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

Presentation by Dr. Sulaiman Abdullah
Head of Department, MyPOWER Corporation
19 December 2013
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
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 penjanaan tenaga.

*MAPEM, Jun 2011*
Government/ Ministry of Energy, Green Technology & Water ("KeTTHA") has embarked on a power sector transformation programme

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

Transformation Programme

A. Governance
1. Agency Roles
2. Ring-fencing of Single Buyer and System Operator

B. Industry Structure
3. Competitive Bidding
4. PPA Renegotiation

C. Fuel Supply and Security
5. Fuel Supply and Security

D. Tariff
6. Value Chain
7. End User Tariff
8. Stabilisation Fund
9. Accounts Unbundling

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

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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
Incentive Based Regulation
Promoting efficiency on the value chain (G/T/D) activities of MESI

Current

- General cost recovery system
- Regulated/unregulated functions and cost elements

Approved regulatory cost elements

Key Performance Indicators (KPI)

Future
Target implementation in 2014

- Specified regulatory cost recovery procedures
- Reward based on KPI performance

MESI Transformation / Expected outcome

Transparent and efficient G/T/D cost elements to be incorporated in future customer bill.
Consumers are able to understand cost elements of electricity consumed in a transparent manner

**Malaysia**
- **X** Lacks transparency across G/T/D

**Thailand**
- ✔ Transparency via accounts unbundling for G/T/D

**Philippines**
- ✔ G/T/D is liberalised

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*Source: Respective regulator websites*
Overall Electricity Tariff Comparison

Source: Tenaga Nasional Bhd (TNB)
As Malaysia advances towards a high-income economy, meeting the increasing electricity demand will be a challenge.

The country requires a fuel mix policy that would ensure 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 energy¹

Four dimensions of energy security:

- **Availability**: resources and infrastructure
- **Accessibility**: barriers and constraints (fuel and supplier diversity)
- **Affordability**: cost to users, and risk to the economy (reliance)
- **Acceptability**: environmental, social objectives

¹Source: Malaysia National Energy Policy 1979
### 7 Parameters for Formulating Fuel Mix Security

<table>
<thead>
<tr>
<th>ES1</th>
<th>Global reserves-to-production ratios for gas, coal and oil.</th>
</tr>
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<tbody>
<tr>
<td>ES2</td>
<td>Power sector reserve capacity.</td>
</tr>
<tr>
<td>ES3</td>
<td>HHI for fuel mix (i.e. gas, coal, oil, hydro) for the power sector.</td>
</tr>
<tr>
<td>ES4</td>
<td>HHI for fuel suppliers (i.e. domestic gas, Aus LNG, etc) for the power sector.</td>
</tr>
<tr>
<td>ES5</td>
<td>Net energy import dependence for gas, coal and oil for the power sector.</td>
</tr>
<tr>
<td>ES6</td>
<td>Gas, coal and oil stocks available to power sector.</td>
</tr>
<tr>
<td>ES7</td>
<td>CO₂ emissions intensity for the power sector.</td>
</tr>
</tbody>
</table>
Competitive bidding is a better way to ensure least cost to the system

Several negotiations between the 1st Gen IPPs and the Government were held and concluded that a competitive bidding exercise will produce a least cost option to the system.

All new capacity requirements shall be procured via a competitive bidding process to be conducted by Suruhanjaya Tenaga.

Through open bidding, it seems that the government has finally got what it has always wanted for the power sector that earlier on had seemed impossible.

*The Edge Malaysia, 20 August 2012*
Competitive bidding
Transparent and efficient way forward for procuring future capacity

<table>
<thead>
<tr>
<th>Capacity Required¹</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coal Plant</strong></td>
<td></td>
</tr>
<tr>
<td>4000 MW</td>
<td></td>
</tr>
<tr>
<td><strong>Gas Plant</strong></td>
<td></td>
</tr>
<tr>
<td>4500 MW</td>
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**Completed:**
- Track 3A – Brown Field: 1000 MW, Winner: TNB Jana Manjung, COD 1 Oct 2017

**On-going:**
- Track 3B – Green Field: 2 x 1000 MW, COD Oct 2018 & Apr 2019

**Completed:**
- Track 1: Prai CCGT³ – 1071 MW
  - International Bidding (49% for foreign shareholding)
  - Winner: TNB at 34.7 sen/kWh at *baseload* [60% cap factor]
  - COD: 1 March 2016
- Track 2: Restricted Bidding 1st Gen IPPs and TNB
  - Deploying the economic value of the existing capacity
  - Winner at *intermediate load* [approx. 25% capacity factor]
  - Winning bids IPP (Genting Sanyen and Segari Ventures) bids at 35.3 to 36.3sen/kWh and TNB bid at 37.4 sen/kWh

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

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

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Reform progress to-date

**Situation [2000 to 2010]**

1. All IPPs were contracted on the basis of **negotiation**

2. Concern on **restructuring** 1st Generation PPAs

3. Substantial concerns on **electricity and fuel security**

4. Mechanism was not in place to institute a **tariff pass-through** for fuel cost and **reduce gas subsidies**

5. A **traditional utility governance** structure

**Situation [2013]**

- Successfully executed/ongoing competitive bidding programmes

- 1st Gen PPAs **incorporated necessary condition** to ensure efficiency is achieved

- **Electricity security index** adopted by JPPPET* and is being deployed by Suruhanjaya Tenaga

- Completion of design of **Incentive Based Regulation** (performance based tariff), **Fuel Cost Pass Through** and **Stabilisation Mechanism**

- Guidelines for Ring Fencing Single Buyer and System Operator and Accounting separation of various TNB divisions are in the process of implementation.

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

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Steps to enhance reform efforts

- 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**

IPPs are beneficiaries of [RM8-12b p.a.] PETRONAS/ GoM Gas Subsidies
- Quoting from PETRONAS Annual Report, claim implies GoM is supporting IPPs via subsidies

**Fact**

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:

- PETRONAS sells gas at GoM controlled (subsidised) price
- Generators sells power to TNB based on controlled gas price
- TNB supplies power at controlled tariff to consumers
- GoM via PETRONAS subsidises consumers
The ~RM12 billion subsidised by GoM yearly for the consumers is clearly stated in the monthly bill.

\[ \text{~RM8-12 billion/year subsidy to power sector} \]

\[ \text{x ~8 million consumers x 12 months} = \text{~RM8-12 billion/year subsidy to power sector} \]
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

FY2012 (RM b)

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<tr>
<th></th>
<th>Net Profit</th>
<th>Capex</th>
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<tr>
<td>4.2</td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

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

* Data as per Morgan Stanley Analyst Report May 2013
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: Having access to competitive financing rate does not guarantee bid winning, there are other factors too.

Source: Suruhanjaya Tenaga website
The journey will continue:

- Ring Fenced Single Buyer Pilot
- Competitive Bidding Track 1 & 2
- End-User Tariff Design Review
- Ring Fenced System Operator
- Industry Design
- Enhance Governance Framework

Secure reliable and sustainable supply system

- New gas supply and price
- Incentive Based Reg. Pilot
- Fuel Cost Pass Through
- ‘Stab. Fund’ Mechanism

Building Understanding and Acceptance Through Communications

Under-performing MESI

1st Gen PPA
Gas pricing
Coal pricing
Subsidy
Governance
Gas curtailment
Thank You