

TNB HANDBOOK

THE 9th ANNUAL DAIWA INVESTMENT CONFERENCE, TOKYO 2015

PRINCE PARK TOWER, TOKYO

3rd - 5th MARCH 2015

Daiwa
Securities

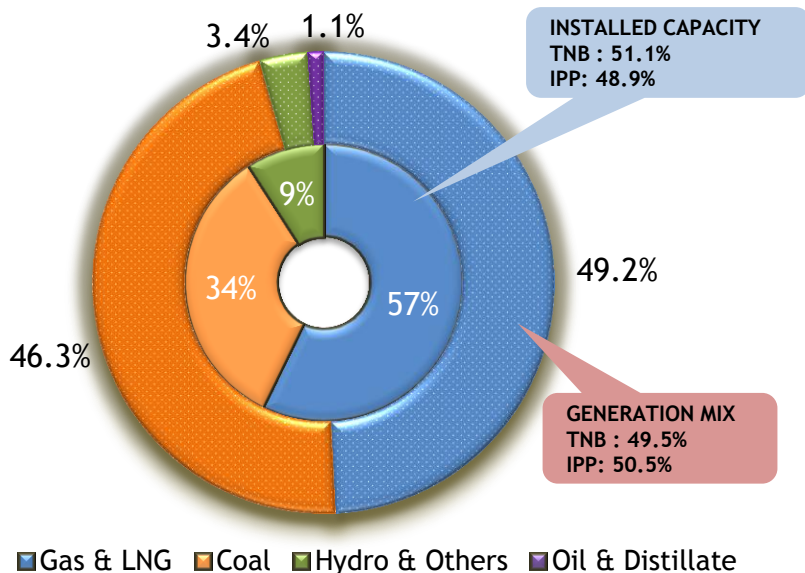
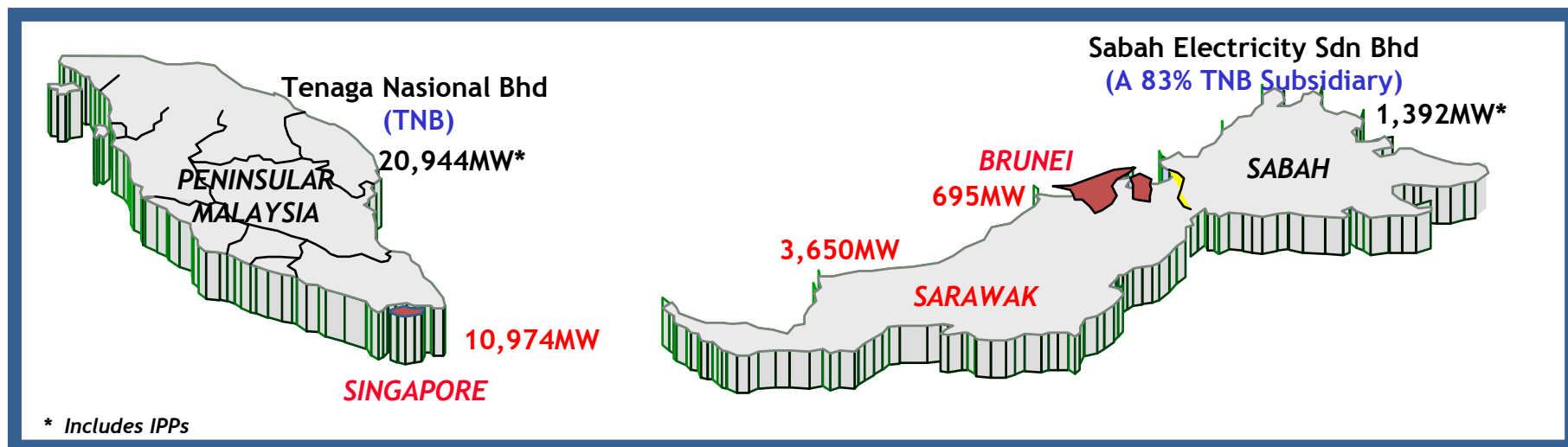
1QFY'15

PART ONE

1. INTRODUCTION TO TENAGA
2. INTRODUCTION TO MESI
3. TARIFF
4. KEY PERFORMANCE INDICATORS (KPIs)
5. BUSINESS STRATEGY & DIRECTION
6. DIVIDEND POLICY
7. OUTLOOK

INTRODUCTION TO TENAGA

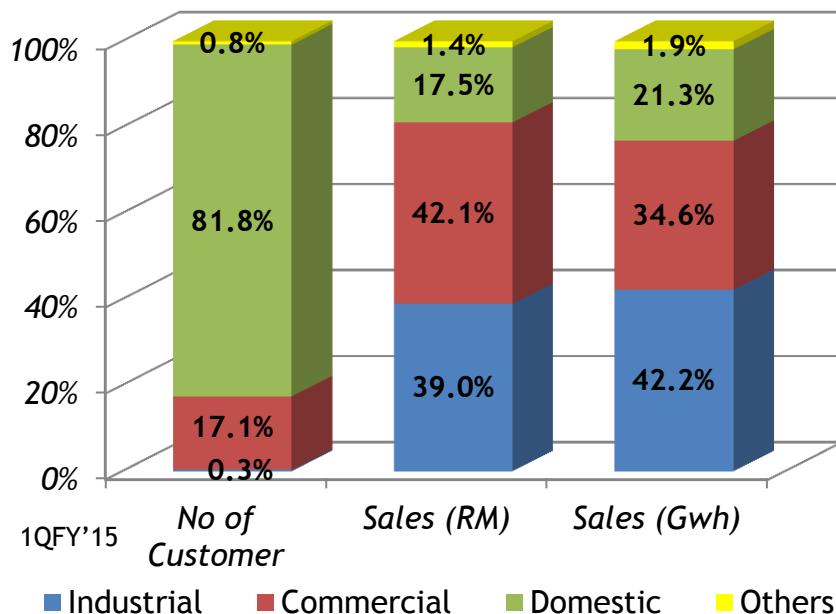
Three Major Utilities in Malaysia



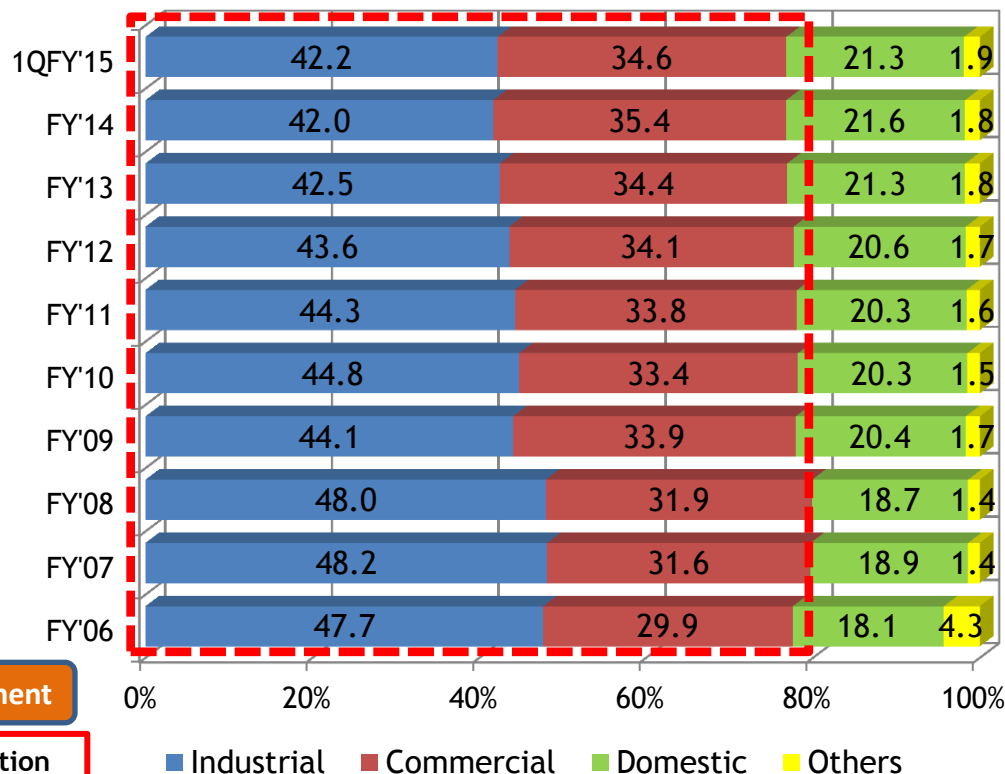
	FY'11	FY'12	FY'13	FY'14	1QFY'15
TNB - Peninsula Installed Capacity (MW)	11,530	11,462	11,462	10,814	10,698
Total units sold (Gwh)	97,888	102,132	105,479	108,102	27,431
Total customers (mn)	8.11	8.36	8.35	8.64	8.71
Total employees ('000)	31.9	33.6	35.0	36.1	36.1
Total assets (RM bn)	79.1	88.5	99.0	110.7	112.8

INTRODUCTION TO TENAGA

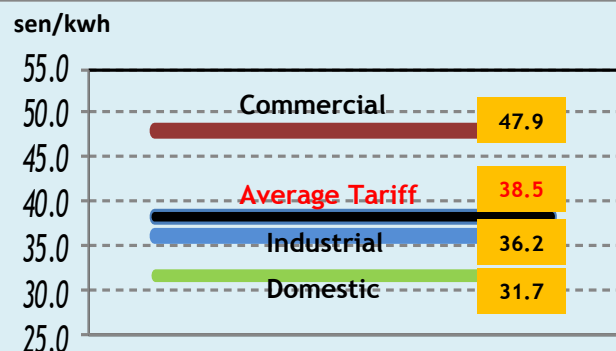
No of Customer vs. Sales Value vs. Unit Sales



Sectoral Sales Analysis (Gwh)



