



Overview of Regulations for Tariff Determination

Overview

- Introduction
- Overview of Tariff Determination
- The Tariff Determination Regulation
- Implications

What regulations will be issued?

• Procedural

- m Conduct of Business: BEA routines
- m Dispute resolution

• Economic/financial

- m Regulatory Fees
- m Tariff determination
- m Accounting & reporting

• Technical

- m Distribution code
- m Grid code (to be delayed to 2008)
- m Safety regulations & code

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What licences will be issued?

• Existing entities

- BPC (also appointed system operator)
- Chukha
- Kurichu
- Basochu
- Tala

• In future

- DHPC licence will replace other generation licences

• Licence conditions

- Each licence contains licence conditions related to the activities covered

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Objectives of this meeting

Key objectives

- **To present draft regulations & licences for**
 - m Tariff Determination
 - m Dispute resolution
 - m All Licences
- **Consultation**
 - m To explain and answer questions
 - m To receive feed-back and comments
- **Finalisation**
 - m Will consider comments & views
 - m Minutes from this meeting and written submissions



Overview of Tariff Determination

Electricity pricing: What the Act says

🌐 Pricing principles (14.1)

- A & B) Fairness & No unjust discrimination
- C) Reflect actual cost of efficient business
- D) Conducive to efficiency improvement
- E) Enhance adequate supply
- F & G) Transparency

🌐 What subsidies are possible (11.1 & 60)?

- m Subsidies for **non-viable** electricity supply based on policies set by Minister
- m Minister may prescribe levies on customers or other licensees to support rural electrification

Basic features of the pricing regulation

🌐 **Tariff period**

- m Three to five years

🌐 **Cost allowances**

- m Forecast costs over tariff period
- m Give cost allowances
 - No reconciliation against actual costs
- m Give a Return on Assets (net asset values)

🌐 **From costs to tariffs**

- m Forecast load/sales over tariff period
- m Levelise costs over tariff period
- m Same basic approach for Generators & BPC

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How subsidies are handled

🌐 **Current system has subsidies from**

- m Low rate of return (6%)
- m Low generation price

🌐 **There is still a need for subsidies**

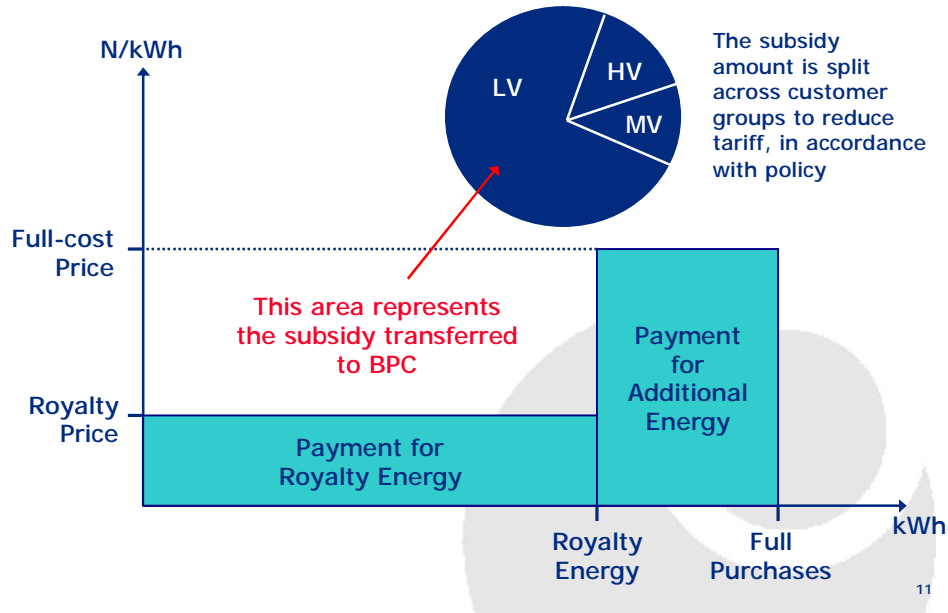
- m Policy is to phase out subsidies to HV & MV
- m But LV prices will be below LV costs for some time – largely due to costs of RE

🌐 **How subsidies will be handled in future**

- m All generators to sell a portion of energy to BPC at a concessionary price
- m Any sales above this level will be at full generation cost
- m BPC will transfer the financial benefit to targeted customer groups

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Transferring subsidies to BPC's customers



What prices will BEA set?

