Performance Based Regulation of Philippines Electricity Distribution Companies

REGULATORY TRAINING COURSE

Cebu – November 5 & 6, 2007
Baguio – November 8 & 9, 2007

SESSION 1A – INCENTIVE BASED REGULATION IN THE PHILIPPINES

Overview of this session

- The session will cover:
  - Why regulate electricity distribution ?
  - Some thoughts on the method of regulation
  - Incentive regulation (PBR) and its benefits

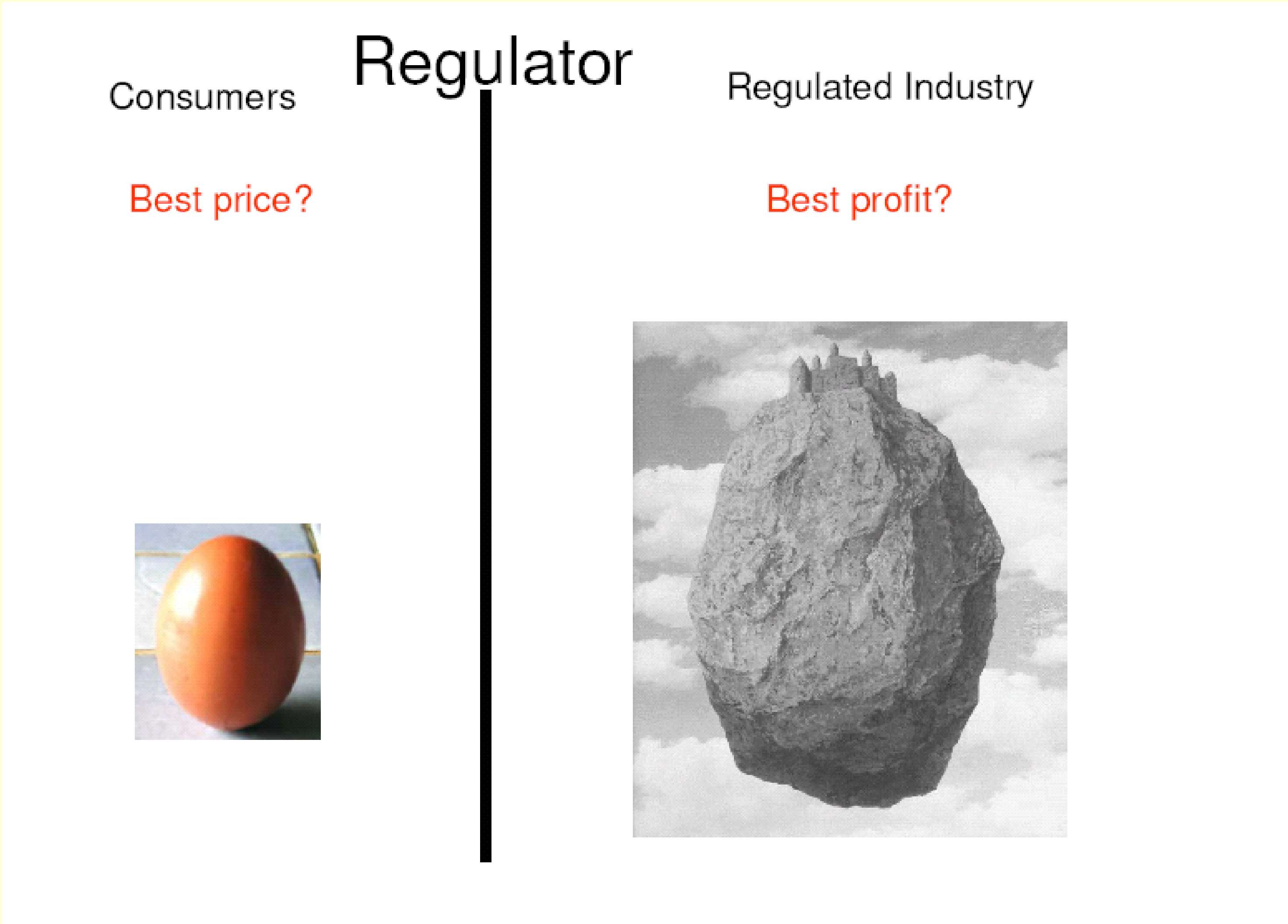
Why regulate electricity distribution?

