USAID
FROM THE AMERICAN PEOPLE

National
Association of
Regulatory
Utility
Commissioners

Issues in Tariff Design

Donald Hertzmark

July 2008

USAID
FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

Different types of price regulation

- Rate of return (the cigar box method)
  - All variable costs are passed through
  - Utility is allowed specific return on its rate base
- Incentive-based regulation
  - Price cap - utility is allowed a specific maximum price each year per unit sold - may be unbundled by segment or service (G, T, D) or metering/billing, maintenance, etc.
  - Cost cap - limitation on allowable costs for certain services
  - Revenue cap - limitation of overall income of utility for services in a segment

How to Cap Rates

- Price cap
  - Usually applied as part of multi-year tariff regulation
  - Year 1 is fixed by commission on cost + basis
  - Years 2-n are allowed adjustment for inflation according to *RPI-x* formulation, where
    - RPI is the retail price index
    - X is a proxy for improvements in productivity

How to Cap Rates

- Price cap
  - Key issues
    - How good is the estimate of the first year costs?
    - How much productivity improvement is reasonable to expect?
      - Depends on where you start from
      - For some systems that work well, x may be small, where there is great room for performance improvements, x will be large
    - Will price caps work for volatile costs (e.g., generation)
      - No
  - Example: cap price that utility can charge for distribution

USAID
FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

How to Cap Rates

- Cost cap
  - Often applied as a part of performance incentives
    - Limits how much can be spent on specific cost element
    - Provides an incentive for utility to function better
  - How does a cost cap work?
    - Identify a specific cost element of concern - e.g., excessive fuel burn per kWh
    - A cost cap will then note that fuel consumption in excess of *yy* liters (or whatever measurement is appropriate) per kWh will not be recoverable in the tariff

How to Cap Rates

- Cost cap
  - Another example
    - To provide incentive for utility to reduce losses, a cap on recoverable losses can be proposed
      - Set an upper limit on losses
      - Regulators rule that fuel used to generate more electricity than was required by loss target will not be recoverable in tariff
  - Cost caps can be applied to any discrete, measurable element of utility service. They are generally not advisable for an overall category of service (e.g., Dx)

USAID
FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

How to Cap Rates

- Revenue cap
  - What is it?
    - This is simply the old revenue requirements model -cost recovery + rate of return on investment rate base
    - Has more teeth than revenue requirements approach
  - Example: Regulator will set tariffs such that expected revenue falls within revenue cap amount
    - If more electricity is sold, the generally regulator will allow utility to recover for additional fuel burn, but perhaps not labor
    - If utility overcollects, the a revenue cap usually has a “clawback” provision to provide a procedure for the return of excess revenues to ratepayers.

USAID
FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

Caps: the strengths and weaknesses

Type of Cap	Strengths	Weaknesses
Price	Provides predictable revenue for utility, predictable costs for users	Sensitive dependence on initial rate-setting - cost basis, x May fail to capture effects of technological change
Cost	Permits fine-tuning of incentives for specific high-impact cost items	Can only be applied to discrete, measurable cost items Requires significant oversight to implement properly
Revenue	Provides the greatest predictability to revenue & costs	May allow cost shifting and other accounting methods, does not fully incentivize efficiency

Other Incentives

- Time and locational pricing
  - Set prices by time of day or season
  - Set prices according to ability to supply a particular location
    - Takes proper account of system constraints
    - Consistent with assigning cost responsibility to those who occasion that cost

USAID
FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

Case Study: Price Caps in Latin America

- A small country, relying about 60% on internal combustion (IC) for power supply (rest is hydro) has highest rates in region
- Diagnosis:
  - IC engines are old and inefficient
  - Lines losses are excessive
  - Fuel is purchased uncompetitively
  - Current electricity act provides little enforcement power save an “excess fuel consumption” clause, that seems to permit regulator to disallow certain fuel expenditures and a “reasonably incurred cost” clause

USAID
FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

Case Study: Cost Caps in Latin America

- What to do (1):
  1. Assess optimal performance cycle for current IC engines, replacement units over time
  2. Assess causes of excessive line losses, determine time and expense needed to remedy
  3. Survey fuel prices available from competitive suppliers in region

USAID FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

Case Study: Cost Caps in Latin America

- What to do (2):
  1. Set specific fuel consumption upper limits for IC engines that are below current rates, declining over time
  2. Set specific loss reduction targets for current year, next year and following year
  3. Set limit of 97.5% of current fuel price relative to regional market level

USAID
FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

Case Study: Cost Caps in Latin America

- What to do (3):
  1. Calculate specific impacts of proposed changes using tariff methodology then in Electricity Act
  2. Explain proposed program to government
  3. Explain proposed program to electricity supplier

USAID FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

Case Study: Cost Caps in Latin America

- What to do (4):

1. Write specific language to modify EA to include mandatory cost caps -
   a) Fuel use above the set level will not be allowed into the cost basis,
   b) kWh generated in excess of line loss limitations will be similarly included.
   c) The fuel charge and surcharge calculated through the normal formulas will be reduced by 2.5% in each case.

USAID
FROM THE AMERICAN PEOPLE

N A R U C
National Association of Regulatory Utility Commissioners

Lessons Learned

1. Too much specificity in law leaves little room to maneuver afterward
2. Some regulatory discretion is preferable to a full-blown politicization of a pricing dispute
3. Incentives must be specific and targeted to be effective
4. Licenses should also spell out rights and responsibilities of parties, without being so specific that every dispute becomes a “walk-away” issue