

ANALYST BRIEFING 4QFY2024

3 March 2025 | Business Lounge, TNB Platinum

TNB delivered a resilient 2024 performance, providing sustainable dividends for shareholders whilst positioning us for continued business growth

Demand Growth

6.5% Y-o-Y

(FY2023: 3.9%)

From increased economic activities

Dividend Payout

59.6% payout ratio

(Based on adjusted PATAMI)

Total dividend: 51 sen

Final dividend: 26 sen per share
Interim dividend: 25 sen per share

Achievements

Customer Satisfaction Index (CSI) **87.0%**

Smart Grid Index (SGI) **80.4%**

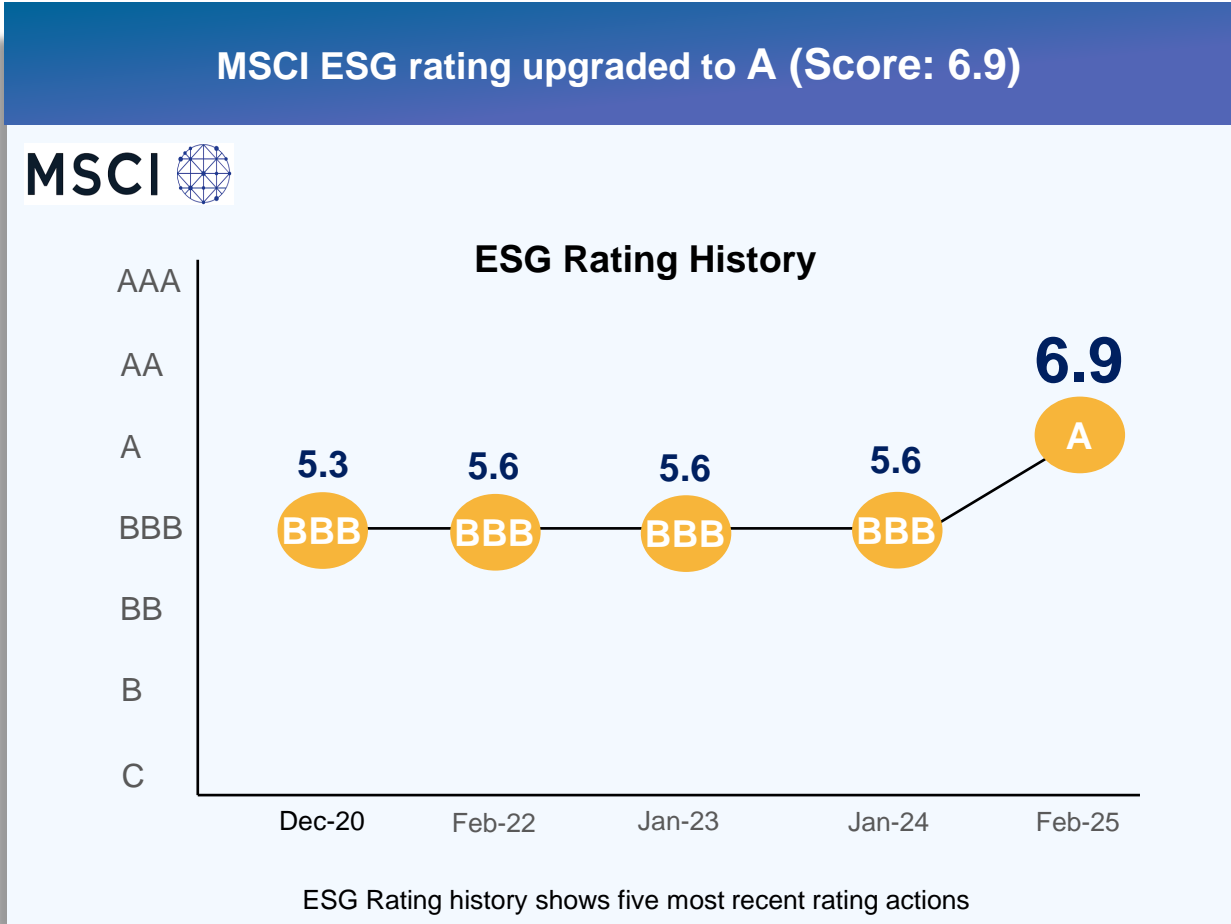
Gearing

47.8%









(December 2023: 50.3%)

Efficient capital management

TNB's MSCI ESG Rating upgraded to A, marking our commitment to sustainability



TNB's ESG progress recognised by leading rating agencies

	 3.5 <i>(June 2024)</i>
	 3 ☆ <i>(June 2024)</i>
	 C <i>(March 2024)</i>
	 30.4 <i>(May 2024)</i>



The Edge
Gold - Best Managed & Sustainable Property Awards
2024 for TNB Platinum

2024 was a positive year, marked by notable achievements and progress as we intensified our strategic initiatives across our businesses