- Electricity distribution (& transmission) is a natural monopoly service
  - Generally not feasible to introduce competitive networks:
    - Lack of economies of scale prohibits parallel networks
    - Physical restrictions (space in the streetscape; access to buildings)
    - Inefficient use of resources (duplication, non-optimal utilisation)
  - Some competition possible on the fringes, but often not encouraged
    - "Cherry-picking" best (usually largest) consumers
    - Makes rest of supply system less economically viable
    - Often leads to stranded assets for incumbent distributor
- Economic theory indicates that monopoly providers have incentives to extract "monopoly rent" from consumers
  - Even if not seeking excess profit, monopolies have lower incentive to:
    - Optimise efficiency
    - Strive for customer service excellence
    - Be innovative and pursue new, better solutions

Why regulate electricity distribution?

- To address this situation, it is widely accepted that some form of control over the monopoly situations is required
  - Hence the need for regulation
- In economic “speak”:
  - Regulators seek to maximise a social welfare function to limit the rents that are transferred from consumers (or taxpayers) to a firm’s owners and managers
- Regulators must also ensure the sustainability and viable operations of a firm.
  - A firm not earning enough to provide its services, will cease to operate
  - Investors not receiving an adequate return (commensurate with their investment-risk), will withdraw funds
  - Inadequate infrastructure investment limits service capacity & reliability
    - This inhibits economic growth

So the Regulator has to balance the consumers' and industry's interest



How to regulate?

- Regulators must determine the efficient balance between consumer and company surplus
- Traditionally it was assumed that with detailed information on :
  - cost functions
  - demand attributes
  - budget constraints

  the regulator can impose the minimized, sustainable costs for a firm (“command and control”)
- However,
  - Regulators have imperfect information of the regulated operations, thus cannot determine optimal balance
  - Regulated companies have more information (information asymmetry), can use this position to pursue own best interests
- Regulation evolved to address this, but inefficiencies remained

How to regulate?

- Since a regulator can obtain good information about actual costs,
  - It is expedient to set prices based on actual costs
  - This has to be done backward-looking (or ex-post) at regular intervals
- This is the standard “cost-of-service” regulation
  - The Philippines return-on-rate-base regulation (RoRB) is a variant of this
  - Popular in the US since the 1930’s
- However, there are a number of serious problems with this:
  - If there is no incentive to benefit from more management input to control costs (all surplus rent is lost), this input will not be provided
    - This can increase costs to above efficient levels
  - Incentives exist to increase costs (“gold-plating”)
    - Easier to work with new plant; less call-outs; more attractive; etc.
  - Requires regular resets, with associated regulatory interference

So, that led to incentive regulation

- Incentive regulation is intended to ensure that firms have incentives to improve efficiency
  - This is normally achieved by fixing prices/revenue in advance (ex-ante)
  - Improving efficiency under fixed prices means additional profits
- Regulator must ensure that all these gains do not accrue to the firms
  - Incentive regulation therefore involves sharing of the efficiency benefits
  - Various manners exist in which this benefit is shared
  - It still requires a good understanding of how the firms operate
- Forms of incentive regulation have been around a long time, but
  - In electricity distribution it has really taken off since the 1980’s
- PBR (Performance based regulation or performance-based rate-setting) is a widely used variant of incentive regulation

Ulirang Maybahay

Provider

Budget

caretaker

Family

House

finances

Ulirang Maybahay

BUDGET

- **Household expenses**
  - **food & groceries**
  - **electricity/water utilities**
- **Amortization for house and lot**
- **Allowance**
  - **Wife & kids**

Gasoline Prices go up !

Prices of goods will go up!

