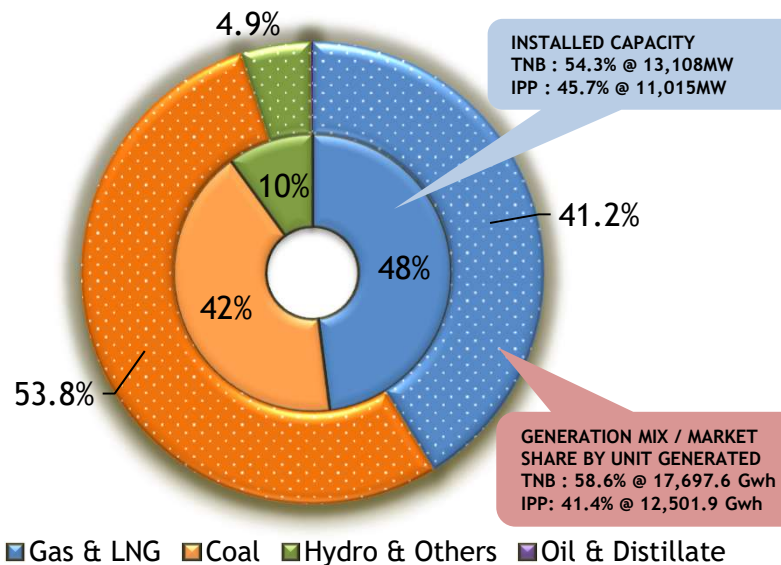
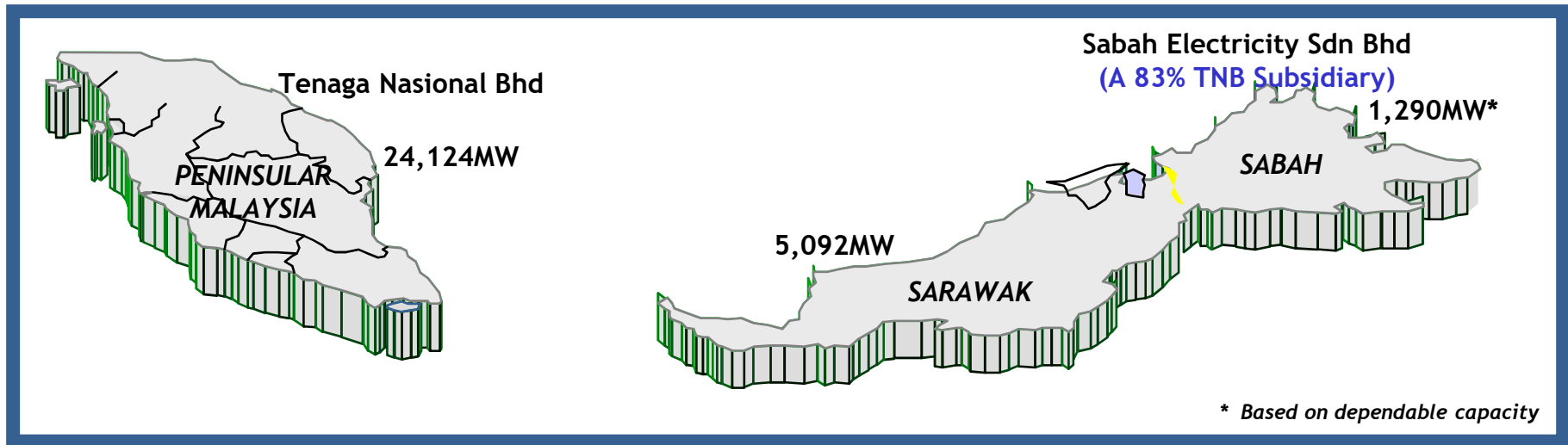


TNB HANDBOOK

1. INTRODUCTION TO TENAGA
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INTRODUCTION TO TENAGA



Peninsula Installed Capacity vs. Generation mix

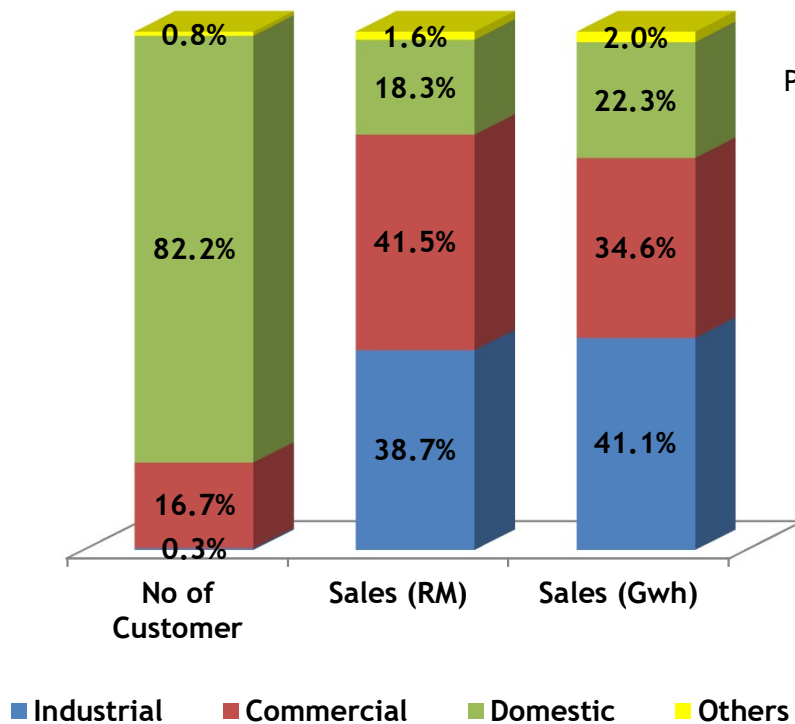
	FY'16	FY'17	Period Ended Dec'17	1QFY'18
Installed Capacity - Peninsula (MW)	TNB: 12,904 IPP: 10,030	TNB: 12,880 IPP: 10,030	TNB: 13,108 IPP: 11,015	TNB: 13,108 IPP: 11,015
Total units sold (Gwh)	115,505	116,586	39,562	28,347
Customers (mn)	TNB: 8.6 Sabah: 0.6	TNB: 8.5 Sabah: 0.6	TNB: 8.4 Sabah: 0.6	TNB: 8.4 Sabah: 0.6
Total employees ('000)	35.6	35.0	35.0	35.1
Total assets (RM bn)	132.9	142.0	144.3	144.8

INTRODUCTION TO TENAGA

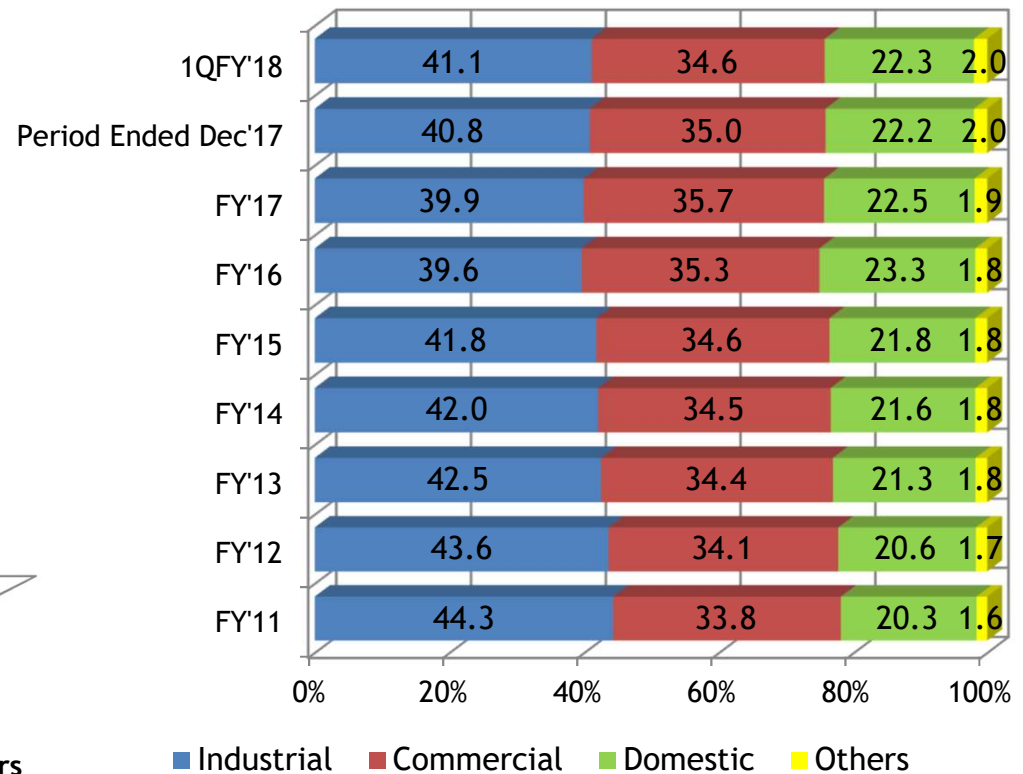
TNB Sectoral Sales Analysis



1QFY'18



Sectoral Sales Analysis (Gwh)

