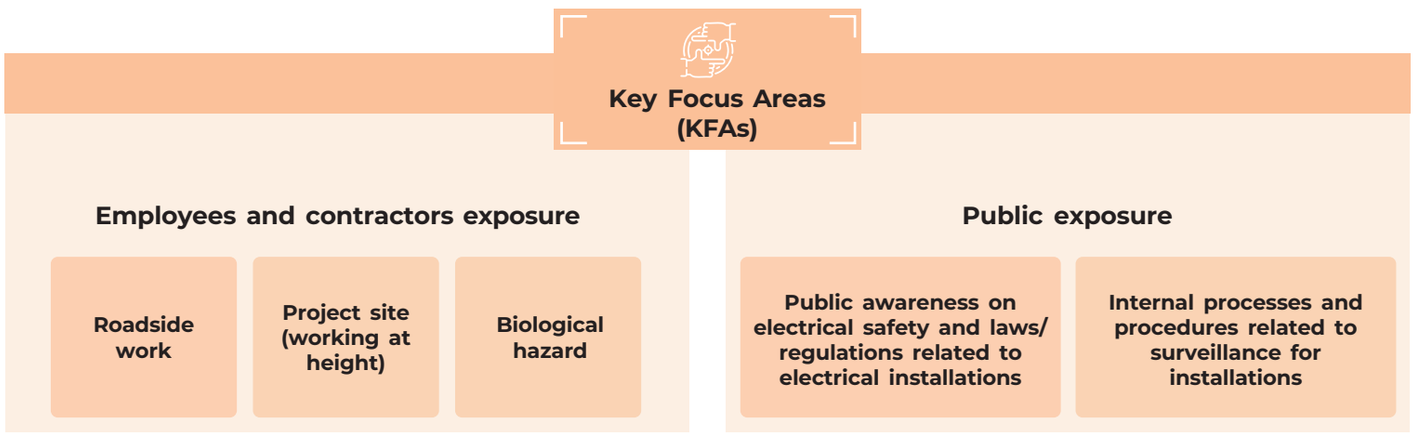
We meticulously identify all work-related hazards, assess the health and safety risks and establish relevant controls to eliminate hazards and mitigate risks through our Hazard Identification, Risk Assessment and Risk Control (HIRARC) procedure. Our HIRARC procedure is developed based on guidelines from the Department of Occupational Safety & Health (DOSH) and forms the foundation of our safety protocols. HIRARC procedures must be carried out prior to the commencement of any project and maintenance works. We conduct regular training sessions on HIRARC to ensure a comprehensive understanding and implementation of the procedure across our operations.

Specific risk assessments are also conducted to assess exposures related to the workplace and work conditions, including:

Risk Assessment	Description
Environmental Impact Assessment (EIA)	The assessment includes a study to identify, predict, evaluate and communicate information about the impact (both beneficial and adverse) on the environment of a proposed development activity and the mitigating measures to protect the environment.
Fire Risk Assessment (FRA)	A systematic evaluation of a building or area to identify potential fire hazards, assess the risk of those hazards causing a fire and determine the measures needed to minimise or eliminate those risks.
Chemical Health Risk Assessment (CHRA)	The assessment involves identification of chemical hazards arising from the use, handling, storage or transportation of chemicals in the workplace and recommends controls to reduce exposure and minimise harm to workers. It is part of the compliance with the Occupational Safety and Health (Use and Standard of Exposure to Chemical Hazardous to Health) Regulations 2000.
Noise Risk Assessment (NRA)	The assessment involves identification of noise-related risks in the workplace to prevent hearing loss, ensuring a safe work environment and compliance with legal obligations. It is part of the compliance with the Occupational Safety and Health (Noise Exposure) Regulations 2019.
Ergonomic Risk Assessment (ERA)	Assessment involves evaluation on workplace activities to identify and reduce the risk of muscle injury or discomfort caused by ergonomic risk factors, which includes exposure to repetitive motion, awkward posture, static posture, forceful movements, vibration and contact stress. It is part of the Guidelines on Ergonomics Risk Assessment at Workplace 2017.

We refined our incident investigation process by incorporating the Human Factor Analysis (HFA), a methodology introduced by the Energy Institute, United Kingdom, to effectively identify the cause of human errors in an accident. This effort is to ensure fair justification is reached when human errors have resulted in fatal accidents before the consequence management process takes into effect. To effectively implement this initiative, 30 employees from various business entities were trained in-house by a representative from Energy Institute. HFA has been integrated into our consequence management process under our Life Saving Rules (LSR) in 2024.

A detailed diagnostics based on past incidents was conducted to identify strategic initiatives to enhance our health and safety management practices across the organisation. GEMC approved the identified key focus areas as follows:



MM5: SAFETY, HEALTH AND WELL-BEING

HIGH IMPACT SAFETY AND HEALTH PROGRAM

Revitalising Safety Excellence Management System (RSEMS)

Whilst employees' safety is of utmost importance, we also pay close attention to comfort in the workplace to elevate employee experience. Revitalising Safety Excellence Management System (RSEMS) is an initiative introduced in 2024 to address both safety and comfort at the workplace, targeted at stores and yards owned by TNB nationwide. The primary objective of RSEMS is to ensure that regulatory requirements and internal standards of health, safety and environment (HSE) at these locations are adhered to with care and emphasis is also given to comfort. RSEMS assessment is conducted in two parts - verification of technical HSE requirements and interview sessions on employees' satisfaction.

A total of 229 stores and yards were identified and assessed by internal auditors from various BEs in 2024. Assessment results are quantitative, which are then converted to a star rating of 1 to 5 stars. Identified items for improvement are fed to the local management for immediate action. The progress of actions taken is monitored and reported to the TNB HSE Committee periodically until closure.

	STAR Grading				
	Excellent (5 star)	Good (4 star)	Average (3 star)	Poor (2 star)	Very Poor (1 star)
Number of stores and yards	48	102	65	8	6

Result of RSEMS Audit in 2024

Advancing HSE Digital Transformation

We leverage digitalisation to manage and centralise HSE data with the progressive rollout of modules for the holistic implementation of our eHSE online system. The TNB Safety Information System (TSIS) captures reports of incidents and near misses and incidents are investigated to identify corrective and preventive actions to prevent recurrence. The HSE Wallet mobile application enables employees to record potential incidents, stop work intervention occurrences and good safety and health practices across the Group.

In 2024, we upgraded our eHSE system by integrating multiple modules that incorporate Non-Conformance Report (NCR), Notice, Compound & Lawsuit (NCL), Safety Health Committee Online, Chemical Register and Legal Compliance. This upgrade streamlines our HSE processes to strengthen compliance and accountability across the Group and facilitates analysis and diagnostics for informed decisions.

Life Saving Rules

The Life Saving Rules (LSR), introduced on 21 August 2017, were established to prevent serious injuries and fatalities among TNB employees and contractors. Originally comprising nine rules, the LSR was streamlined in 2023 to focus on six essential safety practices. These rules are mandatory across all divisions, departments, subsidiaries and contractors, with particular emphasis on high-risk environments such as installations, power stations and construction sites. To date, we have implemented five (5) out of six (6) Life Saving Rules (LSR), which are LSR 1-5, with the primary objective of preventing serious accidents that could result in fatalities among employees and contractors. In 2024, the LSR consequence management process was enhanced with the inclusion of human factor assessment.

Core Rules
LSR 1: Isolate, earth and test before touch
LSR 2: Valid permit to work mandatory
LSR 3: Wear arc flash suit when switching

Supplementary Rules
LSR 4: Use fall protection
LSR 5: Obtain authorisation before entering confined space
LSR 6: Caution suspended load

While non-compliance with the Life Saving Rules (LSR) may result in termination, the primary objective is to protect lives, not to penalise. Enforcement began in 2017 with LSR 1, 2, and 3, followed by the rollout of LSR 4 and 5 in July 2024. The final rule, LSR 6, is set to be implemented in 2025.

Occupational Health

We continue to participate in the Systematic OH Enhancement Level Program (SOHELP) organised by DOSH. This program drives occupational health compliance and improves overall health among employees, where companies with best practices based on a year of evaluation are acknowledged in the annual National SOHELP Convention. A total of 17 business entities with high exposure have enrolled in the SOHELP programme to drive the reduction of occupational diseases. In 2024, our OH practices were acknowledged with the 2nd prize of Best SOHELP Award (Category 2 – Conglomerate Company) at the National SOHELP Convention 2024.

We continue our efforts to strengthen occupational health (OH) practices by focusing on noise, ergonomic, and chemical management initiatives. Aligned with regulatory requirements, assessments in these areas were conducted with verification by internal audits and external parties

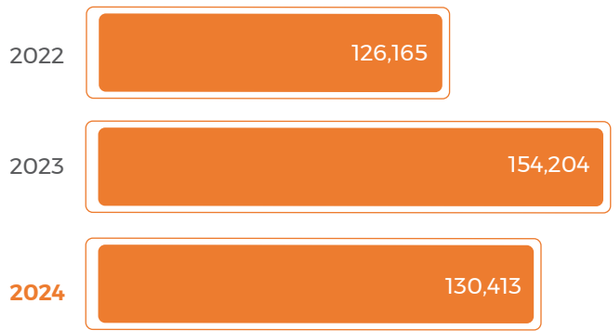
Safety & Health Training For Employees

We are committed to building employee capability in health and safety practices and culture, ensuring that safety remains paramount in all our endeavours and is ingrained in every aspect of our TNB operations. Every two years, employees undergo mandatory safety and health training through the Tenaga Safety Passport module.

To enable greater self-regulation among our employees, HSEMS implementation training is provided to employees to ensure they are adequately trained to implement health and safety practices in their respective workplaces.

We continue to provide health and safety training for our employees. In 2024, a total of 13,973 employees across the group attended the related training, underscoring our dedication to equipping our workforce with the essential health and safety skills and knowledge.

Safety and Health Training Hours



Safety and Health Courses

01	Cardiopulmonary Resuscitation (CPR)
02	Office Ergonomic e-Learning
03	Ergonomic Manual Handling
04	Chemical Handling
05	HSEMS Implementer
06	Tenaga Safety Passport (TSP)
07	Hazard Identification, Risk Assessment, and Risk Control (HIRARC)

For our metrics on employee health and safety training, please refer to the performance tables at the end of this chapter.

TENAGA SAFETY CULTURE

We instil safety to be an integral aspect of our employees' everyday working culture by anchoring on four (4) core behaviours:

4 core behaviours

Assess **Comply** **Intervene** **Actively Caring**

To nurture fundamental safety behaviours, TNB implements a range of structured initiatives aimed at progressively embedding a strong safety mindset across the organisation. One of our key efforts is the biennial Safety Culture Assessment (SCA). We conduct Safety Culture Assessment (SCA) once every two (2) years, which adopts the “Hearts and Minds Safety Culture Toolkit” developed by the Energy Institute (UK). This assessment promotes leadership involvement and fosters a sense of ownership in health and safety practices.

Our most recent SCA, conducted in 2023, recorded a score of 4.16, placing us at the "Proactive" level – an improvement from the 2021 score of 4.02. This positive trajectory reflects our continued efforts to enhance safety leadership and employee engagement.

MM5: SAFETY, HEALTH AND WELL-BEING

In 2024, our focus is on addressing the gaps identified in the Safety Culture Management Plan (SCMP). Priority is given to business entities identified as 'hot spots', those with SCA scores below 4.00 where the potential for impactful improvement is greatest. Through enhanced leadership engagement and strengthened communication, we aim to proactively resolve safety challenges, empower our workforce and drive continuous improvement.

To support these efforts, our appointed HSE Culture Change Agents (HSE CCAs) play a pivotal role as safety ambassadors. They actively promote the desired ACIA behaviours, facilitate ongoing dialogue and monitor workplace practices. Their efforts encourage greater employee participation and implementation with two-way communication to inculcate the Tenaga Safety Culture.

Our group-wide *Nampak, Dengar & Rasa Selamat (NDRS)* framework advocates occupational safety and health awareness and practices. This framework is anchored on three (3) core elements, namely Engineering, Education and Enforcement, and is supported by a consequence management process that rewards positive behaviour, encourages good practices, and addresses non-compliance appropriately. We give recognition to individuals and business entities for outstanding performance and behaviour during the NDRS Award ceremony, which is conducted every year. Fifteen (15) business entities and forty five (45) individuals received the NDRS awards in 2024.

In our effort to create a harmonious relationship and continuous engagement with our employees on safety matters, a dialogue session with union members from *Kesatuan Pencantuman Pekerja-Pekerja TNB* (K3P) was conducted on 4 June 2024. This session involved TNB top management (CDNO as HSEC Chairman and CSO) and representatives from the management of K3P. The session provided updates on current HSE initiatives in TNB, such as the inclusion of human factor analysis (HFA) in the incident investigation process and served as a platform for union members to discuss any matters pertaining to HSE from the union perspective directly with top management.

Performance Analysis

[SASB: IF-EU-320a.1]

In 2024, the number of fatal accidents remains at four (4) as in the previous year. We deeply regret the loss of lives and remain committed to preventing such tragedies through continuous improvement in our safety practices through enhanced risk controls, targeted training and stricter enforcement of the Life-Saving Rules, with the goal of achieving zero fatalities.

Our online potential incident reporting system generates more precise analyses and improves reporting guides and data collection, enabling us to identify and assess potential incidents for proactive mitigations.

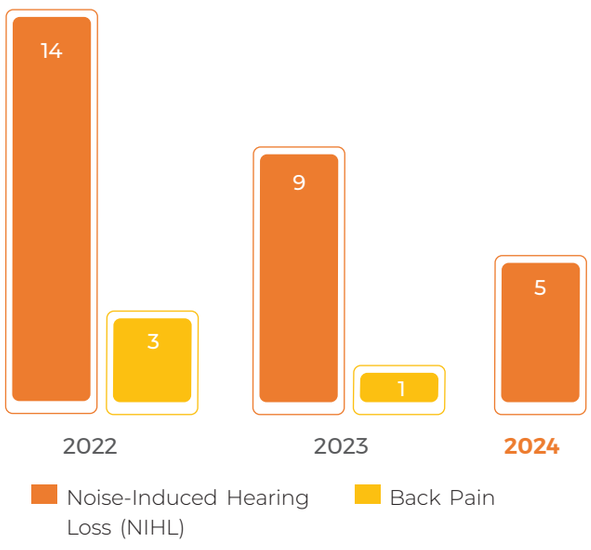
Near Misses are defined as incidents that could have resulted in injury, illness, or damage but did not, due to chance or timely intervention. At TNB, near misses are identified through routine observations, inspections, or employee reports. Employees are encouraged to report all near misses promptly through the designated Health, Safety, and Environment (HSE) reporting channels, such as the TNB Safety Information System (TSIS).

All reported OHS rates are calculated based on the number of incidents per 1,000,000 hours. This approach enables consistent benchmarking of safety performance across different operational scales and aligns with recognised international reporting practices.

Incidents Reported	Employees	Contractors
Fatality Rate	0.00	0.10
Total recordable incident rate (TRIR)	3.71	1.53
Lost Time Injury Frequency Rate (LTIFR)	0.87	0.53
Restricted Work Duty (RWD), Medical Treatment Injury (MTI)	MTI 30	MTI 5
First Aid	13	3
Dangerous Occurrence	9	
Near Miss Frequency Rate	0.23	–
Potential Incident	254,645	–

There was an increase in LTIFR for our employees from 0.74 in 2023 to 0.87 in 2024 due to an increase in motor vehicle incidents and slip, trip and fall incidents. However, we are still achieving our target of LTIFR less than 1.0, indicating a strong safety performance. Noise compliance audits and enhancements for the Specification of Noise Risk Assessment and Audiometry Test resulted in clearer guidance for effective implementation of the Hearing Conservation Programme (HCP). TNB TPGSB has also developed a comprehensive HCP customised for power plant employees. As a result, we have nearly halved the number of Occupational Noise Related Hearing Disorders (ONRHD) in 2024.

Number of occupational diseases for 2022-2024



SUPPORTING EMPLOYEES' HEALTH AND WELLNESS

Physical Fitness

We encourage our employees to stay active by continuing our wellness program through subscription to the BookDoc mobile application, where all employees are encouraged to track their daily steps as part of our initiative to promote fitness.

We conduct basic health screening for all employees nationwide to monitor their health status. The health screening provides a baseline for employees to gauge their vital health statistics, such as blood glucose levels, blood pressure and Body Mass Index (BMI). Where necessary, TNB's Wellness Team will provide basic counselling and advice to employees on steps to modify their lifestyle and improve their overall health. Intervention plans are also made available, such as M-Quit, a program to help employees quit smoking, and the Biggest Loser challenge, a 6-month program to manage weight and fitness.

TNB encourages our employees to stay active by participating in the wellness programme.

Wellness Wednesday

Weekly 'Wellness Wednesday' and monthly "Are You Ok? Jom Sembang" webinars are held throughout the year in collaboration with panel hospitals on health and wellness-related topics, open to all employees and retirees. These webinars, with at least 1,000 participants each session, aim to increase awareness on common global health issues and holistic well-being, including identification and control of physical and mental health, treatment of bacterial and viral diseases, and prevention through healthier habits and lifestyle. In 2024, over 50 global health topics were conducted in this webinar sessions, ranging from various subjects including bipolar disorder, Attention Deficit Hyperactivity Disorder (ADHD) and depressions, stress management, cancer, diabetes, eye disease, monkey pox infection, and weight management (obesity management, achieving healthier weight and ideal body weight etc).

CUSTOMER SAFETY AND HEALTH

Public Safety Awareness Programme

As a caring and responsible organisation, we are committed to enhancing public safety. Any incidents related to TNB electrical installation involving public safety are of high importance to us. TNB management, through the HSE committee, reviews investigation outcomes and identifies mitigation actions for each incident, overseen by BSRC to prevent recurrence. Significant effort has been carried out to mitigate such incidents from happening in the future through collaborative efforts with both internal and external stakeholders.

RumahKu Selamat Campaign

Key initiatives include the *RumahKu Selamat* campaign, where we encourage employees and contractors to promote electrical safety within their families. We also engaged targeted community groups, particularly those in plantations focusing on palm, paddy farmers, and fishermen, to educate them about electrical hazards and safety.

An integrated public safety campaign during flood season raises awareness about electrical safety before, during and after floods. It engages customers in flood-affected states through multi-lingual print media, digital and radio advertisements, personalised myTNB engagements, and visits to temporary flood shelters to distribute safety posters. These were further shared on TNB's social media accounts and through collaborations with Key Opinion Leaders (KOL), reinforcing the importance of electrical safety as part of disaster preparedness. Additionally, we work closely with Suruhanjaya Tenaga (ST) and local authorities to ensure compliance and safety in house renovations and TNB installations. Through these initiatives, we strive to foster a safer environment and promote sustainable practices within our communities.

Instilling safety as an integral aspect of our employees' daily work culture through toolbox meeting.

MM5: SAFETY, HEALTH AND WELL-BEING

OUR PERFORMANCE

PERFORMANCE : BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
Safety & Health							
GRI 403-9	C5(a)	**Number of fatalities as a result of work-related injuries**					
		Employees	Number	0	3	0	Zero fatalities
		Contractors	Number	2	2*	4	
		Total (Employees and Contractor)	Number	2	5*	4	
	C5(b)	**Lost-Time Injuries Frequency Rate (LTIFR)****					
		Employees	per million manhours	0.82	0.74	0.87	<1.0
	C5(c)	**Number of employees undergoing Safety & Health trainings**					
		Number of employees undergoing Safety & Health trainings	Number	18,986	12,192**	13,973	2% annual increase

** Reinstatement for FY2023 due to an incident that happened in 2023 but the fatality of victim in 2024.*
*** Data for FY2022 has been reported based on Safety, Health and Environment training categories meanwhile data FY2023 onward reported based on Safety & Health Training categories. Reinstatement for FY2023, due to alignment with Bursa guidelines with focus on health and safety training. In TNB, safety & health training have been identified based on respective job hazards.*

PERFORMANCE : ADDITIONAL INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
Safety & Health							
–	–	**Fatality rate result of work-related injuries**					
		Employees	per 1000 workers	–	0.09	0.00	Zero fatalities
		Contractors	per 1000 workers	–	0.04	0.10	

Note:
- *Additional indicators disclosed to support the narrative, and the target setting is based on industry best practices.*

For more metrics on Occupational Health and Safety, as well as ISSB/SASB indicators, please refer to our performance tables on pages 186-189.

MM 6

Biodiversity & Environmental Management

WHY IS IT IMPORTANT?

Protecting biodiversity and managing environmental impacts are essential to sustaining the ecosystems where we operate and the well-being of surrounding communities. By preserving natural capital and aligning with emerging frameworks, TNB supports ecosystem resilience, ensures regulatory readiness and reinforces stakeholder confidence.

At TNB, we recognise that effective environmental management is critical, especially as natural resources and ecosystems face growing threats from toxic emissions, biodiversity loss, waste generation, and water scarcity. In response to these challenges, our Board of Directors and Management have clearly defined our environmental commitments through the TNB Environmental Policy, underscoring our dedication to preserving and conserving natural resources.

Our operational entities maintain certification under ISO 14001:2015 Environmental Management Systems (EMS), reinforcing robust standards across our business. Furthermore, our environmental risk identification and control measures are guided by the TNB Health, Safety and Environmental Management System (HSEMS), complemented by proactive waste reduction and pollution prevention practices through our circular economy initiatives.

Recognising that climate change and biodiversity conservation are closely interlinked, in 2024 we established the TNB Biodiversity Framework. This framework commits us to minimising biodiversity impacts and actively protecting terrestrial, aquatic and marine ecosystems including flora, fauna, water, soil, and air thus ensuring long-term environmental sustainability.

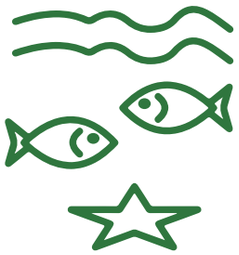
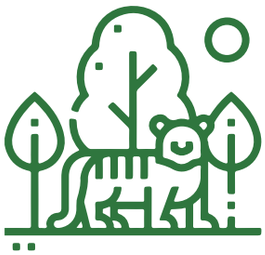
In 2024, we reduced water consumption by 10%, optimising usage through advanced technologies and rainwater harvesting. We rigorously monitor air emissions, complying with Malaysia's Clean Air Regulations. Technologies like FGD, Electrostatic Precipitators (ESP) and biomass integration significantly reduce emissions. Waste management is guided by circular economy principles, focusing on recycling and treatment. In 2024, 56% of hazardous waste was recycled, with initiatives like the Uniforms and Fabrics Recycling Campaign exceeding targets.

Opportunities

- Strengthen biodiversity protection through innovative solutions such as AI-powered tools or drone technology.
- Enhance nature-based solutions and a circular economy throughout the value chain.
- Resource optimisation through water-saving technologies and efficient waste management.

Risks

- Changes in ecosystems due to biodiversity loss could lead to physical risks such as soil movements and increased flooding.
- Reduced water availability and drought affecting power generation operations.
- Inadequate management of waste and toxic emissions leading to environmental harm and financial liabilities.

MM6: BIODIVERSITY & ENVIRONMENTAL MANAGEMENT

MANAGEMENT APPROACH

TNB ENVIRONMENTAL COMMITMENTS

TNB Sustainability Policy and TNB Environmental Policy are key guidance in driving our environmental objectives and initiatives across the organisation. Our environmental commitments are summarised as follows:

1. Reduce emissions, seek opportunities in renewable energy and promote energy efficiency, in line with TNB Energy Transition Plan
2. Optimise the utilisation of natural resources through effective land use and water management
3. Manage waste responsibly, implement circular economy and prevent pollution
4. Promote to minimise impact on biodiversity and protect environmental ecosystem
5. Strive to comply with environmental laws and regulations and proactively managing risks

ENVIRONMENTAL MANAGEMENT SYSTEM

TNB Environmental Management System (EMS) is aligned with ISO 14001, an international standard for environmental management systems. Our environmental management system embedded in TNB HSEMS is applicable across TNB Group, as guidance for environmental management and in compliance with regulatory requirements. TNB HSEMS supports continuous improvement including setting policies and implementation of action plans to manage environmental hazards and minimise environmental risks.

We actively improve our environmental management through benchmarking, site inspections, external and internal audits. Regular internal audits play a vital role in ensuring the effectiveness of the HSEMS. These audits assist in identifying areas for improvement, ensuring compliance with regulations and standards and verifying the correct implementation of policies and procedures. The annual internal audits are conducted by ISO 14001 certified internal auditors. With regular audits, we can consistently evaluate and improve our management practices and overall HSEMS performance. In 2024, nine (9) of our business entities were certified with ISO 14001:

Business Entities Certified to ISO 14001

01	Grid Division
02	TNB Power Generation Sdn. Bhd. (TPGSB)
03	Malaysia Transformer Manufacturing Sdn. Bhd.
04	Tenaga Cable Industries Sdn. Bhd.
05	Tenaga Switchgear Sdn. Bhd.
06	Stesen Janakuasa Patau-Patau, SESB
07	Stesen Janakuasa Sandakan, SESB
08	Stesen Janakuasa Tawau & Kubota, SESB
09	Jabatan Pengurusan Gudang & Logistik, SESB

Recognising the importance of developing competencies in environmental management, we have 194 competent personnel accredited by the Department of Environment, who are experts in waste, effluent and emissions management. Their responsibilities include providing advisory services, planning and implementing effective environmental practices and notifying authorities when required.

No.	Environmental Certification	Applicability	Number of certified personnel
01	Certified Environmental Professional in Scheduled Waste Management (CEPSWaM)	• Power Plants • Warehouse	75
02	Certified Environmental Professionals in the Operation of Industrial Effluent Treatment Systems (CePIETSO)	Power Plants	21
03	Certified Environmental Professionals in Bag Filter Operation (CePBFO)	Power Plants	17
04	Certified Environmental Professionals in Sewage Treatment Plant Operation (CePSTPO)	• Power Plants • Offices	14
05	Certified Professional for Environmental Officer in Environmental Impact Assessment (CePEOEIA)	EIA Projects	21
06	Certified Inspector of Sediment and Erosion Control (CISEC)		28
07	Certified Professional for Environmental Officer in EIA (CePEOEIA)		18

TNB's environmental management approach considers our significant operational impacts and interactions with key environmental aspects including water consumption and discharge, waste generation, air emissions, coal ash disposal, and overall GHG emissions. We adopt a structured and proactive strategy to monitor, manage and minimise these impacts, ensuring alignment with the TNB HSEMS and ISO 14001 standards. Our efforts are reinforced by a network of certified environmental professionals and regular audits to ensure compliance and continuous improvement. This comprehensive management approach supports the principles outlined in ISSB S1 and S2, which emphasise disclosure and action on sustainability and climate-related risks and opportunities. By addressing material environmental impacts across our operations, we contribute to climate resilience, environmental stewardship, and long-term value creation for stakeholders.

BIODIVERSITY MANAGEMENT

The TNB Biodiversity Framework is developed with the aspiration to achieve a net positive impact on biodiversity in new high biodiversity risk sites, aligning with the Kunming-Montreal Global Biodiversity Framework and Malaysia's National Policy on Biological Diversity 2022-2030. Our guiding principle focuses on applying the mitigation hierarchy to minimise impact on biodiversity in TNB operation. The framework embeds conservation across the asset lifecycle, focusing on endangered species, ecosystem restoration, forest preservation for climate action and urban biodiversity through spatial planning.

MM6: BIODIVERSITY & ENVIRONMENTAL MANAGEMENT

TNB BIODIVERSITY FRAMEWORK

Commitment

We promote to minimise impact on biodiversity and protect environmental ecosystem

Aspiration

We aspire for net positive impact on biodiversity for new high biodiversity risk sites

Guiding Principle

Apply mitigation hierarchy to minimise impact on biodiversity in TNB's operations
- **"Avoid, Minimise, Restore and Offset"**

Ecosystem

- Land Ecosystem
- Aquatic and Marine Ecosystem

Element

- Flora
- Fauna
- Water
- Soil
- Air

Goal

- Embed biodiversity conservation into end-to-end asset lifecycle
- Conserve endangered flora and fauna
- Enhance degraded ecosystem
- Utilise land spatial planning for urban biodiversity conservation
- Preserve forest as climate change mitigation solution

Enabler

- Scientific and technical collaborations and partnerships for biodiversity
- Strengthen capacity building, education and public awareness

Applicability

- Large-Scale Solar
- Floating Solar
- Thermal Plant
- Large Hydroelectric
- Grid Network
- Targeted Sites

**Targeted sites covers degraded areas, high biodiversity value areas and locations with ecotourism potential*

Biodiversity Mitigation Hierarchy

At the core of TNB's biodiversity framework is the mitigation hierarchy, a guiding principle to reduce environmental impacts across project lifecycles ensuring biodiversity considerations are integrated from planning to decommissioning.

Avoid	Water • Maintenance of buffer zone from river reserved	Soil, Flora and Fauna • Avoid protected and high biodiversity area
Minimise	Air • Installation of Flue Gas Desulphurisation (FGD) • Low NOx Burners • Electrostatic Precipitator Water • Manage water quality	Soil • Prevention of soil pollution • Avoid use of pesticides for vegetation management using livestock Fauna • Installation of physical barrier and establish buffer zone to prevent wildlife conflict • Protection of bird life with sound repellent
Restore/ Remedy	Water • Maintaining riparian release Soil • Soil treatment Flora • Rescue, relocation/translocation & monitoring of flora • Nursery of native species seedling created for reforestation • Replanting of native vegetation • Rehabilitate degraded forest area	Fauna • Rescue, relocation/translocation & monitoring of fauna • Fish restocking • Develop wildlife corridor
Offset *Other locations	Flora • Restoration of mangrove habitat • Tree planting	

Fish sanctuary conservation at Sungai Chilling, Kuala Kubu Baru to mitigate the impact of grid development in that area.

