Is Regulation Ready? Five Questions About the Future

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1. **Market Structure: Monopoly, Competition or Both?**
2. **Mergers and Acquisitions: Who Should Own What Assets? Who Should Sell What Services?**
3. **Are Our Utilities Charging the Right Prices?**
4. **Utility Performance: Do We Know What We Are Judging? Do We Know How to Judge It?**
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I. Market Structure: Monopoly, Competition or Both?

> ***The "central, continuing responsibility of legislatures and regulatory commissions" is "finding the best possible mix of inevitably imperfect regulation and inevitably imperfect competition."***[1]

How? Two main steps.

A. Establish principles, gather facts.

1. Regulated monopolies make sense when there is a natural monopoly -- or, as the economists put it, when the economies of scale create a "subadditive cost function."

    a. For which goods and services is there a natural monopoly?

    b. Does the subadditive cost function apply only to one product or activity? Or are there economies of scope, arguing for the economic bundling of various activities, assets or services?

    c. Is it possible that technological change will eliminate the natural monopoly? How will we know?

    d. Is it possible that the benefits from dynamic efficiency associated with competition will exceed the loss of static efficiency resulting from the breakup of a natural monopoly?

    e. If we do authorize competition, are there entry barriers or incumbent advantages that will distort competition?

2. These questions should be asked continuously, not once every ten years.

    a. The aim of this continuous questioning is to identify each product or service that can be efficiently and feasibly subjected to competition. This assessment involves the economic and the technical.

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[1] A. Kahn, *The Economics of Regulation: Principles and Institutions*, Vol. I, Introduction at xxxvii; Volume II at 114 (1970; 1988 edition).

b. Economic assessment addresses whether it is more efficient for a product or group of products to be provided by a single competitor or by multiple competitor.

c. Technical assessment addresses whether and how the reliability of a service, especially an interconnected network -- would be maintained with multiple providers of a particular service.[2]

B. Restructure, then monitor.

1. To declare "let's have competition" without determining if competitors actually will arrive, or can arrive, would defeat the purpose of competition: to use market forces as an alternative way to satisfy customers.

2. Preventing this outcome requires several steps:

   a. Establish standards of conduct by competitors.

   b. Monitor competitors' conduct for price and quality.

   c. Monitor cost functions to see if the addition of competitors has enhanced or detracted from static efficiency.

   d. Monitor the extent of innovation and invention to see if the addition of competitors has enhanced or detracted from static efficiency

   e. Establish goals and mechanisms for consumer education, and monitor to determine if consumer experience and skill is growing sufficient for competition to work.

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[2] For an example of academic investigation into some of these questions, see the following writings of John Kwoka, Neal F. Finnegan Distinguished Professor of Economics at Northeastern University: "Electric Power Distribution: Economies of Scale, Mergers, and Restructuring," *Applied Economics* (Nov. 2005); "Vertical Economies in Electric Power: Evidence on Integration and Its Alternatives," *International Journal of Industrial Organization* (May 2002); "The Comparative Advantage of Public Ownership: Evidence from U.S. Electric Utilities," *Canadian Journal of Economics* (May 2005); "Mergers and Efficiency: Evidence from the U.S. Electricity Industry," with M. Pollitt, Northeastern University Economics Discussion Paper, August 2006.

C. Assessment of the U.S. experience in electricity and telecommunications

1. Did we have a picture of the appropriate end state, and did we take action to ensure that end state?

2. Did we eliminate incumbent advantages?

3. Did we eliminate entry barriers?

4. Did we educate consumers?

5. Do we create inducements for customers to shop, or to avoid shopping?

6. Did we monitor continuously, seeking and applying facts rather than wishing and hoping?

II. Mergers and Acquisitions: Who Should Own What Assets? Who Should Sell What Services? Do We Have a Plan?

A. Over a century, our citizens have paid trillions of dollars to support the infrastructure of our nation's electric and gas industries. Corporate structure regulation seeks to make the recipients of those trillions -- owners, financiers and operators of the infrastructure -- accountable to the public. To that end, legislators and regulators have asked five questions:

1. Who can acquire and own electric and gas utilities?

2. What business activities may exist within the utility's corporate family?

3. What corporate structure may these corporate families have?

4. What financial structure may these corporate families have?

5. What interactions may occur among the members of the corporate family?

These five questions share a common purpose: ***to encourage efficient transactions and discourage inefficient ones.***

B. ***Questions unanswered:*** When the U.S. Congress in 2005 repealed the Public Utility Holding Company Act of 1935, it left these questions unanswered. It also increased the likelihood of structural complexity. Gone are the geographic and type of business limits on utility mergers and acquisitions, along with reviews of

and limits on leveraged financing and interaffiliate transactions. Our regulators now face questions unaddressed, systematically at least, for 70 years:

1. Should they impose limits on the types of companies and corporate structures that provide retail monopoly service to electricity and gas customers?

