



# MESYUARAT AGUNG TAHUNAN

TENAGA NASIONAL BERHAD KE-32  
2 JUN 2022

**NET Z****ERO**  
2050

## Presentation by Management

A large graphic on the left side of the slide. It consists of a thick, stylized 'C' shape. The top half of the 'C' is green and filled with a forest image. The bottom half is blue and filled with a city skyline at night. In the center of the 'C' is the text 'NET ZERO 2050'. 'NET' is in blue, 'ZERO' is in green, and '2050' is in blue. A small lightning bolt is integrated into the 'Z' of 'ZERO'.

**NET ZERO**  
2050

- 01 Key Business Highlights
- 02 2021 Group Performance
- 03 Sustainability Pathway 2050
- 04 Social & Governance
- 05 Future Outlook

## Key business highlights



### PERFORMANCE

Resilient financial and technical performance despite challenging environment



### DIVIDEND

Honouring our dividend policy of 30% - 60% dividend payout ratio of the adjusted PATAMI



### REGULATED BUSINESS

- Implementation of RP3 from Feb'22 to Dec'24
- Favourable RP3 outcome



### SUSTAINABILITY

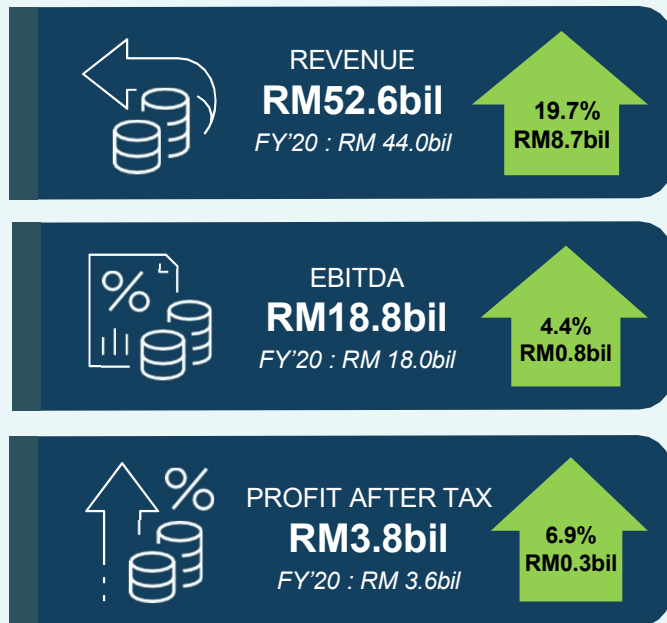
Establishment of Sustainability Pathway 2050



### CORPORATE SOCIAL RESPONSIBILITY

Continuous contributions for nation building

Resilient **financial performance** consistent with increased economic activities, enabling TNB to return **sustainable dividends** to our shareholders



Special Dividend Payout (RM' bil)

2.28

Yearly Dividend Payout (RM' bil)

2.28

2.29

Dividend Payout (%)  
(based on Adjusted PATAMI)

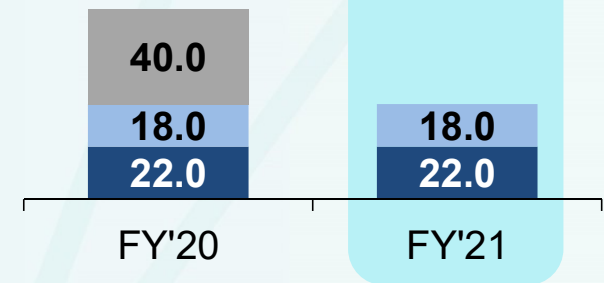
58.5

52.8

Dividend Per Share (sen)

