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Harvard Electricity Policy Group



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**HARVARD ELECTRICITY POLICY GROUP
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CONFERENCE SUMMARY

First Session: Merger Policy and Market Power

The theme of this session is the proper role of FERC in its review of proposed mergers. What choice should the FERC make in shaping its future merger policy? Should it follow the Department of Justice standard of allowing mergers which do no harm to competition, or should the FERC seek actively to use merger policy as one of the tools to apply in fashioning a competitive generation market? This leads naturally to a series of questions. Just how different would merger policy be depending on the choice that FERC makes; what concrete actions would be different? There is little doubt that much is needed to develop a competitive generation market, but would the more activist policy be a proper use of FERC's authority over mergers? How would we react if FERC used its authority in one arena to pursue in another arena that which we opposed?

First Speaker:

The perspective that I will represent today will be that of an economic regulator in the energy sector as well as that of an enforcer of the antitrust laws. Our first statutory duty is to ensure that mergers are consistent with the public interest. The Federal Energy Regulatory Commission does not administer any part of the anti-trust statutes; instead, it balances costs and benefits in ruling upon a proposed merger application. It is likely that Congress intended the Commission to achieve

something more under Section 203, or at least something quite different, than it required under the anti-trust laws. Indeed, the two approaches to merger activity are easily distinguished. Unless persuaded of a merger's anti-competitive effect, antitrust enforcers do not consider a merger's impact on system efficiency. Moreover, neither DOJ nor the FTC favor the adoption of any generic industry structure. And finally, distributional questions and other non-market matters are not at issue in a pure anti-trust analysis. FERC review, under Section 203, does not suffer

these limitations. And yet the FERC, like most Federal economic regulatory agencies, is required to weigh anti-trust considerations in its decision-making.

FERC's merger review standards can be characterized as a "themeless pudding," that is, a combination of competitive market analysis and a balancing of the related benefits of competition. To illustrate the flexibility implied by Commission standards, a merger that is shown to cause anti-competitive harm could probably still be approved by the Commission if regulators could be persuaded that the merger would provide benefits such as cost savings, rate concessions, and structural reforms that are at least equal to the competitive harm in importance. The Commission's merger review should not, however, confound the evaluation of market competition with broader public interest concerns (eg, consumer welfare) and the FERC's other duties under the Federal Power Act.

I will conclude with five benchmark observations. First, the restructuring of the wholesale power market as envisioned in the Commission's open access proposals has three important consequences for merger policy:

- Open access and service unbundling make vertical integration less valuable to utilities.
- The benefits derived from open access can no longer be ascribed to mergers.
- The new emphasis on competition and consumer choice makes a detailed and uncompromising analysis of market power more important than it had been under the Commonwealth standards.

Second, the Commission's open access proposal does not necessarily eliminate market power issues. Transmission constraints, created or exacerbated by mergers, will in fact heighten concern about horizontal market power. The DOJ recommends operational unbundling, at a minimum, as a remedy. Generation market power can be problematic, transmission access or even divestiture of transmission facilities notwithstanding. The Commission should develop more sophisticated calculations of market share and concentration that account for the effects of temporal and locational transmission constraints.

Third, in a competitive environment, cost savings from workforce reductions and similar purported merger benefits are utterly incapable of overcoming demonstrable competitive harm from a merger. Because utility mergers ^{usually} occur on friendly terms, new management is not wholly dedicated to the hot pursuit of maximum efficiency goals after the merger as it might be, for instance, in a takeover contest. The potential efficiency benefits of a modern utility merger, often amounting to a strategic repositioning designed to capture additional customer base, may therefore be pretty meager.

Fourth, notwithstanding or in addition to its market power analysis, the Commission is entitled--if not required--to provide for such consumer protections as it deems necessary. Examples of consumer protections include hold-harmless commitments, taking the form of rate freezes, denials of rate recovery for acquisition premiums, or conversion rights for requirements or transmission customers.

