“Reform and Economic Regulation of the Electricity Industry – Policy Implications for Governments, Industry and Consumers”.

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Time: 2.30pm
Venue: Lecture Hall 3,
Faculty of Economics and Administration
University of Malaya, 50603 Kuala Lumpur
OBJECTIVES

- To present and discuss key principles underpinning the reform and economic regulation of the electricity sector.

- To draw implications for the reform process, in particular for
  - energy policy development,
  - regulatory development and management, and
  - tariff design and implementation

- To provide information on future workshops on economic regulation to be conducted within UMCoRS
Reforming the Electricity industry

Significant structural change since the mid 1990s.  
Note: privatisation not a prerequisite for reform

Key elements of the reform process involved:

- Liberalisation (vertical separation) of vertically integrated utilities  
  Note: Vertically integrated utilities maintained in transition or for political reasons
- The introduction of competition where possible and feasible by deregulating retail market (selling) and generation (wholesale)
- The establishment of an effective and efficient regulatory regime for the natural monopoly elements (i.e. high voltage transmission and low voltage distribution wires)
- the introduction of a national policy on competition
Industry structure – Pre-reform

State intervention on electricity pricing often achieved through opaque and unpredictable exercises of policy/political power

Vertically integrated utility:
- Generation
- Transmission
- Distribution
- Retail

Government \rightarrow Customers

Dividend

Cost-based Prices/cross subsidies
Post reform – vertical separation

Generators

Generators will compete to sell

Wholesale market

Hedge contracts

Retailers will compete to buy and service customers

Transmission Agency

Transmission fees

Distributor – distribution fees

Wires business – subject to economic regulation

Retail competition – customers select own retailer

Retailers buy and on sell power

Customers
Beneficial outcomes from the reforms

- UK, US and Australia, NZ - some reforms in these countries have been acknowledged internationally as being highly successful
- The reform has:
  - delivered initially lower prices to most customers through competition
    - some customers are vulnerable and never benefited
    - need transitional arrangements to bed down competition
  - improved the quality of service in terms of reliability
  - resulted in greater utilisation of generation capacity
  - resulted in improved efficiency
  - attracted greater interests from private sector investors
  - transparent decision-making process
Possible adverse outcomes from the reforms

In some instances:

- Gaming may result in “goldplating” of capital and therefore higher prices to customers.
- Reduction in the quality of service in terms of reliability.
- Asymmetrical distribution of information/knowledge may impact on regulator’s performance.
- Regulators may be poorly resourced.
- Regulators may be captured!
- Poorly designed regulatory framework may lead to wasteful “forum shopping” (lobbying).
California Electricity Crisis (2000/2001)

Crisis set back structural reforms in many countries including Malaysia
- Crisis resulted in thousands of customer facing blackouts
- Anti-reformist and anti-privatisation proponents used it to argue their case
- Proper analysis of causes and informative debate gave in to emotional outburst (especially with disclosure of Enron & Reliant Energy behaviour)

Causes of Crisis
- Increase in demand for energy during 90’s not kept in pace with supply expansion
  ✓ California did not build new major power plant.
  ✓ Strong lobbying from Greens.
  ✓ Increase demand met from inter-State imports and from expanding existing plants
- Price capping of retail prices discouraged energy conservation while energy utilities were forced to buy energy at uncapped whole sale spot market -- created disincentive for investments.
- Hedging by retailers were disallowed.
- Power generators manipulated market by shutting down plants for “maintenance”.
- Poor cross ownership laws (between energy and gas) enabled companies like Enron to control gas supplies and manipulate the market.
- Retail caps encouraged inter-state selling (where prices were not capped).
- Poor transmission infrastructure and market manipulation by energy companies lead to bottleneck points.
- New regulator (FERC under resourced).
Current Electricity Industry Structure - Peninsula Malaysia and Sabah

- Utility’s own Generators
- IPPS

Vertically Integrated Business

Tenega’s and SEB’s Transmission, Distribution, & Retailing activities (customer billing and servicing)

- Generators’ Contract to supply
- Generator Connection Charges

- Legislative Framework
  . ES Act
  . EC Act

- Customer Connection Charges

All Final Customers
Some countries have retained their vertically integrated energy utilities

- Fear Loss of economies of scale and scope
- Governments desire to retain control
  - political reasons
  - to achieve other socio-economic objectives
  - for industry protection
- Uncertainty of outcomes from competition
Implications for energy Policy Development & Regulation if reform is pursued

- Need to embrace the role of competition and market forces

- Greater transparency of policy development process & objectives

- Policy on alternative fuels and renewable energy

- Implement transitional arrangements

- Establish regulatory independence and accountability

- Consult key stakeholders in policy and regulation development

- Need to focus on consumers and their empowerment
Promoting competition is central to the reform process

Regulators can promote different forms of competition:

1. **Competition for the market**:  
   - Competitors bid for the market e.g. franchise bidding

2. **Competition in the market**:  
   - perfect (many buyers and sellers) and imperfect competition (few buyers, sellers);

3. **Yard-stick competition**:  
   - Competition by comparison
What is economic regulation?