2. Or should they welcome new structural options without limit?

3. With respect to these questions, there is no expert consensus, no political consensus, and no systematic process for arriving at one.

C. The biggest mystery is the benefit-cost relationship: The largest unanswered question is: In assessing corporate couplings, how do we ensure that benefits justify the costs? After dozens of mergers, the fundamental economic analysis of whether a merger is, from the consumers' perspective "worth it," remains unsettled. This "merger equation" involves four main questions:

1. What should be the relationship of costs to benefits? The proper test is that used in standard financial analysis: "Does the cost produce benefits at least equal to alternative, feasible uses of the money?" Under this test, a merger whose cost diverts resources from lower cost means of achieving the same benefits is not in the public interest. Regulators have approved dozens of mergers without applying this test.

2. How should we measure costs and benefits? Savings asserted by merger applicants have asserted savings from administrative and general accounts, labor, fuel, operations and maintenance, power supply coordination, construction deferral, bulk purchases. Sometimes, merger applicants' assertions of savings are so general that there is insufficient information on which to base a credible cost benefit judgment. There is no consensus about the level of detail required or the source of reliable benchmark data.[3]

3. If actual costs and benefits deviate from projections, who is accountable? A continuing difficulty is determining whether an asserted merger benefit would have occurred without the merger. Otherwise merger cost recovery from ratepayers would negate cost reductions that would have occurred without the merger.

[3] My colleague Nancy Brockway has pointed out that "there is no industry standard for estimating likely merger synergies, and typically no track record of proven synergies from other mergers by which to assess forecast likely results from the proposal under review."

4. Is "after-the-fact" rate review sufficient?

a. Some argue that protection against cross subsidies and other risks lies in ratemaking. The implication is that structural complexity poses no risk because ratemaking will catch problems. This view is not fact based. Ratemaking depends on auditing. Auditing is not a trip to the dentist, who checks every tooth. Auditing is sampling. It cannot promise 100% coverage, especially with limited regulatory resources. Allowing structures that invite cross subsidies, complicate auditing or both increases the probability of problems.

b. Reliance on after the fact disallowance also invites "too big to fail situations." In the competitive world, poor decisionmakers fail. But not always. We all are familiar with situations in which a company's size of national importance pressures regulators to prop them up. State commissions whose residents depend on the incumbent will tend to save the company rather than exact the ultimate penalty -- especially since bankruptcy law addresses creditor rights, not consumer protection. Given the inherent uncertainty of "back end" accountability in the form of rate review, "front end" accountability in the form of advance review of financial risks remains even more critical.

III. Are Our Utilities Charging the Right Prices?

A. Three reasons to question our current rate designs:

1. Climate change: When will we start paying the full cost of carbon?

2. Energy efficiency: When will we price according to actual cost rather than embedded cost?

3. Infrastructure replacement

a. The long-deferred capital needs are heading north of hundreds of billions of dollars. Electricity faces shrinking capacity margins, renewables-induced transmission demands, the possible return of nuclear power and the likelihood of climate change legislation. Natural gas needs billions for new main and service pipes and compliance with new federal safety regulations. Water, too: EPA says that over the next two decades, we need $500 billion to $1

trillion for water and wastewater infrastructure improvement and replacement. Telecommunications decisionmakers are considering universal access to broadband. Utility employees' pensions are now underfunded due to stock value declines.

b. Prior generations invested in our future. When will we start paying for the next generation's future?

B. Why do we find this issue so difficult?

1. ***Blurred mission:*** Utility regulation has a "consumer protection" component. Protection from what? In traditional markets, consumers' depend on a single seller, so "protection" means protection from excessive prices and insufficient quality. Have we allowed this "consumer protection" purpose to transmogrify, from protection against monopoly inefficiency to protection against high costs in general? Some regulators define their effectiveness by where their rates rank. Some lobby against climate change legislation because it will "raise rates." Rate rankings do not equal rate appropriateness; consumer protection does not mean protection from the right rates.

