

HARVARD UNIVERSITY

JOHN F. KENNEDY SCHOOL OF
GOVERNMENT



Harvard Electricity Policy Group

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**HARVARD ELECTRICITY POLICY GROUP SEMINAR
STRANDED ASSETS: TOWARDS ANALYZING THE OPTIONS**

**Malkin Penthouse
John F. Kennedy School of Government, Harvard University
January 7th, 1994**

MEETING SUMMARY

In previous sessions the HEPG has addressed the question of the magnitude and distribution of potential stranded assets. For many firms, the exposure from stranded assets appears to be an order of magnitude exceeding book equity. Recognizing that there is little value to the group in spending further time refining the estimate, this seminar examined the options and strategies involved in allocating these costs.

The immediate object of this session was not to define a specific transition strategy for dealing with stranded assets, but rather to explore the questions that need to be asked to better understand how to deal with this problem. For this discussion we asked people who have examined related issues to review the conceptual issues and related experience. The discussion focused on legal transitions and principles for a normative theory of compensation; real cost impacts of different cost allocation strategies; and alternative strategies for cost recovery.

Morning session: Cost Allocation in Theory

The session began at 9.30 with an introduction by Bill Hogan. The morning session was devoted to a discussion of cost allocation both in theory and in its application specifically to the electricity industry.

Legal Transitions and Compensation

Papers: *An Ex Ante Perspective on Deregulation, Viewed Ex Post, and The Fair Allowed Rate of Return with Regulatory Risk¹*

¹ Papers and outlines handed out for this seminar are listed at the end of this summary.

Speaker:

In the material distributed in advance of the Seminar, the speaker made the case that government transition relief is generally not a good idea. Underlying this argument is the assumption that the existence of such relief creates undesirable *ex ante* incentives: decision makers would take less care in their resource allocation decisions if unfavorable outcomes were compensated. A question that must be asked in applying this general principle to the context of the electric sector is whether we are in an *ex ante* or an *ex post* world with regard to significant investments.

A major consideration in determining responsibility for a sunk cost burden in the context of a competitive transition is to identify the *ex ante* decision maker with respect to investments. Clearly, utilities don't act alone; regulators share the onus of decision making. Relative shares of responsibility might only be consistently determined on an investment-by-investment basis or at best a state-by-state basis.

We should require, at a minimum, that the price signals imparted by any transition regime to deregulation approach market-based levels over time.

Response:

The incentive--or moral hazard--problem associated with promises of compensation is graphically illustrated by a phenomenon highlighted by the recent floods in the Midwest: construction--or reconstruction--on the floodplain occurs despite the very real risks because of the expectation that compensation will be forthcoming.

It was argued that the speaker had implicitly assumed in his presentation that the government's decision is optimal--and that moral hazard infects private-sector decisions. Private insurance markets, it was asserted, exist for many risks and, where available, are the most efficient

way of spreading risk.

A useful analogy to the stranded asset problem in the electricity industry may be stranded assets in the defense industry. Tank producers, for instance, have invested large amounts in "tank-specific" assets which sit idle in many cases now that the Cold War has ended. Despite some long-term contracts with these producers, it is said that a painful--and perhaps analogous-- transition is underway in this industry.

In the electricity sector, it is perhaps useful to consider the distributional and legal consequences of a government entity that "commits" and then reneges (some observers' characterization of the possibility of PUCs "stranding" investments to which they at one time gave their blessing). These days, regulators, in some cases, have great difficulty making credible commitments. In terms of incentives on investors, for instance, mechanisms which can credibly tie the hands of government--by, for example, requiring compensation in certain circumstances--are important tools. Sometimes, however, the best which investors might hope for would be a "slowing of the hands"!

The implicit assumptions that support the general recommendation against government transition relief include (i) symmetry and (ii) voluntarism. Under the symmetry assumption, investors anticipate rewards that include both large possible gains and large possible losses -- hence compensating for losses would distort the investment decision. However, in the case of regulated utilities, shareholders do not reap the large gains -- they are typically passed on to customers. Hence, a consistent application of the symmetry principle would call for compensation in the case of large losses. As for voluntarism, many investment decisions by an electric utility arise because of regulatory requirements and the obligation to serve. This compulsion carries with it an obligation for protection against large losses.

