Evaluating Nuclear Generation: Is Objectivity Impeded by Uncertainties in the Principles and Institutions of U.S. Utility Regulation?

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Overview

The nuclear construction era of the 1970s and 1980s tested the competence and credibility of U.S. utility regulation. Shareholders absorbed billions in disallowances, consumers absorbed billions in cost overruns, and lenders took their own hit as some utilities neared or entered bankruptcy. The response of all interests -- shareholders, customers, lenders, regulators, legislators -- was the same: avoidance of new nuclear construction. Twenty-five years later, nuclear construction is receiving a second look.

Integral to this revisitation is the role of utility regulation. We must ask: Which features of utility regulation, when applied to nuclear construction, worked well, and which did not? Has utility regulation corrected its errors, to ensure to ensure fact-based, accountable decisions?

In his *Economics of Regulation,* Alfred Kahn distinguished between regulatory principles and regulatory institutions. The same distinction is useful to assess the readiness of U.S. regulation to evaluate nuclear power. This outline describes the author's preliminary view that (1) regulatory principles are unsettled, and (2) regulatory institutions are unprepared.

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I. Regulatory Principles are Unsettled: Four Examples

A. Market Structure: Competitive Markets or Regulated Monopoly Markets?

Market structure affects the level and type of regulatory involvement. Uncertainty exists in retail and wholesale markets; and in transmission policy, which affects both retail and wholesale markets.

1. **Retail:** In perfectly competitive retail markets, generation selection would occur without regulatory involvement. In traditional retail monopoly markets, generation selection triggers regulatory involvement. The nation remains undecided about the future of retail competition. Most of the states that enacted retail competition statutes 10 years ago are reexamining, but the outcome is unknown.

2. **Wholesale:** Regions differ in the type of wholesale competition. Some regions have occasional examples of bilateral procurement, utility by utility through requests for proposals. Other regions have tight power pools with organized capacity markets; but even in those capacity markets uncertainty exists as to the term length of purchases made at auction. No one is having an organized auction for 30 years of baseload power.

3. **Transmission:** Transmission, necessary to carry nuclear output to load, also faces uncertainty. Who will construct transmission, where, when, and subject to whose regulation (over rates and siting), remains undecided.

B. Project Selection: Process and Standards

1. Process

a. For those states that regulate the utility's retail procurement decisions, there are multiple techniques, including:

(1) integrated resource planning

(2) competitive bidding

(3) specified set-asides for particular technologies (e.g., renewable portfolio standard)

(4) unilateral utility proposals

b. Some of these techniques can overlap, such integrated resource planning that includes setasides for particular technologies, and

that uses competitive bidding to select projects within particular specified technology types

c. There is no consensus on what technique produces the best outcome.

2. Criteria

a. There is no consistent method for comparing the costs and benefits of generation technologies. Among technical analysts there is no consensus concerning –

(1) techniques of load prediction, construction cost projection, fuel price prediction, finance costs and discount rates

(2) apples to apples comparisons of various generation and conservation technologies, in terms of their ability to meet load

(3) portfolio management, in terms of the appropriate –

(a) mix of length of commitments
(b) mix of fuel sources
(c) mix of ownership vs. purchase
(d) use of hedging

C. Cost Recovery: Standards and Process

In regulated retail monopoly markets, cost recovery is determined by state regulators (and in wholesale monopoly markets, by FERC). Uncertainties stem from four questions: By what standard will regulators assess performance? Who bears the risk of unfortunate outcomes unaffected by performance? At what point in time will regulators make their decisions? What are the constitutional and practical limits on regulatory decisionmaking?

1. Performance standards

a. The phrase "just and reasonable" is common to most regulatory statutes. But its meaning varies. Some regulatory decisions requires prudence -- behavior consistent with reasonable behavior, as determined by common industry behavior. Other decisions required "least cost" results. Compare these cases:

(1) *El Paso Natural Gas Co. v. FPC*, 281 F.2d 567, 573 (5th Cir.) ("It is the obligation of all regulated public utilities to operate with ***all reasonable economies***."), cert. denied, 366 U.S. 912 (1960) (emphasis added).

(2) *Midwestern Gas Transmission Co.*, 36 F.P.C. 61 (1966) (while "[m]anagements of unregulated businesses ... have no alternative to efficiency," utility management "does not have quite the same incentive;" therefore, regulatory scrutiny must ensure that all costs are ***"necessary and prudent***"), *aff'd sub nom., Midwestern Gas Transmission Co. v. FPC*, 388 F.2d 444 (7th Cir.), *cert. denied*, 392 U.S. 928 (1968) (emphasis added).

(3) *Potomac Electric Power Co. v. Public Service Comm'n*, 661 A.2d 131, 138 (D.C. App. 1995) (statute requires service at "***lowest feasible cost***") (emphasis added).

b. The difference matters, to those making investments.