Export prices & wheeling

- m These are not set by BEA
- m Except that wheeling fees must *not be below* the cost of transport

Generation prices

- m BEA sets Royalty Price, Royalty Energy & the Full-Cost price

End-user prices

- m BEA will set the average price for each Voltage level
- m BPC to propose detailed tariff schedules
- m BEA will approve these schedules

Tariff stability

Tariff stability

- m Special clause (5.3) addresses stability

How can it be done?

- m Subsidies should be phased out slowly

- m A tariff transition from current tariffs to targeted tariff level

- Either so that tariff in last year = target level

- Or average tariff over period = target level

Modelling indicates that

- m Once subsidies are phased out, tariffs should be fairly stable, or even decreasing

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The Tariff Determination Regulation

Structure of the tariff regulation

1. Purpose & scope
2. Definitions
3. Tariff principles
4. Tariff Application & Approval Process
5. Form of regulation & incentives
6. Cost of supply method
7. Subsidies
8. Generation prices
9. End-user prices

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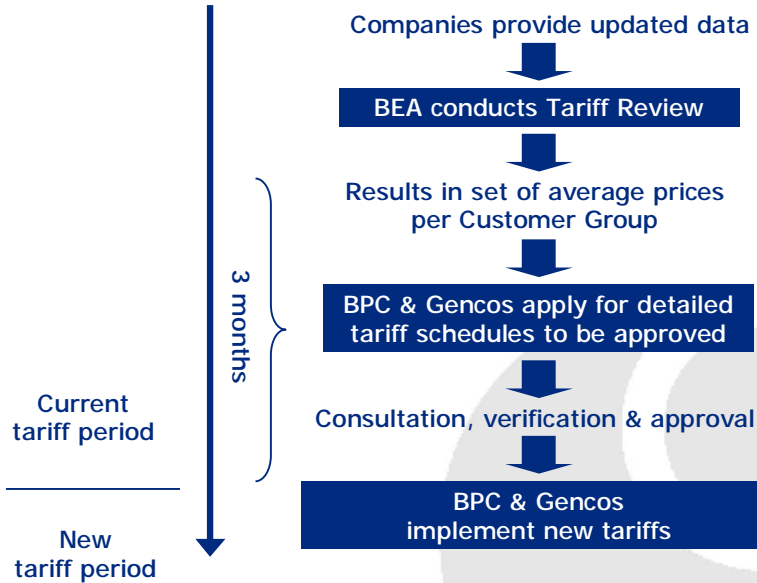
#3: Tariff principles

Based on Act

- m Fairness
- m No unjust discrimination
- m Reflect actual costs of efficient business
- m Conducive to efficiency improvement
- m Enhance adequate supply
- m Transparency

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#4: Tariff approval process



#5: Form of regulation & incentives

🌐 Form of regulation

- m Price caps valid for a Tariff Period of 3 to 5 yrs
- m Indexing & transition arrangements allowed

🌐 Costs of efficient operation

- m BEA to use allowances for various parameters, not actual costs
- m Requires judgement on whether actual costs are reasonable

🌐 Incentives

- m Over Tariff Period, any cost savings are kept by the companies
 - m In next period, all or some of cost savings will be given to customers
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#6: Cost of supply methodology