80.0

40.0



Dividend yield as of 31st Dec'21 at 4.28%

■ Interim ■ Final ■ Special

## Favourable RP3 outcome provides regulated business earnings certainty for the next 3 years

### RP3 determination (2022 -2024)



**Base Tariff,**  
sen/kWh

**39.95**  
No changes in tariff  
rate & structure



**WACC,**  
%

**7.3**



**CAPEX,**  
RM bn

**20.555**



**RAB,**  
RM bn

**70.8**  
estimated closing  
2024 RAB



**OPEX,**  
RM bn

**17.96**



**Gas,**  
RM/mmBTU

**26**  
Tier 1\* :  $\alpha = -15\%$ ,  
Tier 2 \*\*:  $\alpha = +5\%$



**Coal,**  
USD/MT

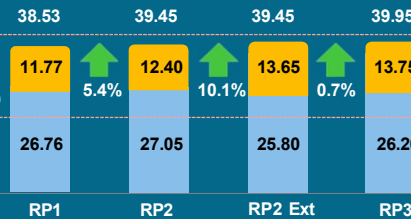
**79**



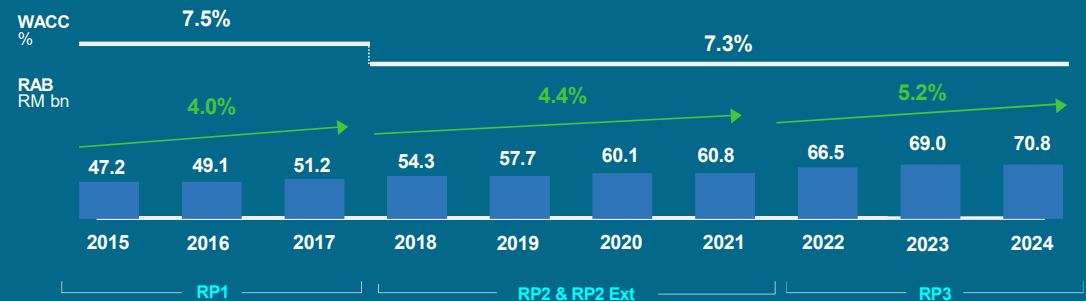
**FOREX,**  
MYR/USD

**4.123**

**Base Tariff**  
sen/kWh



- WACC maintained at 7.3% since RP2
- Higher approved CAPEX guaranteed continuous growth in Regulated Asset Base (RAB) and earnings



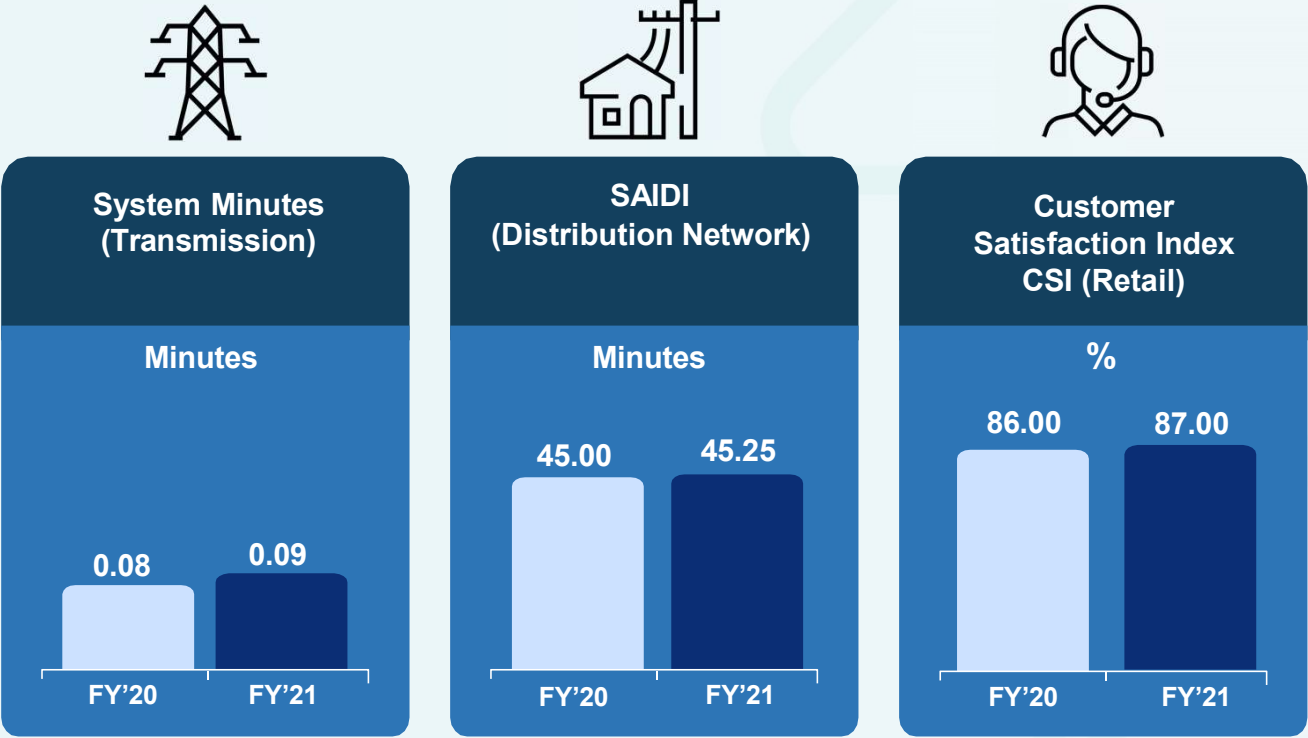
\*Tier 1 is for gas consumption up to 800 mmscf