MM6: BIODIVERSITY & ENVIRONMENTAL MANAGEMENT

Power generation activities pose notable risks to biodiversity through habitat alteration, water use and pollution. Aquatic ecosystems are particularly affected by thermal plants and floating solar installations, while hydroelectric and LSS projects often lead to habitat fragmentation and land-use change. By understanding these biodiversity risks, we are better equipped to mitigate our ecological impact and uphold our commitment to sustainable energy generation.

Ecosystem	Elements	Biodiversity Loss Driver	TNB Operation						
			LSS	Floating Solar	Onshore Wind	Offshore Wind	Thermal Plant	Hydro electric	Grid
AQUATIC AND MARINE ECOSYSTEM	Flora and Fauna	Use of aquatic habitat		H			H		L
		Use of marine habitat		H		L	L		L
		Invasive species		L			H	L	
		Conflict		L			M		
	Water	Water exploitation					H	H	
		Water pollution		L		L	H	L	L
	Air	Air pollution						H	
LAND ECOSYSTEM	All	Climate change					H		
	Flora and Fauna	Land use changes and habitat fragmentation	H		L		M	H	M
		Invasive species						L	
		Conflict	H					H	L
	Air	Air pollution					H		
	Soil	Soil pollution					L		H

Note: Based on TNB internal high level analysis

Legend

H High Potential Impact

M Medium Potential Impact

L Low Potential Impact

Addressing Biodiversity Impact

In 2024, we invested approximately RM3.68 million to implement biodiversity initiatives across key operational sites. Using a data-driven approach, we set measurable goals to enable adaptive biodiversity management. Building on successful efforts at the Ulu Jelai and Hulu Terengganu hydroelectric projects, we expanded our initiatives to the Nenggiri Hydroelectric Project, Bukit Selambau Solar Farm and Sultan Azlan Shah Power Station. Our mitigation efforts prioritise preventive and rehabilitative actions, comply with environmental regulations, and avoid Protected Areas identified through Environmental Impact Assessments (EIA), ensuring a reduced ecological footprint across our operations.

Nenggiri Hydroelectric Project – Addressing Human-Wildlife Conflict

As part of our commitment to biodiversity, we actively address emerging human-wildlife conflict at the Nenggiri Hydroelectric Project, particularly involving species such as tigers and elephants. In 2024, we worked closely with Jabatan PERHILITAN and *Jabatan Kemajuan Orang Asli* (JAKOA), implementing wildlife management initiatives including the maintenance of corridors, animal rescues and safety education for workers. These efforts are guided by strategic partnerships and regular stakeholder engagement to ensure meaningful, site-specific outcomes.

Royal Belum State Park – Community-Led Fish Sanctuary

We support the AKEKCHEP Fish Sanctuary, a community-led initiative within the Royal Belum State Park. This programme safeguards native fish populations and sustains indigenous livelihoods, demonstrating how biodiversity protection and social development can go hand-in-hand.

Sultan Abu Bakar Hydro Lake – Sustainable Reforestation and Agriculture

Through a partnership with the Pahang Forestry Department, we rehabilitate degraded forest areas around the hydro lake. This initiative integrates sustainable farming practices, engaging local communities in reforestation efforts and supporting long-term ecosystem recovery.

Archaeological Preservation at Nenggiri

Ahead of construction at Nenggiri, archaeological excavations revealed prehistoric human settlements dating back over 14,000 years. We established a dedicated Archaeology Centre to preserve and exhibit findings, while TNBR monitors ongoing impacts to water, air, noise, heritage and wildlife.

Ecology Monitoring at Key Sites

Annual biodiversity monitoring is conducted at key hydro and thermal sites including Hulu Terengganu, Ulu Jelai, Nenggiri, Janamanjung and Jimah. These activities comply with the Environmental Quality Act 1974, ensuring that any ecological shifts are documented and addressed through adaptive management.

Cameron Highlands – Habitat Rehabilitation at Sediment Disposal Areas

In collaboration with the Pahang State Forestry Department, we are restoring dredging sites at Jor and Ringlet Lakes. This project focuses on identifying effective tree species, soil treatments, and maintenance practices to accelerate forest regeneration.

Grid Infrastructure – Biodiversity Innovation

We developed the Tree Hyperspectral Identification System (THySIS) tool that detects endangered species along proposed transmission lines to avoid sensitive habitats. We are ready with the elevated transmission towers specification to reduce vegetation clearance and replant native species in ecologically sensitive areas. At Sungai Chilling, we support a fish sanctuary to mitigate the ecological impact of grid development.

Large-Scale Solar Projects – Wildlife and Habitat Stewardship

At TNB Bukit Selambau, we implemented a Conflict Management Plan to mitigate macaque-human interactions using DNA metabarcoding and behavioural ecology studies. At Sepang Solar, we adjusted operations to protect key bird species, while at our Bomen Solar Farm in Australia, sheep grazing and beehives were introduced to support pollination and maintain vegetation. Across our UK and Ireland sites, we protect and manage biodiversity naturally, for example through sheep grazing and habitat management, through wildflower meadow planting, hedgerow enhancement and habitat creation for native wildlife.

My Brighter Green – Supporting National Tree Planting

Through the My Brighter Green Programme, we contribute to Malaysia's goal of planting 100 million trees by 2025. As of 2024, we have planted 49,214 trees across the country, reinforcing our commitment to reforestation and carbon sink creation. In addition to My Brighter Green Programme, in FY2024, TNB planted a total of 144 trees at Nenggiri Hydroelectric plant project site for the purpose of habitat and biodiversity rehabilitation.

For more information on tree planting, please refer to MM8 Community Development and Social Impact.

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Biodiverse Habitat

We acknowledge that our operations may impact habitat protected under local and international regulations. Accordingly, we have identified endangered and threatened species listed by the International Union for Conservation of Nature (IUCN) at our operational sites to safeguard surrounding ecosystems.

IUCN Conservation Status	Flora	Terrestrial	Aquatic	Bird	Total No. of Species
Critically Endangered (CR)	5	3	–	–	8
Endangered (EN)	–	20	–	1	21
Vulnerable (VU)	1	12	–	8	21
Near Threatened (NT)	–	9	–	11	20
Lease Concern (LC)	13	109	26	51	199
Data Deficient (DD)	–	–	–	–	0
Not Evaluated (NE)	205	4	–	–	209

Biodiversity Engagement

We engage various stakeholders at different platforms, emphasising our commitment to conserve and manage biodiversity.

Expert view in formulation of new protocols/guidelines in Malaysia

- Malaysia Platform for Business & Biodiversity
- Feasibility Studies and Development of Forest Carbon Offset Protocols in Malaysia

Dialogues with Governments or Regulators

- Terengganu Elephant Conservation Action Committee
- Terengganu Wildlife Conflict Management Committee

Participation in biodiversity forum/ activities at national and international level

- National Climate Governance Summit 2024
- Malaysia Biodiversity Forum 2024
- Biodiversity Day 2024, organised by the Malaysia Palm Oil Green Conservation Fund (MPOGCF) and Universiti Malaya (UM)
- ASEAN Carbon Forum 2024
- Sharing session on Nature-Based Solutions Projects in Malaysia organised by Fairatmos and the Embassy of the Republic of Indonesia

WATER MANAGEMENT

[SASB: IF-EU-140a.1, SASB: IF-EU-140a.3]

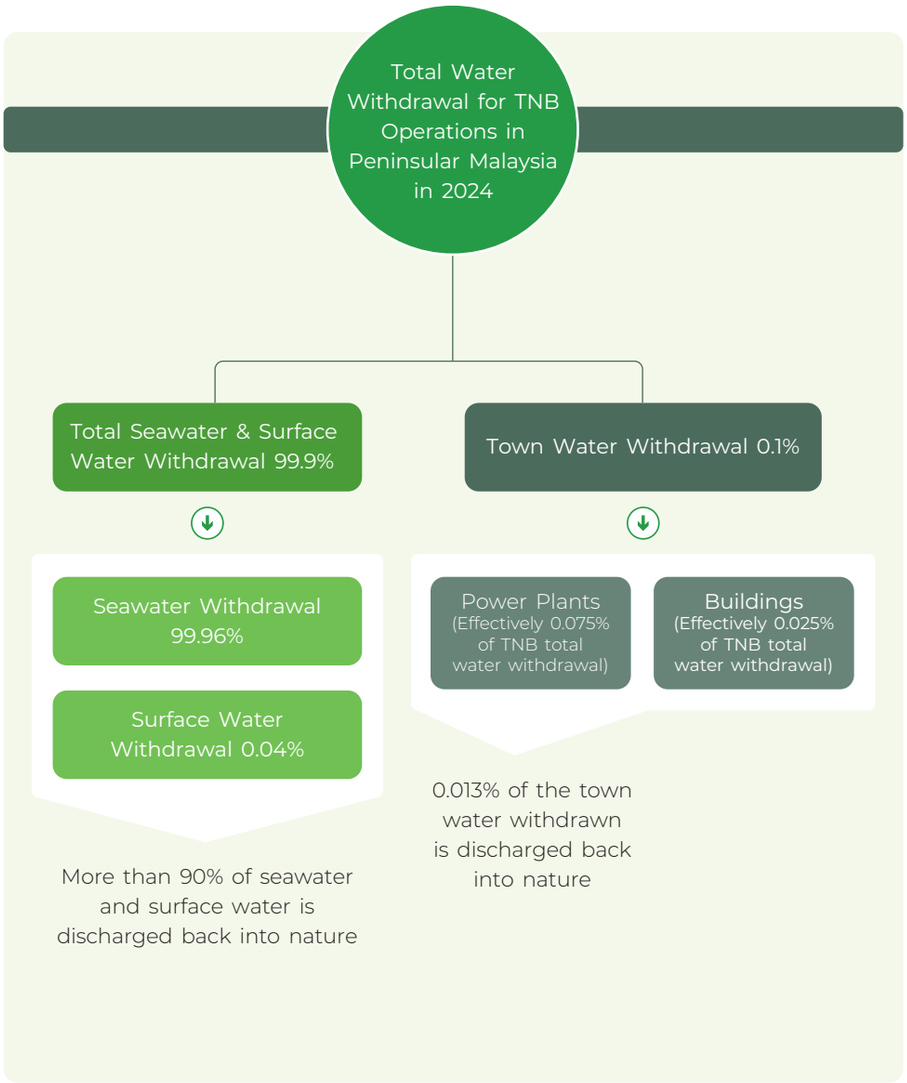
Electricity generation is one of the most water-intensive industries globally, with thermal power plants relying heavily on water for cooling. As climate change drives increased water scarcity, the sector faces growing operational and regulatory risks, from reduced water availability and drought to biodiversity-related constraints that may threaten the viability of existing and future power assets.

At TNB, we recognise that water is a finite and increasingly contested resource. In response, we have made water management a strategic priority, with performance and initiatives regularly deliberated at the Sustainability & Energy Transition Committee (SETC). This reflects our ongoing commitment to efficient, responsible water use across our operations.

The SETC is chaired by the President/CEO, with members from TNB top management team, to ensure executive-level responsibility for ESG matters including water stress. Our commitment to water efficiency is not just a responsibility but also a testament to our dedication to sustainable practices and resource conservation.

In FY2024, TNB consumed a total of 9,029 megalitres of water, a reduction of around 10% compared to the previous year. We withdraw water from seawater, surface water and town water for our operations, of which over 90% is estimated to be discharged back to the respective sources.

Our focus, therefore, is to optimise the use of the 0.1% of town water withdrawn, where 0.013% of it is treated and safely discharged to nature. Our main efforts are concentrated on optimising the use of the remaining town water withdrawn through efficient operations, enhanced technologies and innovation.



TNB Generation Assets Located at Low Water Stress Area

All TNB generation assets in Peninsular Malaysia are strategically located in areas with zero water withdrawals from water-stressed areas. Our water stress mapping is based on the Aqueduct by the World Resources Institute. This proactive approach prevents potential conflicts over water use between industry and local communities.

Town Water Optimisation in Thermal Power Plant Operations

Our thermal power plants were built and continue to operate in accordance with the World Bank Environmental and Social Standards which include stringent water consumption protocols, aligned with high-efficiency thermal plant operations, reflecting our dedication to responsible and sustainable resource management.

Our power plant steam generation process is designed as a closed-loop system aimed at minimising reliance on town water sources. From 2023 to date, average Water Intensity (water consumption from town water source per net generation of respective plant) of our power plants is much lower than our counterparts with similar power plant technology, exhibiting our responsible water use.

Furthermore, we specialise in state-of-the-art plant upgrade initiatives. For instance, to address increasing water consumption since 2021 at our Combined Cycle Gas Turbine plant, Sultan Ibrahim Power Plant, we installed 100 units of Zero Leakage Valve at Heat Recovery Steam Generators in 2024 to reduce town water consumption.

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Alternative Water Sources for Thermal Power Plant Cooling System

For our power plant cooling system, we utilise alternative sources such as seawater and river water to minimise dependency on town water sources. Our open circuit Main Cooling Water (MCW) system effectively employs these sources, discharging water back into the sea at temperatures and chlorine levels compliant with the Department of Environment (DOE) standards, resulting in zero net water consumption. This approach underscores our commitment to sustainable practices and environmental stewardship, aligning with global water conservation standards established by the Electric Power Research Institute (EPRI).

Our initiatives to optimise water consumption at our operations is underscored by our exemplary performance, with average water intensities at our power plants significantly lower than that of international counterparts using similar technologies. This reflects our strong commitment to responsible water use and operational efficiency.

TNB Thermal Power Plant Water Consumption Intensity[1]					
		Water Intensity, Litre/kWh			
No.	TPGSB Thermal Power Plant	TPGSB Thermal Power Plant (Year 2024)	International Counterparts[2]	Steam-water Cycle	Water source for cooling system
1	TNB Janamanjung	0.161	0.36 – 0.52 *(Ultra-supercritical Boiler)*	Closed-Loop	Seawater
2	Jimah East Power	0.097		Closed-Loop	
3	Kapar Energy Ventures	0.242	0.41 – 0.57 *(Sub-critical Boiler)*	Closed-Loop	
4	Prai Power Station	0.010	0.27 – 0.45 *(Combined-cycle Gas Turbine)*	Closed-Loop	
5	Tuanku Jaafar Power Station	0.068		Closed-Loop	
6	Sultan Ibrahim Power Plant	0.072		Closed-Loop	
7	Connaught Bridge Power Station	0.062		Closed-Loop	River water
8	Gelugor Power Station	0.034		Closed-Loop	Not Applicable (air-cooled)
9	Putrajaya Power Plant	Not Applicable	Not Applicable *(Open Cycle Gas Turbine)*	Not Applicable	Not Applicable (air-cooled)

Notes:
[1] *Water consumption based on municipal/ town water consumption*
[2] *Average international counterparts water consumption intensity of United State depicted from report of "A Review of Operational Water Consumption and Withdrawal Factors for Electricity Generating Technologies in the United States" (March 2011) by NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, operated by the Alliance for Sustainable Energy, LLC*

	Water Consumption Factor or Intensity	
Plant Technology	**Gallons/MWh**	**Liter/kWh (after conversion)**
Coal Subcritical	90 – 125	0.41 – 0.57
Coal Supercritical	80 – 115	0.36 – 0.52
Natural Gas Combined Cycle	60 – 100	0.27 – 0.45

Rainwater Harvesting

As part of our commitment to water conservation, TNB has implemented rainwater harvesting systems across a range of operational assets, collectively supporting landscape irrigation, equipment cooling, building maintenance and industrial reuse. In 2024 alone, our facilities including solar farms, power stations, substations and office buildings, harvested and utilised millions of litres of rainwater, reinforcing our efforts to reduce reliance on treated water sources and minimise surface runoff.

In 2024, we have collected and utilised over 8.7 megalitres of rainwater installed at TNB Platinum Complex, Bangsar and Balai Islam, Bangsar.

Asset Type	Asset	Rainwater Harvested
Large Scale Solar	TNB Sepang Solar TNB Bukit Selambau Solar	• Rainwater harvesting system with a capacity of 24,000 litres at Sepang Solar and 1,000 litres at Bukit Selambau • Mitigate erosion by decreasing ground runoff and essential to support PV module cleaning, cooling or fire prevention
Thermal Power Plant	TNB Janamanjung Jimah East Power	• Rainwater harvesting system with a capacity of 1,375,000 litres at TNB Janamanjung and 1,890,000 litres at Jimah Power East • Rainwater harvested is used for coal yard dust suppression and used water is recirculated into the process tank for reuse
Substation	TNB *Pencawang Masuk Utama* (PMU) Kuantan North	• Rainwater harvesting system with a capacity of 2,000 litres at PMU Kuantan North • The system is used for utilisation and reuse of rainwater for the building's cleaning purpose
Office Building	TNB Platinum Complex, Bangsar and Balai Islam, Bangsar	• Utilised for landscape irrigation and gardening • In 2024, the Platinum Complex harvested and utilised around 8.33 megalitres of rainwater, while Balai Islam harvested 374,507 litres of rainwater

Water Reduction Initiative for TNB Office Buildings

Our "Drip by Drip, Watt by Watt" initiative is implemented at 109 TNB office buildings to promote water and energy efficiency. In 2024, we have saved a total of 17,863 m^3 of water consumption, a reduction of 20.5% compared to the previous year.

For our metrics on water, please refer to the performance tables at the end of this chapter.

TOXIC EMISSIONS MANAGEMENT

As a power utility company with a portfolio that includes thermal power plants, combustion of fossil fuels remains a necessary component of electricity generation within our operations. This process produces emissions such as carbon dioxide (CO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and particulate matter (PM), which can impact air quality if not properly managed.

To mitigate these impacts, we closely monitor emissions in compliance with the Environmental Quality (Clean Air) Regulation 2014 and submit annual toxic emissions reports to the DOE. Any deviations are reported within 24 hours, with prompt implementation of corrective measures.

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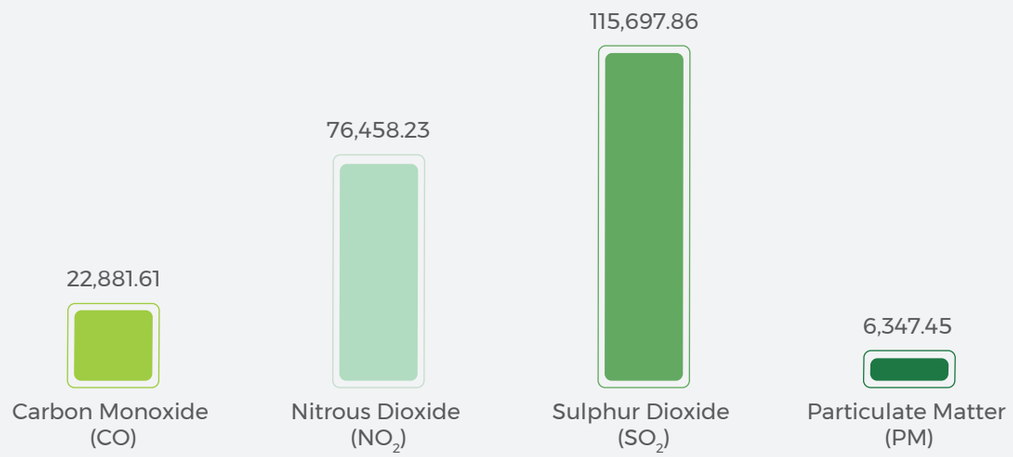
Emissions Control Measures

To achieve air emissions compliance, TNB employs a range of advanced technologies and practices by optimising the fuel mix and maintaining the effectiveness of emissions control facilities, such as:

- Flue Gas Desulphurisation (FGD) – Since 2009, all TNB coal plants have been equipped with Flue Gas Desulphurisation (FGD) systems as a key emissions control measure. The implementation of FGD has significantly reduced sulphur dioxide (SO_2) emissions from coal-fired power plants Janamanjung and JEP, reducing SO_2 emissions significantly.
- Electrostatic Precipitator (ESP) – Utilised at all TNB coal plant for the removal of harmful particulate matter.
- Low NOx Burners – Employed in to curtail NO_2 emissions. Coal plants have been equipped with Low NOx burners to maintain high combustion efficiency while significantly reducing NOx emissions, supporting compliance with environmental regulations and improving overall air quality.
- EFB-Pellet Trial Burn – Conducted at Jimah East Power (JEP) U20, yielding remarkable emissions reductions, marking a significant milestone in Malaysia's biomass-fired supercritical boilers.
- Biomass Integration Program – Implemented at Kapar Energy Ventures (KEV) in collaboration with IHI Power System Malaysia. The initiatives aim to phase in biomass use, showcasing encouraging results and a commitment to reduce emissions further.
- Coal Blending Initiatives – Implemented at all coal plant which will help to reduce emissions.

Total Emissions in Metric Tonnes (MT) for year 2024



For our metrics on significant air emissions, please refer to the performance tables at the end of this chapter.

WASTE MANAGEMENT

At TNB, our operations generate both hazardous and non-hazardous waste, each requiring tailored management and disposal strategies. We systematically categorise waste by its characteristics, origin and potential environmental impact. This approach enables us to implement effective disposal, recycling and treatment methods aligned with best practices.

Guided by the principles of the circular economy, TNB strives to establish a closed-loop waste management system that minimises waste generation, reduces environmental impact and contributes to a sustainable future. Our initiatives are driven by our environmental policy and reflect our dedication to responsible environmental stewardship, focusing on:

Raising Awareness:

Promoting sustainable environmental practices among internal teams and external stakeholders.

Regulatory Compliance:

Ensuring full adherence to environmental laws and regulations while proactively identifying areas for improvement.

Enhancing Systems:

Continuously improving our Health, Safety, and Environment Management System (HSEMS) to meet the highest safety and environmental standards.

Innovative Technologies:

Investing in cutting-edge solutions to advance environmental management practices.

Transparent Reporting:

Maintaining accountability through detailed reporting of our environmental performance.

Our waste management efforts extend beyond compliance, emphasising education and collaboration to inspire sustainable practices among stakeholders. In anticipation of increasing solar and battery assets, we are committed to manage the end-of-life of these assets. By doing so, we aim to meet regulatory standards and prevent environmental harm, contributing meaningfully to a sustainable future.

TNB Scheduled Waste Roadmap 2018-2030

Strengthening Hazardous Waste Management

2018
- Development of SW Guidelines
- Competencies building via CePSWaM

2020
- Internal audit and inspection of SW management in TNB
- SW baseline data reporting

2022
- Establishment of the E-Waste management circular
- Strategic engagement with DOE on E-Waste programmes

2024
- SW Thematic Area: Fly ash
- Launching of the SW Management System (SWAM)

2026
- Increase E-Waste collection rate by 15% from 2025
- TNB SW Roadmap Performance Review

2028
- TNB as an E-Waste collection centre
- Continuous CePSWAM capabilities training

2030
- TNB SW Roadmap Performance Review
- Increase TNB SW Recycle Rate to 50%
- Zero NCL on SW

PHASE 1 | **PHASE 2** | **PHASE 3**

- Competencies and Capabilities Building on Scheduled Waste Management
- Intensify the compliance of scheduled waste management through SMART enforcement and self-regulation approach
- Communication, Education and Employee Awareness (CEEA) on scheduled waste management
- Strengthening the 4R principle (Reuse, Reduce, Recycle & Recover) and Safe Disposal Method for Scheduled Waste

2019
- Establishment of SW Guidelines

2021
- Establishment of TNB PCB Eradication Plan
- Establish Self Visual Report in Scheduled Waste Management

2023
- Development of E-Waste inventory reporting system (E-WI)
- SW Thematic Area: Clinical waste management at TNB clinics/ dispensaries
- Setting up SW War Room
- Benchmarking visits to other companies for SW management

2025
- Increase TNB SW Recycle Rate to 30%
- Increase E-Waste collection rate by 10% from 2024
- TNB PCB Free

2027
- TNB SW Roadmap Performance Review
- Increase TNB SW Recycle Rate to 40%
- Increase E-Waste collection rate by 20% by 2026

2029
- Increase TNB SW Recycle Rate to 45%
- Increase E-Waste collection rate by 30% from 2028

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Abbreviations:
SW: Scheduled Waste
CePSWaM: Certified Environmental Professional in Scheduled Waste Management
PCB: Polychlorinated biphenyl
E-Waste: Electrical and electronic waste
NCL: Notice, Compound, Lawsuit
DOE: Department of Environment

MM6: BIODIVERSITY & ENVIRONMENTAL MANAGEMENT

Hazardous Waste Management

The TNB Scheduled Waste Roadmap 2018-2030 shapes our hazardous waste management strategy that is in line with national goals outlined in the DOE Strategic Engagement Plan 2021–2030. Our roadmap includes phased targets, starting with a 30% scheduled waste recycling rate by 2025.

Proactive waste prevention is our key priority and when waste generation is unavoidable, we manage it responsibly through the 4R approach: Reduce, Reuse, Recycle, and Recover, alongside our circular economy practices.

In compliance with the Environmental Quality Act, we strictly enforce the TNB Scheduled Waste Disposal Management Guidelines across all operations, which includes a five-step standardised process to manage hazardous waste through classification, storage, packing and labelling, inventory management, disposal and continuous monitoring.

Scheduled waste generated from our operations, including lead acid batteries, lubricating and hydraulic oils, contaminated soil, and chemical containers, are treated through reuse, cementation, or incineration as per regulatory requirements. With tailored disposal methods such as recycling of electronic waste, and physical/chemical treatment for mercury waste, we ensure safe and compliant waste handling to reduce environmental impact.

In terms of performance monitoring, we utilise the DOE-governed ESWIS system to enable reliable data tracking.

TNB continues to uphold best practices in hazardous waste management through inspections, risk-based audits, and Self Visual Report (SVR) programme. The SVR aims to promote self-regulation practices and accountability across our operations. In 2024, a total of 640 SVR were recorded across 86 storage facilities.

Reducing Hazardous Waste and Maximising Recycling Rates

We have successfully reduced the amount of hazardous waste generated by 3.67% in 2024 (895,038 MT) compared to the previous year (929,123 MT). Of this hazardous waste, 55.58% (497,452 MT) was recycled.

Fly ash and bottom ash from our power generation operations constitute 99% of our total hazardous waste generated. The remaining hazardous waste is mainly used transformers, used lubricating oil, used batteries and e-waste.

Fly ash has substantial potential for reuse, particularly in construction. In 2024, we collaborated with ten construction or cement companies to make use of the fly ash in the production of concrete and bricks, diverting the fly ash from landfills and promoting a circular economy. When recycling is not feasible, the fly ash is transported to secure, licensed landfills that adhere to DOE environmental standards.

Enhancing E-Waste Management

Our e-waste management guidelines aim to significantly increase the amount of e-waste diverted from landfills. In 2024, we launched our E-Waste Inventory System for comprehensive e-waste tracking from waste generation to disposal, with our e-waste amounting to 10 metric tonnes (baseline). Moving forward, we target to increase e-waste collection by 10% in 2025 from this baseline.

Verification with Licensed Waste Collectors

We work exclusively with waste collectors licensed by DOE, ensuring responsible waste collection. To strengthen the validation of TNB's scheduled waste treatment, disposal methods and data collection, we actively collaborate with our licensed vendors to ensure compliance and continuous improvement on our processes. In 2024, we began these efforts with onsite reviews, focusing on the collectors' waste treatment methods and inventory management. Visits to selected sites confirmed that 75% of our scheduled waste was recycled or recovered, reinforcing our commitment towards circular economy.

A Streamlined Process for Responsible Disposal by Licensed Vendors

Damaged solar panels are stored at the licensed vendor's warehouse for responsible disposal, with approximately 300 panels already processed. The panels are meticulously dismantled, separating the glass and metal components. The glass is carefully broken down and disposed of at a designated industrial landfill, while the compressed metal is sold to a third party for recycling. For residential, commercial, industrial and government clients, we prioritise recycling panels for reuse at other TNB sites if they are still under warranty and in good condition. This stringent approach not only ensures regulatory compliance but also significantly mitigates the environmental impact of our operations.

TNB Chief Sustainability Officer (seventh from left) during a visit to a licensed waste collector.

Hazardous Waste Awareness Programmes

In 2024, we organised a symposium for our environmental competent personnel as knowledge enhancement through the sharing of best practices in Grid Division and TNB Power Generation Sdn. Bhd., as well as being updated on the new Environmental Quality Act (Amendment) 2024 by DOE.

Various awareness initiatives for employees are also conducted such as e-waste awareness videos and E-Waste Day at TNB headquarters allowing employees to exchange e-waste for cash, thereby promoting responsible disposal.

SF_6 Recycling

TNB continued to implement routine asset management and operational upgrades that support environmental performance and system efficiency. This included the refurbishment of Gas Insulated Switchgear (GIS) and ongoing sulphur hexafluoride (SF_6) leak management, maintaining a leak rate below 0.5%. The SF_6 Gas Recycling and Reconditioning Centre remains operational, enabling the recovery and reuse of gas to reduce environmental impact.

Waste to Product from Coal Bottom Ash

[SASB: IF-EU-150a.1]

In addressing the environmental impacts of coal combustion and its by-products, TNBR has successfully utilised Coal Bottom Ash (CBA) by developing a range of green products such as cable trench covers, underground cable bases, concrete components, and bricks. These innovations not only support the principles of a circular economy but also are aligned with TNB's ESG commitments and SDG Goal 12 on responsible consumption and waste recycling.

Reutilising coal ash helps to reduce the potential environmental impacts of coal ash storage in ash ponds such as ash dispersion to the surrounding population. Coal ash can also be reused to replace natural materials in concrete such as sand and cement, which help to reduce the potential carbon footprint due to sand and mineral mining. Products which utilise coal ash can also achieve eco-labeling and sustainable product certification, which increases their marketability.

To date, 3,078 units of Concrete Green Cable Protection Slab (Concrete GCPS) have been fully produced by TNBR and its partners, with installations completed at two key sites TNB Distribution Network (TNB DN) project: Elmina, Selangor (628 units, 376.2 meters) and Temoh, Perak (2,450 units, 1,470 meters) under pilot testing. These achievements demonstrate tangible environmental benefits and reflect strong coordination between TNBR, TNB Janamanjung, and TNB DN, as well as the manufacturing and deployment teams.