Average Base Tariff by Sector



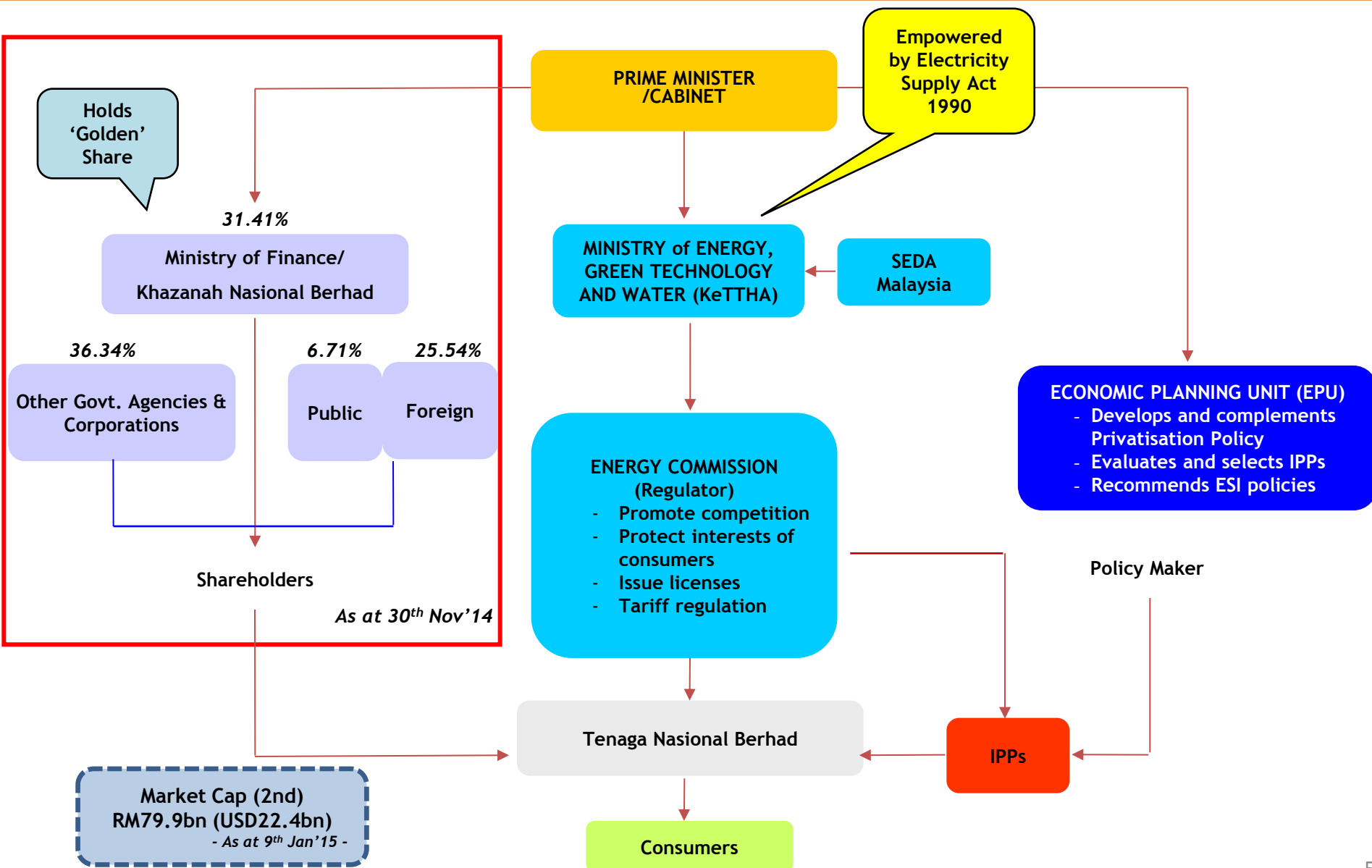
ICPT Adjustment

**Overall Reduction
(Mar'15 - June'15)**
2.25 sen/kWh
@ 5.8%

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

INTRODUCTION TO TENAGA

Industry Regulatory Framework



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TRANSFORMATION INITIATIVES BY GOVERNMENT

Aimed at Delivering a Reliable, Transparent, Efficient and Sustainable ESI

Jun - Dec 2008
Khazanah's MESI Study

Jan - Dec 2009
KeTTHA-led syndication

4 Dec 2009
Cabinet endorsement to transform ESI



1st Gen IPP /
Restricted
Bidding

Subsidy
Rationalisation
Programme

FCPT
Mechanism

LNG
Importation

Nuclear Energy
Capacity
Building

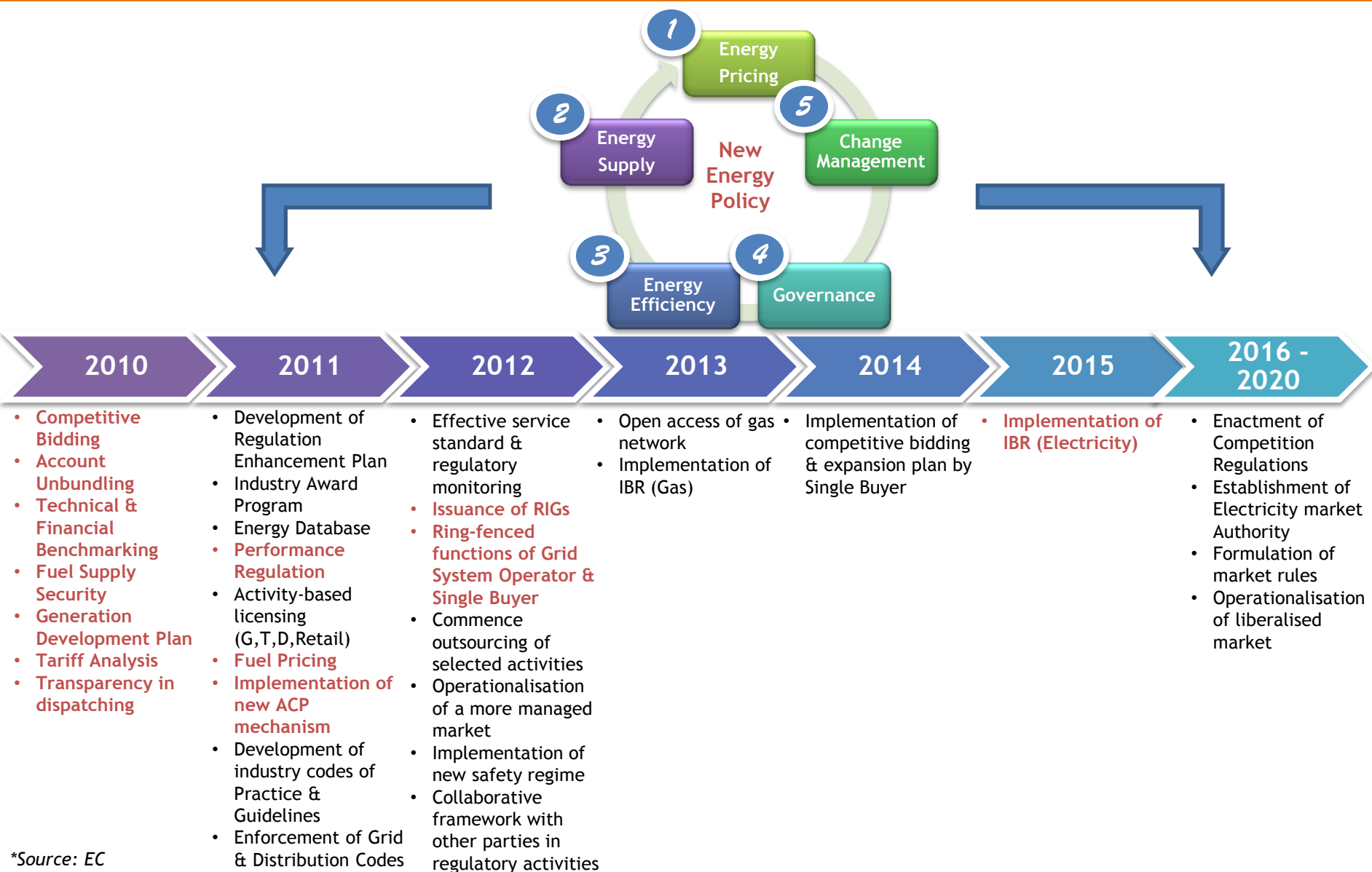
National RE
Policy & Action
Plan

FIT & RE Fund

Legal &
Regulatory
Framework
Enhancement

TRANSFORMATION PLAN : TIMELINE

The New Energy Policy Addresses, Economic Efficiency, Security of Supply and Social & Environmental Objectives



Track 1 to Track 3

1

TRACK 1	1,071 MW CCGT PRAI
COD	January 2016
LEVELISED TARIFF	34.7 sen/kWh
STATUS	<p>TNB has signed agreements for:</p> <ul style="list-style-type: none"> i. EPC - TNB Northern Energy Bhd & Samsung Engineering & Construction (M) Sdn Bhd ii. Long term Service - TNB Prai & Siemens AG iii. O&M - TNB Prai & REMACO <p>TNB Northern Energy Sukuk has been issued out on 29 May 2013 for nominal value of RM1.625 billion.</p>
TECHNOLOGY	Siemens Super Critical H-Class technology gas turbine combined-cycle efficiency of greater than 60%

2

TRACK 2	RENEWAL OF EXPIRING PLANTS : 2,253 MW CCGT		
PLANTS	GENTING	SEGARI	TNB PASIR GUDANG
EXTENSION	10 years (to 2026)	10 years (to 2027)	5 years (to 2022)
LEVELISED TARIFF	35.3 sen/kWh	36.3 sen/kWh	37.4 sen/kWh
STATUS	Reduction rates of CP effective 1 March 2013 until expiry of current PPA		

3

TRACK 3A	1 X 1,000 MW COAL-FIRED
COD	October 2017
LEVELISED TARIFF	22.78 sen/kWh
STATUS	<p>TNB has signed agreements on 16 August 2013 for:</p> <ul style="list-style-type: none"> i. PPA with TNB Manjung Five Sdn Bhd "Manjung 5" to design, construct, own, operate & maintain the coal plant capacity (25 years term) ii. SFA "Shared Facilities Agreement" between TNB, Manjung 5 & TNB Janamanjung iii. CSTA "Coal Supply and Transportation Agreement" between TNB Fuel Services & Manjung 5. <p>EPC contract signed on 21 August 2013 between: TNB Western Energy Bhd; a wholly owned subsidiary of Manjung 5 with Consortium of Sumitomo Corp, Daelim Industrial Co Ltd, Sumi-Power M'sia Sdn Bhd and Daelim M'sia Sdn Bhd.</p> <p>TNB Western Energy Sukuk has been issued out on 30 January 2014 for nominal value of RM3.655 billion.</p>
TECHNOLOGY	Ultra Super Critical Boiler Technology OEM to EPC is Hitachi

4

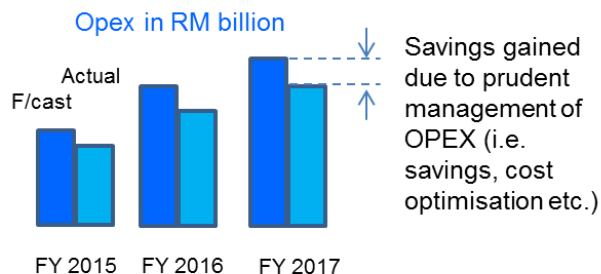
TRACK 3B	2 X 1,000 MW COAL-FIRED
COD	November 2018 & May 2019
LEVELISED TARIFF	25.33 sen/kWh
STATUS	<p>TNB has signed agreements on 22 July 2014 :</p> <ul style="list-style-type: none"> i. PPA with Jimah East Power Sdn. Bhd., the incorporated company of the consortium of 1MDB and Mitsui & Co. Ltd, to design, construct, own, operate and maintain the coal plant (25 years term) at Mukim Jimah, Port Dickson, Negeri Sembilan. ii. CSTA "Coal Supply and Transportation Agreement" with TNB Fuel Services Sdn. Bhd.
TECHNOLOGY	2 units of IHI Ultra Super Critical Technology Steam Generator & 2 Units of Toshiba Turbo Generator

Track 4A

TRACK 4A	1,000 - 1,400 MW CCGT
COD	June 2018
STATUS	<p>TNB has signed heads of agreement on 24 July 2014 with:</p> <ul style="list-style-type: none"> i. SIPP Energy Sdn. Bhd., signifying the principal terms of the proposed joint venture which will undertake to build, own and operate a power plant of approximately 1000MW-1400MW on a land in Pasir Gudang, Johor.
TECHNOLOGY	-

3 + 4 EFFICIENCY AND GOVERNANCE

Incentive Based Regulation (IBR) - Economic Regulation Methodology to Promote Efficiency And Transparency



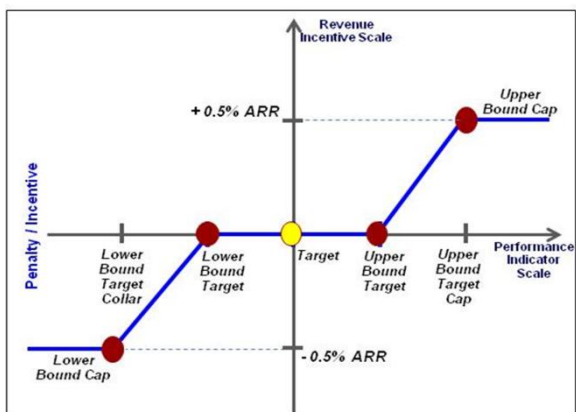
Operational Efficiencies

- Rewarded for seeking efficiencies in operational and capital expenditure



Financial Efficiencies

- Rewarded for maintaining an efficient capital structure



Performance Efficiencies

- Rewarded for delivering improvements in network performance


3+4 EFFICIENCY AND GOVERNANCE

Incentive Based Regulation (IBR) - The Move Towards Better Regulation

IBR mechanism to strengthen the following:

 The Economic Regulatory Framework for Regulating TNB

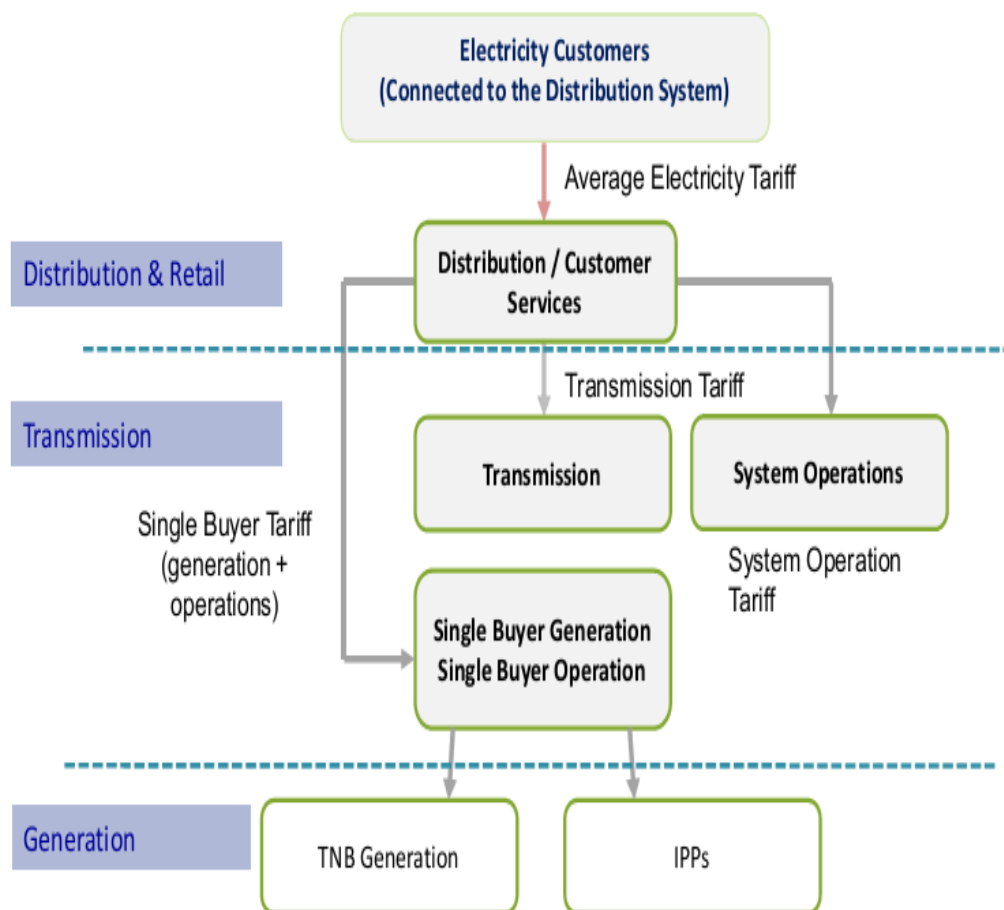
 The Tariff Setting Mechanism and Principles for Tariff Design

 Incentive Mechanisms to Promote Efficiency and Service Standards

 The Process of Tariff Reviews

 Creation of Regulatory Accounts and Its Annual Review Process

5 Business entities
under IBR (Accounting
Separation)



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

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3. **TARIFF**
4. KEY PERFORMANCE INDICATORS (KPIs)
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TARIFF

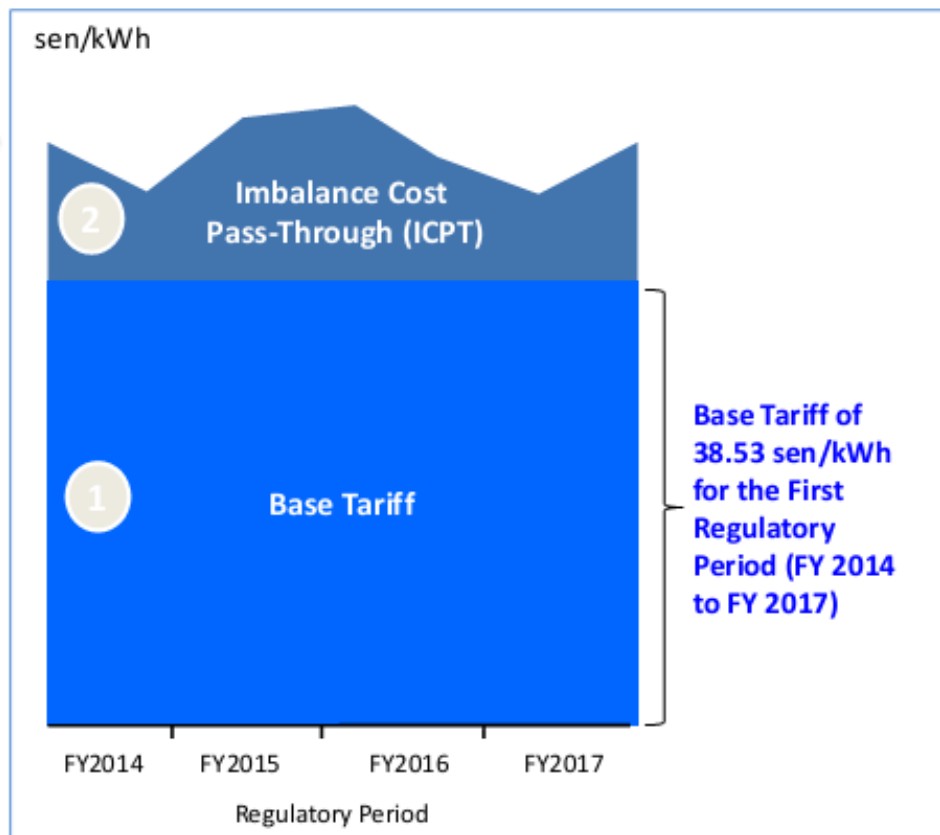
Electricity Tariff Review = Base Tariff + Imbalance Cost Pass-Through (ICPT)

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

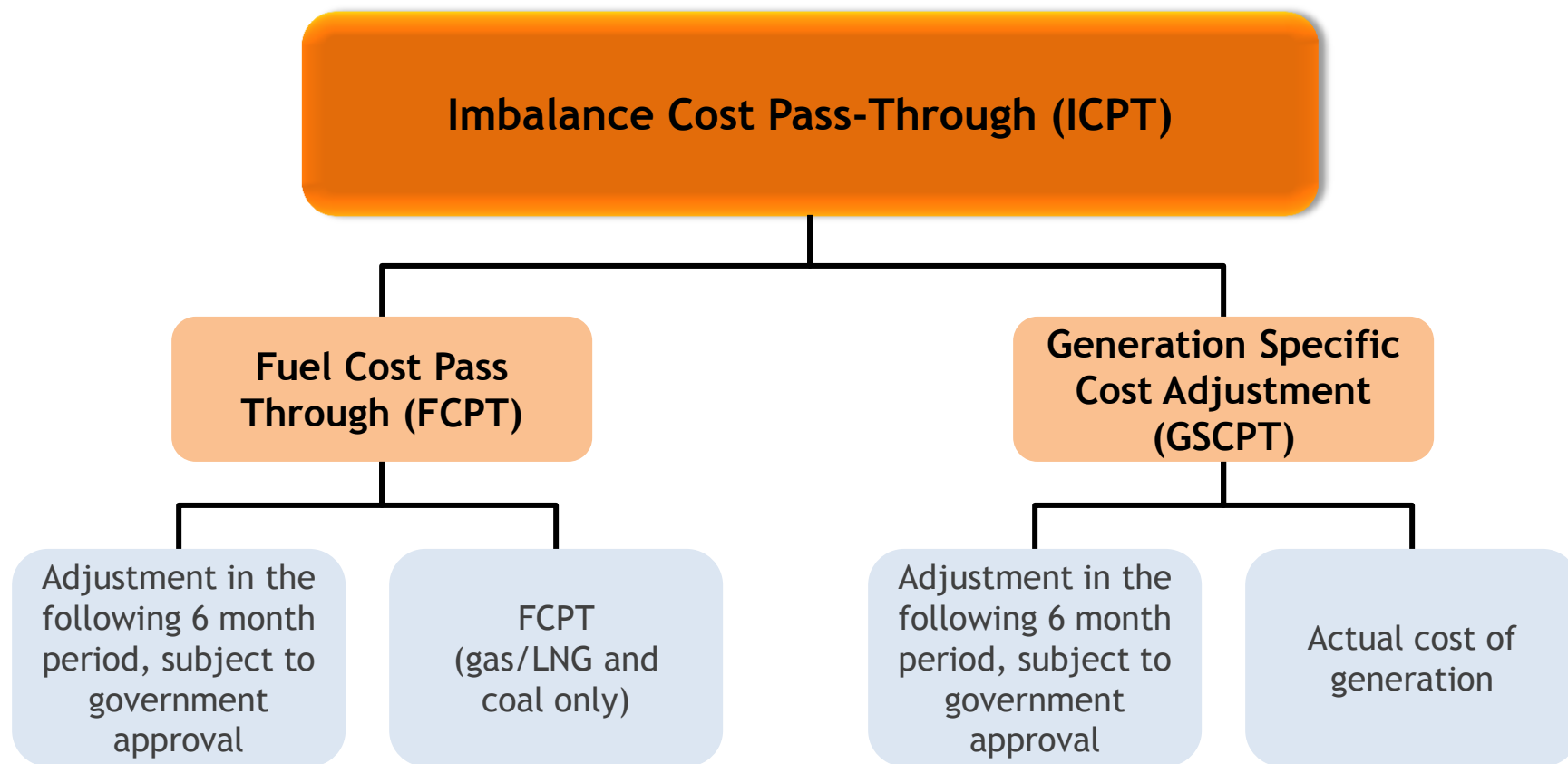
Cost components comprise of:

- 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

Imbalance Cost Pass-Through (ICPT) Comprises Two Components



Changes in gas/LNG and coal costs

Changes in:

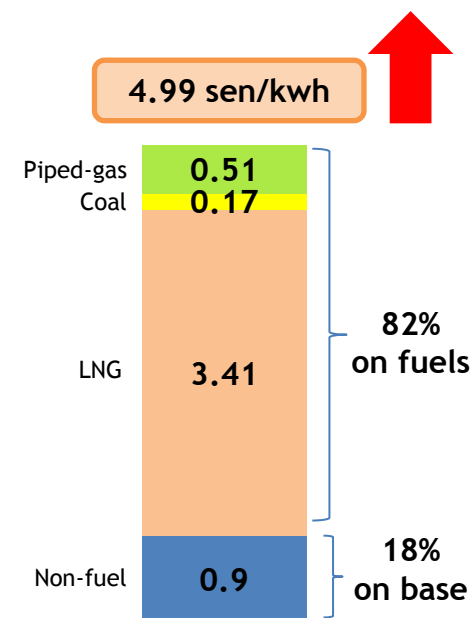
- Other fuel costs such as distillate and fuel oil
- All costs incurred by SB under the power procurement agreements (PPAs, SLAs and etc.) and fuel procurement agreements (CSTA, CPC, GFA/GSA and etc.)
- Renewable energy FiT displaced cost

PPAs	Power Purchase Agreements
SLAs	Service Level Agreements
CSTA	Coal Supply and Transportation Agreement
CPC	Coal Purchase Contract