Ulirang Maybahay

After 4 years

Husband

Comes home

Husband finds out:

Two TVs =➔ Three TVs

Gasul becomes Oven

Home is well-maintained

Savings

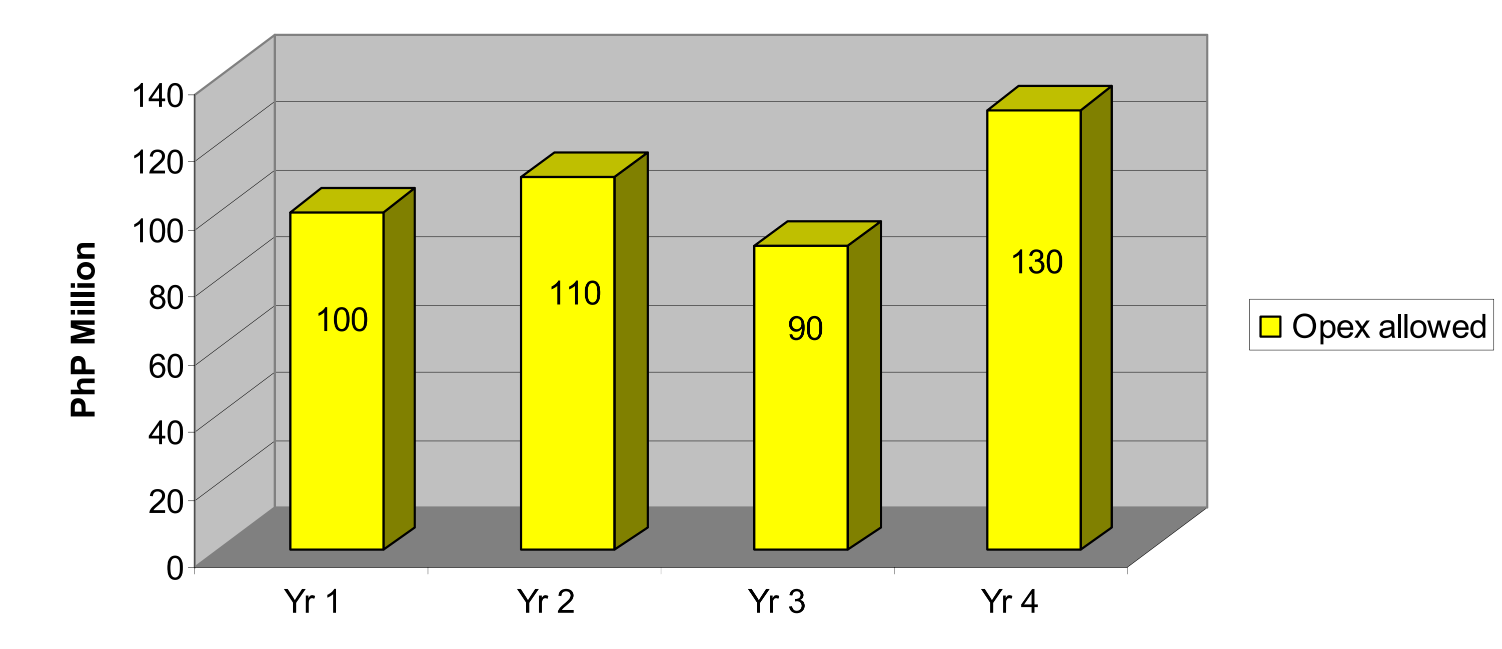
Reward

Wife keeps savings

Lower Budget

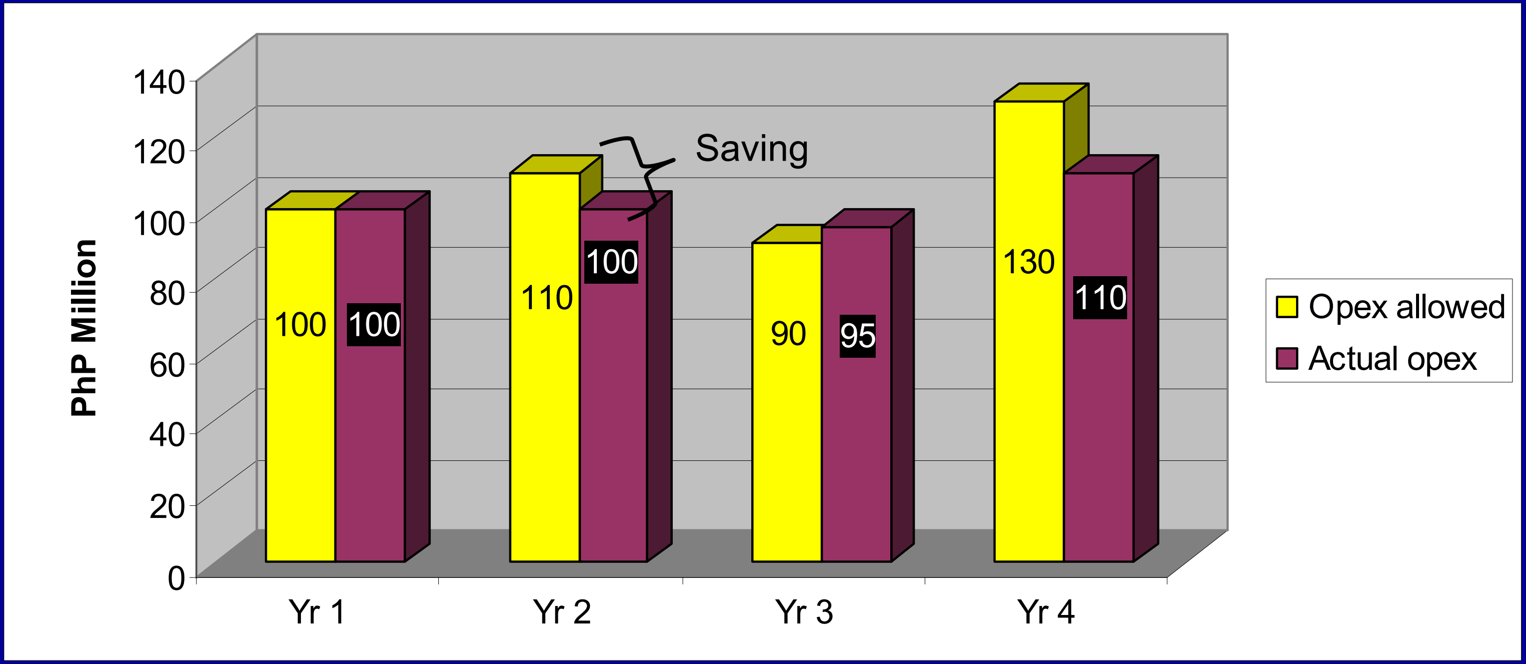
How will an efficient utility benefit from PBR?

- Suppose after evaluation, the ERC assesses that the efficient operating expenditure for a utility is as follows:



How will an efficient utility benefit from PBR?