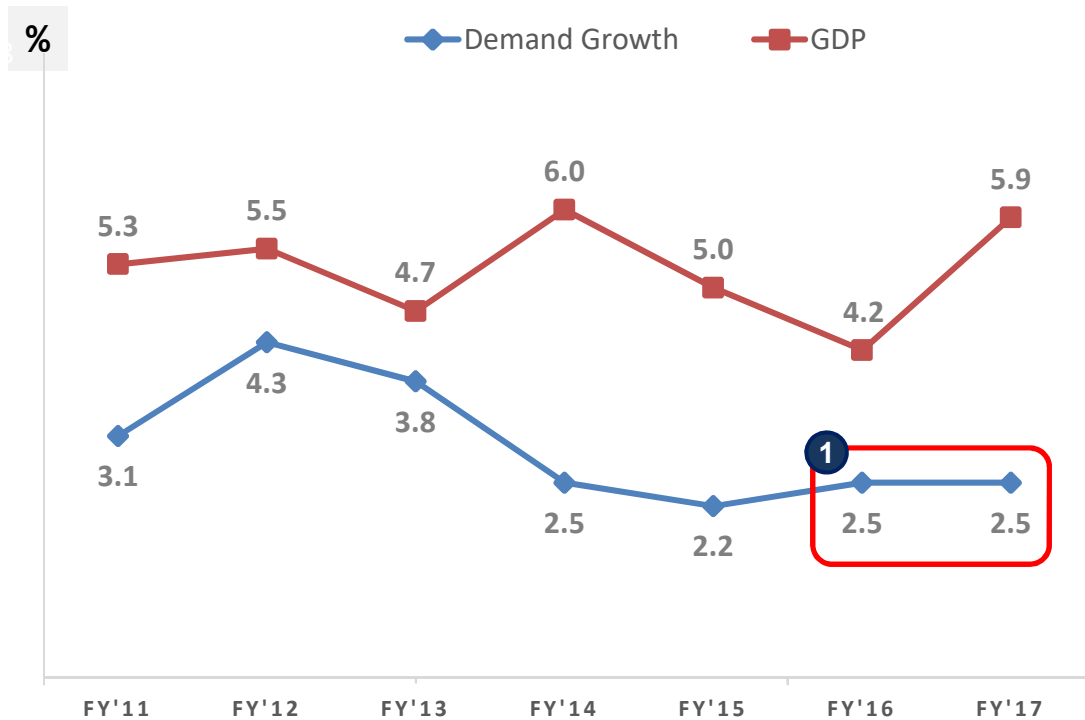


Note: TNB exclude SESB

INTRODUCTION TO TENAGA



Y-o-Y Growth Registered At 2.3%



Period	GDP (%)	Demand Growth (%)
JAN'17-MAR'17	5.6	(0.8)
JAN'18-MAR'18	5.4	2.3

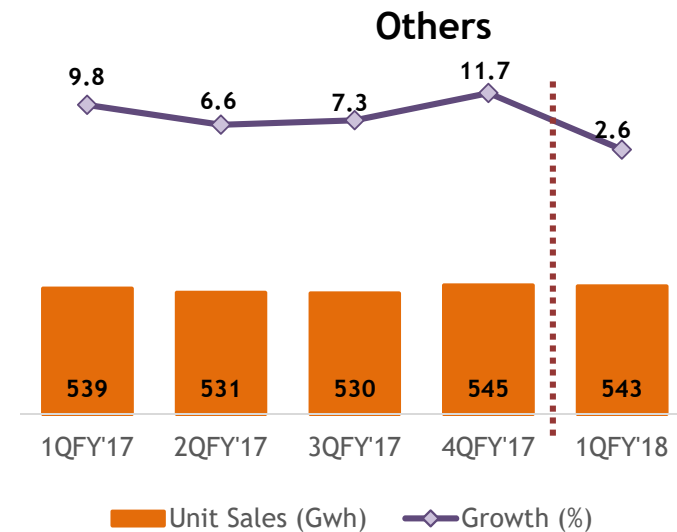
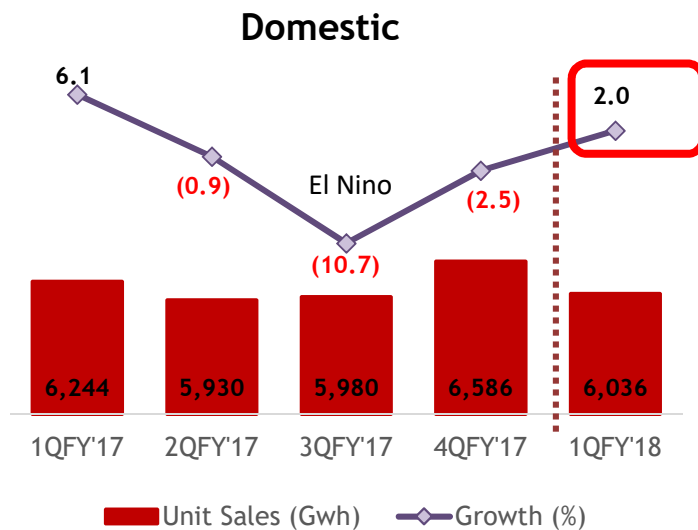
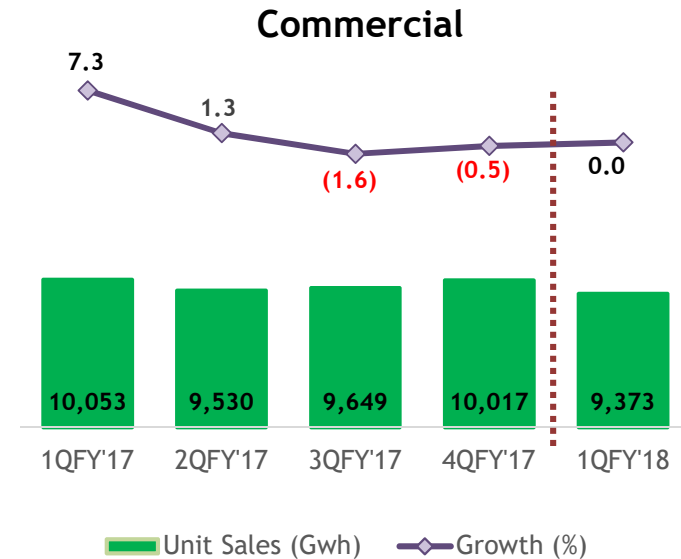
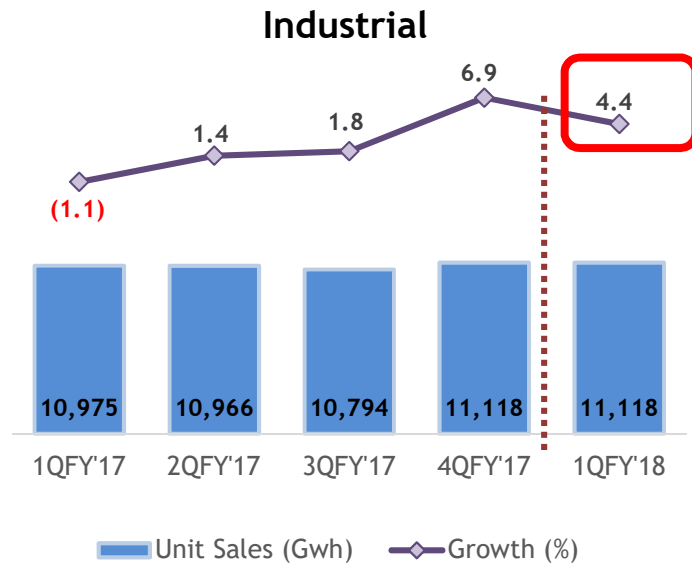
1

Average demand growth for FY2016 & FY2017. This is to eliminate the one-off El-Nino phenomenon during 3QFY'16

INTRODUCTION TO TENAGA



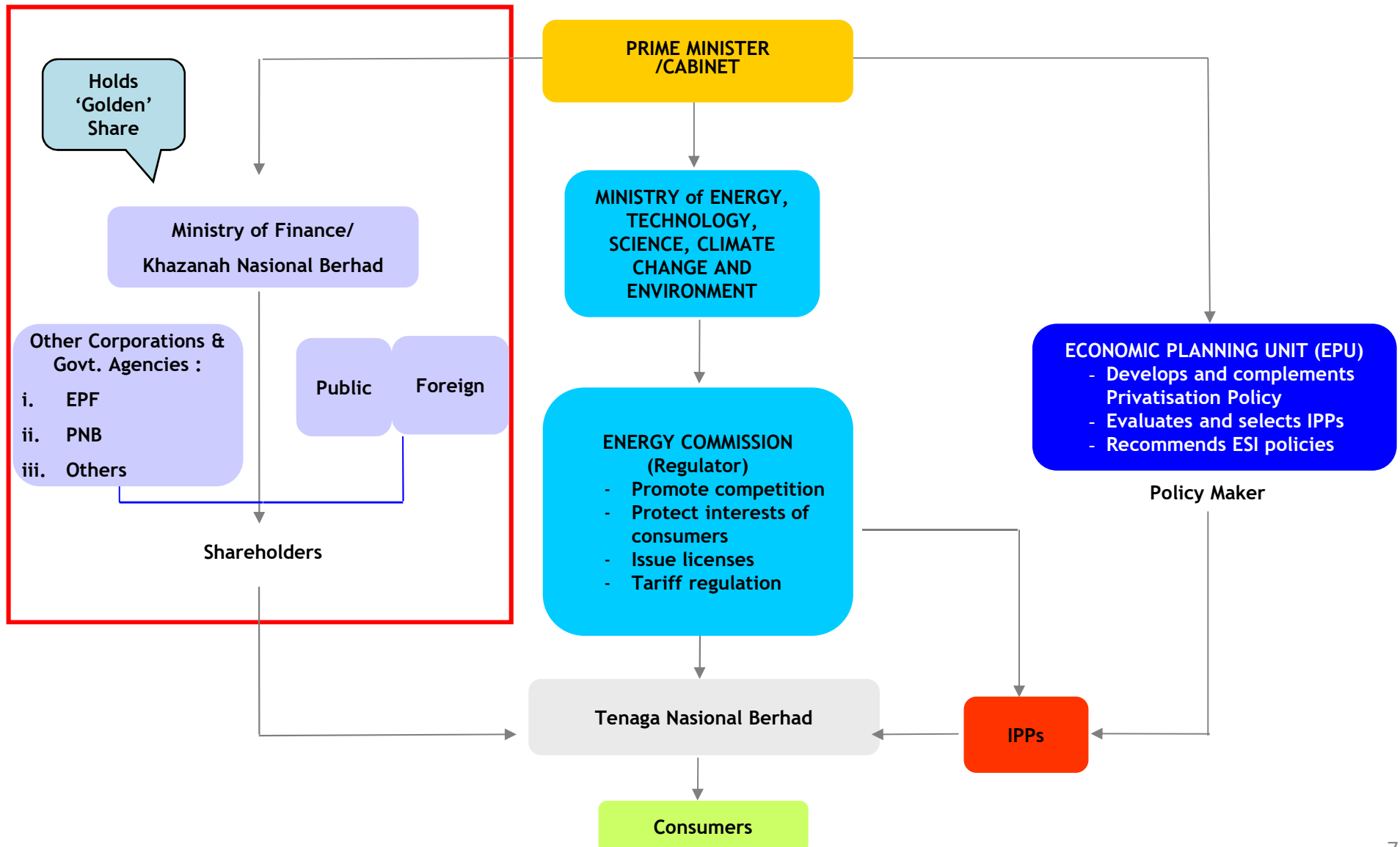
Positive Growth for Industrial & Domestic Sector (Y-o-Y)



Note: Prior quarters are adjusted to reflect similar months in new financial year

