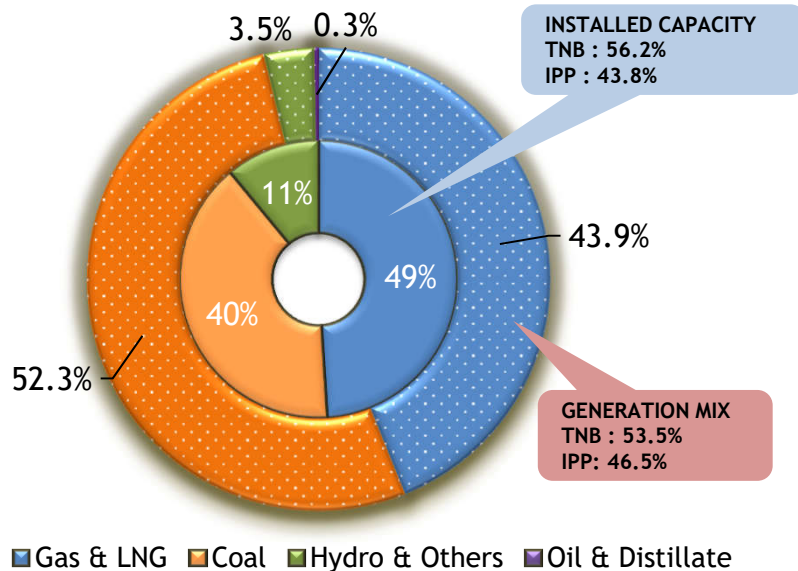
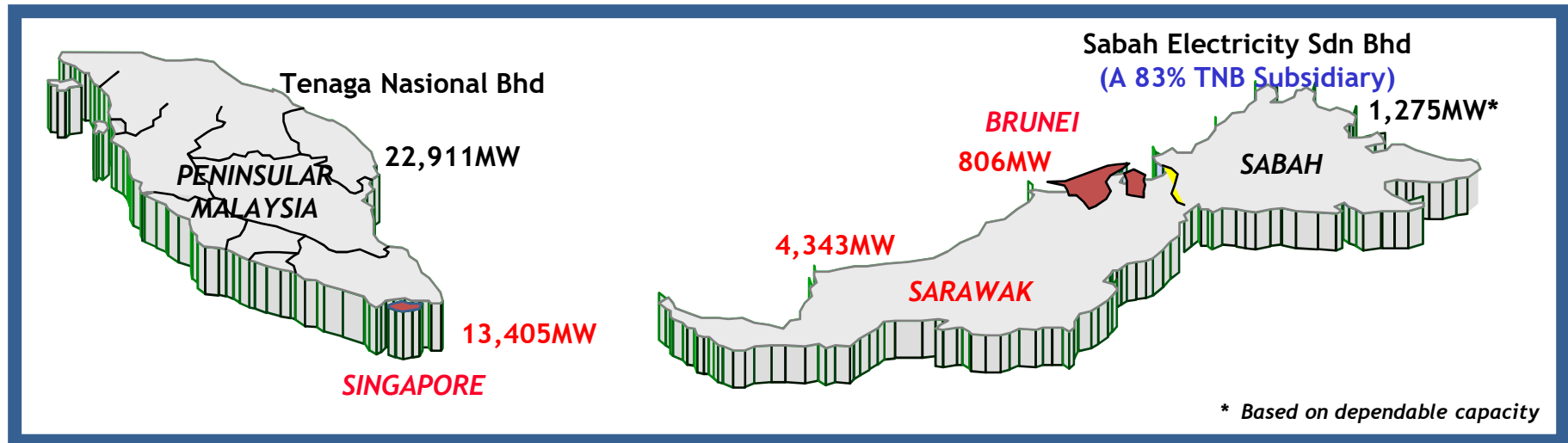


# TNB HANDBOOK



1. INTRODUCTION TO TENAGA
2. INCENTIVE BASED REGULATION (IBR)
3. BUSINESS STRATEGY & DIRECTION
4. DIVIDEND POLICY
5. FINANCIAL HIGHLIGHTS

# INTRODUCTION TO TENAGA

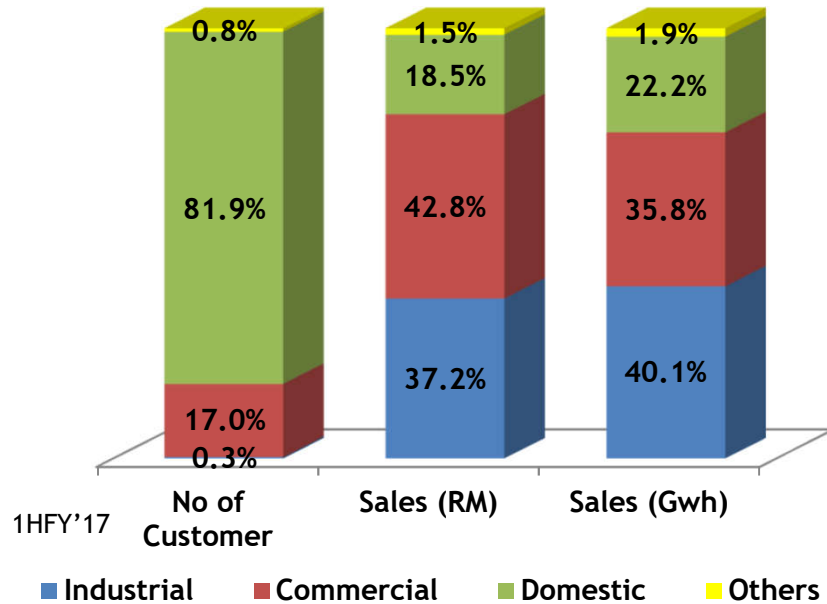


	FY'13	FY'14	FY'15	FY'16	1HFY'17
TNB - Peninsula Installed Capacity (MW)	11,462	10,814	11,708	12,904	12,880
Total units sold (Gwh)	105,479	108,102	110,837	115,505	58,012
Total customers (mn)	8.35	8.64	8.94	9.21	9.14
Total employees ('000)	35.0	36.1	36.0	35.6	35.4
Total assets (RM bn)	99.0	110.7	117.1	132.9	137.6

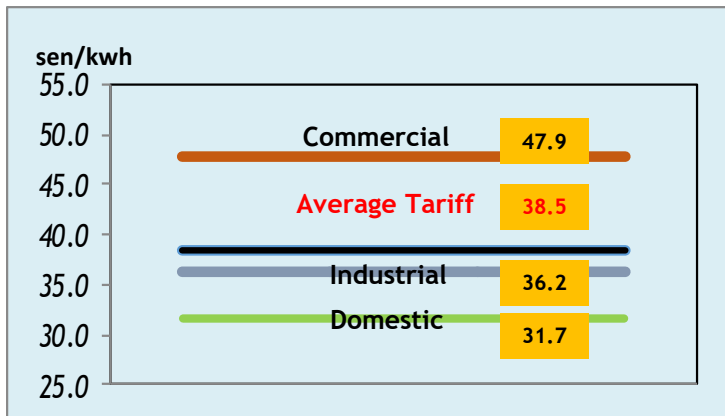
Peninsula Installed Capacity vs. Generation mix