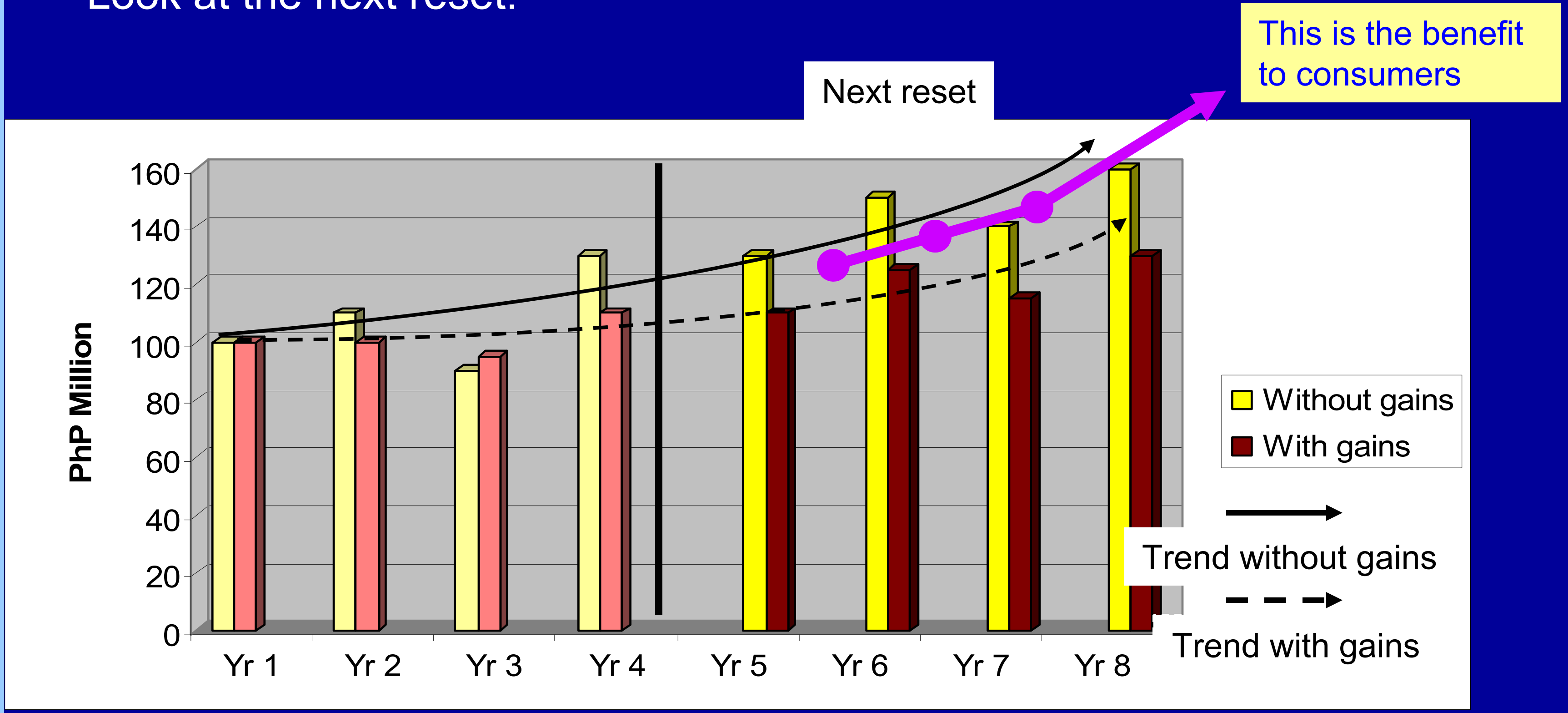
- If the utility manages to effect further savings:



- Total saving over 4 years – PhP 25 million (real terms)
- All the savings will accrue to the utility

How will these benefits be shared with consumers?