INTRODUCTION TO TENAGA

Industry Regulatory Framework

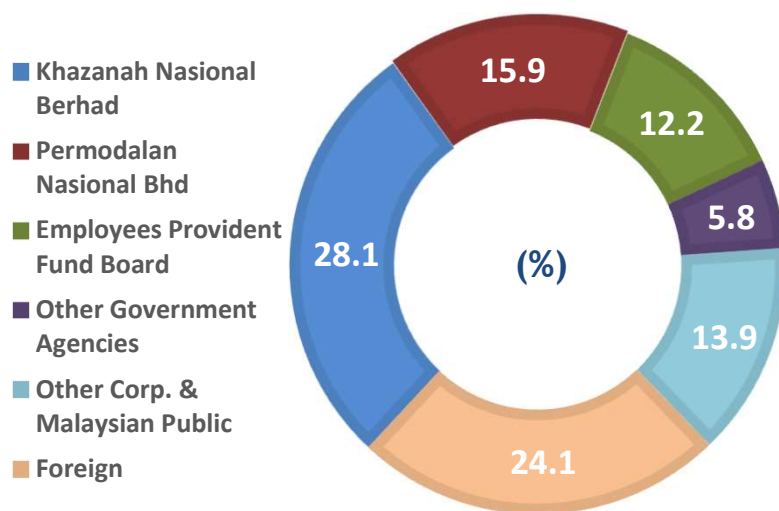


INTRODUCTION TO TENAGA

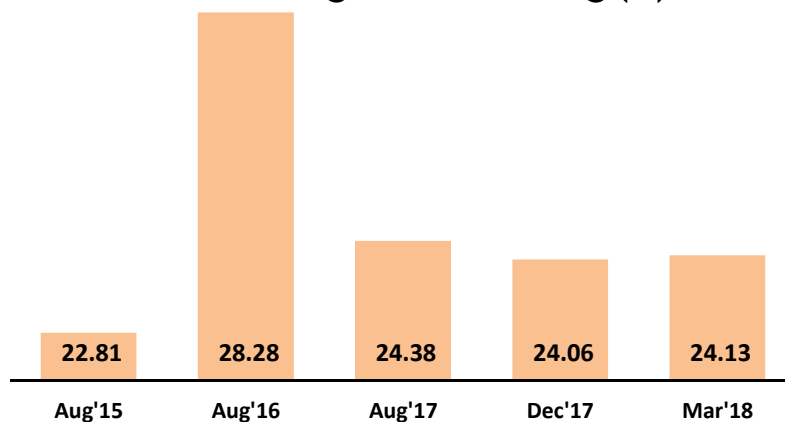


Stable Foreign Shareholding at 24%

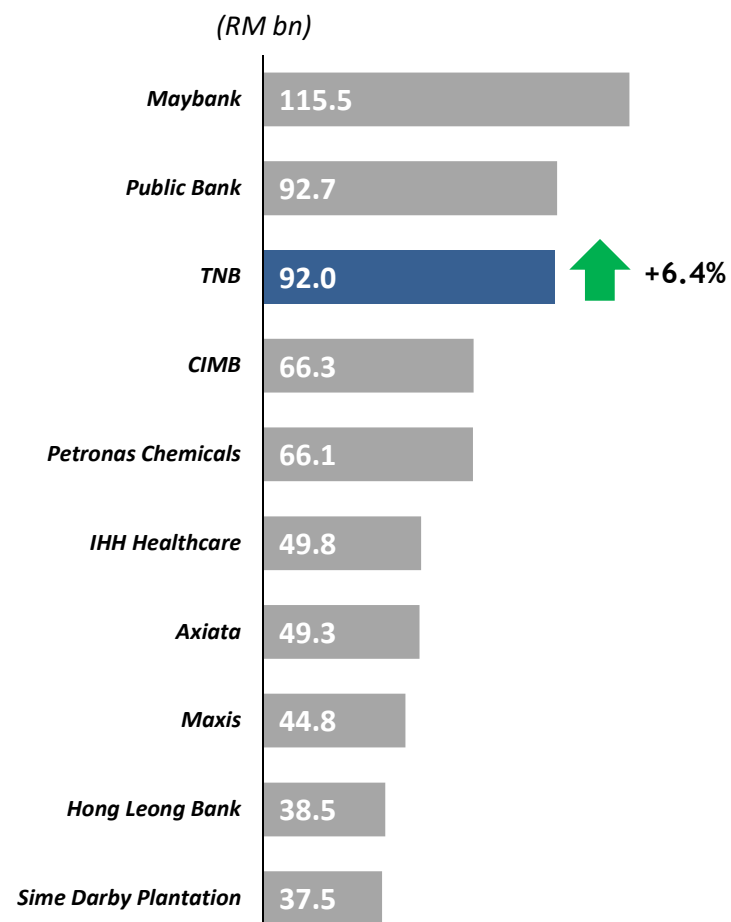
Shareholding as at Mar'18



Foreign Shareholding (%)



Top 10 KLCI Stocks by Market Capitalization as at Mar'18



Note:

1) TNB Latest Market Cap: RM90.4bn (3rd), as at 16th May 2018

INTRODUCTION TO TENAGA

Composition of BOD



CHAIRMAN
TAN SRI LEO MOGGIE
Years of directorship: 14 years



EXECUTIVE DIRECTOR / CEO
DATUK SERI IR. AZMAN BIN MOHD
Years of directorship: 8 years

Independent Non-Executive Directors (Total = 5)



JUNIWATI BINTI
RAHMAT HUSSIN
(< 1 Year)



GEE SIEW
YOONG
(2 Years)



NORAINI BINTI
CHE DAN
(2 Years)

GOPALA KRISHNAN
A/L K.SUNDARAM
(< 1 Year)

ONG AI LIN
(< 1 Year)

Non-Independent Non-Executive Directors (Total =1)








AMRAN HAFIZ BIN AFFIFUDIN
(Khazanah
(< 1 Year)

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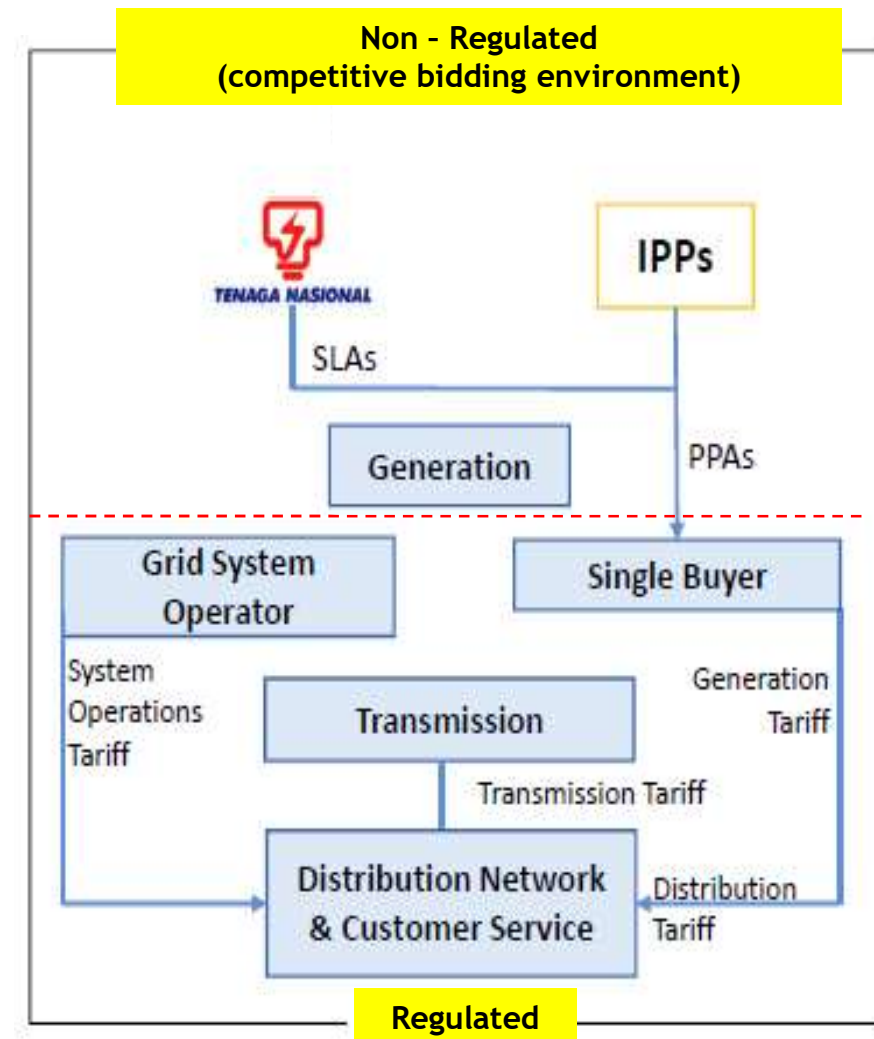
INCENTIVE BASED REGULATION (IBR)

A Mechanisms For Tariff Setting With Incentives To Improve Efficiency & Greater Transparency

IBR mechanism to strengthen the following:

-  The Economic Regulatory Framework for Regulating TNB
-  The Tariff Setting Mechanism and Principles for Tariff Design
-  Incentive Mechanisms to Promote Efficiency and Service Standards
-  The Process of Tariff Reviews
-  Creation of Regulatory Accounts and Its Annual Review Process

Business entities under IBR
(Accounting Separation)



INCENTIVE BASED REGULATION (IBR)

Imbalance Cost Pass-Through (ICPT) Mechanisms Ensures TNB Remain Neutral

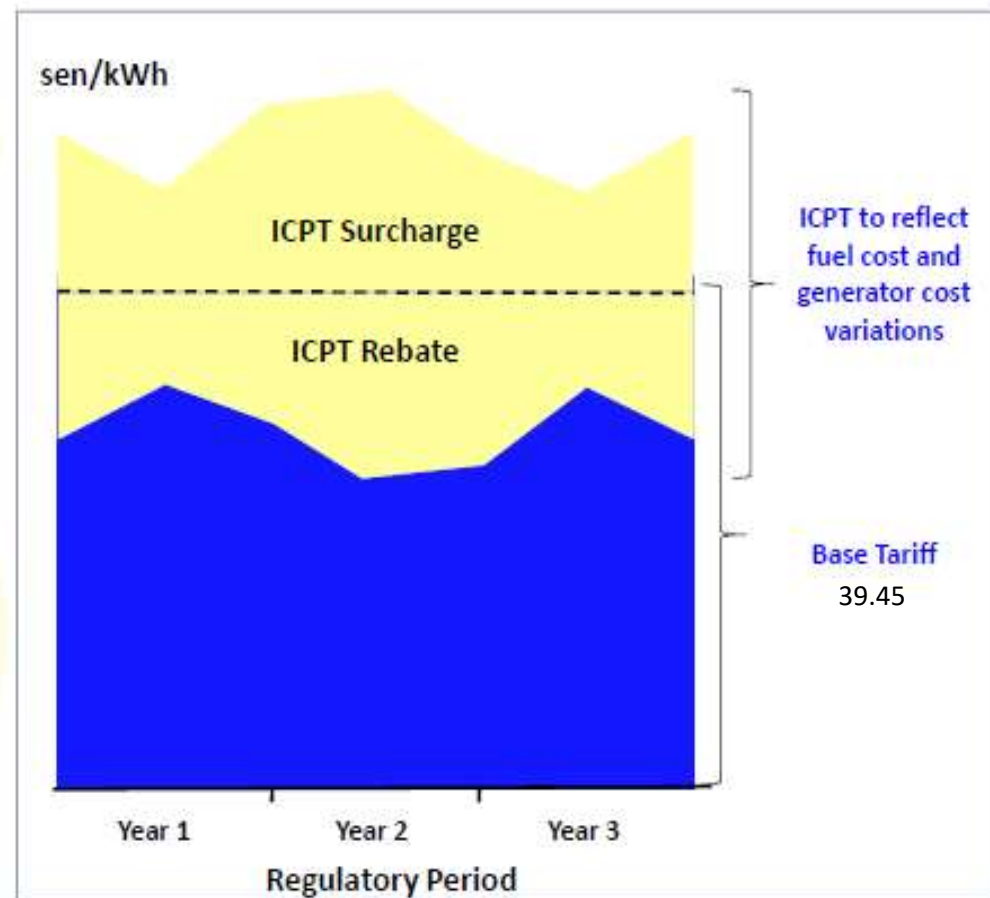
Imbalance Cost Pass-Through (ICPT) :

6-monthly tariff adjustment to reflect variations in fuel costs, costs associated with PPAs & SLAs and RE displaced costs

- Reviewed every 6 months

Base Tariff reflects:

- CAPEX and OPEX of Transmission, Distribution, System Operation (SO) and Single Buyer (SB) Operation
- Return on regulated asset base of Transmission, Distribution, SO and SB
- Power purchase cost charged by Generators (including base price for fuel) to the Single Buyer (SB)
- Reviewed every 3 years