TARIFF

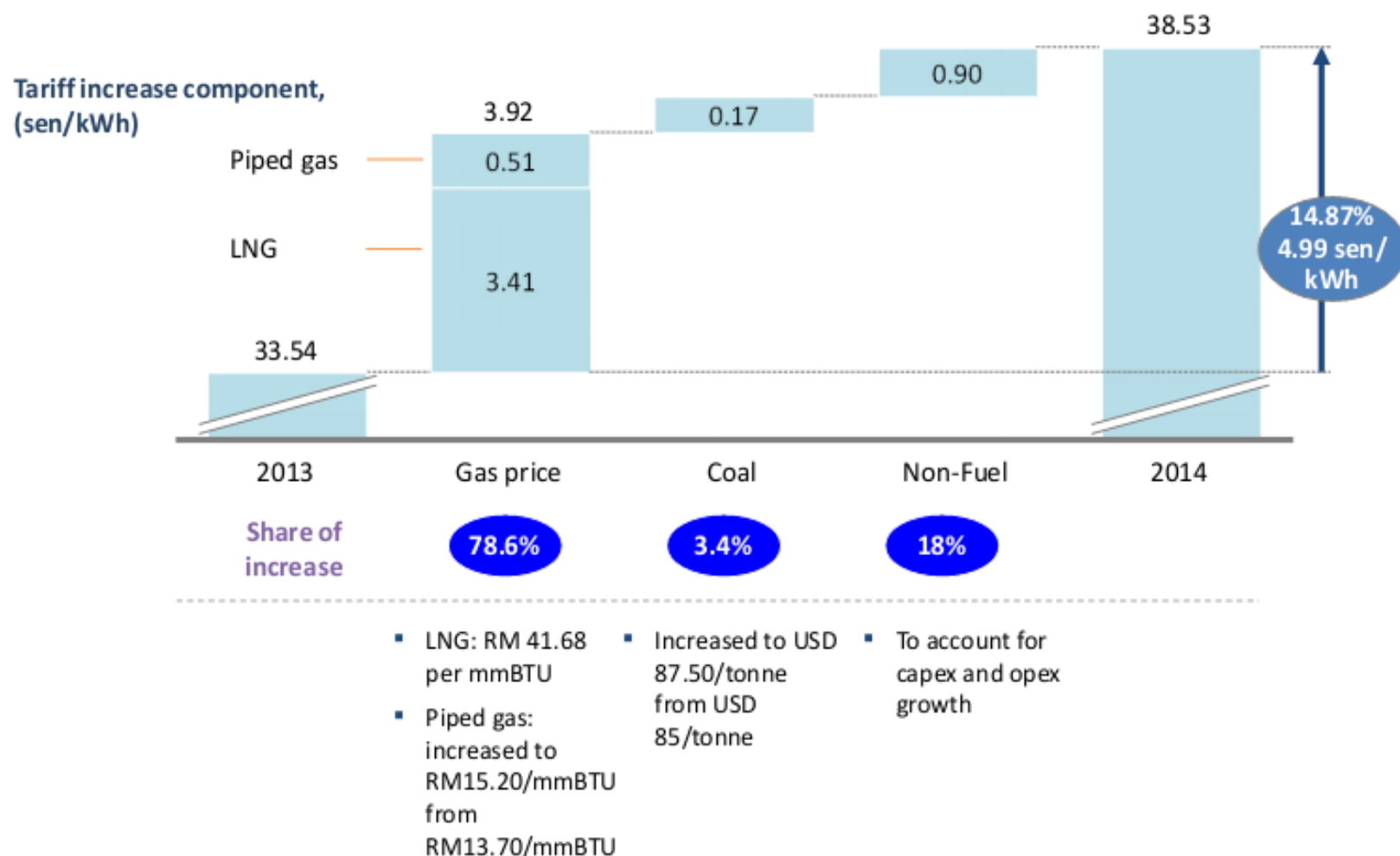
Average Base Tariff of 38.53 sen/kwh is Effective from 1st January 2014

Tariff Components	sen/kWh	% increase
Average Tariff (Jun 2011)	33.54	
Fuel Components:		
<ul style="list-style-type: none"> Piped-gas regulated price (from RM13.70/mmBTU to RM15.20/mmBTU @1,000 mmscfd) 	0.51	1.52
<ul style="list-style-type: none"> Coal (market price) (from USD85/tonne to USD87.5/tonne CIF@CV 5500kcal/kg) 	0.17	0.51
<ul style="list-style-type: none"> LNG RGT market price at RM41.68/mmBTU (for gas volume > 1000 mmscfd) 	3.41	10.17
Non-fuel component (TNB Base Tariff)	0.90	2.69
AVERAGE BASE TARIFF EFFECTIVE 1st JANUARY 2014	38.53	14.89



TARIFF

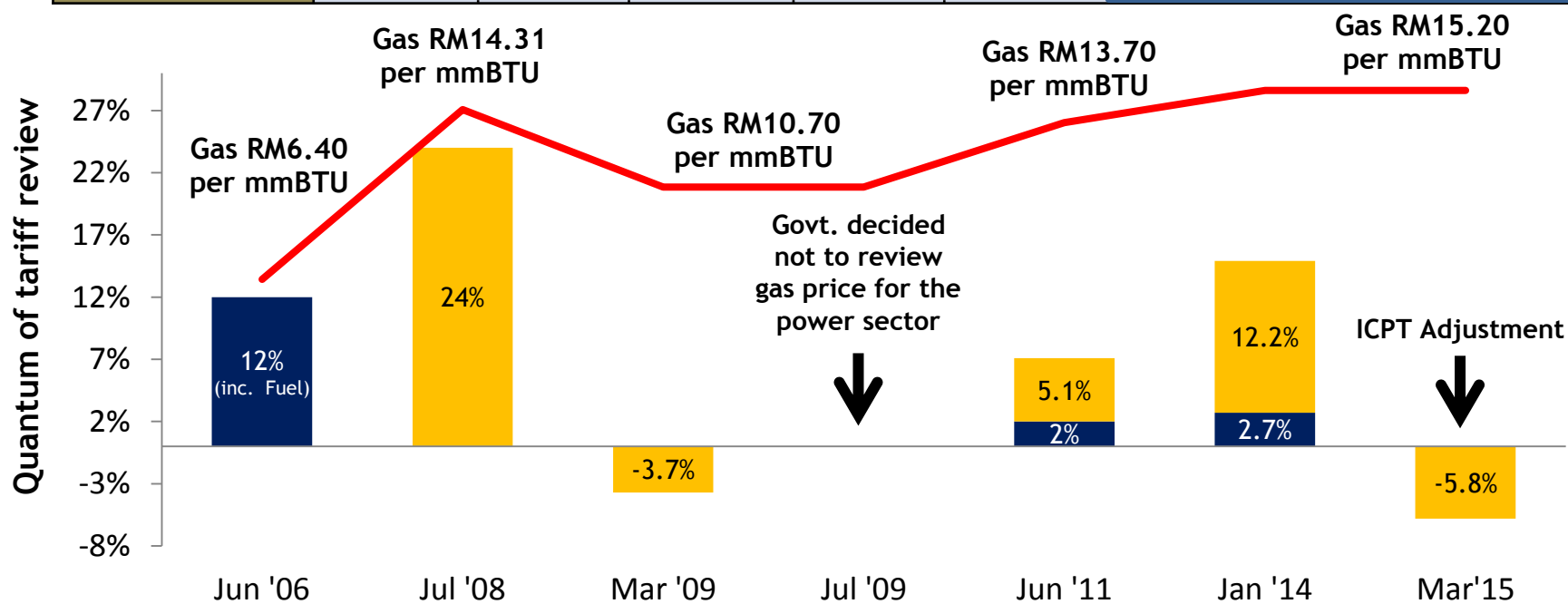
82% of Tariff Increase in January 2014 is due to Reduction of Gas Subsidy, Introduction of LNG at Market Price and Increase in Coal Benchmark Market Price



Frequency of Review & Underlying Assumptions

ICPT Adjustment
(Jan 2014 - Dec 2014)

Approval date	May 2006	Jun 2008	Feb 2009	Jun 2009	May 2011	Dec 2013	Feb 2015
Effective date	Jun 2006	Jul 2008	Mar 2009	Jul 2009	Jun 2011	Jan 2014	Mar 2015
Quantum	12%	23 - 24%	(3.7%)	Neutral	7.1%	14.9%	(5.8%)
Gas (RM/mmbtu)	6.40	14.31	10.70	10.70	13.70	15.20	15.20
Coal (USD/MT)	45.00	75.00	85.00	85.00*	85.00*	87.50**	87.50**
Average Tariff (sen/kWh)	26.2	32.5	31.3	31.3	33.5	38.5	38.5



* Forex (RM/USD) = RM3.6

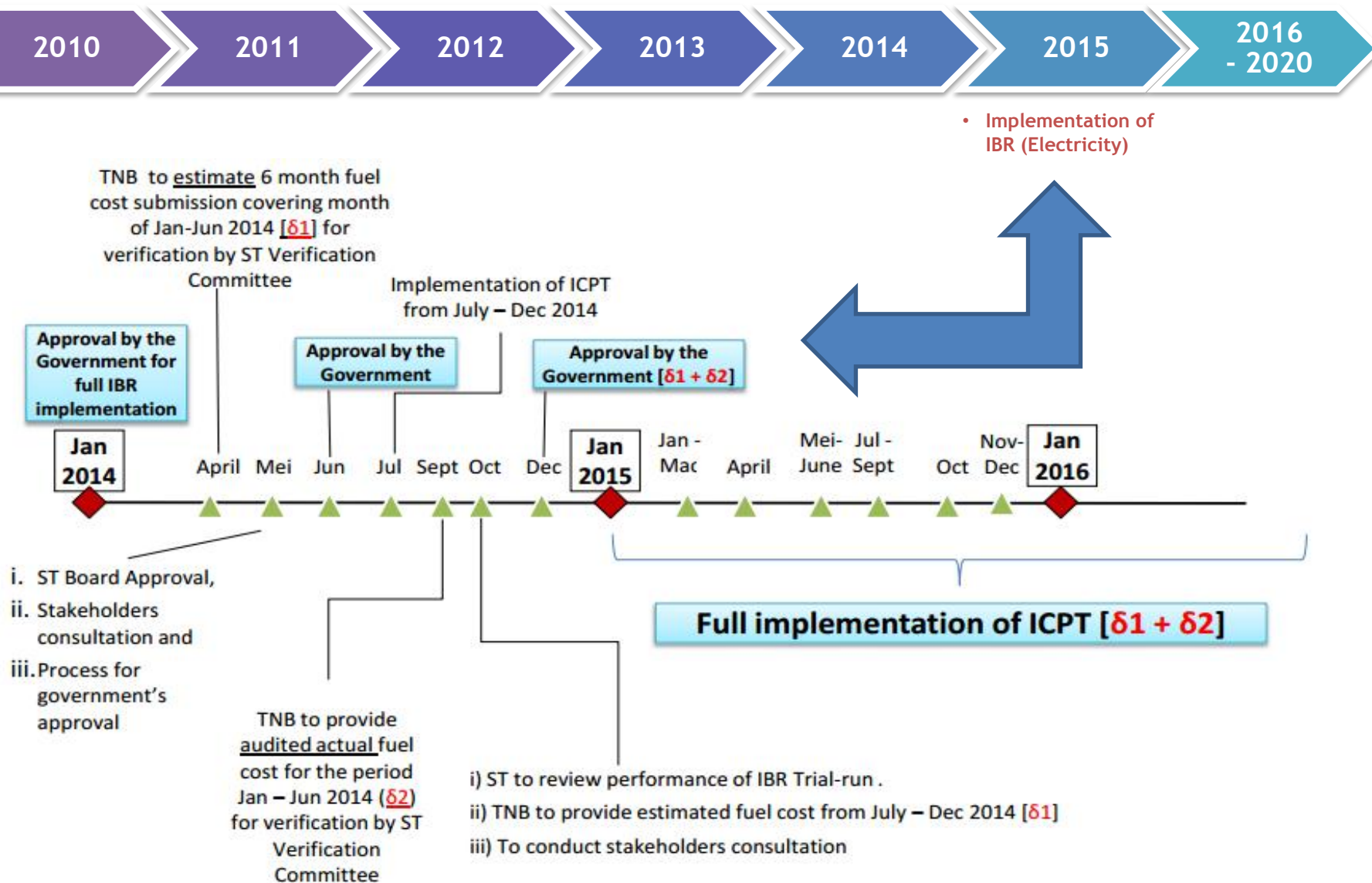
**Forex (RM/USD) = RM3.14

Base tariff adjustment

Fuel adjustment

Gas price

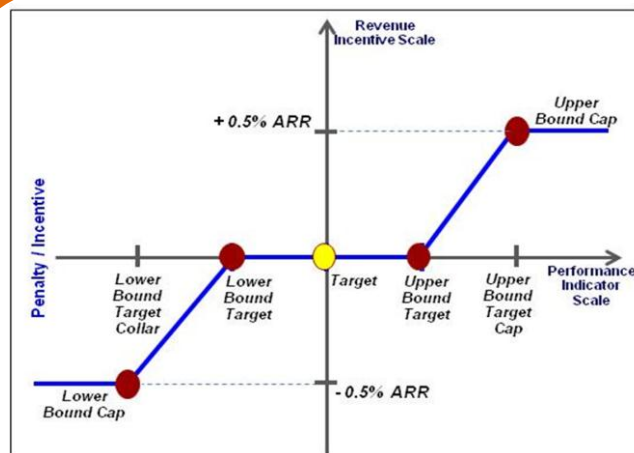
IBR Timeline



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KEY PERFORMANCE INDICATORS (KPIs)