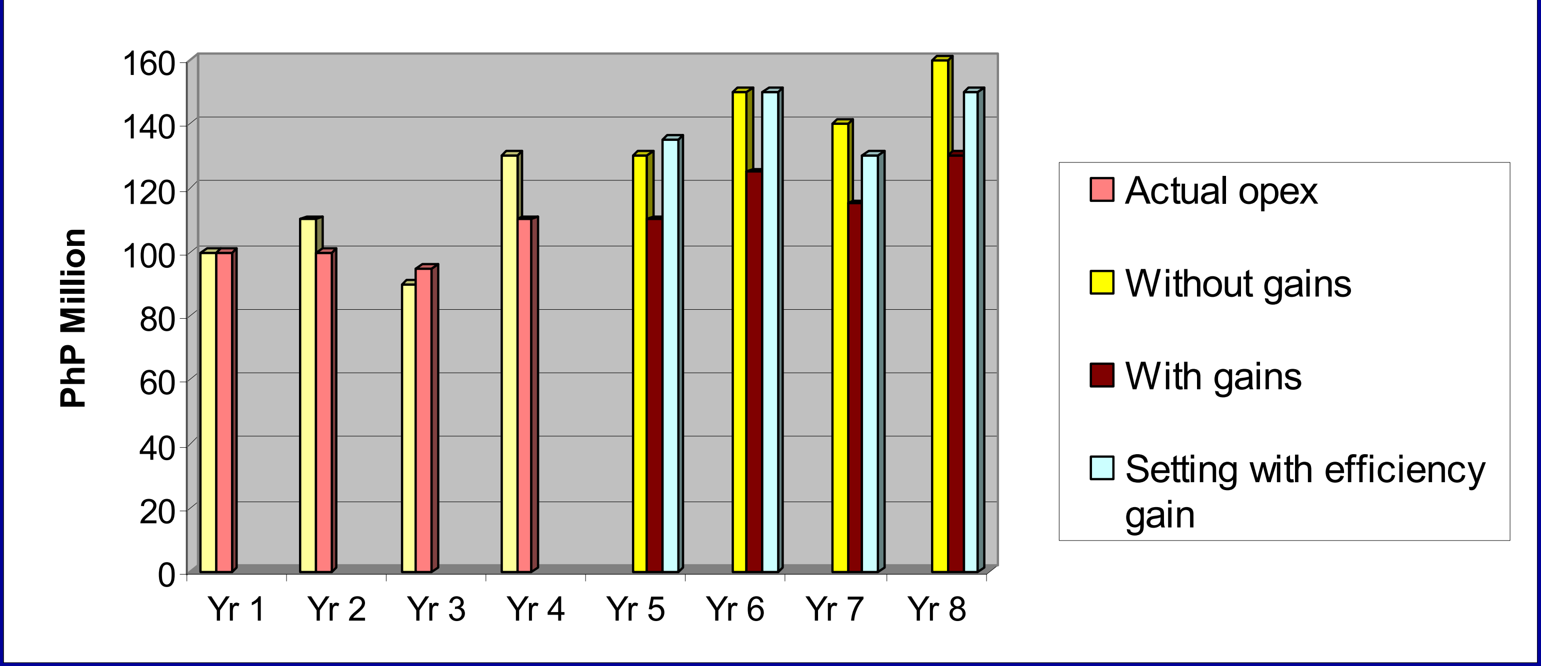
- Look at the next reset:



- Total saving over 4 years – PhP 25 million (real terms)
- All the savings will accrue to the utility

How will these benefits be shared with consumers?