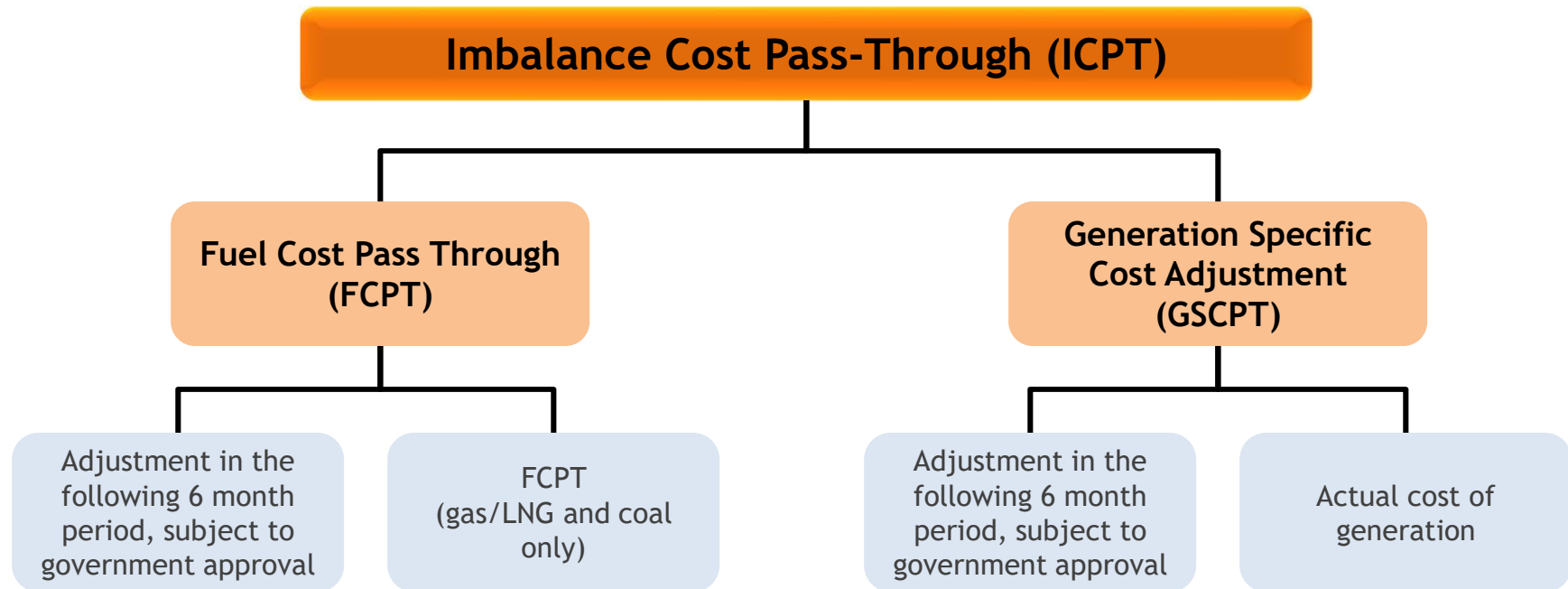


Note 1 : CAPEX = Capital expenditure

2 : OPEX = Operational expenditure

INCENTIVE BASED REGULATION (IBR)

Imbalance Cost Pass-Through (ICPT) Comprises Two Components



Changes in gas/LNG and coal costs

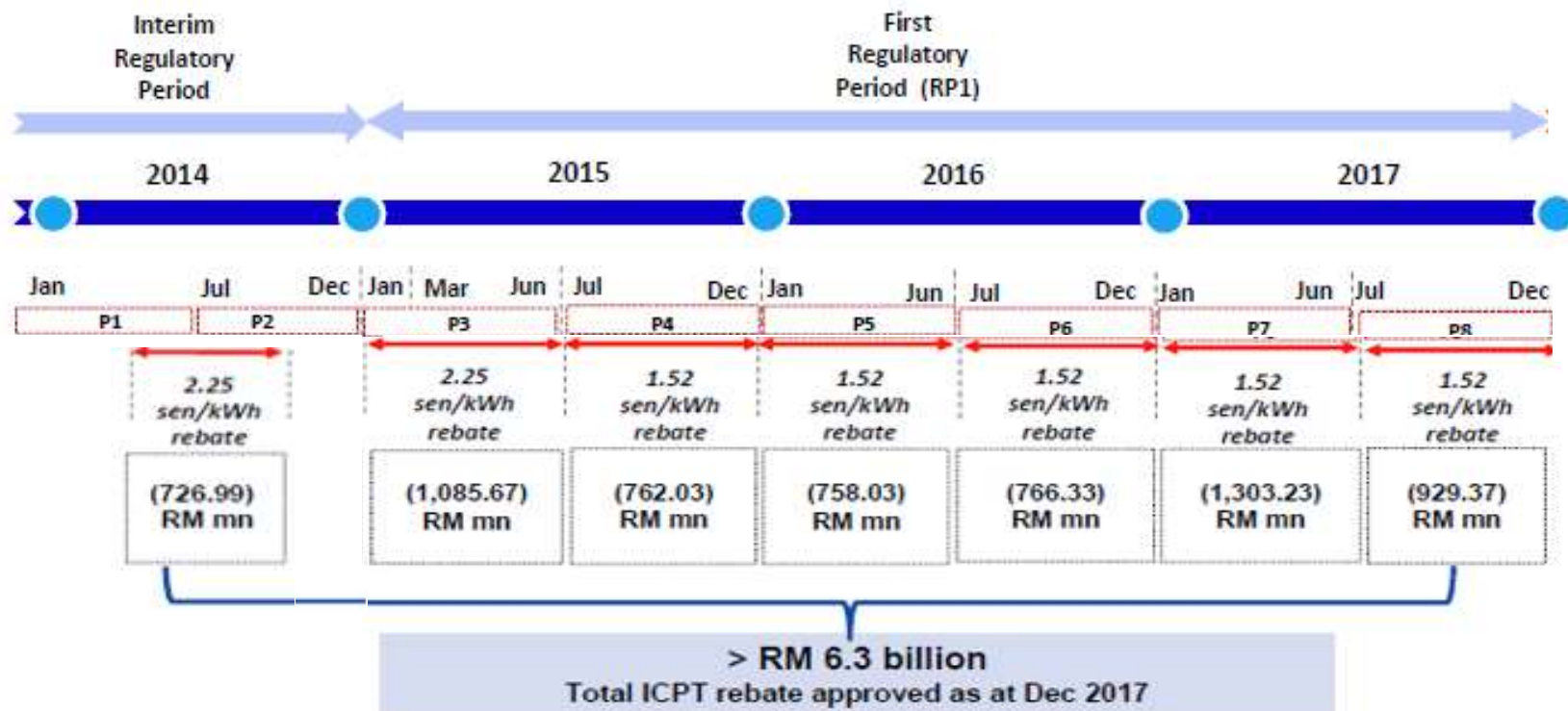
Changes in:

- Other fuel costs such as distillate and fuel oil
- All costs incurred by SB under the power procurement agreements (PPAs, SLAs and etc.) and fuel procurement agreements (CSTA, CPC, GFA/GSA and etc.)
- Renewable energy FiT displaced cost

PPAs	Power Purchase Agreements
SLAs	Service Level Agreements
CSTA	Coal Supply and Transportation Agreement
CPC	Coal Purchase Contract
GFA	Gas Framework Agreement
GSA	Gas Supply Agreement

INCENTIVE BASED REGULATION (IBR)

Total of RM6.3 Billion ICPT Impact for RP1



*Source: EC as per ICPT announcement made

INCENTIVE BASED REGULATION (IBR)

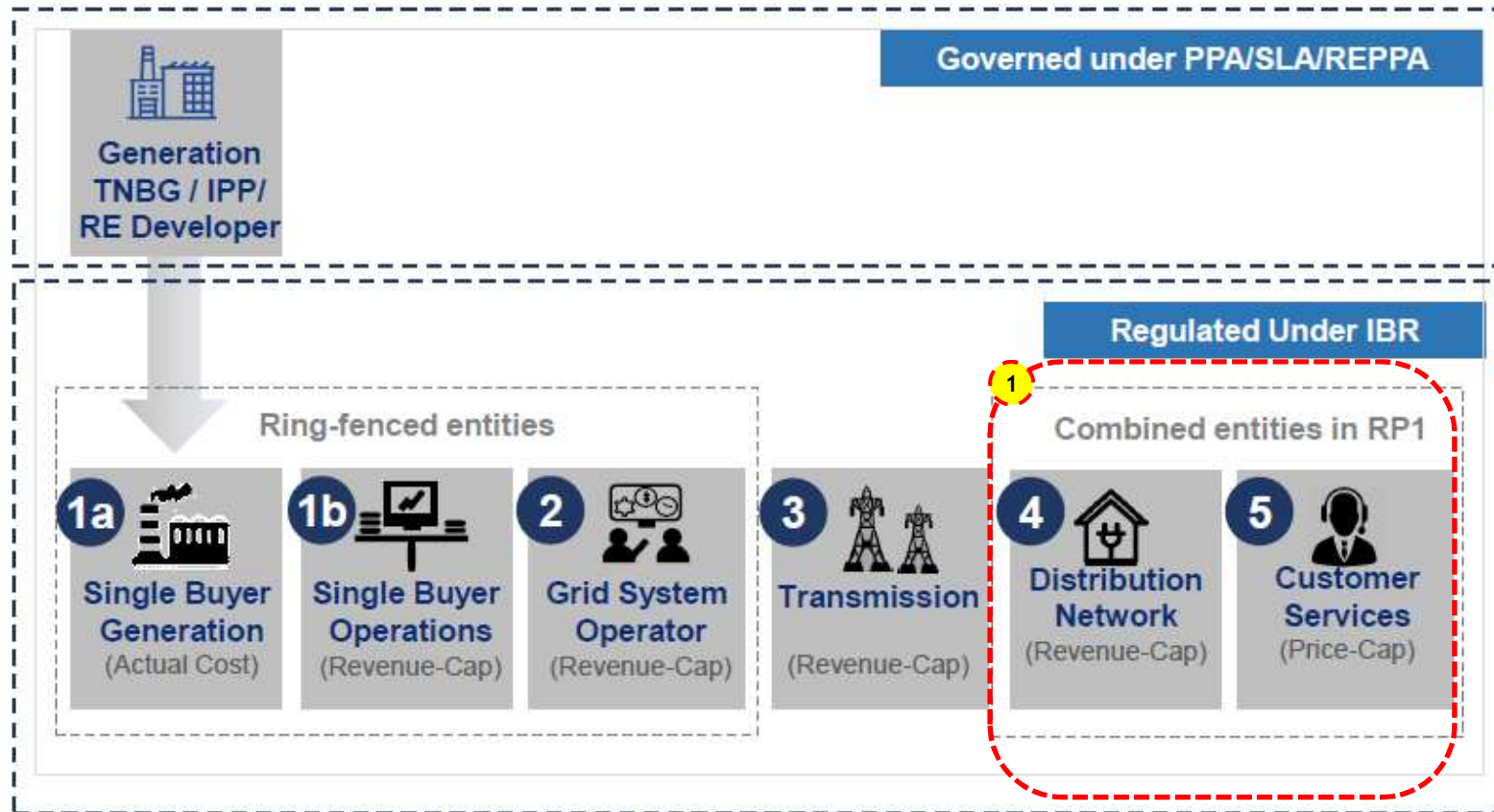
New Features in Electricity Tariff Review for RP2 (2018-2020)

More efficient and reliable electricity supply	Support Government's initiatives and aspirations	New addition in Key Performance Indicators *	Separation of Distribution Networks and Customer Services
<ul style="list-style-type: none">• Efficient and reliable electricity supply at the lowest efficient cost;• Enhancement in safety and reliability with smart grid capabilities.	<ul style="list-style-type: none">• Supporting Government's initiatives in green energy and sustainability for example AMI, Distribution Automation, Group Relamping of streetlight, etc.• Continue the gas price subsidy rationalization by gradual removal of gas price subsidy;	<ul style="list-style-type: none">• New performance indicators on each business entity that are in line with Government's policies;• Enhancement on KPI mechanisms and principles (symmetric and asymmetric).	<ul style="list-style-type: none">• Separation of these business entities will enhance the system reliability and consumer experience;• This will increase the productivity and consumer satisfaction.