# INTRODUCTION TO TENAGA

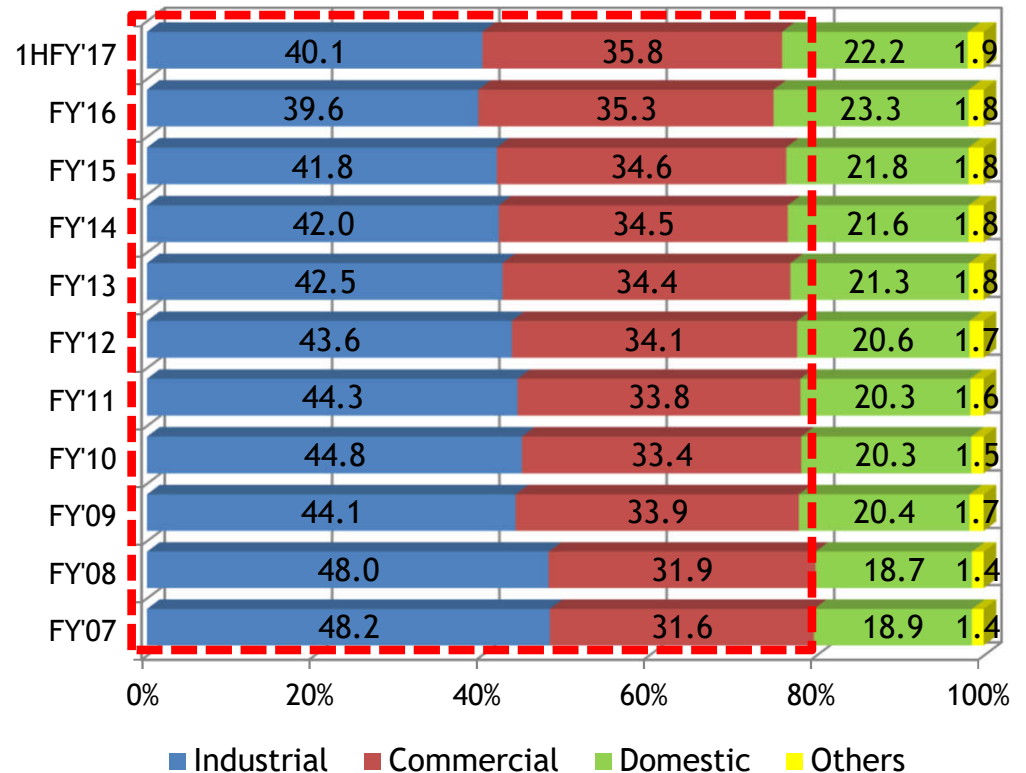
## Sectoral Sales Analysis



### Average Base Tariff by Sector



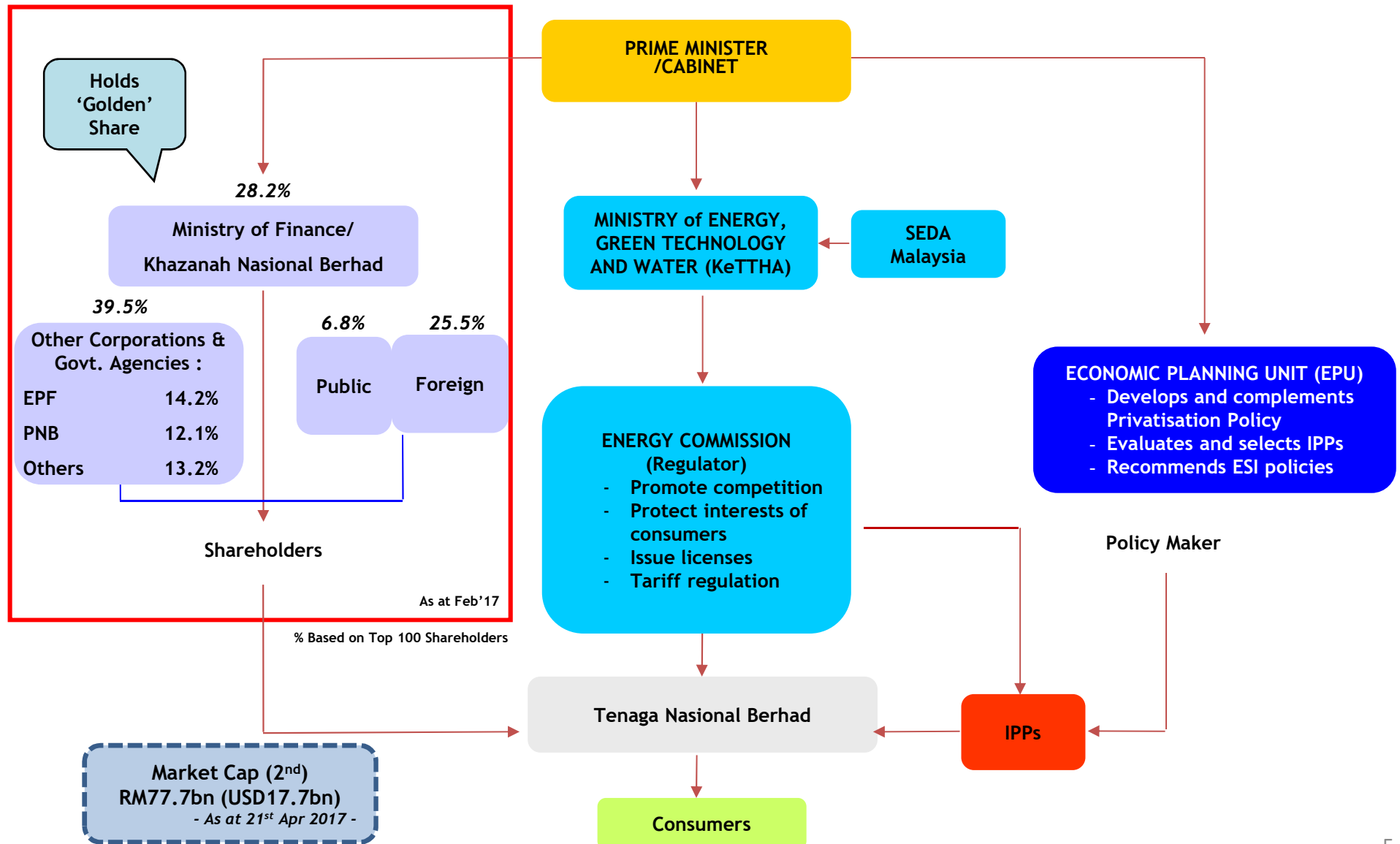
## Sectoral Sales Analysis (Gwh)



- Shift from Industrial-based to Service-based economy
- Commercial sector contributes the highest electricity sales margin

# INTRODUCTION TO TENAGA

## Industry Regulatory Framework






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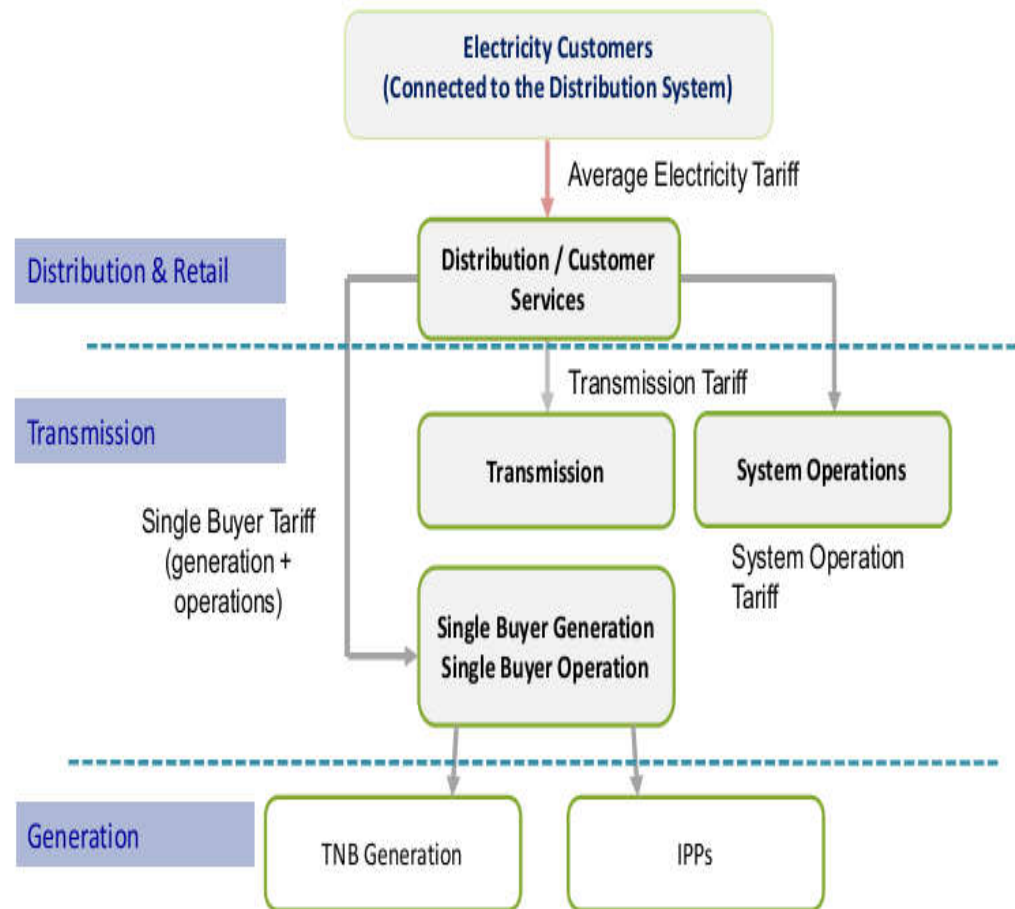
# INCENTIVE BASED REGULATION (IBR)

## The Move Towards Better Regulation

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)



11 Regulatory Implementation Guidelines (RIGS) were Developed for IBR Implementation

# INCENTIVE BASED REGULATION (IBR)

Electricity Tariff Review = Base Tariff + Imbalance Cost Pass-Through (ICPT)

## Imbalance Cost Pass-Through (ICPT):

- Tariff adjustment to reflect uncontrollable fuel costs and other generation costs (difference between forecast and actual cost of procuring electricity that is beyond the control of utility)

## Base Tariff under IBR framework reflects:

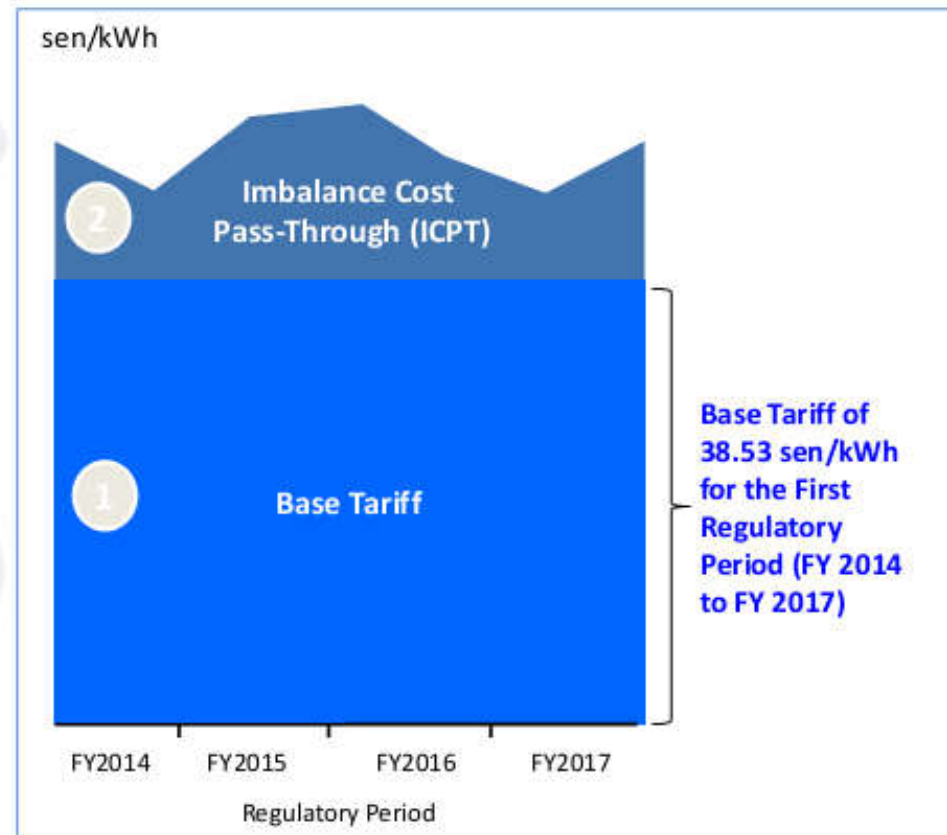
- CAPEX and OPEX of
  - transmission, distribution, system operation (SO) and single buyer operation (SB)
- Power purchase cost charged by generators (including base price for fuel) to the SB
- Return on regulated asset (rate base) of transmission, distribution, SO and SB business units

## Principle for ICPT Calculation

Cost components comprise of:

- Actual vs forecast cost of fuels & other generation costs for the preceding 6-month period; and
- Piped gas price increase of RM1.50/mmBtu for the next 6-month period