2. The risk of unfortunate outcomes

a. Even where utility performance satisfies the regulatory standard, unfortunate outcomes are possible. Changes in load, fuel prices, siting requirements, inputs to construction cost, safety regulation, waste disposal costs, all are reasons why cost outcomes will vary from cost projections, regardless of utility performance. Who bears the risk of these deviations?

b. Jurisdictions differ. One can imagine the following treatments:

(1) All risk on customers: Regulator guarantees recovery of all prudent costs, regardless of economic outcome

(2) All risk on shareholders: Regulatory guarantees recovery of all prudent costs, subject to a pre-determined cost cap (e.g., a cost cap arrived at through competitive bidding or utility unilateral proposals) [Note: The more the risk is assigned to the utility, the higher the authorized return on equity.]

(3) Something in between, but specified in advance

(4) Something in between, but not specified in advance

3. Timing of regulatory decisionmaking

a. The timing of regulatory decisionmaking affects risk. There are three categories of treatment:

(1) Pre-construction approval

(2) Continuous approval process during construction

(3) Approval after completion of construction

b. "Approval" is an unclear term. Regulatory "approvals" distinguish between --

(1) allowing construction to proceed

(2) finding that the decision to proceed with construction is prudent

(3) finding that specified construction costs are prudent

c. An approval of one type is not necessarily an approval of another type.

4. Constitutional and practical limits

Application of the foregoing standards and processes, even when the standards and processes are clear in advance, can run into constitutional and practical limits.

a. Constitutional limits

(1) Background on the Takings Clause

(a) Private property "shall [not] be taken for public use, without just compensation." *U.S. Const. amend*. 5.

(b) The Takings Clause protects legitimate, investment-backed expectations of property owners from diminution of the value of their property by government action. *See, e.g., Penn Central Transportation Company v. New York*, 438 U.S. 104, 124 (1978) (listing factors involved in the Court's fact-based "ad hoc" takings analysis,

including the "economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations").

(c) "In the area of utility regulation, a taking occurs only when the balance has been struck in the regulatory process so as unreasonably to favor ratepayer interests at the substantial expense of investor interests." *Jersey Central Power & Light v. Fed. Energy Regulatory Commn*, 810 F.2d 1168, 1189 (D.C. Cir. 1986) (Starr, J., concurring).

(d) "The analysis is essentially ... ad hoc [and] factual." Id. at 1192 (quoting *Kaiser Aetna*, supra, 444 U.S. at 175).

(e) No particular formula required: *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591, 602 (1944) (observing that the Constitution requires no particular formula); *Wisconsin v. Fed. Power Comm'n*, 373 U.S. 294, 309 (1963) (observing that the Court has repeatedly stated "no single method need be followed"); *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 315-16 (reaffirming rule that the Constitution does not prescribe any one ratemaking methodology).

(2) The three main Supreme Court decisions in this area set forth principles that are different -- and not readily reconcilable.

(a) *Bluefield Water Works & Improvement Company v. Public Service Comm'n*, 262 U.S. 679, 692 (1923).

> "[A] public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties."

(b) *FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 605 (1944)

i) "Rates which enable [a] company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risk assumed certainly cannot be condemned as invalid, even though they might produce only a meager return on the so called "fair value" rate base. The courts thus look to whether the utility has enough revenue for operating expenses and the capital costs of the business, including service on the debt and dividends on the stock (on a historical basis) and it allows a return to the equity owners commensurate with returns on investment in other enterprises with corresponding risks." Id. at 603. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and attract capital. Id.

ii) The court also emphasized the "end result" rule: if the total effect of the rate order is not unreasonable, judicial inquiry is at an end. Id. at 602.

(c) *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307-16 (1989),

i) The utility had abandoned construction of a nuclear plant. The Pennsylvania Public Utilities Commission had found that the decision to begin constructing the plant, as well as the decision to abandon the plant, were prudent decisions. The Commission declined, however, to allow full cost recovery of investment. The U.S. Supreme Court rejected the utility's argument that if the investment was prudent, it was entitled to recovery.

ii) The Court also rejected the broader argument of the Pennsylvania Electric Association that the prudent investment rule should be constitutionally compelled (id. at 315-16):

iii) "We think that the adoption of any such rule would signal a retreat from 45 years of decisional law in this area which would be as unwarranted as it would be unsettling. Hope clearly held that "the Commission was not bound to the use of any single formula or combination of formulae in determining rates." 320 U.S. at 602.

b. Bankruptcy

(1) State commission disallowances of construction costs can produce utility insolvency. If a utility enters bankruptcy, some state commission powers become uncertain. That uncertainty affects state commission decisionmaking.

(2) On state commission ratemaking, the bankruptcy code is explicit: no preemption.

