



# TENAGA NASIONAL BERHAD

## PRESENTATION TO INVESTOR

March 2025

**TNB is the largest electricity utility company in Malaysia and at the forefront of the country's energy transition**

**Tenaga Nasional Berhad (TNB)**



**MALAYSIA**

**Sabah Electricity Sdn Bhd (SESB)**  
(83% owned by TNB)

**Sabah Electricity**  
Energising Our Future

## Our Presence in Peninsular Malaysia



Holds 51% of Domestic Generation Capacity



Our grid network and retail business are governed by the Incentive Based Regulation (IBR) framework



Transmission length: 26,371 km  
Substations: 494  
System Minutes: 0.0019 minutes



Distribution Network: 761,546 km\*  
Substations: 98,254\*  
SAIDI: 47.88 minutes



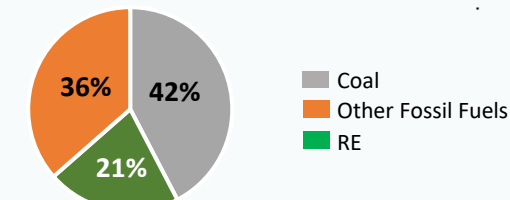
Retail customers: 10.4 mil  
Customer Satisfaction Index (CSI): 87%

\*Data as of December 2023

## Group Portfolio

Total TNB Gross Capacity: 21,441MW  
(December 2024)

- Domestic: 18,172MW
- International: 3,269MW



Notes:

- RE inclusive of large hydro and small RE
- Data is based on gross installed capacity
- Solar capacity based on MWp

## Main Subsidiaries



We are also a global player as we strive to future proof our business by expanding our RE footprint and establishing strategic partnerships with leading RE players

## 2021 VANTAGE RE

- **Equity stake:** 100%
- **Capacity:**
  - 123.9MW in onshore wind
  - 365.0MW in solar (55% equity)
  - 41.5MW in offshore wind (49% equity)
  - 276.0MW in solar

## 2016 GAMA ENERJI A.Ş.

- **Equity stake:** 30%
- **Capacity:**
  - 1,151.5MW in gas, hydro and wind.
  - Water conveyance in Jordan



- **Operation & Management Services:**
  - Maintenance Services Agreement Mechanical Works (Doha West Plant)
  - Instrumentation & Control Systems (Shuwaikh Power Plant & Doha West Plant)

## INTERNATIONAL PORTFOLIO

### 2005



- **Equity stake:** 6% effective equity stake
- **Capacity:**
  - 1,190.7MW in oil
  - Water desalination of 376 mcm p.a.



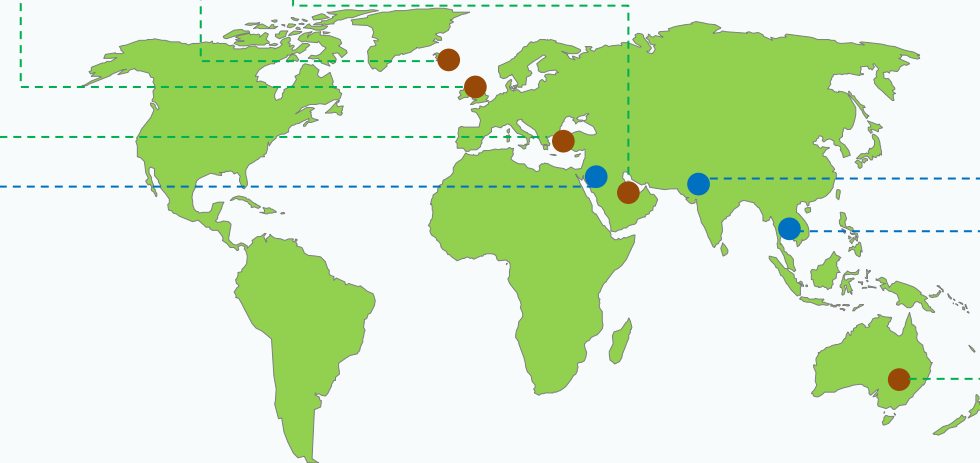
- **Operation & Management Services:**
  - TNB Remaco & Balloki Power Plant
  - National Power Park Management Company Limited



- **Technical Advisory:**
  - Technical Advisory for Electricité du Cambodge (EDC) Heavy Fuel Oil Plant of 400MW

## 2023 Spark Renewables

- **Equity stake:** 100%
- **Capacity:**
  - 120.5MWp in Solar



## Our International Presence



Solar



Wind



Hydro



Gas



United Kingdom



Ireland



Australia



Turkiye



Saudi Arabia





**NON-INDEPENDENT NON-EXECUTIVE CHAIRMAN  
TAN SRI ABDUL RAZAK BIN ABDUL MAJID**



**EXECUTIVE DIRECTOR / PRESIDENT / CEO  
DATUK IR. MEGAT JALALUDDIN BIN  
MEGAT HASSAN**

**Senior Independent  
Non-Executive Director**



**ONG AI LIN**

Expertise: Audit &  
Finance

**Independent Non-Executive Directors**



**DATO' MERINA BINTI  
ABU TAHIR**

Expertise: Accounting



**GOPALA KRISHNAN  
K.SUNDARAM**

Expertise: Law



**JUNIWATI  
RAHMAT HUSSIN**  
Expertise: Corporate Planning  
and Human Resource



**ALAN HAMZAH BIN  
SENDUT**

Expertise: Accounting



**DATO' ZULKIFLI BIN  
IBRAHIM**

Expertise: Engineering

**Non-Independent Non-Executive Directors**



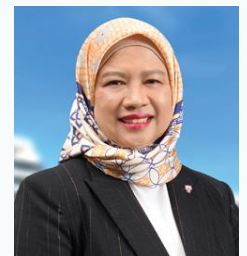
**MUAZZAM BIN MOHAMAD**

Permodalan Nasional  
Berhad (PNB)



**YB. TUAN RAMZI BIN  
MANSOR**

Ministry of Finance (MOF)