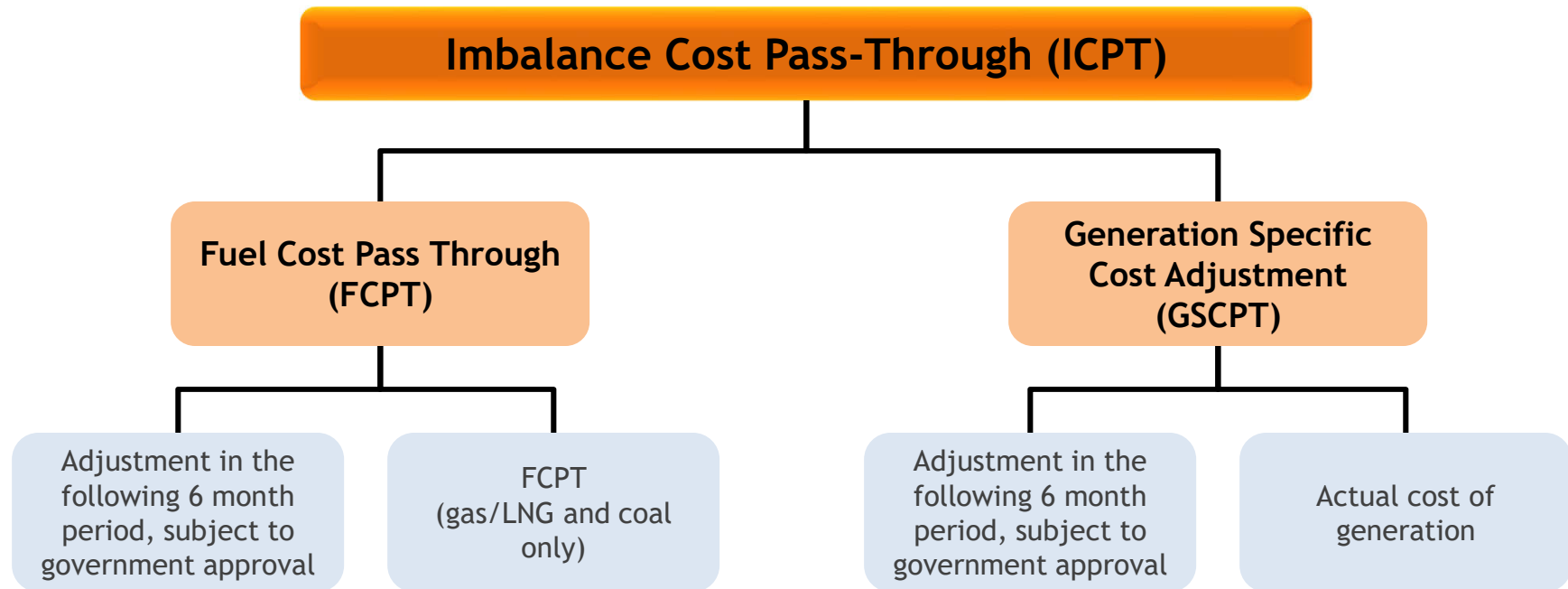
Note 1 : CAPEX = Capital expenditure  
2 : OPEX = Operational expenditure





# INCENTIVE BASED REGULATION (IBR)

## Imbalance Cost Pass-Through (ICPT) Comprises Two Components



Changes in gas/LNG and coal costs

Changes in:

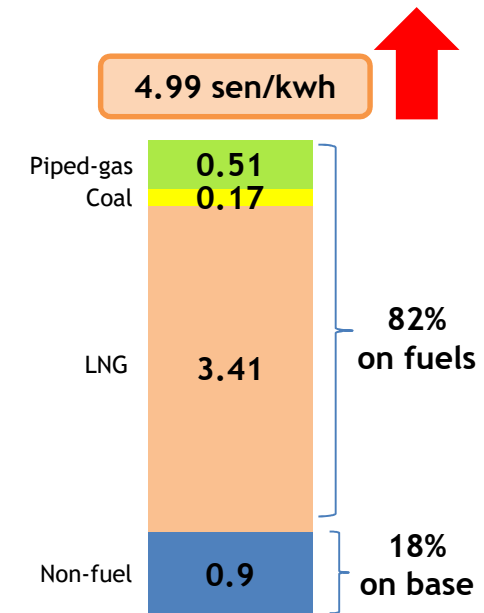
- Other fuel costs such as distillate and fuel oil
- All costs incurred by SB under the power procurement agreements (PPAs, SLAs and etc.) and fuel procurement agreements (CSTA, CPC, GFA/GSA and etc.)
- Renewable energy FiT displaced cost

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)

Average Base Tariff of 38.53 sen/kwh is Effective from 1<sup>st</sup> January 2014

Tariff Components	sen/kWh	% increase
Average Tariff (Jun 2011)	33.54	
Fuel Components:		
<ul style="list-style-type: none"> <li>Piped-gas regulated price (from RM13.70/mmBTU to RM15.20/mmBTU @1,000 mmscfd)</li> </ul>	0.51	1.52
<ul style="list-style-type: none"> <li>Coal (market price) (from USD85/tonne to USD87.5/tonne CIF@CV 5,500kcal/kg)</li> </ul>	0.17	0.51
<ul style="list-style-type: none"> <li>LNG RGT market price at RM41.68/mmBTU (for gas volume &gt; 1,000 mmscfd)</li> </ul>	3.41	10.17
Non-fuel component (TNB Base Tariff)	0.90	2.69
<b>AVERAGE BASE TARIFF EFFECTIVE 1<sup>st</sup> JANUARY 2014</b>	<b>38.53</b>	<b>14.89</b>



# INCENTIVE BASED REGULATION (IBR)

Regulatory WACC for TNB under IBR (FY2014 - 2017) is 7.5%

WACC Parameters	Actual market Parameters	TNB's Proposal	Recommendation
Stock $T_{NB}$ Beta	0.92[1]	1.435	1.435 [[4]
Market Return ( $R_m$ )	8.8%[2]	12.3%	8.8%
Risk free ( $R_f$ )	4.0%	4.0%	4.0%
Market Risk Premium ( $R_m - R_f$ )	4.8%	8.3%	4.8%
Debt Margin ( $D_m$ )	2.19%	2.24%	2.24%
Tax Rate	25.0%	25.0%	25.0%

## Weighted Cost of Capital Calculation

	Actual market Parameters			TNB's Proposal			Recommendation		
Capital Structure	Cost	Capital Structure	Weighted Cost	Cost	Capital Structure	Weighted Cost	Cost	Capital Structure	Weighted Cost
Cost of Equity ( $K_e$ )	8.38%	60.5%	5.1%	15.91%	45.0%	7.16%	10.85%	45.0%	4.88%
Cost of Borrowing ( $K_b$ )[3]	6.18%	39.5%	1.8%	6.24%	55.0%	2.57%	6.24%	55.0%	2.57%
<b>Weighted Cost of Capital</b>			<b>6.9%</b>			<b>9.7%</b>			<b>7.5%</b>

Note:

[1] Based on beta for the period 2004-2012

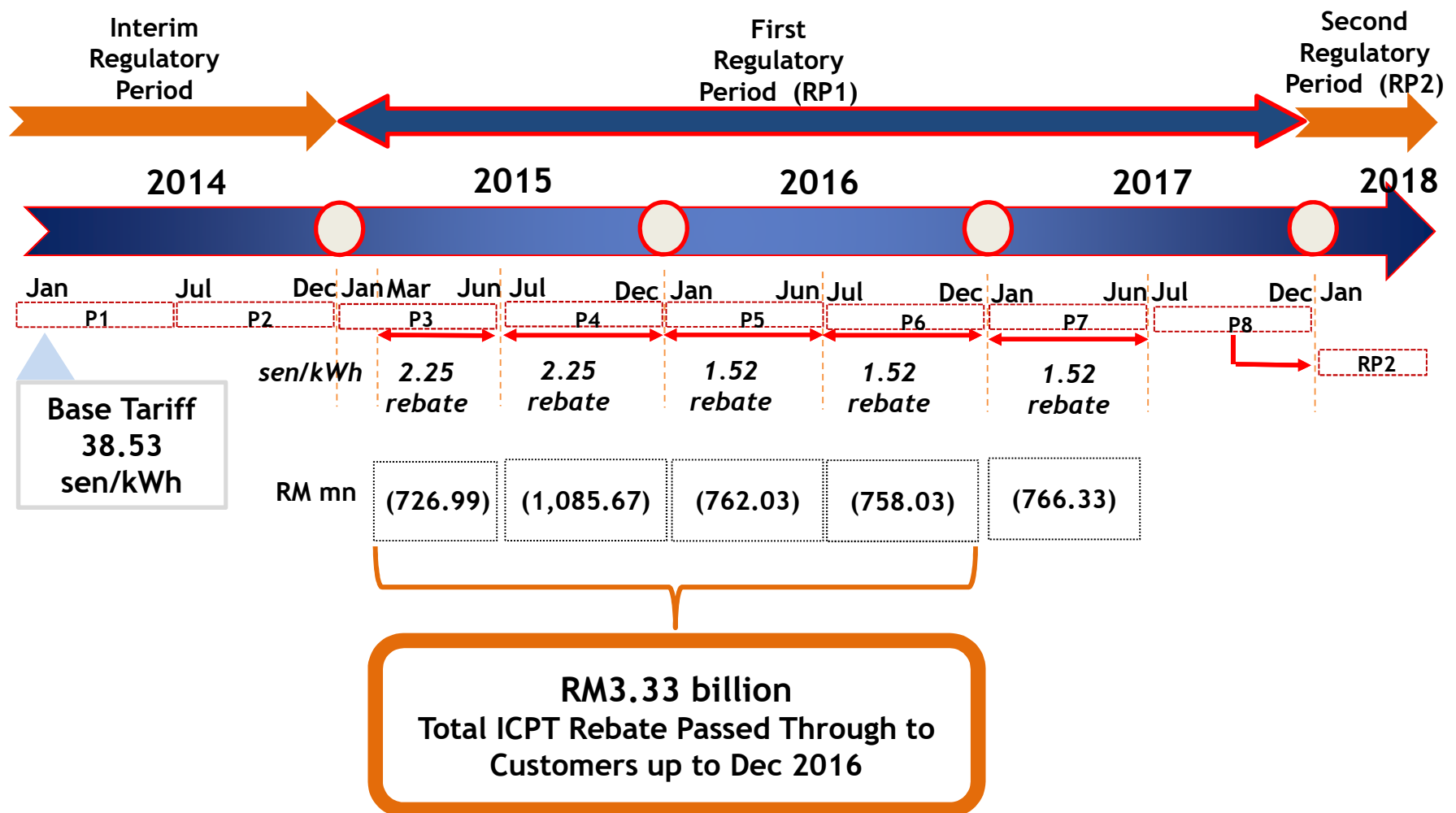
[2]  $R_m$  - Market return of 10 yrs KLSE Index

[3] Average Gearing (2004-2011) is 39.5%

[4] Adjusted to reflect optimal gearing.