It was emphasized that the Kolbe and Tye arguments on asymmetric regulatory risk rest on only two assumptions: 1) the law of averages and 2) the definition of the cost of capital. One practical objection to the conclusions reached by the authors, however, is that the magnitude of the risk premia necessary to compensate for regulatory risk would be politically infeasible in any jurisdiction.

Discussion:

One participant emphasized that the behavior and reputation of a particular governmental unit can make significant "ripples" in other jurisdictions, in terms of a general disbelief of "government" (in the generic sense) claims and promises. Moreover, it has been clearly demonstrated in the courts that takings and contract law do not provide much protection in the face of administrative, legal, or economic transitions.

The Cost of Shifting Costs

Speaker:

What we were talking about at earlier sessions as stranded assets was really the reallocation of sunk costs. There is an extreme point of view that the reallocation of sunk costs doesn't matter -it doesn't have any effect on decisions. If we agree with this, then we're free to concentrate on the equity issue, etc. However, there *are* real costs associated with the transition to a competitive electricity market, and we would like to understand them better. We are at the beginning stages of researching this subject, but a first cut at a list of some of these costs includes:

Transaction costs of the transition (this seminar, for instance, where people try to figure out

what is happening). These are assumed to be small.

Price distortions from sunk costs being allocated to consumers cause a widening gap between electricity rates to those consumers and the marginal cost of producing electricity. However, with low elasticities of demand in the short-run, these price distortions will be relatively small.

"Near bankruptcy" conditions at a firm, which have affect the management of the company.

Quality of service and investment decisions are affected, etc. Some work has been done on the costs of financial distress.

After it files for Chapter 11 protection, what kinds of decisions does a firm make - does it emerge from bankruptcy weaker or stronger than its competitors? The common argument for quick reorganization is that post-bankruptcy costs tend to be small.

"Transition Cooperation": Potentially, the single largest real cost associated with how sunk costs are allocated is the degree of cooperation among different players in settling this allocation. If allocation is not settled, strategic behavior by individual players will determine both transition process and destination. The experience in railroads suggests that these costs could be very large - managers are "mesmerized" by the stranded asset problem and disputes, paralysis, or opportunistic behavior can constrain the realization of the benefits of a competitive market.

Response:

Stranded asset allocation is going to be debated more in the realm of political economy than welfare economics. People who are looking at this problem from a political point of view are going to be more interested in redistribution of assets than expanding the pie. If we are choosing to go to a competitive industry because we believe that it is going to be net more efficient, then the

gainers will gain more than the losers will lose. So is it possible to come up with some way of redistributing some of the net gain, if that's what we're worried about? This is not a zero-sum game.

There are two kinds of economic effects of this transition - price effects and cost effects. The net efficiency benefits from lower prices will be relatively small. The real gains come from real cost reductions - therefore it makes sense in developing a transition strategy to focus on increasing efficiencies associated with the generation of electricity. Any transition mechanism that slows down these real costs savings will have a big affect on the net benefits of making the change to a competitive market. So if the goal of changing to a competitive market is to realize as much net benefit as possible, the priority should be on cost reduction, not price reduction.

When railroads were "deregulated", the industry faced shippers who resisted tariff changes, competition from truckers because of the development of the interstate highway system, and labor laws that did not adapt to changes in the industry. As a result, the quality of service declined, rightsof-way were no longer maintained, and eventually the government had to take over passenger service. The electricity experience will be messy, like the railroads were.

Discussion:

A participant noted that the natural gas experience is very recent and people still remember how painful the resolution of take-or-pay contracts was - why should the transition resemble that of the railroad industry, rather than natural gas, of which we have more immediate experience? The respondent noted that, in the natural gas industry, there was a single regulatory body, and it was one that was willing to grapple with transition issues.

Afternoon Session: Transition Costs in the Electricity Market

The afternoon session focused on options for handling transition costs, from the viewpoint of various players in the industry.

Strategies for Cost Recovery

Papers: *Methods of Handling Transition Costs for the Electric Utility Industry*

Speaker:

How fast do you open the market for electricity? If you do it quickly, you allow markets to begin operating more quickly and realize the benefits of lower electricity costs sooner. If you do it slowly, implicitly you are deciding that the remaining ratepayers will continue to pay for assets stranded by other customers as they leave the franchise to shop. This is one option for dealing with stranded assets. Some utilities have such a big stranded assets problem that it's hard to see how you can do it without giving them some time. Others will find it easier.