Incentive Based Regulation (IBR) - Incentive and Penalty Mechanism Based on Performance Targets Determined by EC



- Incentive/penalty is capped at +/- 0.3% to 0.5% of annual revenue requirement
- No incentive/penalty if performance between upper and lower bound targets
- Any incentive/penalty to be given in the next regulatory period



PERFORMANCE KPIs

Code	Performance Incentive Scheme	Unit	Weightage (%)	Lower Bound Target	Upper Bound Target
Customer Services					
CSPI1	System Average Interruption Duration Index (SAIDI)	Mins./cust./year	50	70	55
CSPI2	Average of Minimum Service Level Compliance Performance	%	25	84.11	94.11
CSPI3	Weighted Average Guaranteed Service Level (3, 4 and 5)	%	25	86.32	95.50
Transmission					
TXPI1	System Minutes	Minutes	40	5.1	1.5
TXPI2	System Availability	%	30	99.04	99.48
TXPI3	Project Delivery Index	Delayed month	30	5.47	0
System Operator					
SOPI1	Wide Area Loss of Supply Event	No. of wide area system blackout incident	25	1	0
SOPI2.1	Voltage Limit Compliance	%	25	90	96
SOPI2.2	Frequency Limit Compliance	%	25	90	96
SOPI3	Dispatch Adjustment	%	25	0.4	0.2
Single Buyer					
SBPI1	Dispatch Deviation	%	25	0.4	0.2
SBPI2	Compliance to Timely Settlement of Generators' Invoices	%	25	99.55	99.85
SBPI3	Compliance to Malaysian Grid Code	%	25	98.10	100
SBPI4	Compliance to Single Buyer Rules	%	25	95.00	100

*Source: EC

KEY PERFORMANCE INDICATORS (KPIs)

TNB Has Been Improving its Performances Over the Years and Now in Line with World Standards

		1 ST PHASE : HEADLINE KPIs						
INITIATIVES		TARGET FY'10	ACTUAL FY'05	ACTUAL FY'06	ACTUAL FY'07	ACTUAL FY'08	ACTUAL FY'09	ACTUAL FY'10
Financial Indicators	Return on Assets (ROA) (%)	6.5	2.2	3.3	6.3	4.6	4.0	4.7
	Gearing (%)	< 60.0	64.9	58.1	49.9	46.9	46.5	42.5
	Company CPU (sen/kwh)							
	Revenue from Non-Regulated Business (RM bn)							
Technical Indicators	Unplanned Outage Rate (UOR)(%)	No target	6.1	4.7	2.2	3.3	2.9	2.7
	T & D Losses (%)	No target	10.5	11.0	10.0	9.5	9.7	9.5
	Transmission System Minutes (mins)	9.0	14.0	7.3	9.3	6.6	1.0	0.9
	Distribution SAIDI (mins)	< 100.0	148.0	101.6	83.0	78.0	68.6	65.0

Note:



Not track as TNB Headline KPI during 1st phase

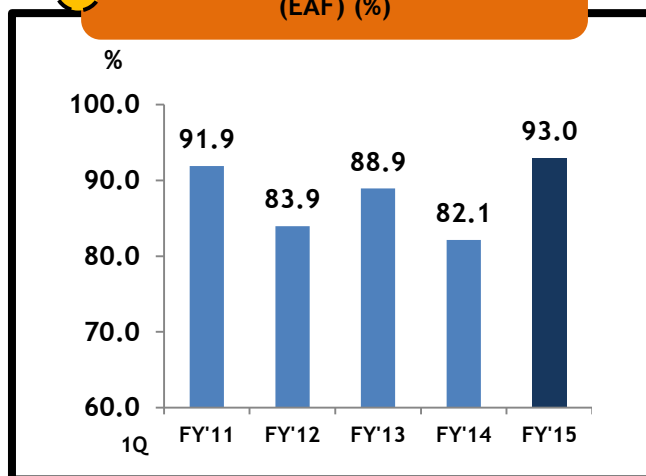
KEY PERFORMANCE INDICATORS (KPIs)

Technical Indicators

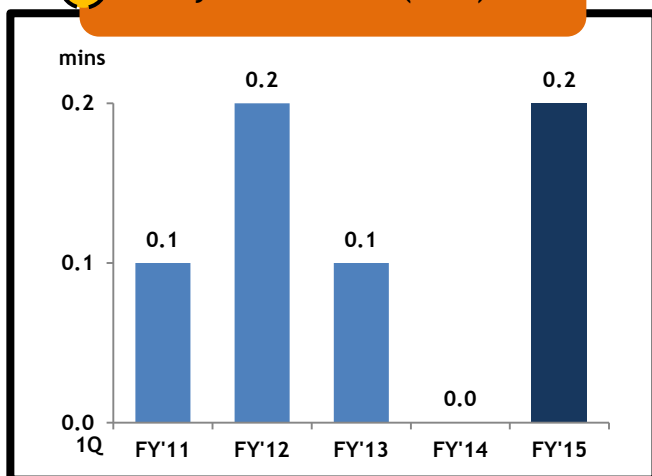
2nd PHASE : HEADLINE KPIs

Technical Indicators

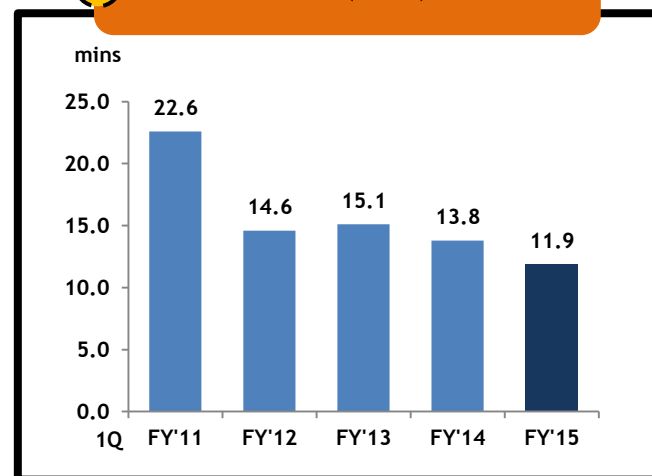
1 Equivalent Plant Availability Factor (EAF) (%)



2 System Minutes (mins)



3 SAIDI (mins)



KEY PERFORMANCE INDICATORS (KPIs)

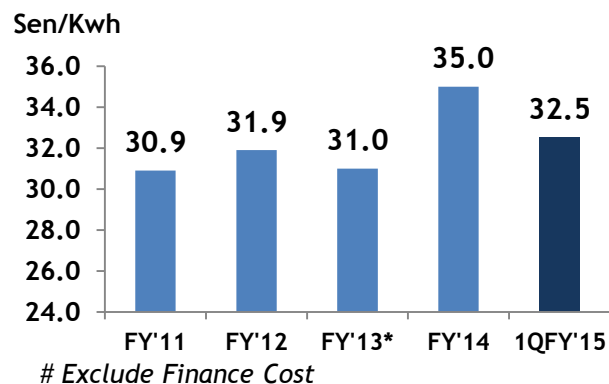
Financial Indicators

2nd PHASE : HEADLINE KPIs

Financial Indicators

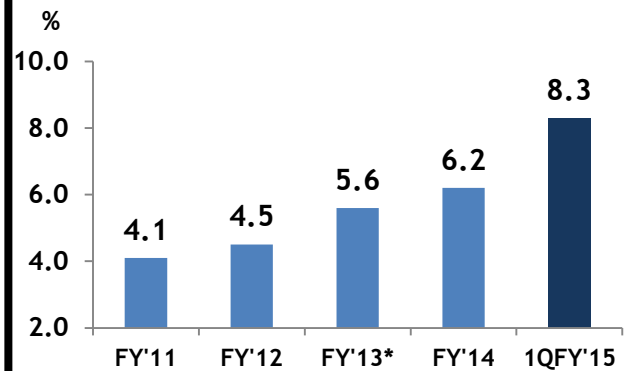
1

Company CPU (sen/kwh)



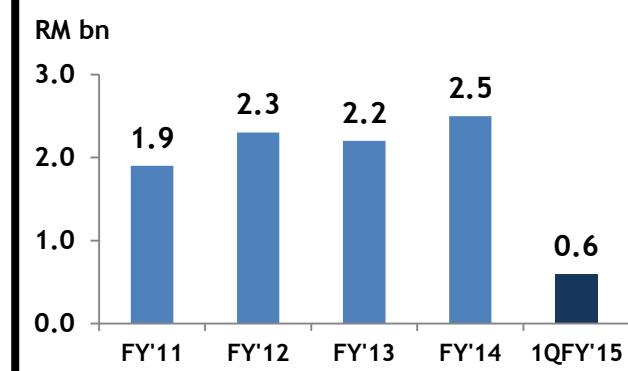
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Return on Assets (ROA)(%)



3

Revenue from Non-Regulated Business (RM bn)