- Note however that the efficiency carry-over allows utilities to maintain the benefit of gains for four years
- This changes the previous example to:



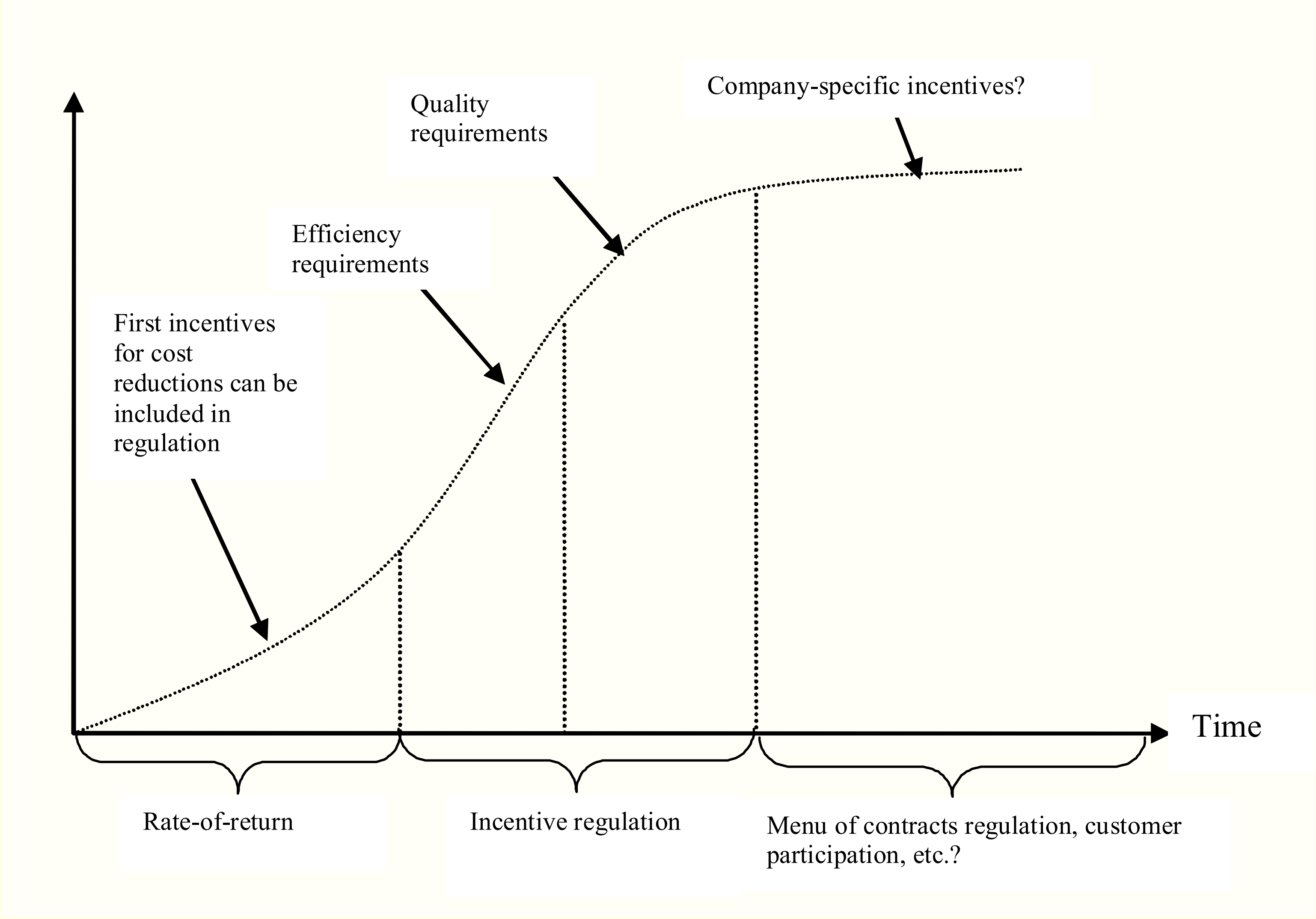
Incentive regulation – what about service quality?