2. ***Lulled customers:*** Those years-long rate freezes lull the public into thinking rate stability is an entitlement. When after 10 years of below-cost rates, the commission re-aligns rates with cost, we know what happens: (1) Voters don't offer thanks for the prior windfall; they protest the new levels, loudly. (2) Politicians fan these flames, making rational policymaking difficult. (3) The compromise arrives, usually more pain deferral than pain sharing, usually skirting the underlying problem (the public's lack of acceptance that electricity costs, like all costs, rise). What works in politics -- mediating between positions -- rarely works in regulation, where the midpoint between two wrong answers is a third wrong answer.

3. ***Skeptical public:*** A utility rate increase triggers public skepticism, because the public is reflexively skeptical of bigness. The public reaction is asymmetrical: citizens do not talk positively much of the near-miracles of electricity production, water treatment, gas storage and instant telecommunications, and the rarity of outages. They disparage rate increases.

4. ***Utility hesitance:*** The utility has reputational risk. It does not enjoy raising rates -- the headlines, the commission audits, the legislators' castigations. There also is financial risk. Some utilities hesitate to make infrastructural investments without advance, project-specific regulatory

commitments. This hesitation is a potential legal violation: A utility may not avoid its infrastructure obligation based on fears that the regulator will avoid its ratesetting obligation. The utility must perform its duties, then take a law-violating commission to court. Despite this legal reasoning, some utilities hesitate to push to the front necessary proposals for infrastructure improvement.

In sum: The combination of regulatory hesitance, lulled customers, customer skepticism and utility hesitance produces headwind in our efforts to make rates right

IV. Utility Performance: Do We Know What We Are Judging? Do We Know How to Judge It?

What constitutes best practices in each industry? Do regulators know how to determine such practices? Do they know how to establish the rewards and penalties with sufficient emphasis to ensure effectiveness? Who bears the risk of unfortunate outcomes unaffected by performance? What are the constitutional and practical limits on regulatory decisionmaking?

A. Performance standards

1. 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:

   a. *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).

   b. *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).

   c. *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").

2. The difference matters, to those making investments.

B. The risk of unfortunate outcomes

1. 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?

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

   a. All risk on customers: Regulator guarantees recovery of all prudent costs, regardless of economic outcome

   b. 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.]

   c. Something in between, but specified in advance

   d. Something in between, but not specified in advance

C. 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 limits.

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

2. 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").

3. "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).

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

5. 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*, 488 U.S. at 315-16 (reaffirming rule that the Constitution does not prescribe any one ratemaking methodology).

6. 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)

        "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.

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),

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.

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):

d. "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.

V. Skill Sets: Do Commissions Have What They Need?[4]

Looking at corporate structure questions alone, the skill and experienced required is intimidating; it requires expertise and resources in the area of economics, engineering, finance and accounting, and business management.

A. ***Economics:*** What are the economies and diseconomies of scale for the various components of utility service production, transmission, distribution, customer relations? What are the economies and diseconomies of scope among various utility and nonutility activities potentially coexisting within the same corporate family? How can regulators gather this information in the context of reviewing merger and acquisition proposals?

[4] Excerpted and adapted from Scott Hempling, Testimony Before the U.S. Senate Energy Committee (May 2008).

B. ***Engineering:*** For each of the major physical functions involved in utility service, what are the geographic and size limits beyond which quality and responsiveness of service is affected? There are reports of intermediate and long term shortages in skilled crafts necessary for electricity plant construction and maintenance, among other things. How can regulators go about gathering information on these shortages, so as to ensure that corporate managers focus on these issues, rather than on transactional distractions?

C. ***Finance and accounting:*** What are appropriate financial structures for the various businesses within utilities and utility holding company structures? For example, can there be "safe harbors" for various types of nonutility investments by utility holding companies, such that should business failures occur, no damage to the utility will result? Are there reliable, readily available metrics so that each new business expansion does not require resource consuming regulatory review? Are there true benefits to utility shareholders to having a utility holding company diversified into other business, as compared to the shareholders diversifying their portfolios individually?

D. ***Business management:*** What are the implications for efficient and effective management when utility operations are geographically dispersed, i.e., not operationally integrated? How do managers, and regulators, determine these limits? What are the incentives, for various management positions, which result from a mix of utility and nonutility businesses in the same corporate family? Are these incentives aligned with the public interest? What are the skill sets necessary to manage, simultaneously and successfully, monopoly and competitive businesses within the same corporate family? After several dozen mergers and acquisitions in the electric and gas industries since 1980, what data are available to study these questions?