Scope of costs: over Tariff Period

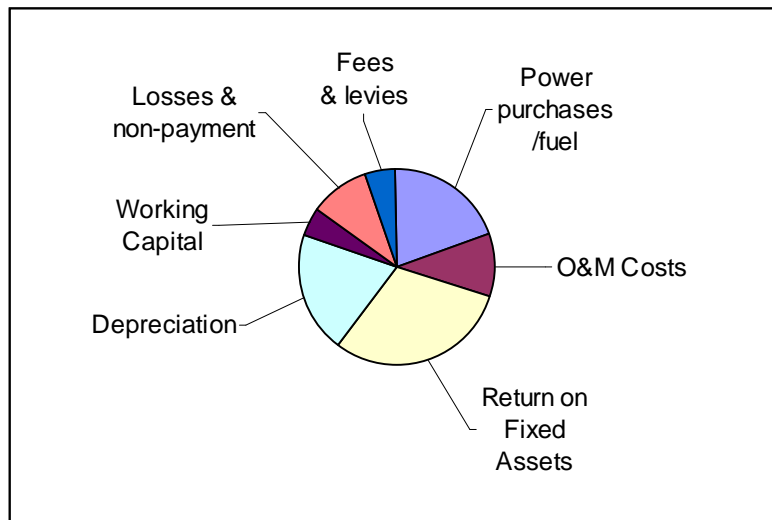
- m O&M costs
- m Depreciation
- m Return on fixed assets (incl. Tax)
- m Power purchases & fuel costs
- m Losses & non-payment
- m Working capital: Arrears + Inventories
- m Fees (incl. Regulatory fees) & levies

Note:

- m Return on Fixed Assets, using WACC
- m Over 3-5 years, not lifetime
- m Need investment plan over Tariff Period

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#6: Cost of supply methodology



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#6: Return allowances

🌐 BEA will determine the Rate of Return for each company

m Return = weighted average cost of capital
= 30% * Equity + 70% * Debt

m Debt is each company's loan interest rate

m Equity is cost of (Government's) equity

m 30/70 is a standard ratio

🌐 What is the cost of equity?

m 6% is too low – a form of subsidy

m BEA proposes 14% before tax

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#7: Subsidies

🌐 Capital grants

m No return allowed on these assets

m Means we must keep track of subsidised assets

🌐 Lifeline tariffs

m Small amount of electricity for low price

🌐 Royalty Energy: A Targeted Subsidy

m Royalty Energy sold to BPC at discounted price

m Benefit to be targeted at selected customer groups

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#8: Generation prices

🌐 Costs

m $\text{Costs} = \text{O\&M} + \text{Dep} + \text{WACC} * (\text{Assets} + \text{Working_Capital})$

🌐 Energy

m $\text{Energy} = \text{Design} * (1 - \text{Aux}) * \text{Availability}$

🌐 Average costs

m $\frac{\text{NPV}(\text{Costs})}{\text{NPV}(\text{Energy})}$ Use WACC over Tariff Period

🌐 Royalty Price

m Price is Ave Cost less levelised subsidy

m Royalty Energy is 15% of ave annual energy

🌐 Additional Price is Average Cost

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#9: Costs per Customer Group

🌐 Customer Groups

m All customers on common voltage level

m Export (220 kV), HV, MV, LV

🌐 Costs allocated to a customer group

m Energy costs (incl. Losses)

m Plus Network costs of that Group

m Plus Working capital of that Group

m Less non-tariff revenue from that Group

m Less subsidies allocated to that Group

🌐 Network costs include

m RoA, Dep, O&M, fees: Allocation factors required

🌐 Subsidies: The "end-state" policy

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#9: Prices per Customer Group

Levelised Price per Group

$$m \frac{\text{NPV}(\text{Costs})}{\text{NPV}(\text{Sales} * \text{Collection Rate})}$$

Use WACC over Tariff Period

Transition arrangements: A price path

m Move from current prices to Levelised Price in steps
OR

m Annual price increase so Ave Price = Levelised Price

Subsidy requirements

m Due to transition, actual subsidies will differ from policy

m Total subsidy reduced by surplus from wheeling

m Calculate & feed-back to Royalty Price

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Converting Ave Prices to tariff schedules