*Has yet to be approved and finalized by regulator

INCENTIVE BASED REGULATION (IBR)

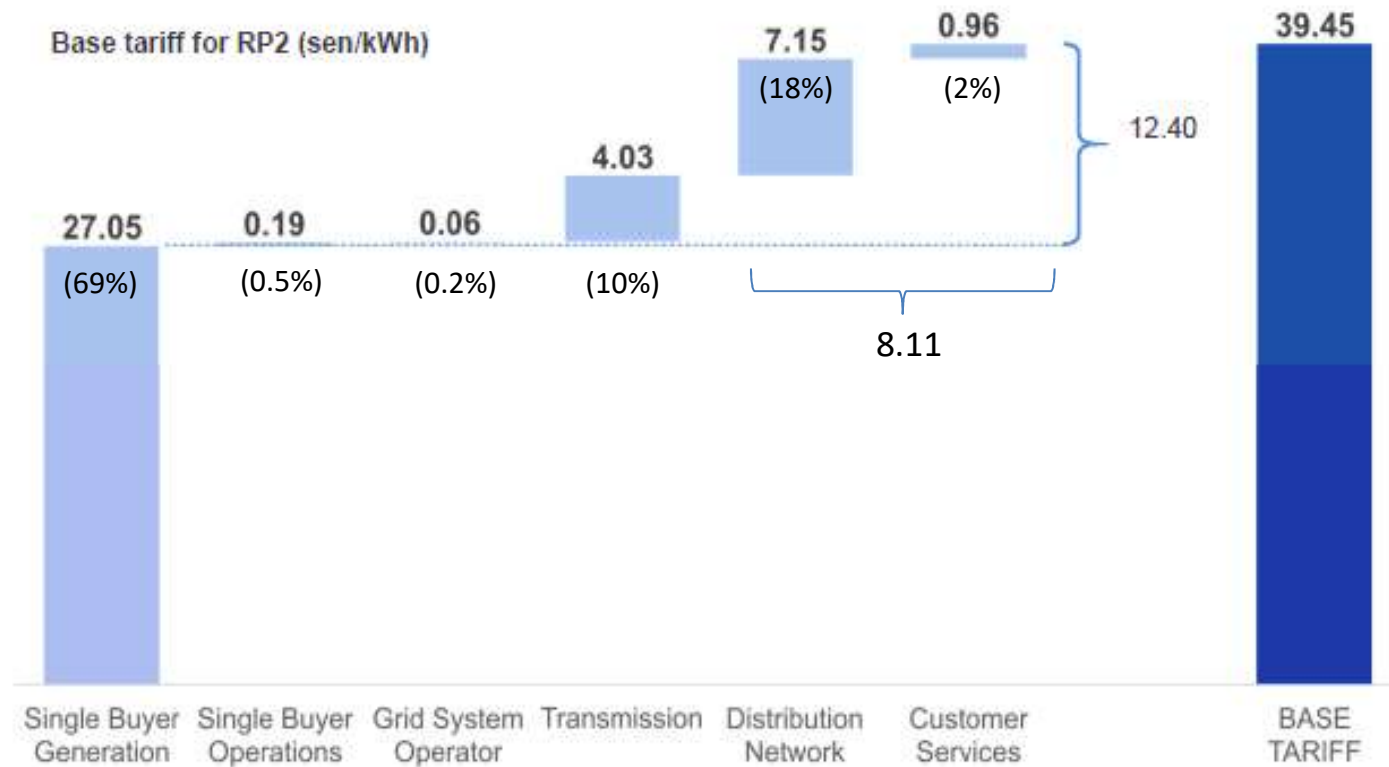
IBR Entities



1 In RP1, these 2 entity are grouped as Price -Cap entity

INCENTIVE BASED REGULATION (IBR)

New Base Tariff Under IBR Mechanism RP2



Entities	Single Buyer		Grid System Operator	Transmission	Distribution	Base Tariff
	Generation	Operation				
RP1 (sen/kWh)	26.76	0.19	0.05	3.66	7.87	38.53
Variance (sen/kWh)	+0.29	--	+0.01	+0.37	+0.24	+0.92

INCENTIVE BASED REGULATION (IBR)

RP2 Parameters

RP2 Base Fuel Prices



Coal:
USD75/MT
(RM14.47/mmbtu @ 4.212/USD)



LNG:
RM35/mmbtu

Regulated Gas: @ 1,000mmscf
RM24.20/mmbtu (Jan'18 – Jun'18)
RM25.70/mmbtu (Jul'18 – Dec'18)
RM27.20/mmbtu (Jan'19 – Dec'20)

RP2 Forecasted Gas Utilization:
840 mmscf

No	Item	RP1	RP2
1.	WACC	7.5%	7.3%
2.	Avg. Regulated Asset Based (RAB)	Closing RAB RM43.6 bn	Avg. RAB in 2020 RM54.8 bn
3.	CAPEX	Closing CAPEX RM15.7 bn	Approved CAPEX RM18.8 bn*
4.	OPEX	Closing OPEX RM16.9 bn	Approved OPEX RM18.2 bn

* Special Projects approved are as follows:

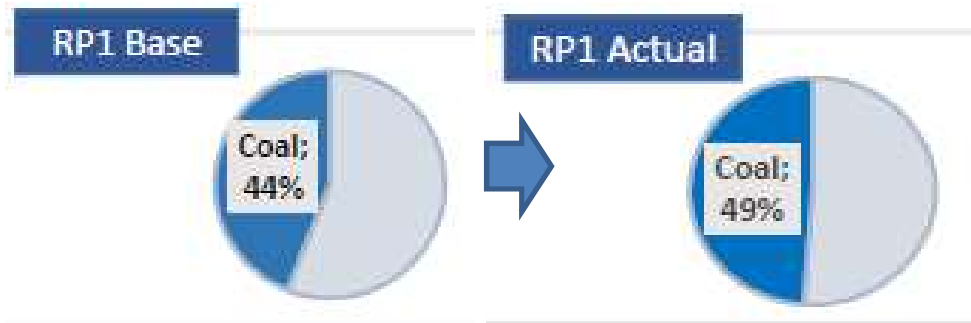
- Development of Advanced Metering Infrastructure (AMI) involving installation of 1.5 million smart meters
- Development of additional fibre optic network to enhance security and reliability of electricity supply
- Installation of 367,000 energy efficient LED street lighting in major cities

INCENTIVE BASED REGULATION (IBR)

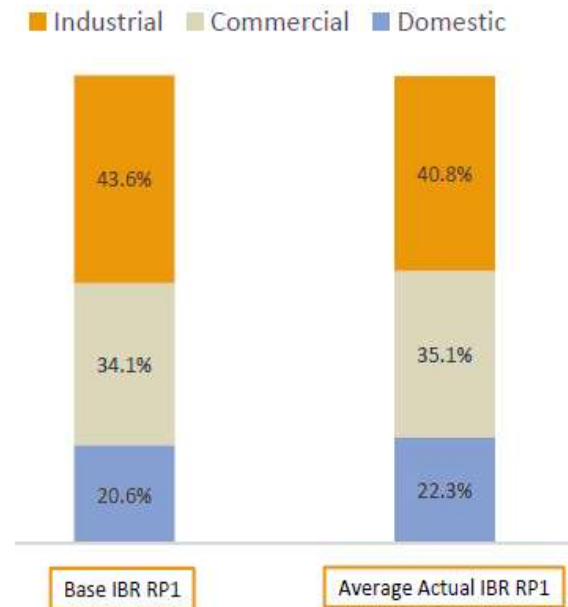
Generation, Customer Mix & Average Tariff by Sectors



Generation Mix RP1 vs RP2

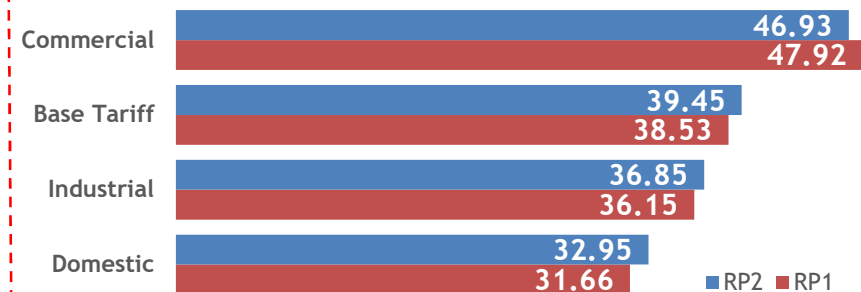


Changes in Customer Mix (%) in RP1 (2015-2017)

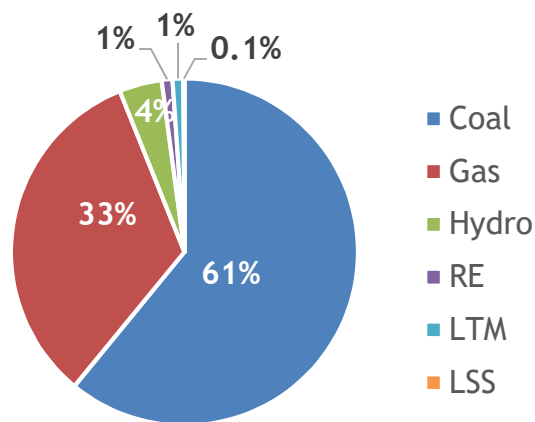


RP2 Forecasted Demand Growth: 1.8 - 2.0%

Average Tariff by Sectors (sen/kwh)