MM6: BIODIVERSITY & ENVIRONMENTAL MANAGEMENT

Responsible End-of-Life Management of Solar Panels & Battery

The rapid growth of solar and battery technologies presents a pressing challenge: without proper end-of-life management, these assets pose significant environmental risks. Improper disposal can result in the release of hazardous substances such as lead and cadmium, with serious implications for both human health and ecosystems.

In anticipation of our expanding portfolio of solar and battery assets, we are committed to managing their end-of-life responsibly. Our approach is rooted in circular economy principles, emphasising the 3Rs – Reuse, Repurpose, Recycle – to ensure minimal environmental footprint during decommissioning. We strictly adhere to the Environmental Quality (Scheduled Waste) Regulation 2005, with disposal activities conducted by licensed vendors under the vigilant oversight of the DOE.

To further our efforts, we proactively integrate circularity across the solar lifecycle – from procurement to disposal – aligning with Malaysia's target of achieving 70% renewable energy capacity by 2050. Our subsidiary, TNBR, has developed a Pilot Recycling System for photovoltaic panels that uses thermal treatment and heat recovery to separate materials into clean glass, silicon wafers, metals, and other recyclable resources.

By investing in such innovations and maintaining strict regulatory compliance, we aim to establish a closed-loop system for solar technologies, minimising waste, supporting national energy goals, and driving long-term environmental sustainability.

A STREAMLINED PROCESS FOR RESPONSIBLE DISPOSAL BY LICENSED VENDORS

Storage of Damaged Solar Panels

Damaged solar panels will be stored at the warehouse of the licensed vendor for further disposal. Approximately 300 solar panels waste have undergone the disposal exercise with the vendor.

Segregation of Solar Panel Components

Damaged panels will be dismantled from their structures and separated. For photovoltaic (PV) panels, the glass and metal components are typically separated first. The glass is broken down, and the metal frames are compressed into bundles.

Recycling and Disposal Process

Following segregation, the glass is disposed of at a designated industrial landfill. The compressed metal, meanwhile, is sold to a third-party for recycling.

Residential, Commercial, and Industrial Solar Panels

For solar panels installed for residential, commercial, industrial, and government clients, we prioritise recycling them for reuse at other TNB sites if there is a suitable site for re-installation, and the panels are still under warranty and in good condition.

Procurement

We consider the recyclability of solar panels during procurement. This means prioritising components with high recycled content and favouring vendors with responsible sourcing practices.

Product Lifespan Extension

We focus on extending the lifespan of panels through proper maintenance, cleaning, and potential repair programmes. This reduces the need for early replacements and associated waste generation.

Second-Life Applications

We explore opportunities for reusing panels that are no longer suitable for primary use. For example, repurposing panels in non-critical applications.

In managing the battery lifecycle end-of-life, we actively benchmark best practices and collaborate with industry partners to:

- Optimise battery performance
- Explore innovative second-life applications
- Minimise environmental impact through responsible recycling

We have also intensified collaboration with vendors who are capable, licensed, and have vast experience in recycling and recovery to process our waste batteries.

Our commitment to responsible end-of-life solar and battery management extends beyond environmental considerations and encompasses minimising waste while educating stakeholders on sustainable practices.

Responsible Effluent Management

In mitigating legal and operational risks and ensuring that effluents meet quality standards to protect public health and the environment, we have developed the Industrial Effluent Treatment System (IETS) Management Guideline.

Industrial effluent treatment systems are fundamental in managing wastewater generated by TNB to safeguard the environment and ensure compliance with regulatory requirements. These systems encompass various stages and processes designed to remove contaminants from the effluent before its safe discharge into the environment.

For our metrics on waste, please refer to the performance tables at the end of this chapter.

Non-Hazardous Waste Management

Our non-hazardous waste management complies with the Solid Waste and Public Cleansing Management Act 2007 (Act 672) and regulations set by the *Jabatan Pengurusan Sisa Pepejal Negara* (JPSPN). We are taking a phased approach towards improving our non-hazardous waste management. In 2023, we introduced the Tenaga Solid Waste Inventory (TESWI) to streamline data collection and monitoring of non-hazardous waste generation, promoting waste separation and recycling practices.

In 2024, 958 tonnes of non-hazardous waste were generated, with garden waste as the largest category, followed by mixed waste, residual waste, paper waste and bulk waste. Of the total, 831.09 tonnes (86.8%) were disposed, while 126.91 tonnes (13.2%) were recycled. With data analysis and identification of key waste streams, we can pinpoint opportunities for targeted reduction and recycling efforts.

Initiatives such as source segregation, on-site composting and sustainable landscaping to transform waste into valuable resources, are being explored to support our circular economy goals.

Uniforms and Fabrics Recycling Campaign

TNB launched the Uniforms and Fabrics Recycling Campaign in August 2024, targeting 75 tonnes of fabric collection by July 2025 across 135 locations in celebration of its 75th anniversary. This initiative promotes fabric waste recycling practices. By December 2024, the campaign had exceeded expectations, achieving 102.08 tonnes (136% of the target), with 89.86 tonnes (88%) from general fabrics and 12.23 tonnes (12%) from TNB uniforms. With strong participation and continued support from employees, TNB is making significant strides in reducing fabric waste and embedding a culture of recycling, and we strive to continue the recycling initiative.

TNB launched the Uniforms and Fabrics Recycling Campaign with more than 100 tonnes of recycled waste collected by end of 2024.

Food Waste Management

To manage food waste responsibly, we adopt a circular approach that mitigates environmental harm while generating renewable energy. Food waste sent to landfills decomposes anaerobically, releasing methane, a greenhouse gas significantly more potent than carbon dioxide. To address this, internal food waste is collected and channelled to a pilot bioreactor plant in Kajang. Here, the waste is processed into biogas, which is refined into renewable natural gas and injected into microgrids to generate energy for internal consumption. In addition to biogas, the bioreactor produces by-products that serve as ingredients for fertiliser. This closed-loop solution not only diverts waste from landfills but also reduces emissions, enhances energy efficiency, and contributes to a more sustainable operational footprint.

ENVIRONMENTAL COMPLIANCE

[SASB: IF-EU-140a.2]

In 2024, we faced penalties for non-compliances to the Environmental Quality (Scheduled Waste) Regulations 2005 and Environmental Quality (Industrial Effluent) Regulations 2009. We took full responsibility and swiftly settled all fines with immediate engagement with the DOE to prevent recurrence. We continue to implement corrective and preventive actions to ensure strict adherence to environmental regulations and to uphold the highest standards of compliance in our operations.

In 2024, the number of compounds received had reduced compared to the previous year as a result of rigorous inspections, internal audits and proactive self-regulation efforts aimed at achieving full compliance.

	2021	2022	2023	2024
Number of compounds received	11	5	10	4
Amount (RM)	19,000	20,000	20,000	8,000
Cases	There were five (5) cases of non-compliance related to hazardous waste management, five (5) cases involving violations of industrial effluent (wastewater) regulations, and one (1) case due to open burning.	Five (5) cases of non-compliance were recorded related to hazardous waste management practices.	Ten (10) cases of non-compliance were recorded related to hazardous waste management practices.	Two (2) cases of non-compliance were recorded related to industrial effluent (wastewater) requirements, and another two (2) cases were associated with hazardous waste management violations.

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OUR PERFORMANCE

PERFORMANCE : BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
WATER							
GRI 303-5	C9	**Total water consumption from all areas**					
		Total water consumption from all areas	ML	–	10,096	9,234	2% reduction for water used in buildings
WASTE							
WASTE GENERATED							
GRI 306-3	C10(a)	**Waste generated**					
		Total weight of waste generated	metric tons	74,150	929,123	895,996	–
		Hazardous waste generated					
		Total weight of hazardous waste generated	metric tons	74,150	929,123	895,038	–
		Non–hazardous waste generated					
		Total weight of non-hazardous waste generated	metric tons	–	–	958	–
WASTE DIVERTED FROM DISPOSAL							
GRI 306-4	C10(a)	**Hazardous waste diverted from disposal**					
		Total hazardous waste diverted from disposal	metric tons	–	440,595	497,452	–
		Total hazardous waste recycling rate	%	–	47.42%	55.58%	30% recycling rate of hazardous waste by 2025
		Non–hazardous waste diverted from disposal					
		Total non-hazardous waste diverted from disposal	metric tons	–	–	126.91	–
WASTE DIRECTED TO DISPOSAL							
GRI 306-5	C10(a)	**Hazardous waste directed to disposal**					
		Total weight of hazardous waste directed to disposal	metric tons	–	488,528	397,586	–
		Non–hazardous waste diverted from disposal					
		Total non-hazardous waste directed to disposal	metric tons	–	–	831.09	–

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
SIGNIFICANT AIR EMISSIONS							
GRI 305-7	S4(a)	Carbon Monoxide (CO)	ton	8,180.10	16,107.26	22,881.61	–
		Nitrogen Oxides (NOx)	ton	31,024.14	41,936.32	76,458.23	–
		Sulfur Oxides (SOx)	ton	27,412.40	34,977.44	115,697.86	–
		Particulate matter (PM)	ton	1,880.70	6,539.63	6,347.45	–

Note:
- *ML = MegaLitre*
- *The target will be set based on prevailing trends for indicators that are without target*

PERFORMANCE : ADDITIONAL INDICATORS

GRI	Metric	Units	FY2022	FY2023	FY2024
WATER					
GRI 303-3	**Total water withdrawal from all areas by sources**				
	Total water withdrawal from all areas	ML	9,822	3,694,205	4,235,191
	Sources – Surface water				
	Freshwater	ML	–	3,230	2,389
	Other water	ML	–	–	–
	Sources – Seawater				
	Freshwater	ML	–	–	–
	Other water	ML	–	3,679,348	4,221,884
	Sources – Third-party water				
	Freshwater	ML	–	11,627	10,917
	Other water	ML	–	–	–
GRI 303-4	**Total water withdrawal from all areas**				
	Total water discharge to all areas	ML	–	3,684,109	4,225,957
	Total water discharge to all areas by category				
	Category – Freshwater	ML	–	4,762	2,389
	Category – Other water	ML	–	3,679,348	4,221,884
	Total water discharge to all areas by destination				
	Destination – Surface water	ML	–	3,230	2,389
	Destination – Seawater	ML	–	3,679,348	4,221,884
	Destination – Third-party water	ML	–	1,532	1,684
GRI 303-5	Water Intensity (Water consumption/Net Generation Output)	ML/GWh	–	0.127*	0.126

**Data reinstated due to formula revision*

Note:
- *ML = MegaLitre ; GWh = Gigawatt hour.*

For more metrics on Significant Air Emissions, Water and Waste, as well as ISSB/SASB indicators, please refer to our performance tables on pages 169-170, 172-174, 176.

MM 7

Customer Experience and Satisfaction

WHY IS IT IMPORTANT?

With over 10 million customers across households, businesses, and industries, TNB plays a vital role in ensuring energy access and security. We strive to deliver consistent and responsive service that meets and exceeds customers' expectations as well as empowering customers in their digital journey.

We take great pride and privilege in serving our diverse customer base by delivering high-quality products and services, and we are continuously innovating to enhance each aspect of our customer experience. Our unwavering commitment is to provide reliable and affordable electricity supply that meet the evolving needs of our 10.41 million customers.

The energy sector is undergoing a major shift where consumers are becoming key contributors to both energy generation and consumption. Leveraging on emerging technologies, we empower customers with innovative solutions that foster the development of renewable energy and facilitate customer's energy transition journey through dynamic energy solutions such as rooftop solar, energy efficiency solutions, and Green Electricity Tariff. The rapid growth of Artificial Intelligence and cloud computing has significantly increased the needs for data centres in this region that requires reliable, sustainable, and fast-track energy supply. We continue to support and deliver power at scale and speed for data centres through our Green Lane Pathway initiatives.

The digital application, myTNB app, which connects to 7.26 million customers has strengthened customers' experience. Our annual Customer Satisfaction Index (CSI) recorded a score of 87% in 2024, maintaining top quartile performance for 10 consecutive years. This consistent performance underscores our dedication to delivering outstanding services and exceeding customer expectations.

Opportunities

- Accelerate electrification, support the growth of energy-intensive sectors like data centres, and unlocking new avenues for growth.
- Create exceptional customer experiences through digital transformation by offering personalised energy solutions and actively championing energy efficiency.

Risks

- Challenges in meeting evolving customer expectations for innovative and digitalised energy solutions.
- Customer dissatisfaction, when shared widely through social media, can escalate quickly and damage brand reputation and public trust.

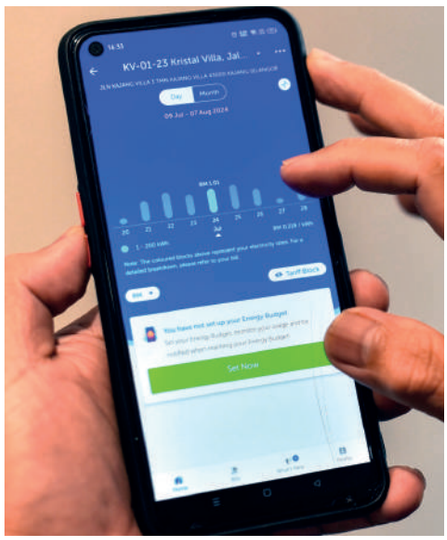


MANAGEMENT APPROACH

ELEVATING CUSTOMER EXPERIENCE

We enhance our customer-centric approach by delivering a top rated customer experience across four (4) communication channels: Click, Call, Come Over, and Go Over. We empower customers with innovative solutions such as the myTNB app, which provides real-time insights into their energy consumption, support their energy efficiency goals, and facilitate their transition to renewable energy. At the same time, we continue to offer face-to-face appointments at our Kedai Tenaga for those who prefer in-person interactions, ensuring a seamless and personalised customer experience.

In September 2024, a new Kedai Tenaga Phygital Concept Store in Iskandar Puteri was established, leveraging on technology to enhance interactive customer experience where customers can choose between face-to-face or digital interactions in their customer journey from supply application to account closing. At this store, customers experience an enhanced integrated environment that offers solutions such as energy efficient products and sustainability related services.



DIGITALISING CUSTOMER SERVICES

Digital transformation is at the core of our strategy to enhance customer experience and contribute to sustainability. Our myTNB app and portal serve as a one-stop digital service hub, offering a comprehensive range of customer support features. Beyond simplifying customer interactions, the app and portal empower users to make informed energy choices, enabling them to collectively contribute to climate goals through more sustainable energy consumption. With over 7.26 million subscribers, representing more than 70% of our customer base, the app and portal have strengthened our service delivery by providing greater convenience and control over energy usage.

Digital solution offerings to the customers as follows:

1. **Enhancing one-stop digital service in myTNB platform**

   a. **Digital billing option for customers**

   In line with our commitment to sustainability, we introduced digital billing for customers preferring e-bills over traditional paper ones. By the end of 2024, around 2.41 million customers had switched to digital billing, resulting in the preservation of 60,000 trees, approximately to 198 acres and approximately annual avoidance to annual saving of 1,308 metric tons of CO_2 emissions.

   b. **Integrating smart meter capabilities for energy efficiency solutions**

   Through the *myTNB Energy Budget* feature, users with smart meters can set consumption thresholds and receive alerts, promoting more efficient energy use. As of 2024, approximately 876K customers had adopted this feature, collectively reducing electricity consumption by 208.4 GWh, equivalent to 177,837 metric tonnes of carbon emissions avoided.

   The *myTNB* portal now offers detailed insights on carbon emissions per kilowatt-hour (kWh) for residential customers with smart meters, empowering users to track their carbon footprint. This feature helps customers measure their environmental impact and make informed decisions to reduce emissions.

   We plan to introduce 'Energy Disaggregation,' a new feature providing detailed insights into energy usage by specific appliances. This will offer personalised energy tips, enabling customers to make more informed decisions about their energy consumption and further manage their carbon footprint effectively.

   c. **Simplified home-moving solutions for customers**

   myHome is an innovative electricity supply application solution integrated within the myTNB app, designed to streamline the transition for customers relocating or buying new home. This platform empowers TNB customers to explore offerings that align with their preferences and lifestyles, all at their fingertips. In 2024, the platform has over 1,000 customers enrolling for services such as new connection, change of tenancy, and closing of account.

   d. **Digital solution for customers**

   Users can file service, and receive prompt updates—all from a single, user-friendly interface. This approach ensures a seamless service experience, allowing customers to resolve issues quickly and efficiently, without the need for in-person visits.

MM7: CUSTOMER EXPERIENCE AND SATISFACTION

2. **myTNBiz as digital hub for business customers with multiple accounts**
   - For our business customers with multiple & bulk account, we offer myTNBiz for payment solutions such as bill viewing and bulk online payments. Particularly tailored for our commercial and industrial customers, this platform is steadily gaining momentum, boasting over 215,000 connected customer accounts.
   - In addition, the portal now integrates with TNB's e-Invoice registration platform, allowing multi-account organisations to receive IRBM-compliant digital invoices directly via email or within the myTNBiz portal.

3. **Upcoming offering for customers looking for green solution: myTNB IJO**
   - myTNB IJO is an integrated digital platform for green energy solutions. It offers a comprehensive digital marketplace for green solutions such as wiring services, solar installations, green appliances, and green insurance, aiming to drive TNB's growth by enhancing customer experience, customer engagement, generating new revenue streams, promoting sustainable energy adoption, and strengthening TNB's brand as a trusted provider of green and customer-centric solutions. From 2025 to 2030, the strategic plan for myTNB IJO is to go-to market and to progressively scale its offerings, targeting residential customers by 2030. The focus will be on building a robust service partner ecosystem, launching flexible and affordable product bundles, and leveraging digital marketing to penetrate the residential segments.

Enhancing Customer Interaction Through Strategic Social Media Platforms

Throughout 2024, TNB's social media platforms saw remarkable growth, with around 8% increase in followership, reaching over 1.06 million users across various channels. This strong digital presence allows us to engage customers more effectively, using social media as a key tool to communicate our goals, explain regulatory changes, and promote greener lifestyles. By sharing content such as energy-saving tips, updates on renewable initiatives, and insights into energy efficiency, we increase public awareness and encourage active participation in the country's energy transition journey.

~ 1.06 Mn Soc Med Followers

Gained 77.89k new social media followers, marking a strong +7.97% growth

Facebook **+6.58%**	TikTok **+21.29%**
Instagram **+9.02%**	X **+9.25%**
Youtube **+3.81%**	LinkedIn **+10.16%**

FACILITATING CUSTOMERS' ENERGY TRANSITION JOURNEY & EMPOWERING CUSTOMERS THROUGH INNOVATIONS

We strive to provide various opportunities for customers to make informed decisions regarding renewable energy (RE) and energy efficiency such as:

Solar PV Rooftop

In addition to the above, our subsidiary GSPARX Sdn. Bhd. empowers consumers by encouraging them to become prosumers through self-generated electricity. GSPARX allows consumers to install solar PV at zero upfront cost and enjoy savings via self-consumption. To date, a total of 153 MWp rooftop solar PV have been installed at government buildings, universities, commercial and industrial segments. With the aim of giving homeowners peace of mind and ensuring the longevity of their solar PV investments, TNBX Sdn. Bhd. offers SuriaShield as insurance coverage for residential solar PV which includes restoration services, and compensation for income or savings loss during system breakdowns. In 2024, 621 consumers subscribed to SuriaShield, benefiting from its tailored plans.

Green Electricity Tariff (GET)

The Green Electricity Tariff (GET) lets customers neutralise their Scope 2 emissions by purchasing 100% renewable power—consolidated on a single electricity bill—without installing rooftop solar or other on-site generation. Supply comes from Large-Scale Solar (LSS) plants, hydropower stations and other Energy-Commission-approved renewable facilities. Each calendar year, participants receive Malaysia Renewable Energy Certificates (mRECs) that verify the green origin of their electricity. In 2024, 1,403 customers procured 2,513 GWh through GET. The scheme now offers discounted, longer-term subscriptions of one to three years and is expected to remain a credible, mREC-bundled green-power option for the long term.

Net Energy Metering (NEM) and Solar for Rakyat Incentive Scheme (SolaRIS)

NEM allows customers to export excess energy produced from their solar PV systems to the national grid. To date, 55,831 NEM participants make up a total installed capacity of around 1.5 GW.

Solar for Rakyat Incentive Scheme (SolaRIS), was launched by the Government aimed at attracting new installations of solar photovoltaic systems in residential premises. A cash rebate of up to RM4,000 is given to residential customers who submit NEM Rakyat application to Sustainable Energy Development Authority (SEDA) from 1 April 2024 onwards and successfully commission their solar PV system installations. TNB has successfully disbursed RM76.2 million of SolaRIS rebate benefitting 19,081 customers.

Supply Agreement for Renewable Energy (SARE)

Through its pioneer solution Supply Agreement for Renewable Energy (SARE), our subsidiary TNBX Sdn. Bhd., has secured a cumulative capacity of 343 MWp across 1,014 Solar PV projects. Seamless convergence billing and contracting services offered through SARE have attracted 110 Solar PV investors to adopt this solution into their Solar PV projects. This, in a way, assists to spur the growth of renewable energy adoption among commercial, industrial and government sectors in Peninsular Malaysia.

TNB provides solar rooftop installations for our customers and has secured a cumulative capacity of 343MWp.

Virtual Energy Manager (VEM)

TNB conducts energy audits to identify opportunities for energy conservation and cost reduction across various sectors. The audit process involves preliminary data analysis, installation of data-gathering equipment, on-site inspections, and detailed reporting of findings, including recommended improvements.

TNB offers integrated energy management solutions through advanced data analytics and machine learning. The Virtual Energy Manager (VEM) facilitates real-time energy data collection and analysis, supporting Physical Energy Managers (PEMs) in data analysis, monitoring, control, reporting, benchmarking, and expert consultancy.

Malaysia Green Attribute Trading System (mGATS)

Managed by TNBX Sdn. Bhd., the Malaysia Green Attribute Trading System (mGATS) was launched in May 2024 by the Ministry of Energy Transition and Water Transformation (PETRA). The platform provides non-TNB and TNB customers alike with access to unbundled Malaysia Renewable Energy Certificates (mRECs), enabling them to meet ESG targets, especially the avoidance of Scope 2 greenhouse gas emissions. mGATS offers two procurement channels:

1. Monthly auction (7 – 11 of each month) where participants bid for newly issued mRECs.

2. Continuous marketplace where earlier-vintage mRECs can be purchased on demand, subject to availability.

Additional mREC solutions are in development to keep pace with the evolving requirements of green-minded consumers.

Green Lane Pathway

We provide rapid energy deployment within 12 months for our customers through Green Lane Pathway initiative and One-Stop Centre services. In 2024, TNB and Bridge Data Centres (BDC) signed the Electricity Supply Agreement (ESA) to provide a reliable and efficient 400 MW power supply for BDC's upcoming hyperscale data centre in Johor. This project will also integrate renewable energy into its operations, enhancing sustainability while maintaining consistent power availability.

EV Charging Solutions

TNB Electron EV charging stations provide more convenient and accessible EV charging infrastructure. EV users can easily locate and access these chargers via the GO TO-U mobile app, which has almost 7,000 registered users in 2024.

SAVE 4.0 and NUR@PETRA

The Sustainability Achieved Via Energy Efficiency (SAVE) 4.0 is a program introduced by the Malaysian Government that grants a maximum of RM400 e-Rebate to domestic households that purchase energy efficient air conditioner and refrigerator with 4-star or 5-star energy efficiency labels from the Energy Commission (ST) from December 2023 to December 2024. TNB supports the implementation of SAVE 4.0 carried out by the Sustainable Energy Development Authority (SEDA) through promoting SAVE 4.0 and assisting in customer verification. The program ended on 31st December 2024 with RM60 million rebate successfully disbursed to eligible customers.

Following the success of SAVE 4.0 in 2024, the Ministry of Energy Transition and Water Transformation (PETRA) introduced the *Nikmat Untuk Rakyat* (NUR@PETRA) program with a total allocation of RM70 million in 2025. NUR:DOMESTIK provides e-Rebate for up to RM400 households purchasing 4-star to 5-star energy efficient air conditioners and refrigerators. NUR:PMKS offers e-Rebate of up to RM4,000 for Small and Medium Enterprise (SME) acquiring the same appliances while NUR:CHILLER provides e-Rebate of up to RM75,000 for industrial and commercial users investing in energy efficient cooling systems. TNB is continuously supporting these energy efficiency programs for customers to save more energy and towards a greener environment.

MM7: CUSTOMER EXPERIENCE AND SATISFACTION

EMPOWER CONSUMERS THROUGH ENERGY INNOVATIONS

Solar Leasing

In 2023, Sime Darby Property and TNB signed a Memorandum of Understanding (MoU) to advance renewable energy adoption through rooftop solar leasing. The partnership aims to install solar solutions for up to 1,000 properties in the City of Elmina and other developments, enabling residents to benefit from sustainable energy. Building on this, in July 2024, the partnership progressed with the establishment of a joint venture to finance, develop, and operate rooftop solar projects across Sime Darby Property's assets and townships. Initially, 14 assets were identified, with the potential to generate up to 4.5MW of solar capacity. This milestone reinforces Malaysia's push toward 70% renewable energy generation by 2050, offering customers sustainable energy solutions that enhance property value and support the nation's green agenda.

GSPARX Sdn. Bhd., in collaboration with Sime Darby Property, has introduced solar-powered homes at Elmina Ilham Residences, featuring solar rooftop installations and Community Energy Storage Systems (CESS). These homes allow residents to harness clean, renewable energy, reducing their dependence on the grid while providing significant savings on electricity costs. The integration of solar panels and energy storage solutions empowers homeowners to store excess energy and optimise consumption, further enhancing energy efficiency. Additionally, GSPARX is innovating by repurposing electric vehicle (EV) batteries for home energy storage, lowering system costs and contributing to a circular economy for sustainable living. Moving forward, we plan to expand these solar solutions to other townships, helping to create resilient, climate-adaptive communities across Malaysia.

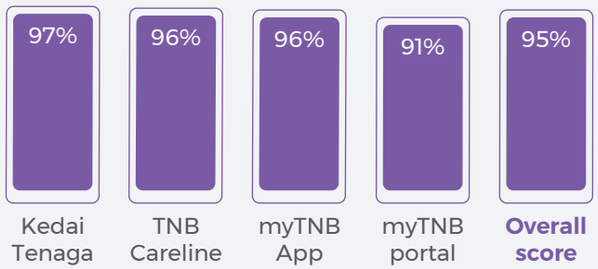
In 2025, the Government is set to introduce the Community Renewable Energy Aggregation Mechanism (CREAM), a program aimed to encourage community participation in renewable energy generation. This initiative will enable Local Green Consumers (LGC) to source renewable energy directly from the Local Energy Generators and Aggregators (LEGA) through open access to the Peninsular Malaysia electricity supply network.

ENHANCING CUSTOMER SATISFACTION

We are dedicated to ensuring a reliable electricity supply to our customers, meeting the Minimum Service Level (MSL) set by the Energy Commission. By adopting the Voice of Customer (VOC), we listen attentively to our customers and harness their feedback to drive satisfaction and continuous improvement. We remain committed towards addressing and resolving enquiries and complaints received from customers and in 2024, 99.9% of enquiries and 99.4% of customer complaints were resolved.

For our metrics on customer satisfaction, please refer to the performance tables at the end of this chapter.

Customer Experience Index (%)



Customer Satisfaction Index (%)

Number of Customers Subscribed to myTNB

OUR PERFORMANCE

PERFORMANCE : BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
GRI 418-1	C8(a)	**Total number of substantiated complaints received concerning breaches of customer privacy**					
		Total number of customer privacy complaints	Number	0	0	0	Zero complaints

PERFORMANCE : ADDITIONAL INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024
–	–	**Results of surveys measuring customer satisfaction**				
		Customer satisfaction index	%	87	88	87
–	–	**Energy solution adoption by customers**				
		Rooftop Solar (GSPARX)				
		Cumulative rooftop solar capacity secured	MWp	45	105	503.95
		Cumulative total number of customers secured	Number	–	1,155	3,130
		Green Electricity Tariff (GET)				
		Number of customers subscribed per year	Number	–	2,753	1,403
		Total annual consumption	MWh	–	4,224,000	2,513,000
		Net Energy Metering (NEM) connected to TNB Peninsular Grid				
		Cumulative customers who are producer	Number	–	24,664	55,831
		Total Installed Capacity	MW	–	970.5	1,467.5
		Number of customers subscribed to myTNB				
		Number of customers subscribed to myTNB	Number	6,294,064	6,742,081	7,264,768

Note
- *MW = Megawatt ; MWp = Megawatt peak*
- *Additional indicators disclosed to support the narrative, and the target will be made available when necessary.*

For more metrics on Customer Accounts & Business Performance, please refer to our performance tables on pages 154-158, 164-166.

MM 8

Community Development and Social Impact

WHY IS IT IMPORTANT?

Empowering communities through targeted social impact initiatives fosters inclusive growth and strengthens national resilience. By broadening the reach of energy access and sharing the gains of the energy transition, TNB supports equitable progress that meets stakeholders and societal expectations.

Since our inception 75 years ago, we have been a part of nation building, serving national and community growth. We believe that as a responsible organisation, it is a part of our responsibility to give back to the communities, providing opportunities for them to improve their lives and well-being.

We aim to drive progress with positive social impact towards community development in terms of social, education, environmental and sports. We continue to effectively engage with stakeholders to ensure our community development programmes create value and enhance social impact for responsible and sustainable growth. We are driven by our tagline "Better World. Brighter Lives." towards brightening lives in Malaysia and beyond.

