Structuring Electricity Markets

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January 10, 2008

Rate of Return Regulation: The Good, the Bad, and the Ugly

- Created a stable structure that attractive massive investment
- Incorporated R&D (best before 1970)
- Fostered cooperation among utilities
- Got electricity to almost every customer
- Produced rapidly falling real prices & increasing reliability – at least until 1970

RoR Regulation: The Bad

- Excess investment (Averich-Johnson)
- Disincentive to take risks, invest in R&D
- Didn’t build or operate nucs & coal well
- Large blackouts (1966, 1977, …)
- PUC goals not low price, efficiency
- PUC not effective regulator; revolving door

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How does this record compare with the free market for, say, mortgages?

Restructuring: Good Outcomes

1. Led to cost cutting & greater efficiency
2. Created transparency in pricing
3. Better capacity factors on nucs & coal
4. Opened market to competitors
5. Encouraged power marketers & ESCOs
6. Ended some industrial subsidies
7. Customer choice: Green Power

Restructuring: Bad Outcomes

1. Incentives for market manipulation: Collusive behavior in power markets => detailed, stringent market monitoring
2. Shifting risks to investors raised cost of capital, ruling out some projects
3. Anemic investment in G & T
4. Little investment in R&D, conservation

Restructuring: Bad Outcomes

6. Continuing to charge customers a price that doesn't vary with cost
7. Paying market clearing prices to all
8. Much greater profits for some generators
9. Costs of building & operating RTOs
10. Expensive capacity markets that haven't increased investment in G & T
11. Merchant generation, an investor's right to build a line anywhere, would disrupt the system

Restructuring has not benefited most consumers

Grand Issues

- What markets can be competitive?
  - Real time power market
  - Capacity market
- Who sets location of G&T, fuel mix?
- Who should bear risks: demand, fuel price, environmental regs, wages, natural disasters, terrorism,
- How much politics in these decisions?

Elements of a New Structure

- How much improvement is possible in ROR regulation?
- Cost of bringing assets back into rate base?
- How much improvement is possible in present PJM structure?
- What are the costs & risks of a new market design?

Some Suggested Tools: Little r Regulation

- Long-term contracts – power price
- Long-term contracts- 2-part tariff
- Contracts for up to life of plant
- Long-term contracts for transmission
- Real time pricing
- Demand side “regulation” & leveling load-duration curve

Lave-Apt-Blumsack Proposal-1

- Can’t make hourly power market competitive
- Long-term contracts react to hourly markets
- Need to offer life-of-plant contracts
- 2-part tariffs: fixed & variable cost
- Pay accepted bid price, not market price
- RTO dispatches contracted plants
- RTO determines need for G & T investment & location of plants and lines

Lave-Apt-Blumsack Proposal-2

- Customer pays real-time price (PLC)
- “Large” customers have automatic energy manager device to carry out their orders
- Use demand side for regulation, lowering peak demand, preventing blackouts

LAB Proposal Problems

- Competitive market for new generation? Sufficient sites for competition?
- Fuel price, environmental, other cost escalators? Inducing efficiency?
- Can RTO forecast demand & location?
- RTO becomes regional monopoly – same old problems?
- Role of state PUCs?