RP2

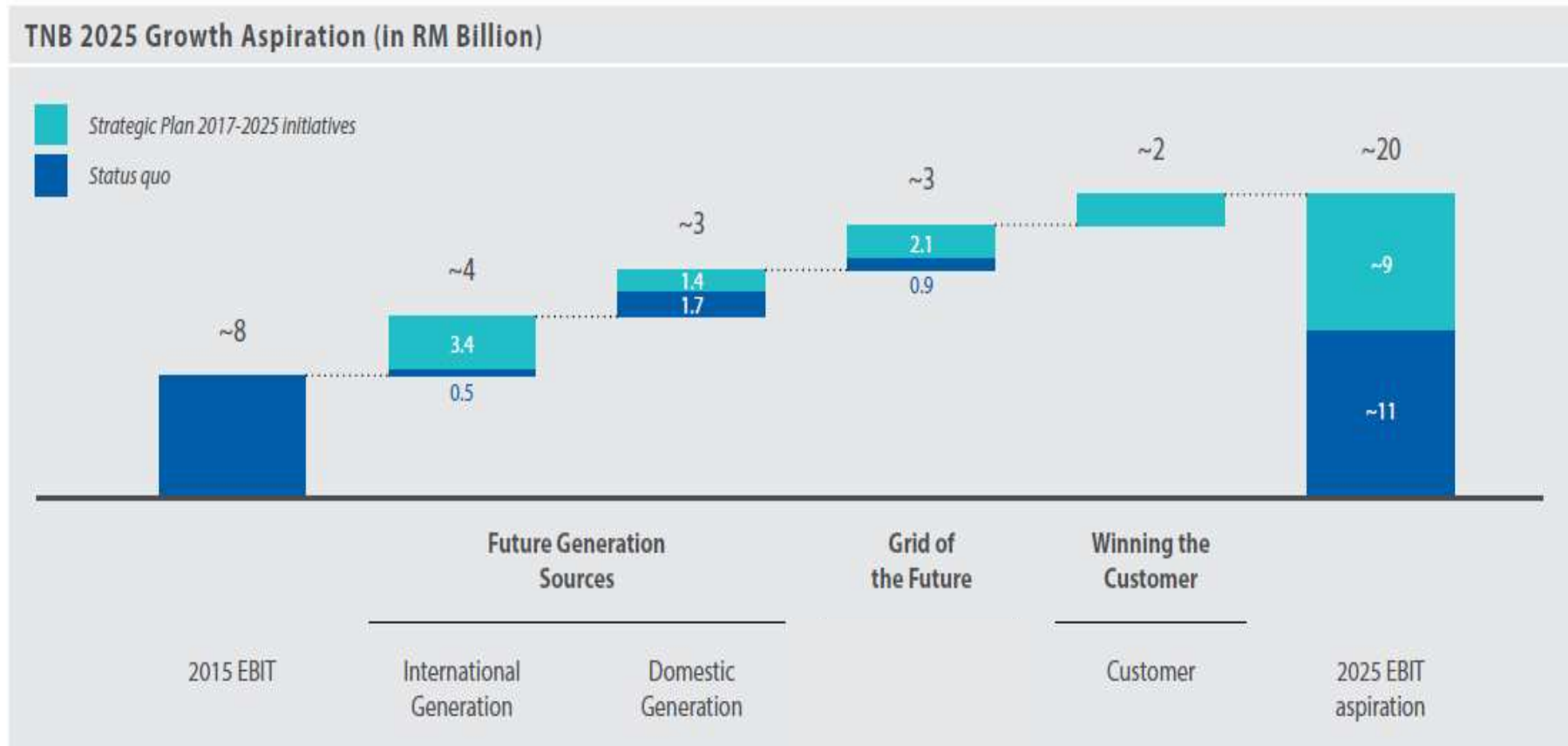


Made possible by improved coal plants performance and additional commissioning of coal plants.

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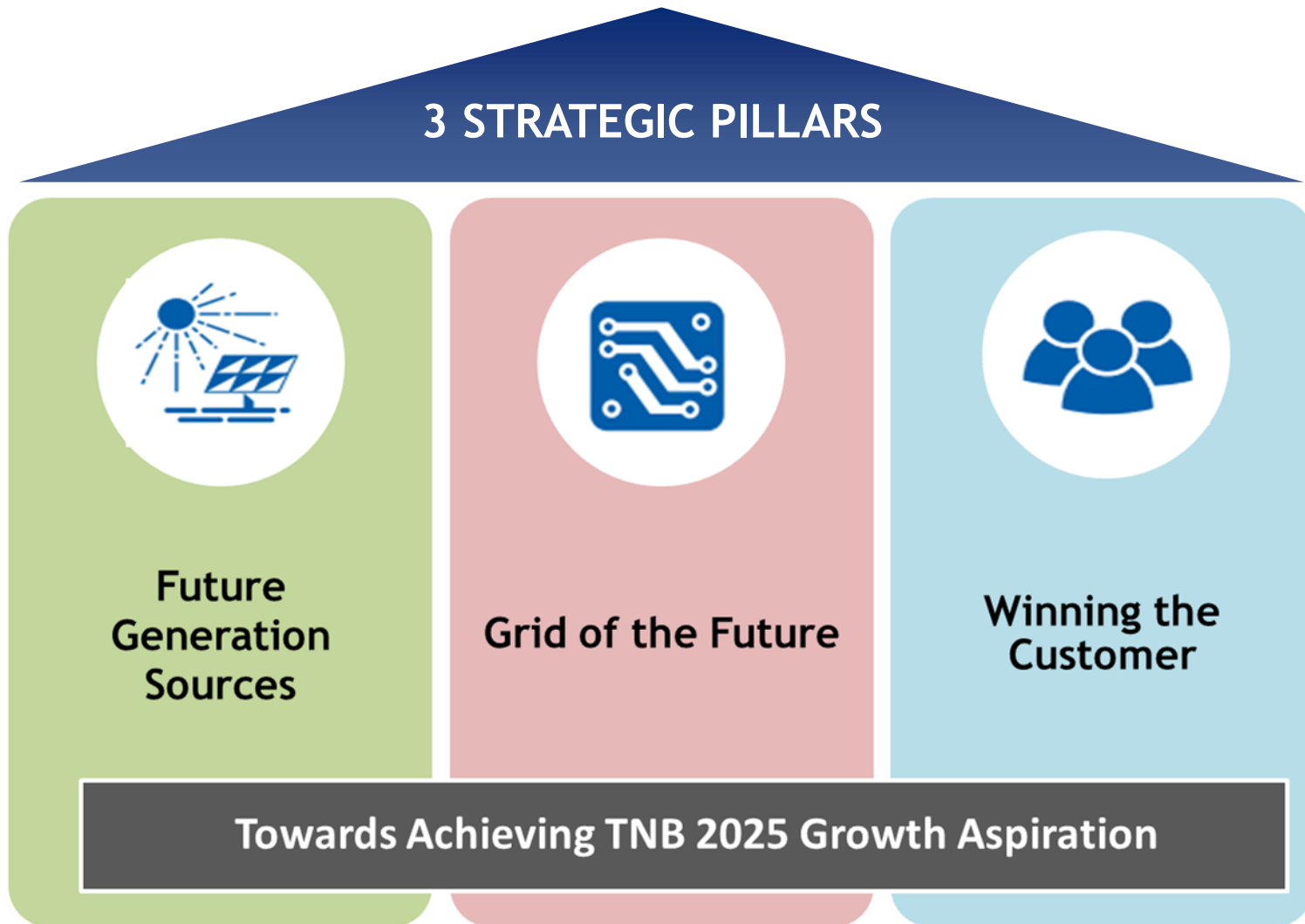
TNB 2025 GROWTH ASPIRATION

Aspire to Grow our EBIT to RM20.0 billion by 2025 through Domestic & International Investment



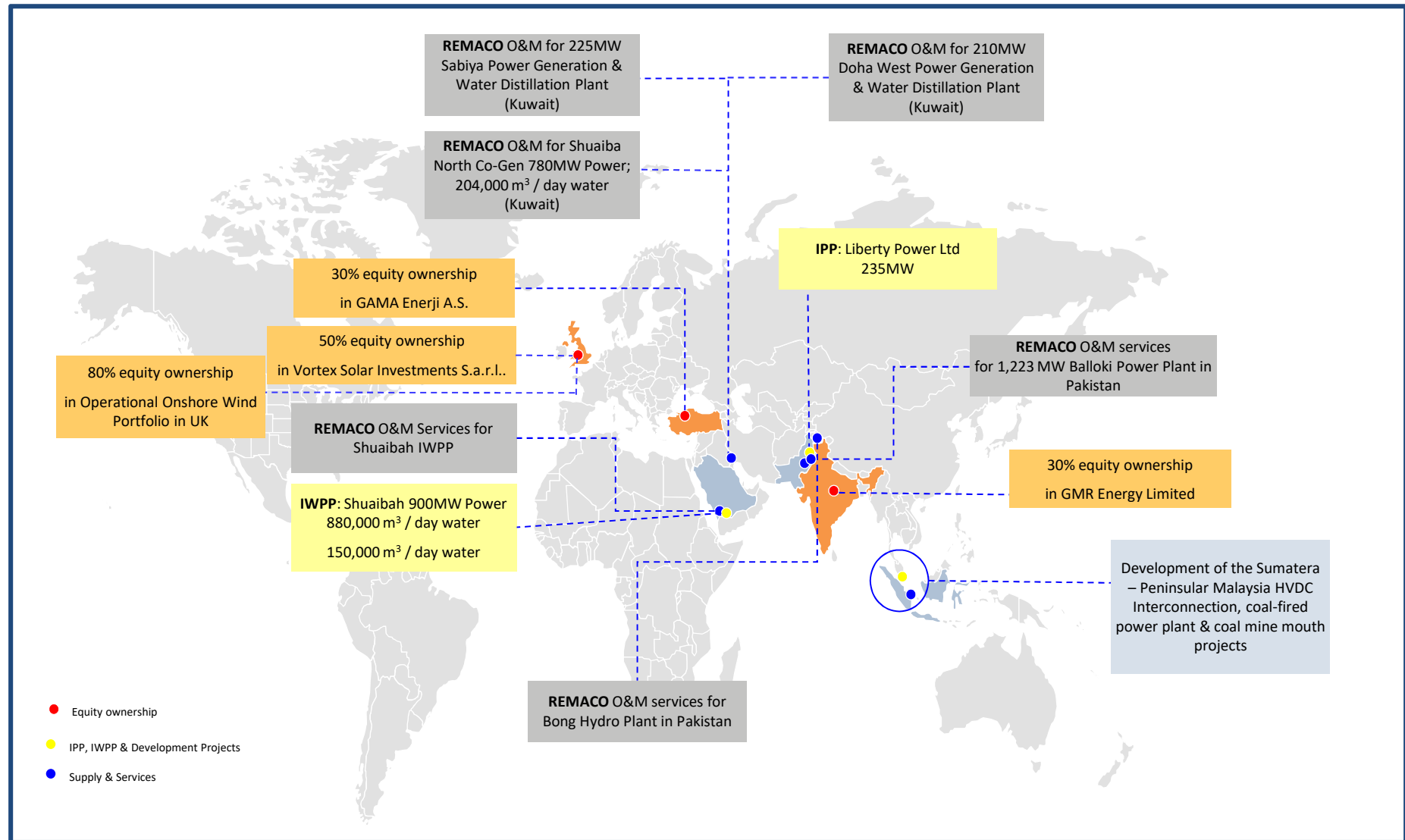
SHAPING SUSTAINABLE FUTURE

Our Strategic Plan



EXPANDING GLOBAL FOOTPRINT TO ACHIEVE ASPIRATION

TNB is currently present in more than 5 countries



INTERNATIONAL ACQUISITION

Four International Acquisitions to Support Aspiration



30%

Equity interest of GAMA Enerji A.S.

Assets include a 840MW natural gas-fired plant and 117.5MW wind plants



30%

Equity interest of GMR Energy Limited.

