Michigan Public Service Commission

Study of Performance Based Regulation

Per PA 341 of 2016, Sec. 6u

Report outline (Draft 3.2)

1. Executive summary/abstract
2. Introduction to performance based regulation
    a. Economic theory
        i. Information asymmetry
        ii. Firm "participation constraint"
            1. Successful participation in capital and finance markets
        iii. Strategic behavior
        iv. X- efficiency
        v. Allocative efficiency
        vi. Cost-of-Service based regulation
            1. Managerial moral hazard regarding X-efficiency
            2. High allocative efficiency
            3. The *Used and Useful* standard in theory and In practice
            4. Strategic goal of investor owned utilities (IOU's) – grow rate base
            5. Capital investment versus operating expense – imbalanced incentives
        vii. Pure rate-cap regulation
            1. Highest powered incentives toward X-efficiency
            2. Adverse selection & economic rents
        viii. Balancing X-efficiency with allocative efficiency
            1. Ex ante determination of allowed revenues – but responsive to realized costs
3. Performance based regulation essentials
    a. Profit sharing
    b. Sliding scale menu of profit sharing "contracts"
        i. Self-revealing of cost 'type'
        ii. High incentive/low cost type; low incentive/high cost type
        iii. Mitigation of strategic behavior
    c. Performance based regulation contrasted with specific performance mechanisms
    d. Service quality and reliability incentive/penalty mechanisms
        i. Why performance based regulation may lead to compromised service quality or reliability
        ii. Incentive/penalty mechanisms for service quality and reliability
    e. Performance based regulation may result in increased regulatory risk
        i. Exogenous cost factors (e.g. general inflation indexes)
            1. Benchmarking using regression analysis of multi-utility cost data

        ii. Multi-year rate-setting period
            1. Sales trackers may reduce risk of revenue shortfalls/excesses from multi-year projections
    f. Multi-year performance periods and revenue/rate reset
        i. Passing X-efficiency gains to ratepayers at the reset
4. Evolution of incentive ratemaking mechanisms
    a. Price caps (price control mechanism)
    b. Revenue caps (revenue control mechanism)
    c. Performance based regulation defined as the combination of *ex ante* determination of allowed revenues and a method to responsive to realized costs]
        i. profit sharing
        ii. sliding scale menu of "contracts"
5. The UK's RPI –X mechanism
    a. *Ex Ante* revenue cap
    b. Evolution of the regulatory structure
6. The UK's RIIO mechanism
    a. TOTEX –efficient total expenditures
        i. Methods for estimating
        ii. Statistical (regression) methods for benchmarking
        iii. Simultaneous estimating procedure or independent estimate for OPEX and CAPEX
        iv. Engineering methods for forecasting CAPEX
        v. Issues relating to infrastructure replacement/maintenance and infrastructure enhancement – BOTEX method as a solution
    b. Continued need for traditional ratemaking functions
        i. Rate of return
        ii. Depreciation
        iii. Rate base
        iv. Auditing
        v. Staffing levels
        vi. "Distribution companies" versus vertically integrated utilities
            1. Production related CAPEX and integrated resource plans
7. Commentary on multi-year rate cases
    a. Do multi-year rate cases constitute performance based ratemaking?
        i. Fully projected multi-year COS rate case
            1. Impact on X-efficiency and allocative efficiency
            2. multi-year rate freeze in contrast
8. Addition of performance incentive mechanisms (PIM's) as an alternative to full replacement of COS regulation with performance based regulation
    a. What is a PIM
        i. Earnings adjustment mechanism
    b. Cost of service regulation with added PIM's is the dominant regulatory trend in the United States

c. Structure
  i. Guiding goals
  ii. Directional incentives
  iii. Operational Incentives
  iv. Metrics
d. Standards setting with penalties as an alternative approach
e. Public reporting obligations as a transition to full PIM with incentive associated metrics
f. Innovation and market transformation through PIM's
  i. Promoting distributed energy resources
    1. Timely interconnection approvals
    2. DER growth targets
  ii. Promoting system efficiency – peak reduction/load factor improvement
    1. CHP
    2. Electric vehicles adoption and smart/connected charging
    3. Advanced energy storage
    4. Geothermal heat pumps
    5. Dynamic pricing
    6. Other innovative load-control programs

9. Survey of Key Incentive/PBR mechanisms and associated implementation details in the United States
a. New York's "Reforming the Energy Vision" (REV) initiative
b. States considering future incentive/PBR mechanisms

10. Major issues facing future regulators in the rate setting process
a. Evolution of utility networks
  i. Aging system Infrastructure
  ii. Replacement & retirement
  iii. New technologies and innovation – creating strong incentives toward innovation

11. Conclusions regarding potential applicability of performance based regulation in Michigan
a. The UK's RIIO regulatory structure is both elegant and aggressive
  i. Multi-faceted approach to induce efficient expenditures and best practices; a sharp focus on outputs; strong stakeholder engagement; achievement of rapid technological innovation; and support of national energy/policy goals
b. RIIO structure difficult and costly to implement
  i. RIIO was an evolution of a long-standing history of PBR in the UK
  ii. The eight year revenue setting cycle needed to recover extraordinary administrative cost [30 month case processing schedule]; unlikely to significantly increase capital investment X-efficiency (vis-à-vis RPI –X) for long service life infrastructure
  iii. TOTEX method of benchmarking efficient utility costs presents substantial difficulty in implementation with uncertain effectiveness

iv. **RIIO applied to UK distribution companies avoids complications associated with vertically integrated utilities [no generation, no retail sales functions]**

12. **Best direction for future work**
    a. **Develop a comprehensive system of performance inventive mechanisms (PIM's) to layer over existing cost-of-service regulation**
        i. **Establish stakeholder process for crafting comprehensive and coordinated system of PIM's**
        ii. **Coordinate PIM development with integrated resource planning (IRP) process**
        iii. **Coordinate PIM development with MPSC "Distribution Planning" process**
        iv. **Explore possible PIM (consistent with PA 304 of 1980) for X-efficient power supply acquisition [fuel and purchased power]**
    b. **Develop a structured process for MPSC review of utility-forecasted operating and capital expenditures in general rate cases**
        i. **Statistical and engineering methods for determining X-efficient expenditures**
        ii. **Benchmarking and best practices**