



## **Initiatives Towards the Development of the Malaysian Electricity Supply Industry (MESI)**

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**Presentation by Dr. Sulaiman Abdullah  
Head of Department, MyPOWER Corporation**

19 December 2013

# The case for the Malaysian Electricity Supply Industry Transformation

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1. Enhance governance to ensure the industry's sustainability
2. Introduce explicit, transparent tariff pass-through mechanism to balance merits risks for the industry players
3. Rationalise gas price subsidies and develop fuel supply security
4. Create equitable competitive bidding mechanism toward greater efficiency

## Snapshot of concerns expressed by stakeholders

Country's continued reliance on **heavily-subsidised gas** discouraged power producers and end users from pursuing efficiency, adding that 'something has to be done' to change the current mentality.

*PETRONAS CEO, Aug 2011*

The more **transparent tariff pass-through formula** and removal of subsidies have to come together, as people may question who will bear the cost once the subsidies are removed. Once the removal of the subsidy happens, the pass-through formula must be in place, if not, the industry players will have to absorb it.

*TNB CEO, Mac 2010*

There must be **greater transparency** and **predictability** in **energy pricing** in view of uncompetitive tariffs and inefficient supply chains. The components and computation of the fuel pricing mechanism should be publicised.

*FMM, May 2011*

This decision (**increase gas price**) is **consistent** with the **Government's policy** to reduce the gas subsidy in stages **until it reaches market price**.

*EPU Minister, May 2011*

Kajian dan cadangan berkaitan **Penjana Tenaga Bebas (IPP)** dilakukan secara menyeluruh dan telus dengan mengambil kira kepentingan rakyat serta industri penajaan tenaga.

*MAPEM, Jun 2011*

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## **Government/ Ministry of Energy, Green Technology & Water (“KeTTHA”) has embarked on a power sector transformation programme**

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1. MyPOWER is a special purpose agency created to detail out the key reform initiatives of the Malaysian Electricity Supply Industry (“MESI”) that are aligned with the **Government and Economic Transformation Programmes**.
2. The MESI transformation agenda seeks to address the industry issues and long term needs with regards to **reliability, transparency, efficiency** and **sustainability** of the operations and delivery of electricity in Peninsular Malaysia

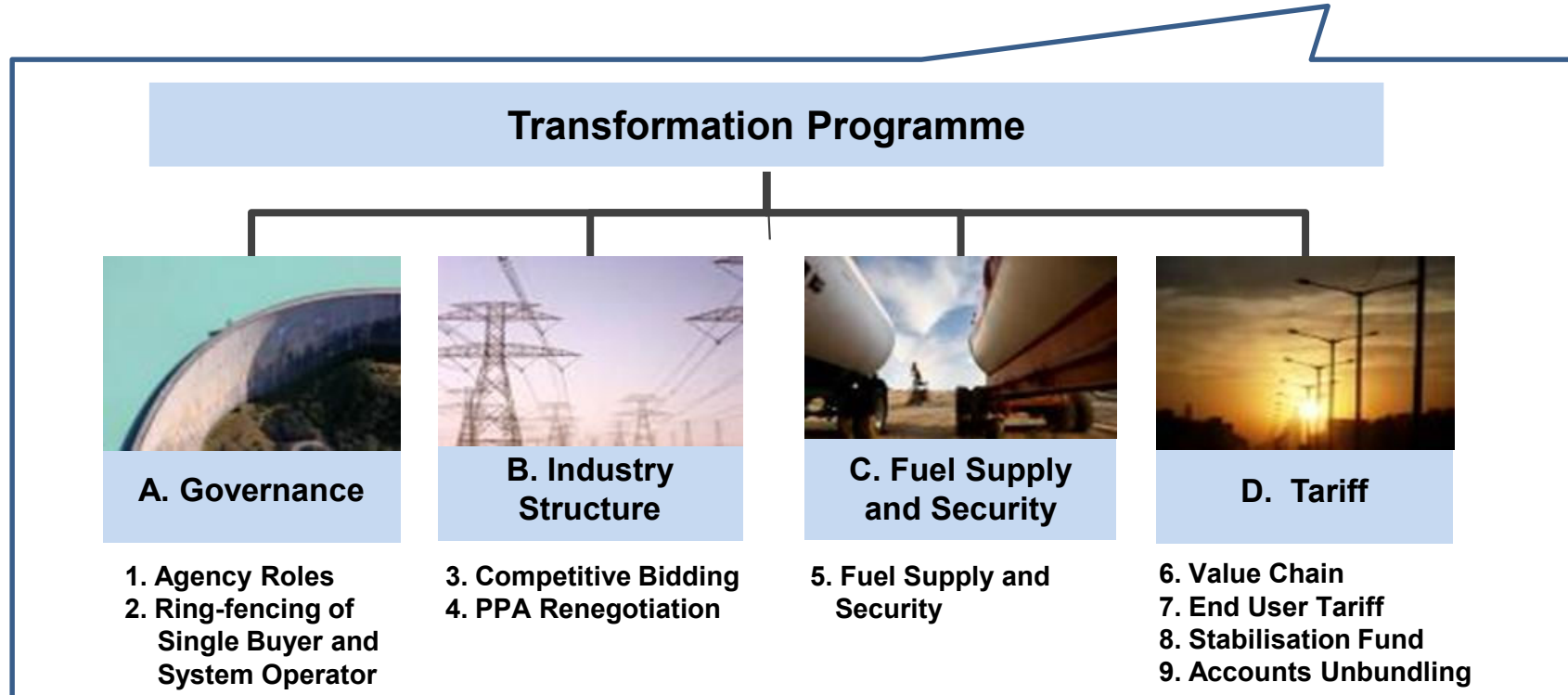
**End objective is to ensure reliability, transparency, efficiency and sustainability in the electricity supply industry**