**ROHAYA BINTI  
MOHAMMAD YUSOF**  
Employees Provident Fund  
(EPF)



**SELVENDRAN  
KATHEERAYSON**

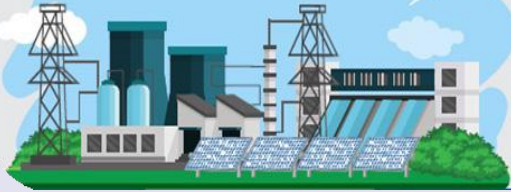
Khazanah Nasional Berhad



**ELAINE ONG  
YEE LYNN**  
Khazanah Nasional Berhad  
Alternate Director

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

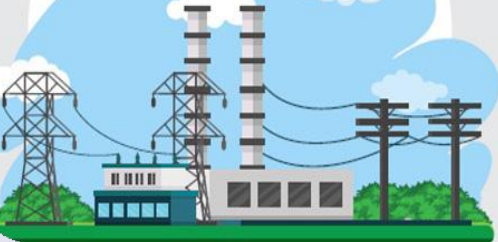


FY2024  
**0.0019**  
2024 Internal Threshold: 1.5



World class network  
performance safeguarded our  
regulated business earnings

SAIDI  
(Distribution Network) Minutes



FY2024  
**47.88**  
2024 Internal Threshold: 48.0

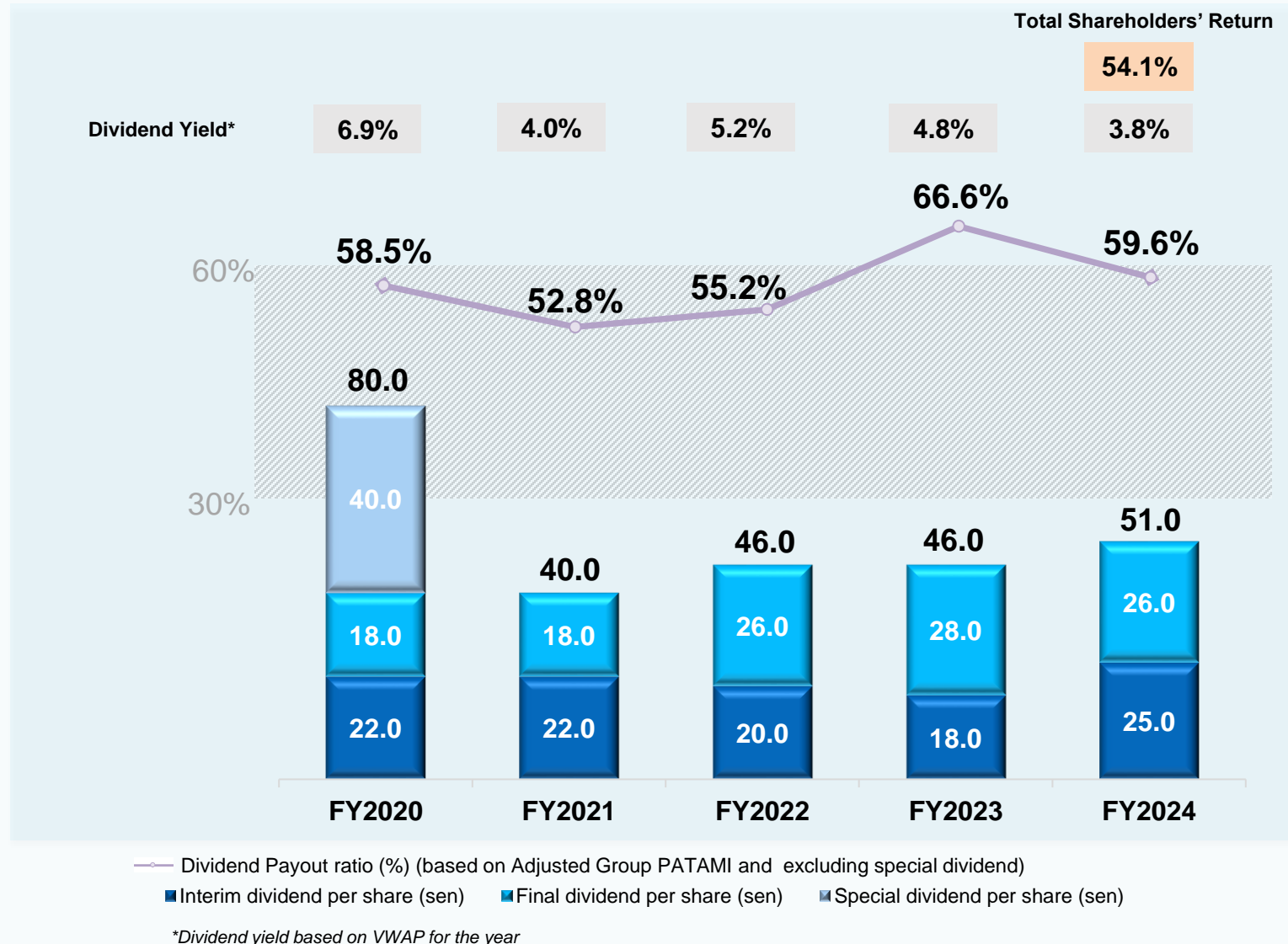


Smart Grid Index of 80.4%  
Ranked 11th Top Utilities  
*by SP Group*

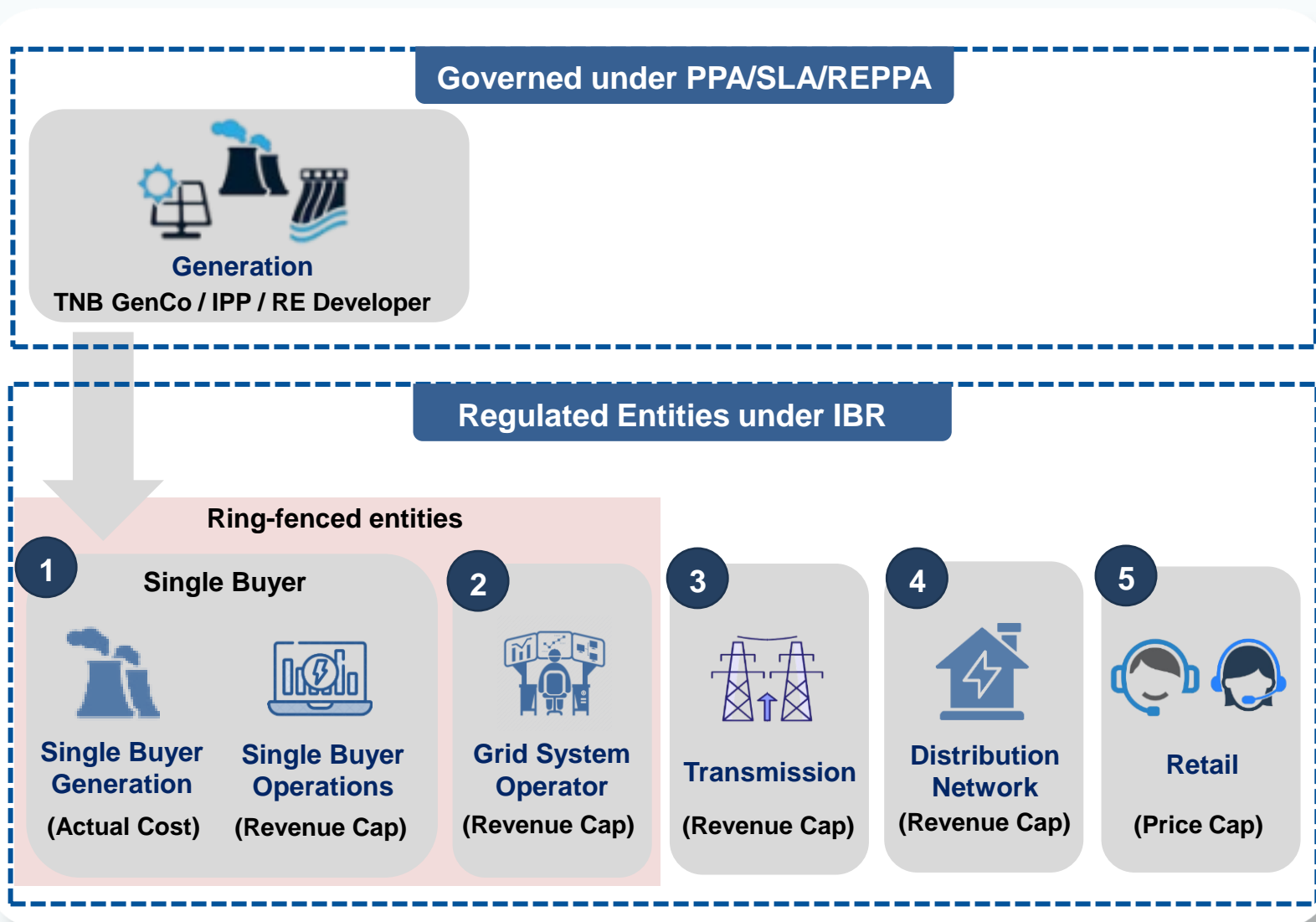
**We continue to deliver stable dividend payouts, reflecting our commitment to rewarding shareholders and maintaining prudent capital management**

## 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



Our regulated business is governed by the Incentive-Based Regulation (IBR) framework which provides stable returns to the Group while ensuring a more efficient energy sector