Another option is cost minimization - recovering some stranded assets through improved efficiency while minimizing rate increases for customers. Price caps could be one example of how to do this. This strategy plays a very big role in the credibility of the efforts the utility is making, but by itself is not going to make a big contribution towards solving the problem, especially for those utilities where the amount of stranded assets is very large. This solution also delays rate decreases for customers.

A final set of options for dealing with residual sunk costs is through sharing them between shareholders and ratepayers, and even through other competitors, if you can figure out how to do that. These problems are usually driven by nuclear assets and expensive NUG contracts - not necessarily results of the transition, but a function of decisions made in the past.

Utilities are preoccupied by the stranded asset question, and are not thinking about the future

structure of the industry - it would be helpful to say, as was suggested earlier, "You have this period, and then you're going to look like this".

Response:

Will the transition be a stable process or an event-driven process? Can we set up a "transition framework", whatever that is? It is much more likely that this will be played out in many different ways by people seizing opportunities, like some municipalities have been doing.

Price caps will not focus utility attention on cost reduction as much as losing major customers will - they need the pressure of direct competition to become efficient. Wholesale competition by itself will not be enough - buyers have to have real choices.

There are limits to how regulators can redistribute costs. Not even captive customers are entirely price-inelastic.

Combined, many of these strategies, may go quite a long way towards solving the stranded assets problems of many utilities.

Discussion:

The speaker did not agree with the premise that "this is going to be driven opportunistically, so why bother to plan?" - planning will cut off opportunistic behavior. He further noted a difference between financial write-downs and regulatory write-downs.

A participant asked if it were really true that those utilities which had less stranded asset exposure would move the fastest, to take advantage of their lead over other utilities - he thought that it was possible that utilities with high stranded asset exposure would be the most aggressive, because they would feel the pinch soonest.

Another participant suggested that the priority should be to come up with a system that is going to produce efficient behavior - what we don't want to occur is for customers to start stringing lines down old railroad rights-of-way from Vermont to New York to reach cheaper power.

Cost History and Cost Recovery

Outlines: *Transition Costs in the Electricity Market. Cost History and Cost Recovery* and *Electricity Transition Costs*

Speaker:

Is the treatment of stranded costs historically based more on considerations of equity or economics? Has the extent to which the government was involved in the industry been significant in cost allocation in other industries? What notions of equity will policymakers and regulators use in allocating costs?

Every utility will be different in terms of mix of investment, magnitude of the problem, when it hits, and what third parties are involved. The origin, magnitude and timing of stranded costs can be examined in three categories: 1) plant investment, 2) non-utility supply, and 3) regulatory assets.

1) Plant investments

Many utilities have experience with disallowances for plant investment or other decisions that allocate responsibility for uneconomic generation investment, e.g. nuclear plant construction. Some of these have resulted in writeoffs, some have used depreciation devices or "phase-in" plans. What can we use from this experience?

Many companies also have long-term fuel supply relationships with captive, owned, or independent suppliers. Arrangements with these companies may be uneconomic, either because of

fuel costs or because of decisions involving specific plants.

2) Non-utility supply

There is probably a greater degree of variation in NUG arrangements than in owned generation, nation-wide. Some contracts will be uneconomic because they are result of federal and/or state policy in some earlier period when different conditions applied, and some will be uneconomic because of the common 1980's practice of consistently overstating avoided cost. Some NUG contracts have regulatory "out" clauses and some do not. Because of the nature of contracts, the time impact of NUG-related diseconomies is likely to be later than that associated with owned plants.

3) Regulatory assets

There is a wide variety of arrangements that can be grouped together under the label "regulatory assets", and they vary widely in magnitude from utility to utility. They include artificially slow depreciation, flow-through of tax benefits, nuclear decommissioning, etc. Many of these mechanisms were created to reduce rate effects of new plant construction, so many are associated with the generation side of the business - the part that is becoming competitive.

Response:

Stranded assets in the electricity industry are characterized by high variability. It seems to be the normative view that the historical regulatory decisions in an industry ought to have a place at the table in deciding what is to become of the industry in the future, but they will not ultimately play a big role:

- There is the argument over whether "the regulators made the utility do it" or "the utility made the regulators make the utility do it" is what really happened. This argument doesn't really get you anywhere.
- Is there a correlation between state commissions that tend to thrust bad investment on utilities and their willingness to be kind to shareholders? Probably quite the opposite. It is too easy to make the argument, "This isn't a taking - the market did it."