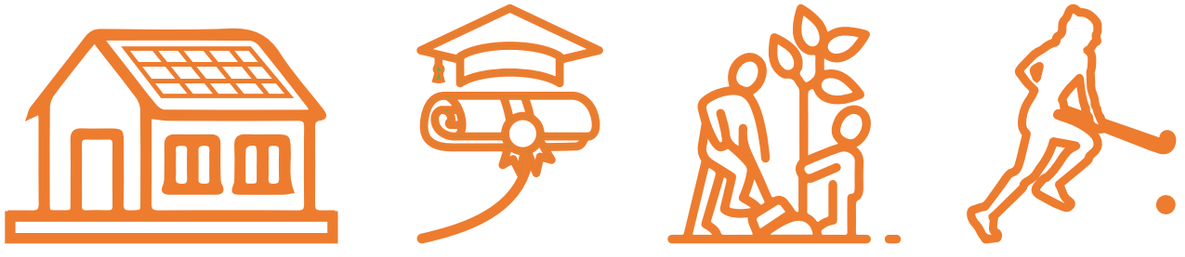
As a key driver of Malaysia's Energy Transition, we are dedicated to a just and inclusive transition, ensuring no one is left behind. This means actively supporting communities, workers, and vulnerable groups in adapting to changes brought about by the shift to a low-carbon economy. Our approach to Just Transition includes reskilling initiatives, inclusive access to clean energy, community engagement, and equitable development, ensuring that the benefits of the energy transition are shared broadly and fairly across society.

Opportunities

- Empower local communities toward economic resilience and enhanced quality of life through education, energy literacy and access to reliable electricity at remote areas.
- Strengthen partnerships with local stakeholders working towards similar development goals for the community.

Risks

- Challenges in implementing community programmes that effectively address needs and do not create perceived inequalities.
- Ineffective engagement of local communities may impact buy-in and support for TNB's projects leading to implementation challenges.



MANAGEMENT APPROACH

In 2014, TNB invested over RM63 million in community programmes, strategically directed across four key focus areas: Social, Education, Environment and Sports. This dedicated funding underscores our commitment to making a positive impact on communities.

In FY2024, TNB has contributed RM0.5 million to Home for the Needy programme.

SOCIAL

Home for the Needy

Through our Home for the Needy programme, we have successfully provided 962 homes supporting 962 families, primarily from the B40 and underprivileged communities, including differently-abled individuals, senior citizens and single parents. In 2024, we continue to refurbish and build new homes for underprivileged families, an investment amounting to RM0.5 million.

MM8: COMMUNITY DEVELOPMENT AND SOCIAL IMPACT

Rural Electrification Programme

Through the Rural Electrification Programme *(Bekalan Elektrik Luar Bandar)* carried out in collaboration with the Ministry of Rural and Regional Development, TNB facilitates in the electrification of rural regions, encompassing remote villages and indigenous people settlements. Where feasible, these areas are connected to the national grid. Otherwise, off-grid solutions are deployed including solar hybrids, generator sets and mini-hydro systems. These efforts ensure that rural and indigenous communities are not left behind in our progress to a low-carbon future.

Village Street Lighting Programme

Since 2002, TNB has been collaborating with the Government in the Village Street Lighting programme, with the aim of illuminating public areas in remote villages, improving community safety. In 2024, a total of 14,210 units of village streetlights were successfully installed at a total cost of RM39.91 million.

Program Satu Pemimpin Satu Kampung (Santuni Madani)

The TNB's Group Executive Committee (GEC) members are empowered to further engage adopted villages to suggest solutions on socioeconomic problems to support infrastructure development and improve well-being of the local community, aligned to the government's *Santuni Madani* programme. With its objectives of caring leadership, fostering a sense of belonging and promoting sustainability engagements, TNB has contributed over RM31,000 by end of December 2024 and will continue the effort beyond 2024.

Engaging Indigenous People *(Orang Asli)*

TNB actively engages with *Orang Asli* communities living near our operation sites and implements targeted initiatives to improve their well-being and socioeconomic conditions as well as addressing grievances. Specifically for resettled *Orang Asli* communities, a variety of community engagement activities and resilience-building programmes are implemented to promote community cohesion and well-being, including:

01 Income Restoration and Upliftment: Providing land for rubber and fruit plantations, alongside training for upskilling and reskilling to enhance productivity and employability.

02 Housing: Providing new houses of approximately 800 square feet per house.

03 Infrastructure and Amenities: Providing essential infrastructures including electricity supply, healthcare facilities, clean water supply, and schools.

04 Grievance management: Engagements to address grievances are held regularly to ensure timely responses to concerns raised.

At the Nenggiri Hydroelectric Project site, the Social Impact Management Plan (SIMP) and Resettlement Action Plan have been initiated for the benefit of approximately 243 households comprising more than 1,200 individuals. These plans include physical development cost of the resettlement area, cash compensation, and resettlement management costs, that currently amount to over RM59 million. TNB also invests over RM3.5 million in social impact and skills development programs focusing on job and skills training, including financial literacy and other soft skills programs for the *Orang Asli* communities. Supporting these initiatives means supporting the well-being and rights of the communities impacted by energy infrastructure development, while equipping them with tools for long-term resilience.

The development of the Nenggiri HEP (Nenggiri HEP), Jajahan Gua Musang, Kelantan Darul Naim will involve the relocation of two (2) indigenous people villages residing within the project area, namely Pos Tohoi and Pos Pulat (inclusive of Kampung Kuala Wias), with plans in place to ensure that their resettlement is carried out in an inclusive manner.

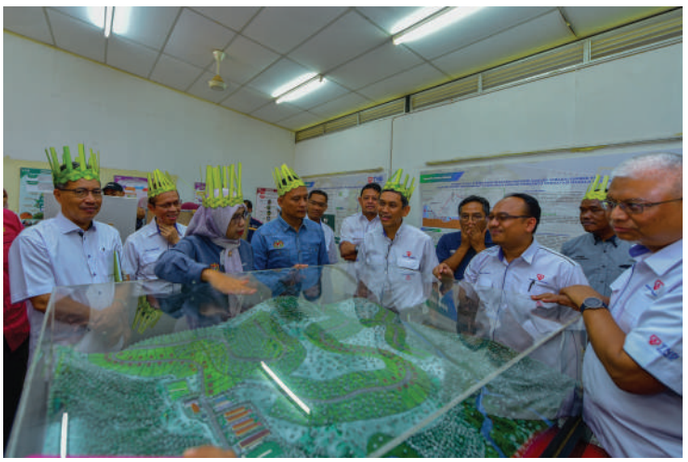
Various engagement sessions were held with the ultimate target of achieving a minimum of 70% support from affected communities on the project. In 2024, 232 out of 244 (95%) *Ketua Isi Rumah* support the project, and we continue our efforts to achieve 100% support.

Aside from that, there was continuous engagement to address community grievances on various social issues that are related to the project such as human-wildlife conflicts, traffic issues due to movement of construction machinery and so on.

Welfare of the affected communities were addressed and managed according to legal requirements with support from approving agencies such as the Department of Town and Country Planning (PLANMalaysia) Malaysia and state of Kelantan. The Social Impact Assessment (SIA) for the Nenggiri Hydroelectric Project (HEP) approved by PLANMalaysia and conducted in accordance with Section 20B and Sub-section 22 (22A) of the Town and Country Planning Act 1976 (Act 172)—evaluates the project's potential socio-economic effects and recommends mitigation measures to minimise adverse impacts on local communities. Building on the SIA findings, a comprehensive Resettlement Action Plan (RAP) provides detailed guidance for relocation and safeguards the long-term livelihoods of affected residents, while the accompanying Socio-Impact Management Plan (SIMP) sets out programmes to further empower these communities and support their sustainable development.

In FY2024, TNB achieved its milestone in formulation of compensation packages for *Orang Asli* affected by Nenggiri Hydroelectric Project development. A financial literacy session was also held for the *Orang Asli* Community.

Majlis serahan pampasan pokok/tanaman to Orang Asli Community of Pos Pulat and Pos Tohoi on 21 August 2024.



Briefing to Director General, JAKOA and delegates during Majlis Serahan Pampasan Pokok/Tanaman to Orang Asli Community of Pos Pulat and Pos Tohoi on 21 August 2024.

TNB's Support for Differently-abled Community and Individuals

TNB offers support and special arrangements for differently-abled individuals, including assistance with electricity bills and potential modifications to infrastructure. They also incorporate diversity and inclusion within their employee base and prioritise CSR initiatives that benefit the differently-abled community.

Special Arrangements for Bills

TNB acknowledges the need for special arrangements for differently-abled individuals and elderly consumers regarding electricity bill payments. They may facilitate case-by-case arrangements to ensure accessibility.

Infrastructure Considerations

In isolated cases where individuals cannot construct their own electricity infrastructure, TNB may provide such services, adjusting connection charges accordingly.

Diversity and Inclusion

TNB embraces diversity and inclusion within its workforce, valuing the contributions of differently-abled employees. This is reflected in their core values and commitment to creating a welcoming and inclusive environment.

Corporate Social Responsibility (CSR)

TNB's CSR initiatives often target the differently-abled, providing assistance with housing, home repairs, and other forms of support.

Home for the Needy Programme

TNB's "Home for the Needy Programme" aims to provide livable spaces for underprivileged communities, including individuals with disabilities.

Other Initiatives

TNB also participates in community programs and collaborates with NGOs to support the differently-abled, such as distributing aid and providing scholarships.

Donations

TNB continues to develop and improve the living standards of the rural community in a holistic and innovative manner, together with the participation from the NGOs especially areas related to the socio-economy of the rural population. We believe that enabling communities by extending the helping hand in the difficult phases of their life is a part of our social obligations.

In 2024, we have approved 122 applications and donated RM1,805,032.00 to various non-governmental organisations.

MM8: COMMUNITY DEVELOPMENT AND SOCIAL IMPACT

EDUCATION

We desire to transform individuals and their families through the power of education by promoting accessible, high-quality educational opportunities and by educating Malaysians on their role in managing energy efficiently. Our education programmes, especially those targeting underprivileged and rural communities, play a pivotal role in enabling equitable access to opportunities in the green economy—supporting a workforce and society that are ready for the energy transition.

Ceria Ke Sekolah Programme (CKS)

Annually, we organise the CKS programme to provide primary school students from low-income families with adequate school supplies such as school uniform, school bags and shoes. In 2024, we contributed RM0.7 million to this programme, which benefited 6,640 students.

Yayasan Tenaga Nasional (YTN)

At YTN, we sponsor students at the higher education level, both locally and internationally, through scholarships and convertible loans.

TNB Prime Scholarship was established to sponsor high academic achievers regardless of household income, for further studies overseas, in UNITEN and in public universities, benefiting 328 students in this year, whereas TNB Shine Sponsorship provides education loan assistance regardless of household income to study in UNITEN, public universities and polytechnics around the country. Additionally, we conduct My Brighter Future (MyBF) Programme to provide opportunities to marginalised youth and families in the low-income bracket to pursue tertiary education in Science, Technology, Engineering & Mathematics (STEM) and TVET at identified public universities, polytechnic and community colleges in Malaysia. The MyBF Programme covers tuition fees, boarding and living expenses of recipients pursuing tertiary education.

In 2024, we contributed over RM41.5 million to support 1,582 students, with a particular focus on those from the underprivileged group through the My Brighter Future programme.

TNB Better Brighter Internship Programme (BBIP)

Launched in 2014 and upgraded in May 2024, TNB's flagship talent-pipeline initiative now welcomes certificate, diploma, degree, master's and PhD level students from accredited institutions nationwide, expanding beyond its original UNITEN-only intake. Structured placements match interns with departments and locations aligned to their studies, while a blended curriculum delivers job shadowing, project work, site visits to power plants and solar farms, and mentorship from seasoned professionals. Overall, TNB internship pathways have engaged almost 33,000 students since 1990, equipping Malaysia's emerging energy professionals with skills in renewable generation, smart-grid technology and sustainability leadership. Since 2020, the programme has absorbed interns into the company, evidencing BBIP's role in strengthening TNB's future-ready workforce. In 2024, a total of 559 students interned in TNB and 2 were eventually employed by TNB.

TNB Protégé-Ready To Work (PROTÉGÉ-RTW) Programme

We have been driving talent development through TNB's PROTÉGÉ-Ready To Work (RTW) Programme which aims to tackle two key challenges in the country; reducing graduate unemployment and developing a skilled workforce for Malaysia's growing energy sector.

This initiative is implemented through a hybrid learning model that combines theoretical knowledge with practical application, delivered in partnership with TNB ILSAS. The programme strategically prioritises candidates with engineering, IT, and business degrees aligned to TNB's operational needs and places them across the Group and wider electricity-supply value chain for real-world exposure.

Since the launch of the SL1M/Protégé programme at TNB back in 2011, the programme has trained a total of 6,610 graduates, with 546 of them absorbed into TNB and its subsidiaries. Under the latest Phase 8 intake (December 2022 – July 2024), over 500 trainees have been trained, with three (3) hired in 2024. The programme plays a vital role in building a talent pipeline capable of advancing energy-efficiency and green technology solutions, contributing to a future-ready, sustainable Malaysian workforce. TNB's commitment to this nation-building initiative was recognised by *Kementerian Pembangunan Usahawan & Koperasi* (KUSKOP) Malaysia.

Cultivate Sustainability and Environmental Awareness Among Youth

TNB in collaboration with Universiti Tenaga Nasional (UNITEN) co-organised the *"Debat Alam Sekitar"* initiated by the Department of Environment, Ministry of Natural Resources and Environmental Sustainability, a debate competition for higher education institutions across Malaysia. The debate competition enabled students to engage in meaningful discussions on pressing environmental challenges supported by data and research, enhancing their understanding and commitment to sustainability.

Commemorating our 75th anniversary, we launched a sustainability video competition with the theme "Sustainability Superheroes: Your Journey, Our Future". University students participated in this competition, which was aimed to raise awareness on sustainability practices. Participants were encouraged to showcase innovative ideas, personal contributions, or community-driven projects that promote ESG values.

Our involvement in these events underscores our dedication to cultivating environmental awareness among youth, fostering a new generation of environmentally conscious leaders.

Malaysia Energy Literacy Programme (MELP)

One of MELP's notable key achievements was the Energy Literacy elective modules at universities. The modules are part of the pioneer program driven by Project Management Office (PMO) MELP in collaboration with UNITEN and UKM professors. The development of the content was also conducted together with Suruhanjaya Tenaga (ST) and TNB's Subject Matter Experts (SMEs) from respective divisions, departments and PMO. These elective modules were successfully onboarded at 6 universities (Universiti Tenaga Nasional (UNITEN), Universiti Kebangsaan Malaysia (UKM), Universiti Malaysia Kelantan (UMK), Universiti Teknologi Malaysia (UTM), Universiti Malaysia Perlis (UniMAP), and Universiti Utara Malaysia (UUM). In 2024, the campaign targeted 25 schools and 35 communities across Peninsular Malaysia.

In 2024, we collaborated with Ministry of Energy Transition and Water Transformation (PETRA) and Yayasan Hijau Malaysia to contribute to the success of Green Guardian Centre at the National Science Centre. The centre aims to nurture our youth in using energy wisely and provide them with knowledge of energy efficiency, renewable energy and energy generation.

ENVIRONMENT

In 2024, our contributions to environmentally related corporate responsibility programmes amounted to RM1.76 million, with the aim to create a lasting positive impact on the ecosystems and communities we serve.

Through our My Brighter Green Programme, we target to plant 40,000 trees annually, covering around 89 acres and sequestering about 1,600 tCO_2e. Our progress is monitored through a centralised tree planted registry. In 2024, we planted a total of 49,214 trees, sequestering about 1,900 tCO_2e.

In addition to tree planting, we embark on various initiatives such as:

01 Restoring degraded forests in collaboration with the Malaysian Nature Society and Bentong Forestry Department through joint tree-planting programs, enhancing forest cover and biodiversity.

02 Protecting endangered species by working with NGOs such as Sahabat Alam Sungai Tampik to protect endangered tree species and overall forest health.

03 Fostering innovation in collaboration with the Forest Research Institute Malaysia by supporting research and development in sustainable forestry practices.

04 Combating plastic pollution in partnership with the Department of Environment through beach clean-up activities and restoring the beauty of coastlines like Pantai Desaru.

05 Enhancement of facilities in Kemaman firefly centre such as rooftop solar panel installations at firefly jetty and boat handling training for the community to enhance competency level.

MM8: COMMUNITY DEVELOPMENT AND SOCIAL IMPACT

SPORTS

Energising Malaysian Hockey Development

TNB is the driving force behind hockey development in Malaysia and we are proud to have shaped many national hockey players with world-class standards. We foster national hockey development through the TNB Thunderbolts programme, which is aimed at nurturing high-potential youth between the ages of 13 and 17 to become future stars in the game.

In 2024, our contributions to hockey development amounted to RM5.86 million, which includes RM4 million sponsorship to the Malaysian Hockey Confederation (MHC), RM0.5 million for the TNB Thunderbolts programme and RM0.33 million for *Sumbangan Peralatan & Klinik Hoki*. TNB employees who were former national hockey players volunteered to coach promising students from selected local schools. Coaching programmes such as the *Pembangunan Klinik Hoki Remaja Negara* and *Kem Bakat Hoki* 2024 were conducted with selected schools and clubs in Kelantan, Negeri Sembilan, Kuala Lumpur, Johor and Sabah, which benefited approximately 100 teachers and 600 students.

TNB championed TNB Malaysian Hockey League (MHL) 2024.

Our tournament win record:

Tournament	Year	Achievement
SEA Games	2013 – 2023	Gold Medal
Sultan Azlan Shah Cup	2022	Champion
Youth Olympic Games	2018	Gold Medal
4 Nations Invitational Tournament	2019	Champion
FIH Tournament World League Round 2	2015	Champion

OUR PERFORMANCE

PERFORMANCE: BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
Community Development & Social Impact							
GRI 203-1	**Total number of beneficiaries of the investment in communities**						
	C2(a)	Total amount invested in the community where the target beneficiaries are external to the listed issuer	RM million	12.2	99.04	63.78*	1% from PAT
	C2(b)	Beneficiaries of investment in communities	Number	-	6,635	79,581**	-

** The total amount invested to the community has included educational support from YTN and UNITEN to the children of TNB employees (238 beneficiaries, amounting approximately RM7.4 million). Additionally, the educational support for FY2024 refers to the actual amount invested instead of the total amount awarded to the scholars for that year.*

*** The beneficiary data for FY2024 reflects the total number of beneficiaries, rather than group beneficiaries as reported in FY2023.*

For more metrics on Local Community, please refer to our performance tables on page 190.

MM 9

Sustainable & Responsible Supply Chain

WHY IS IT IMPORTANT?

Enforcing robust ESG standards in partnership with our suppliers and collaborators upholds responsible, transparent, and ethical practices throughout the entire supply chain ecosystem driven by the principles of Just Transition to ensure inclusivity and equity.

In our commitment to driving a sustainable future, our procurement and supply chain approach focuses on embedding responsible, transparent, and ethical practices across the entire supply chain ecosystem. We have embarked on a sustainable supply chain approach that goes beyond traditional procurement, emphasising sustainability at every stage. We endeavour to apply a rigorous Environmental, Social, and Governance (ESG) lens to all our operations, ensuring that we create lasting value while minimising negative impacts.

Guided by the TNB Procurement & Supply Chain Policy & Procedure, we continue to pursue best-value procurement practices that uphold ethical and transparent standards for our vendors, partners, and contractors. Through the TNB Code of Business Ethics and the TNB Sustainable Procurement Code of Conduct (SPCC), we maintain a strong commitment to ethical dealings that support a fair and responsible supply chain.

In 2024, we continue to advance our sustainability journey by promoting environmental stewardship, social responsibility, and robust governance throughout our supply chain. Our efforts contribute to building a resilient, inclusive, and sustainable future for Malaysia and beyond.

Opportunities

- Strengthen domestic economic development by onboarding local suppliers and vendors into the value chain.
- Greater collaboration with vendors in embedding sustainability practices throughout the supply chain.

Risks

- Supply chain disruptions caused by external factors and the growing complexity of sustainability-related requirements.
- Increased upfront procurement costs associated with implementing sustainability standards and practices across the supply chain.

MANAGEMENT APPROACH

In 2024, TNB recorded a substantial procurement expenditure of approximately RM36.37 billion, reflecting a consistent trajectory and underscoring our role in supporting Malaysia's economy. Recognising the imperative of Just Transition, we remain committed to ensuring that as we drive towards sustainability, no stakeholder or community is left behind. We actively engage and support vendors, SMEs, and local communities, facilitating their inclusion in the economic opportunities presented by our sustainability journey.

Our procurement spend includes:

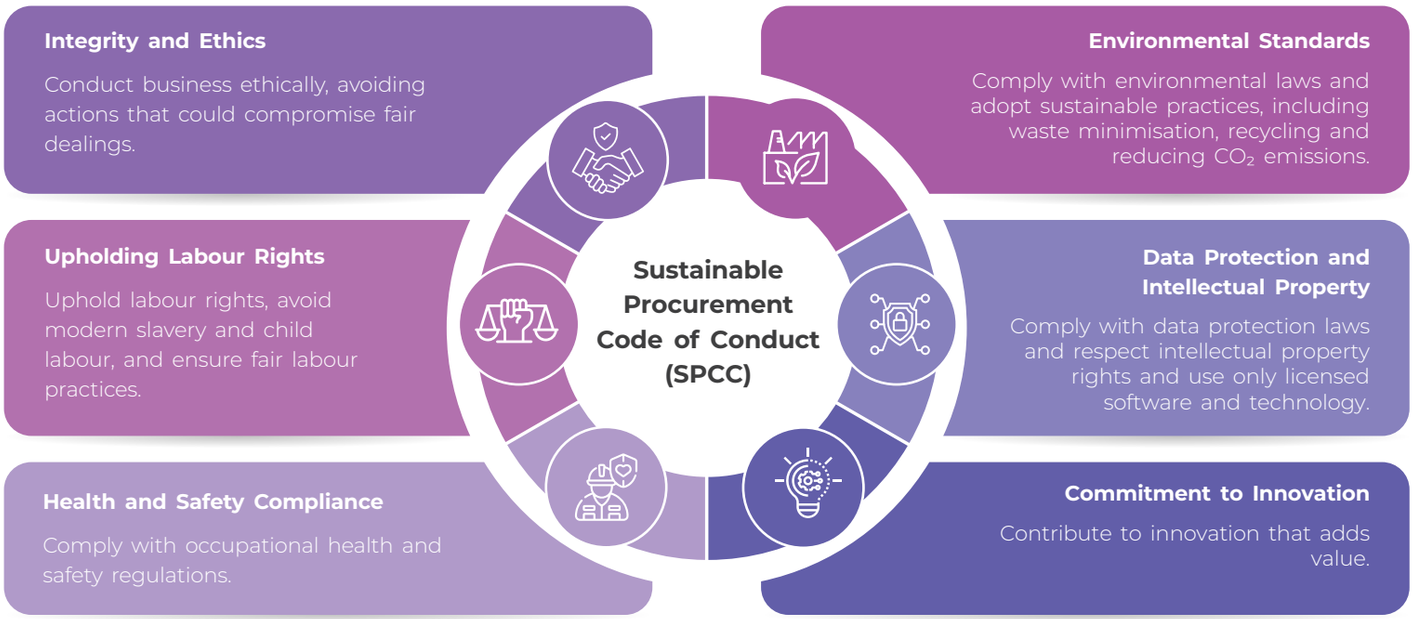
- Fuel-Related Expenditures: Approximately RM23.2 billion of our spend was dedicated to fuel, primarily locally sourced natural gas and internationally sourced coal, which are essential for power generation. By balancing local and international sources, TNB ensures a reliable energy supply to meet the nation's demands.
- Non-Fuel Expenditures: Non-fuel procurement spending amounted to RM13.15 billion, with around 95% sourced from local suppliers. This local focus reinforces our dedication to supporting Malaysian businesses across various industries and enhances the resilience of our supply chain.

Our commitment to local sourcing is reflected in 52.81% of our total procurement spend in 2024. This strengthens the Malaysian economy and aligns with our goal of building a supply chain that benefits local communities and businesses.

SUSTAINABLE PROCUREMENT CODE OF CONDUCT (SPCC)

The TNB Sustainable Procurement Code of Conduct (SPCC), introduced in 2024, outlines a framework for ethical and responsible procurement practices, setting standards that vendors must adhere to. The incorporation into TNB General Condition of Contracts (GCC), had outlined the commitment of TNB's vendors contractually in upholding the values listed in the SPCC and strengthening TNB's rights in imposing the same to the vendors. Any non-compliance could lead to penalties, including contract suspension or termination. By setting clear guidelines for environmental responsibility, labour rights, and health and safety standards, SPCC ensures our vendors meet ethical requirements and our commitment to TNB's ESG goals.

Code of Conduct for Vendors



Whistleblowing and Grievance Reporting

The SPCC includes provisions for whistleblowing, allowing vendors and employees to report unethical practices anonymously. TNB ensures the confidentiality of whistleblowers and actions are taken accordingly.

MM9: SUSTAINABLE & RESPONSIBLE SUPPLY CHAIN

FACILITATING OPEN DIALOGUES AND GRIEVANCE MANAGEMENT

TNB fosters open, transparent and effective communication with key stakeholders and vendor associations including *Persatuan Rakan Niaga Strategik Malaysia* (PERNISMA), *Persatuan Usahawan Tenaga Malaysia* (PUTM), *Gagasan Professional Melayu Malaysia* (GPMM), *Persatuan Industri Tenaga Boleh Baru dan Alam Sekitar* (PINTARE) through various channels. These include face-to-face engagements such as the Business Partnership Retreat and Opportunity Day, Procurement Cycle Digitalisation (PCD) Rangers for e-tendering support and the *Sistem Maklumbalas Bahan* platform. Regular Vendor Satisfaction Surveys are conducted as feedback for Vendor Grievances Management.

Furthermore, our commitment to accountability is evident in our enhanced Vendor Grievance Procedure, which ensures a streamlined, centralised approach to handling grievances that allows for anonymous reporting to uphold impartiality and integrity.

Vendor Grievance Management

The Vendor Grievance Management aims to uphold integrity, fair labour and sustainability within the supply chain by providing clear steps for addressing grievances and promoting transparency. For vendor grievance channel, processing time depends on severity level, whereby low to medium level will require not more than 90 days, and high level will require not more than 120 days.

It is guided by TNB's core values, such as integrity, professionalism, and collaboration, ensuring a respectful, accountable, and open environment for vendors and stakeholders. The vendor grievance procedure includes accessible grievance channels, a dedicated committee for fair evaluation, and ongoing support for vendors to drive continuous improvement and uphold ethical standards.

VENDOR COLLABORATION ECOSYSTEM

Together with our vendors, we collaborate to strengthen the supply chain ecosystem towards greater transparency and efficiency. This includes enhancing vendor performance and capabilities and facilitating open dialogue.

Enhancing Vendor Performance

The Contractor Assessment and Supplier Evaluation (CASE) system facilitates transparent evaluation of vendor performance, helping vendors to continually improve in providing quality products and services. This commitment to excellence strengthens our partnerships and supports a culture of continuous improvement throughout our supply chain.

Elevating Vendor Capability Training and Development

TNB is committed to equipping our vendors with the knowledge and skills necessary to remain relevant and competitive in an evolving industry landscape. By offering a range of targeted training and development programs, we support through programs that build capabilities and aligning them to our stringent quality and safety standards.

These programmes include competency certification programmes such as *Orang Kompeten Suruhanjaya Tenaga*, technical competencies such as *Kad Kelayakan Teknikal* and ESG awareness and training.

Creating Opportunities for Local Vendors

We recognise our role in bolstering the local value chain ecosystem. In 2024, we continue to promote business matching activities to offer opportunities for new business and collaboration, emphasising Just Transition approach. This ensures that smaller enterprises, vulnerable groups and local communities are given equitable access and the necessary resources to benefit from TNB's transition towards sustainability.

- **Data analysis & matching:** Through open advertisement, we identify potential vendors with sound prospects and strong track records who are assessed and matched to identified opportunities.
- **Matchmaking events:** TNB organises and participates in matchmaking events that expand our supplier base and fosters new partnerships, including small and medium-sized enterprises (SMEs). These initiatives promote opportunities for local suppliers to be integrated into the value chain, contributing to economic growth and social impact.
- **Stakeholder collaboration:** We work closely with industry associations, government-linked companies and relevant stakeholders to engage with suppliers who are dedicated to responsible business practices and sustainable growth.

Creating Opportunities to our Local Vendors through Bumiputera Vendor Development Programme 3.0 (PV 3.0)

TNB's vendor development program has been in place since 1994. After more than 30 years of implementation, it has been reviewed, in line with the NETR and the Government's Bumiputera economic agenda. Subsequently, the existing program was enhanced by introducing a new framework to support TNB's business needs in the energy transition landscape and to realise the Government's aspiration in driving the Bumiputera Economic Transformation Plan 2035 (PuTERA35) under MADANI Economy Framework.

This program comprises 731 Bumiputera Contractors and 26 manufacturers (operating under the Bumiputera Spend Share Policy), further reinforcing our dedication to economic inclusivity and supporting the national Bumiputera Spend Share initiative.

The PV 3.0 plays a vital role in driving Bumiputera participation in the energy sector in alignment with NETR (National Energy Transition Roadmap), offering opportunities in energy transition, green technologies and digital solutions. With a local procurement target to steadily increase from 47.8% (in 2024) of total TNB procurement spending to 55% by 2030, PV 3.0 aims to foster long-term market growth and create more than 1,700 Bumiputera vendors by 2030.

TNB is dedicated to enhancing the competitiveness of Bumiputera contractors by facilitating joint ventures with high-tech companies, supporting participation in international trade missions and providing a comprehensive platform under PV 3.0 that encourages business expansion and skill development. TNB assists vendors to access green financing and collaboration opportunities in flagship projects within the energy sector, while driving innovation and technological advancements.

Through these efforts, TNB ensures that the Bumiputera economic agenda remains aligned with the principles of the MADANI Economy, promoting sustainability through NETR, encouraging innovation, and fostering inclusive development with programs such as TVET Learn to Work.

For our metrics on local suppliers, please refer to the performance tables at the end of this chapter.

ENHANCING SUPPLY CHAIN EFFICIENCY THROUGH DIGITALISATION AND INNOVATION

We recognise digitalisation as a crucial enabler in transforming our supply chain for enhanced efficiency, resilience and sustainability. Digitalisation allows us to respond more effectively to changing market demands, optimise inventory management, and reduce lead times.