# INCENTIVE BASED REGULATION (IBR)

## IBR Regulatory Period Timeline & ICPT Review



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# BUSINESS STRATEGY & DIRECTION

TNB Aspires to Become a Domestic and Regional Champion



## DOMESTIC & REGIONAL CHAMPION

Enabling a  
Stable  
Regulatory  
Environment

Exceeding  
Customer  
Expectations

Driving  
Operational  
Excellence &  
Cost Efficiencies

Growing  
Profitable  
Business

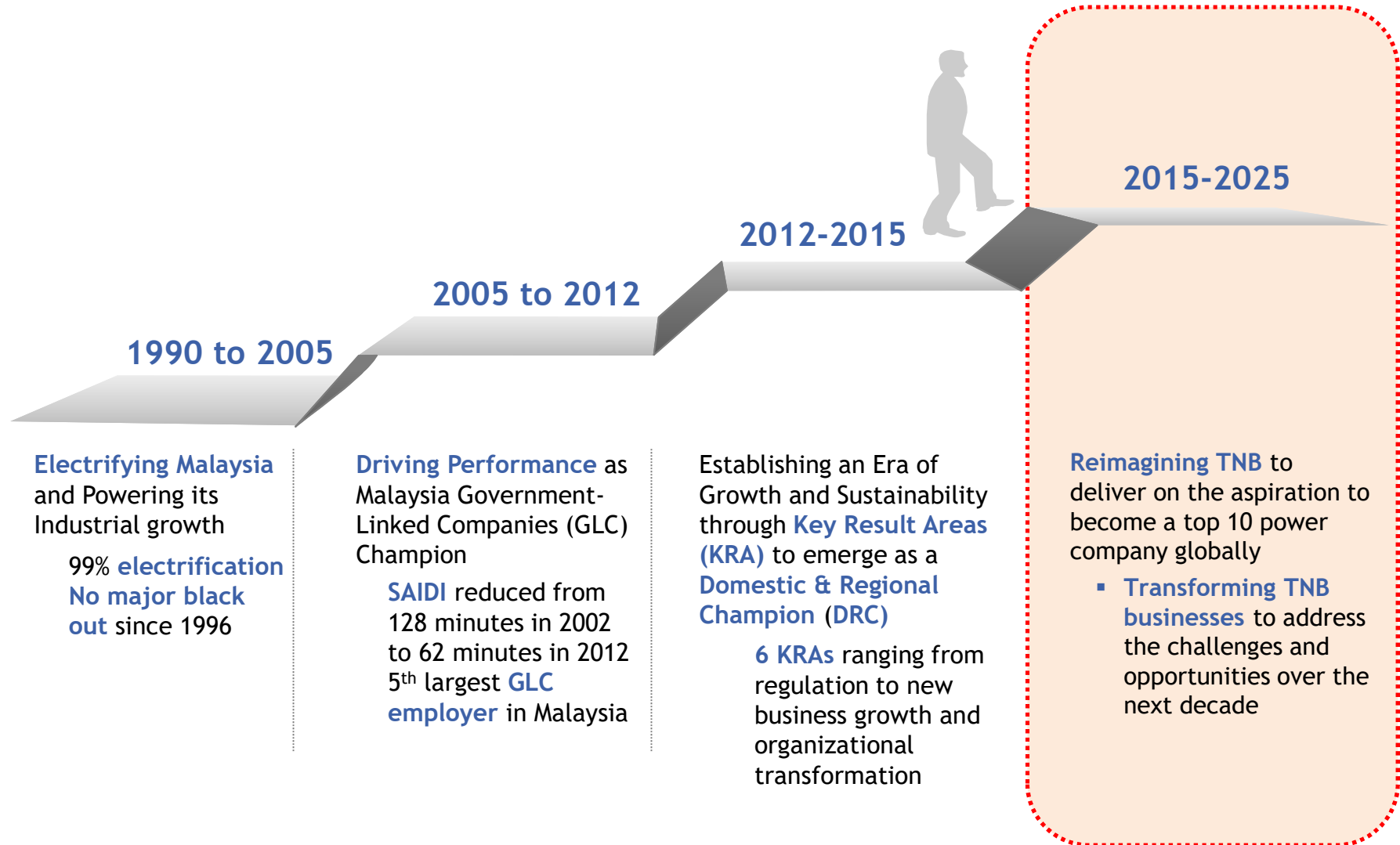
Transforming Our People and Leadership

## OUR STRATEGY

TNB's strategy to achieve our aspiration of becoming amongst the leading corporations in the energy & related business globally is centred on five focus areas: Enabling a stable regulatory environment, exceeding customer expectations, driving operational excellence and cost efficiencies, growing profitable business, and transforming our people and leadership.

