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- Designing Retail Market Tariffs: Perspective from NICARAGUA
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INSTITUTO NICARAGUENSE DE ENERGIA
INE

Rate Design in Nicaragua

TARIFF REGIME

The Tariff Regime is classified as follows:

A) <u>Free Tariff Regime:</u> transactions are made without intervention by the State.

B) **<u>Regulated Tariff Regime:</u> transactions are made according to tariffs approved by INE.**

The Regulated Tariff Regime includes the following transactions:

1) Energy and power sales by Distributors to Final Consumers.

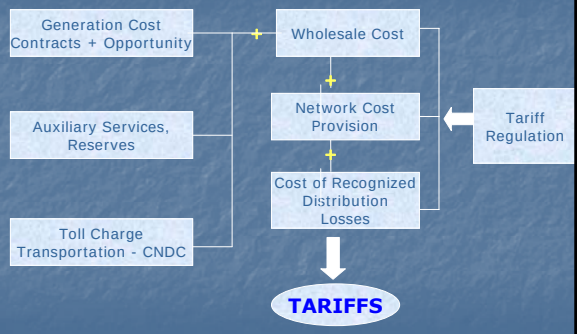
2) Energy transportation in the Transmission and Distribution System.

Regulated Tariff Regime Criteria

Criterion: Tariff CAP or Maximum Tariff

- The Distribution Added Value is determined.
- The Regulator analyzes and evaluates whether tariff accurately reflects the cost of service.
- Tariffs are only adjusted by inflation and productivity.
- At the end of the tariff period, the regulator reviews the new cost of service that will be transferred to consumers in the next period.
- Creates an incentive for utility to reduce costs as much as possible, while allowing it to keep any surplus income.
- Regulator only controls outcomes.

Supply Chain Cost



EXPECTED PRICE COMPOSITION WITHOUT COST DEVIATION

A. Monomial cost of supply in MT (US$/MW-h)

B. Average transportation cost in MT (US$/MW-h)

C=(A+B) Wholesale cost in MT bars (US$/MW-h)

D. Expansion factor of recognized losses

E=(D-1)*C Cost of recognized losses (US$/MW-h)

F=(C+E) Supply cost in BTs (US$/MW-h)

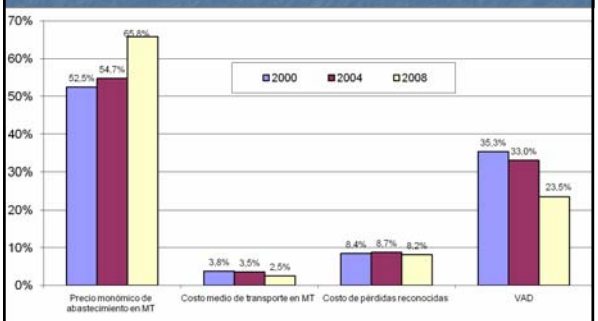
G. Added Value of Distributor

H=(F+G) Average global sales price (US$/MW-h)

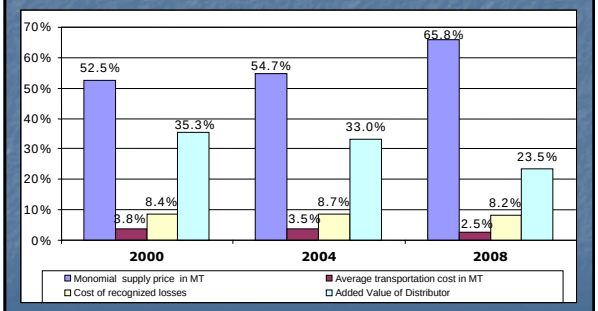
EXPECTED PRICE COMPOSITION WITH COST DEVIATION

- A. Wholesale cost in MT bars (US$/MW-h)
- B. Amount of Deviation of Outstanding Costs US$
- C. Projected purchases in MT FOR 6 months (MW-h)
- D=(B/C) Unit deviation by MW-h payable in 6 months in MT
- E=(A+D) Wholesale cost in MT (US$/MW-h)
- F. Expansion factor of recognized losses.
- G=(F-1)*E Cost of recognized losses (US$/MW-h)
- H=(E+G) Supply cost in BT (US$/MW-h)
- I. Added Value of Distributor (US$/MW-h)
- J=(H+I) Average global sales price (US$/MW-h)