# 9 Key Malaysian Electricity Supply Industry (“MESI”) Transformation initiatives were developed

Jun - Dec 2008  
Khazanah’s MESI Study

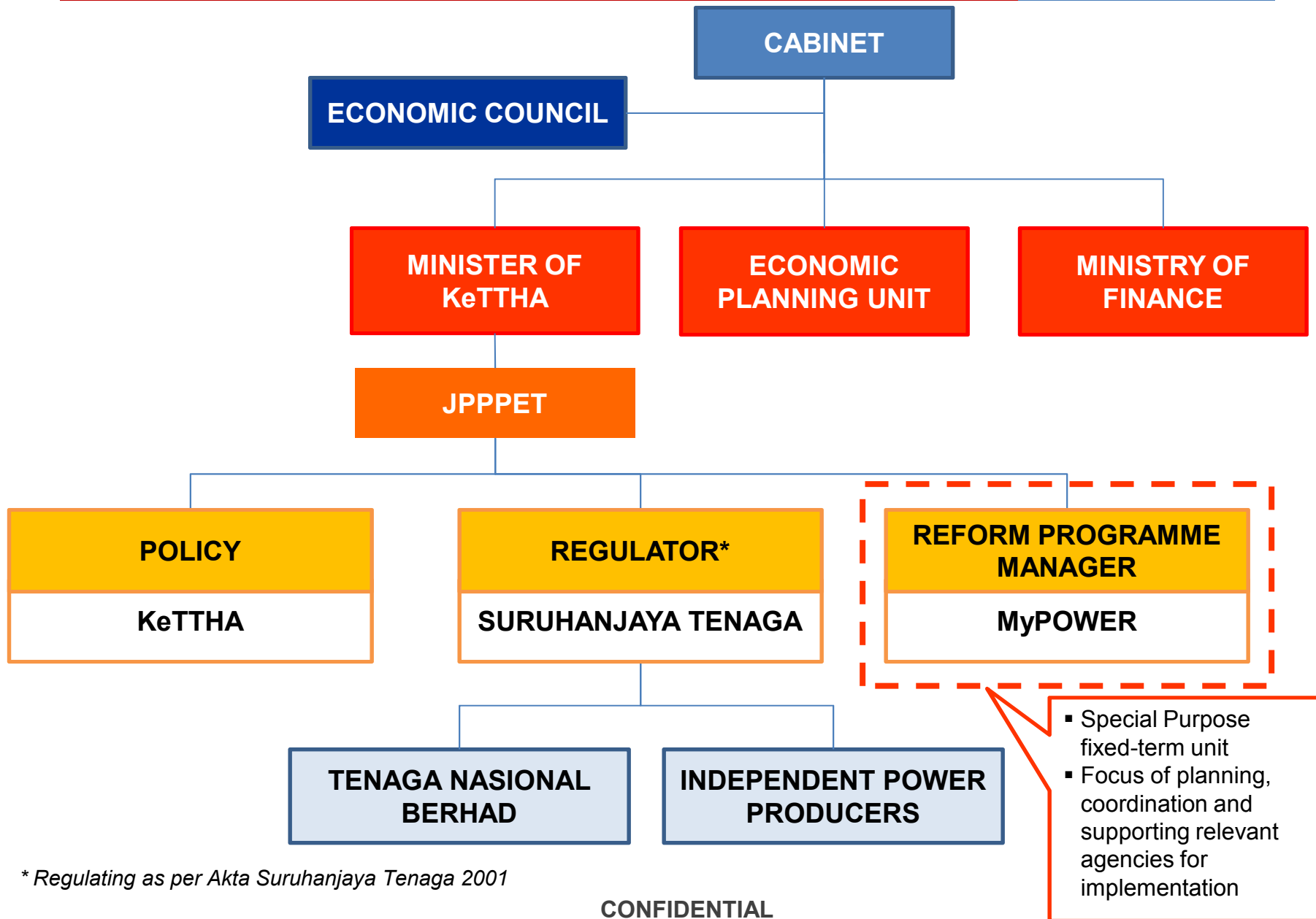
Jan - Dec 2009  
KeTTHA-led syndication

4 Dec 2009  
Cabinet endorsement to transform ESI



**Aimed at delivering a reliable, transparent, efficient and sustainable MESI**

# MyPOWER was established to drive the Malaysian Electricity Supply Industry (“MESI”) Transformation initiative



\* Regulating as per Akta Suruhanjaya Tenaga 2001

# Critical that Electricity Supply Industry Transformation meets expectations of stakeholders

## Transparency

- Increased **transparency** in load dispatch process
- **Level playing field**



## Efficiency

- Higher efficiency, reduce wastages

## Tariffs

- **Competitive** with regards to neighboring markets
- A **equitable** and **automatic tariff mechanism**

## Customer Choice

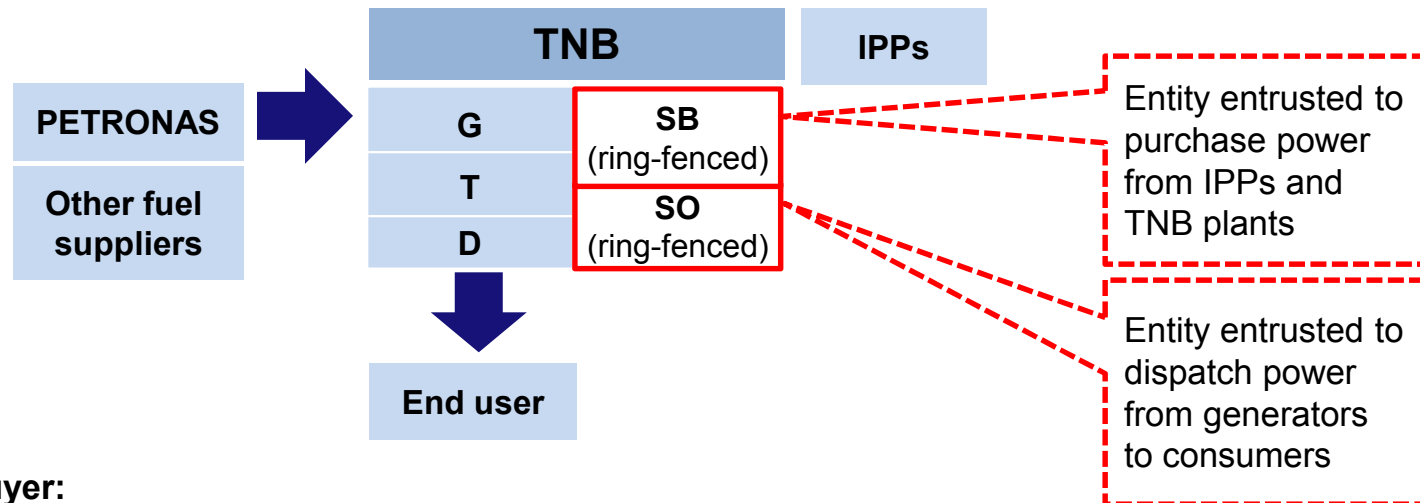
- Desire for **options and innovation** (i.e. interruptible load)