Assets include 2,298MW coal, gas and solar plants.

Vortex Solar UK

50%

Equity interest of Vortex Solar Investments S.a.r.l.

Assets include 24 operational solar PV Farm across England and Wales with net installed capacity of about 365MW

Tenaga Wind Ventures

80%

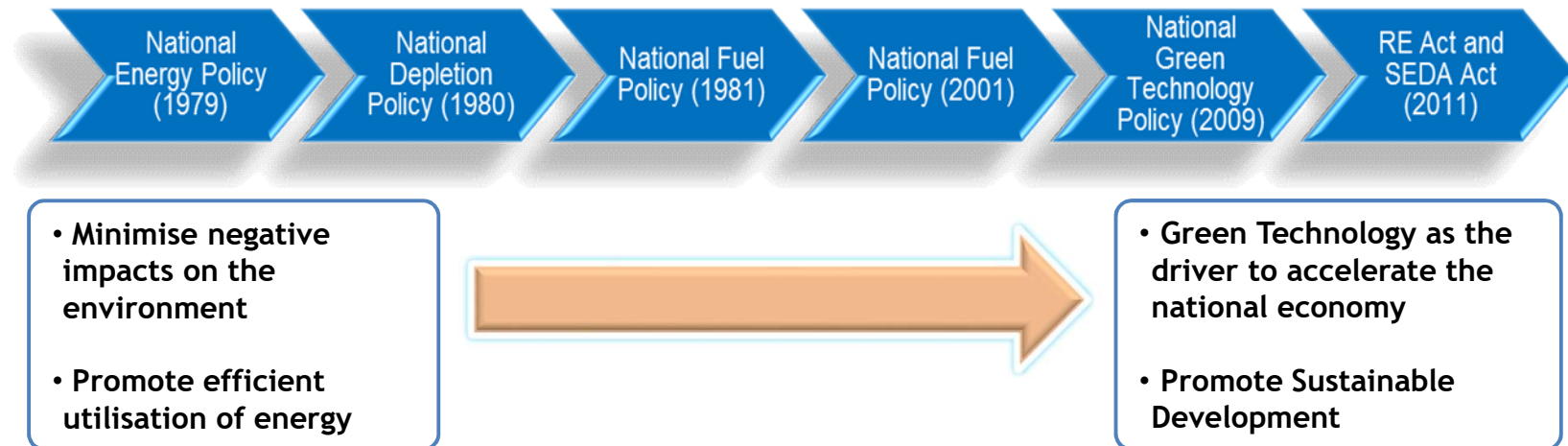
Equity interest of GVO Wind Limited & Blumerang Capital Limited

Assets include 53 operational onshore medium wind turbines with a total combined capacity of 26.1MW

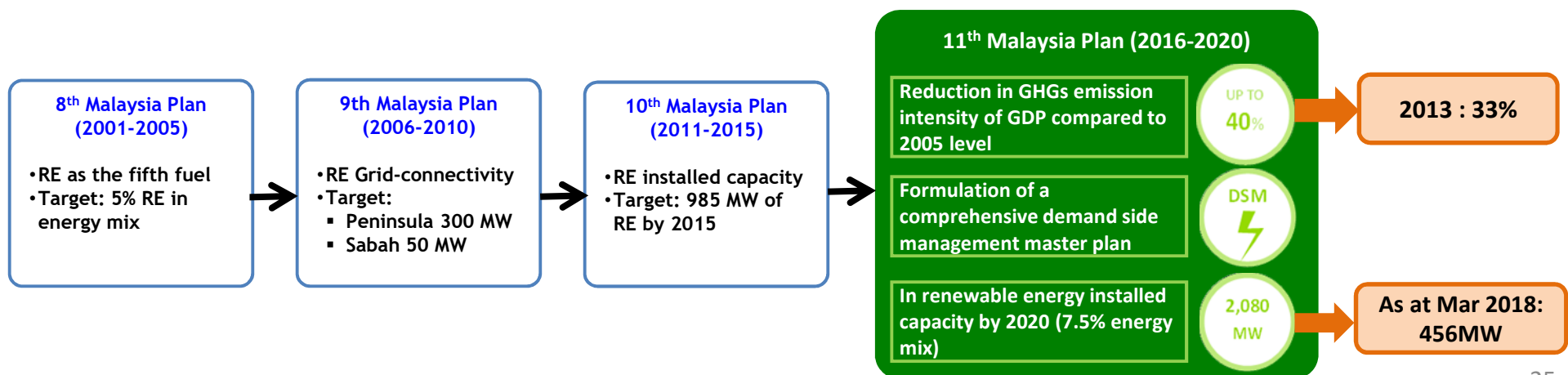
RENEWABLE GENERATION

Government Green Policy & Initiatives

Evolution on National Energy Policies



Government Green Development Plan



BUILDING RENEWABLE ENERGY PORTFOLIO FOR BETTER FUTURE

TNB Green Policy & Initiatives

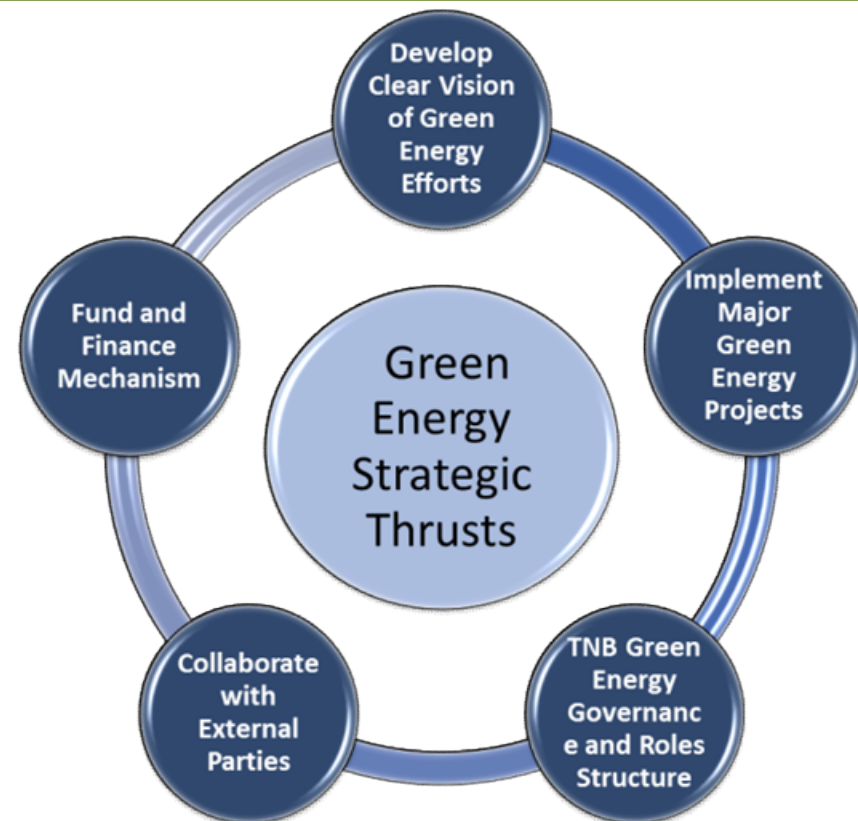
TNB Green Policy

“TNB is committed to support the national green agenda and minimise the environmental impact of our business by applying sustainable, efficient operations and delivering green energy through the application of appropriate technologies and investments”

**TNB RE Targets
by 2025**

1,700MW

As at to date:
International - 280MW
Domestic - 80MW



BUILDING RENEWABLE ENERGY PORTFOLIO FOR GREENER FUTURE



50MW and 30MW Large Scale Solar (LSS) Photovoltaic Plants

TNB Sepang Solar (TSS)

75%

Planned: 86%

50MW

*COD:
1st Nov 2018*



TNB Bukit Selambau Solar

30MW

*COD:
31st Dec 2020*



Note: PPA Tenure 21 years

OTHER GENERATION PROJECTS

2,000MW Coal-Fired Plant and 1,440MW Gas-Fired Plant

Jimah East Power (Coal)

87% **2,000MW**

COD:

Planned: 87%

U1: 15th Jun 2019

U2: 15th Dec 2019



Southern Power Generation (Gas)

28% **1,440MW**

COD:

Planned 23.5%

1st July 2020



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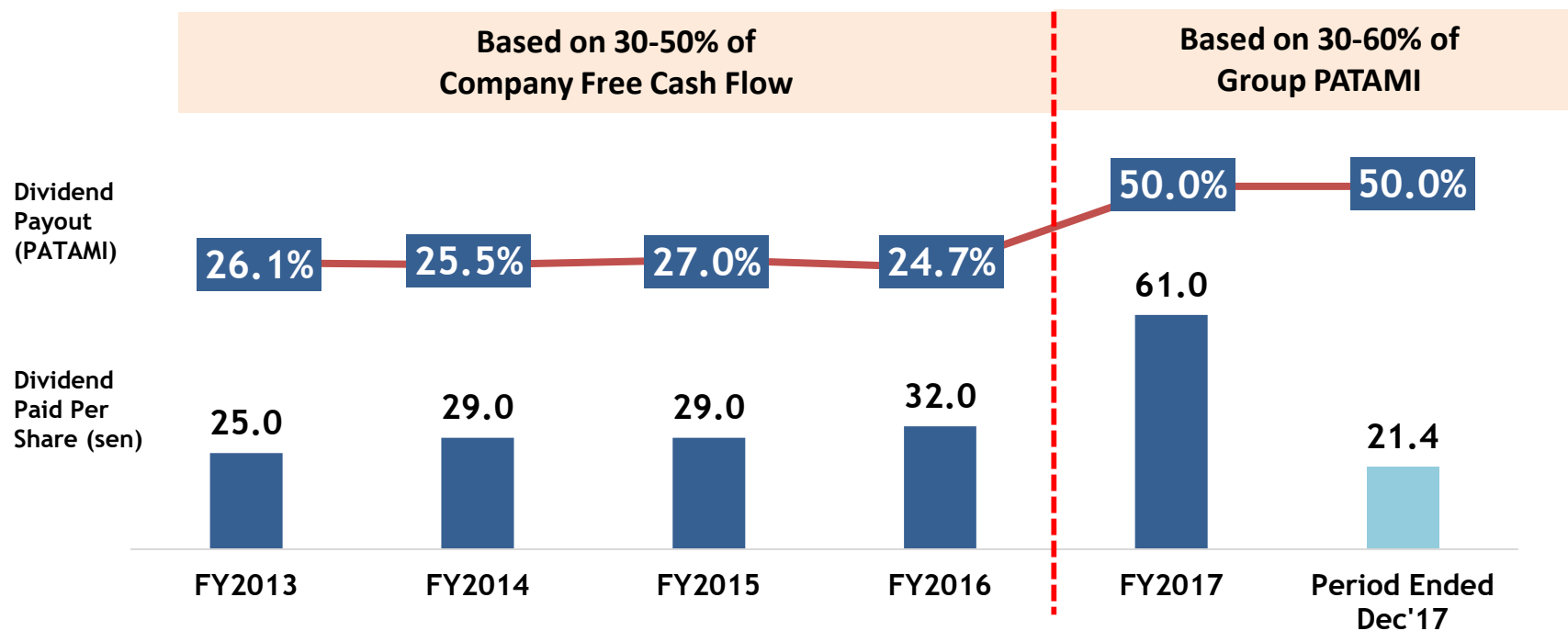
FY2017 MARKS THE HIGHEST DIVIDEND PAYOUT TO DATE