- Wide recognition that a trade-off exists between
  - The service quality at which electricity is supplied

    and

  - The cost for providing this service
- Generally higher service quality costs more; lower expenditure will over time lead to reduced service quality levels
- Under incentive regulation, there is an incentive to maximise profit
- Profits can be increased by reducing service quality
- Hence, <u>the Regulator also has a societal obligation to regulate service quality</u> to ensure
  - Profits are not taken at expense of quality
  - All customers receive a reasonable quality of service (not only those where it is profitable)
  - Acceptable service levels are maintained

The evolution of regulation



Source : Viljainen (2005), figure 2.2

To meet the obligations of the EPIRA (2001),

- In line with international experience, the ERC decided that PBR :
  - Is the most efficient available form of regulation of privately-owned distribution and transmission companies in the Philippines
  - Will over time provide substantial economic and reliability benefits to electricity consumers
  - Ensure the continued, sustainable operation of distribution utilities
  - Will encourage stability in the market

PBR offers several major benefits over RoRB:

- The main benefits of PBR over the RoRB form of regulation are:
  - Provides a strong incentive to utilities to improve efficiency
  - Ensures that the efficiency benefits are shared with consumers
  - Only requires detailed regulatory inputs once every four years
  - Reduces regulatory uncertainty; ensures rates are regularly updated
  - Provides incentive to improve service quality
  - Over time, will encourage prices to be set at optimum, efficient levels
  - Encourages sustainability of distribution companies
  - Provides a higher degree of stability and transparency to consumers

PBR offers several major benefits over RoRB

However:

- Entering PBR requires a high degree of understanding, analytical work and preparation by the regulator and regulated companies
- Will require utilities to “improve their game”
- To achieve the maximum benefit from PBR, utilities should
  - Have a very good, holistic understanding of their networks & operations
  - Make an effort to provide high-quality regulatory information
  - Ensure good communication & cooperation across the whole business
  - Ensure good communication with the Regulator

In a PBR environment, the Regulator to a large extent becomes the proxy for the competitive market. Dealing with regulation is therefore a serious and major undertaking for successful utilities, and should involve all parts of the business.

Thank You

Proceed to next session