Digital Tool	Features	Outcome
Procurement Connected Planning (PCP)	Centralised demand planning	Greater visibility on price competitiveness and facilitates data analytics
Robotic Process Automation (RPA)	Automate high-volume orders within a short lead time & distribution of orders by geographical locations	Efficient management of high-volume procurement and orders by geographical locations
Procurement Cycle Digitalisation (PCD)	End-to-end procurement system	Trackability and visibility across supply chain
e-Commerce Platforms (Lapasar, MyB2B and RS Puma)	As an alternative purchasing platform	Reduces lead time from ordering to delivery
Contractor Assessment and Supplier Evaluation (CASE)	Centralised review and feedback on vendor performance	Enhances vendor performance
***Sistem Maklum balas Bahan* (Material Feedback System)**	Two-way communication platform for reporting defects, warranty issues, and product feedback	Enhances supplier partnership

MM9: SUSTAINABLE & RESPONSIBLE SUPPLY CHAIN

OUR PERFORMANCE

PERFORMANCE : BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target 2025
Supply Chain Management							
GRI 204-1	C7(a)	Percentage spent on local suppliers	%	95.10%***	46.45%**	52.81%*	>35%

* *Year 2024 data disclosed are based on spends under the scope of TNB Group which includes fuel purchases.*
** *Year 2023 data disclosed based on spends under the scope of TNB Group, including fuel purchases. All internal spends between TNB Business Entities are excluded.*
*** *Year 2022 data disclosed based on spends under TNB company and subsidiaries TPGSB, TNB Retail SB and TNB Renewables SB. All fuel-related purchases were excluded. The data also included internal spends between TNB Business Entities.*

PERFORMANCE : ADDITIONAL INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024
Supply Chain Management						
-	-	Total spend on local suppliers	RM billion	10.38	17.18	19.21
-	-	Number of local vendors	Number	3,618	3,632	3,639

For more metrics on Supply Chain Management, please refer to our performance tables on page 160.

MM 10

Cybersecurity Management

WHY IS IT IMPORTANT?

Robust cybersecurity measures are essential to safeguard our operations against disruptions, ensure compliance with regulatory standards, and maintain public trust.

Digitalisation is the catalyst in enabling our energy transition journey, and is rapidly gaining importance for our operations, assisting us in enhancing customer and employee experiences. As cyber threats increase in sophistication, frequency and impact, we continue to act with an integrated approach, leveraging people, technologies and processes to reduce our cyber risk exposure. To this end, we ensure that we safeguard our Information Technology (IT) and Operational Technology (OT) systems, protecting customer privacy and stakeholders' data, while providing reliable and secure electricity supply to the nation.

We diligently conduct risk assessments to foresee exposures related to cyber threats and data security. With the oversight of the Board of Directors and commitment from the management, mitigations are implemented to address exposures.

Our cybersecurity management is developed to protect system and data confidentiality, integrity, and availability in addition to securing our IT and OT systems. Apart from implementing initiatives to safeguard the data privacy of our 10.41 million customers in Peninsular Malaysia, we comply with the relevant cybersecurity and personal data protection laws, and industry best practices.

Opportunities

- Robust operational resilience through investments in cybersecurity measures and capabilities.
- Reinforce stakeholders' trust and confidence in TNB as a national critical information infrastructure entity.

Risks

- Rising frequency and sophistication of cyber threats.
- Compliance risk with cybersecurity and data privacy regulations.



MM10: CYBERSECURITY MANAGEMENT

MANAGEMENT APPROACH

Our cybersecurity management for Information and Communications Technology (ICT) adheres to the TNB ICT Security Policy and Code of Practice, ensuring all employees understand their role in protecting our ICT assets. Through 24-hour cyber threat monitoring, we safeguard the security of the national grid to ensure reliable electricity supply. Our key installations and data centres are certified under ISO/IEC 27001 Information Security Management System (ISMS), and we implement IEC 62443 best practices for Operational Technology (OT) cybersecurity in our control systems.

We maintain Payment Card Industry Data Security Standard (PCI-DSS) certification to secure our payment gateways and card transactions. Our business leverages cloud services for enhanced scalability and accessibility, with all service providers required to comply with key national standards including ISO/IEC 27017, ISO/IEC 27018, and Service Organisation Control Type 2 (SOC 2).

CYBERSECURITY RISK ASSESSMENT

TNB's cybersecurity framework adopts a strict no-ransom policy and implements defense measures through 2025. Cybersecurity risk exposures are reported and deliberated by the BSRC regularly. The initiative includes enhanced business continuity planning and international security standards compliance. Key measures include coordinating with the Energy Commission on cybersecurity guidelines, conducting system-wide risk assessments, and reviewing remote access protocols. The Risk Management Department oversees updates on cybersecurity operating model, digitalisation strategies, and ransomware mitigation strategies among others, while the Group Legal Department advise on the compliance to Cyber Security Act 2024. TNB plans to achieve ISO/IEC 27001 certification across its ICT operations and will undergo thorough IT and OT security audits. TNB will also develop detailed contingency plans and crisis communication protocols.

In addition to our 24-hour cyber threat monitoring, the following measures prioritising cybersecurity are undertaken:

01 Enhance cybersecurity situational awareness through threat intelligence.

02 Adopt cybersecurity risk assessment protocols for both IT and OT systems.

03 Annual external cybersecurity resilience assessments of TNB's key installations conducted by the *Jawatankuasa Pemeriksaan Keselamatan Sasaran Penting* under the leadership of the Malaysia Chief Government Security Officer (CGSO).

04 Group-wide effort to classify data according to criticality and sensitivity levels.

CYBERSECURITY AWARENESS THROUGH TRAINING

Cybersecurity awareness programme is implemented across the Group through multiple learning modalities, including e-learning modules, newsletters, and hybrid engagement sessions. Cybersecurity training is provided for all permanent and contract employees. Employees across all organisational levels are equipped with knowledge of cybersecurity risks and mitigation strategies. This educational framework extends beyond internal stakeholders to encompass contractors and vendors, ensuring a uniform approach to cybersecurity awareness across our entire operational ecosystem.

DATA PROTECTION MANAGEMENT

TNB is committed to safeguard data subjects' personal data in accordance with the Personal Data Protection Act 2010 (PDPA), Personal Data Protection Code of Practice for The Utilities Sector (Electricity) Version 2.0 and other relevant internal policies, guidelines and circulars for the processing and handling of data subjects' personal data. Additionally, TNB places a high priority on personal data protection, ensuring that our customers personal data is managed with the utmost care and in full compliance with the relevant laws and regulations.

For our metrics on customer privacy, please refer to the performance tables at the end of this chapter.

CUSTOMER DATA MANAGEMENT OUR PRIORITY

We facilitate customer data management through Data Access and Correction Request Forms whereby our customers can easily make requests to access or rectify their personal data in the event of any inaccuracies to ensure personal data is up-to-date and complete. A structured data retention framework is implemented, aligned with corporate policies and contractual agreements, whereby data is maintained only for the duration necessary to protect stakeholder interests whilst ensuring compliance with legislative requirements.

TNB is committed to protecting customer's privacy by implementing security protocols within TNB's ecosystem and maintaining stringent controls over any data transfer to our service providers and business partners. These parties are bound by contractual obligations that mandate equivalent data protection standards agreed-upon services.

TNB via its Cyber Security Operating Model (CSOM) have taken proactive and reactive measures in safeguarding our data from breaches or leakages via robust data governance such as the Enterprise Data Governance (EDG) initiative, emulating best practices through international certifications (ISO27001 and PCI DSS), technology controls and 24x7 strict monitoring by our Security Operation Center (SOC). However, in the event of data breach or leakage, our incident response plan will ensure that TNB can swiftly contain the incident and protect the affected entities involved.

TNB practices a strict onboarding and offboarding policy for employees and contractors, guided by international cybersecurity standards, i.e. National Institute of Standards and Technology (NIST). We adopt best practices and leverage on advanced technology to ensure secure onboarding and offboarding experience for our employees and contractors.

TNB maintains continuous PDPA compliance through systematic implementation of regular training programmes and awareness sessions across TNB and its subsidiaries. Annual observational audits of personal data protection practices are conducted at designated premises to ensure adherence to the PDPA. Additionally, TNB also implements PDPA e-learning initiative with the identified business units in TNB based on operational needs and to ensure TNB maintains the highest standards of data protection and privacy.

TNB actively engages with the Personal Data Protection Commissioner's Office (PDP Commissioner's Office) to establish good working relationships, seek guidance and actively participate in discussion. TNB also proactively provides comprehensive feedback on the PDPA amendments and Public Consultation Papers issued by the PDP Commissioner's Office. This collaborative relationship facilitates informed guidance and strategic direction for personal data protection initiatives.

For any enquiries or concerns regarding the administration of customer personal data related to electricity supply, we encourage our customers to reach out to our dedicated Customer Care team. Additionally, for matters related to TNB PDP Policy, our designated Data Protection Officer team is readily available to facilitate any concern.

OUR PERFORMANCE

PERFORMANCE : BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target 2025
Data Privacy and Security							
GRI 418-1	Total number of substantiated complaints received concerning breaches of customer privacy						
	C8(a)	Total number of customer privacy complaints	Number	0	0	0	Zero complaints

MM 11

Labour Rights and Employment Culture

WHY IS IT IMPORTANT?

Fostering a safe, equitable, and diverse workforce is essential to drive organisational transformation in our energy transition journey. By protecting labour rights and prioritising employee well-being, we strive to cultivate a high-performing culture that supports innovation, resilience, and long-term business success.

At TNB, we are committed to fostering an inclusive and supportive work environment that upholds equal opportunities and professional growth for all employees. As Malaysia's energy transition accelerates, we are guided on principles of Just Transition - ensuring that our workforce is equipped, empowered, and supported through this transformative period. This commitment is embedded in our *Reimagining Culture* initiative which defines our core values of Integrity, Collaboration, Professionalism, Customer-centricity, Forward Thinking, and Mindfulness.

Our comprehensive Labour Rights Policy Statement ensures fair wages, safe working conditions, and robust protections against discrimination and harassment. We prioritise continuous learning, comprehensive training, and career advancement to fully realise the potential of our workforce. By embracing diversity and inclusion, we drive innovation and sustainable growth, ensuring that employee concerns are promptly addressed through regular feedback and transparent communication. Together, we strive to create a thriving and dynamic workplace.

Opportunities

- Cultivate a diverse, innovative, agile and future-ready workforce to position TNB as a leader in responsible energy transition.
- Leverage on TNB Core Values to enhance employee experience and cultivate a more productive and positive workplace.

Risks

- Gaps in workforce capabilities may hinder smooth execution of company strategy and advanced technologies.
- Challenges in change readiness and embracing an agile workforce culture as we accelerate our energy transition journey.



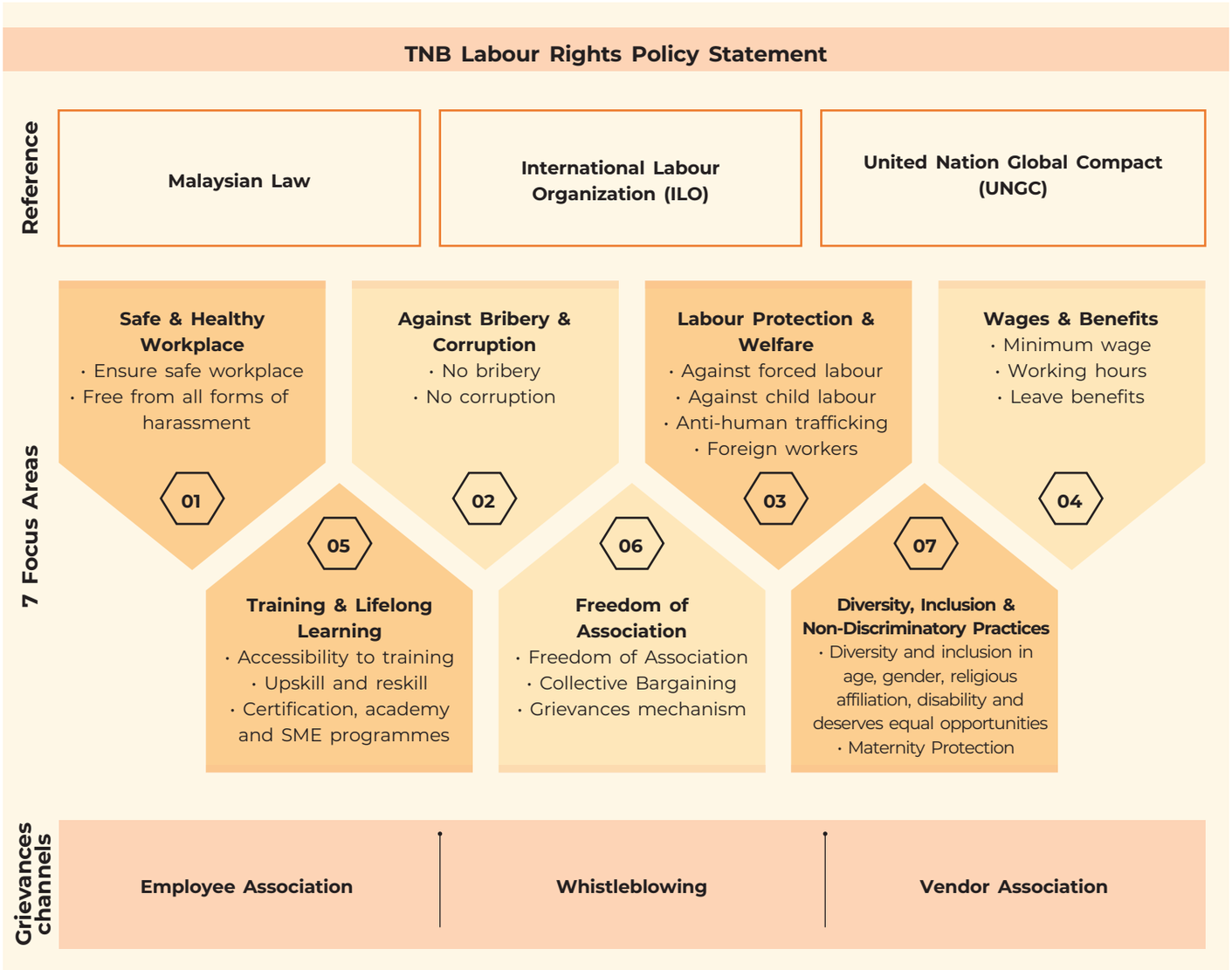
MANAGEMENT APPROACH

TNB LABOUR RIGHTS PRACTICES

Human rights principles are integrated into our labour rights practices, aligning with United Nations Global Compact (UNGC) guidelines. We are dedicated to fostering a workplace with equal opportunities, mutual respect, and employee growth, ensuring fair labour practices, diversity, inclusion, and workforce well-being. By adhering to Malaysian laws and international standards from the International Labour Organization (ILO) and UNGC, TNB upholds labour rights, promotes safe working conditions, and prevents discrimination. Labour Rights is one of the Key Focus Areas (KFA) in the TNB sustainability framework, with oversight by the TNB's Board Sustainability and Risk Committee (BSRC). Our labour rights approach supports Just Transition principles by safeguarding decent work conditions, equitable opportunities, and lifelong learning as our workforce adapts to evolving energy sector demands.

The TNB Labour Rights Policy Statement outlines our commitment, encompassing seven focus areas. This Statement applies to all TNB employees and vendors through the TNB Sustainable Procurement Code of Conduct (SPCC), with grievance channels available to address labour rights issues. TNB's Group People Division centrally lead in adopting, producing guideline and implementing labour rights initiatives in TNB for employees and TNB's P&SC Division continues to encourage vendors to uphold labour rights as per SPPC. The policy is communicated globally to all TNB employees and is available in Malay and English language.

For our employee demographics, please refer to the performance tables at the end of this chapter.



Key Elements in the TNB Labour Rights Policy Statement

MM11: LABOUR RIGHTS AND EMPLOYMENT CULTURE

Focus Area 1 — Safe and Healthy Workplace

We adopt a zero-tolerance policy towards any form of discrimination and harassment in the workplace, ensuring a safe work environment for all. Our Occupational Safety and Health Policy emphasises continual improvement in safety performance, compliance with relevant laws, and the incorporation of safety requirements in all work activities.

Refer to MM5 Safety, Health and Well-Being at pages 85-92

Focus Area 2 — Against Bribery and Corruption

Our organisational Anti-Corruption Plan reflects this commitment by promoting a transparent and ethical culture throughout our operations. We prohibit bribery in all forms and require all personnel to act with integrity.

Refer to MM1: Responsible Business and Financial Performance at pages 40-50.

Focus Area 3 — Labour Protection and Welfare

Any form of human trafficking, slavery, child labour, and forced labour is prohibited. We ensure that all our operations comply with applicable laws and regulations related to labour protection and welfare rights.

Focus Area 4 — Wages and Benefits

We ensure compliance with working hours, uphold minimum wage rates, and provide paid leave in line with relevant laws, supporting a healthy work-life balance. Our comprehensive benefits package includes public holidays, annual leave, sick leave, maternity and paternity leave, and additional leaves for various occasions.

Focus Area 5 — Training and Lifelong Learning

The TNB Learning & Development Policy aims to create a learning organisation that evolves with business needs and global trends, aligning learning initiatives with our strategic objectives and promoting lifelong learning. The policy emphasises digital learning with the establishment of academies for practical development, ensuring agility and responsiveness to organisational needs.

Focus Area 6 — Freedom of Association

We uphold the rights to freedom of association and collective bargaining, empowering employees to engage in organised activities for mutual support and representation. Our three (3) registered unions and two (2) workers' associations protect the rights of both executive and non-executive employees, as specified in the TNB Collective Agreements (CA).

Focus Area 7 — Diversity, Inclusion and Non-Discriminatory Practices

TNB promotes diversity and inclusion across age, gender, religious affiliation, and different ability, ensuring equal opportunities for all. This is supported by the TNB Labour Rights Policy Statement and TNB Diversity Policy. Our policies protect against unfair dismissal and provide equal remuneration for men and women, maintaining a 1:1 salary ratio.

MINIMUM WAGE COMMITMENT

At TNB, we recognise fair remuneration as a fundamental aspect of our labour rights commitment and our responsibility towards our workforce. In compliance with Malaysia's Minimum Wages Order 2024, we ensure that all our employees, including permanent, contract, and temporary workers, are compensated fairly, meeting or exceeding the statutory minimum wage of RM1,700 per month effective 1 February 2025.

Our approach reflects our ongoing commitment to safeguarding the financial well-being and dignity of our workforce, fostering economic stability, and contributing positively to their quality of life. Regular monitoring and auditing mechanisms are in place to ensure full compliance across all levels of our operations, reinforcing our dedication to equitable, transparent, and socially responsible employment practices.

TNB EMPLOYEE GRIEVANCE MECHANISM

We take labour rights issues seriously and provide accessible grievance channels to address concerns related to our employees.

Grievances can be submitted in writing using the prescribed form according to established procedures. The grievance form is accessible to all employees through our intranet and in the Collective Agreement booklet. For employees, if grievances remain unresolved within seven (7) working days, the issues can be escalated to their immediate manager either in writing or through other means. In 2024, there were no substantiated complaints regarding human rights violations, reflecting our commitment to resolving grievances fairly and promptly.

STRATEGIC CAREER DEVELOPMENT AND LEADERSHIP PROGRAMME

TNB Leadership Development Framework

The TNB Leadership Development Framework is a dynamic, forward-thinking strategy designed to support our business goals by ensuring a continuous pipeline of successors, now enhanced with digital leadership competencies. It emphasises experiential leadership development through coaching and mentoring, promoting both professional and personal growth.

We have enhanced our leadership programme to cultivate world-class leaders across all executive levels from new recruits to the C-Suite through flagship development programmes offered at the TNB Leadership Development Centre. In 2024, two (2) Managing Directors of our subsidiaries participated in external peer coaching and four (4) high-potential employees received coaching for C-Suite positions. Our Top Talent Development programme identifies future leaders, with three (3) participants joining a premium leadership programme at renowned business schools such as the Institut Européen d'Administration des Affaires (INSEAD) and South East Asia Leadership Academy (SEALA).

The Transitional Leadership Programme, tailored for newly promoted supervisors, managers and senior managers is divided into three (3) categories: Supervisor Development Program (SDP), First-Time Manager Program (FTM), and Senior Manager Transition Program (SMTP). The primary goal is to help our new leaders to understand key leadership skills, engage effectively with teams, and inspire a high-performance culture. In 2024, 246 managers completed the First Time Manager Program (FTM) as part of their leadership journey. We are currently in the midst of reviewing other leadership transition programs, such as the Supervisor Development Program (SDP) and the Senior Manager Transition Program (SMTP), aimed to kick off in FY2025 in ensuring alignment with our aspiration towards RT2.0. These reviews aim to enhance the development pathways for leaders across all levels, fostering resilience, adaptability, and future-ready leadership capabilities.

Leadership Development Centre (LDC)

At Tenaga Nasional Berhad (TNB), our leadership development programs go beyond professional growth; they are central to building a responsible, forward-thinking business. By cultivating leaders who can effectively lead themselves, their teams, and the organization with a strong focus on sustainability, we ensure TNB remains resilient, innovative, and committed to a greener, more equitable future.

The Leadership Development Centre (LDC) aspires to be a catalyst for leadership excellence, delivering world-class, experiential programs that embed TNB's values and cultivate an abundance of leaders at all levels. Our vision is to ensure that TNB has a pipeline of resilient, sustainability-focused leaders who can guide the organisation and its people through a fair and inclusive energy transition, developing TNB into Malaysia's leading leadership institution and shaping the future of leadership.

Succession Management

In 2024, TNB enhanced its succession management framework, creating a more robust system that surfaced a larger pool of successors and ensured 90% of current critical positions have ready-now successors. This progress highlights TNB's commitment to leadership continuity, talent development, and long-term organisational resilience, aligning with our sustainability goals to drive innovation and deliver stakeholder values.

Employee Performance and Career Development Reviews

TNB has developed an integrated and continuous performance management approach, encompassing performance planning, monitoring, and evaluation to align individual Key Performance Indicators (KPI) with business requirements and drive a culture of performance excellence. Performance conversations are crucial throughout this cycle, with structured discussions between managers and subordinates occurring at least four (4) times annually, enabling employees to strive for improvement in their performance. These conversations help employees strive for continuous improvement and measure progress. In 2024, 100% of TNB Group employees received regular performance and career development reviews, reinforcing our commitment to fostering a high-performing culture.

CAPABILITY BUILDING

Through structured learning and development programmes, we ensure our workforce remains skilled and adaptable to navigate the evolving energy landscape. TNB Integrated Learning Solutions Sdn. Bhd. (ILSAS), which serves as TNB's training institute, trains professionals within the broader power and utility industry. ILSAS is accredited by the Energy Commission, with various technical programs recognised by City & Guilds UK and leadership modules accredited by the Institute of Leadership & Management (ILM) UK.

Development of technical and functional skills are embedded in each employee's learning journey and academies are established to build specific capabilities such as power generation and distribution networks.

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Our capability development approach is built on 70% on-the-job experience, 20% exposure, and 10% formal training. The 70:20:10 learning approach supports flexible and dynamic learning interventions. In 2024, we achieved an Organisational Competency Index (OCI) of 88%, reflecting the organisation's strong commitment to building a capable and skilled workforce. This accomplishment is supported by our extensive training initiatives in which we invested RM197 million, which engaged 26,678 permanent and contract employees in various development programs over the year, resulting in a total of 1,346,477 learning hours.

Additionally, TNB through its Chief People Officer serves as Chairman in Heads of ASEAN Power Utilities/Authorities (HAPUA) Working Group No. 5. The working group focuses on driving collaboration on human resource and human capital development initiatives with ASEAN counterparts. Programs conducted in 2024 include personnel exchange amongst utilities and collaboratively organise bilateral training programs.

Partnership between ILSAS and Universities to Develop Training Programs for TNB Employees

ILSAS as our dedicated training arm, plays a key role in cultivating a learning environment that values diverse perspectives and lifelong development. In line with TNB's commitment to continuous capability enhancement, ILSAS partners with various universities to co-develop and deliver tailored training programs for employees across the Group:

Universiti Tenaga Nasional	UKM Pakarunding Sdn. Bhd.	Uni-Technologies Sdn. Bhd. (UTSB), A Subsidary Company of Universiti Teknologi Malaysia (UTM)
• Completed in 2020: Executive Degree Program in Engineering Technology **(20 people)** & Management **(13 people)** • Ongoing programs: Executive Degree Program in Engineering Technology **(20 people)** & Energy and Business Management **(20 people)**	• Hydrogen Technology and Process Safety **(24 People)**	• Ammonia Production, Bioenergy and Carbon Emissions **(4 People)** • Hydrogen 101 **(54 People)**

Professional Certifications

The technical competencies of our workforce are crucial for advancing our business operations. Our employees actively pursue relevant professional certifications prioritising compliance with regulatory requirements such as the Energy Commission Competent Person and Department of Occupational Safety and Health (DOSH) Competent Person. In 2024, our workforce has obtained the following BCM certifications:

Associate Business Continuity Professional (ABCP)	**20 staffs**
Certified Business Continuity Professional (CBCP)	**5 staffs**
Master Business Continuity Professional (MBCP)	**2 staffs**

Extended Study Programmes

We provide our employees with opportunities to further their academic studies through sponsorships for both undergraduate and postgraduate programs, including a dedicated Employee Academic Development Programme. From 2021 to 2024, 93 employees participated in these programmes, reflecting our commitment to continuous learning and development, with a total investment of RM3.42 million.

For our metrics on capacity building, please refer to the performance tables at the end of this chapter.

EMPLOYEE VALUE PROPOSITION (EVP) PACKAGE

At Tenaga Nasional Berhad (TNB), we believe that supporting our employees involves more than providing competitive salaries. In today's changing work environment, meaningful benefits are important in helping us attract, develop, and retain talent. As part of our ESG-driven commitment to social responsibility, we provide a range of non-salary benefits that promote the physical, emotional, and financial well-being of our workforce.

Through our comprehensive Employee Value Proposition (EVP), we offer competitive benefits packages designed to meet the diverse needs of our employees. On our premises, we provide access to counselling services, as well as sports and recreational facilities that support work-life balance and overall well-being. Our approach goes beyond traditional offerings—we continually review and refine our policies to reflect the changing needs of our workforce, foster inclusivity, and promote long-term growth. A well-supported TNB family contributes directly to improved morale, higher productivity, and lower turnover—factors essential to sustaining performance and advancing our strategic priorities and energy transition goals.

The initiatives outlined below reflect our commitment to building meaningful careers within a supportive, inclusive, and purpose-driven organisation.

TNB extends the medical benefits to LLN retirees.

Medical Benefit

TNB continues its commitment to our *Lembaga Lektrik Negara* (LLN) retirees and their dependents. TNB provides comprehensive medical benefits for our employees and their dependents, including the spouses of our female employees, ensuring robust healthcare to support their families.

Personal Accident Group Insurance Benefits

Where an employee dies or suffers permanent disablement due to accident, lump sum payment shall become payable under Company's Personal Accident Group Insurance Benefits.

Pension Scheme (Legacy Employees)

In line with Section 9 of the Electricity Supply (Successor Company) Act 1990 (Act 448), employees who previously served in *Lembaga Letrik Negara* (LLN) and later continued their service with TNB are eligible to receive a government pension upon retirement. This pension is administered by the *Jabatan Perkhidmatan Awam* (JPA) and reflects TNB's continued commitment to honouring legacy employment terms.

Retirement Plans (RBTF and EPF)

TNB provides structured retirement benefits that reflect both legacy and modern employment arrangements. Confirmed employees who joined TNB before 1 January 2008 are covered under the Retirement Benefit Trust Fund (RBTF). Since 1 October 2001, this group was given a one-time option to remain with the RBTF or elect to receive enhanced employer contributions to the Employees Provident Fund (EPF).

For employees who joined on or after 1 January 2008, retirement benefits are provided solely through the EPF scheme, in line with national practices. These tiered arrangements ensure that all employees have access to sustainable and transparent retirement planning options.

Flexible Working Arrangements

We continue to implement a hybrid work model called the TNB Way Of Working (TWOW), allowing employees to work both in the office and remotely, supported by the award-winning People App, which also aids in reporting GHG Scope 3 emissions. Our flexible working arrangement is integral to our culture, promoting employee well-being, work-life balance, and inclusivity.

Parental Leave

As part of our commitment to promoting a family-supportive and inclusive workplace, we fully comply with the parental leave provisions under the Malaysian Employment Act 1955. Female employees are entitled to 98 days of paid maternity leave for each childbirth, with full job protection throughout the period. In support of shared parenting responsibilities, the amended Act also grants 7 days of paid paternity leave to eligible married male employees, applicable for up to five (5) children. We also allocate various types of leave, including annual, sick, compassionate, marriage, religious, and study leaves. These provisions reflect our ongoing efforts to uphold employee well-being, work-life balance, and gender equity across our workforce.

Childcare Facilities

We offer subsidised childcare for TNB employees with children between two (2) months to four (4) years old at selected locations, significantly easing the burden for working parents. This benefit allows their parents to focus on their work with peace of mind. Providing reliable childcare helps reduce absenteeism and tardiness, as parents are assured their children are in safe and nurturing environments close to their workplace. This supports our employees' well-being and enhances their productivity and engagement at work.

Quarters

TNB provides quarters/board rental housing for eligible employees who are involved in core operations of the company.

Housing/Car Loan (Loan Interest Reimbursable Scheme)

TNB does provide housing/car loans (loan interest reimbursable scheme) to employees. This is a valuable way to support an employee's financial well-being.

Allowances for Capability Development and Professional Membership

To support continuous professional development and maintain high standards of workforce competency, TNB offers allowances and reimbursements for selected capability development and professional memberships. These initiatives are designed to sustain employee performance, enhance institutional capabilities, and promote a culture of lifelong learning across all levels of the company.