\*\*Tier 2 is for gas consumption above 800 mmscf

Our **operational network performance** and **customer service** experience remain at world-class standards, despite the challenging period



Our domestic networks achievement with lower system minutes and SAIDI are among the best in Southeast Asia, putting us at par with developed electricity systems/industries such as France and the UK



## Turnaround programmes have started to show positive results



\*EAF includes planned and unplanned outages



We recognise the need to future proof our business through our newly launched **Sustainability Pathway 2050** that aims to make our core sustainable and build new businesses



### Our Commitment to 2035

### Our Aspiration to 2050

**By 2035:**

- 1** 35% emission intensity reduction
- 2** 50% coal capacity

*Ramp up renewables energy: 8.3GW by 2025 & accelerate to 2035*

Domestic capacity renewal & expansion will come from lower emission sources e.g. **gas & renewable energy**

Our international investments will increasingly focus on **renewable energy & emerging green technologies**

Continue to invest in **Grid of the Future & digitalization** enabling Energy Transition

Introduce **new energy services** that enables customers own Energy Transition journey e.g. rooftop + storage solution

**By 2050:**

- 1** Net Zero Emission
- 2** Coal-Free

Invest in R&D for **emerging tech and greener alternative new energy sources** e.g. low-carbon hydrogen, low carbon services & adjacencies

Deploy **abatement levers to thermal generation fleet** e.g. carbon capture, utilization & storage

Enable **Grid & Distribution Network** to support increased demand from electrification and higher intermittency from increased RE penetration

TNB Sustainability Pathway 2050 is about future-proofing TNB's business as we balance the Energy Transition with financial sustainability and protection of shareholder value via a 2-pronged approach:

- 1** MAKING THE CORE SUSTAINABLE
- 2** BUILDING ON NEW SUSTAINABLE BUSINESSES FOR GROWTH



# GenCo's smooth decarbonisation & energy transition is critical to support the aspiration of Sustainability Pathway 2050



## GenCo Decarbonisation Plan

1

### Increase Renewable Portfolio

#### Nenggiri Hydro Project

Capacity : 300 MW

Location : Gua Musang, Kelantan

Cost: RM 5.0 billion

Expected COD : 1st June 2027

Expected Contribution: RM 272.8 mil\*

Expected 0.32 mil tonnes CO<sub>2</sub> mitigated yearly equivalent to 70,000 cars avoidance yearly

\*yearly average earnings



Floating solar farm at Sultan Azlan Shah Power Station (SJSAS) Marjung, Perak

#### Floating solar farm

288 photovoltaic (PV) solar panels installed on a 175-hectare ash pond with an installed capacity of 105.12kWp

94.8 tonnes of CO<sub>2</sub> emission mitigated yearly

409 trees of carbon dioxide uptake

Future site potentials

2

### Emerging Technology



Green hydrogen



Battery storage



Carbon capture and utilization



Virtual pilot plant technology



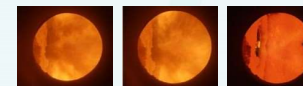
Interconnections



Gas as transition fuel



Ammonia



Coal flame

Ammonia co firing ratio: 30%

Ammonia flame



Jimah East Power has commissioned TNBR to study and test ammonia co-firing. In Mar'22 preliminary results from tests in lab conditions indicate a potential 15% CO<sub>2</sub> reduction with 20% ammonia co-fired with coal.

3

### Repowering into cleaner energy

Repowering of coal plant into Combined Cycle Gas Turbine (CCGT) plant with co-firing capabilities

Through New Energy Division (NED), we strive to **grow our RE footprint globally** through mergers & acquisitions, asset development & establishing strategic partnerships with leading RE players



## Our RE growth strategy:

### 1 Asset development

- Invest in projects which play to our core strength as a leading utility with a wealth of engineering and commercial capability.
- Move into greenfield for return enhancement alongside operational asset acquisitions to build scale.
- Build a greenfield pipeline for stable growth and quality capacity additions.