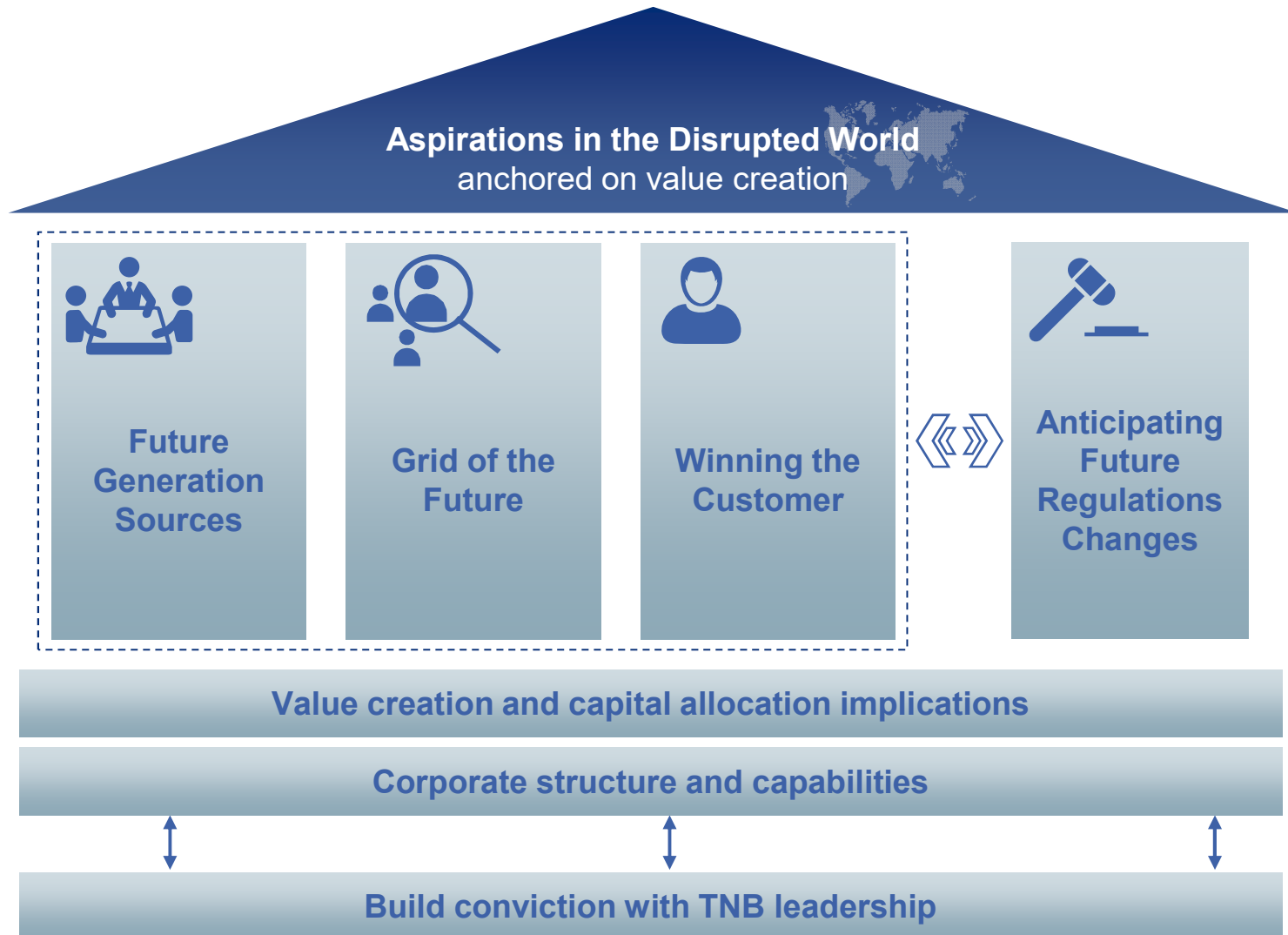
# BUSINESS STRATEGY & DIRECTION

## TNB Journey



# BUSINESS STRATEGY & DIRECTION

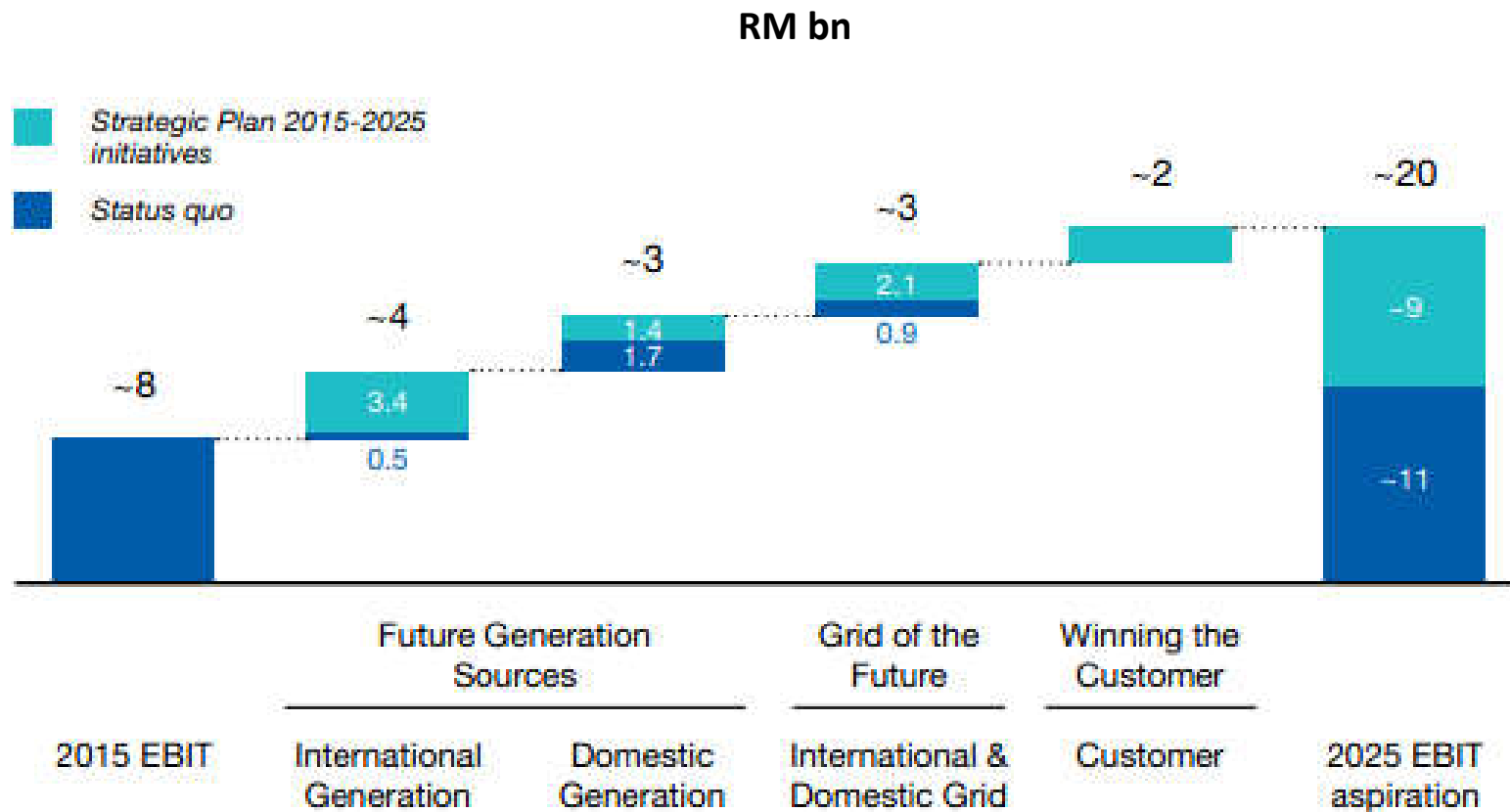
## Reshaping TNB Future: Key Pillars of Value





# BUSINESS STRATEGY & DIRECTION

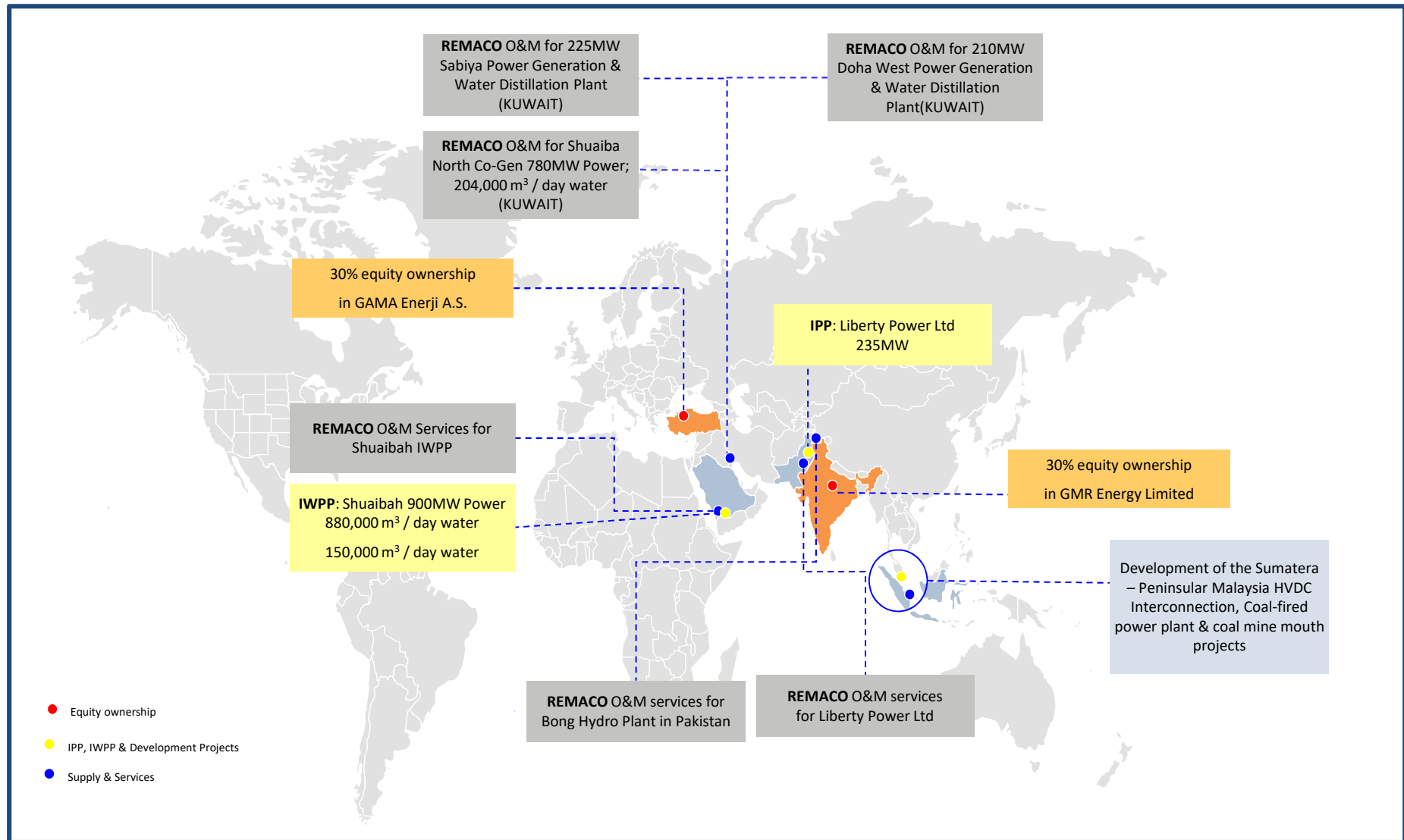
## TNB 2025 Growth Aspiration



TNB aspires to grow our EBIT from RM8 billion currently to RM20 billion in 2025 through domestic and international investment

# BUSINESS STRATEGY & DIRECTION

TNB International Footprint: Currently One of the Largest Electricity Company in Asia

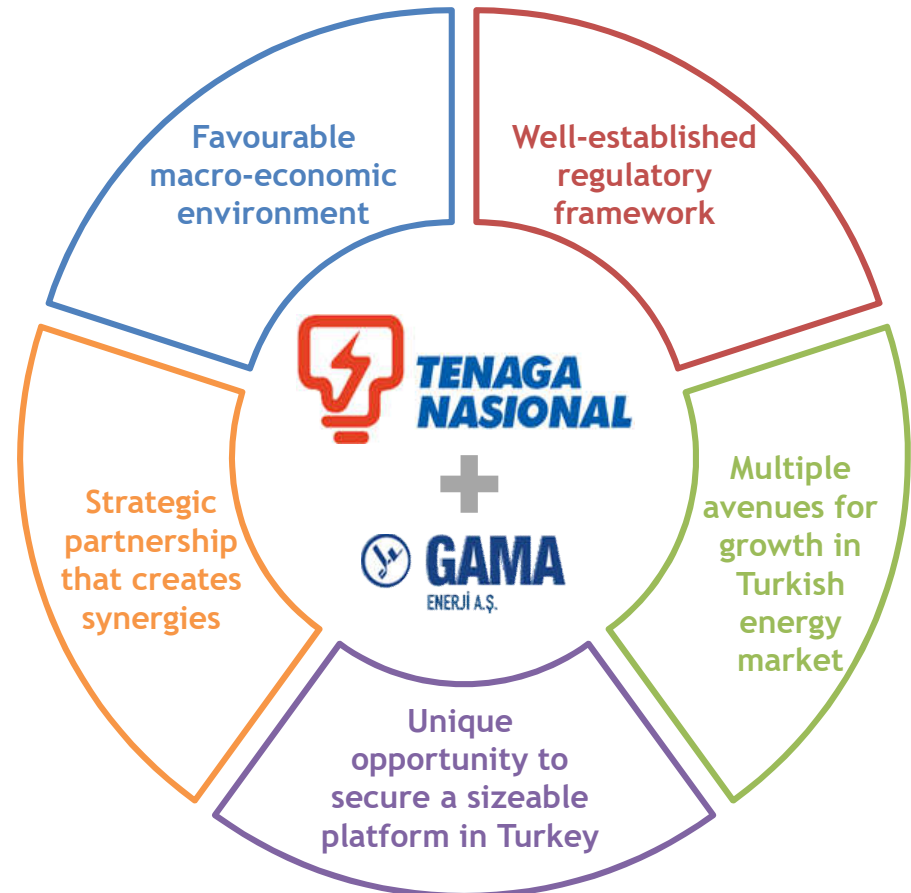


# BUSINESS STRATEGY & DIRECTION

International Acquisition: 30% Significant Minority Stake in GAMA Enerji A.S.