Home EV Charger Support for Employees

Since 2023, TNB has introduced a rebate initiative to support employees who own electric vehicles (EVs) by facilitating the purchase of home EV chargers. The initiative aims to make EV adoption more accessible by reducing the cost of home charging infrastructure and encouraging cleaner commuting options among employees.

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Promoting Employee Well-being

TNB have integrated healthy work environment with gymnasium and greener facilities in TNB HQ office complex, to heighten social and physical health among the employees. Awareness and wellness programme to TNB employees are on-going inculcating for healthy work life balance spirit like the annual TNB sports day and bi-monthly health educational online programme.

Appreciation Ceremony

This platform recognises the commitment, hard work, and contributions of employees who have supported the company's growth and progress. It includes two (2) key events: the Long Service Award Ceremony and the Retirement Ceremony *(Jasamu Dikenang)*. These events are held to appreciate employees who have reached important milestones in their careers with the company. By acknowledging their service, the company promotes a culture of appreciation and respect, and highlights the value of each individual's role in the company.

CHAMPIONING DIVERSITY, EQUALITY AND INCLUSIVITY

In 2024, women in senior management roles is at 24%, and executive roles remain at 41%. Additionally, 36% of TNB's identified successors are women, reflecting our commitment to fostering gender diversity and inclusivity within leadership pipelines. This milestone underscores TNB's dedication in creating equal opportunities, promoting a balanced workforce, and driving sustainable growth through diverse perspectives.

To further champion gender equality and inclusivity, TNB Women in Energy Network (TWiEN) was established as a platform to support women across the organisation. TWiEN aligns with our Environmental, Social, and Governance (ESG) goals and aims to foster professional growth, energy literacy, and leadership development. Its key objectives include:

- Professional Growth & Collaboration – Facilitating dialogue on industry challenges and emerging trends.
- Leadership & Career Development – Enhancing visibility of women leaders through mentoring, training, and networking.
- Energy Literacy & Sustainability – Empowering women with knowledge to actively contribute to the energy transition.
- Advance Equality & Inclusivity – Promoting equal opportunities and diverse representation across TNB.

Membership spans both executive and non-executive women, with plans to expand to TNB subsidiaries. TWiEN programs include Board Talk, Insights with top management, Expanding Horizons with external speakers, and ongoing coaching and mentoring initiatives. Through TWiEN, TNB is nurturing an inclusive, empowered, and future-ready energy workforce.

In enhancing gender, race and religion inclusivity, TNB has established policies on religious/pilgrimage leave for all employees regardless of race and religion and has also expanded the medical benefit coverage for spouses of female employees.

For our metrics on diversity, equity and inclusion, please refer to the performance tables at the end of this chapter.

EMPLOYEE COMMUNICATION AND ENGAGEMENT

Intranet Subpages

Accessible internal pages for updates and resources

Corporate Bulletins

Tenagawan Daily: Regular updates and news

Info TV

Informative broadcasts in common areas

Social Media

Engaging interactions and timely updates through TNB Powerfaces Facebook group

We conduct an annual survey to gain insights into our strengths and areas for improvement, enhancing the overall employee experience with a focus on corporate culture. In 2024, the survey recorded a score of 89.7%.

TNB continues to address the strategic workforce transformation through upskilling, diversifying, and enhancing safety excellence to ensure long-term capability and engagement. While reskilling and organisational restructuring require ongoing investment, they will enhance talent agility and drive a high-performance culture aligned with the Group's energy transition goals.

The areas identified for improvement from the engagement survey have been categorised under 'Hygiene' and 'Employee Life Cycle'. These include infrastructure, safety tools/equipment, uniforms, benefits and career development pathways. In response, TNB has initiated structured measures and targeted actions to address these concerns and foster a more supportive and enabling work environment in enhancing the overall employee experience.

For our metrics employee turnover, please refer to the performance tables at the end of this chapter.

PERFORMANCE: BURSA INDICATORS

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
EMPLOYEE DEMOGRAPHIC							
GRI 2-7	C3(a)	Male	Number	27,258	27,084	27,353	–
			Percentage	78.6%	78.4%	78.3%	–
		Female	Number	7,441	7,459	7,586	–
			Percentage	21.4%	21.6%	21.7%	–
EMPLOYEE DIVERSITY AND EQUAL OPPORTUNITIES							
GRI 405-1	C3(a)	**Workforce by level and gender**					
		Senior Management					
		Male	Number	321	336	339	–
		Female	Number	103	120	112	–
		Total	Number	424	456	451	–
		Male	Percentage	75.71%	73.68%	75.17%	–
		Female	Percentage	24.29%	26.32%	24.83%	–
		Executive					
		Male	Number	5,312	5,362	5,508	–
		Female	Number	3,588	3,685	3,866	–
		Total	Number	8,900	9,047	9,374	–
		Male	Percentage	59.69%	59.27%	58.76%	–
		Female	Percentage	40.31%	40.73%	41.24%	–
		Non-executive					
		Male	Number	21,623	21,379	21,506	–
		Female	Number	3,752	3,661	3,608	–
		Total	Number	25,375	25,040	25,114	–
		Male	Percentage	85.21%	85.38%	85.63%	–
		Female	Percentage	14.79%	14.62%	14.37%	–
		Workforce by age group					
		< 35	Number	12,692	11,238	10,493	–
			Percentage	36.60	32.53	30.00	–
		35 – 50	Number	17,689	19,065	20,248	–
			Percentage	51.00	55.19	58.00	–
		> 50	Number	4,318	4,240	4,198	–
			Percentage	12.40	12.28	12.00	–

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GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
		Workforce by level and age group					
		Senior Management					
		< 35	Number	2	0	0	–
		35 – 50	Number	202	235	218	–
		> 50	Number	220	221	233	–
		Total	Number	424	456	451	–
		< 35	Percentage	0.50	0.00	0.00	–
		35 – 50	Percentage	47.60	51.50	48.30	–
		> 50	Percentage	51.90	48.50	51.70	–
		Executive					
		< 35	Number	3,182	3,114	3,137	–
		35 - 50	Number	4,956	5,150	5,400	–
		> 50	Number	762	783	837	–
		Total	Number	8,900	9,047	9,374	–
		< 35	Percentage	35.80	34.40	33.50	–
		35 – 50	Percentage	55.70	56.90	57.60	–
		> 50	Percentage	8.60	8.70	8.90	–
		Non-executive					
		< 35	Number	9,512	8,128	7,356	–
		35 – 50	Number	12,521	13,679	14,630	–
		> 50	Number	3,342	3,233	3,128	–
		Total	Number	25,375	25,040	25,114	–
		< 35	Percentage	37.50	32.50	29.30	–
		35 – 50	Percentage	49.30	54.60	58.20	–
		> 50	Percentage	13.20	12.90	12.50	–
		Total (excluding board members)	Number	34,699	34,543	34,939	–
	C3(b)	**TNB Company Board of Directors by Gender**					
		Male	Percentage	63.64	54.55	66.67	–
		Female	Percentage	36.36	45.45	33.33	>30 female
		TNB Board of Directors by Age					
		< 50	Percentage	9.10	9.10	8.33	–
		50 – 60	Percentage	54.54	45.45	41.67	–
		> 60	Percentage	36.36	45.45	50.00	–

GRI	Bursa	Metric	Units	FY2022	FY2023	FY2024	Target FY2025
CAPABILITY BUILDING							
GRI 404-1	C6(a)	**Training Hours**					
		Senior Management	Hours	11,642	15,469	15,884	–
		Executive	Hours	313,836	421,416	416,946	–
		Non-executive	Hours	792,874	907,736	825 ,924	–
		Average training hours	Hours/ employee	34	47	50.47	–
EMPLOYEE DEMOGRAPHIC BY CONTRACT TYPE							
GRI 2-7	C6(b)	**Workforce by contract type**					
		Total (Permanent)	Number	31,130	31,066	31,729	–
		Total (Contract)*	Number	3,569	3,477	3,210	–
		Total (Contract)*	Percentage	10.29	10.07	9.19	–
NEW EMPLOYEE HIRES AND TURNOVER							
GRI 404-1	C6(c)	**Employee turnover by level**					
		Senior Management	Number	61	44	40	–
		Executives	Number	369	342	327	–
		Non-executives	Number	933	756	701	–
		Total	Number	1,363	1,142	1,068	–
		Employee turnover rate by level					
		Senior Management	Percentage	4.48	3.85	3.74	–
		Executives	Percentage	27.07	29.95	30.62	–
		Non–executives	Percentage	68.45	66.20	65.64	–
LABOUR RIGHTS							
GRI 2-25	C6(d)	**Processes to remediate negative impact**					
		Number of substantiated complaints concerning human rights violations	Number	0	0	0	–

** The total number of employees includes permanent and contract employees with employment relationship as at the end of reporting period. Interns are excluded in this calculation.*

Note;
- *Target setting will be made available when necessary.*

Our Response to Climate Change

Climate change brings both challenges and opportunities, emphasising the need for innovation, resilience, and a shift toward sustainable energy solutions. Rising temperatures and extreme weather events highlight the urgency of transitioning to cleaner energy sources, especially as human activities continue to drive greenhouse gas emissions.

With its abundant natural resources, Malaysia is well-positioned to address climate challenges. Despite being susceptible to floods, heatwaves, and strong winds, TNB remains resilient, continuously strengthening its infrastructure and operations. In alignment with the National Climate Change Policy 2.0, we integrate climate adaptation and mitigation strategies to safeguard our assets and ensure operational stability.

Since 2019, we have adopted the Task Force on Climate-related Financial Disclosures (TCFD) framework that serves as a comprehensive approach for assessing and managing climate-related risks and opportunities. We are persistent in evaluating and mitigating both physical and transition risks, drawing guidance from the Representative Concentrating Pathways (RCP) scenarios by the Intergovernmental Panel on Climate Change (IPCC) as well as scenarios suggested by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS). Furthermore, we identify business opportunities linked to transitioning to a low-carbon economy and execute adaptation strategies for climate change impacts like floods, heatwave, soil movement and coastal flooding.

GOVERNANCE

[IFRS S2: 6]

TNB's approach to managing climate-related risks is anchored in strong governance and strategic alignment across all levels of the organisation. The Board Sustainability and Risk Committee (BSRC), which convenes monthly, plays a central role in overseeing the Group's sustainability performance, including the monitoring of carbon emissions and climate-related initiatives. This is done through forward-looking Key Risk Indicators (KRIs) tracked in the quarterly TNB Risk Dashboard. TNB Board of Directors ensures the transparency of TNB's climate-related disclosures, in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations.

At the management level, climate accountability is embedded in Key Performance Indicators (KPIs), beginning with the President/CEO and cascading to all C-suite executives. The Managing Director of TNB Power Generation Sdn. Bhd., who leads the transition to cleaner energy sources within the Group's generation portfolio, is directly responsible for meeting emissions-related KPIs. These performance indicators are evaluated annually under the Short-Term Incentive (STI) program, reinforcing executive accountability and aligning remuneration with sustainability outcomes.

Guided by the TNB Sustainability Framework and Policy, TNB remains committed to reducing emissions, enhancing energy efficiency, and implementing effective climate mitigation and adaptation measures.

TCFD CORE ELEMENTS IN TNB

We govern climate-related matters by integrating them into the TNB corporate governance system, with oversight from the Board and management

We prioritise to ensure business resiliency and continuous efforts in addressing climate change scenarios and exposures through our Reimagining TNB strategy and TNB Energy Transition Plan

We adopt the TNB Risk Management Framework, with continuous effort to address both transition and physical risks, and opportunities in the short-, medium- and long-term strategic risks across TNB business entities

We identify and set climate-related quantitative targets and monitor related metrics to ensure the realisation of the Net Zero by 2050 aspiration

For more information about Board and Senior Management competencies, refer to "Board of Directors' Profile" and "Senior Management Profile" in the IAR2024.

STRATEGY

[IFRS S2: 10, IFRS S2: 13]

Our priority is to ensure that our business is resilient in addressing climate exposures with continuous assessment to adapt to transition and physical risks and opportunities in the short, medium and long-term horizon.

Short-Term: Until 2025	**Medium-Term**: 2025 to 2035	**Long-Term**: 2035 to 2050
Key target: • RE target of 8.3GW by 2025 with the acceleration of RE investments towards 2050 • Annual emissions intensity reduction of 5%	**Key Target:** • Emissions intensity reduction of 35% by 2035 • Reduction of coal capacity by 50% by 2035 *Note: Base year 2020*	**Key Target:** • Aspire to achieve Net Zero and be coal-free by 2050

Transition Risks and Opportunities

In 2024, we conducted a comprehensive review and reassessment of the key drivers that may pose transition risks and opportunities for TNB. Through this evaluation, we identified nine (9) transition risks and six (6) transition opportunities, analysing their potential impact on our strategy, financial position, and overall performance. Using the TCFD terminology, our transition risks can be categorised into policy and legal frameworks (both current and emerging), market dynamics, technological advancements, and reputational factors. Meanwhile, our transition opportunities are categorised into resource efficiency, energy sources, products and services, market expansion, and business resilience.

Transition Risks

S: Short-term **M**: Medium-term **L**: Long-term

High Significant Medium Low

Type	No	Transition Risk	Potential Impact	Exposure	Management Approach
Policy & Legal	1	**Carbon Price** Uncertainty about the government implementing carbon pricing as an instrument to capture the external cost of GHG emissions	Cost	S M L	• Implement initiatives within TNB Carbon Management Strategy & Emissions Reduction Target. • Engage actively with regulatory bodies and government agencies on carbon pricing regulations *Refer to MM3 pages 67-79*

OUR RESPONSE TO CLIMATE CHANGE

Type	No	Transition Risk	Potential Impact	Exposure	Management Approach
	2	**Emissions Reporting Obligations** Increased expectations from regulatory bodies to track and publicly report emissions	Cost	S M L	• Digitalise emissions data and indicators • Monitor and report emissions metrics and performance for informed decisions • Engage actively with regulatory bodies to keep abreast of emissions reporting requirements *Refer to MM3 pages 67-79*
	3	**Litigation Exposure** Lawsuits and fines driven by environmental and climate activism	Cost	S M L	• Comply with regulatory requirements. • Engage actively with relevant stakeholders to communicate TNB's environmental and climate management *Refer to MM6 pages 93-111*
Technology	4	**Low Carbon Technology** Uncertainty in the deployment of low-emissions technologies due to high investment and technology maturity	Capital Investment	S M L	• Implement initiatives within TNB Carbon Management Strategy & Emissions Reduction Target *Refer to MM3 pages 67-79*
	5	**Talent Gaps** Talent gaps that require upskilling and reskilling to navigate new and emerging technologies	Cost	S M L	• Implement talent management programmes customised to meet energy transition and technology requirements *Refer to MM11 pages 134-143*
Market	6	**Changes in the electricity supply industry** Changes in the Malaysian Electricity Supply Industry (MESI) such as policy, regulatory requirements and market demands, in line with the transition to a low-carbon economy	Revenue	S M L	• Engage actively with regulatory bodies to shape an equitable energy market • Explore new opportunities in the energy market such as beyond kWh solutions *Refer to MM2 pages 51-66*
	7	**Shift In Customer Behaviour** Changing customer behaviour and preference for low-carbon options	Revenue	S M L	• Engage actively with customers to anticipate and meet expectations by leveraging digitalisation • Collaborate with regulators and stakeholders to enhance energy literacy of the people *Refer to MM7 pages 112-117*
	8	**Stranded Asset & Divestment** Unanticipated or premature write-downs, devaluation and divestment of carbon-intensive assets	Asset Value	S M L	• Implement initiatives within TNB Carbon Management Strategy & Emissions Reduction Target • Commit to no new coal power plants *Refer to MM3 pages 67-79*
Reputation	9	**Adverse Perception of TNB's Brand & Image** Increased stakeholder expectations and scrutiny of our ESG strategy, management and performance	Share Price	S M L	• Implement the TNB Sustainability Pathway 2050 and Energy Transition Plan • Engage actively with stakeholders to address ESG needs and expectations *Refer to MM3 pages 67-79*

Transition Opportunities

S: Short-term **M**: Medium-term **L**: Long-term

High Significant Medium Low

Type	No	Transition Opportunities	Potential Impact	Opportunity	Management Approach
Resource efficiency	1	**Energy management at the supply and demand sides** Opportunities to reduce the resources required to generate electricity and implement energy efficiency solutions	Cost Saving	S M L	• Optimise asset performance and efficiency through technology and innovation • Repower power plants using cleaner and green technology • Collaborate with the Energy Commission (EC) on the Malaysia Energy Literacy Programme (MELP) *Refer to MM3 pages 67-79*
Energy Source	2	**Renewable energy growth** Opportunities to increase RE portfolio locally and internationally	Revenue	S M L	• Capture strong RE growth potential in domestic & international markets through subsidiaries, i.e., TNB Renewables, Spark Renewables and Vantage RE *Refer to MM3 pages 67-79*
Products and services	3	**Demand for low-carbon electricity and green energy solutions** Opportunities from increased demand for renewable energy, energy storage and electrification	Revenue	S M L	• Offer green energy solutions across the electricity value chain as per the TNB Energy Transition Plan • Implement energy transition projects in line with the National Energy Transition Roadmap (NETR) • Establish GSPARX Sdn. Bhd. and TNBX Sdn. Bhd. to provide beyond kWh solutions • Develop and enhance digital platforms such as myTNB app, EV charging platforms, a digital marketplace, etc. to complement ET initiatives • Increase the EV adoption rate in Malaysia by facilitating the EV ecosystem *Refer to MM2 pages 51-66*
Markets	4	**Diversification of business activities** Opportunities to diversify business activities leveraging energy transition targets, green and emerging technology, digitalisation and strategic partnership	Revenue	S M L	• Embark on strategic partnerships for new technology such as hydrogen with Petronas, ammonia co-firing with IHI Corporation and CCUS with Petronas • Develop a hydrogen hub producing hydrogen for the industrial and power sectors *Refer to MM3 pages 67-79*

OUR RESPONSE TO CLIMATE CHANGE

Type	No	Transition Opportunities	Potential Impact	Opportunity	Management Approach
Resilience	5	**Flexible and reliable Grid** Opportunities for regulated assets due to the requirement for a flexible and reliable grid with the increase of renewable energy injection to the grid system	Revenue	S M L	• Enhance grid system efficiency through smart grid initiatives to facilitate bi-directional power flow from prosumers • Pilot the Virtual Power Plant (VPP) technology for peer-to-peer generation among energy prosumers and demand response control for system stability in the future *Refer to MM2 pages 51-66*
	6	**ASEAN Power Grid Interconnection** Opportunities for grid interconnection projects with ASEAN countries towards a low-carbon economy in the region	Revenue	S M L	• Establish MoUs with ASEAN countries, e.g., Indonesia, Thailand and Singapore, to undertake collaborations on interconnection projects • Conduct feasibility studies for other cross-border electricity interconnection opportunities *Refer to MM2 pages 51-66*

Physical Risks and Climate Hazards

While transition risks and opportunities arise from regulatory, market, and technological shifts in the energy landscape, physical risks stem from the direct impact of climate change on our infrastructure and operations. As extreme weather events become more frequent and intense, assessing and mitigating physical risks is crucial to safeguarding our assets and ensuring long-term operational resilience.

Floods (Riverine & Surface Water)

Category: Acute

Malaysia is exposed to monsoon rains, particularly from November to March. Low-lying areas, especially along the east coast of Peninsular Malaysia, are highly vulnerable. Flooding can damage critical infrastructure, leading to power outages and costly repairs. Substations and transformers are particularly at risk, as water ingress can cause short circuits and equipment failure. Additionally, access to affected areas can be hindered, delaying repair and restoration efforts.

Extreme Heat

Category: Chronic

Extreme heat impacts our physical assets in various ways. Solar assets may operate sub-optimally in high temperatures or with insufficient sunlight, thus reducing output. For thermal power plants, rising ambient temperatures decrease gas power plant efficiency and increase fuel costs. Additionally, extreme heat may affect grid system reliability, particularly at substations, due to overloading and thermal stress (hotspots).

Extreme Wind

Category: Acute

Our assets, particularly transmission and distribution networks' lattice towers and service poles, as well as solar power plants are vulnerable to extreme wind. Extreme winds can cause the collapse of lattice towers, uprooting of poles, dislodge or break solar panels, leading to costly repairs and downtime.

Sea Inundation

Category: Chronic

Our coastal assets are at significant risk due to rising sea levels. Seawater intrusion can contaminate freshwater supplies and corrode infrastructure. Submersion during high tides and storms can cause extensive damage, while prolonged exposure to saltwater accelerates metal erosion and compromises structural integrity.

Our Business Resiliency Against Impact of Climate Change and Climate Risk Adaptation Measures

Proactive steps are being taken to ensure the resilience of our business operations and assets against acute and chronic physical risks resulting from climate change. Our climate risk assessment considers the scenarios based on the Intergovernmental Panel on Climate Change (IPCC) and Network for Greening the Financial System (NGFS), as follows:

IPCC/NGFS Scenario	NGFS–Net Zero Scenario	NGFS–NDC Scenario	IPCC RCP–6.0: Moderate Emissions Scenario	IPCC RCP–8.5: High Emissions Scenario
Description	An ambitious scenario that limits global warming to 1.5°C through stringent climate policies and innovation, reaching Net Zero CO_2 emissions around 2050	The NDC scenario includes all pledged policies, even if not yet implemented, based on the trajectory associated with global NDC commitments to limit the impact of climate change	The scenario suggests a future in which greenhouse gas emissions continue to rise at a moderate rate but stabilise by 2070	The 'Business as usual' scenario suggests a likely outcome if society does not make a concerted effort to cut greenhouse gas emissions
Temperature Increase	**1.5°C – 2.0°C by 2100**	**2.3°C – 4.5°C by 2100**	**2.6°C – 5.7°C by 2100**	**>4.0°C by 2100**

In 2024, we undertake a comprehensive climate risk assessment at the asset level to gain deeper insights into climate-related threats. This approach has enabled us to strengthen the resilience of our assets by implementing targeted, effective, and sustainable adaptation measures. We integrate climate data from agencies such as the Malaysian Meteorological Department, National Disaster Agency, or National Disaster Management Agency (NADMA) and the National Water Research Institute of Malaysia (NAHRIM) with our internal Geographic Information System (GIS). This integration allows us to identify climate hazards of our asset on comprehensive maps, giving us a clearer understanding of the potential impacts of climate change on our operations, particularly concerning floods (riverine and surface water), extreme winds, and extreme heat whilst concurrently exploring assessments for other climate hazards like forest fire and soil movement.

Based on our analysis, majority of our physical assets are at low risk, reflecting their resilience:

Physical Risk	Asset Type	% of Asset Based on Risk Exposure Level			
		High	Significant	Medium	Low
Flood (Riverine & Surface Water)	HV, MV & LV substations, power plants (Coal, Gas, Hydro), large-scale solar power plants	0.05%	1.03%	14.97%	83.95%
Extreme Heat	HV, MV & LV substations	0.06%	0.20%	4.93%	94.81%
Extreme Wind	HV, MV & LV substations, power plants (Coal, Gas), large-scale solar power plants, HV Overhead Lines	0.00%	0.01%	41.67%	58.32%
Sea Inundation	HV, MV & LV substations, power plants (Coal, Gas, Hydro), large-scale solar power plants	0.00%	0.00%	4.80%	95.92%

OUR RESPONSE TO CLIMATE CHANGE

Through early and ongoing investments in climate resilience, many of our assets have been upgraded to withstand climate-related challenges, which have significantly reduced their vulnerability to potential climate impacts. Several adaptation measures for flood (riverine and surface water), extreme heat and extreme wind are highlighted as follows:

Physical Risk	TNB Adaptation Measures
Flood	• Conduct asset-level flood risk assessments to identify vulnerable assets. • Implement flood mitigations such as elevating asset structure, installation of flood barrier for identified asset within flood-prone area. • Develop and implement flood response plan, including shutdown procedures, dam water release procedure, followed by rapid response from Emergency Response Team (ERT). • Collaborate with local communities, governments, and other stakeholders to ensure prompt and coordinated responses. • Implement Integrated Community-Based Disaster Management (ICBDM) programme. • Secure adequate insurance coverage for flood-related damages.
Extreme Heat	• Conduct asset-level extreme risk assessments to identify vulnerable assets. • Incorporate climate change factors into new site assessments and adopt new design standards considering projected increasing extreme heat, e.g., increase equipment rating to mitigate overloading/hotspot. • Implement demand response programmes to manage peak load during extreme heat event. • Promote energy efficiency programmes to reduce overall demand during heat waves.
Extreme Wind	• Conduct asset-level wind risk assessments to identify vulnerable asset. • Strengthen infrastructure such as enhance tower safety factor to withstand extreme wind, switch from electric poles to underground cable, etc. • Develop and regularly update emergency response plans for extreme wind events. • Implement vegetation management, e.g., removal of dangerous tree to keep trees and branches away from power lines.
Sea Inundation	• Conduct asset-level sea inundation risk assessments to identify vulnerable asset. • Implement routine maintenance of corroded asset which includes regular inspections, repairs and upgrades of material that are resistant to saltwater corrosion.

RISK MANAGEMENT

[IFRS S2: 25]

We integrate the assessment of transition risks and opportunities into our comprehensive risk management strategy, guided by our TNB Risk Management Framework. The management of climate-related physical and transition risk, including assessment, review and monitoring are embedded in our business operations and decision on business growth, enabling us to navigate challenges effectively while seizing opportunities for a sustainable future.

For more information, please refer to the Statement on Risk Management and Internal Control in the IAR 2024.

We recognise the importance of cultivating cross-functional capabilities and enhancing resilience across all areas of our business to support long-term strategic decision-making. Key capabilities include foresight and crisis preparedness. To achieve this, we employ a 4+1 approach—scan, assess, identify, mitigate, and repeat—allowing us to continuously monitor potential issues, evaluate their impacts, pinpoint specific risks, implement effective mitigation strategies, and iterate the process to stay ahead of emerging threats and prevent crises.

BUSINESS CONTINUITY MANAGEMENT (BCM)

In the event of a crisis, we are fully committed to preparing and responding effectively, guided by the TNB BCM Framework. Developed in alignment with ISO 22301, our BCM Framework provides a structured approach to managing business continuity within the Group. This enables us to respond quickly and effectively to any crisis while ensuring the continuity of our operations towards greater resiliency.

Across the Group, proactive pre-crisis preparedness is continually emphasised to prevent crisis from occurring or becoming more severe. For instance, in preparation for floods during monsoon season, a range of crisis preparedness measures are proactively taken, including:

01

Flood forecasts generated using Flood Inundation Maps, Substation Elevation data, and Contour Gap Analysis. Based on these forecasts, warning alerts are issued to the operations team to enhance preparedness.

02

Review and enhancement of Business Impact Analysis (BIA) and Emergency Response Plans (ERP).

03

Identification and implementation of flood mitigations on asset infrastructure.

04

Communication and engagement with local authorities and state governments to strengthen prompt and coordinated response during crisis.

Our crisis management is led by the TNB Crisis Management Team (CMT), which includes the President/CEO and C-suites, playing a vital role in ensuring efficient recovery and effective communication with stakeholders. At the operations level, Emergency Response Teams (ERT) activate respective ERP for immediate response such as medical care and rescue operations, prioritising the safety of both our assets and those affected. We strategically plan and execute stakeholder communications through official channels, including the TNB Careline Facebook page. Additionally, targeted engagements with stakeholders are led by TNB State Stakeholder Affairs or Head of Retail at the state to strengthen stakeholder confidence in the period of crisis.

METRICS AND TARGET

We identify and set climate-related quantitative targets and monitor related metrics to ensure the realisation of our Net Zero by 2050 aspiration.

For more information, refer to MM3 on pages 67-79.

Summary

MARKING A MILESTONE, ADVANCING A MISSION

Year 2024 marked a milestone year of advancing leadership in sustainability accelerating our strategic response to the global energy transition while celebrating 75 years of powering Malaysia.

We uphold transparent reporting, and commit to greater clarity, depth, and responsible reporting in our sustainability disclosures. We have advanced our sustainability reporting aligning to recent regulatory requirement (ISSB reporting standards). In 2024, our sustainability efforts have been externally acknowledged, as reflected in the upgrade of TNB's MSCI ESG Rating from "BBB" to "A". This progress underscores that we are on the right path toward becoming a sustainability-driven company and reaffirms our dedication to transparent and accountable reporting.

2024 HIGHLIGHTS AT A GLANCE

ENVIRONMENTAL

Energy Transition (ET)
- Accelerate Generation Decarbonisation
- Develop Flexible and Cross-border Grid
- Smart Grid
- Optimising Grid & Network Asset Efficiency
- Flexible Energy Storage Solutions
- Supporting the Power-Intensive Hydrogen Economy

Carbon Management
- Carbon Management Strategy with 5% carbon emissions intensity reduction target
- RE Expansion

Environmental Management
- Biodiversity Framework
- Emissions management (Scope 1, Scope 2, Scope 3, toxic emissions)
- Water management
- Hazardous waste management
- Non-hazardous waste management
- Waste to product from coal bottom ash
- Environmental compliance

SOCIAL

Reliable Supply
- Reliable supply
- Fair & transparent tariff
- Powering rapid data center growth

External Stakeholders
- Elevating Customer Experience
- Digitalising customer services (myTNB apps, one-stop digital service)
- Enabling customer ET journey
- Public Safety Awareness Programme
- Community development & social impact programmes
- Just Transition
- Grievances management

Internal Stakeholders
- Labour Rights
- Leadership and capability building
- Career development
- Thematic approach for HSE risk assessment
- Employee Value Proposition
- Diversity & Inclusivity

GOVERNANCE

Corporate Governance
- TNB Sustainability Policy
- TNB Sustainability Framework
- TNB Sustainability Governance Structure
- TNB Transition Finance Framework
- Labour Rights Policy Statement
- Sustainable Procurement Code of Conduct (SPCC)
- TNB Code of Business Ethics (CoBE)

Risk Management
- Response to climate change (Physical & Transition Risk and Opportunities)
- Risk Management Framework
- Business Continuity Management (BCM)
- Cybersecurity risk assessment
- Customer data management

Corporate Behaviour
- Institutionalise integrity culture, emphasising human governance practice
- Certified Integrity Officer Program (CeIO)
- Review of TNB whistle blowing management system

Our efforts in advancing renewables, grid modernisation and inclusive growth, combined with strong environmental stewardship and social investment, reaffirm our position at the forefront of Malaysia's low-carbon and just transition. It reaffirms our role as a national utility advancing the just energy transition, ensuring that decarbonisation goes together with equity, access and inclusion, while enhancing resilience and creating long-term value to all stakeholders.