Role of BEA & BPC

m BEA sets principles

m BPC translates into a tariff schedule

Principles are

m Equity

– Ensure affordability through lifeline rate

m Cost-effective

– Low-cost revenue collection mechanisms

m Efficiency

– Signals to improve efficiency of consumption

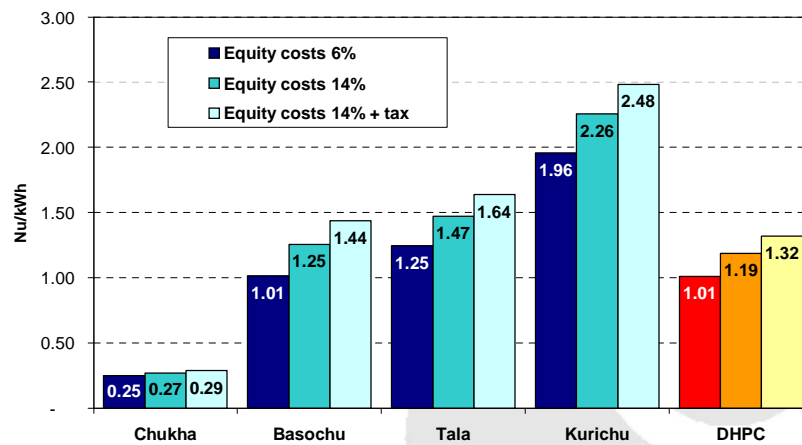
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Implications

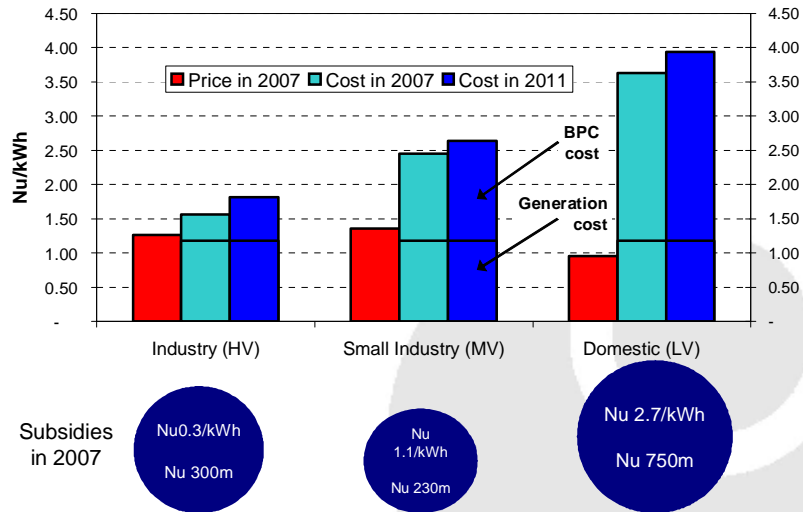
What does it cost to generate electricity?

- 🌐 The full cost for all generators @ 14% equity is ± 1.2 Nu/kWh
- 🌐 At present BPC buys at only 0.3 Nu/kWh



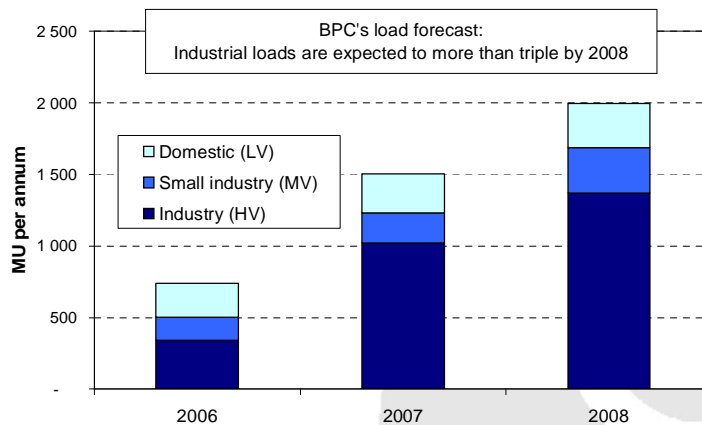
What is the cost of delivery to customers?