### The IBR mechanism provides:

- Clear and transparent regulatory framework
- Consistent and stable returns
- Shield against uncontrollable swings
- Incentives for operational efficiencies

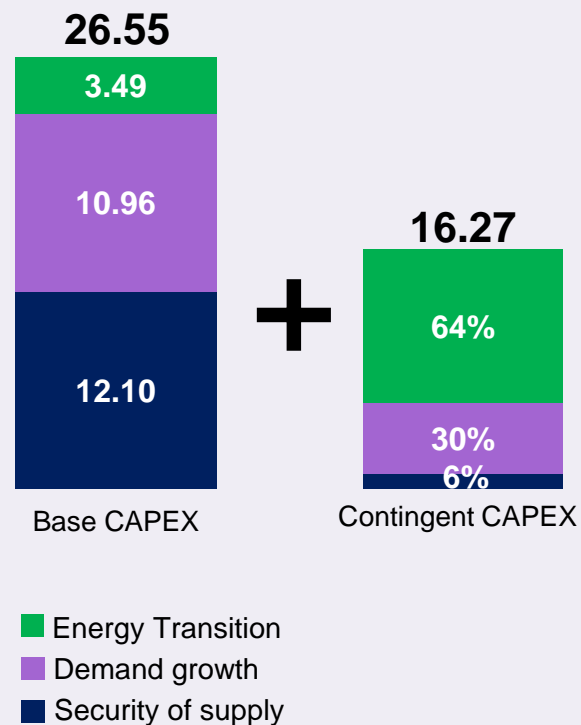
- Regulated business made up more than 70% of the overall Group revenue.
- **Revenue cap:** Allowed annual revenue based on approved demand growth. Any excess/shortfall is adjusted through revenue adjustment mechanism.
- **Price cap:** Any excess/shortfall of revenue made due to higher/lower average selling price compared to base tariff is adjusted through revenue adjustment mechanism.

**We have successfully secured our returns at 7.3% and sufficient expenditure allowance for the next 3 years**

### Tariff Parameters

	Regulatory Period 3 (RP3)	>	Regulatory Period 4 (RP4)
<b>Average Sales</b> (TWh)	116.8		141.7
<b>Coal price</b> (USD/MT)	79		97
<b>FOREX</b> (RM/USD)	4.123		4.400
<b>Gas price</b> (RM/mmBTU)	T1: RM26 - RM30 (800mmscfd) T2: RM33		T1: RM24 - RM35 (800mmscfd) T2: RM46
<b>OPEX</b> (RM bil)	17.9		20.8
<b>BASE CAPEX</b> (RM bil)	20.6		26.6 (with RM16.3 bil Contingent CAPEX)
<b>WACC</b>	7.3%		7.3%