(3) On corporate and financial structure, the law on bankruptcy preemption is less certain. A utility may wish to enter into financial arrangements with creditors. Or it may restructure its operations to place certain assets and activities under FERC jurisdiction rather than state jurisdiction. A state may seek to block or condition such restructuring. Whether bankruptcy law preempts such state actions is uncertain. *See Pacific Gas and Electric Company, v. People of the State of California*, 350 F.3d 932 (9th Cir. 2003).

(a) This 9th Circuit decision addresses the preemptive relationship between bankruptcy law and state utility regulation. The Court of Appeals reversed and remanded a U.S. District Court decision. The District Court had found that Congress's express preemptive intent applied to all "nonbankruptcy law." The Court of Appeals found that Congress's express preemptive intent was narrower, applicable

only nonbankuptcy law "relating to financial condition." Some more detail follows.

(b) The District Court had approved a PG&E restructuring plan that would move all of PG&E's transmission and generation assets into separate affiliates subject to FERC regulation rather than state regulation. PG&E argued, and the District Court agreed, that under the bankruptcy statute, the Court's approval of the plan would preempt state public utility law requiring PUC approval of any transfer of the assets from the utility to separate affiliates, as well as other state laws. The District Court found that the bankruptcy law expressly preempts any state law that could interfere with implementation of a bankruptcy plan.

(c) The Court of Appeals reversed the District Court's broad reading of the express intent of bankruptcy law. The Court found that express preemption by the bankruptcy statute is limited to the preemption of laws that are "relating to financial condition," a statutory phrase ignored by the District Court. The Court of Appeals remanded so that the District Court could apply this standard.

(d) The Court said it was addressing only the scope of express preemption (because that is what the District Court addressed), and was not addressing the possibility of implied preemption. Moreover, the Court gave no hint of what might be meant by the phrase "relating to financial condition." Its sole concern was that the District Court had ignored that language.

D. Treatment of Negative and Positive Externalities

1. An unknown portion of nuclear power's costs and benefits are borne and received by citizens other than the builder's shareholders or the consumers of the plant's output. The externality costs and benefits include:

    a. Federal taxpayer support of research and development of nuclear technology

b. Utility ratepayer support of research and development of nuclear technology

c. Price-Anderson protection of the utility's shareholders and customers of the costs of a nuclear accident exceeding statute-specified levels

d. Federal taxpayer support of safety regulation by the Nuclear Regulatory Commission

e. Federal taxpayer support of research and implementation of waste disposals

f. Utility ratepayer support of research and implementation of waste disposals

g. Reduction in nation's exposure to Mideast instability due to nuclear's displacement of oil

h. Reduction in nation's exposure to environmental risk due to nuclear's displacement of fossil fuels

2. In evaluating the desirability of a nuclear plant, different jurisdictions will treat these externalities differently. Also, the cost support derives from federal statutory and regulatory treatment, which can change with national political decisions.

II. Regulatory Institutions are Unprepared: Five Examples

A. Different Regulatory Fora Address Different Questions, Without Sufficient Coordination

1. State commissions

    a. power supply planning
    b. retail cost recovery
    c. siting of generation and transmission

2. FERC

    a. wholesale power costs
    b. transmission pricing (under certain circumstances)
    c. transmission siting (under certain circumstances)

3. NRC

    a. safety
    b. effect on competition

4. Dept. of Justice: effect on competition

B. Within Each Regulatory Forum, There are Conflicting Values

1. cost timing: short term vs. long term
2. cost certainty
3. environment: local and global
4. local economy
5. customer protection
6. investor comfort
7. safety (note: states are preempted from considering safety)

C. Markets are Multistate, but Power Acquisitions are State-by-State

Two types of conflicts can arise:

1. between (a) the scale economies of a generating plant, and (b) the hesitance of some states in a region to commit to this plant.

2. between federal and state jurisdiction

   a. Under prior law, jurisdiction over cost recovery can shift with corporate structure. *See Mississippi Power & Light v. Mississippi ex rel. Moore*, 487 U.S. 354 (1988).

   b. There is uncertainty over whether *Mississippi Power & Light*'s "central planning" rationale for preemption applies when there are choices in the wholesale market.

D. State Commissions Have Institutional Weaknesses

1. Commissioner level

   a. political appointments
   b. lack of regulatory experience
   c. short terms

2. Staff level

   a. uncertainty about Commissioner desire for advice

   b. asymmetry of experience and resources, relative to regulated entities

   c. different professions look at different aspects of the issue without sufficient mutual consultation

      (1) engineers
      (2) lawyers
      (3) accountants
      (4) economists
      (5) finance experts

3. Regulatory processes

   a. Dearth of objective consultants
   b. Apparent desirability of settlements over litigation

4. Discomfort with making long-term resource commitments

E. Trust is Lacking

1. Consultant community is seen as lacking objectivity

2. Skepticism over the source of the interest in nuclear power

3. Is there a factual basis for arguments that nuclear power has a risk differential? Compare the risks of other fuels.

4. Last time, advocates of nuclear power plants use varying rationales

    a. load growth
    b. low cost
    c. oil displacement