In addition, the initiatives presented above are supported by the disclosure of over 400 performance indicators, including both ongoing and newly adopted metrics. These indicators are detailed in this report on page 154 to page 190, sustaining our commitment to transparency and credible reporting as we integrate the ISSB framework throughout the company.

CONFIDENCE THROUGH CAPABILITY AND GOVERNANCE

We continue to deliver value across regulated and non-regulated operations, underpinned by strong governance and stakeholder engagement. Our policies on labour rights, community equity and biodiversity restoration demonstrate that sustainability is deeply woven into how we operate. Through targeted programmes and inclusive project planning, we are embedding just transition principles, ensuring that the benefits of the energy shift are shared fairly, particularly among vulnerable communities.

CLOSING THE LOOP: TRANSPARENCY, TRUST AND FORWARD VISION

Our sustainability journey in 2024 demonstrates more than compliance, it reflects proactive, organisation-wide transformation. With upgraded ESG ratings, clear strategic priorities and credible disclosures, we are well-positioned to support and help lead Malaysia's transition into a cleaner, fairer and more climate-resilient energy future. As we strengthen our disclosures, deepen stakeholder trust and align with global standards, we remain committed to creating lasting value for the nation and its people.

Our journey is far from over, but the path forward is clear. We will continue to lead with purpose, create long-term value and build a better and brighter Malaysia through Just Transition that is powered by energy that is fair, secure and sustainable.

Performance Table

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
BUSINESS PERFORMANCE								
GENERATION PORTFOLIO								
			Installed capacity broken down by primary source					
G4 – EU1		N/A	Total Installed Capacity	MW	–	18,335.11	16,385.35	
			Gas	MW	–	6,147.77	5145.07	
			Coal	MW	–	7,378.89	6790.00	
			Hydro	MW	–	2,772.47	2,666.55	
			Diesel	MW	–	258.96	203.18	
			Solar	MW	–	1300.85	1,298.90	
			Biomass	MW	–	12.50	5.00	
			Biogas	MW	–	4.76	2.40	
			Wind	MW	–	284.25	179.47	
			Oil	MW	–	142.88	71.44	
			Solar Hybrid	MW	–	31.77	23.34	
	N/A		**Net energy output broken down by primary energy source**					
			Total Net Energy Output	GWh	–	79,535.45	73,185.02	
			Gas	GWh	–	26,065.97	22,238.84	
			Coal	GWh	–	44,826.58	40,678.64	
			Hydro	GWh	–	6452.92	7,148.16	
G4 – EU2		IF-EU-000.D	Diesel	GWh	–	365.68	532.65	
			Solar	GWh	–	572.01	1274.96	
			Biomass	GWh	–	13.16	31.37	
			Biogas	GWh	–	13.8	–	
			Wind	GWh	–	544.43	852.24	
			Oil	GWh	–	660.52	395.21	
			Solar Hybrid	GWh	–	20.38	32.95	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
BUSINESS PERFORMANCE								
EFFECTIVE STAKEHOLDER ENGAGEMENT								
			Regulatory Relationship					
G4 – EU4	N/A	N/A	Regulatory Relationship Strength Index (RRSI)	Percentage	85	92	94	
TRANSMISSION AND DISTRIBUTION LINES								
			Length of above and underground transmission and distribution lines by regulatory regime					
			Transmission	circuit-km	25,838	26,093	26,371	For TNB operations in Peninsular Malaysia
			Distribution	circuit-km	741,764	761,546	708,763	
			Length of above and underground transmission and distribution lines by regulatory regime					
G4 – EU4	N/A	IF-EU-000.C	Transmission	circuit-km	3,154	3,161	3,147	For SESB operation in Sabah and Labuan. Length of transmission lines for 2023 was reinstated
			Distribution	circuit-km	27,871	27,668	31,199	
SYSTEM EFFICIENCY								
			Generation plant performance by regulatory regime					
				Percentage	83.20	83.30	81.17	For TNB operations in Peninsular Malaysia
				Percentage	79.45	78.74	75.19	For SESB operation in Sabah
G4-EU11	N/A	N/A	Equivalent Availability Factor (EAF)	Percentage	–	96.72	0.65	For TNB operations in international footprint for gas
							0.96	For TNB operations in international footprint for hydro
							0.98	For TNB operations in international footprint for solar
							0.92	For TNB operations in international footprint for wind

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
BUSINESS PERFORMANCE								
SYSTEM EFFICIENCY								
				Percentage	7.37	6.58	5.4	For TNB operations in Peninsular Malaysia
				Percentage	18.54	20.05	21.19	For SESB operation in Sabah
			Equivalent Unplanned Outage Factor (EUOF)	Percentage	–	3.08	0.33	For TNB operations in international footprint for gas
							0.04	For TNB operations in international footprint for hydro
							0.02	For TNB operations in international footprint for solar
							0.08	For TNB operations in international footprint for wind
SYSTEM EFFICIENCY								
			Transmission and distribution network losses					
G4-EU12	N/A	N/A	Transmission	Percentage	1.59	1.56	1.32	For wholly-owned transmission network in Peninsular Malaysia
			Distribution	Percentage	5.45	5.42	5.84	For wholly-owned distribution network in Peninsular Malaysia
			Electricity Transmission System					
G4-EU12	N/A	N/A	Transmission System Minutes	Minutes	0.172	0.483	0.0019	For TNB operations in Peninsular Malaysia
				Minutes	14.22	16.83	0.548	For SESB operations in Sabah
			Percentage of System Availability	Percentage	99.79	99.77	99.79	For TNB operations in Peninsular Malaysia
				Percentage	94.61	99.99	99.99	For SESB operations in Sabah

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
BUSINESS PERFORMANCE								
GRID RESILIENCY								
			Average power outage duration					
G4 – EU29	N/A	IF-EU-550a.2	System Average Interruption Duration Index (SAIDI)	Minutes/ Customer/ Year	45.06	46.10	47.88	For TNB operations in Peninsular Malaysia
				Minutes/ Customer/ Year	286.21	266.37	203.65	For SESB operations in Sabah
G4 – EU28	N/A		System Average Interruption Frequency Index (SAIFI)	Minutes/ Customer/ Year	0.84	0.80	0.96	For TNB operations in Peninsular Malaysia
				Minutes/ Customer/ Year	10.90	12.61	10.79	For SESB operations in Sabah
N/A	N/A		Customer Average Interruption Duration Index (CAIDI)	Minutes/ Customer/ Year	53.95	57.40	50.13	For TNB operations in Peninsular Malaysia
				Minutes/ Customer/ Year	26.26	21.12	18.87	For SESB operations in Sabah
GRID RESILIENCY								
			Incidents of non-compliance with electricity infrastructure regulations and standards					
N/A	N/A	IF-EU-550a.1	Number of incidents of non-compliance with physical standards and regulations	Number	–	–	0	New disclosure FY2024
N/A	N/A		Number of incidents of non-compliance with cybersecurity standards and regulations	Number	–	–	0	New disclosure FY2024
N/A	N/A		**Total number of incidents of non-compliance with physical or cybersecurity standards or regulations**	Number	–	–	0	New disclosure FY2024

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
BUSINESS PERFORMANCE								
ENERGY TRANSITION AND INNOVATION								
			Installations of RE and infrastructure associated with smart grid technology					
G4 – EU29	N/A	N/A	RE Capacity	MW	3,780	4,375	4372	
			Number of smart meters (AMI) installed	Number	838,830	873,740	949,226	
			Cumulative number of smart meters (AMI) installed	Number	2,675,749	3,549,489	4,498,715	
N/A	N/A	IF-EU-420a.2	Percentage of electric load served by smart grid technology	Percentage	–	–	40.2	Operations in Peninsular Malaysia New disclosure FY2024
		N/A	Number of EV charging point	Number	3 DC	14 DC	48 DC	
					3 AC	18 AC	18 AC	
FINANCIAL PERFORMANCE								
GRI 201-1	N/A	N/A	**Value Added**					
			Revenue	RM million	50,867.7	53,066.9	56,737.1	
			Imbalance Cost Pass-Through (ICPT) under recovery	RM million	22,315.3	10,589.2	9,097.7	
			Operating expenses excluding staff costs, depreciation and amortisation	RM million	(49,411.50)	(42,219.60)	(44,006.4)	
			Net loss on impairment of financial instruments	RM million	(101.40)	114.7	789.1	
			Other operating income	RM million	940.0	948.2	1,054.5	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
FINANCIAL PERFORMANCE								
			Finance income	RM million	277.7	544.3	628.7	
			Finance cost	RM million	(4,343.4)	(4,331.1)	(4,097.8)	
			Fair value of financial instruments	RM million	130.7	(49.4)	(11.1)	
			Foreign exchange gain/(loss) on borrowings	RM million	(223.5)	(209.5)	467.4	
			Share of results of associates and joint ventures	RM million	97.6	62.4	107.5	
			Total value added available for distribution	RM million	20,549.2	18,525.1	20,766.7	
		N/A	**Value Distributed**					
			To employees					
			Employee cost	RM million	3,798.1	3,885.8	3,719.5	
			To government					
			Taxation and Zakat	RM million	1,791.2	770.0	1,085.2	
			To shareholders					
			Dividends	RM million	2,181.3	2,537.5	3,073.7	
			Non-controlling interest	RM million	94.1	(166.7)	31.0	
			To reinvest to the Group					
			Depreciation and amortisation	RM million	11,402.5	11,265.7	11,232.4	
			Retained profit	RM million	1,282.0	232.8	1,624.0	
			Total distributed	RM million	20,549.2	18,525.1	20,766.7	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
SUPPLY CHAIN MANAGEMENT								
GRI 204-1	N/A	N/A	**Proportion of spending on local suppliers**					
			Number of local vendor	Number	3,618	3,632	3,639	
			Percentage of local suppliers	Percentage	95.09	94.98	93.86	
			Total spend on local suppliers	RM bil	10.38	17.18	19.21	
	Bursa C7(a) [Supply chain management]		Percentage spent on local suppliers engaged	Percentage	95.10	46.45	52.81	
GRI 205-2	N/A	N/A	**Total number and percentage of vendors that the organisation's anti-corruption policies and procedures have been communicated**					
			Number of Vendors with Signed Integrity Pacts	Number	–	1,550	1,385	
			Percentage of Vendors with Signed Integrity Pacts	RM billion	–	59.3	38.1	
			Number of Vendors with Completed Anti-Corruption Training	Number	–	267	1,237	
			Percentage of Vendors with Completed Anti-Corruption Training	RM billion	–	10	34	
GRI 205-3	N/A	N/A	**Confirmed incidents of corruption involving vendors**					
			Total number of confirmed incidents when contracts with business partners were terminated or not renewed due to violations related to corruption	Number	–	2	0	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
ANTI CORRUPTION								
GRI 205-1			Total number of operations assessed for risks related to corruption	Number	–	32	118	
	Bursa C1(b) [Anti-Corruption]	N/A	Total percentage of operations assessed for risks related to corruption	Percentage	–	97	100	
GRI 205-2	N/A	N/A	**Total number and percentage of employees that the organisation's anti-corruption policies and procedures have been communicated to, broken down by employee level Completed Conflict of Interest (COI)**					
			Senior Management	Number	–	362	437	
			Executive	Number	–	6,720	9,357	
			Non-executive	Number	–	20,856	24,661	
			Total	Number	–	27,938	34,455	
			Total	Percentage	–	80.9	100	
		N/A	**Completed Integrity Pledge**					
			Senior Management	Number	–	350	437	
			Executive	Number	–	6,569	9,357	
			Non-executive	Number	–	20,711	24,661	
			Total	Number	–	27,630	34,455	
			Total	Percentage	–	80	100	
	N/A	N/A	**Total number of employees that have received training on ethics and anti-corruption by employee category**					
			Senior Management	Number	546	348	437	
			Executive	Number	2,686	6,470	9,412	
			Non-executive	Number	11,006	20,722	24,805	
			Total	Number	14,238	27,540	34,653	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
ANTI CORRUPTION								
GRI 205-2	Bursa C1(a) [Anti-Corruption]	N/A	**Percentage of employees that have received training on ethics and anti-corruption by employee category**					
			Senior Management	Percentage	1.57	1.01	1.26	
			Executive	Percentage	7.74	17.39	27.16	
			Non-executive	Percentage	31.72	56.09	71.58%	
			Total	Percentage	41.03	74.48	100	
GRI 205-3	Bursa C1(c) [Anti-Corruption]	N/A	**Confirmed incidents of corruption and actions taken**					
			Total number of confirmed incidents of corruption	Number	1	5	4	
	N/A	N/A	Total number of confirmed incidents in which employees were dismissed or disciplined for corruption	Number	–	5	4	
N/A	N/A	N/A	**Total number of accused employees by level**					
			Senior Management	Number	–	0	0	
			Executive	Number	–	0	0	
			Non-executive	Number	–	5	4	
N/A	N/A	N/A	**Anti-bribery Management System (ABMS) Internal Audit**					
			Number of division audited	Number	–	21	24	
			Percentage of division audited	Percentage	–	100	100	
			Number of NCR	Number	–	7	12	
			Percentage of NCR closed	Percentage	–	100	100	
GRI 415-1		N/A	**Amount of political contribution**					
			Total amount of political contribution	RM	–	–	0	New disclosure FY2024

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
NON COMPLIANCE								
GRI 2-27	N/A	N/A	**Total number of significant instances of non-compliance with laws and regulations for which fines were occurred**					
			Environment	Number	–	10	4	
			Safety and occupational health	Number	–	41	25	
			Corruption	Number	–	–	0	New disclosure FY2024
			Total	Number	–	51	29	
		N/A	**Total number of significant instances of non-compliance with laws and regulations for which non-monetary sanctions occurred**					
			Environment	Number	5	7	16	
			Safety and occupational health	Number	–	41	27	
			Corruption		–	–	0	New disclosure FY2024
			Total	Number		48	43	
		N/A	**Monetary value of significant fines**					
			Cost of fines, penalties or settlements in relation to corruption	RM	–	–	0	New disclosure FY2024
			Total monetary value of significant fines	RM	20,000	20,000	97,500	FY 2024 inclusive of environment, safety & health

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
CUSTOMERS								
CUSTOMER ACCOUNTS								
			Number of residential, commercial, industrial and institutional customer accounts					
			Residential	Number	8,672,560	8,910,066	9,143,457	
			Peninsular Malaysia	Number	8,113,248	8,335,248	8,554,220	
			Sabah	Number	559,312	574,782	589,237	
			Commercial	Number	1,760,989	1,796,239	1,832,642	
		IF-EU-000.A	Peninsular Malaysia	Number	1,655,994	1,688,615	1,721,968	
			Sabah	Number	104,995	107,624	110,674	
G4-EU3	N/A		**Industrial**	Number	35,260	36,051	36,572	
			Peninsular Malaysia	Number	33,615	34,390	34,834	
			Sabah	Number	1,645	1,661	1,738	
		N/A	**Others**	Number	106,911	110,445	98,658	
			Peninsular Malaysia	Number	100,239	103,668	91,864	
			Sabah	Number	6,672	6,777	6,794	
			Grand Total	Number	9,903,046	10,852,801	11,111,329	
			Total electricity delivered to residential, commercial, industrial and institutional customer accounts					
			Residential	MWh	33,509,201.29	35,555,221.60	38,682,740.25	
			Peninsular Malaysia	MWh	31,437,558.00	33,325,441.00	36,293,584.00	
			Sabah	MWh	2,071,643.29	2,229,780.60	2,389,156.25	
			Commercial	MWh	41,997,784.55	45,092,218.50	48,639,783.64	
		IF-EU-000.B	Peninsular Malaysia	MWh	39,504,388.00	42,402,041.00	45,807,508.91	
N/A	N/A		Sabah	MWh	2,493,396.55	2,690,177.50	2,886,274.73	
			Industrial	MWh	46,573,787.35	45,648,645.68	46,585,411.95	
			Peninsular Malaysia	MWh	45,480,871.00	44,478,159.00	45,272,778.00	
			Sabah	MWh	1,092,916.35	1,170,486.68	1,312,633.95	
		N/A	**Others**	MWh	2,492,837.90	2,572,516.45	2,748,318.81	
			Peninsular Malaysia	MWh	2,415,973.00	2,493,161.00	2,673,711.00	
			Sabah	MWh	76,864.90	79,355.45	74,607.81	
			Total	MWh	124,573,611.09	128,668,602.23	137,165,624.74	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
CUSTOMERS								
CUSTOMER ACCOUNTS								
			Results of surveys measuring customer satisfaction					
N/A	N/A	N/A	Customer satisfaction index	Percentage	87	88	87	
			Customer experience index	Percentage	95	95	95	
			Complaints Resolved	Percentage	99.67	99.7	99.5	
			Total number of substantiated complaints received concerning breaches of customer privacy					
GRI 418-1	N/A	N/A	Complaints received from outside parties and substantiated by TNB	Number	0	0	0	
			Complaints received form regulatory bodies	Number	0	0	0	
	Bursa C8(a) [Data privacy and security]		Total number of customer privacy complaints	Number	0	0	0	
	N/A		Total number of identified leaks, thefts, or losses of customer data	Number	0	0	0	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
CUSTOMERS								
CUSTOMER ACCOUNTS								
			Energy solution adoption by customers					
			Rooftop solar (GSPARX)					
			Rooftop solar capacity	MWp	45	105	168.97	
			Total number of customer subscribed	Number	–	1,155	1,958	
			Green Electricity Tariff (GET)					
			Number of customer subscribed per year	Number	–	2,753	1,403	
N/A	N/A	N/A	Total annual consumption	MWh	–	4181	2,991,245	
			Net Energy Metering (NEM) connected TNB Peninsular Grid					
			Cumulative customers who are producer	Number	–	24,664	55,831	
			Total Installed Capacity	MW	–	970.5	1,467.5	
			Number of customer subscribed to myTNB					
			Number of customer subscribed to myTNB	Number	6,294,064	6,742,081	7,264,768	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remarks
BOARD OF DIRECTORS								
GRI 405-1	N/A	N/A	**TNB Company Board Directors by Gender**					
			Male	Number	7	6	8	Excluding subsidiaries
			Female	Number	4	5	4	
			Total	Number	11	11	12	
	Bursa C3(b) [Diversity]		Male	Percentage	63.64	55.45	66.67	
			Female	Percentage	36.36	45.45	33.33	
	N/A		**TNB Company Board Directors by Age**					
			< 50	Number	–	1	1	Excluding subsidiaries
			50 – 60	Number	–	5	5	
			> 60	Number	–	5	6	
	Bursa C3(b) [Diversity]		< 50	Percentage	9.10	9.10	8.33	
			50 – 60	Percentage	54.54	45.45	41.67	
			> 60	Percentage	36.36	45.45	50.00	
GRI 2-9		IFRS S1:27a	**Number of TNB Company Directors by Tenure**					
			Less than 1 year	Number	–	5	1	Excluding subsidiaries
			1 year	Number	–	1	5	
			2 years	Number	–	1	2	
			3 years	Number		–	1	
			4 years	Number	–	1	–	
			5 years	Number	–	2	–	
			6 years	Number	–	1	2	
			7 years	Number	–	–	1	
			Number of TNB Company Directors by Experience					
			Electric Utilities	Number	–	–	3	Excluding subsidiaries
			Audit/Finance	Number	–	–	6	
			Business Continuity Management	Number	–	–	1	
			Corporate Strategy, Planning and Development	Number	–	7	7	
			Cybersecurity	Number	–	–	1	
			Economics/ Investment	Number	–	4	9	
			Engineering	Number	–	4	4	
			Audit (combine – Audit/ Finance)	Number	–	3	–	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remarks
BOARD OF DIRECTORS								
			Commercial/ Marketing	Number	–	2	4	
			Finance (combine – Audit/ Finance)	Number	–	2	–	
			Finance and Investment (combine – Audit/ Finance and Economics/ Investment)	Number	–	2	–	
			Investment (combine – Economics/ Investment)	Number	–	2	–	
			Operations	Number	–	2	–	
			Banking	Number	–	1	4	
			Human Resources	Number	–	1	6	
			Legal	Number	–	1	2	
			Project Management	Number	–	1	8	
			Public Administration	Number	–	-	2	
			Real Asset and Property	Number	–	1	2	
			Refinery Operations	Number	–	1	–	
			Regulatory	Number	–	1	5	
			Risk Management	Number	–	–	3	
			Stakeholders Management	Number	–	–	3	
			Sustainability	Number	–	–	7	
			Technology Risk	Number	–	–	1	
			Number of TNB Company Directors by Skillset					
			Engineering	Number	–	4	4	
			Finance and Accounting	Number	–	4	7	Excluding subsidiaries
			Legal	Number	–	2	2	
			Others	Number	–	1	15	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
WATER								
WATER WITHDRAWAL								
			Total water withdrawal from all areas by sources					
		IF-EU-140a.1	Total water withdrawal from all areas	ML	–	3,694,205	4,235,191	
			Sources – Surface water					
			Freshwater	ML	–	3,230	2,389	
			Other water	ML	–	–	–	
			Sources – Seawater					
GRI 303-3	N/A		Freshwater	ML	–	–	–	
			Other water	ML	–	3,679,348	4,221,884	
		N/A	**Sources – Third-party water**					
			Freshwater	ML	–	11,627	10,917	
			Other water	ML	–	–	–	
			Freshwater Withdrawal Intensity (Water withdrawal/Net Generation Output)	ML/GWh	–	0.146	0.149	
WATER DISCHARGE								
			Total water discharge to all areas					
			Total water discharge to all areas	ML	–	3,684,109	4,225,957	
			Total water discharge to all areas by category					
			Category – Freshwater	ML	–	4,762	2,389	
GRI 303-4	N/A	N/A	Category – Other water	ML	–	3,679,348	4,221,884	
			Total water discharge to all areas by destination					
			Destination – Surface water	ML	–	3,230	2,389	
			Destination – Seawater	ML	–	3,679,348	4,221,884	
			Destination – Third-party water	ML	–	1,532	1,684	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
WATER								
WATER CONSUMPTION								
			Total water consumption from all areas					
GRI 303-5	Bursa C9(a) [Water]	IF-EU-140a.1	Total water consumption from all areas	ML	10,531	10,096	9,234	
N/A	N/A	N/A	Water Consumption Intensity (Water consumption/ Net Generation Output)	ML/GWh	–	0.127	0.126	
NON COMPLIANCE ASSOCIATED WITH WATER REGULATION								
			Incidents of non-compliance associated with water quality permits, standards and regulations					
N/A	N/A	IF-EU-140a.2	Number of Incidents of non-compliance associated with water quality permits, standards and regulations	Number	–	–	0	New disclosure FY2024