### RP4 Allowed CAPEX (RM bil)



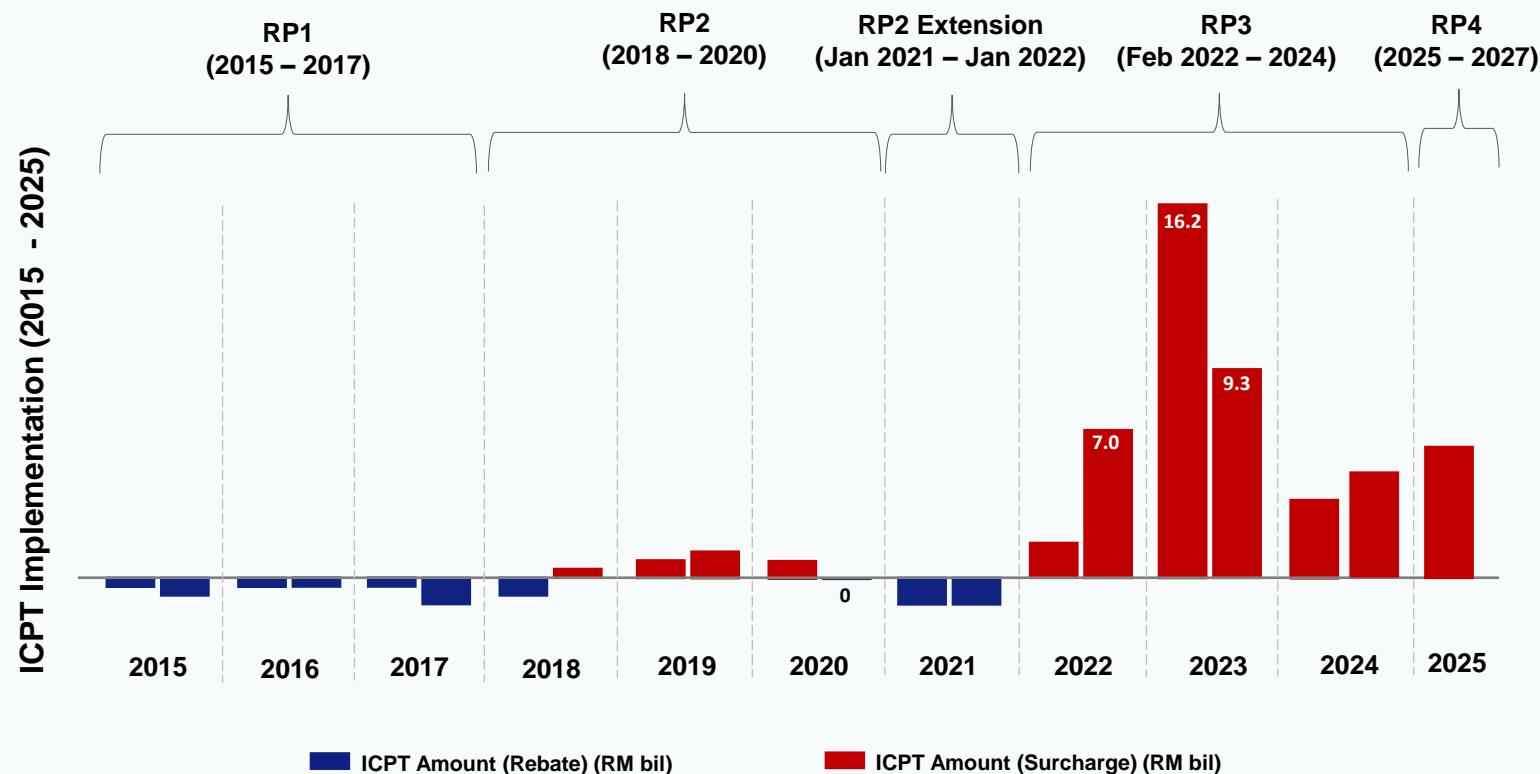
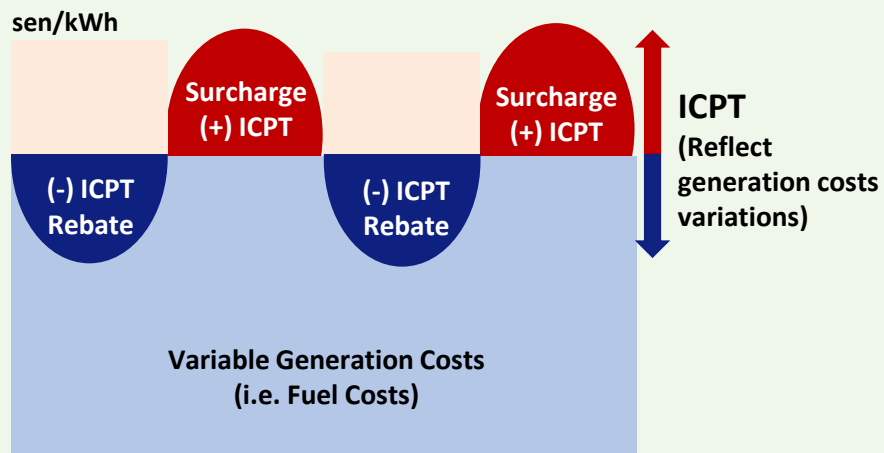
#### Contingent CAPEX

- Investments required to:
  - Maintain security of supply;**
  - Meet potential demand growth** in supporting economic priorities (e.g. data centres and industries); and
  - 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:
  - Accelerated ET– Accelerating smart projects related to distribution automation (DA), smart meters (AMI), and investments in EV infrastructure; and
  - 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%.



**Regulatory certainty; the Government has successfully managed the impact of fuel prices volatility for the past 21 ICPT cycles since 2015 with the highest ICPT cost recovery in 2023**

ICPT is a mechanism under the IBR framework which **allows TNB to reflect changes (either increase or reduction)** in fuel and other generation-related costs in the electricity tariff every six (6) months in the form of **rebate or surcharge**.



**ICPT mechanism remained intact; ICPT receivables is expected to stabilise amid moderating coal prices, relieving working capital pressure with positive improvements in our cash flow position and gearing levels.**

Our journey towards Net Zero 2050 Aspiration will bring positive business growth and enhance value to our shareholders, as well as support the nation's aspiration

## Net Zero 2050 Aspiration

### Our Target for 2025

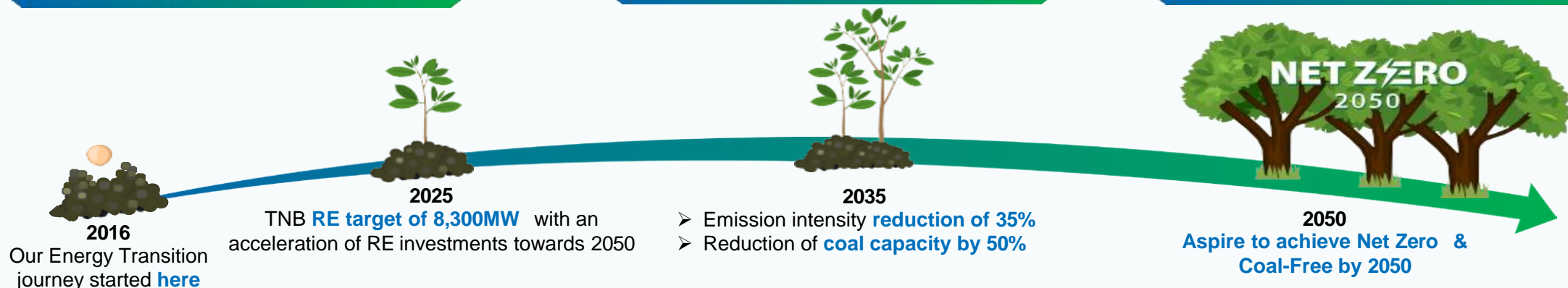
- Build scale in renewable generation
- Improve thermal plant efficiency