Deliver Clean Generation

Hydro



Nenggiri Hydro Project (300MW)
41% completion

Sungai Perak Hydro Life Extension Programme (700MW)
Issued Notice to Proceed for EPCC contracts

Hybrid Hydro



Hybrid Hydro-Floating Solar (HHFS) Pilot Project (154kWp)
Completed installation at Kenyir Hydro dam



Solar Greenfield Development (UK) (102MWp)
96% completion



Land Solar



Corporate Green Power Programme (CGPP) (135MWp)
Achieved financial close for 1 site (45MWp)

Centralised Solar Park (750MWp)
Signed key agreement for 150MWp under the Corporate Renewable Energy Supply Scheme (CRESS)

Large Scale Solar 5 (LSS5) & LSS Sabah Programme
Awarded as shortlisted bidder (LSS5: 686MWp, LSS Sabah: 23MWp)



Green Energy Supply via CRESS with Bridge Data Centre (100MW)
Signed Bilateral Energy Supply Contract



Develop Energy Transition Network



National Grid



Regulated and ET CAPEX
Achieved **100% utilisation** equivalent to **RM8.8 bil, ET: RM3.2 bil**



Smart Meter Installation
2024: Installed 949,226 units
(To date: 4.5 million out of total 10.4 million customers)



Distribution Automation Penetration
2024: Installed at 4,565 substations (Achieved 162%)



Volt-Var Optimisation (VVO)
2024: Achieved 140MVA_r (100%)



Penang Bridge Light Project (275kV)
Achieved COD on 22 December 2024, transmitting up to 250MW of power



Data Centre Demand

- Cumulative: Secured **38** projects (ESA) with a total maximum demand of **5.9GW**
- 2024: Completed 9 projects** with a total maximum demand of **1.3GW**



Regional Business



Regional Power Trade with Singapore's Keppel Electric (100MW)
Commenced in September 2024



Cross Border Power Exchange to Singapore, Sembcorp (50MW RE)
First dispatch on 13 December 2024, daily commitment



Dynamic Energy Solutions



Renewable Energy

GSPARX



Successfully grew rooftop solar projects:

- Cumulative: Secured capacity of **504MWp**
- 2024: Secured additional capacity of 164MWp; commissioned 64MWp**

Electric Vehicle (EV)



ELECTRON

Charge Points

- Cumulative: Commissioned **66** charge points
- 2024: Commissioned 34** charge points

Green Lane Supply Connection

- Cumulative: Commissioned **~18MW**
- 2024: Commissioned 58 projects** with maximum demand of **~11MW**

PERFORMANCE UPDATE



Group earnings supported by; i. Improved generation performance
ii. World-class network performance

Equivalent Plant Availability Factor,
EAF (Generation) %



FY2024
81.2%
2024 Target: 78.6%



Improved overall performance
by power plants

System Minutes
(Transmission) Minutes



FY2024
0.0019
2024 Internal Threshold: 1.5




World class network
performance safeguarded our
regulated business earnings

SAIDI
(Distribution Network) Minutes



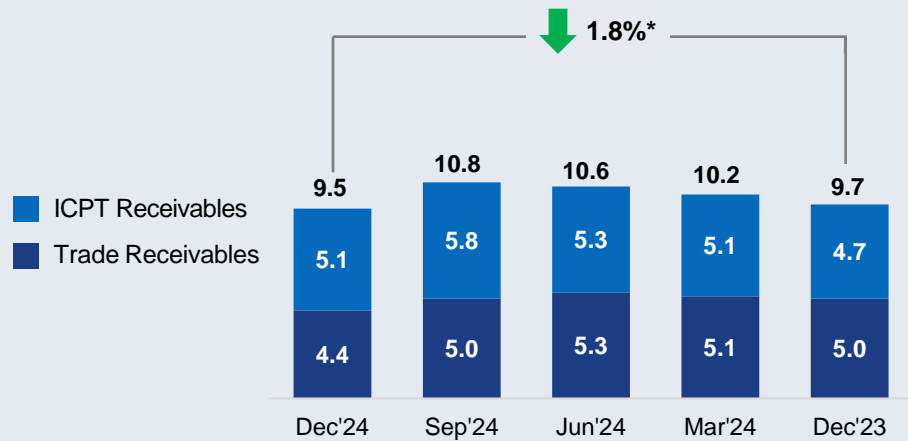
FY2024
47.88
2024 Internal Threshold: 48.0



Smart Grid Index of 80.4%
Ranked 11th Top Utilities
by SP Group

Y-o-Y: Lower receivables driven by improved collection, strengthening our cash flow position and credit rating

Receivables (RM bil)



*Percentage manually computed will not match due to decimal variance

- **Coal price has stabilised** at 110.17 USD/MT** in December 2024 (127.75 USD/MT** in December 2023).
- **Outlook:** Stabilising fuel prices and strong collection trend will:
 - ✓ strengthen working capital management; and
 - ✓ provide a healthier cash flow position.