PRICE COMPOSITION



PRICE COMPOSITION



EXPECTED PRICE COMPOSITION

The benchmark price of the wholesale energy purchase price in MT takes into account:

1. **The actual energy purchase price in MT 2 months prior to the month of the calculation.**
2. **The price increase expected on the month of the calculation.**
3. **The expected price increase is the best estimate based on:**
   - **3.1 International trends of petroleum and derivative prices**
   - **3.2 Availability of electric generating units**
   - **3.3 Level of Apanás reservoir**
   - **3.4 Energy purchase forecast**
   - **3.5 National energy policy**

AVERAGE TRANSMISSION COST

The average transmission cost on account of the transportation toll system is determined as the sum of the annual income tax, CROM and distribution added value (CAD) divided by the annual demand.

$$CMT = \frac{\Sigma\ (\text{Annual Income Tax} + \text{CROM} + \text{CAD})}{\text{Demand}}$$

DETERMINING THE DISTRIBUTION ADDED VALUE

- The Distribution Added Value includes:
  - Distribution cost (MT Network, BT and AP Facilities)
  - Marketing expenses (Commercial Services and Metering)
- The Distribution Added Value has been calculated for a prudent and efficient electricity distributor:
  - That invests and manages a minimum-cost network
  - That designs and manages a business structure according to the demand of quality and safety of service, based on market prices and adequate marketing of the service provision.

Distribution Added Value (VAD)

- ¿What does it consider?

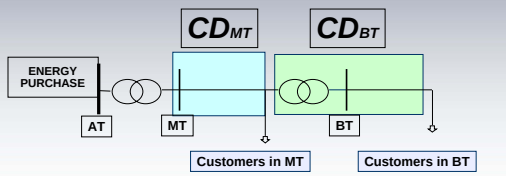
CAPITAL ANNUITY	NETWORKS, METERING EQUIPMENT, CONNECTION SERVICE, ETC.
TECHNICAL DEVELOPMENT EXPENSES	DIRECT ACTIVITIES + SOME SUPPORT ACTIVITIES
COMMERCIAL EXPENSES	MARKETING ACTIVITIES
$ DISTRIBUTION ADDED VALUE	

Distribution Cost

- ¿What does it cover?


Network Capital Cost


Development Cost



Marketing Expenses

- ¿What do they cover?


Meter reading


Customer service


Invoicing and mailing


Meter cost


Collection

METHODOLOGY USED

- Optimization of Distribution Networks
  - Valuation of facilities required to provide efficient service regardless of existing situation.
  - Use of state-of-the-art technology
  - Efficient unit costs
  - Facilities adapted to demand
  - Minimum cost network
- Determination of Efficient Development Cost
  - Dimensioning of tasks to be performed
  - Identification of equipment requirements
  - Valuation of equipment, inputs and outsourced services

Optimizing Development Costs

Determination of development cost based on development cost of a model company operating in the distribution market

- Permits to focus efforts on customer service and network management processes.
- High level of detail in the information and greater complexity in company modeling.

The model company should be designed according to the reality in which the analyzed distributor operates:

- Characteristics of the customers, staff salary levels
- Coverage area, status of road system
- Development of alternative methods of payment
- Level of penetration of telephone communications/Internet

ELEMENTS THAT AFFECT THE TARIFF SCHEDULE

1.- TARIFF LEVEL

2.- MARKET STRUCTURE

3.- SALES VOLUME

4.- CUSTOMER BASE

RESIDENTIAL RATES