### Our Commitment to 2035

- Significant renewable generation growth
- 50% reduction in coal generation capacity

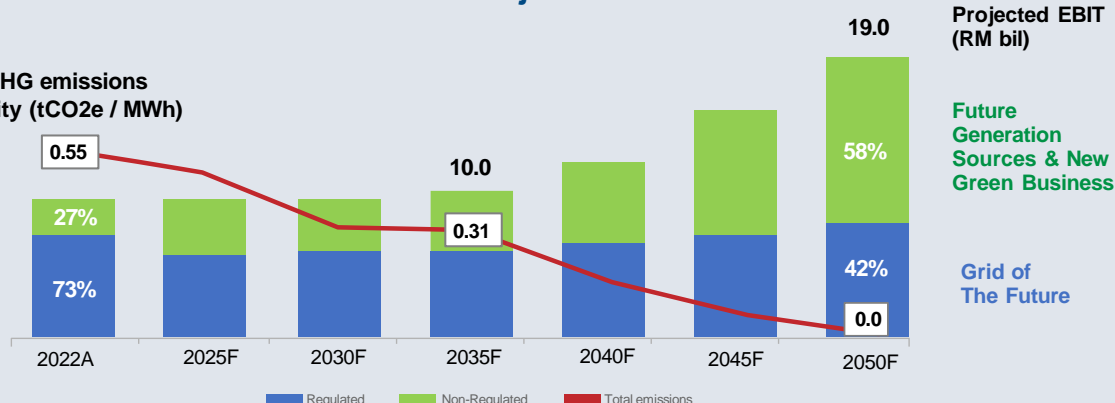
### Our Aspiration to 2050

Invest and grow our emerging green technologies including Hydrogen and Carbon Capture & Utilisation (CCU)



### EBIT Projection

TNB GHG emissions intensity (tCO<sub>2</sub>e / MWh)



MSCI

MSCI ESG rating **upgraded to A**, score: 6.9 (2025)

ESG

**Ranked 1<sup>st</sup>** in Malaysia in ESG Transparency Reporting by **Global ESG Monitor (2023)**

We believe our pathway will bring positive business growth to the Group while **creating long-term value to our shareholders** through earnings growth.

Our Energy Transition Plan cuts across the electricity supply value chain, anchoring on three (3) key levers: Decarbonisation, Digitalisation & Electrification

### Deliver Clean Generation



#### ENERGY SOURCES

##### Renewable Capacity Growth

- Capture RE growth potential in domestic and international markets
- Embark on strategic partnership for new technology
- Adopt commercial capabilities in foreign markets to drive domestic RE growth

##### Carbon Management

- Reduce scope 1,2,3 GHG emissions
- Capture emissions (CCS, CCU)
- Trade/offset
- Manage carbon pricing

##### Coal Generation Capacity Reductions

- Uplift value of existing plants
- Reduce coal generation capacity
- Increase gas generation capacity

### Develop Energy Transition Network



#### ENERGY VECTORS

##### Smart Grid

- Enhance grid & network flexibility to enable higher penetration of VRE<sup>1</sup>, DER<sup>2</sup> and electrification

##### Hydrogen

- Produce for applications in domestic power, industrial and mobility sectors, and for export market

##### Energy Storage

- Stabilise the grid
- Manage grid's peak demand
- Enable off-grid supply and peer-to-peer generation among prosumers

### Dynamic Energy Solutions



#### ENERGY USAGE

##### Electrification

- Spur the development of low-carbon mobility ecosystem

##### Energy Efficiency

- Provide energy audit services and integrate energy efficiency improvements on machinery, equipment & appliances
- Deploy energy monitoring system