## GAMA Enerji A.S.

- On 13 April 2016, TNB had completed the acquisition of 30% equity interest of GAMA Enerji A.S. from GAMA Holding A.S., International Finance Corporation (IFC) and IFC Global Infrastructure Fund Holding.
- Total cash consideration : USD255.0 mn.
- GAMA Enerji A.S. assets include:
  - 840MW natural gas-fired plant
  - 45MW wind power plant under construction

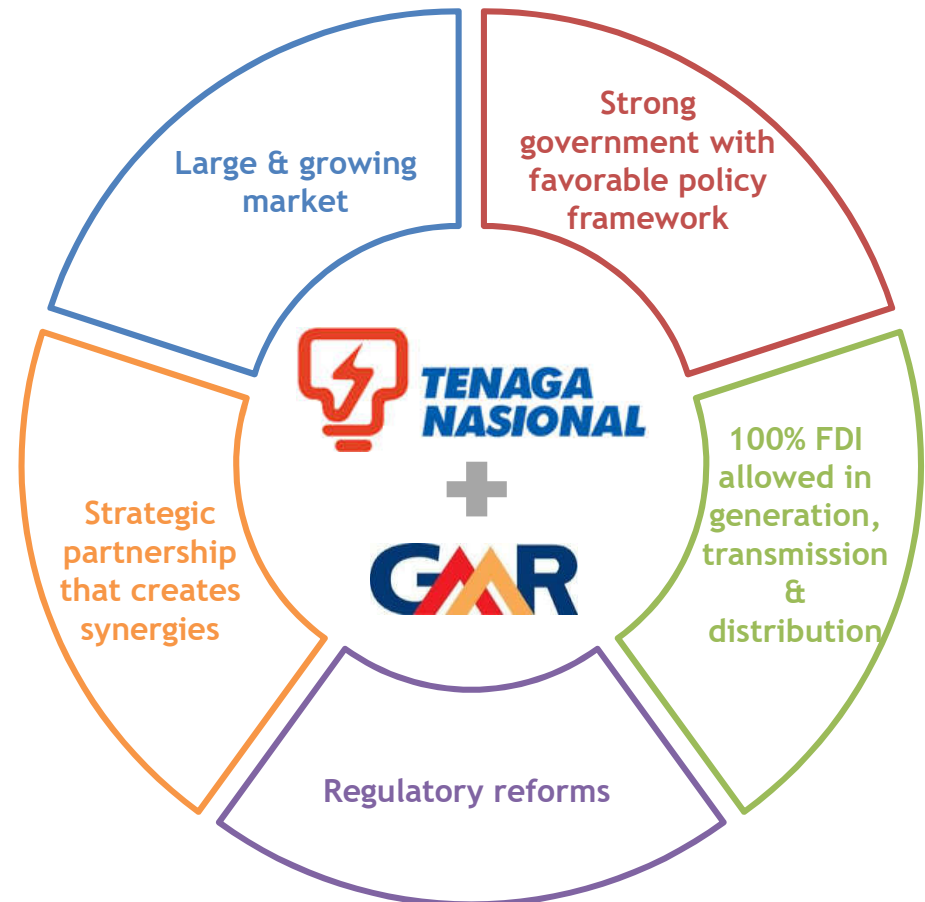


# BUSINESS STRATEGY & DIRECTION

International Acquisition: 30% Significant Minority Stake in GMR Energy Limited

## GMR Energy Limited

- On 4 November 2016, TNB had completed the acquisition of 30% equity interest of GMR Energy Limited via a bilateral transaction.
- Total cash consideration : USD300.0 mn.
- GMR Energy Limited assets include 2,298MW coal, gas and solar plants.

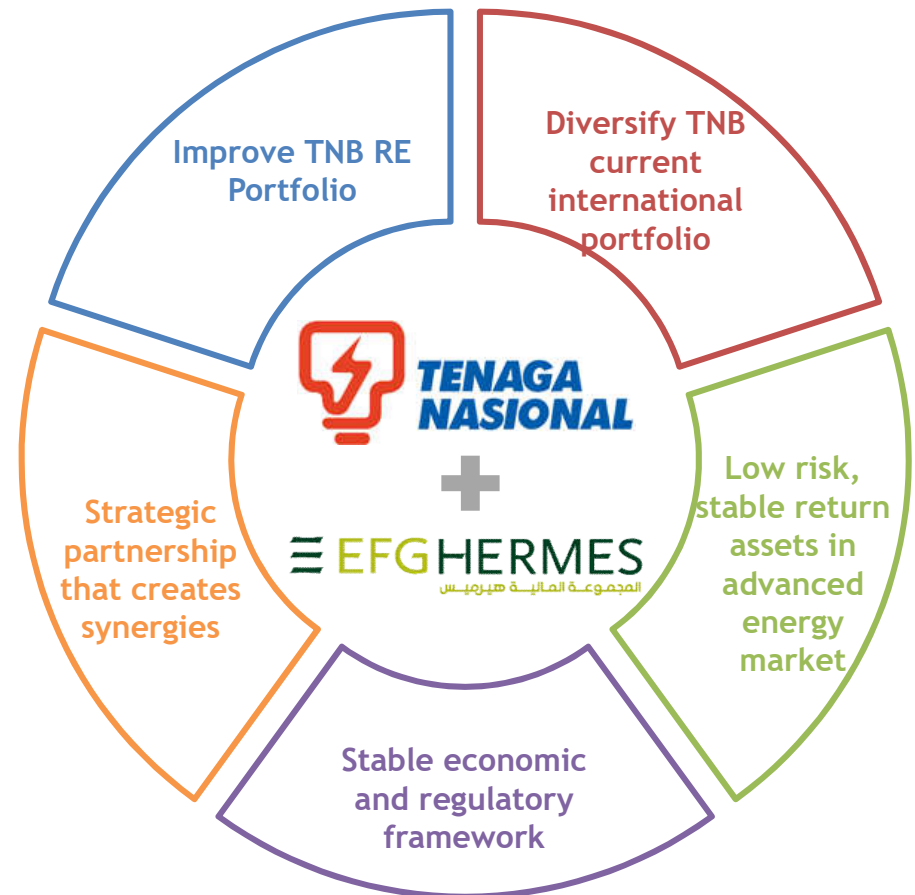


# BUSINESS STRATEGY & DIRECTION

International Acquisition: 50% Equity Interest in Vortex Solar Investments S.a.r.l.

## Vortex Solar

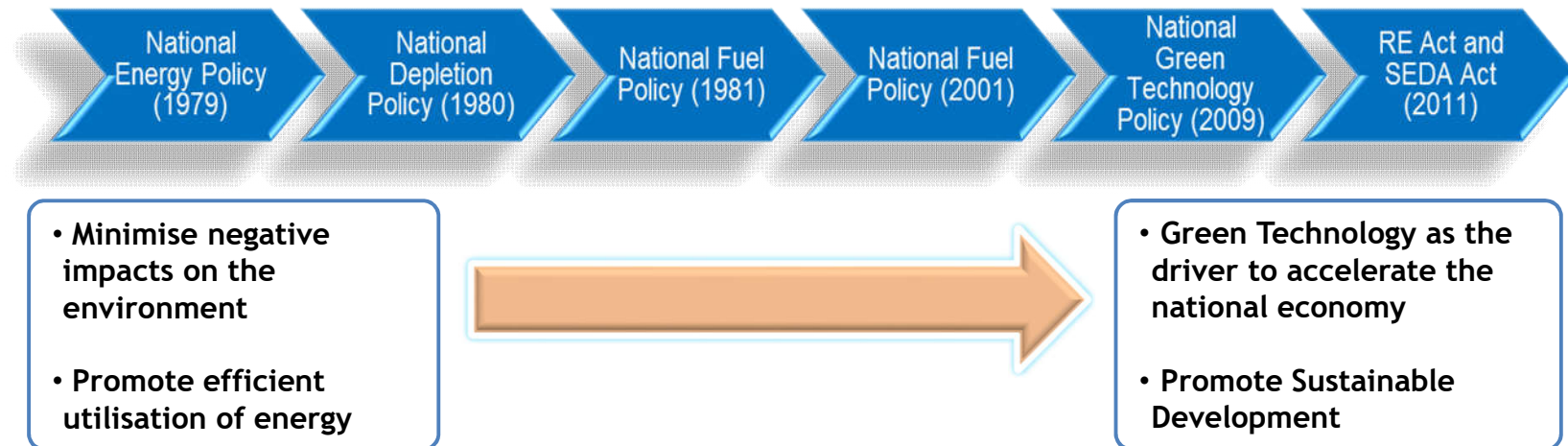
- On 6 January 2017, TNB via wholly owned subsidiary had entered into a Subscription and Funding Agreement with Beaufort Investments S.a.r.l., a wholly owned subsidiary of EFG Hermes Holding to subscribe for 50.0% new equity shares in Vortex Solar Investments S.a.r.l.
- The transaction is expected to be completed by the third quarter of 2017.
- Total cash consideration : GBP86.0 mn.
- Vortex Solar assets include 24 operational solar PV Farm across England and Wales with net installed capacity of about 365MW.