- **What is economic regulation?**
  - form of government intervention to address inefficiencies arising from monopolistic markets e.g. natural monopoly sectors of electricity transmission and distribution.
  - substitute for competition where competition is not possible

- **Aims to ensure that:**
  - customers of monopoly services are protected
  - prices that monopoly companies charge are based on efficient costs
  - the quality of service and performance of the companies assets are maintained
  - the monopolies face the right incentives to improve their performance and increase investments on an on-going basis.
Implications for economic regulation

Under an effective regulatory environment, the regulator

- Pursues light-handed regulation where possible

- Relies on competition where possible and feasible

- Approves, if required, the monopoly’s transmission and distribution charges based on efficient costs which include:
  - *a reasonable* return on capital
  - *prudent and efficient* operating expenditure
  - depreciation, and
  - tax payments

- Reviews and resets fees every 5 years following an extensive consultation process

- Monitors and reports publicly on service quality and performance
Promoting competition - the starting point for economic regulation!

• **Starting point:**
  – Economic regulation is not a perfect solution to an imperfect market. It is second best!
  – Economic regulation involves regulating behaviour as well as promoting competition.

• **Only regulate where competition is:**
  – not possible (natural monopoly, access to essential facilities),
  – is weak (where there is market dominance, power),
  – unlikely to deliver specific policy objectives.

• **Competition & regulation objectives often compromised for specific government policy objectives (e.g. to pursue other socioeconomic goals)**
  - issue for regulators is how to incorporate these objectives in the regulatory framework
Role of regulator in industry restructuring

1. Competitive Wholesale Spot /Contract Markets
   - ensure compliance with set rules
   - monitor behaviour for gaming and collusion (anticompetitive behaviour)
   - ensure consideration of long term investments e.g. Statement of Opportunities for signaling new generation capacity

2. Transmission & Distribution (wires businesses – natural monopolies)
   - regulate for access to promote upstream and downstream competition
   - regulate service levels
   - promote competition for connection/augmentation works
   - competition by comparison

3. Competitive Retail Market
   - promote competition (low barriers to entry for new retailers)
   - protecting customers by phasing in competition through retail pricing capping
   - customer empowerment through customer charter; effective complaints handling and dispute resolution processes
Principles & practices for effective & efficient regulation

• Clear and unambiguous regulatory objectives
• Regulation should be consistent with other laws (e.g. Competition Law)
• Transparency in regulator’s decision-making process
• Regulator’s decisions are explained in writing
• Regulator’s decision are appealable
• Regulation should promote economic not just technical efficiency
• Regulation should prevent the extraction of monopoly rents
• Regulator should balance all stakeholder interests
• Regulation should encourage efficient pricing
• Government involvement made explicit and transparent e.g. Statements of Government Policy
Implications for Electricity Tariff Design and Implementation

Tariff design and implementation is complicated because:

• Electricity is an essential commodity for economic and social reasons.

• Tariffs are not cost reflective thereby giving rise to inter-generational issues

• Tariffs are set by governments to achieve multiple objectives (financial, social and political)

• Poor market segmentation and price differentiation

• Growing externalities from fossil fuels (e.g. pollution & climate change)

• Lack of Transparency in tariff setting mechanism for monopoly services
Tariff Setting Objectives

1. **Revenue adequacy** - Sufficient revenue to:
   - recover operating & financial costs including a reasonable rate of return
   - allow for investments to maintain service quality and meet future demand

2. **Economic efficiency & signaling Function** – Tariffs should signal true costs of supply to customers if alternative sources of energy are to be encouraged.

3. **Equity/fairness/affordability** - Expect low users to pay low bills; low income users to pay less; no customer group should carry higher burden than the cost of supplying them; no customer to be terminated because of affordability.

4. **Simplicity** - Simple for customers to understand their bills.

5. **Flexibility** - Pricing structure needs to cope with such changes as environmental regulations, changes in input costs, demand changes & extraordinary circumstances.

6. **Implementation costs** - Implementation cost should be kept as low as possible

7. **Government policy objectives** need to be made explicit and costed
Forthcoming 2-Day Workshop on Economic Regulation

**Title**: Economic Regulation and Reform of the Electricity Industry  
**When**: 5-6 October 2011  
**Where**: Seri Pacific Hotel, Kuala Lumpur  
**Aim**: To introduce participants to economic issues underpinning electricity market reforms, and to international best policies, practices and principles for regulating and reforming the sector.

**Who should attend**: Policy makers, regulators, academic community, representatives from industry and consumer groups.

**Workshop Organisation and topics**:

- **Day 1**: Understanding energy economic concepts & principles in reforming the generation sector  
- **Day 2**: Reforming and regulating the transmission and distribution businesses