##### Prosumers

- Provide rooftop solar + storage solution

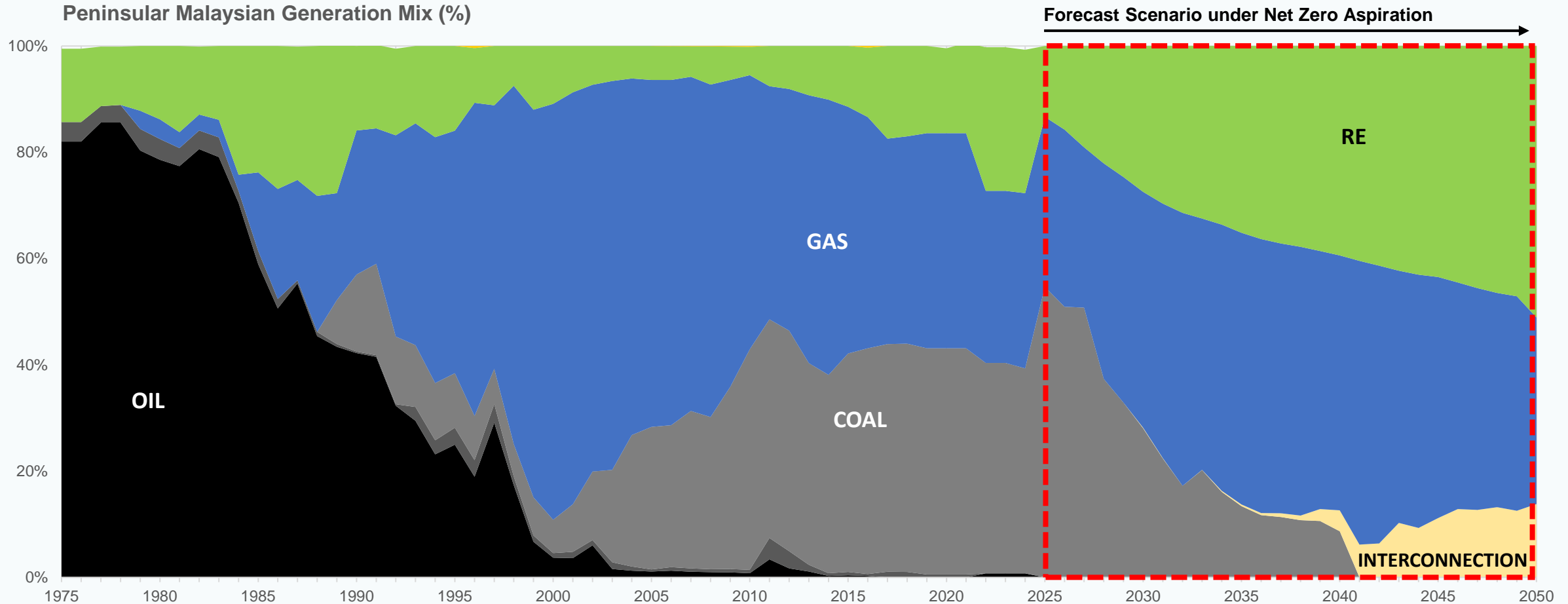
##### Digital Platforms

- Complement Energy Transition (ET) initiatives with digital platforms such as myTNB app, Electric Vehicle (EV) charging platform, digital marketplace and green energy aggregation and trading platform

<sup>1</sup> Variable Renewable Energy

<sup>2</sup> Distributed Energy Resources

The nation's current generation mix reflects the diversification required for security of supply, and will continue to shift as we take a responsible approach towards energy transition



- Historically, Malaysia's generation mix was dominated by the use of oil as we transitioned into gas and then coal
- Moving forward, RE will grow significantly as costs rapidly decline**



**TNB's fast-track sustainability agenda will bring major shifts across the value chain, ensuring business growth while meeting our ESG commitment**

## Deliver Clean Generation

GenCo aims to capture ~RM40 bil revenue from domestic market by 2050

### Fast track decarbonisation

- 1 Coal plants early retirement
- 2 Repowering plants with cleaner fuel and green tech
- 3 Strategic technology partnership

### Explore opportunities in ASEAN

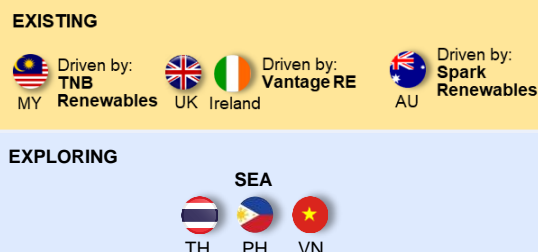


- Increase enterprise value and sustainability position of GenCo
- Possibility of an IPO of GenCo

NED aims ~USD7 bil Equity investment by 2050



### FOCUS MARKETS



**14.3GW by 2050**  
(Average portfolio return of 7% – 9%)

## Develop Energy Transition Network

Regulated asset base (RAB) to grow to ~RM100 bil by 2050

- Renewable Energy (VRE) and Distributed Energy Resources (DER)
- Propelling growth of transportation and industrial customers electrification
- Reducing carbon footprint and preserving the forestry & natural environment

### Regional Interconnection

To strengthen security of supply and open investment opportunities



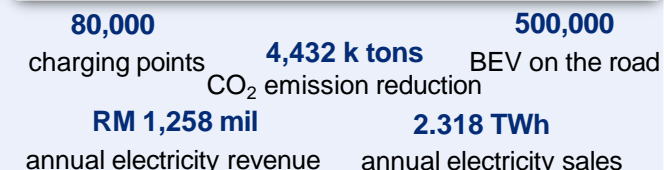
**Potential Earnings by 2050: ~RM7 bil**

## Dynamic Energy Solutions

We will invest RM90 mil to support BEV ecosystem with the following key strategic moves:

- 1 Build charging infrastructure
- 2 Reskill & upskill workforce
- 3 Lead by example through TNB Fleet electrification
- 4 Sponsor EV-related studies
- 5 Foster coalition among EV sector players

### 2030 EV Market Potential



### Driving changes in customer behaviour via myTNB

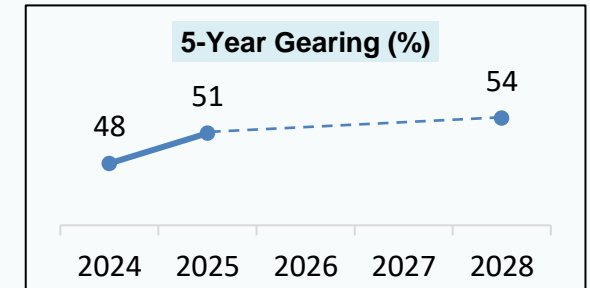
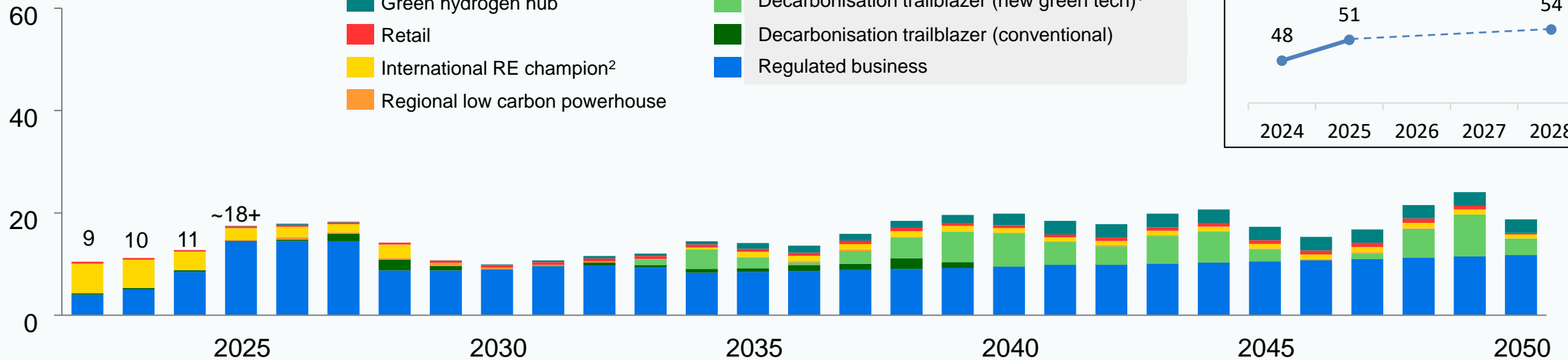
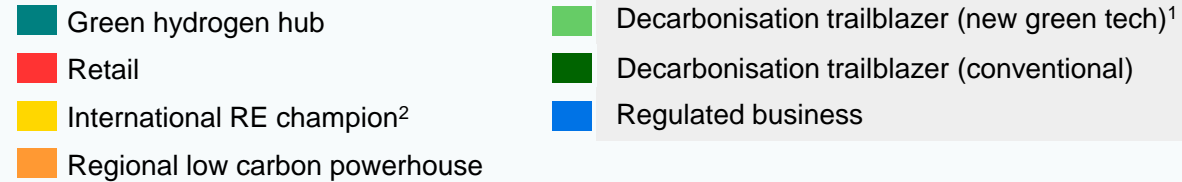