1

ICPT Cost Recovery



Successfully received **RM3.0 bil** out of RM3.4 bil

(ICPT for period January to December 2024, Government portion)

2024: RM1.7 bil
2025: RM1.3 bil

2

Strong collection

Strong collection trend with **average collection period of 25 days** (vs December 2023: 31 days), with focus on collecting long outstanding debt

3

Credit Rating

S&P Global

Credit Rating upgraded to **A-** (May 2024)



Affirmed the **AAA/Stable/P1** ratings of Tenaga Nasional Berhad's (TNB or the Group) sukuk programmes (June 2024)

MARC

- Assigned "**Gold**" rating to TPGSB's Sustainability Sukuk Framework (July 2024)
- Affirmed Tenaga Nasional Berhad's (TNB) corporate credit rating at **AAA** with a stable outlook (August 2024)

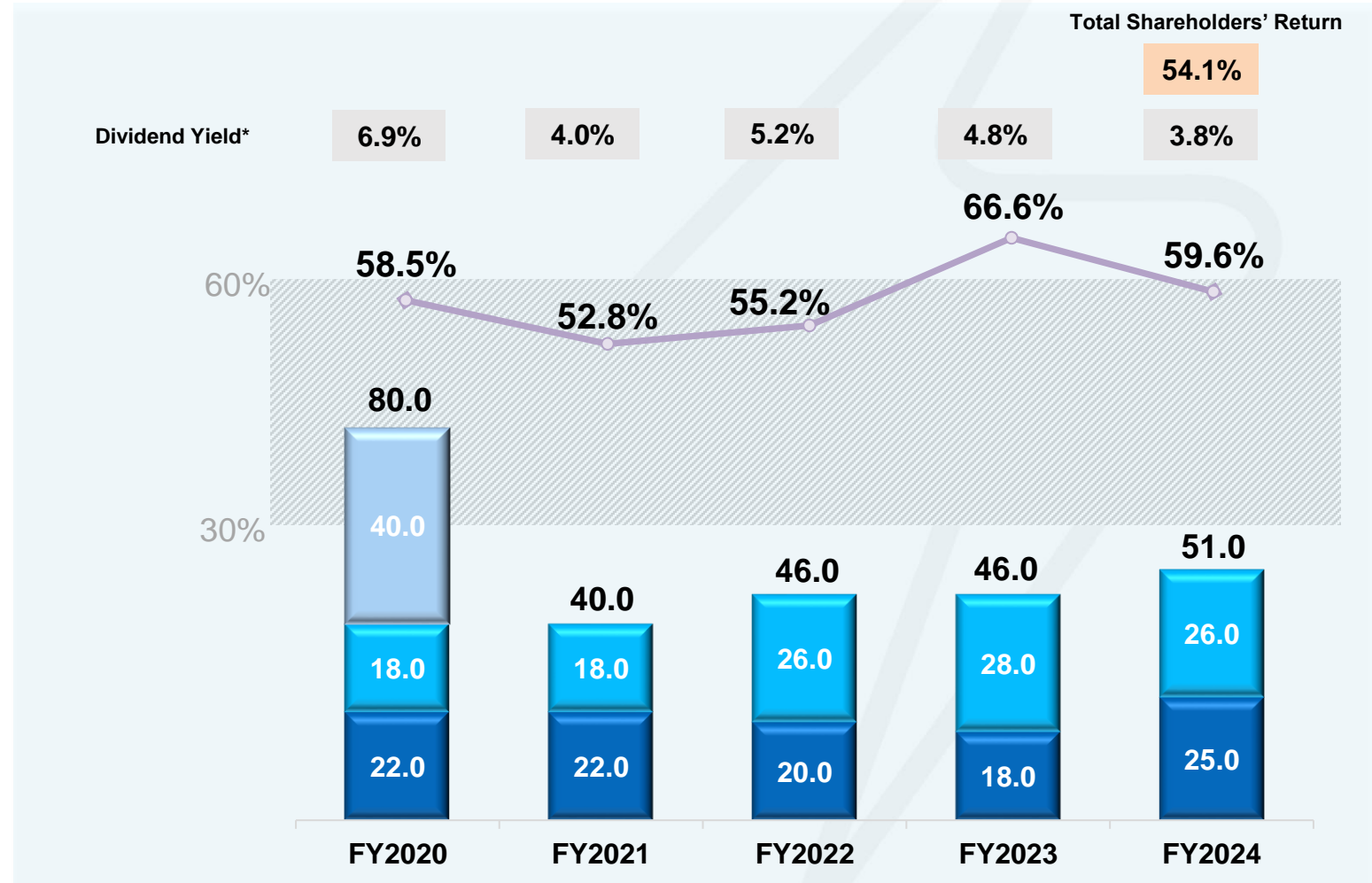
MOODY'S RATINGS

Reaffirmed Tenaga Nasional Berhad's (TNB) corporate credit rating at **A3** with a stable outlook (November 2024)

We continue to deliver stable dividend payouts, reflecting our commitment to rewarding shareholders and maintaining prudent capital management