## Fuel

- **Fuel cost pass-through**
- A **plan for long term fuel supply and security**

# Ring-Fenced Single Buyer (SB) and System Operator (SO)

## Transparent and efficient dispatch of electricity



### ▪ Single Buyer:

- Strengthen the planning process, increasing transparency of scheduling and dispatch, power purchase settlements
- Establish of arms-length relationships for power purchase agreements
- Clear separation of functions between SO and SB

### ▪ System Operator:

- Increase transparency of dispatch to enable compliance audits by regulators
- Increase stakeholder confidence that dispatch will be at optimum cost to system
- With transparent least cost operations, automated cost pass-through is less controversial

**The operation and functions of the SB & SO will be governed by a set of well defined rules and guidelines – supervised by Suruhanjaya Tenaga**





# Consumers are able to understand cost elements of electricity consumed in a transparent manner

## Malaysia

✗ Lacks transparency across G/T/D

TENAGA NASIONAL BERHAD (200995-W)		BIL ELEKTRIK		
NO. AKAUN PENGGUNA	KONTRAK	KOD	AMAUN	NO. BIL
KATEGORI PENGGUNA		KOD	TARIKH KEMASKINI	
BIL. AM. 02-05-0812		450.85	N	02-05-0812
BAYARAN HARIAN		27-04-2012	438.35	
CAJ	UNIT	KADAR	JUMLAH	
KEGUNAAN ELEKTRIK	753	0.430	RM	323.79
KUMPULAN HANG TENAGA BOLEH BAHARU			RM	3.24
			RM	327.03
JUMLAH BIL				RM 327.03
PENGENAPAN				RM 0.02
J.M. PERLU DIBAYAR				RM 327.05
NO. AKAUN PENGGUNA	KONTRAK	KOD	KEGUNAAN	UNIT
307415240	16477	N	86077	753 kWh
307415240	16477	N	16477	163 kWh

Info limited to units consumed. Recently, FiT and fuel subsidy added in.

SUPPLY BAHAN API OLEH KERAJAAN PERSEKUTUAN	RM	152.38
TRK/BACAAN DAHULU: 09-04-2012	SEMASA: 04-05-2012	BIL. HARI: 25
NO. TEL ADUAN GANGGUAN BEKALAN:	15454	
NO. TEL PERTANYAAN AM	1300-88-5454 - Bil	
ALAMAT EMEL CRO	tnbcareline@tnb.com.my	
NO. TIANG		
MENARA TH		
NO. TIANG	3909	HRID: 10019444
NO. BIL	240512 160944 00574247	327.05 CK
TUNGGAKAN PERLU DIJELASKAN SERTA MERTA UNTUK MENGLAKSANAKAN PEMOTONGAN BEKALAN BIL SEMASA PERLU DIJELASKAN DALAM MASA 30 HARI, IAITU SEBELUM:		

Fuel subsidy

## Thailand

✓ Transparency via accounts unbundling for G/T/D

ประเภทการใช้ไฟฟ้า	On Peak	Off Peak	ค่าไฟฟ้า (฿)	รวม
ไฟกลางวัน	286.69	28.83	434.24	1,319.76
ไฟกลางคืน	102.48	0.00	15.08	87.40
ไฟกลางวัน	265.56	0.00	25.72	239.84
ค่าบริการ	-	-	-	167.95
ค่าแรง	-	-	-	0.00
รวม	64.38	-	-	64.38
รวมค่าไฟฟ้า	0.6285	0.0000	รวมค่าไฟฟ้า	1,730.99
- ค่าแรง	0.8997	รวมค่าไฟฟ้า	รวมค่าไฟฟ้า	122.54
- ค่าแรง	0.8241	รวมค่าไฟฟ้า	รวมค่าไฟฟ้า	1,853.53
- ค่าแรง	0.0411	รวมค่าไฟฟ้า	รวมค่าไฟฟ้า	

Tariffs by G/T/D

Fuel pass through factor

## Philippines

✓ G/T/D is liberalised

ELECTRIC BILL				
METERING INFORMATION				
Number	Previous Reading	Present Reading	Multiplier	Registered
92097	9337	9659	1	322 kWh
RATE Residential				
Generation Charge	322 X 3.4029			1,095.73
Transmission Charge	322 X 0.9605			309.28
System Loss Charge	322 X 0.5493			176.87
Distribution Charge	322 X 1.1628			
METERING CHARGE				
Customer Charge	5 X 1 mo			5.00
Reading System Charge	322 X 0.2435			78.41
Supply Charge				169.73
Life-time Subsidy				24.50
Business Subsidy				-229.59
Power Act R				-96.60
CERA	322 X 11.8775			44.44
FRANCHISE				
National	322 X 1.9 X 2%			39.04
UNIVERSAL				
Missionary	322 X 0.0158			5.41
Environmental Fund	322 X 0.0025			0.81
OTHER CHARGES				
Feb-Mar M				9.15
Electricificati				
(MEC)				
TOTAL CURRENT				5.60