Continue to Maximise Shareholders Value Through Consistent and Sustainable Dividend Payout Ratio at 50%

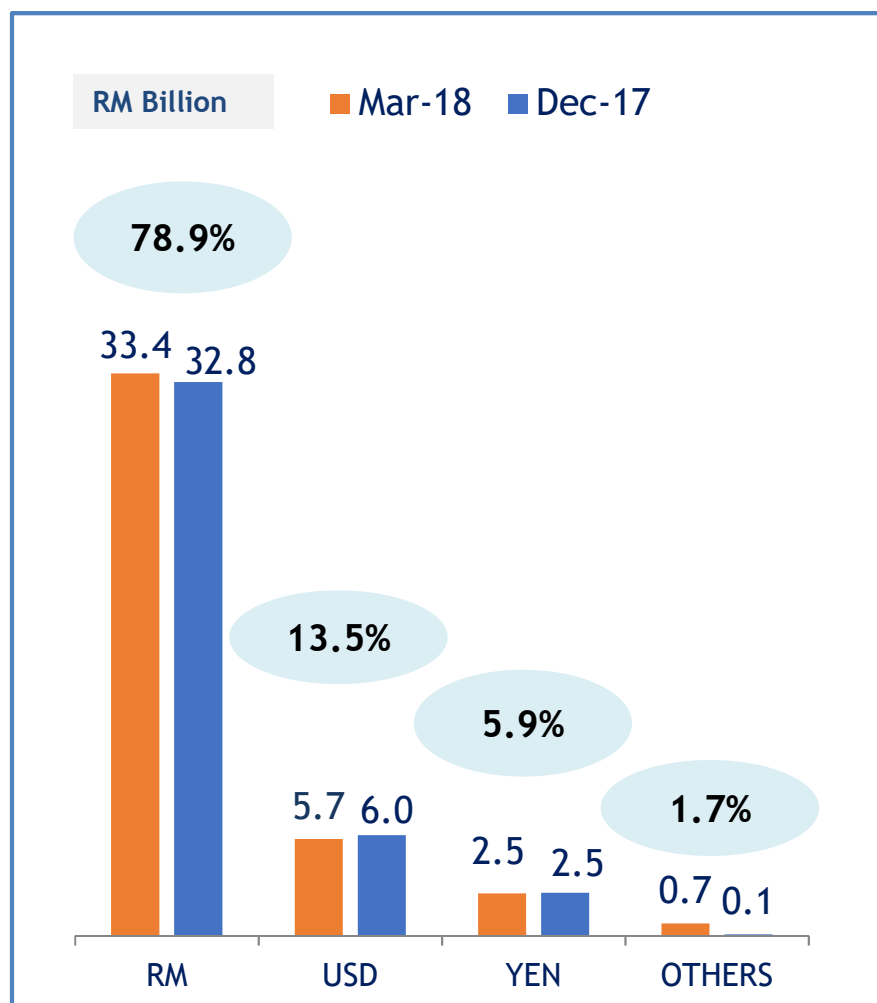
Dividend Policy

Distribution of dividend is based on 30% to 60% dividend payout ratio, based on the reported Consolidated Net Profit Attributable to Shareholders After Minority Interest, excluding Extraordinary, Non-Recurring items



GEARING LEVEL REGISTERED AT 42%

Optimum Capital Structure at 55%



* Net Debt excludes deposits, bank and cash balances & investment in UTF

Statistics (%)	31 st Mar'18
Total Debt	42.3
Net Debt	27.1
Gearing	41.9
Net Gearing	26.9
Fixed : Floating	95:5
Final Exposure	96:4
Weighted Average Cost of Debt	4.97
Final Exposure	4.96

Closing FOREX	31 st Mar'18
USD/RM	3.86
100YEN/RM	3.64
USD/YEN	106.04

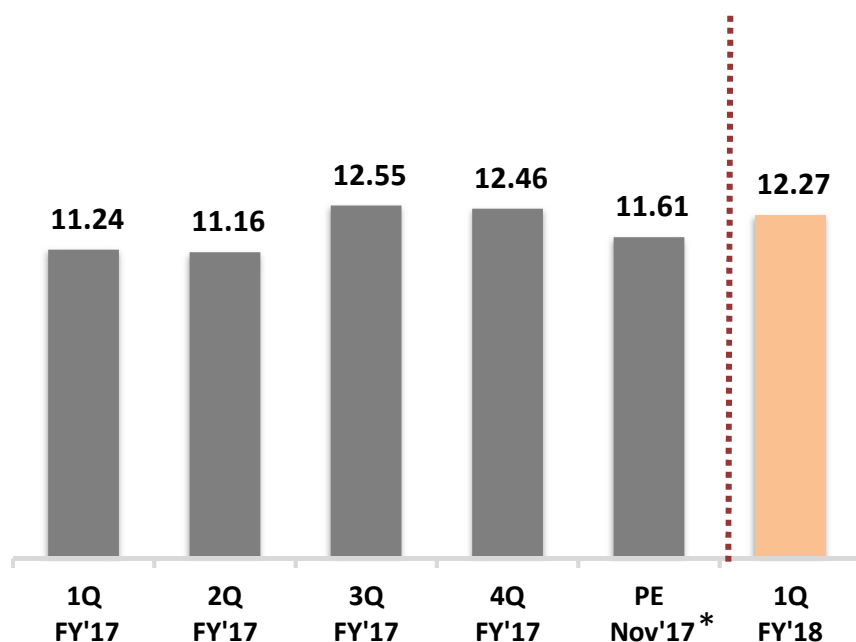
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FINANCIAL HIGHLIGHTS

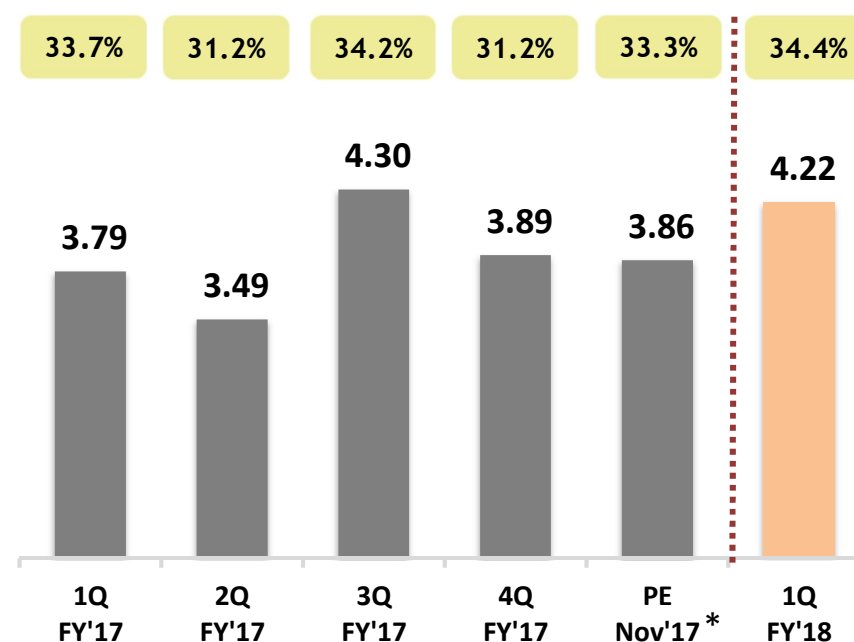


Encouraging Outlook for 2018

Revenue (RM bn)



EBITDA (RM bn)



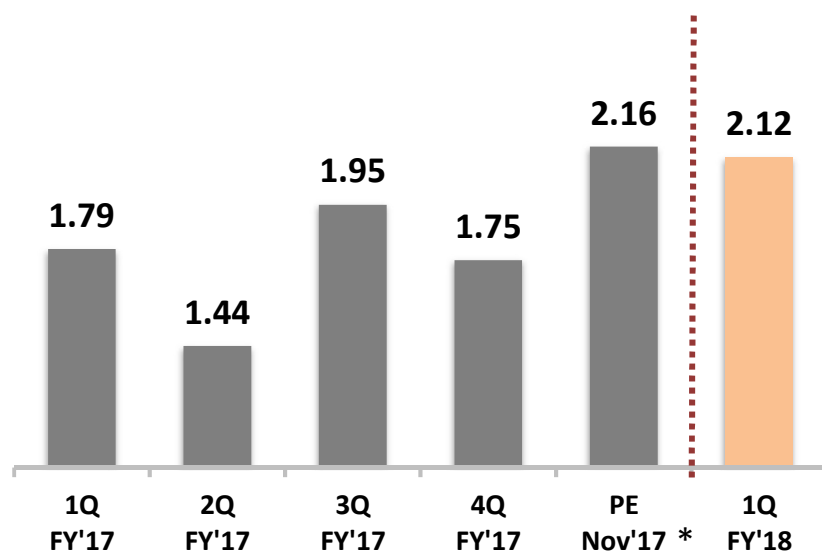
*Period Sept-Nov 2017

FINANCIAL HIGHLIGHTS

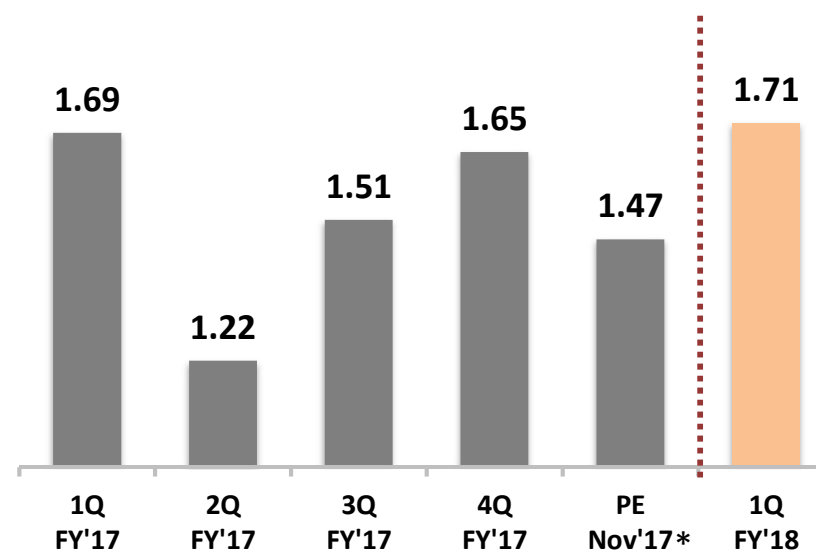


Encouraging Outlook for 2018

PAT (RM bn)



Normalized PAT (RM bn)

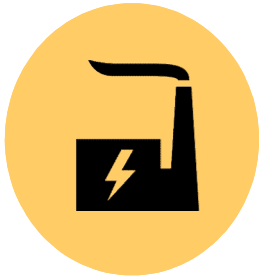


* Period Sept-Nov 2017 34

FINANCIAL HIGHLIGHTS

Technical Indicators

Equivalent
Plant Availability
Factor (EAF)



92.9%

Transmission
System Minutes



0.04 mins

Distribution
SAIDI



11.7 mins

DISCLAIMER



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THANK YOU