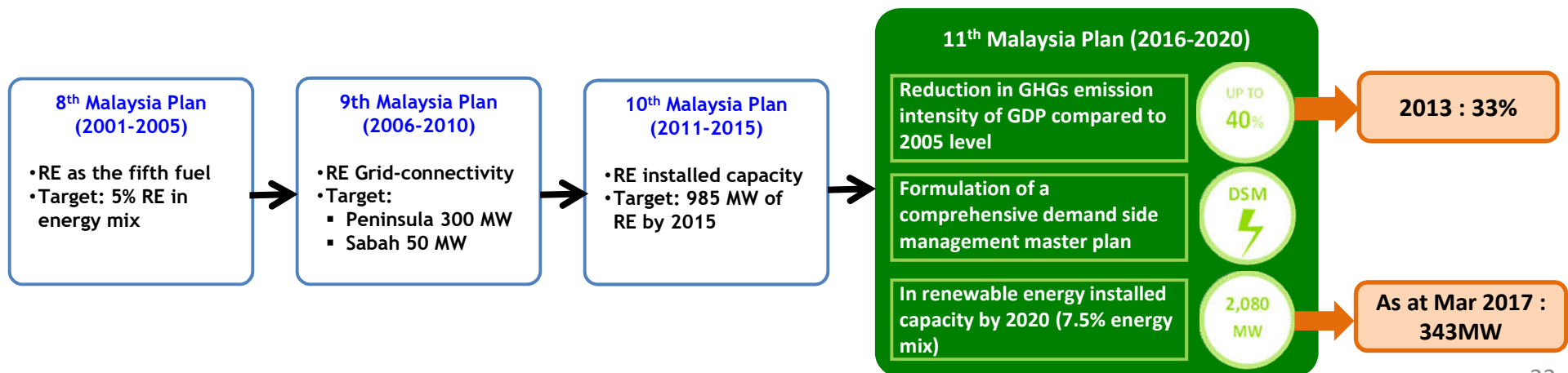
# BUSINESS STRATEGY & DIRECTION

## Renewable Generation: Government Green Policy & Initiatives

### Evolution on National Energy Policies



### Government Green Development Plan



# BUSINESS STRATEGY & DIRECTION

## Renewable Generation: 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”*

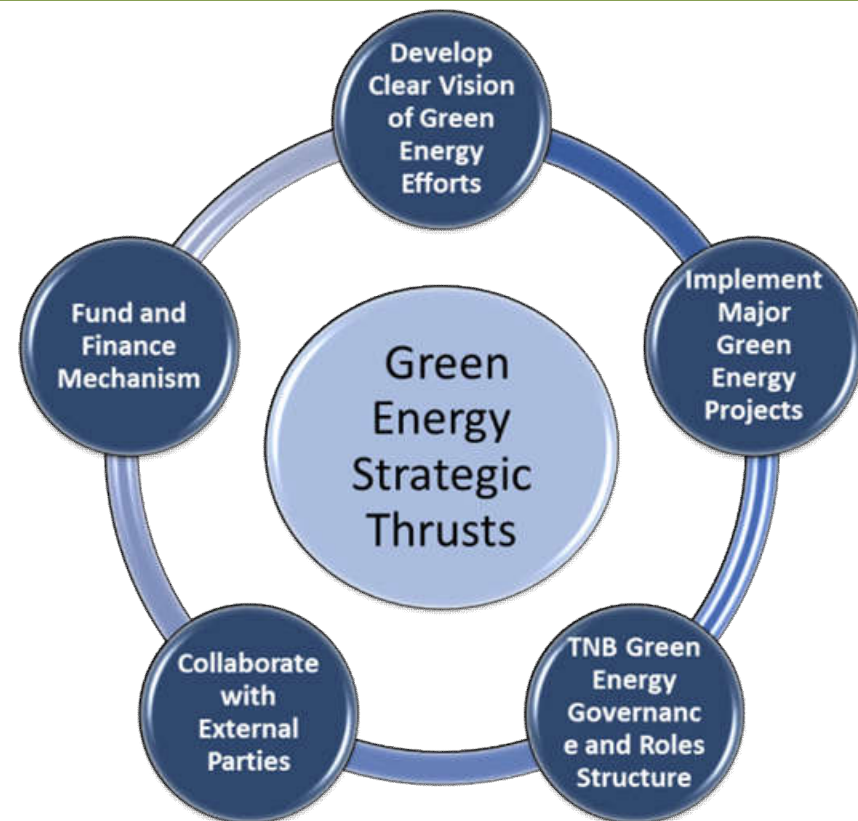
#### TNB RE Targets by 2020

##### Domestic

- 60-80 percent of national targets by 2020 (1,248 -1,664 MW)

##### International

- In accordance to TNB Investment policy and guidelines on ventures, M&A and bidding for Green Energy Projects



### 50MW Large Scale Solar Photovoltaic Plant

- On 2 March 2017, TNB had signed LSS Photovoltaic Power Purchase Agreement with special purpose company, TNB Sepang Solar Sdn. Bhd., which is one of 7 successful bidders awarded the transmission-connected LSS projects by EC.
- TNB Sepang will design, construct, own, operate and maintain the solar photovoltaic energy generating facility with the approved capacity of 50MW at Sepang, Selangor.
- The PPA, which has an expected commercial operation date of 1 November 2018, governs the obligations of the parties to sell and purchase the energy generated by the Facility for a period of 21 years from the commercial operation date in accordance with the agreed terms and conditions.



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# DIVIDEND POLICY



## TNB Revised Dividend Policy with Effect from Financial Year 2017

### Previous Policy

Dividend is paid out based on 40% to 60% of its Company's Annual Free Cashflow; Cashflow from Operations less Normalised Capex and Interest Servicing

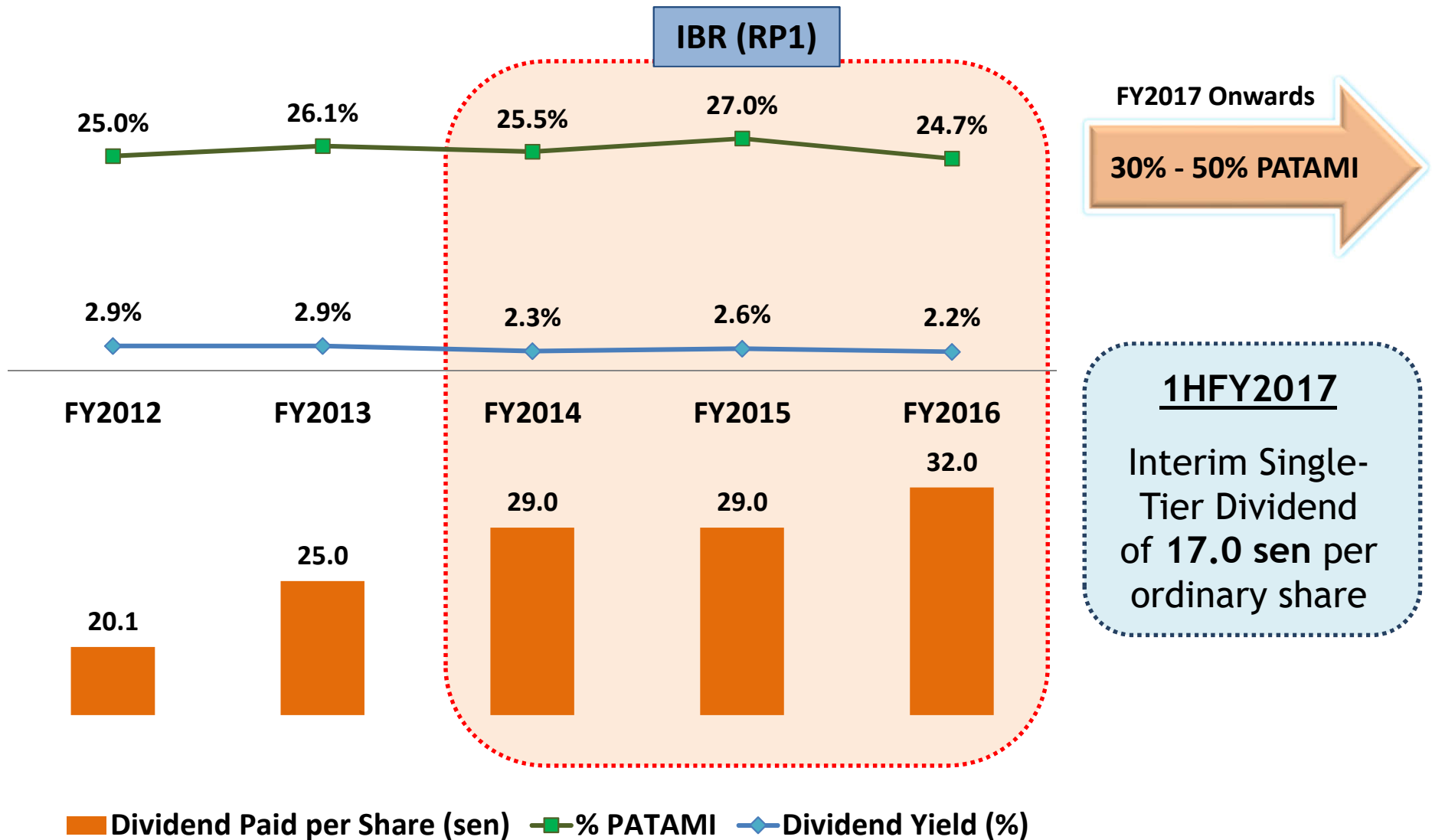
### New Policy

Distribution of dividend is based on 30% to 50% dividend payout ratio, based on the reported Consolidated Net Profit Attributable to Shareholders After Minority Interest, excluding Extraordinary, Non-Recurring items

TNB endeavours to adopt a dividend policy that would provide stable and sustainable dividends to shareholders while maintaining an efficient capital structure and sufficient to cater to its business prospects, capital requirements growth / expansion strategy and other factors considered relevant by the Board

# DIVIDEND

## 5-Year Dividend Payout



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# KEY HIGHLIGHTS

- Improved Revenue Driven by 2.3% Unit Electricity Demand Growth
- Half-Year Capital Investment of Approximately RM5bn

Table 1:

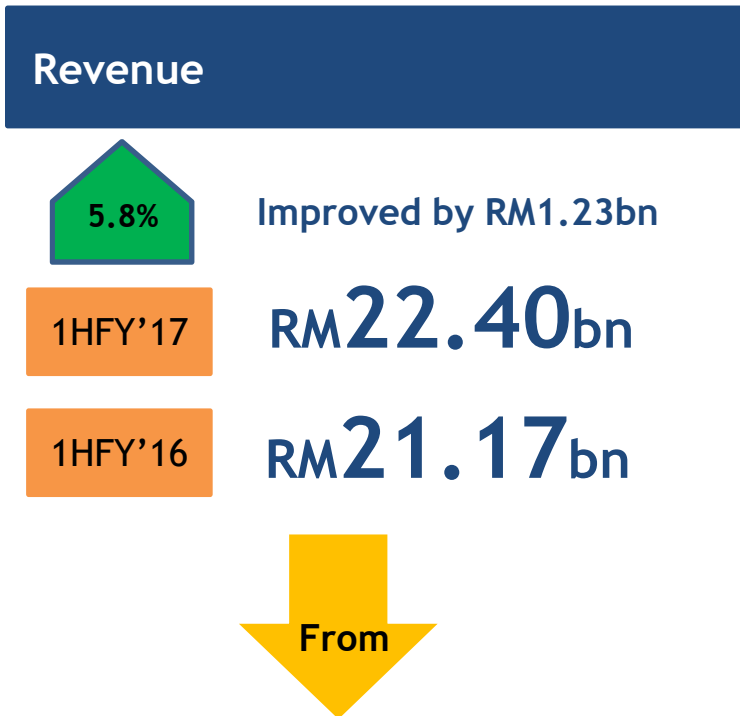
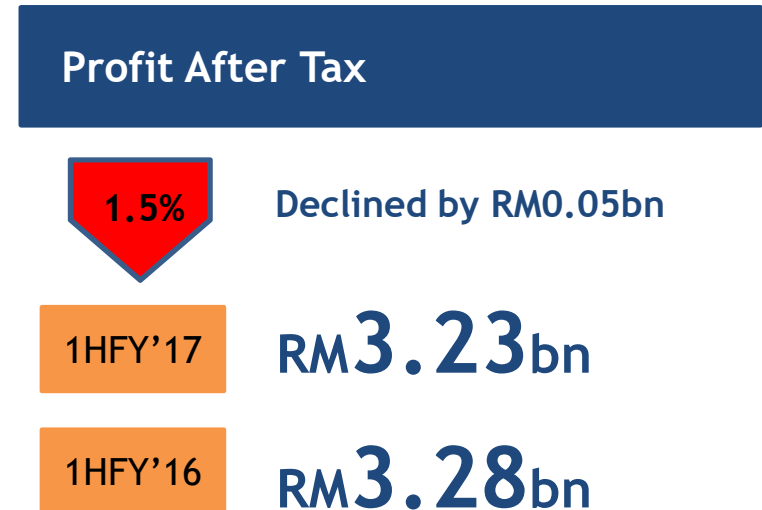