DIVIDEND POLICY

We will continue to honour our dividend policy of 30% to 60% dividend payout ratio, based on the reported Consolidated Net Profit Attributable to Shareholders After Minority Interest, excluding Extraordinary, Non-Recurring items



—○— Dividend Payout ratio (%) (based on Adjusted Group PATAMI and excluding special dividend)
 ■ Interim dividend per share (sen) ■ Final dividend per share (sen) ■ Special dividend per share (sen)

*Dividend yield based on VWAP for the year

3-YEAR RECAP AND 2025 FOCUS



TNB has demonstrated resilience and growth throughout the past 3 years, exemplifying leadership in both regulated and non-regulated businesses

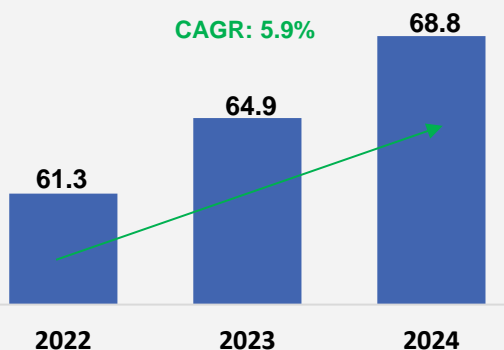
Regulated Business

- ✓ During the IBR Regulatory Period 3 (RP3), the regulated business contributed positively to the overall Group performance.

RP3 Performance

- ✓ Total CAPEX spent for 3-year period: RM 23.6 bil

Average RoRAB > 7.3%







Actual Regulated Asset Base (RM bil)

Non-Regulated Business

GenCo

- ✓ Committed to performance efficiency
 - Manjung 4 successfully resumed operations on 5 November 2024
 - Stabilising coal price moderated the impact of fuel margin

- ✓ Current and Secured Projects:

-  Nenggiri Hydro Project (300MW)
-  Sungai Perak Hydro Life Extension Programme (~700MW)
-  Hybrid Hydro-Floating Solar (HHFS) (2,900MWp)
-  Paka Repowering (1,400MW)

NED

- ✓ Operational capacity: ~1.1GW



- ✓ Construction and Secured capacity:

7
Total Projects Secured at
~2.1GW
Total RE Capacity

GSPARX


2,115
Projects

388MWp
Secured additional RE Capacity

Cumulative as of December 2024:

504MWp
(3,130 projects)

ELECTRIC VEHICLE



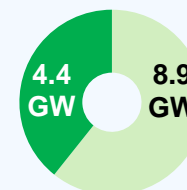
(Since inception: 2022)

~18MW
Green Lane
Supply Connections

66
TNB
Charge Points

Note: Cumulative as of December 2024

Contributed to growth of RE generation capacity



■ In operation ■ Under construction, in development and pipeline

13.3GW*
Secured RE Capacity (cumulative)

*Solar gross capacity is quoted in MWp and including rehab

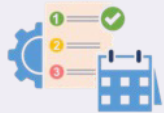
We have successfully secured our returns at 7.3% and sufficient expenditure allowance for the next 3 years (2025 – 2027)

Incentive-based Regulation (IBR)



IBR framework and ICPT mechanism remain intact

- ✓ ICPT 1HFY2025 approved
- ✓ RP4 approved: Effective 1 January 2025 to 31 December 2027



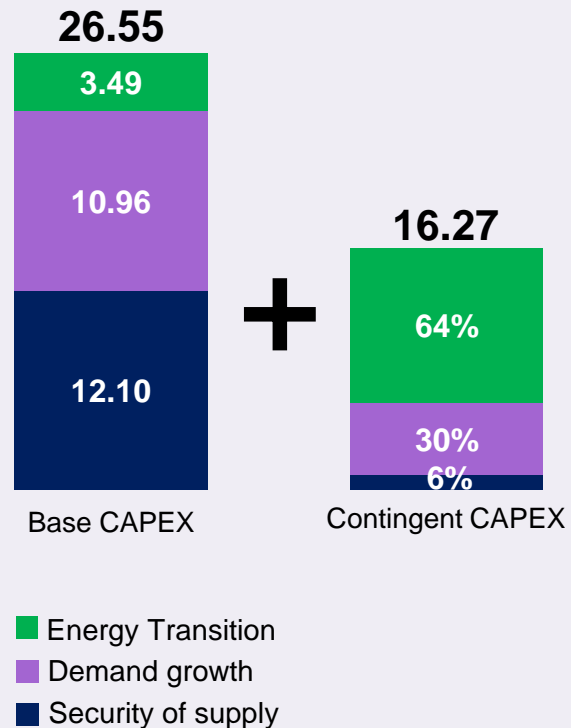
WACC remained at **7.3%**



Allowed CAPEX, up to **RM42.82 bil**

(Approved CAPEX RP3: RM20.6 bil)

RP4 Allowed CAPEX (RM bil)



Contingent CAPEX

- Investments required to:
 - a) **Maintain security of supply;**
 - b) **Meet potential demand growth** in supporting economic priorities (e.g. data centres and industries); and
 - c) **Facilitate Energy Transition (ET):** Upgrading infrastructures to support RE, NETR and interconnection projects.
- The list of projects has been **pre-approved by the Energy Commission (EC) and will be implemented once triggers occur.** For example:
 - a) Accelerated ET– Accelerating smart projects related to distribution automation (DA), smart meters (AMI), and investments in EV infrastructure; and
 - b) Demand growth – New ESA with data centres and robust system for EV charging.
- The recovery mechanism is being finalised.
- Entitled for the same regulatory return at 7.3%.