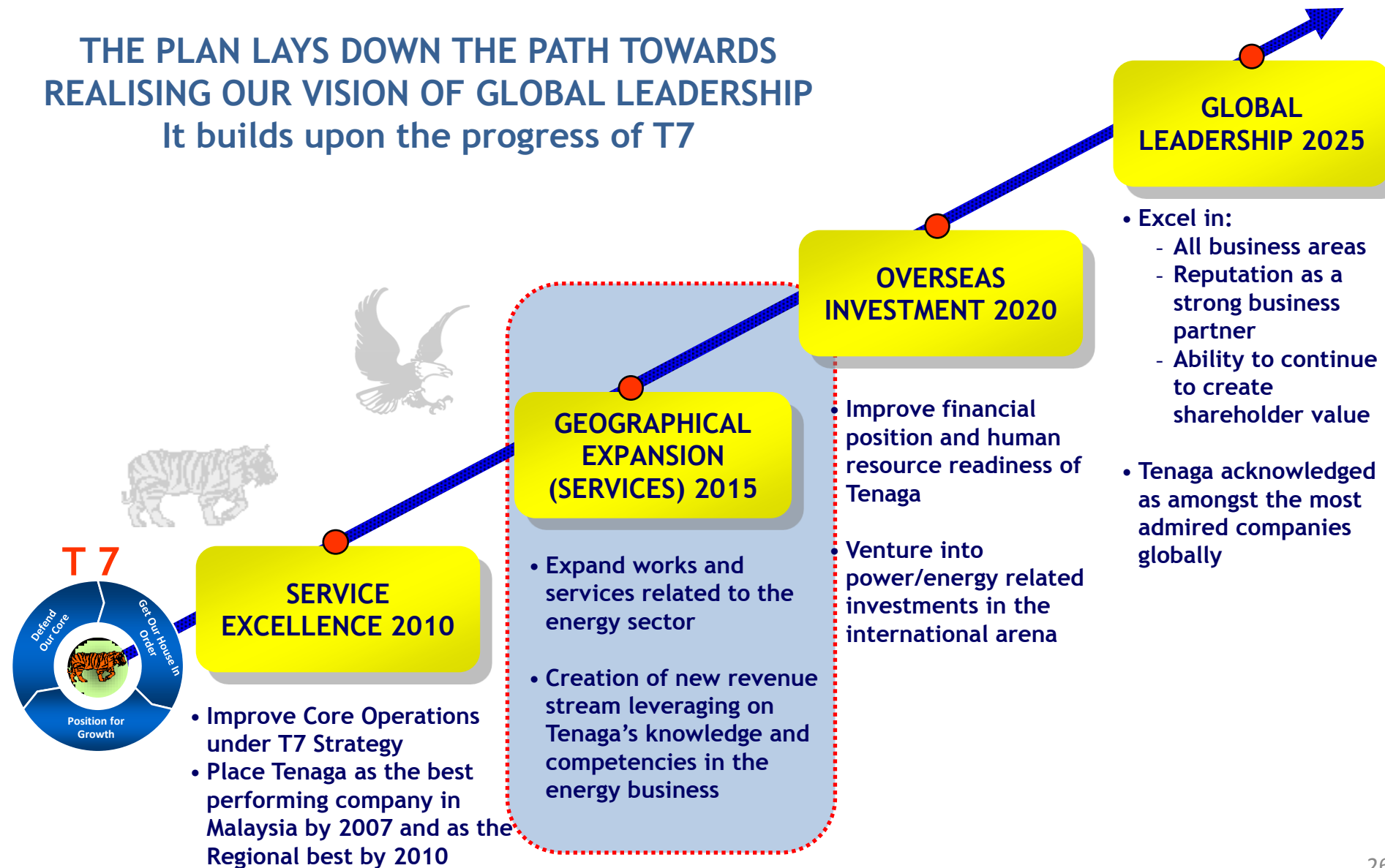


* FY2013 restated

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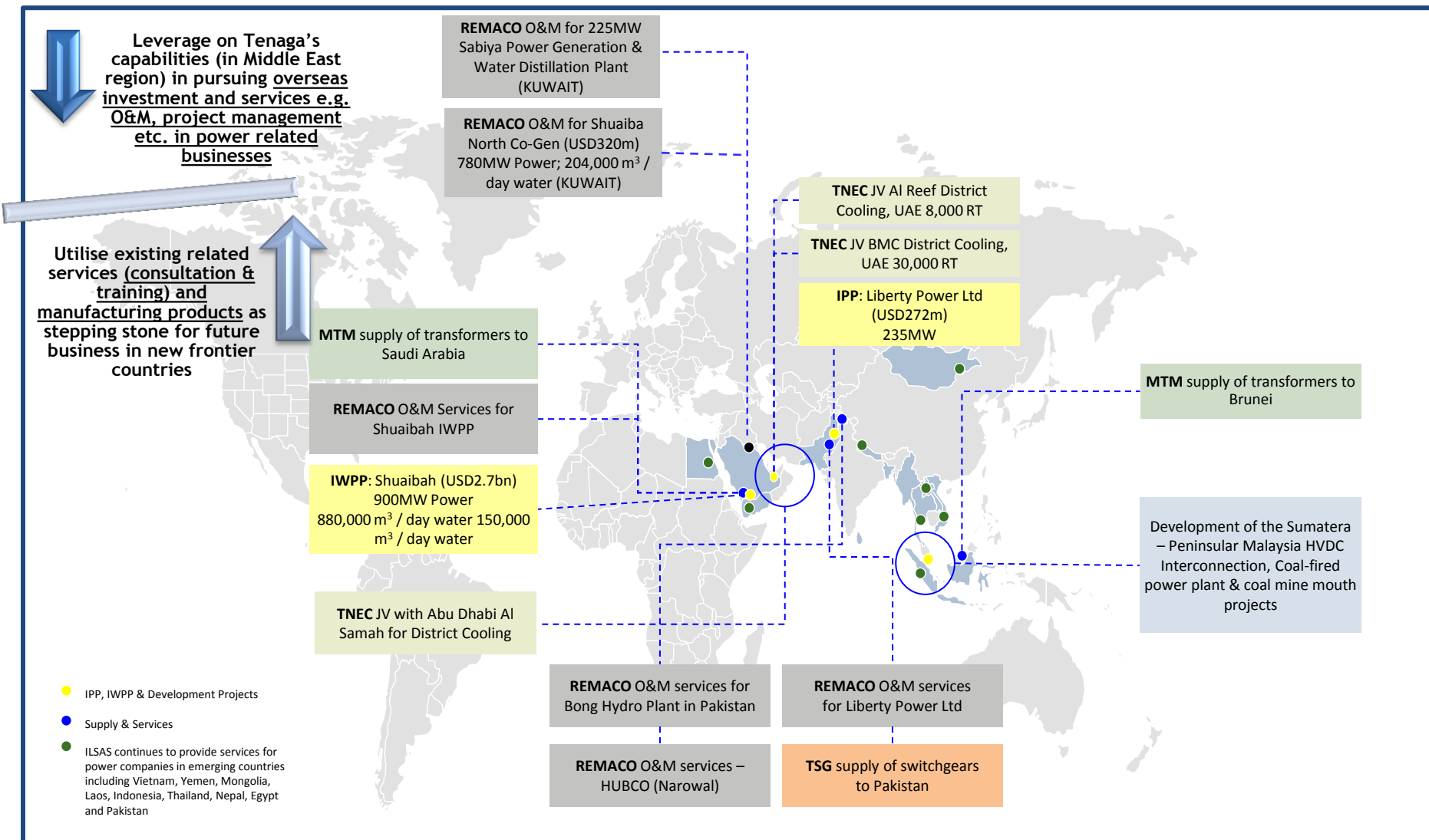
20-YEAR STRATEGIC PLAN

THE PLAN LAYS DOWN THE PATH TOWARDS
REALISING OUR VISION OF GLOBAL LEADERSHIP
It builds upon the progress of T7



INTERNATIONAL FOOTPRINT

Business Expansion in Energy Related Businesses



Source: Company presentation; Note: REMACO is a 100% owned subsidiary with a focus on O&M; MTM is a wholly owned subsidiary manufacturing transformers; TSG is a subsidiary manufacturing high voltage switchgears; TNEC is a wholly owned subsidiary providing project services and developing energy related projects

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DIVIDEND

Policy and Yield

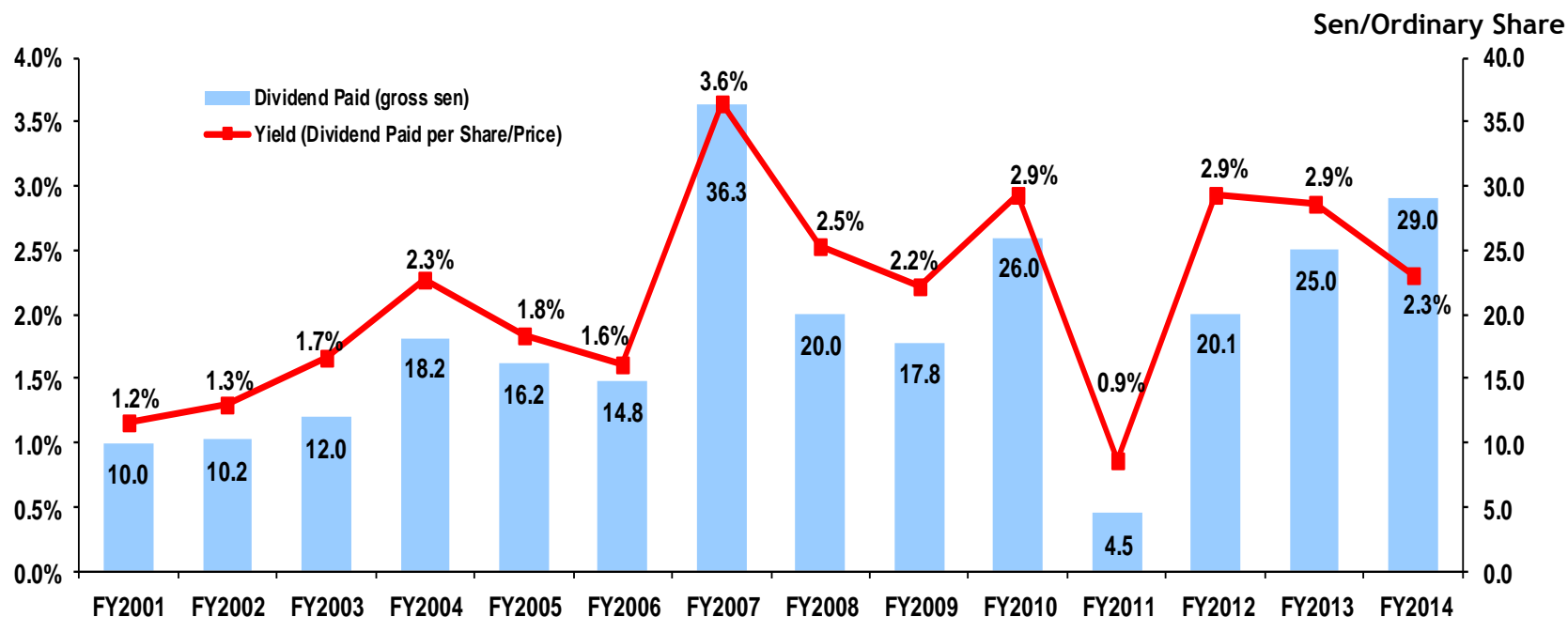
Tenaga is committed to pay out dividend based on its Dividend Policy whereby:
*Dividend is paid out based on **40%-60%** of its Company's Annual Free Cashflow;
 Cashflow from Operations less Normalised Capex and Interest Servicing*

Interim Single-Tier Dividend
 of 10.0 sen per ordinary share

Single-Tier Dividend
 of 19.0 sen per ordinary share

Total FY'14: 29.0 sen
 per ordinary share

58.3%
 free cashflow



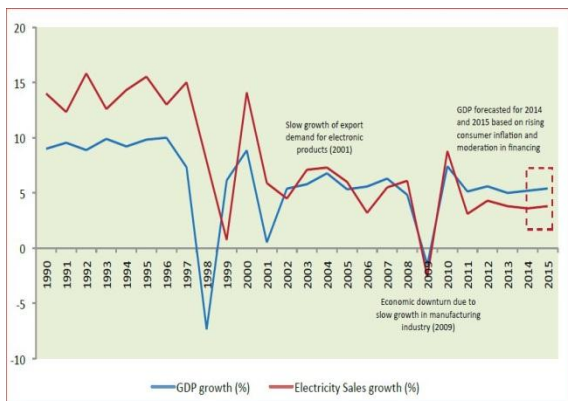
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1 DEMAND

“The growth is expected to remain on a strong trajectory with revised GDP growth in the range of 4.5% - 5.5% for 2015”.

*Prime Minister -
Special Address, 20th Jan 2015*

The electricity demand growth is expected to be in line with the projected economic growth.



*Source: EC

2 GAS VOLUME

Daily average gas volume (mmscfd)

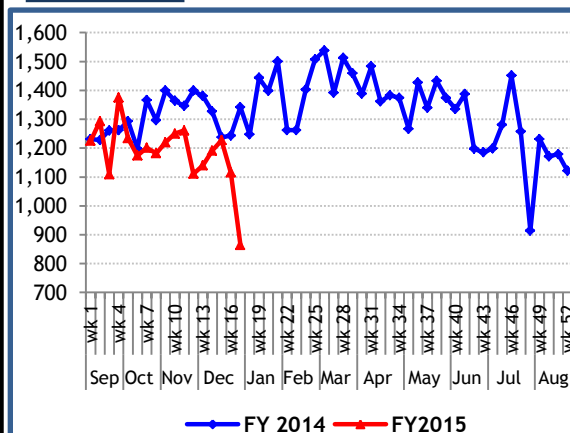
1QFY'14	1,321
2QFY'14	1,383
3QFY'14	1,405
4QFY'14	1,217
1QFY'15	1,218

Average Gas Volume (mmscfd)	
FY'14	1,332mmscfd
FY'13	1,121mmscfd

CY2014 Average LNG Price (RM/mmbtu)

1Q	46.019
2Q	47.649
3Q	48.772
4Q	46.041

GAS SUPPLY



3 COAL PRICE

Coal price is expected to remain stable for the next 1 year.