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
GHG EMISSIONS								
GRI 305-1	Bursa C11(a) [Emissions management]	IF-EU-110a.1	**Direct (Scope 1) GHG emissions**					
			Total direct GHG emissions (Scope 1)	million tCO_2e	38.58	38.92	38.75	
	N/A	N/A	Fugitive emissions	million tCO_2e	–	0.08	0.09	
			Stationary Combustion	million tCO_2e	–	38.81	38.68	
			Mobile Combustion	million tCO_2e	–	0.02	0.02	
GRI 305-2	Bursa C11(b) [Emissions management]	IF-EU-110a.2	**Energy indirect (Scope 2) GHG emissions**					
			Indirect (Scope 2) GHG Emissions	million tCO_2e	0.29	0.33	0.41	
GRI 305-3	Bursa C11(c) [Emissions management]	IF-EU-110a.2	**Other indirect (Scope 3) GHG emissions**					
			Business travel	million tCO_2e	–	0.037	0.035	
			Employee commuting	million tCO_2e	–	0.063	0.063	
	N/A	N/A	**Other indirect (Scope 3) GHG emissions – Business Travel by transportation type**					
			By air travel	tCO_2e	–	1,319	532	
			By land travel	tCO_2e	–	35,942	34,327	
			Other indirect (Scope 3) GHG emissions – Employee Commuting by mode of transport					
			By car	tCO_2e	–	54,067	53,888	
			By motorcycle	tCO_2e	–	8,030	8,003	
			By e-hailing	tCO_2e	–	491	439	
			By public transport	tCO_2e	–	440	489	
GRI 305-4	N/A	N/A	**GHG emissions intensity**					
			Scope 1	tCO_2e/ MWh	0.5488	0.5465	0.5571	
GRI 305-5	N/A	N/A	**GHG emissions Avoidance**					
			Total avoided emissions	mil tCO_2e	7.30	7.38	8.46	
			Advanced Combined Cycle Technology	tCO_2e	–	3,550,034	3,249,752	
			Large Hydro Power	tCO_2e	–	3,098,284	3,568,917	
			Clean Coal Technology	tCO_2e	–	575,560	1,381,184	
			Small Renewable Energy	tCO_2e	–	70,410	108,811	
			Large Scale Solar	tCO_2e	–	81,307	145,271	
			New Streetlight Fittings	tCO_2e	–	1,954	9,528	
			Tree Planting	tCO_2e	–	842	1,101	
			Electric Vehicles	tCO_2e	–	18	603	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
WASTE								
WASTE GENERATED								
			Waste generated					
	Bursa C10(a) [Waste Management]	N/A	Total weight of waste generated	metric tons	74,150	929,123	895,996	
			Hazardous waste generated					
	Bursa C10(a) [Waste Management]	N/A	Total weight of hazardous waste generated	metric tons	74,150	929,123	895,038	
			Hazardous waste generated by type					
		N/A	SW1: Metal and metal-bearing waste	metric tons	–	916,955	886,878	
		IF-EU-150a.1	Ash	metric tons	–	913,064	884,367	
			E-Waste	metric tons	–	3,212	2,019	
			Others	metric tons	–	679	492	
GRI 306-3	N/A	N/A	SW2: Waste containing principally inorganic constituents	metric tons	–	24	124	
			SW3: Waste containing principally organic constituents	metric tons	–	4,022	2,532	
			SW4: Waste containing either organic or inorganic constituents	metric tons	–	8,121	5,505	
			Non-hazardous waste generated					
	Bursa C10(a) [Waste Management]	N/A	Total weight of non-hazardous waste generated	metric tons	–	–	958	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
WASTE DIVERTED FROM DISPOSAL								
GRI 306-4	Bursa C10(a) [Waste Management]	N/A	**Hazardous waste diverted from disposal**					
			Total hazardous waste diverted from disposal	metric tons	–	440,595	497,452	
	N/A	IF-EU-150a.1	**Hazardous waste diverted from disposal by type**					
			SW1: Metal and metal-bearing waste	metric tons	–	428,915	489,705	
			Ash	metric tons	–	425,703	487,482	
		N/A	E-Waste	metric tons	–	3,212	2,006	
			Others	metric tons	–	–	217	
			SW2: Waste containing principally inorganic constituents	metric tons	–	2	35	
			SW3: Waste containing principally organic constituents	metric tons	–	3,970	2,393	
			SW4: Waste containing either organic or inorganic constituents	metric tons	–	7,707	5,319	
	Bursa C10(a) [Waste Management]	N/A	Total hazardous waste recycling rate	Percentage	–	47.42	55.58	
	Bursa C10(a) [Waste Management]	N/A	**Non-hazardous waste diverted from disposal**					
			Total non-hazardous waste diverted from disposal	metric tons	–	–	126.91	
	Bursa C10(a) [Waste Management]	N/A	Total non-hazardous waste recycling rate	Percentage	–	–	13.25	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
WASTE DIRECTED TO DISPOSAL								
GRI 306-5	Bursa C10(a) [Waste Management]	N/A	**Hazardous waste directed to disposal**					
			Total weight of hazardous waste directed to disposal	metric tons	–	488,528	397,586	
	N/A	N/A	**Hazardous waste directed to disposal by type**					
			SW1: Metal and metal-bearing waste	metric tons	–	488,039	397,173	
			Ash	metric tons	–	487,360	396,885	
			E-Waste	metric tons	–	–	13	
			Others	metric tons	–	679	275	
			SW2: Waste containing principally inorganic constituents	metric tons	–	22	88	
			SW3: Waste containing principally organic constituents	metric tons	–	52	138	
			SW4: Waste containing either organic or inorganic constituents	metric tons	–	414	186	
	Bursa C10(a) [Waste Management]	N/A	**Non-hazardous waste directed to disposal**					
			Total non-hazardous waste directed to disposal	metric tons	–	–	831	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
ENERGY								
			Energy consumption within the organisation					
GRI 302-1	Bursa C4(a) [Energy Management]	N/A	Total energy consumption within organisation	GJ	863,462.69 (MWh)	404,523,322	320,997,148	
GRI 302-3		N/A	Energy intensity ratio for the organisation	GJ/MWh	–	5.39	4.30	
			Total fuel consumption within the organisation from non-renewable sources					
			Coal	GJ	444,682,239	452,842,875	366,740,751	
			Natural gas	GJ	210,857,206	194,060,333	193,211,458	
			Distillate fuel	GJ	2,445,795	1,846,890	1,387,891	
			Residual Fuel Oil/ Medium Fuel Oil	GJ	2,559,614	1.94	487,250	
			Biodiesel (93% Fossil)	GJ	–	19,182	14,191	
			Total fuel consumption within the organisation from non-renewable sources	GJ	–	648,769,282	561,841,541	
			Total fuel consumption within the organisation from renewable sources					
			Biomass	GJ	–	1,134,665	980,948	
GRI 302-1		N/A	Biodiesel (7% Renewable)	GJ	–	1,444	1,068	
			Biogas	GJ	–	222,874	–	
			Total fuel consumption within the organisation from renewable sources	GJ	–	1,358,983	982,016	
			Hydro and Solar Power Generation					
			Large scale solar and hydro generation	GJ	–	22,665,154	25,480,236	
			Total energy purchased for consumption					
			Electricity purchased for consumption	GJ	–	1,659,736	1,408,189	
			Total energy sold by the organisation					
			Electricity sold by the organisation	GJ	–	269,937,097	268,714,834	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
SIGNIFICANT AIR EMISSIONS								
			Significant air emissions					
GRI 305-7	Bursa S4(a) [Emissions – Air quality/ Pollution]	IF-EU-120a.1	Sulfur Oxides (SOx)	ton	27,412.40	34,977.44	115,697.86	
		IF-EU-120a.1	Particulate matter (PM)	ton	1,880.70	6,539.63	6,347.45	PM 10 and below
		N/A	Carbon Monoxide (CO)	ton	8,180.10	16,107.26	22,881.61	
		IF-EU-120a.1	Nitrogen Oxides (NOx)	ton	31,024.14	6,539.63	76,458.23	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
EMPLOYEE DEMOGRAPHIC								
			Total size of workforce					
			TNB Group	Number	34,699	34,543	34,939	
			TNB Company	Number	26,990	26,607	26,570	
			TPGSB (Subsidiaries)	Number	1,505	1,256	1,646	
			Other Subsidiaries	Number	6,204	6,680	6,723	
			Workforce by geographic area					
GRI 2-7	N/A	N/A	Peninsular Malaysia – East	Number	4,228	4,144	4,229	
			Peninsular Malaysia – North	Number	6,351	6,274	6,333	
			Peninsular Malaysia – South	Number	5,132	5,059	5,085	
			Peninsular Malaysia – Central	Number	15,647	15,717	15,733	
			Malaysia East – Sabah	Number	3,338	3,346	3,501	
			Malaysia East – Sarawak	Number	1	1	–	
			Others	Number	2	2	58	
			Workforce by contract type and geographic area					
GRI 2-7	N/A	N/A	Peninsular Malaysia – East	Number	3,922	3,910	4,004	
			Peninsular Malaysia – North	Number	5,878	5,829	5,908	
			Peninsular Malaysia – South	Number	4,629	4,602	4,715	
			Peninsular Malaysia – Central	Number	14,024	13,969	14,175	
			Malaysia East – Sabah	Number	2,691	2,755	2,875	
			Malaysia East – Sarawak	Number	1	1	–	
			Others	Number	–	–	52	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
EMPLOYEE DEMOGRAPHIC								
	Bursa C6(b) [Labour practices and standards]	N/A	Total (Permanent)	Number	31,145	31,063	31,729	
	N/A	N/A	Peninsular Malaysia – East	Number	306	286	225	
			Peninsular Malaysia – North	Number	473	445	425	
			Peninsular Malaysia – South	Number	503	457	370	
			Peninsular Malaysia – Central	Number	1,623	1,696	1,558	
			Malaysia East – Sabah	Number	647	591	626	
			Others	Number	2	2	6	
	Bursa C6(b) [Labour practices and standards]	N/A	Total (Contract)	Number	3,554	3,477	3,210	
			Total (Contract)	Percentage	10.29	10.07	9.19	
GRI 2-7	Bursa C3(a) [Diversity]	N/A	**Workforce by gender**					
			Male	Number	27,258	27,084	27,353	
				Percentage	78.60	78.40	78.30	
			Female	Number	7,441	7,459	7,586	
				Percentage	21.40	21.60	21.70	
	N/A	N/A	**Workforce by contract type and gender**					
			Permanent Employees					
			Male	Number	24,197	24,140	24,665	
			Female	Number	6,933	6,926	7,064	
			Total (Permanent)	Number	31,130	31,066	31,729	
			Contract Employees					
			Male	Number	3,061	2,943	2,688	
			Female	Number	508	534	522	
			Total (Contract)	Number	3,569	3,477	3,210	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
EMPLOYEE DIVERSITY AND EQUAL OPPORTUNITIES								
			Workforce by level and gender					
			Senior management					
			Male	Number	321	336	339	
			Female	Number	103	120	112	
			Total	Number	424	456	451	
			Male	Percentage	75.71	73.68	75.17	
			Female	Percentage	24.29	26.32	24.83	
			Executive					
			Male	Number	5,312	5,362	5,508	
			Female	Number	3,588	3,685	3,866	
			Total	Number	8,900	9,047	9,374	
			Male	Percentage	59.69	59.27	58.76	
			Female	Percentage	40.31	40.73	41.24	
			Non-executive					
			Male	Number	21,623	21,379	21,506	
			Female	Number	3,752	3,661	3,608	
			Total	Number	25,375	25,040	25,114	
GRI 405-1	Bursa C3(a) [Diversity]	N/A	Male	Percentage	85.21	85.38	85.63	
			Female	Percentage	14.79	14.62	14.37	
			Workforce by age group					
			< 35	Number	12,692	11,238	10,493	
				Percentage	36.60	32.53	30.00	
			35 – 50	Number	17,689	19,065	20,248	
				Percentage	51.00	55.19	58.00	
			> 50	Number	4,318	4,240	4,198	
				Percentage	12.40	12.28	12.00	
			Workforce by level and age group					
			Senior management					
			< 35	Number	2	0	0	
			35 – 50	Number	202	235	218	
			> 50	Number	220	221	233	
			Total	Number	424	456	451	
			< 35	Percentage	0.50	0.00	0.00	
			35 – 50	Percentage	47.60	51.50	48.30	
			> 50	Percentage	51.90	48.50	51.70	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
EMPLOYEE DIVERSITY AND EQUAL OPPORTUNITIES								
			Executive					
			< 35	Number	3,182	3,114	3,137	
			35 – 50	Number	4,956	5,150	5,400	
			> 50	Number	762	783	837	
			Total	Number	8,900	9,047	9,374	
			< 35	Percentage	35.80	34.40	33.50	
			35 – 50	Percentage	55.70	56.90	57.60	
			> 50	Percentage	8.60	8.70	8.90	
			Non-executive					
			< 35	Number	9,512	8,128	7,356	
			35 – 50	Number	12,521	13,679	14,630	
			> 50	Number	3,342	3,233	3,128	
			Total	Number	25,375	25,040	25,114	
			< 35	Percentage	37.50	32.50	29.30	
			35 – 50	Percentage	49.30	54.60	58.20	
			> 50	Percentage	13.20	12.90	12.50	
			Total (excluding Board Members)	Number	34,699	34,543	34,939	
	N/A	N/A	**Differently abled employees by gender**					
			Male	Number	23	23	26	
			Female	Number	2	3	5	
			Total	Number	25	26	31	
NEW EMPLOYEE HIRES AND TURNOVER								
			Total new hires					
			Total number of new hires	Number	1,152	1,055	1281	
			Number of new hires by gender					
			Male	Number	924	795	975	
			Female	Number	228	260	306	
GRI 401-1	N/A	N/A	**Percentage of new hires by gender**					
			Male	Percentage	80.21	75.4	76.11	
			Female	Percentage	19.79	24.6	23.89	
			Number of new hires by age group					
			< 35	Number	1,077	968	1,214	
			35-50	Number	47	64	54	
			> 50	Number	28	23	13	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
NEW EMPLOYEE HIRES AND TURNOVER								
			Percentage of new hires by age group					
			< 35	Percentage	93.49	91.75	94.77	
			35-50	Percentage	4.08	6.07	4.22	
			> 50	Percentage	2.43	2.18	1.01	
			Number of new hires by region					
			Peninsular Malaysia – East	Number	82	60	55	
			Peninsular Malaysia – North	Number	130	106	95	
			Peninsular Malaysia – South	Number	137	109	143	
			Peninsular Malaysia – Central	Number	539	649	663	
			Malaysia East – Sabah	Number	264	131	324	
			Others	Number	0	0	1	
			Percentage of new hires by region					
			Peninsular Malaysia – East	Percentage	7.12	5.69	4.29	
			Peninsular Malaysia – North	Percentage	11.28	10.05	7.42	
			Peninsular Malaysia – South	Percentage	11.89	10.33	11.16	
			Peninsular Malaysia – Central	Percentage	46.79	61.52	51.76	
			Malaysia East – Sabah	Percentage	22.92	12.42	25.29	
			Others	Percentage	0	0	0.08	
N/A	Bursa C6(c) [Labour practices and standards]	N/A	**Employee turnover by level**					
			Senior Management	Number	61	44	40	
			Executives	Number	369	342	327	
			Non-executives	Number	933	756	701	
GRI 401-1			Total number of employee turnover	Number	1,363	1,142	1,068	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
NEW EMPLOYEE HIRES AND TURNOVER								
N/A			**Employee turnover rate by level**					
			Senior Management	Percentage	4.48	3.85	3.74	
			Executives	Percentage	27.07	29.95	30.62	
			Non-executives	Percentage	68.45	66.20	65.64	
			Annual Employee Turnover rate	Percentage	3.91	3.30	3.06	
GRI 401-1	N/A	N/A	**Employee turnover by age group**					
			< 35	Number	400	292	278	
			35-50	Number	196	168	152	
			> 50	Number	767	682	638	
			Employee turnover rate by age group					
			< 35	Percentage	29.35	2.44	26.03	
			35-50	Percentage	14.38	0.91	14.23	
			> 50	Percentage	56.27	15.94	59.74	
			Employee turnover by gender					
			Male	Number	1,113	894	853	
			Female	Number	250	248	215	
			Employee turnover rate by gender					
			Male	Percentage	81.70	3.29	79.87	
			Female	Percentage	18.30	3.33	20.13	
N/A	N/A	N/A	**Average years employed by the company, by gender**					
			Male	Number	–	–	14.35	New disclosure FY2024
			Female	Number	–	–	14.93	New disclosure FY2024
			Average years employed by the company	Number	–	–	14.47	New disclosure FY2024

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
LABOUR RIGHTS								
GRI 401-3	N/A	N/A	**Total number of employees that were entitled to parental leave, by gender**					
			Maternity	Number	–	5,506	7,586	
			Paternity	Number	–	20,844	23,388	
			Maternity	Number	–	100	100	
			Paternity	Number	–	100	86	
			Total number of employees that who took parental leave, by gender					
			Maternity	Number	–	408	367	
			Paternity	Number	–	2,040	1,891	
			Return to work rates of employees that took parental leave, by gender					
			Maternity	Number	–	99.74	97.82	
			Paternity	Number	–	100.00	100	
			Retention rates of employees that took parental leave, by gender					
			Maternity	Number	–	99.50	97.55	
			Paternity	Number	–	98.99	100	
N/A	N/A	N/A	**Employee Engagement Survey**					
			Employee Engagement Score (ESS)	Percentage	86.6	89.0	89.7	
GRI 2-30	N/A	N/A	**Collective Bargaining**					
			Total number of employees under collective bargaining agreements	Number	23,098	24,142	24,713	
			Percentage of employees under collective bargaining agreements out of total workforce	Number	86.5	90.80	93.01	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
LABOUR RIGHTS								
GRI 2-25	N/A	N/A	**Processes to remediate negative impact**					
			Total number of grievances against labour practices filed in the year	Number	7	5	9	This report is based on the number of cases filed in Industrial Court by ex-employees following termination/ dismissal due to domestic inquiry.
			Total number of grievances against labour practices resolved in the year	Number	2	1	1	
	Bursa C6(d) [Labour Practices and Standard]		Number of substantiated complaints concerning human rights violations	Number	0	0	0	
GRI 410	N/A	N/A	**Training in human rights policies or procedures**					
			Security personnel trained in human rights policies or procedures	Number	–	45	251	
CAPABILITY BUILDING								
GRI 404-1	Bursa C6(a) [Labour Practices and Standard]	N/A	**Training hours**					
			Total training hours	Hours	1,118,352	1,344,621	1,346,477	
			Average training hours per employee	Hours	34.00	47.80	50.47	
	N/A		**Average training hours per trained employee by gender**					
			Male	Hours	29	48	47.07	
			Female	Hours	40	46	51.62	
			Average training hours per trained employee by level					
			Senior management	Hours	31	39	39.81	
			Executive	Hours	46	64	65.76	
			Non-executive	Hours	35	42	41.30	
	Bursa C6(a) [Labour Practices and Standard]		**Total training hours by level**					
			Senior management	Hours	11,642	15,469	15,884	
			Executive	Hours	313,836	421,416	416,946	
			Non-executive	Hours	792,874	907,736	825,924	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LABOUR PRACTICES AND DECENT WORK								
CAPABILITY BUILDING								
GRI 404-3	N/A	N/A	**Number of employees receiving regular performance and career development reviews by gender**					
			Male	Number	27,258	21,041	27,353	FY24 data is consolidated for TNB Group
			Female	Number	7,441	5,566	7,586	
			Total	Number	34,699	26,607	34,939	
			Percentage of employees receiving regular performance and career development reviews by gender					
			Male	Percentage	78.60	79.08	78.29	FY24 data is consolidated for TNB Group
			Female	Percentage	21.40	20.92	21.71	
			Total	Percentage	100	100	100	
			Number of employees receiving regular performance and career development reviews by level					
			Senior management	Number	–	374	451	FY24 data is consolidated for TNB Group
			Executive	Number	–	6,199	9,374	
			Non-executive	Number	–	20,034	25,114	
			Total	Number	–	26,607	34,939	
			Percentage of employees receiving regular performance and career development reviews by level					
			Senior management	Percentage	–	1.4	1.29	FY24 data is consolidated for TNB Group
			Executive	Percentage	–	23.3	26.83	
			Non-executive	Percentage	–	75.3	71.88	
			Total	Percentage	–	100	100	
N/A	N/A	N/A	**Total employees attended for certifications**					
			Technical Professional	Number	–	271	717	
			Regulatory Professional	Number	–	429	1427	
			Functional Professional	Number	–	369	5703	
			Number of trainees in apprenticeship program					
			Internship	Number	–	1,279	668	
			Protégé	Number	–	656	349	
N/A	N/A	N/A	**Capability building investment for employees**					
			Total investment	RM million	161.39	189.58	197	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Remarks/Scope
OCCUPATIONAL HEALTH AND SAFETY								
WORK-RELATED INJURY								
		N/A	**Number of fatalities as a result of work-related injuries**					
	N/A		Road Accident/ Vehicle (Employees)	Number	–	2	0	
			Bitten/Stung by Animals/Wild Insects/Venomous (Employees)	Number	–	1	0	
			Electrocuted/ Flashover (Contractor)	Number	2	1	2	
			Fall from Height (Contractor)	Number	–	–	1	
			Struck by Falling Object (Contractor)	Number	–	–	1	
			Road Accident/ Vehicle (Contractor)	Number	–	1	0	
GRI 403-9	Bursa C5(a) [Health and Safety]	IF-EU-320a.1	**Total (Employees)**	Number	0	3	0	
		N/A	**Total (Contractors)**	Number	2	2	4	
			Total (Employees and Contractor)	Number	2	5	4	
	N/A	N/A	**Fatality rate result of work-related injuries**					
			Employees	per 1000 workers	0	0.09	0	
			Contractors	per 1000 workers	0.08	0.08	0.10	
			Number of recordable work-related injuries					
			Employees	Number	129	125	129	
			Contractors	Number	37	35	60	
			Recordable work-related injuries frequency rate					
			Employees	per million manhours	1.34	1.24	1.26	
			Contractors	per million manhours	0.52	0.46	0.62	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Remarks/Scope
OCCUPATIONAL HEALTH AND SAFETY								
WORK-RELATED INJURY								
N/A	N/A	IF-EU-320a.1	**Total recordable injuries rate (TRIR)**					
			Employees	per 1000 workers	3.73	3.61	3.71	
		N/A	Contractors	per 1000 workers	1.47	1.35	1.53	
GRI 403-9		N/A	**Number of hours worked**					
			Employees	hours	96,203,904	100,963,177	102,685,789	
			Contractors	hours	71,240,838	76,558,411	97,412,276	
GRI 403-9	N/A	N/A	**Recordable cases by incident type (Employees)**					
			Road Accident/ Vehicle	Number	26	20	35	
			Slip/Fall on the same level	Number	24	23	28	
			Fall of persons from heights/Pole/ Ladder/Scaffolds/ Machine/Buildings	Number	4	10	4	
			Struck by Falling Objects/Trapped/ Knocked/others	Number	14	12	4	
			Struck by Machines/ Equipment	Number	6	5	3	
			Bitten/Stung by Animals/Wild Insects/Venomous	Number	5	4	6	
			Electrocuted/ Flashover	Number	5	1	4	
			Lifting	Number	1	0	0	
			Eye injury	Number	0	0	2	
			Total (Employees)	Number	85	75	86	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Remarks/Scope
OCCUPATIONAL HEALTH AND SAFETY								
WORK-RELATED INJURY								
GRI 403-9	N/A	N/A	**LTI cases by incident type (Contractors)**					
			Road Accident/ Vehicle	Number	4	6	15	
			Slip/Fall on the same level	Number	1	5	4	
			Fall of persons from heights/Pole/ Ladder/Scaffolds/ Machine/Buildings	Number	4	0	6	
			Struck by Falling Objects/Trapped/ Knocked/others	Number	7	4	14	
			Struck by Machines/ Equipment	Number	5	2	2	
			Bitten/Stung by Animals/Wild Insects/Venomous	Number	0	3	7	
			Electrocuted/ Flashover	Number	6	1	3	
			Lifting	Number	3	0	0	
			Eye injury	Number	0	0	0	
			Contact with Hot Substances/ Chemical	Number	0	0	1	
			Total (Contractors)	Number	30	21	52	
	Bursa C5(b) [Health and Safety]	N/A	**Lost-Time Injuries Frequency Rate (LTIFR)**					
			Employees	per million manhours	0.88	0.74	0.87	
			Contractors	per million manhours	0.42	0.27	0.53	
	N/A	N/A	**Number of lost days**					
			Employees	Number	1944	19,690	2,018	
			Contractors	Number	12,726	12,594	25,084	
			Lost days severity rate					
			Employees	per million manhours	20.21	195.02	19.65	
			Contractors	per million manhours	178.63	164.50	257.50	

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Remarks/Scope
OCCUPATIONAL HEALTH AND SAFETY								
WORK-RELATED INJURY								
GRI 403-9	N/A	N/A	**Number of near misses**					
			Employees	Number	16	23	24	
N/A	N/A	IF-EU-320a.1	**Near miss frequency rate (NMFR)**					
			Employees	per million manhours	0.17	0.23	0.23	
WORK-RELATED ILL HEALTH								
GRI 403-10	N/A	N/A	**The number of fatalities as a result of work-related ill health**					
			Employees	Number	0	0	0	
			Contractors	Number	0	0	0	
			The number of cases of recordable work-related ill health for employees					
			Hearing impairment caused by noise	Number	14	9	5	
			Invertebral disc disorders	Number	3	1	2	
			Total cases for employees	Number	17	10	7	
WORKERS COVERED BY OHS MANAGEMENT SYSTEM								
GRI 403-8	N/A	N/A	**Number of employees and percentage of employees who are covered by occupational health and safety management system**					
			Employees	Number	34,699	34,543	34,883	
			Contractors	Number	100	100	100	
			Number of employees and percentage of contractors who are covered by occupational health and safety management system					
			Employees	Number	25,182	27,781	39,249	
			Contractors	Number	100	100	100	
HEALTH & SAFETY TRAINING								
N/A	N/A	N/A	**Number of training hours**					
			Employees	Number	112,671	154,204	130,413	
	Bursa C5(c) [Health and Safety]		**Number and percentage of employees undergoing HSE trainings**					
			Number of employees undergoing HSE trainings	Number	18,986	14,014	13,973	
			Percentage of employees trained on HSE standards	Percentage	55.00	40.57	40.06	

PERFORMANCE TABLE

GRI	Bursa	ISSB	Indicator	Units	FY2022	FY2023	FY2024	Scope/Remark
LOCAL COMMUNITY								
			Total number of beneficiaries of the investment in communities					
	Bursa C2(a) [Community/ Society]	N/A	Total amount invested in the community where the target beneficiaries are external to the listed issuer	RM million	12.2	99.04	63.78	
	Bursa C2(b) [Community/ Society]		Beneficiaries of investment in communities	Number	–	6,635	79,581	
			Spend on community programs					
			Total CSR Spending	RM million	12.20	18.13	17.74	
			Education (excluding YTN and Uniten)	RM million	2.27	2.16	3.11	
			Environmental	RM million	0.48	1.46	1.76	
			Economic-Social	RM million	4.27	7.78	7.02	
GRI 201-1			Sports	RM million	5.18	6.73	5.86	
			Yayasan Tenaga Nasional (YTN)					
	N/A	N/A	Total spend on YTN & MyBF scholarships and YTN convertible loans	RM million	101.1	70.1	41.53	
			Students awarded YTN & MyBF scholarships and YTN convertible loans	Number	5,753	3,397	1,582	
			UNITEN					
			Total financial assistance awarded from UNITEN	RM million	6.42	10.8	4.51	
			Number of individuals awarded financial assistance	Number	1,361	2,706	1,005	

Sustainability Accounting Standards Board (SASB) Content Index

Topic	Metric	Category	Unit of Measure	Code	Page Number
Activity Metrics	Number of: (1) residential, (2) commercial, and (3) industrial customers served	Quantitative	Number	IF-EU-000.A	12, 16, 164
	Total electricity delivered to: (1) residential, (2) commercial, (3) industrial, (4) all other retail customers, and (5) wholesale customers	Quantitative	Megawatt hours (MWh)	IF-EU-000.B	12, 164
	Length of transmission and distribution lines	Quantitative	Kilometres (km)	IF-EU-000.C	12, 155
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic metres (m^3), Percentage (%)	IF-EU-140a.1	101, 110-111, 169-170
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	IF-EU-140a.2	109, 170
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	IF-EU-140a.3	101
Coal Ash Management	(1) Amount of coal combustion products (CCPs) generated, (2) percentage recycled	Quantitative	Metric tonnes (t), Percentage (%)	IF-EU-150a.1	107, 172-174
Workforce Health & Safety	(1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) direct employees and (b) contract employees	Quantitative	Rate	IF-EU-320a.1	90, 186-187, 189
Grid Resiliency	Number of incidents of non-compliance with physical or cybersecurity standards or regulations	Quantitative	Number	IF-EU-550a.1	157
	(1) System Average Interruption Duration Index (SAIDI), (2) System Average Interruption Frequency Index (SAIFI), and (3) Customer Average Interruption Duration Index (CAIDI), inclusive of major event days	Quantitative	Minutes, Number	IF-EU-550a.2	81, 157

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	2-4 Restatements of information	Refer to Performance Table section
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GRI 3: Material Topics 2021	3-3 Management of material topics	93 – 111
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	101 – 103
	303-2 Management of water discharge related impacts	101
	303-3 Water withdrawal	111, 169
	303-4 Water discharge	111, 169
	303-5 Water consumption	110, 111, 170

GRI Standard	Disclosure	Page Number (s) in SR 2024 or Other Sources
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	98
	304-2 Significant impacts of activities, products and services on biodiversity	98 – 100
	304-3 Habitats protected or restored	100
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	100
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	104 – 107
	306-2 Management of significant waste related impacts	104 – 107
	306-3 Waste generated	110, 172
	306-4 Waste diverted from disposal	110, 173
	306-5 Waste directed to disposal	110, 174
GRI 305: Emissions 2016	305-7 Nitrogen oxides (NOx), Sulphur oxides (SOx), and other significant air emissions	111, 176
Customer Experience & Satisfaction		
GRI 3: Material Topics 2021	3-3 Management of material topics	112 – 117
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	117, 133, 165,
Community Development & Social Impact		
GRI 3: Material Topics 2021	3-3 Management of material topics	118 – 125
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	158, 190
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	125
Sustainable & Responsible Supply Chain		
GRI 3: Material Topics 2021	3-3 Management of material topics	126 – 130
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	130, 160

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GRI Standard	Disclosure	Page Number (s) in SR 2024 or Other Sources
GRI 205: Anti-Corruption 2016	205-2 Communication and training about anti-corruption policies and procedures	50, 160, 161, 162
	205-3 Confirmed incidents of corruption and actions taken	50, 160, 162
GRI 415-1: Amount of political contribution	415-1 Amount of political contribution	162
Cybersecurity Management		
GRI 3: Material Topics 2021	3-3 Management of material topics	131 – 133
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	117, 133, 165
Labour Rights & Employment Culture		
GRI 3: Material Topics 2021	3-3 Management of material topics	134 – 143
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	50, 161
	205-2 Communication and training about anti-corruption policies and procedures	50, 160, 161, 162
	205-3 Confirmed incidents of corruption and actions taken	50, 160, 162
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	180, 181, 182
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	136 – 140
	401-3 Parental leave	139, 183
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	143, 184
	404-2 Programs for upgrading employee skills and transition assistance programs	137 – 138
	404-3 Percentage of employees receiving regular performance and career development reviews	185
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	141, 167, 179
	405-2 Ratio of basic salary and remuneration of women to men	136
GRI 410: Security Practices	410-1 Security personnel trained in human rights policies or procedures	184

Bursa Malaysia Common Sustainability Matters and Indicators

Indicator	Measurement Unit	2022	2023	2024
Bursa (Anti-corruption)				
Bursa C1(a) Percentage of employees who have received training on anti-corruption by employee category				
Senior Management	Percentage	1.57 *	1.01	1.26
Executive	Percentage	7.74 *	17.39	27.16
Non-executive	Percentage	31.72 *	56.09	71.58
Bursa C1(b) Percentage of operations assessed for corruption-related risks	Percentage	0.00	97.00	100.00
Bursa C1(c) Confirmed incidents of corruption and action taken	Number	1	5	4
Bursa (Energy management)				
Bursa C4(a) Total energy consumption	Megawatt	863,462.69 *	404,523,322.00 *	320,997,148.00
Bursa (Emissions management)				
Bursa C11(a) Scope 1 emissions in tonnes of CO2e	Metric tonnes	38,580,000.00 *	38,920,000.00 *	38,750,000.00
Bursa C11(b) Scope 2 emissions in tonnes of CO2e	Metric tonnes	292,000.00 *	331,000.00 *	321,000.00
Bursa C11(c) Scope 3 emissions in tonnes of CO2e (at least for the categories of business travel and employee commuting)	Metric tonnes	-	100,000.00 *	98,000.00
Bursa (Health and safety)				
Bursa C5(a) Number of work-related fatalities	Number	2	5 *	4
Bursa C5(b) Lost time incident rate ("LTIR")	Rate	0.82	0.74	0.87
Bursa C5(c) Number of employees trained on health and safety standards	Number	18,986	12,192 *	13,973
Bursa (Waste management)				
Bursa C10(a) Total waste generated	Metric tonnes	74,150.00 *	929,123.00 *	895,996.00
Bursa C10(a)(i) Total waste diverted from disposal	Metric tonnes	-	440,595.00 *	497,578.91
Bursa C10(a)(ii) Total waste directed to disposal	Metric tonnes	-	488,528.00 *	398,417.09
Bursa (Water)				
Bursa C9(a) Total volume of water used	Megalitres	No Data Provided *	10,096.000000	9,234.000000
Bursa (Community/Society)				
Bursa C2(a) Total amount invested in the community where the target beneficiaries are external to the listed issuer	MYR	12,200,000.00	99,037,559.50	63,780,000.00
Bursa C2(b) Total number of beneficiaries of the investment in communities	Number	0	6,635	79,581
Bursa (Supply chain management)				
Bursa C7(a) Proportion of spending on local suppliers	Percentage	95.10	46.45	52.81
Bursa (Data privacy and security)				
Bursa C8(a) Number of substantiated complaints concerning breaches of customer privacy and losses of customer data	Number	0	0	0

Internal assurance | External assurance | No assurance | (*)Restated

BURSA MALAYSIA COMMON SUSTAINABILITY MATTERS AND INDICATORS

Indicator	Measurement Unit	2022	2023	2024
Bursa (Labour practices and standards)				
Bursa C6(a) Total hours of training by employee category				
Senior Management	Hours	11,642	15,469	15,884
Executive	Hours	313,836	421,416	416,946
Non-executive	Hours	792,874	907,736	825,924
Bursa C6(b) Percentage of employees that are contractors or temporary staff	Percentage	10.29 *	10.07 *	9.19
Bursa C6(c) Total number of employee turnover by employee category				
Senior Management	Number	61	44	40
Executive	Number	369	342	327
Non-executive	Number	933	756	701
Bursa C6(d) Number of substantiated complaints concerning human rights violations	Number	0	0	0
Bursa (Diversity)				
Bursa C3(a) Percentage of employees by gender and age group, for each employee category				
Age Group by Employee Category				
Senior Management Under 35	Percentage	0.50 *	0.00	0.00
Senior Management Between 35-50	Percentage	47.60 *	51.50 *	48.30
Senior Management Above 50	Percentage	51.90 *	48.50 *	51.70
Executive Under 35	Percentage	35.80 *	34.40 *	33.50
Executive Between 35-50	Percentage	55.70 *	56.90 *	57.60
Executive Above 50	Percentage	8.60 *	8.70 *	8.90
Non-executive Under 35	Percentage	37.50 *	32.50 *	29.30
Non-executive Between 35-50	Percentage	49.30 *	54.60 *	58.20 *
Non-executive Above 50	Percentage	13.20 *	12.90 *	12.50
Gender Group by Employee Category				
Senior Management Male	Percentage	75.71 *	73.68 *	75.17
Senior Management Female	Percentage	24.29 *	26.32 *	24.83
Executive Male	Percentage	59.69 *	59.27 *	58.76 *
Executive Female	Percentage	40.31 *	40.73 *	41.24
Non-executive Male	Percentage	85.21 *	85.38 *	85.63
Non-executive Female	Percentage	14.79 *	14.62 *	14.37
Bursa C3(b) Percentage of directors by gender and age group				
Male	Percentage	63.60 *	54.55 *	66.67
Female	Percentage	36.40 *	45.45 *	33.33
Under 50	Percentage	9.10	9.10 *	8.33
Between 50-60	Percentage	54.54 *	45.45 *	41.67
Above 60	Percentage	36.36 *	45.45 *	50.00

Internal assurance | External assurance | No assurance | (*)Restated

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