Our generation business advances towards cleaner energy whilst we continue to enhance operational efficiency

Enhance Operational Efficiency

Continue to implement predictive measures to enhance reliability and availability:

- **Establishment of Intelligent Predictive Diagnostic Modelling (IPDM)** to detect, diagnose and forecasting emerging equipment failures (avoid unplanned outages and to minimise downtime); and
- Enhancing **outage management strategy** (i.e. RCA & Outage Planning) during major overhauls to minimise Extended Planned Outages (EPO).

Continue to implement enhancement initiatives to **improve thermal power plant efficiency**, aiming to sustain the efficiency at the designed levels including:

- Digital Twin & Real-Time Data (PI Vision)
- Predictive Emission Monitoring System
- Digital Dashboard and Analytic utilising AI & Machine Learning

Delivery of Projects

Hybrid Hydro-Floating Solar (HHFS)

~2,900MWp
by 2030

COD: 1st Phase in 2026
(min 150MWp)



Pilot floating solar in Kenyir lake

- Construction for 1st phase Kenyir floating solar expected to commence in 2HFY2025
- To obtain Offtaker and CRESS approval for Kenyir, Sg Perak and Nengiri HHFS

To achieve

31%

1st Phase progress completion

Nenggiri Hydro Project

300MW

COD: 2QFY2027



- Continue construction works at main dam and powerhouse

To achieve

66%

Overall progress completion

Sungai Perak Hydro Life Extension Programme

~700MW
by 2033

COD: 1st Unit in 2026 (8MW)
COD: 2QFY2027



- Complete site mobilisation
- Design & Engineering works completed for Chenderoh and 60% for Temengor, Bersia & Kenering
- To award EPCC Contract for Sg. Piah

To achieve

20%

All units overall progress completion

Paka Repowering

1,400MW

COD: 2029



Focus on:

- Complying with requirements of initial Letter of Notice (ILON) which includes collaboration agreement and feasibility study
- Finalisation of high-level agreement with Petronas and Energy Commission (EC)
- Complete OEM and EPC selection

Brown to Green Initiatives



Carbon Capture & Utilisation (CCU)

Substantial installation completion of pilot project to assess CCU technology integration

Pilot project at

Jimah East Power



Hydrogen

- To complete pilot project at JEP;
- To develop green hydrogen project(s) in Peninsular Malaysia; and
- To establish framework for hydrogen supply chains with identified markets and explore potential joint venture opportunities.

Studies and testing through pilot projects at

**Jimah East Power
& Kenyir HHFS**













Ammonia

Ammonia co-firing demonstration is planned to be conducted at one of the coal-fired power plants to assess its impact to the flue gas parameters with 1% ammonia co-firing with 99% coal.





Co-firing studies and tests at











**Manjung 4 & Manjung 5
Jimah East Power,**

Our focus is on developing renewable assets while pursuing growth opportunities domestically and internationally driving TNB's journey towards Net Zero 2050




Projects in Operations	
 	198.9MWp
 	365.0MWp
 	165.4MW
 	275.8MWp
 	120.5MWp

Total ~1.1GW

Projects under Construction				2025 Outlook
	Solar Greenfield Development (UK)		102MWp	COD: 2QFY2025
	Corporate Green Power Programme (CGPP)		135MWp	COD: 4QFY2025
Total 0.2GW				

Projects under Development				2025 Outlook
	Centralised Solar Park (CSP) (5 x 150MWp)		750MWp	COD: 2026
	LSS Sabah Programme		23MWp (15MWac)	COD: 2026
	Large Scale Solar 5 (LSS5) Programme		686MWp (500MWac)	COD: 2027
	Vantage Onshore Wind Farm		120MW	COD: 2029
	Spark Renewables	  	300MW	COD: 2029
Total ~1.9GW				

Legends

-  Solar farms
-  Onshore wind
-  Battery Energy Storage System (BESS)







Note: Solar gross capacity is quoted in MWp

OUTLOOK AND FORWARD GUIDANCE



As we embarked into 2025, we continue to accelerate our key focus areas in fostering business growth while realising our Net Zero ambitions