Average Coal Price (CIF) (USD/MT)

FY'11	106.9
FY'12	103.6
FY'13	83.6
FY'14	75.4
1QFY'15	70.2

PART TWO

1QFY2015 RESULTS HIGHLIGHTS

1QFY2015 RESULTS HIGHLIGHTS

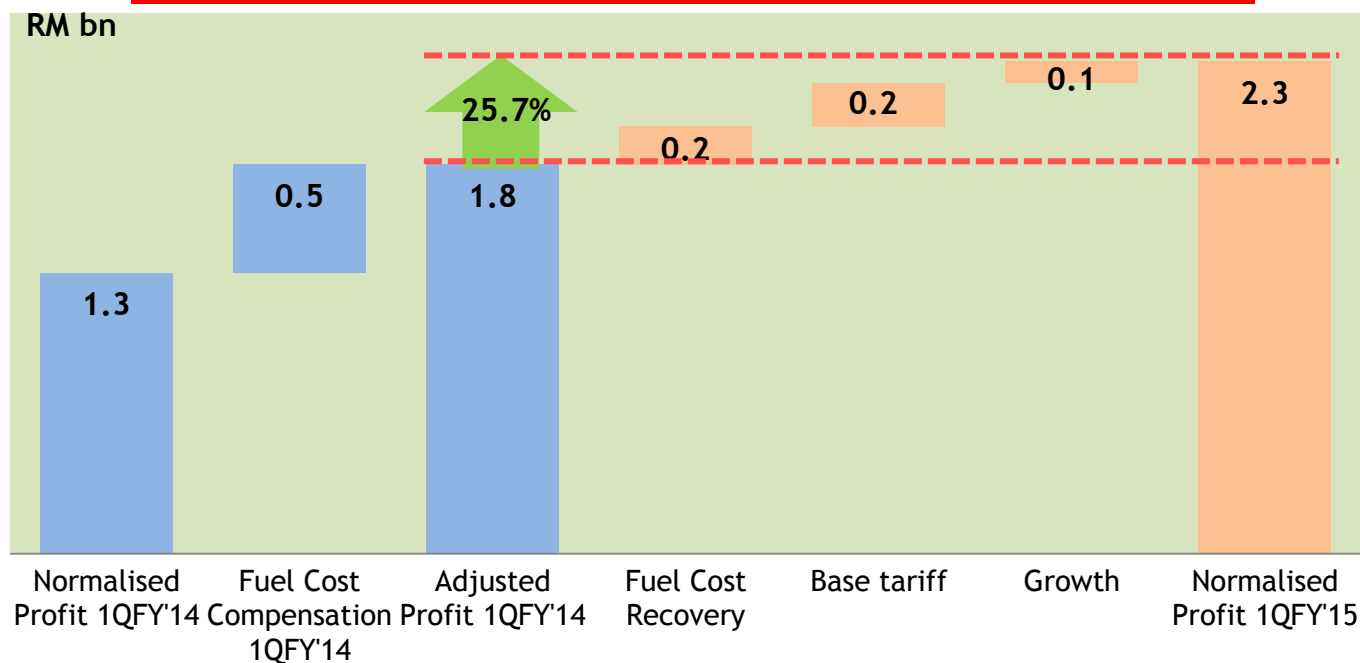
3-Month Ended 30th Nov 2014

- Profit After Tax of RM2.35 billion (1QFY2014: RM1.73 billion).
- 73.2% increase in Capital Expenditure; total amount of RM2.51 billion (1QFY2014: RM1.45 billion).
- 3.3% unit electricity demand growth in Peninsular Malaysia.
- 3.6% increase in Operating Expenses; total amount of RM8.42 billion (1QFY2014: RM8.12 billion).

GROUP PROFIT ANALYSIS

Higher Normalised Profit due to Growth and Tariff Review

(RM mn)	1QFY'14 (Restated)	1QFY'15
Profit After Tax	1,732.4	2,351.0
Less: Forex Translation Gain	252.7	45.9
Profit Before Forex & After Tax	1,479.7	2,305.1
Adjustments for Non-Comparative Items:		
Change in Corporate Tax Rate	(186.7)	
Normalised Profit Before Forex and After Tax	1,293.0	2,305.1



QUARTERLY & YEARLY ANALYSIS

Higher OPEX Mainly due to Higher LNG Cost, Mitigated by Lower Coal Price

Table 1:

RM mn	1QFY'15	1QFY'14 (Restated)
Total Units Sold (GWh)	27,431.2	26,717.4
Revenue	11,027.1	9,572.4
Operating Expenses (before depreciation)	7,161.8	6,966.4
Operating Income	136.9	69.4
EBITDA	4,002.2	2,675.4
EBITDA Margin (%)	36.3%	27.9%
Depreciation and Amortisation	1,257.4	1,157.9
EBIT	2,744.8	1,517.5
EBIT Margin (%)	24.9%	15.9%
Finance Cost	253.9	227.5
Profit Before Tax & Forex Translation	2,574.9	1,363.9
Net Profit Before Forex Translation	2,306.0	1,497.6
Translation Gain	45.9	252.7
Net Profit attributable to : Owners of the Company	2,351.9	1,750.3
Non-controlling Interest	(0.9)	(17.9)

Table 2:

<u>COAL PRICE & CONSUMPTION</u>	<u>1QFY'14</u>	<u>1QFY'15</u>	<u>Var (%)</u>
Average Coal Price Consumed (USD/MT)			
FOB	67.5	60.4	-10.5%
Freight	9.1	9.3	2.2%
Others	0.6	0.5	-16.7%
CIF	77.2	70.2	-9.1%
Average Coal Price Consumed (RM/MT) (CIF)	249.0	230.2	-7.6%
Coal Consumption (mn MT)	4.7	5.6	19.1%

QUARTERLY ANALYSIS: GENERATION MIX (PENINSULA)

Fuel Mix Shifting Back to Coal

Table 1:

UNIT GENERATED

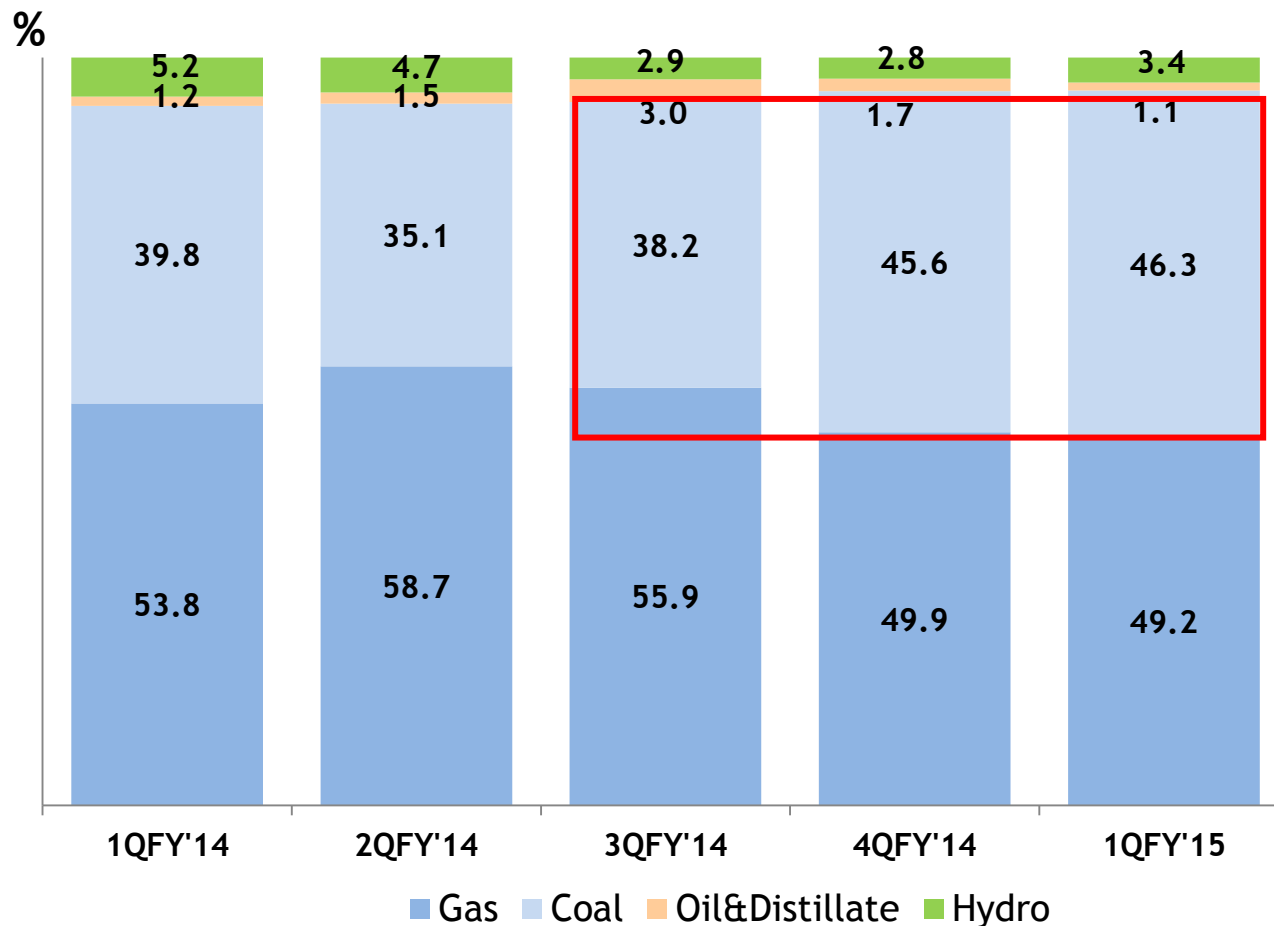
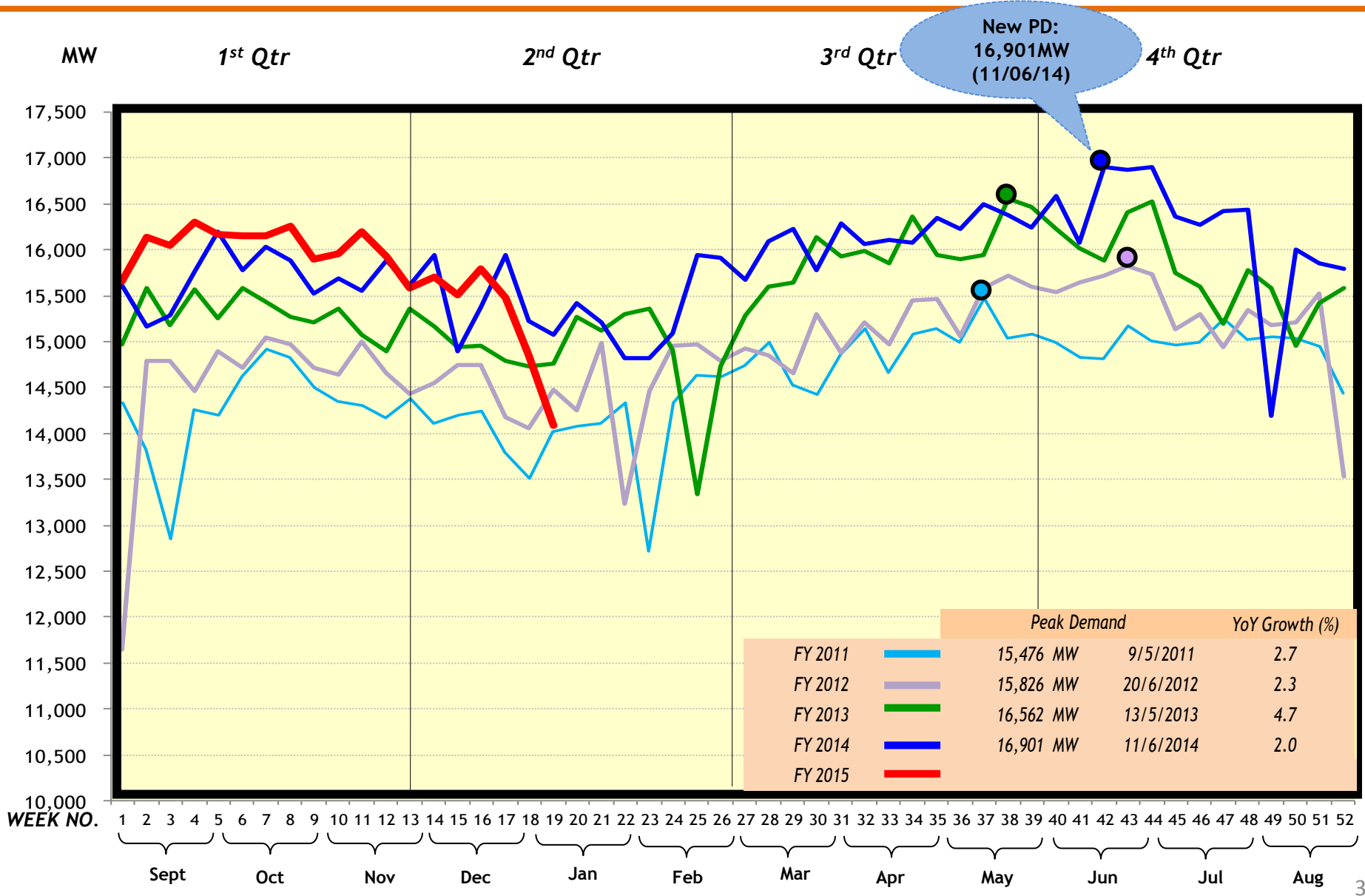