### 2 Partnership

- Partnership with established global players to gain technology and operational know-how for offshore wind and floating solar projects.
- Strategic partnerships for market entry access and possibly for equity funding too.

## Return on investments:

All investment proposals will be evaluated individually on a case-by-case basis based on risk-adjusted rate of return (RARR), aiming to maximise the shareholders' return.

## GLOBAL RE FOOTPRINT

### 100% stake in **VANTAGE RE**

- Formation:** 2021
- Capacity:** 165.4MW in wind, 365MW in solar

Carbon Emission Mitigated :  
Solar = 93,492 tCO<sub>2</sub>  
Wind = 58,717 tCO<sub>2</sub>

### 100% stake in **TRE**

- Formation:** 2018
- Capacity:** 80MW Solar, 3.2MW Biogas (additional 50MW LSS4 under development)

Carbon Emission Mitigated :  
Solar = 85,016 tCO<sub>2</sub>  
Other RE (exclude hydro) = 51,515 tCO<sub>2</sub>

### 30% stake in **GAMA**

- Acquisition:** 2016
- Capacity:** 137.8 in Hydro, 118.9MW in wind

Carbon Emission Mitigated :  
Hydro = 113,918 tCO<sub>2</sub>  
Wind = 221,524 tCO<sub>2</sub>

### 30% stake in **GMR**

- Acquisition:** 2016
- Capacity:** 26MW in solar

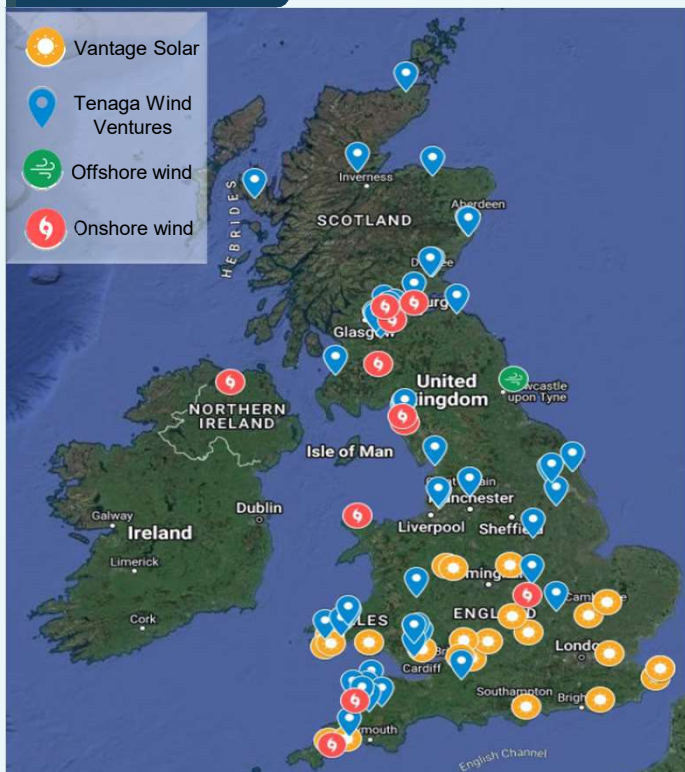
Carbon Emission Mitigated:  
Solar = 26,494.17 tCO<sub>2</sub>

● Existing Investments ● Potential targeted market

Relentlessly pursuing a diversified RE portfolio via Vantage RE, leveraging on strategic opportunities and partnerships, and rapidly building TNB's capability in RE technologies



### UK RE Assets



In October 2021, completed an acquisition of a **49%** stake in Blyth Offshore Demonstrator Limited ("BODL") with installed capacity of **41.5MW** ("Blyth 1") and development rights for an innovative floating offshore wind project of up to **58.4MW** ("Blyth 2")

In April 2022, completed an acquisition of a **100%** stake in a **97.3MW** onshore wind portfolio in the United Kingdom (UK), increased the installed capacity of Vantage by **23%** from 433MW to 530MW