Opportunistic behavior is going to drive this transition. Exogenous forces are going to start the ball rolling - one politician - one high-visibility event, is all it will take. A politician is going to say, "Hey, by doing this one thing, I can lower peoples' rates by 40%, and then they'll elect me President of the United States."

Discussion:

Decisions on the allocation of sunk costs will be affected in part by perceptions of equity based on the nature of past commitments. Explicit past agreements, such as past settlements on closing plants, may be used to decide cost allocation. Mandated programs, where investment decisions were made by statutory or regulatory directive, may be considered as having particular equity claims. The equity of allocation of costs acquired under implicit agreements, e.g. investments which were considered "prudent", is another point of debate. Finally, there are the special problems of the nuclear industry and discretionary investments made by utilities.

Consumer Interests in Competition and Cost Recovery

First Speaker:

Consumers believe in competition, and they don't particularly trust regulators. They believe that competition will lower their rates. They believe that current rates are at best fair and are probably too high. One of the difficult things to do will be to say simultaneously that the industry is becoming more competitive and that they will also have a higher electricity bill. This paradox will also make it very difficult to shift additional transition costs to them. Price caps may be useful in moderating a transition, and may make customers happier, because it will seem like competition is indeed generating lower prices.

Consumers have a high private discount rate. If competition means higher costs to them, customers would prefer to postpone competition - this may present an opportunity for arbitrage between private and societal discount rates.

One of the lessons from competition coming to telecommunications is that consumers are willing to trade a certain amount of confusion that comes from having more than one service provider, and a certain amount of predictability, for the ability to make choices.

If we mandate retail competition and de-integration of the industry at the same time, we avoid the problem of opportunism by certain utilities - small customers will have the same ability to shop as big customers.

Second Speaker:

Having captive customers has created an incentive for utilities to minimize the importance of planning and of responding to market signals. This has resulted in chronic overbuilding, goldplating, and inefficient operations and maintenance expenditures.

Captive customers are seeking choices because their rates are too high. Their options include municipalization, competition from other franchises, self-generation, and distant hookups. Self-generation especially has become a more attractive option because of technology changes and low interest rates. (A recent study for EPRI concluded that 29 GW of industrial load, or 19% of total electricity consumption, is a potential candidate for self-generation.) Because some of these options only make economic sense when the "captive" rate is far above marginal cost, retail competition will inevitably occur, "regardless of how soon retail wheeling becomes a reality".²

Some options which have been discussed by utilities for dealing with the problem of assets that would be "stranded" by the move to a competitive retail market include: postponing competition as long as possible, redistribution of these costs, reduction of utility costs, and open markets. Postponement simply won't work -- competition is here already. Redistribution, depending on how it is done, may only widen the gap between the cost of self-generation and utility tariffs.

General Discussion

One participant said that the FERC is actively working on asking questions about transition costs. At first they thought they were limited to wholesale costs, but they realized that retail customers can become wholesale customers, and they are trying to account for that as well.

Price caps on certain segments of the electricity business (e.g. generation) were discussed as a possible transition mechanism -- it is currently being looked at in several states. Price caps can have some credibility on the consumer side, if they are tied to some measure of marginal cost of electricity.

² Speaker quoted Curtis Moulton of Standard and Poor's Ratings Group, interviewed in *Industrial Energy Bulletin*, Dec. 31, 1993.

Handouts for 1/7/94 Harvard Electricity Policy Group seminar on Stranded Investment

Please do not cite any papers or outlines marked "Draft"

- Anderson, John A *Presentation at the Harvard Electricity Policy Group's "Stranded Assets: Towards Analyzing the Options" Seminar* Draft outline, 1/7/94

Anderson, Steven, John Graham and William Hogan, *Electricity Transition Costs* Draft, October 22, 1993

Flaim, Theresa, *Methods of Handling Transition Costs for the Electric Utility Industry* Draft outline, December 9, 1993

Graham, John *Transition Costs in the Electricity Market: Cost History and Cost Recovery* Draft outline, 1/7/94

Kaplow, Louis, *An Ex Ante Perspective on Deregulation, Viewed Ex Post* Resource and Energy Economics 15 (1993) 153-173

Kolbe, A. Lawrence and William B. Tye, *The Fair Allowed Rate of Return with Regulatory Risk* Research in Law and Economics (1992) JAI Press pp. 129-169