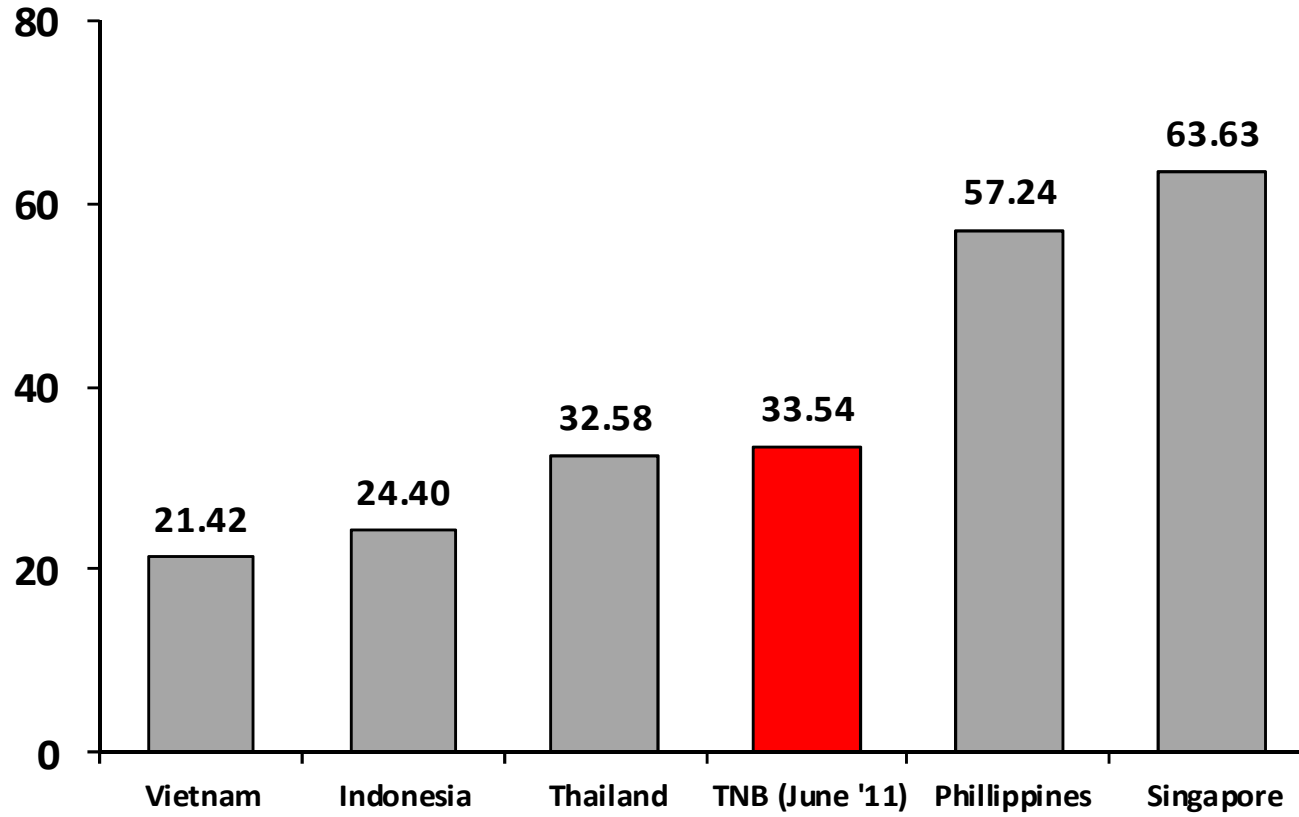
Additional info:  
• system losses  
• metering charges  
• subsidies

charges for environmental fund

Source: Respective regulator websites

# Overall Electricity Tariff Comparison

sen/kWh



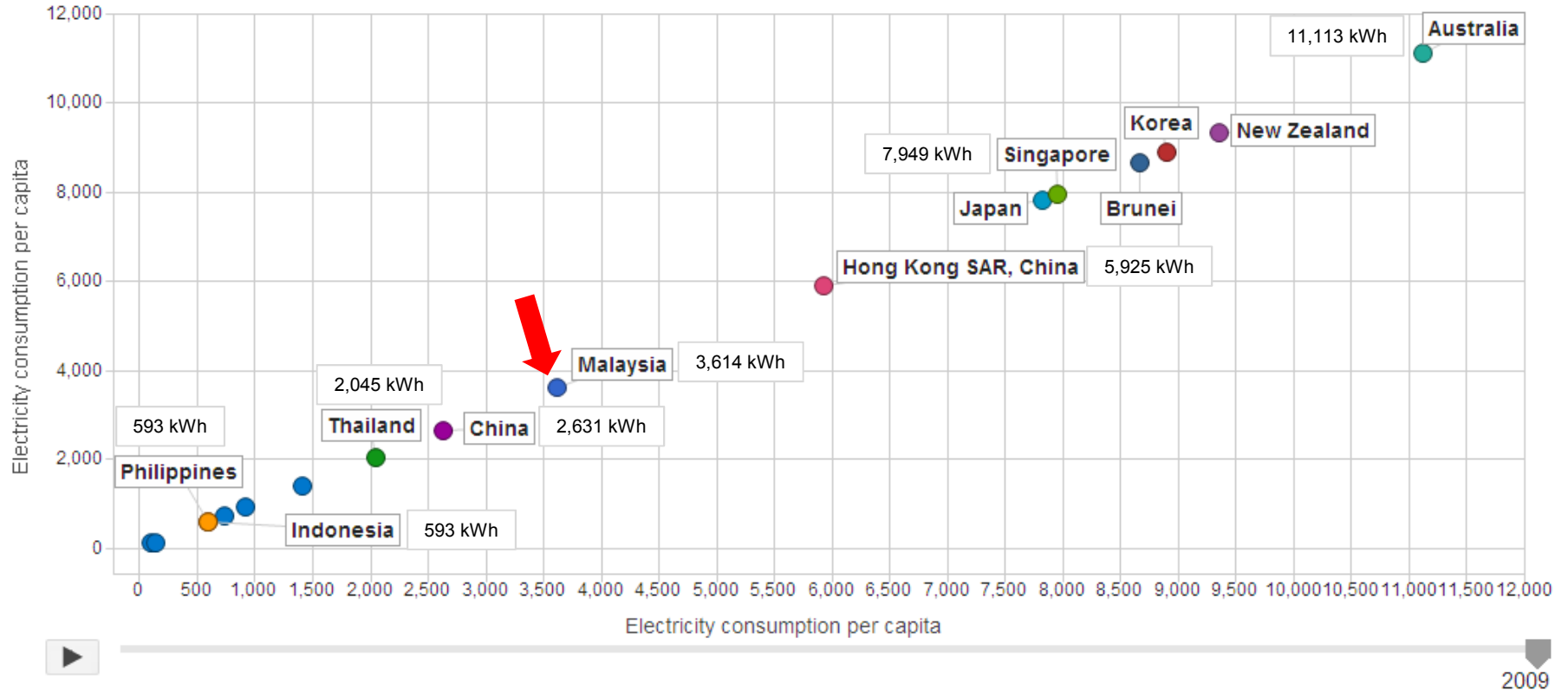
Source: Tenaga Nasional Bhd (TNB)

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# As Malaysia advances towards a high-income economy, meeting the increasing electricity demand will be a challenge