### In the pipeline (approx. 1,600MW)



	635MW	445MW
	253MW	121MW
	158MW	21MW

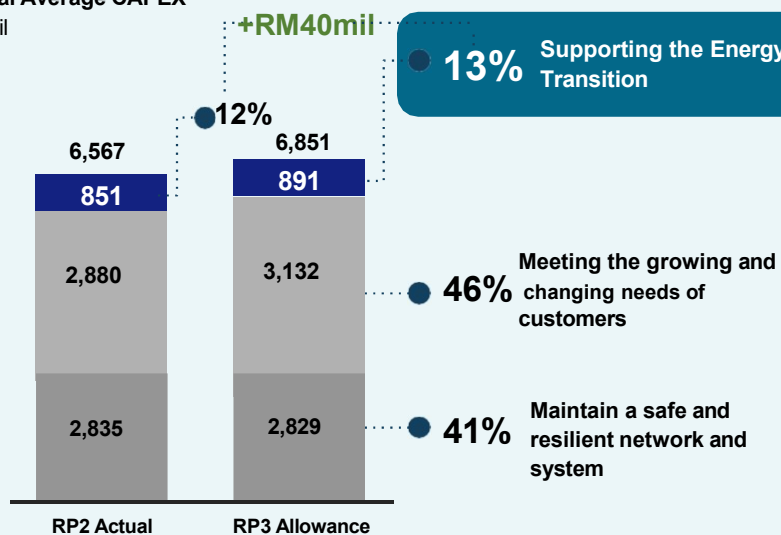
As at end March 2022



## Allocation for CAPEX has increased to further strengthen a smart, reliable Grid in leading the Energy Transition journey



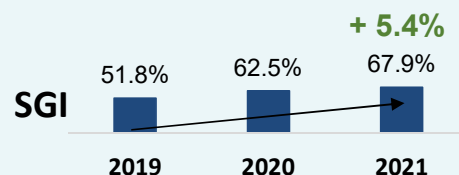
Annual Average CAPEX  
RM Mil



Towards becoming a  
**Smart Utility by 2025**



**TNB Smart Grid Index (SGI)**  
target by 2025 : **85%\***



### SMART GRID

Enables improved data access for customers, and better management of energy consumption

Optimise voltage and bidirectional energy flow to increase integration of customer-owned power generation systems

Support of RE generation, improve network visibility and allow automated operation and control

#### Example of on-going projects under RP3



Smart meter installation progress:

**85%**

completion as of 1QFY'22  
Target of 2.4 mil units  
(additional of 0.6 mil units)  
by end 2022



LED Relamping progress:

**76%**

completion as of 1QFY'22  
Target of 0.7 mil units  
(additional 0.07 mil units)  
by end 2022



Volt-Var Optimisation (VVO) progress:

**71%**

completion as of 1QFY'22  
Target of 700 MVAR  
(additional 140 MVAR)  
by end 2022

MVAR - megavolt ampere of reactive power



Regional interconnections are critical to further unlock access to RE across ASEAN which will be important for sustainability and energy security

# Our sustainability agenda extends to our Retail customers through green and digital offerings



## Green Electricity Tariff (GET)



Green Electricity Tariff (GET) is a Government initiative to provide the option of green electricity coming from renewable energy supply to any electricity consumer to reduce their carbon footprint.

As at April 2022, GET is **fully subscribed** from the quota of 4,000,000 MWh annually

## Energy Efficiency Solutions



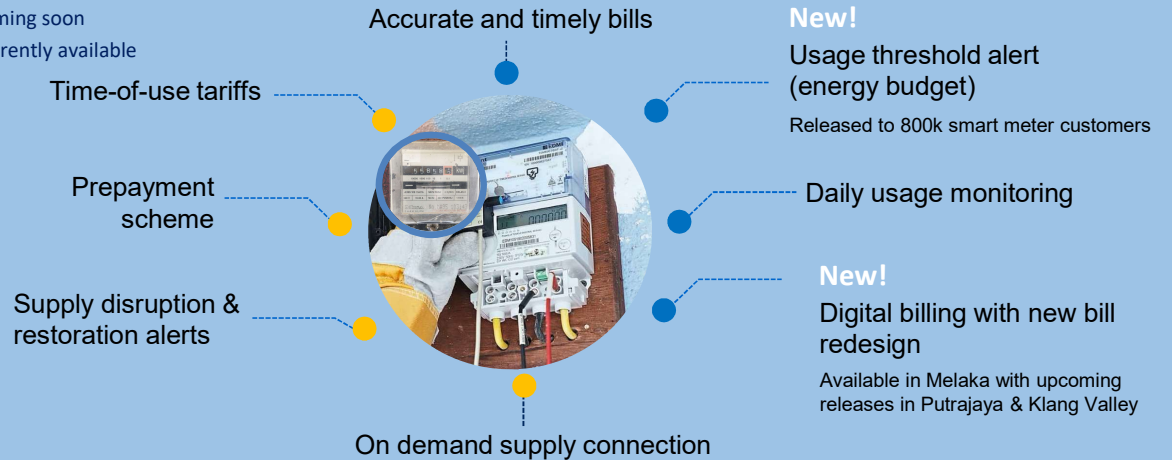
### Smart Solution (Home & Business)