- Current tariffs are below full costs for all customers
- In medium term, costs will increase slower than inflation



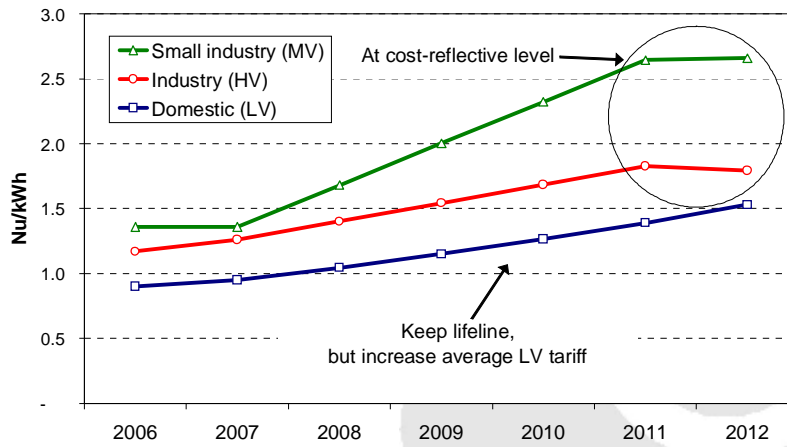
Industrial load is set to grow rapidly

- Given industrial growth, industrial prices should be increased
- This will protect Government revenue from being eroded



Moving industrial tariffs to full-cost levels

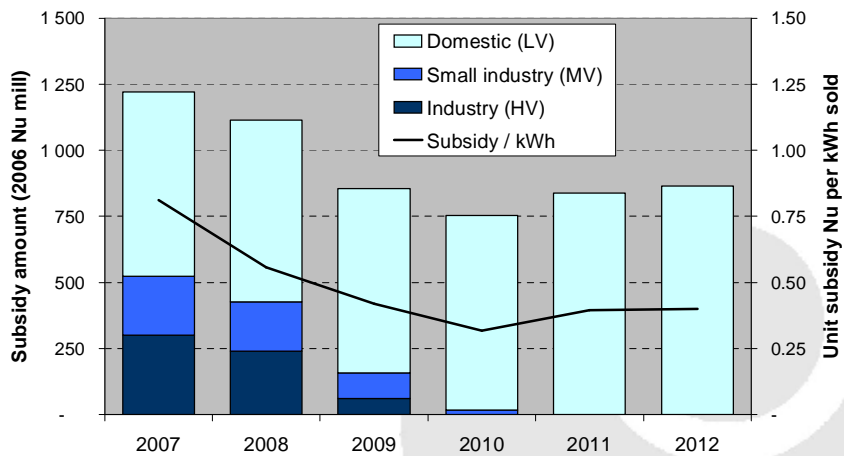
- Industrial increases of 10% p.a. gives full-cost prices by 2011
- Domestic prices will have to remain subsidised



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How large will be the subsidies be?

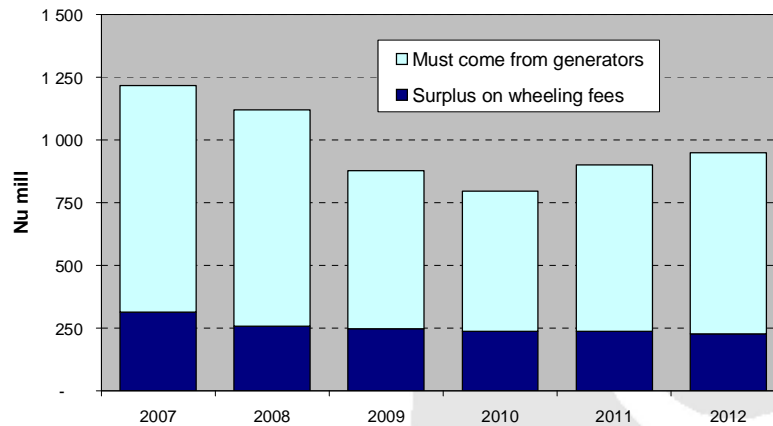
- Industrial subsidies can be phased out by 2010
- Domestic subsidies grow to around Nu 900 mill/annum



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Where can these subsidies come from?

- Suplus on wheeling fees provides approx Nu 250 mill p.a.
- The remainder can come from Royalty Energy



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These are proposals for 2008 onwards

- **Once DHPC is established**
 - m Introduce Royalty Price + full generation cost for non-Royalty Energy
- **Pricing for customers**
 - m Move Industrial prices towards full cost by 2011
 - m Minister to set subsidy policy to LV customers
 - m This will allow BEA to set the Royalty Price & the domestic tariff
- **In the meantime**
 - m Prices for 2007 have already been set
 - m But Kurichu cannot survive on Nu 0.3/kWh

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