Table 2:

	1HFY'17	1HFY'16
Growth (%)	2.3	3.6

Table 3:



# ELECTRICITY GROWTH IN PENINSULA

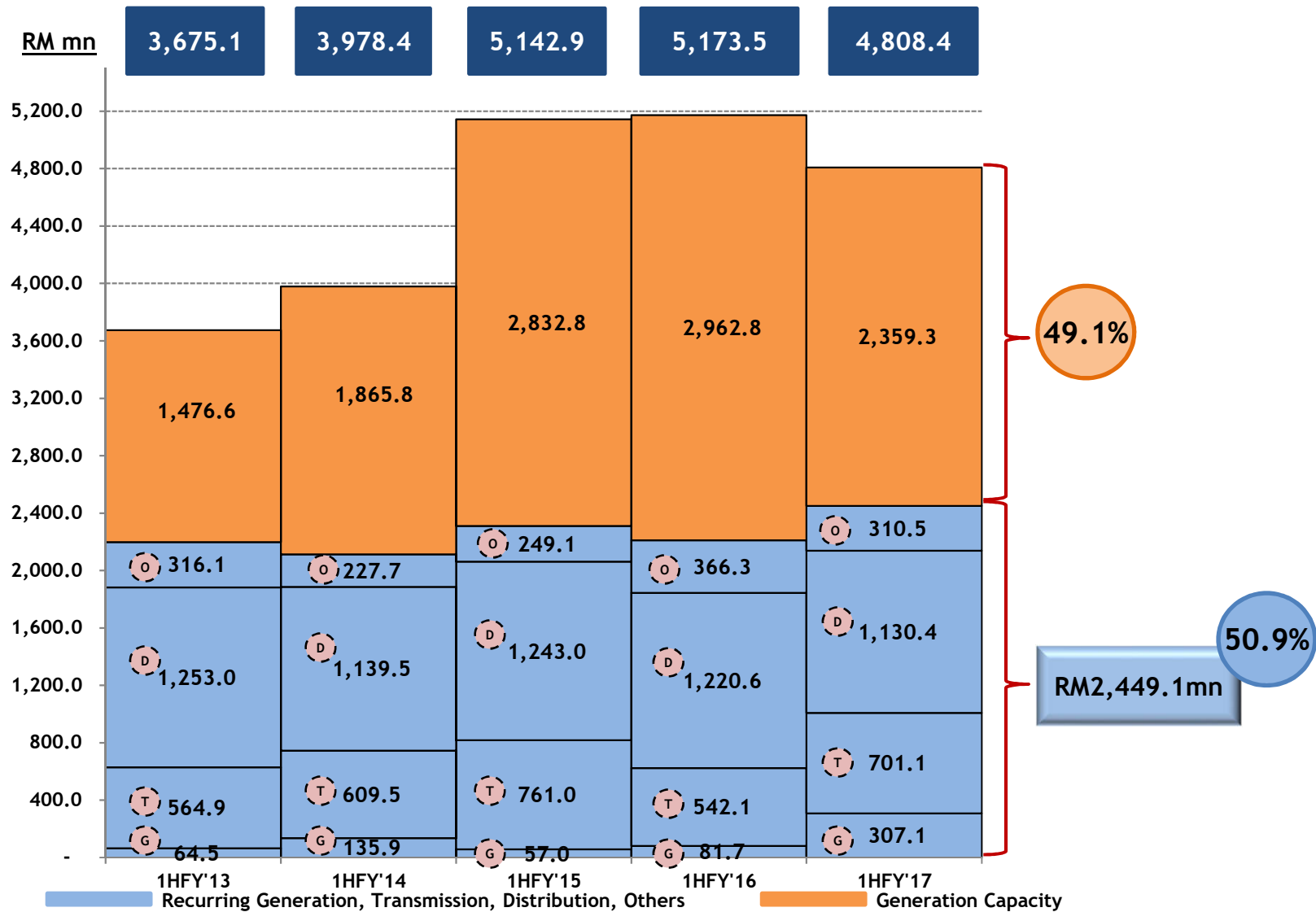
## 2.3% Growth in Electricity Demand

UNITS SALES		FY2016			FY2017		
		1Q	2Q	1H	1Q	2Q	1H
Industrial	Gwh	11,101	10,820	21,921	10,975	10,966	21,941
	Growth (%)	1.2	(1.4)	(0.1)	(1.1)	1.3	0.1
Commercial	Gwh	9,369	9,404	18,773	10,053	9,530	19,583
	Growth (%)	3.9	6.1	5.0	7.3	1.3	4.3
Domestic	Gwh	5,886	5,981	11,867	6,244	5,930	12,174
	Growth (%)	6.3	12.0	9.1	6.1	(0.9)	2.6
Others	Gwh	490	497	987	539	531	1,070
	Growth (%)	(1.2)	0.8	(0.2)	10.0	6.8	8.2
Total	Gwh	26,846	26,702	53,548	27,811	26,957	54,768
	Growth (%)	3.2	4.0	3.6	3.6	1.0	2.3

	1HFY'17	1HFY'16
Growth (%)	2.3	3.6

# CAPITAL EXPENDITURE

Major Projects Represent 49.1% of Total CAPEX



# STATUS OF MAJOR PROJECTS

- 2 Generation Projects With 3GW Capacity in the Pipeline
- 1 Large-Scale Solar Project Awarded by Energy Commission on 2<sup>nd</sup> March 2017

## Jimah East Power

**42.7%** **2,000MW**  
COD:  
U1: 15<sup>th</sup> Jun 2019  
U2: 15<sup>th</sup> Dec 2019



## Janamanjung Unit 5

**99.1%** **1,000MW**  
COD:  
1<sup>st</sup> Oct 2017



## TNB Sepang Solar

**50MW**  
COD:  
1<sup>st</sup> Nov 2018



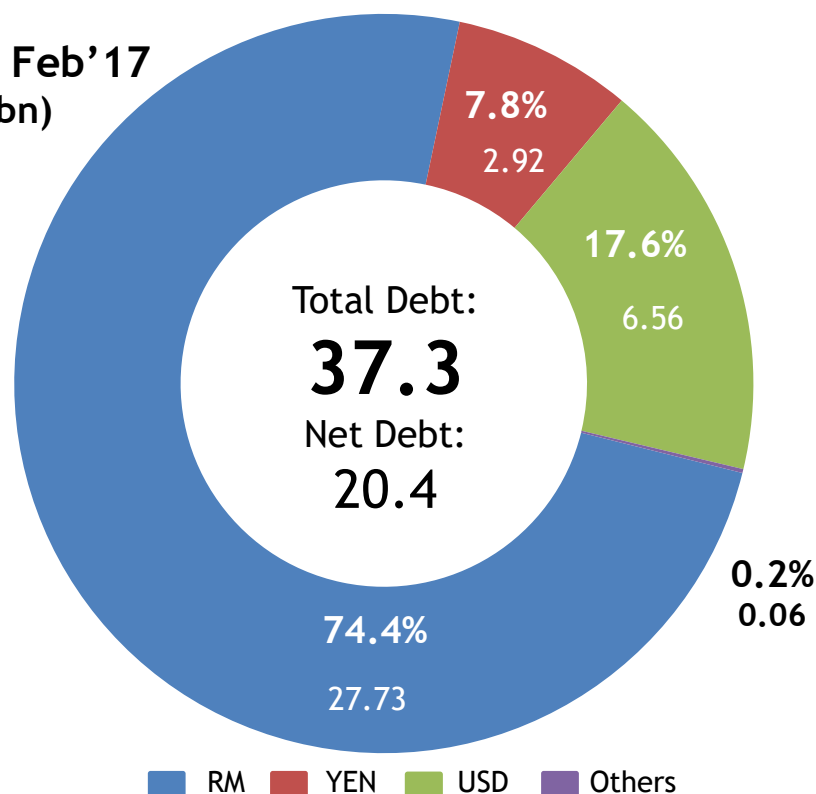


# DEBT EXPOSURE & GEARING



Improved Gearing due to Multicurrency Sukuk Issuance of USD750.0mn in October 2016

28<sup>th</sup> Feb'17  
(RM bn)



“The Group is required to hedge a minimum of 50.0% of TNB’s known foreign currency exposure up to 12 months period. The Group uses forward exchange contracts and currency options contract to hedge its foreign currency risk. Most of the forward exchange contracts have maturities of less than three months

## HEDGING POLICY

Statistics	28th Feb'17	31st Aug'16
Gearing (%)	40.4	39.5
Net Gearing (%)	22.1	19.7
Fixed : Floating (%)	96.4 : 3.6	96.4 : 3.6
Final Exposure (%)	96.4 : 3.6	96.4 : 3.6
Weighted Average Cost of Debt (%)	4.64	5.06
Final Exposure (%)	4.64	5.06

Closing	28 <sup>th</sup> Feb'17	31 <sup>st</sup> Aug'16
USD/RM	4.44	4.06
100YEN/RM	3.95	3.96
USD/YEN	112.41	102.53

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

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# CONTACT DETAILS



For further enquiries, kindly contact us at:

## INVESTOR RELATIONS & MANAGEMENT REPORTING DEPARTMENT

Tenaga Nasional Berhad

4<sup>th</sup> Floor, TNB Headquarters

No.129, Jalan Bangsar,

59200 Kuala Lumpur, MALAYSIA

Tel : +603 2296 5566

Fax : +603 2284 0095

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

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

### IR OFFICERS:

*Sherleen*

+603 2296 6183

[sherleenaa@tnb.com.my](mailto:sherleenaa@tnb.com.my)

*Nadia*

+603 2296 6787

[nuranadiaah@tnb.com.my](mailto:nuranadiaah@tnb.com.my)



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# THANK YOU

*Prepared by:  
Investor Relations & Management Reporting Department*