- Empower customers to monitor and manage consumption via energy management solutions, visualization & analytics platform and energy saving advisory & tips.
- Shift of our solution offerings to be segment & sector centric; **Home360**, **Biz360**, **City 360** and **Platform 360**.

## Customer offerings enabled by smart meter

Smart meters enables near real-time information on electricity consumption for greater control & empowerment

- Coming soon
- Currently available



### Current Platform



**myTNB**  
5.8mil subscribers  
out of 9.7mil  
customers (60%)

### Upcoming New integrated customer platforms



**myTNBbiz**  
Immediate access  
and online account  
management for  
business customers



**myTNB IJO**  
Integrated digital  
platform for green  
energy solutions



## Opportunities to **expand further our business** in both kWh and beyond energy space through GSPARX and Allo



### GSPARX



To secure capacity of **576MWp by 2025** through:

- Focusing on selected customer segments mainly targeted residential and commercial & industrial
- Leveraging on the attractive Government program i.e. Net Energy Metering (NEM) 3.0 and Self-Consumption (SelCo)

**130,068 tCO2**

Potential emission mitigated from rooftop solar

### GSPARX latest growth progress

<b>1,194</b> Projects secured	<b>127</b> MWp capacity
<b>RM263mil</b> Revenue by 2026	<b>RM99mil</b> EBIT by 2026
<b>116</b> MWp Capacity under 21-year PPA	
<b>11-14%</b> EIRR from portfolio	
<b>16.9</b> MWp – current project in the pipeline with Universiti Putra Malaysia	

### ALLO



- Aims to further widen our fibre coverage throughout the Peninsular Malaysia. By 2026, Allo is projected to generate **revenue of RM500mil** and **EBIT of RM200mil**.
- Supporting **JENDELA** program to build a robust digital infrastructure and to bridge the digital divide between the rural and urban communities.
- **More than 180,000** home passes has been completed in Melaka, Perak, Kedah, Penang, Selangor, Kuala Lumpur & Johor. Target to expand to **~300,000** and **~600,00** premises by 2022 and 2026 respectively.

### Strategic engagements, collaborations and awards

Allo Nationwide Fiberisation Plan (ANFP)	Strategic Partnerships for Retail Segment	Serving International Carriers/ OTT with high network capacity	Awards & Recognitions	Latest Award
<p>Onboard</p>	<p>Content + Broadband</p> <p>White-labeled Broadband</p>	<p>Keymap</p>		<p><b>2022 Broadband Telecom Company of the Year</b></p>

## TNB is leading Malaysia's transition into **low-carbon mobility** through collaborative action with key EV ecosystem players



### 2030 Proposed Target for Malaysia EV



**500k**  
BEV cars



**18k**  
Charging points

GHG emissions for EV cars is **23%** lower than Internal Combustion Engine Vehicle (ICEV)\*

#### Our roles in the electric vehicles (EV) ecosystem in Malaysia:

- 1 Grid** - Ensure network is ready to support growth of EV charging demand
- 2 Vehicle** - Proactively advocate battery EV proliferation via Zero Emission Vehicle Association (ZEVA)
- 3 Charging Point** - Co-plan and co-deploy with Charge Point Operators to ensure optimization of chargers
- 4 Digital Platform** - Offer convenience of charging experience on a single platform

#### Partnership / MoUs

Collaboration with prominent partners in e-mobility such as PLUS, MGTC, DHL, SOCAR, Sime Darby Auto Bavaria, BMW Malaysia



### Electron station: The future of 'fuelling'

- TNB will open an electric vehicle charging station in Bangsar, Kuala Lumpur by the end of 2023.
- The first TNB charging station with DC fast charging capability has a design similar to conventional petrol station. The station will also consist of solar panels on the roof to support the operation of the station.