Table 2:

Average Gas Volume (mmscfd)	
1QFY'14	1,321
2QFY'14	1,383
3QFY'14	1,405
4QFY'14	1,217
1QFY'15	1,218

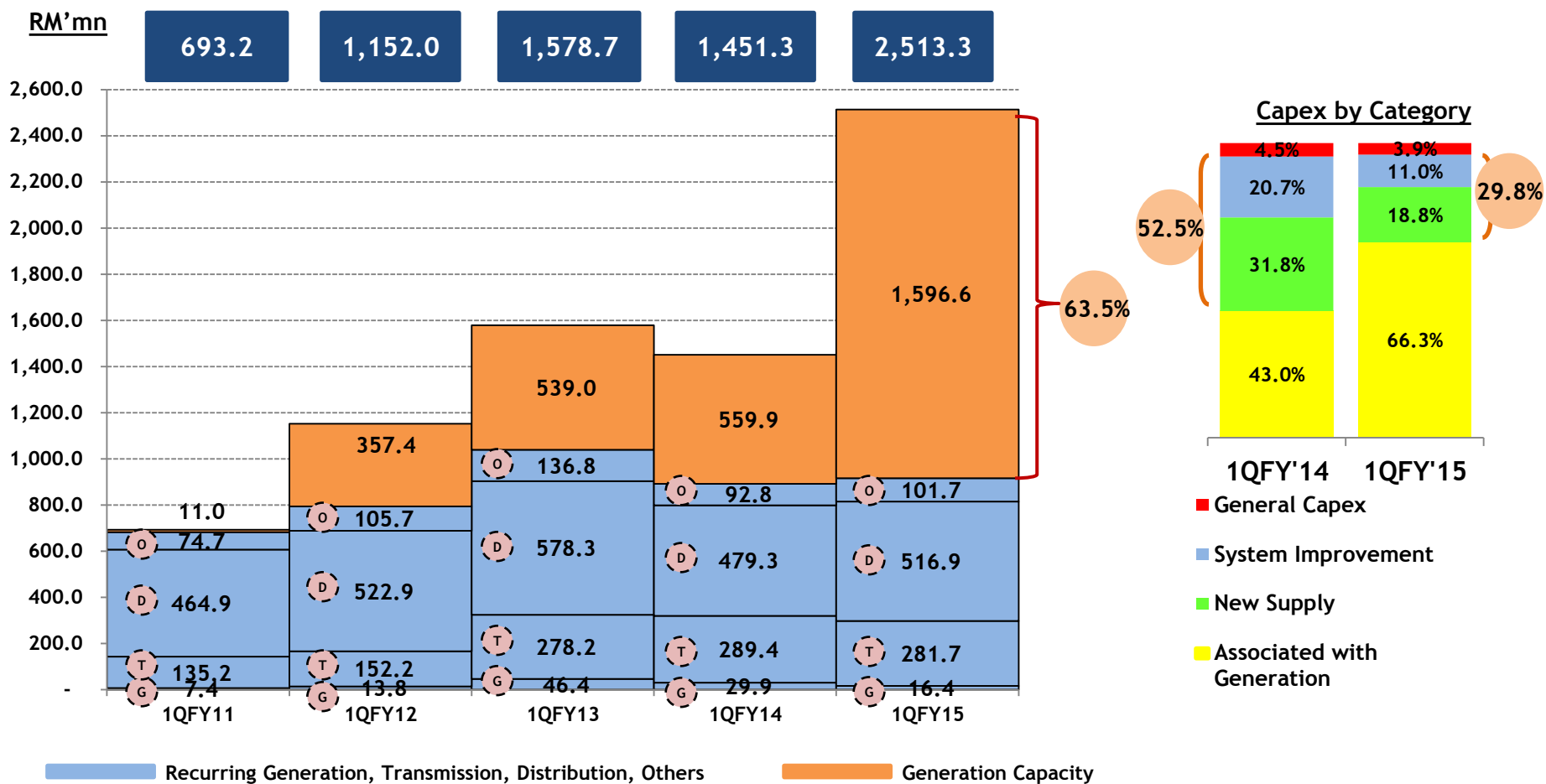
SYSTEM WEEKLY MAXIMUM DEMAND (PENINSULA)

For FY2011 to FY2015



CAPITAL EXPENDITURE

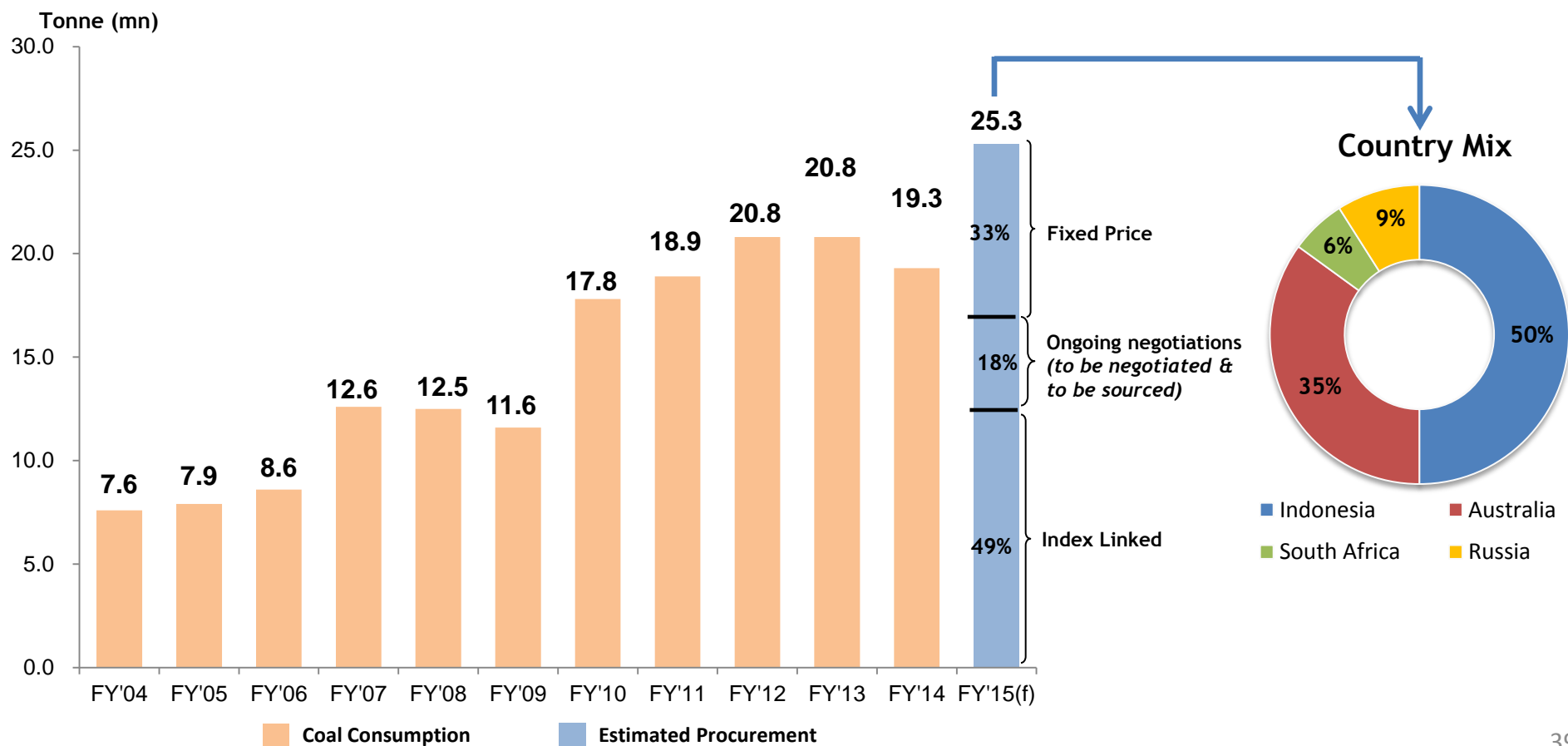
Major Projects Represent 63.5% of Total CAPEX



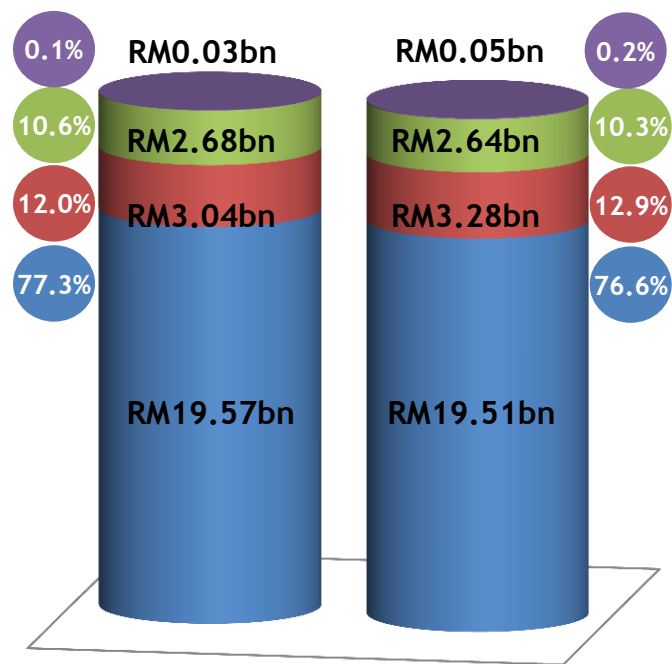
COAL REQUIREMENT

Average Coal Price for 1QFY'15 was at USD70.2/MT

	FY'05	FY'06	FY'07	FY'08	FY'09	FY'10	FY'11	FY'12	FY'13	FY'14	1QFY'15
Average Coal Price (CIF) (USD/metric tonne)	49.8	52.8	45.3	76.4	90.2	88.2	106.9	103.6	83.6	75.4	70.2



DEBT EXPOSURE & FOREX


30th Nov'14

31st Aug'14

■ RM ■ YEN ■ USD ■ Others

Statistics	30th Nov'14	31st Aug'14
Total Debt (RM bn)	25.3	25.5
Net Debt (RM bn)	20.4	17.3
Gearing (%)	35.6	36.9
Net Gearing (%)	28.7	25.2
Fixed : Floating (%)	99.6 : 0.4	99.3 : 0.7
Final Exposure (%)	100.0 : 0.0	100.0 : 0.0
Weighted Average Cost of Debt (%)	4.91	4.86
Final Exposure (%)	4.96	4.92

	30th Nov'14	31st Aug'14
USD/RM	3.38	3.15
100YEN/RM	2.86	3.04
USD/YEN	118.18	103.62

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THANK YOU