Deliver Clean Generation

	<p>Nenggiri Hydro Project (300MW) 66% completion (COD: 2QFY2027)</p> <p>Sungai Perak Hydro Life Extension Programme (700MW) Design & Engineering works completed for Chenderoh and 60% for Temengor, Bersia & Kenering</p>
	<p>Hybrid Hydro-Floating Solar (Kenyir) (150MWp) Commencement of construction works by 2HFY2025</p>
	<p> Solar Greenfield Development (UK) (102MWp) Achieve COD in 2QFY2025</p> <p> Corporate Green Power Programme (CGPP) (135MWp) Achieve COD in December 2025</p> <p>Centralised Solar Park (750MWp) Achieve financial close and Commence construction</p> <p>Large Scale Solar 5 (LSS5) & LSS Sabah Programme Achieve financial close and Commence construction (LSS5: 686MWp, LSS Sabah: 23MWp)</p>
	<p>New opportunities Large Scale Solar Programmes (e.g. LSS5+ and LSS6)</p>

- Continue to:
- **Grow RE portfolio**
 - **Focus on plant performance enhancement programmes**
 - **Invest in green technologies as part of our Energy Transition journey**

Develop Energy Transition Network

Regulated CAPEX of ~RM10 bil +, with >40% Base CAPEX on ET projects



Facilitate RE Growth

Enhance network capacity to support RE growth >4,400MW (LSS5 & LSS5+, BESS)

Establishment of 500kV overhead lines and substation to cater DC growth in Johor

Enhance Reliability of System

Execution of key projects

-  Smart Meter **360,000 units** to be installed
-  Distribution Automation (DA) at **4,026 substations**

Data Centre Demand

5	~1.3GW
Projects to be completed	Additional total maximum demand

- Strengthening the Grid as an enabler for investment in ASEAN green generation:
- **Advancing electrification for transportation, commercial and industrial customers** through enhanced grid capacity and connectivity
 - **Spurring growth of Variable Renewable Energy (VRE)** through improved grid flexibility and regional interconnections
 - Starting to engage ASEAN countries for ASEAN Power Grid

Dynamic Energy Solutions

GSPARX

100MWp >> **604MWp**

Additional Secured Capacity Cumulative Secured Capacity

Electric Vehicle (EV)


250 Additional TNB Charge Points

~8MW **209**

Connections to be completed No. of applications in Pre-consultation

- Shaping and enabling customers to adopt a sustainable lifestyle:
- **Energy efficiency and myTNB App**
 - **Enhance customer experience**


We strive to achieve sustainable business growth while building a brighter and greener future



Electricity Demand

Demand growth is projected to be **3.5% - 4.5%**

Projected GDP between 4.5% - 5.5%




Group CAPEX Forecast

Total Group CAPEX:


~RM18 bil + Contingent CAPEX

Regulated CAPEX: ~RM10 bil +
Non-regulated CAPEX: ~RM8 bil




Capital Management

- Active capital allocation with strong financial position to raise funds for growth
- Proactive working capital management in current elevated fuel prices environment, given the certainty of ICPT mechanism




National Energy Transition Roadmap (NETR)

- Ensuring business growth as we pursue RE growth in supporting the NETR and becoming a leading provider of sustainable energy solutions
- Initiating strategic engagements with ASEAN countries to foster collaboration for ASEAN Power Grid (APG).



Sustainability

Towards achieving 'AA' ESG rating



Delivering Value to our Shareholders

We will continue to honour our dividend policy of 30% to 60% dividend payout ratio

Appendix

FY2024

- *Details on Strategy Development*



We strengthen our commitment to cleaner generation by advancing steady progress in our renewable energy portfolio

Projects			4QFY2024 Key Achievements
GenCo 	Hybrid Hydro-Floating Solar (HHFS) <i>Kenyir Hydro dam (1st phase)</i>	~2,900MWp by 2030	COD: 2026 (150MWp)
	Sungai Perak Hydro Life Extension Programme	~700MW by 2033	COD: 1st unit 2026 (8MW)
	Nenggiri Hydro Project	300MW	COD: 2QFY2027
	Paka Repowering	1,400MW	COD: 2029
	Co-firing of Hydrogen & Ammonia		
NED 	Solar Greenfield Development (UK)	102MWp	COD: 2QFY2025
	Corporate Green Power Programme (CGPP)	135MWp	COD: 4QFY2025
	Centralised Solar Park (CSP) (5 x 150MWp)	750MWp	COD: 2026
	LSS Sabah Programme	23MWp (15MWac)	COD: 2026
	Large Scale Solar 5 (LSS5) Programme	686MWp (500MWac)	COD: 2027

Hybrid Hydro-Floating Solar (HHFS)
Completed installation of pilot project at Kenyir Hydro dam



Achieved 96% completion

Achieved financial close for 1 site (45MWp)

Signed key agreement for 150MWp under the Corporate Renewable Energy Supply Scheme (CRESS)


Awarded as shortlisted bidder

Awarded as shortlisted bidder

We have successfully utilised the approved RP3 CAPEX, bolstering our confidence to deliver on our RP4's commitments

FY2024 Key Projects

Smart Meter Installation progress:




158%

Installed **949,226 units**

FY2024 Target: **600,000 units**
 Cumulative Installed to date: **4,498,715 units**
 FY2025 Target: **360,000 units**

Distribution Automation Penetration progress:




162%

4,565 substations

FY2024 Target: **2,812 substations**
 Cumulative to date: **32,865 substations**
 FY2025 Target: **4,026 substations**

Volt-Var Optimisation (VVO) progress:



100%

Achieved **140MVar**

FY2024 Target: **140MVar**
 Cumulative Achieved to date: **890MVar**
 FY2025 Target: **60MVar**

CAPEX

FY2024 Utilisation

Regulated CAPEX

>100%
 utilisation equivalent to

RM8.8 bil

Energy Transition (ET) CAPEX

RM3.2 bil

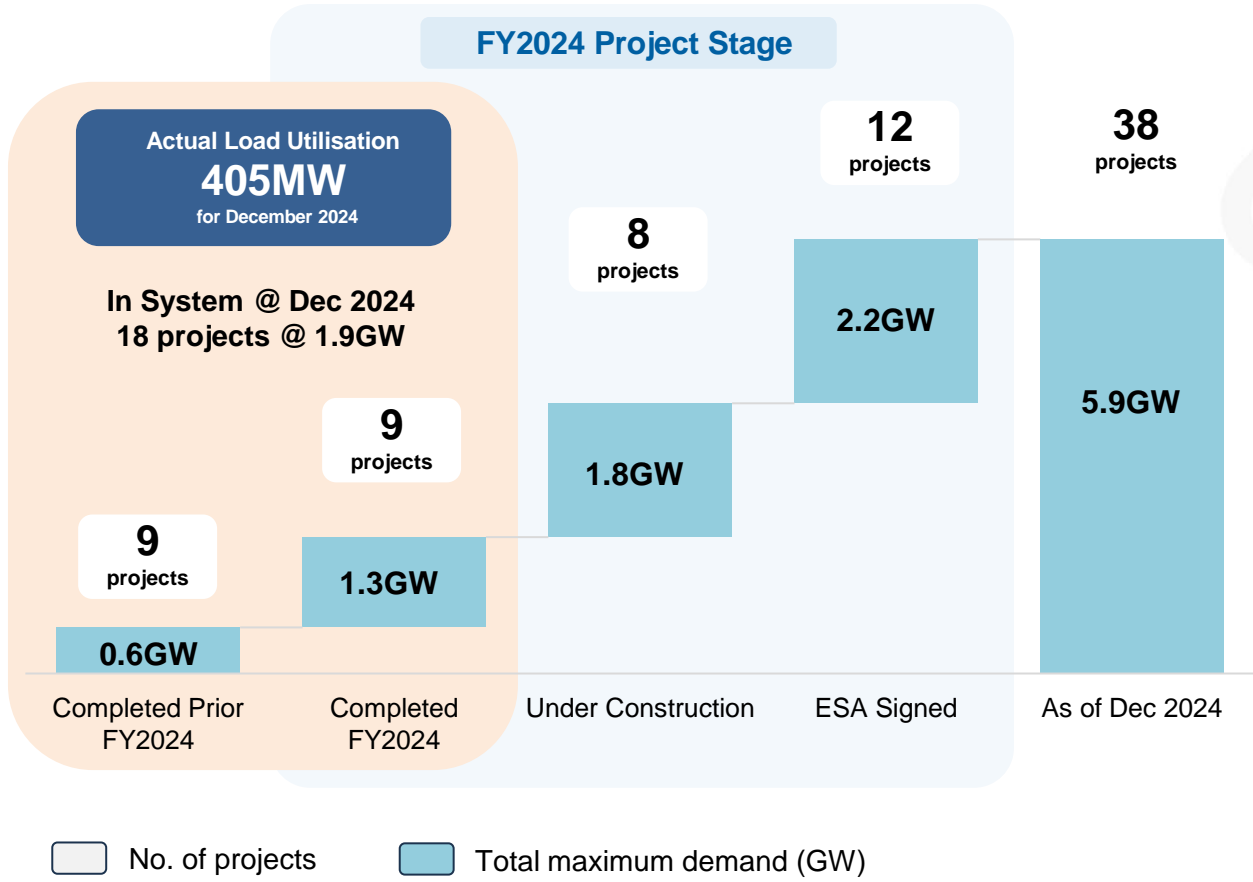
Smart Grid Utility

80.4%

FY2024 Smart Grid Index (SGI)

TNB remains committed to meeting energy needs, driven by strong demand for energy from data centres

FY2024 Data Centres Achievements



4QFY2024 Key Highlights



October 2024: Signing of ESA and MOU between TNB and GDS Ceremony showcased TNB's commitment in providing electricity supply and renewable energy solutions via Green Lane Pathway and One-Stop-Centre (OSC) for Data Centre.