- 100% increase to ~250k users of Energy Budget features via myTNB (2025)
- As of Dec 2024, ~876k users have subscribed
- 208,449MWh electricity consumption reduced, equivalent to 177,837kg CO<sub>2</sub> avoided

## Pathway will require investment of RM10-20 bil yearly over the next 30 years

Indicative TNB CAPEX<sup>3</sup> (RM bil)

Legend



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



Key  
investment  
drivers

- | 2020s  | 2030s  | 2040s  |
|--|--|--|
| <ul style="list-style-type: none"> <li>Pursue RE in Malaysia &amp; globally (RE growth to offset plant expiry / early retirement)</li> </ul> | <ul style="list-style-type: none"> <li>Begin repowering into new green techs in 2035</li> <li>Rely on gas plants as transition fuel while waiting for new green techs to scale up</li> <li>Retire newer coal plants earlier</li> <li>Establish and grow adjacent businesses (e.g., green H<sub>2</sub> production, EV charging)</li> </ul> | <ul style="list-style-type: none"> <li>Pursue new green techs more aggressively as economics improve and CAPEX headroom increases from returns in earlier investments</li> <li>Phase out gas plants by 2049</li> <li>Expand green H<sub>2</sub> business to tap into rapidly increasing domestic demand</li> </ul> |

Indicative

Annual CAPEX

RM 9-14 bil

RM 10-20 bil

RM 15-24 bil

Total CAPEX

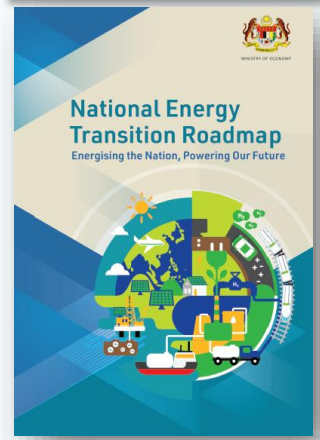
RM 90-120 bil

RM 140-145 bil

RM 210-215 bil

# The National Energy Transition Roadmap (NETR) aims to shift Malaysia from a traditional fossil fuel-based economy to a high-value green economy

**Responsible Transition (RT) Pathway 2050**  
to shift Malaysia's energy systems from fossil fuel-based to greener and low-carbon systems



**Aligned with the national aspirations and commitments to sustainable development**

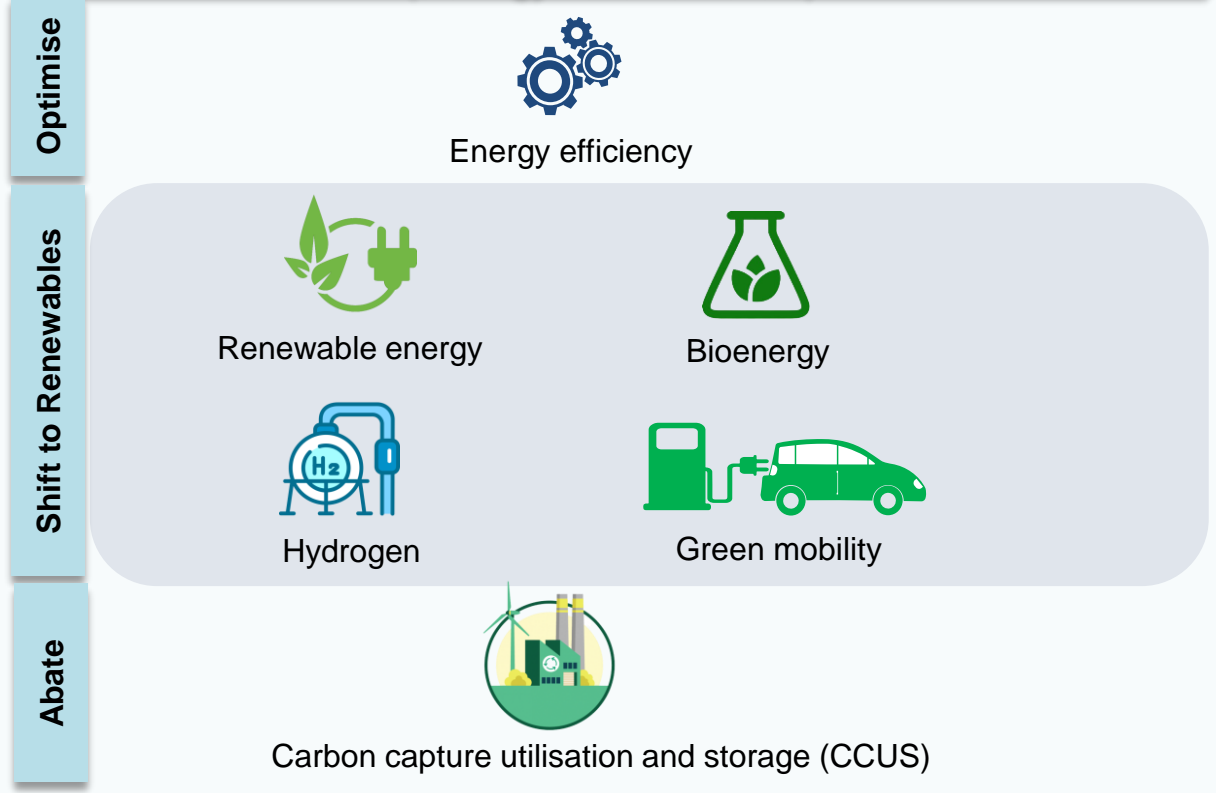
The **Twelfth Malaysia Plan 2021-2025** which outlines aspirations for the nation to achieve net zero emissions by 2050.