## Electricity consumption per capita, 2009

Countries, East Asia & Pacific

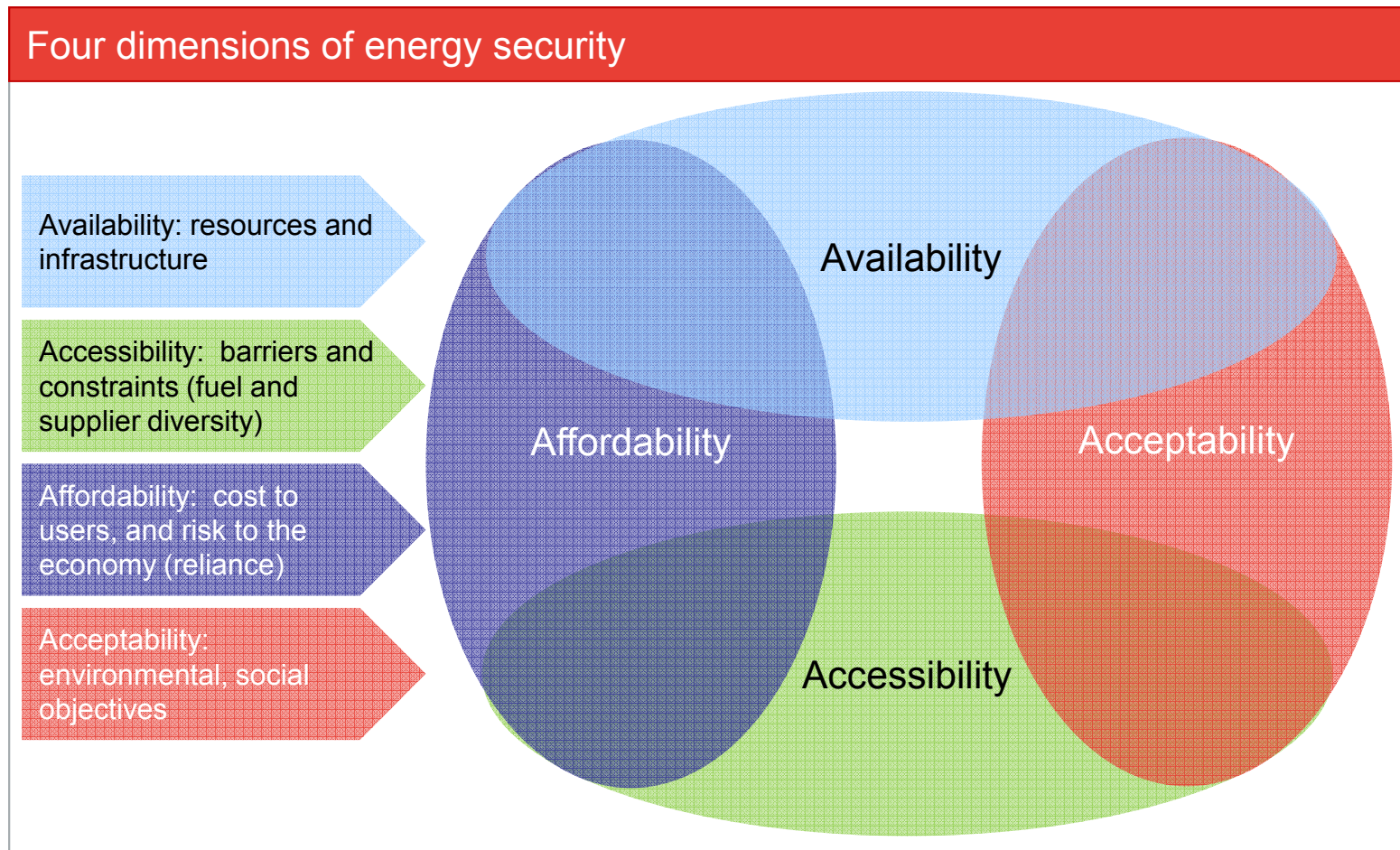


Data from World Bank

**The country requires a fuel mix policy that would ensures long-term security of fuel supply**

# Fuel mix and fuel supply security must be managed to ensure a reliable electricity supply

To ensure an **efficient, secure and environmentally sustainable** supply of energy<sup>1</sup>



<sup>1</sup>Source: Malaysia National Energy Policy 1979

## 7 Parameters for Formulating Fuel Mix Security

<b>ES1</b>	Global reserves-to-production ratios for gas, coal and oil.
<b>ES2</b>	Power sector reserve capacity.
<b>ES3</b>	HHI for fuel mix (i.e. gas, coal, oil, hydro) for the power sector.
<b>ES4</b>	HHI for fuel suppliers (i.e. domestic gas, Aus LNG, etc) for the power sector.
<b>ES5</b>	Net energy import dependence for gas, coal and oil for the power sector.
<b>ES6</b>	Gas, coal and oil stocks available to power sector.
<b>ES7</b>	CO <sub>2</sub> emissions intensity for the power sector.





# Competitive bidding

Transparent and efficient way forward for procuring future capacity

	Capacity Required <sup>1</sup>	Status
Coal Plant	4000 MW	<p><b>Completed:</b></p> <ul style="list-style-type: none"> <li>Tanjung Bin – 1000 MW, Winner: Segari Energy Ventures, COD<sup>2</sup> 1 Mar 2016</li> <li>Track 3A – Brown Field: 1000 MW, Winner: TNB Jana Manjung, COD 1 Oct 2017</li> </ul> <p><b>On-going:</b></p> <ul style="list-style-type: none"> <li>Track 3B – Green Field: 2 x 1000 MW, COD Oct 2018 &amp; Apr 2019</li> </ul>
Gas Plant	4500 MW	<p><b>Completed:</b></p> <ul style="list-style-type: none"> <li>Track 1: Prai CCGT<sup>3</sup> – 1071 MW                             <ul style="list-style-type: none"> <li>International Bidding (49% for foreign shareholding)</li> <li>Winner: TNB at 34.7 sen/kWh at <b>baseload</b>- [60% cap factor]</li> <li>COD: 1 March 2016</li> </ul> </li> <li>Track 2: Restricted Bidding 1st Gen IPPs and TNB                             <ul style="list-style-type: none"> <li>Deploying the economic value of the existing capacity</li> <li>Winner at <b>intermediate load</b> [approx. 25% capacity factor]</li> <li>Winning bids IPP (Genting Sanyen and Segari Ventures) bids at 35.3 to 36.3sen/kWh and TNB bid at 37.4 sen/kWh</li> </ul> </li> </ul> <p><b>Track 2 tariffs SEEMS higher cost than Track 1 only because of base load assumption for Track 1 and Peak/Intermediate load assumptions for Track 2. If apple-to-apple comparison. Track 2 plants yields lower cost to system – also [RM2.0b] savings achieved from restructuring of terms of existing PPAs</b></p>