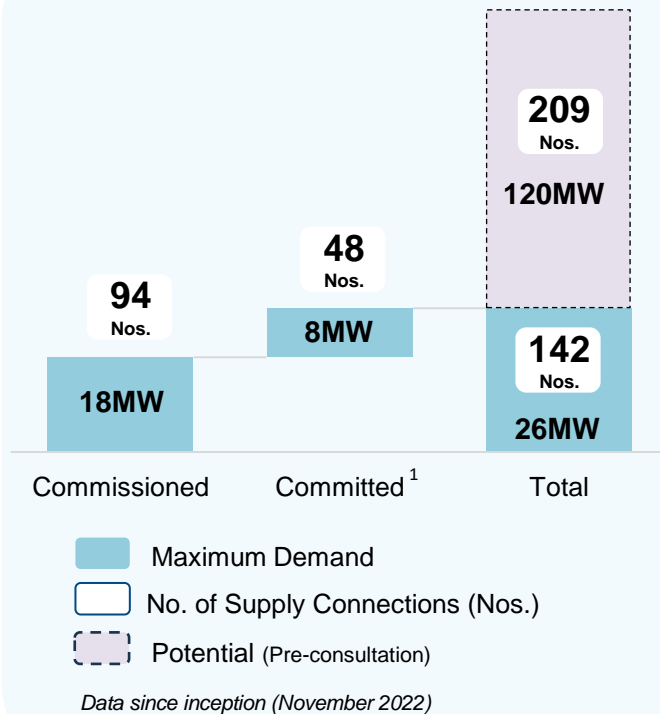


December 2024: Signing of ESA at 400MW and Bilateral Energy Supply Contract (BESC) under Corporate Renewable Energy Supply Scheme (CRESS) at 100MW between TNB and Bridge Data Centre (BDC), our first corporate customer under CRESS framework.

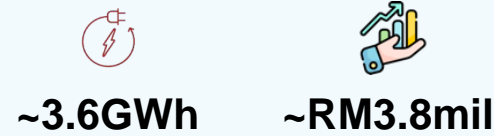
TNB plays a key role in advancing Malaysia's EV market by installing EV chargers and supplying electricity infrastructure to Charge Point Operators (CPOs)

EV Ecosystem

Green Lane Supply Connections



YTD Electricity Sales (CPO)



EV Charge Points

3,354 units
Data as at Dec 2024²



EVs on the road

~40,000 units
Data as at Dec 2024

2030 EV Potential

500,000 units

Key Highlights

TNB Charge Points



66
Cumulative
Charge Points installed



250
Additional Charge Points
in FY2025

- In 4QFY2024, 12 Charge Points were energised along the PLUS Highway and at AEON Malls.



- Collaboration with JuiceUp to offer an open payment system for EV users. TNB Electron users can now use physical cards for payments at the charging stations.

¹ Committed including construction and supply application stage

² PLAN Malaysia - Malaysia Electric Vehicle Charge Network

GSPARX transforms consumers to prosumers through rooftop solar installations, elevating Malaysia's green energy progress

Customers Secured

23.7MWp



Lembaga Penyelidikan Perikanan (LPP) Batu Maung

- To install 0.53MWp rooftop solar PV at LPP building in Batu Maung, Pulau Pinang.
- Target to be delivered by 2QFY2025.



UTM Skudai & UTM KL

- To install 13.60MWp rooftop solar PV at UTM's campus in Johor and KL.
- Target to be delivered by 4QFY2025.



University Sains Islam Malaysia (USIM)

- To install 5.50MWp rooftop solar PV at USIM's campus in Nilai, Negeri Sembilan.
- Target to be delivered by 4QFY2025.



MAHSA University & Hospital

- To install 3.50MWp rooftop solar PV at MAHSA's campus and Hospital in Jenjarom, Selangor.
- Target to be delivered by 4QFY2025.



Sekolah Menengah Agama Jabatan Hal Ehwal Agama Terengganu

- To install 0.53MWp rooftop solar PV at the identified schools in Terengganu.
- Target to be delivered by 3QFY2026.

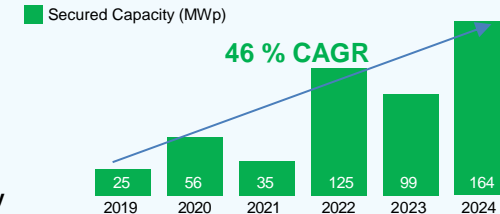
Progress

3,130

Projects secured

504MWp

Cumulative Secured Capacity



Secured Capacity

164MWp

FY2024 Target: 160MWp



100MWp

FY2025 Target

NEM 3.0 NOVA
Extension

65%

Quota Approved
Data as of 5 February 2025

1,700MW

Total Quota Allocation (2021- June 2025)
Additional quota announced in November 2024 (300MW)

Partnership with Sime Darby Property



Progress

1.2MWp installed at 10 sites

2.8MWp*
14 SDP sites

consist of Sime Darby Sales Galleries, Clubhouses and Malls: At ~50% completion.

Status Update: 2 sites are under finalisation with clients

*Revised in capacity due to Public Distribution License regulation and client's preference

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