The **National Energy Policy (DTN)** launched in September 2022 with aspirations to become a low carbon nation in 2040.

**Review of RE policies**

- 1 To increase the country's installed RE capacity from **40% in 2035** to **70% by 2050**;
- 2 To introduce the concept of a **self-contained system according to the "willing buyer, willing seller" principle** to the RE development framework;
- 3 To increase the **installation of solar systems on government buildings**; and
- 4 To allow **cross-border RE trade** through the establishment of an electricity exchange system, complementing the ASEAN power grid initiative.

## NETR Part 1 (6 energy transition levers)



## NETR Part 2 (Focus on biomass, waste-to-energy usage, CCS and hydrogen integration)

- 1 Establish the National Energy Council
- 2 Set up the National Energy Transition Facility (NETF) with a seed fund of RM2 billion
- 3 Establish and launch a RE exchange in 2024

We remain resolute in delivering our RE target capacity of 14.3GW by 2050

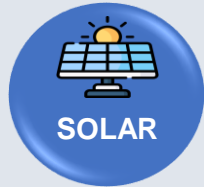
### RE portfolio

**4.4GW as at December 2024**



HYDRO

**2,700MW**  
61%



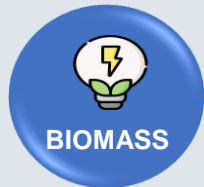
SOLAR

**1,439MWp**  
32%



WIND

**284MW**  
6.4%



BIOMASS

**12.5MW**  
0.3%



BIOGAS

**4.8MW**  
0.1%

Notes:

1. Solar gross capacity is quoted in MWp
2. Numbers manually computed will not match due to decimal variance

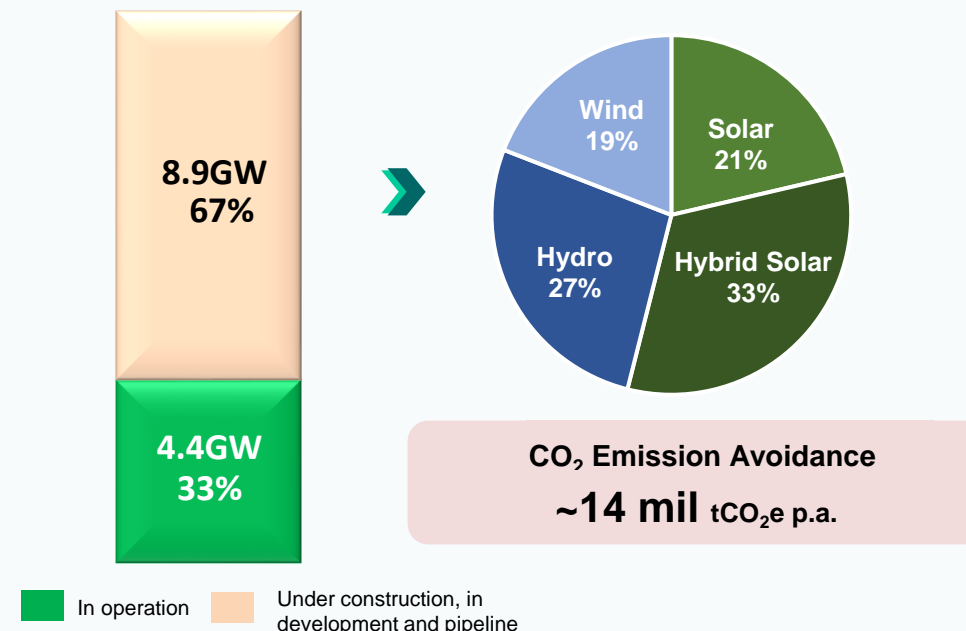
### Champion for 3 flagship catalyst projects

Establishment of Large-Scale Solar Parks over 5 sites, each with 100MW capacity,

Development of Hybrid Hydro-Floating Solar (HHFS) at existing dams with a capacity of 2,500MW, and

Co-firing of Hydrogen and Ammonia at our power plants.

### 13.3GW Secured RE Capacity (as at December 2024)





## Disclaimer

This presentation and discussion may contain forward looking statements by Tenaga Nasional Berhad related to financial trends for future periods. Some of the statements contained in this presentation or arising from this discussion which are not of historical facts are statements of future expectations with respect to financial conditions, results of operations and businesses, and related plans and objectives. Such forward looking statements are based on Tenaga Nasional Berhad's current views and assumptions including, but not limited to, prevailing economic and market conditions and currently available information. These statements involve known and unknown risks and uncertainties that could cause actual results, performance or achievements to differ materially from those in the forward-looking statements. Such statements are not and, should not be construed, as a representation as to future performance or achievements of Tenaga Nasional Berhad. It should be noted that the actual performance or achievements of Tenaga Nasional Berhad may vary significantly from such statements.

All information contained herein is meant strictly for the use of this presentation only and should not be used or relied on by any party for any other purpose and without the prior written approval of Tenaga Nasional Berhad. The information contained herein is the property of Tenaga Nasional Berhad and it is privileged and confidential in nature. Tenaga Nasional Berhad has the sole copyright to such information, and you are prohibited from disseminating, distributing, copying, reproducing, using and/or disclosing this information.

# Thank you

## **INVESTOR RELATIONS GROUP FINANCE DIVISION**

Tenaga Nasional Berhad  
Level 12, Tower A, TNB Platinum  
No. 3, Jalan Bukit Pantai, Bangsar  
59100 Kuala Lumpur

Tel : +603 2108 2128

Fax : +603 2108 2034

Email : [tenaga\\_ird@tnb.com.my](mailto:tenaga_ird@tnb.com.my)

Website : [www.tnb.com.my](http://www.tnb.com.my)

## **IR OFFICERS:**

✉ **Sarah Keok**  
[sarahk@tnb.com.my](mailto:sarahk@tnb.com.my)

✉ **Hasniza Harun**  
[hasniza@tnb.com.my](mailto:hasniza@tnb.com.my)

✉ **Intan Nur Najihah Basiron**  
[najihah.basiron@tnb.com.my](mailto:najihah.basiron@tnb.com.my)

✉ **Durga Vinasini Sivanesan**  
[durga.sivanesan@tnb.com.my](mailto:durga.sivanesan@tnb.com.my)