1. Capacity and timing based on Jawatankuasa Perancangan Pelaksanaan Pembekalan Elektrik Dan Tarif (“JPPPET”) decision  
 2. COD: Commercial Operation Date  
 3. CCGT: Combined Cycle Gas Turbine



# Reform progress to-date

## Situation [2000 to 2010]

## Situation [2013]

- |   |   |
|---|---|
| <p>1 All IPPs were contracted on the basis of <b>negotiation</b></p>  | <p>Successfully executed/ongoing competitive bidding programmes</p>   |
| <p>2 Concern on <b>restructuring<sup>1st</sup> Generation PPAs</b></p>  | <p>1<sup>st</sup> Gen PPAs <b>incorporated necessary condition</b> to ensure efficiency is achieved</p>   |
| <p>3 Substantial concerns on <b>electricity and fuel security</b></p>   | <p><b>Electricity security index</b> adopted by JPPPET* and is being deployed by Suruhanjaya Tenaga</p>   |
| <p>4 Mechanism was not in place to institute a <b>tariff pass-through</b> for fuel cost and <b>reduce gas subsidies</b></p> | <p>Completion of design of <b>Incentive Based Regulation</b> (performance based tariff) , <b>Fuel Cost Pass Through</b> and <b>Stabilisation Mechanism</b></p>      |
| <p>5 A <b>traditional utility governance</b> structure</p>  | <p><b>Guidelines for Ring Fencing Single Buyer and System Operator and Accounting separation of various TNB divisions</b> are in the process of implementation.</p> |



\* Jawatankuasa Perancangan Pelaksanaan Pembekalan Elektrik Dan Tariff (JPPPET)

## Steps to enhance reform efforts

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- Outline clear objectives with shared vision
- Generate balanced viewpoints and ability to improve decision-making
- Strengthen syndication and communication in the public domain
- Strengthen capabilities and resources to negotiate for solutions
- Strengthen and sustain resources to focus on implementation of reform and prioritise objectives

# A good understanding of the MESI by the public strengthens the reform process (1/4)

## Myth #1

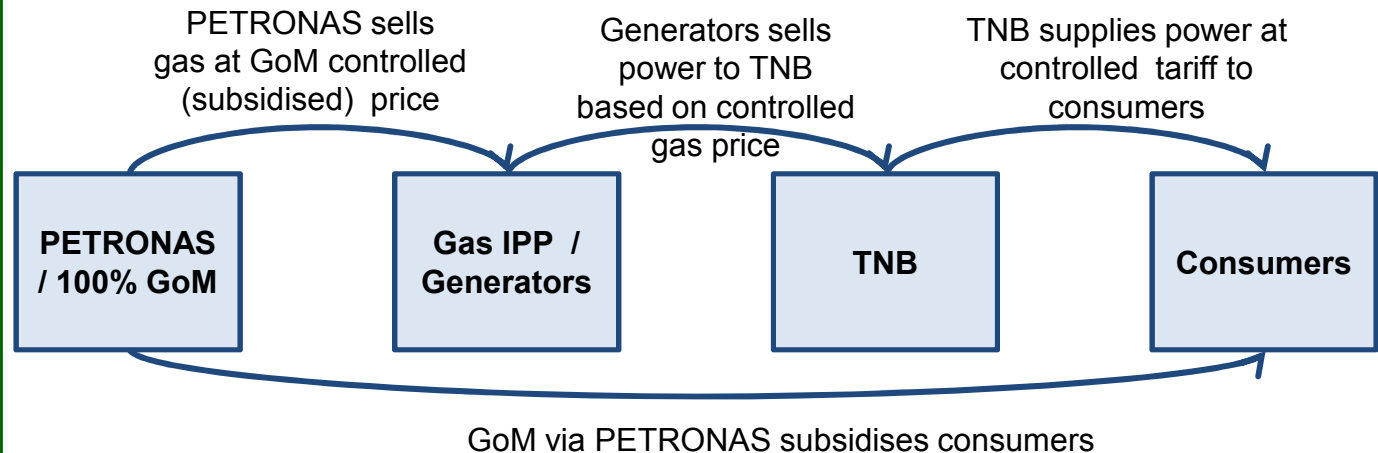
IPP are beneficiaries of [RM8-12b p.a.] PETRONAS/ GoM Gas Subsidies

- Quoting from PETRONAS Annual Report, claim implies GoM is supporting IPPs via subsidies

Electricity consumers are the beneficiaries of Gas Subsidies via Subsidised Electricity Tariffs

IPP and TNB profits are indifferent to gas price, as this is a pass-through cost; how this works:

## Fact



# The ~RM12 billion subsidised by GoM yearly for the consumers is clearly stated in the monthly bill

TENAGA NASIONAL BERHAD (200896-W)		BIL ELEKTRIK				
		CAGARAN		NO. BIL		
NO. AKAUN PENGGUNA	KONTRAK	KOD	AMAUN			
KETERANGAN	TARIKH	JUMLAH	KOD	TARIKH KEMASKINI		
BIL AKHIR	09-04-2012	450.35	N	02-05-2012		
BAYARAN AKHIR	27-04-2012	450.35				
CAJ	UNIT	KADAR	JUMLAH			
KEGUNAAN ELEKTRIK	753	0.430	RM	323.79		
KUMPULAN HANG TENAGA BOLEH BAHARU			RM	3.24		
JUMLAH BIL BULAN SEMASA				RM 327.03		
PELBAGAI	=RM	0.00	JUMLAH BIL	=RM 327.03		
PENALTI	:		PENGGENAPAN	=RM 0.02		
TUNGGAKAN	=RM	0.00	JUM. PERLU DIBAYAR:	RM 327.05		
CAGARAN TAMBAHAN:	RM	0.00				
NO. JANGKA	DAHULU	KOD	SEMASA	KOD	KEGUNAAN	UNIT
307415240	85284	N	86077	N	753	KWh
307415240	16477	N	16000	N	163	KVARI
SUPPLI BAHAN API OLEH KERAJAAN PERSEKUTUAN				RM	152.38	
TARIKH BACAAN	DAHULU: 09-04-2012	SEMASA: 04-05-2012	BIL HARI: 20			
NO. TEL ADUAN GANGGUAN BEKALAN:	15454					
NO. TEL PERTANYAAN AM	: 1300-88-5454 - Bil					
ALAMAT EMEL CRO	: tnbcareline@tnb.com.my					
NO. TIANG	:					
MENARA TH SELBORN 153 JLN TUN RAZAK						
TNB PTLGJAYA				MRID: 10019444		
0130 02 88100 70 01230100983909						
240512 160944 00574247						
TUNGGAKAN PERLU DIJELASKAN SERTA MERTA UNTUK MENGELOKKAN PEMOTONGAN BEKALAN				327.05 CK		
BIL SEMASA PERLU DIJELASKAN DALAM MASA 30 HARI, IAITU SEBELUM:				03-06-2012		

x ~8 million consumers x 12 months  
 =  
 ~RM8-12 billion/year subsidy to power sector

## A good understanding of the MESI by the public strengthens the reform process (2/4)

### Myth #2

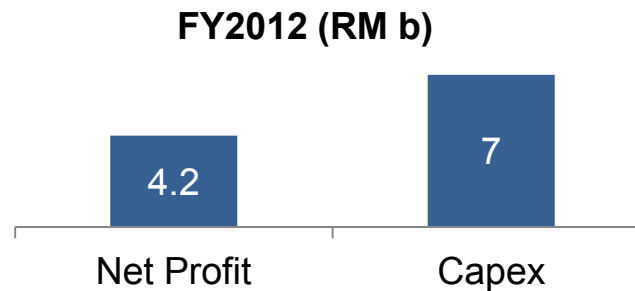
TNB's RM4.2b [FY2012] of net profits are already excessive

### Fact

TNB's return on invested capital (ROIC) is below its cost

- Approximate sustainable ROIC of ~6.1% vs. WACC of 9.7%\*

TNB's profits are lower than its capital expenditure



In other words, if TNB's profits does not grow – inline with its debt and assets, TNB will not be able to effective serve future customers

\* Data as per Morgan Stanley Analyst Report May 2013

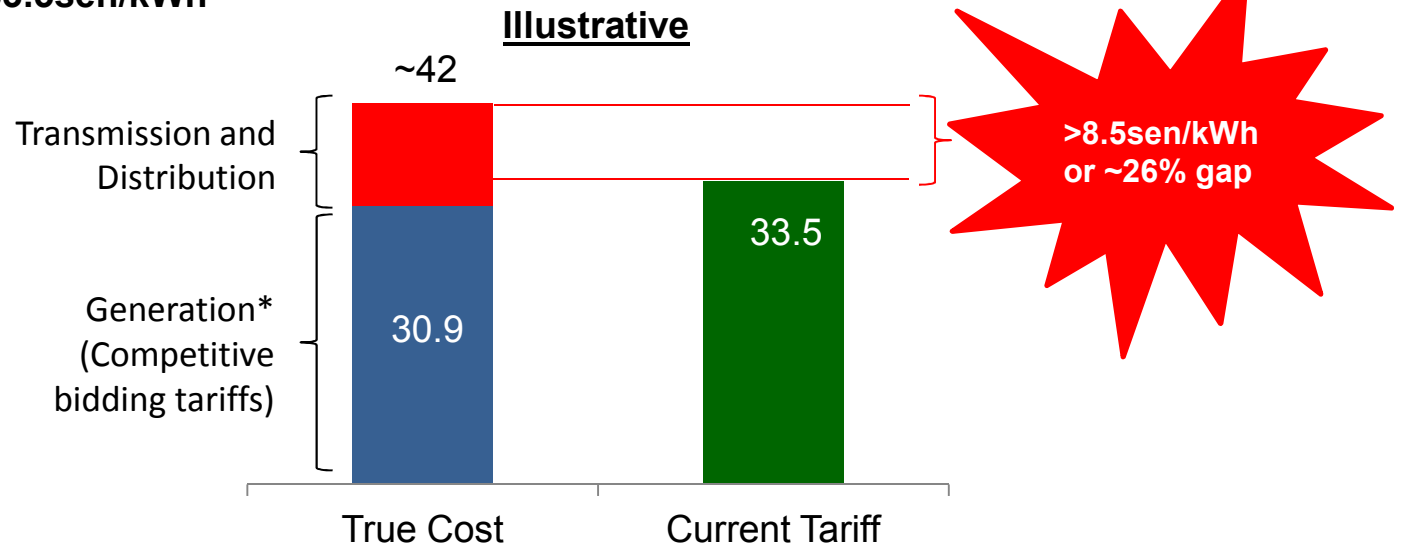
# A good understanding of the MESI by the public strengthens the reform process (3/4)

**Myth #3**

IPPs are the cause for tariff increase or  
If we eliminate IPPs we can avoid tariff increase

**Fact**

True cost of power [if we used competitive bidding results as benchmark] is ~42sen/kWh as opposed to current tariff of 33.5sen/kWh



Tariff increase is required to close the gap between the true cost of power and current subsidised tariffs

\* Based on competitive bidding results 60% gas and 40% coal

# A good understanding of the MESI by the public strengthens the reform process (4/4)

**Myth #4**

**Tenaga Nasional Berhad (TNB) has the advantage in bidding due to accessibility to competitive financing rates with its balance sheet**

**Fact**

International Competitive Bidding: Shortlisted bidders for the Prai CCGT power project pursuant to the pre-qualification process.


The Energy Commission has completed the evaluation of 17 RFQ submissions and the following bidders have been shortlisted to participate in the tender process for the Prai project. The listing is not by any particular order or merit.