\*Based on internal study conducted by TNBR



## TNB continues its nation-building legacy through Corporate Responsibility pillars anchored on empowering communities for a better, brighter Malaysia



### Sport RM5.43mil

- National Hockey Development and Thunderbolts



### Socio-Economic RM22.79mil

- Engage Orang Asli Communities
- Engagement of Orang Asli Communities regarding the development of Nenggiri Hydroelectric Project
- Baiti Jannati & Mesra Rakyat Program
- Better Brighter Shelter BBS

Notes : The above figures exclude investments in employee training and development



### Environment RM0.24mil

- Tree for a Tree
- Mangrove at Manjung and Jimah East area
- Firefly Conservation & Community Project (Kampung Kuantan, Kampung Dew, Kampung)
- Yak Yah & Sungai Timun)



### Education RM11.11mil

- Ceria ke Sekolah (CKS)
- Tabung Cerdik (Smart Fund) Programme
- PINTAR School Adoption Programme

Notes : The above figures exclude scholarships and convertible loans from UNITEN & YTN

### Tabung Warga TNB Prihatin

**RM3.41 million** have been distributed to **6,295 Malaysian citizens** affected by the COVID-19 pandemic

**RM2 million** from TWTP was allocated to provide financial assistance to **victims of the December 2021 flash floods**

### TNB Reskilling Malaysia

Designed to **provide employment opportunities** through new job matches. The training will be provided **free of charge** by TNB Integrated Learning Solution Sdn. Bhd. (ILSAS).

**~17,500 Malaysians** will receive the benefits of the program by 2024.

### Covid-19 Assistance

Lighting Up Security Posts  
**RM0.32mil**

Contributions to Associations/Clubs/NGOs  
**RM1.2mil**

### Flood Relief

100% one-off rebates on electricity bills  
**148,881 customers** amounting to **RM15mil**

Residential wiring inspections for B40  
**FREE**

**TNB upholds the highest standards of corporate governance embedded in a culture anchored on our core values of Integrity, Professionalism, Collaboration, Customer Centricity, Forward Thinking & Mindfulness**



### TNB Corporate Governance Framework



- Main Market Listing Requirements of Bursa Malaysia Securities Berhad
- Malaysian Code on Corporate Governance 2017
- Companies Act 2016
- Capital Markets and Services Act 2007
- Benchmark against the ASEAN Corporate Governance Scorecard

### Remuneration



- The Board reviews the overall remuneration policy of the Non-Executive Directors, Executive Director and Top Management.
- The remuneration policy aims to attract, retain and motivate executives and Directors who will create sustainable value and returns for the Company's shareholders and other stakeholders.

### Board Diversity



- TNB strongly supports diversity within its Board of Directors, including gender, age, professional diversity as well as diversity of thought i.e. TNB Board composition comprises various backgrounds from finance & accounting, legal, engineering and others.
- Board composition :  
8 Independent Non-Exec.Directors  
3 Non-Independent Non-Exec. Directors (including Chairman)  
1 Non-Independent Exec.Director

### TNB Sustainability Reporting Framework



- Bursa Malaysia's Sustainability Reporting Guidelines
- Global Reporting Initiative (GRI) standards
- United Nations Sustainable Development Goals (UN SDGs)
- Task Force on Climate-related Financial Disclosures (TCFD)
- Sustainability Accounting Standards Board (SASB)\*

*\*For reference purposes*

## Future Outlook



### Sustainability Pathway 2050

- Make the core sustainable & build new sustainable businesses
- **35%** emission intensity reduction & **50%** coal capacity by 2035
- **Net zero emission and coal free** by 2050



### Regulated Business

- Certainty and stability of earnings under RP3 period
- ICPT mechanism remains intact
- **Potential ASEAN Interconnection project: LTMS-PIP**
- Regulated capex **RM7.2bil**



### Non-Regulated Business

- Potential RE capacity growth of **8.3GW**
- Beyond kWh solutions
- EV Ecosystem
- Network fiberisation
- Capex of **RM4.9bil**



### Dividend

- We will continue to honour our dividend policy of **30% - 60%** dividend payout ratio, based on adjusted PATAMI





To all Warga TNB, a special acknowledgement for your hardwork and dedication to TNB during this challenging period.

To our customers, shareholders and community, we thank you for your continued support and belief in Tenaga Nasional Berhad.



# Thank You