NO.	SHORTLISTED BIDDERS
1.	1Malaysia Development Bhd (conditional), LEAD Hyundai Engineering & Construction Co Ltd.
2.	Pendekar Power Sdn Bhd (conditional)
3.	Mastika Legenda Sdn Bhd
4.	Tenaga Nasional Berhad
5.	YTL Power International Berhad, LEAD Marubeni Corporation
6.	CI Holdings Berhad, LEAD Teknologi Tenaga Perlis Consortium Sdn Bhd, Daelim Industrial Co Ltd
7.	Mitsui & Co. Ltd, LEAD Amcorp Power Sdn Bhd
8.	Sime Darby Power Sdn Bhd
9.	Malakoff Corporation Berhad, LEAD Petronas Power Sdn Bhd, Mitsubishi Corporation

Shortlisting of the two participants marked "conditional" will however be subject to the corporate exercise they are currently undertaking given the overall condition that only ONE bid submission is allowed by any Group/Corporation.

All shortlisted bidders, including each member of the consortium, will be required to sign an Integrity Pact. RFP document can be purchased at a date to be notified by the Energy Commission.

Read 673 times Last modified on Thursday, 18 April 2013 23:13

 **Suruhanjaya Tenaga**

**FOR IMMEDIATE RELEASE**

**Media Release**

**RESULTS OF INTERNATIONAL COMPETITIVE BIDDING FOR NEW CAPACITY IN PRAI AND RESTRICTED TENDER FOR RENEWAL OF OPERATING LICENSES OF FIRST GENERATION IPP AND TNB PLANTS**

Putrajaya, 9 October 2012 --- The Energy Commission (EC) has successfully completed the international competitive bidding exercise (Track 1) for a new capacity in Prai, and also the restricted tender (Track 2) for the renewal of operating licenses of first generation Independent Power Producers (IPP) and Tenaga Nasional Berhad (TNB) plants. This is to meet the requirement of generation capacity in Peninsular Malaysia for 2016/2017 as submitted by EC to the Government.

Below are the results of both Track 1 and Track 2 evaluations based on the lowest levelised tariff meeting all the bid requirements.

**Results of Track 1**

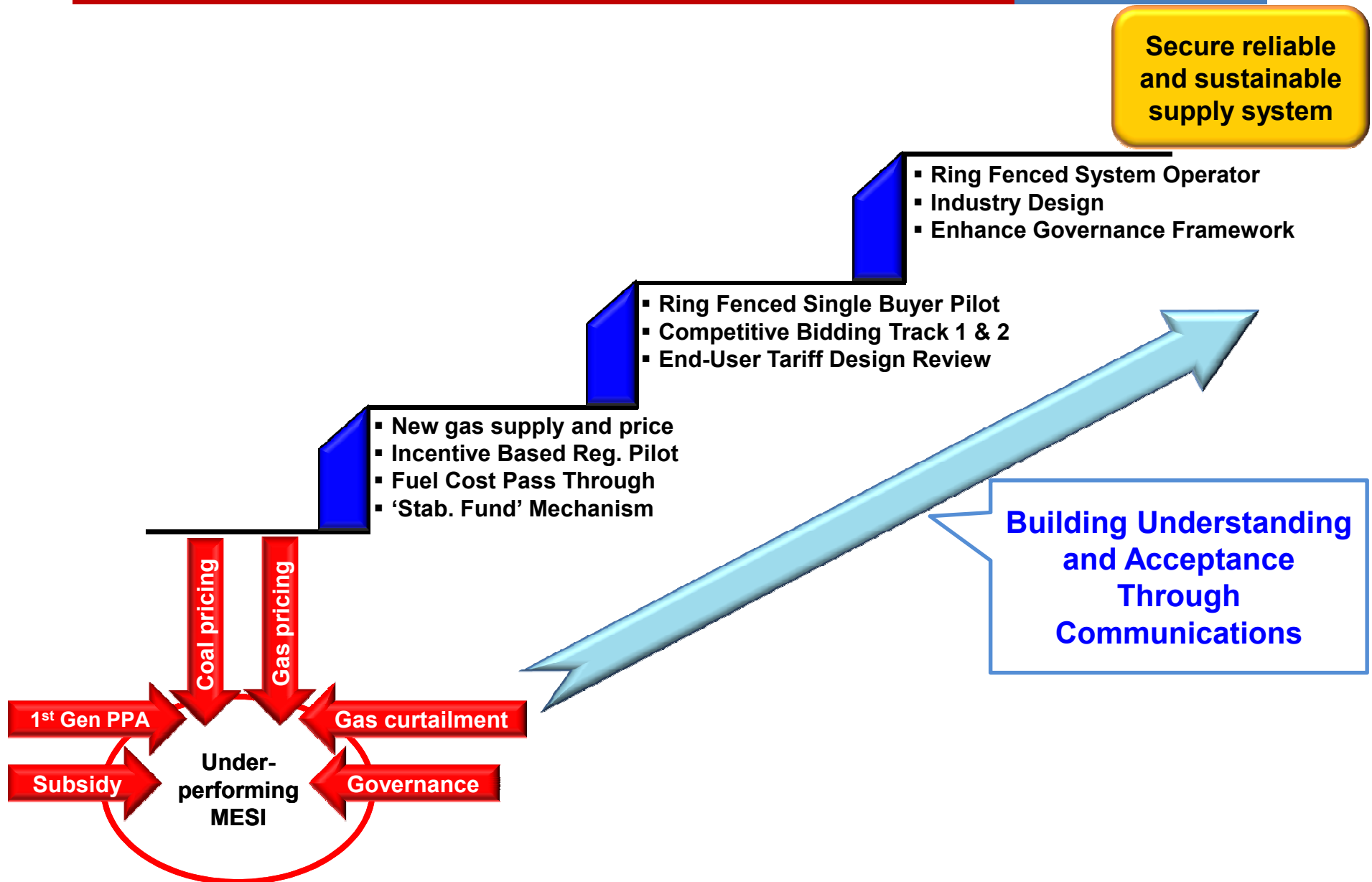
Tenaga Nasional Berhad has been offered to build, own and operate a combined cycle power plant of 1,071 MW capacity in Prai, Penang at a levelised tariff of 34.7 sen/kWh to be commissioned by 1<sup>st</sup> March 2016.

The combined cycle power plant will use 2 units of *Siemens H-class* gas turbines that can achieve plant efficiency of around 60% when commissioned in 2016 compared to the efficiency of *F-class* combined cycle plant in the system of around 55%.

Source: Suruhanjaya Tenaga website

**Having access to competitive financing rate does not guarantee bid winning, there are other factors too**

# The journey will continue





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Thank You