Fifth and finally, the success rate of past utility mergers derives largely from the

relatively predictable result of merging two similarly-structured utility companies. As utilities become more diversified and competitive, they may be increasingly identified with that high percentage of unregulated companies whose mergers fail to provide additional value for shareholders. In conclusion, the open access revolution will raise the bar for merger applicants. The public interest will require a more detailed analysis of market structure that will also be more difficult. The prospect of greater risk and limited opportunities for efficiency gains will convince regulators that they must actively defend the rate-paying public against the tide of merger failures.

Second Speaker:

The history of almost every other industry that has gone through regulatory reforms of the type being considered in electricity demonstrates that merger and acquisition activity is motivated by opportunities and constraints created by competition in deregulated markets. Competition and regulatory reform -- particularly incentive regulation -- create opportunities for superior management teams to replace inferior ones.

We may expect efficiency gains due to merger activity in several areas. First, there are too many control areas in the United States. The consolidation of control areas can be pro-competitive and can save costs. Next, there are probably too many small distribution companies. Third, there are also probably too many small generating companies; more importantly, there are too many *inefficient* generating companies. Fourth, we traditionally tend to think of utility mergers as being between adjacent utilities. This is largely a

consequence of the Public Utility Holding Company Act which makes it virtually impossible for a holding company to own noncontiguous utilities in the United States. Utilities are quickly becoming international companies that--while they may specialize in particular aspects of the business--will have operations on different continents. We need to be mindful of the effect of regulatory policies on the US utility industry's ability to keep pace with the changes taking place in markets around the world.

Sound merger policy places two demands on the regulatory framework. First, regulation should make it easy for proposed mergers that do not present significant harms to proceed. Second, regulation should filter out those merger proposals that may have significant competitive harms, provide for their more detailed examination, and either restructure or prohibit them. FERC needs a new merger policy that is clear, that proceeds much more quickly than the present one and that reflects a clear vision of where the industry is going.

The Department of Justice and the Federal Trade Commission review thousands of mergers every year. Only a relatively small number of mergers raise potentially significant competitive problems. When they do, the parties attempt to negotiate a consent decree. In a very small number of cases the merging parties persist with the merger as originally conceived, at which point the agencies will seek a preliminary injunction to keep the merger from going forward. Even for complicated mergers involving multi-product firms, it is extremely unusual for the entire process to last more than nine months. Keep in mind that this period is for agencies that aren't expert, supposedly, in any particular

industry. It would seem that the FERC, which is supposed to have expertise in but two industries, electricity and gas, ought to be in a position to evaluate mergers in these industries more quickly than the antitrust enforcement agencies.

The difference is not that the FTC and the Justice Department staffs work harder than the staff at FERC; the distinction lies elsewhere. The first difference is that the antitrust enforcers have a clear objective in mind; that there should be no significant increase in market power. Also, they have a clear definition of market power. They don't have to ask whether it's a good merger or anything like that. The second reason why this process proceeds relatively quickly is that the FTC and the Department of Justice have issued horizontal merger guidelines that are clearly understood and applied reasonably flexibly. Third, the agencies do not allow the merger review process to become a mechanism for implementing other policies, or allow suppliers, customers, and competitors to try to exact a pound of flesh from the merging parties.

What do these observations mean for FERC merger policy? We need to create a process (1) that does not present regulatory barriers to efficiency-enhancing mergers going through, and (2) that does not allow unappealing mergers to languish in FERC's administrative process for two years or more. The first priority should be to clarify the objectives of merger policy. The primary focus of FERC's merger evaluation should be on the effects of a merger on competition. In particular, FERC should ask whether a merger is likely to create or enhance market power and the supply of generation services.

How does one go about analyzing market power? We have the Department of Justice and Federal Trade Commission merger guidelines, revised most recently in 1990, designed to answer this very question. There's no reason to reinvent the wheel--these guidelines are the best existing statement on how you go about evaluating the effects of a merger on competition. FERC's task, then, is to take these guidelines and refine them for application to the electric power industry. Doing so would mean thinking harder about how you define relative product and geographic markets.

If the FERC is going to use the merger guidelines, it should strive for a better understanding of how the guidelines are used by the enforcement agencies. Because they're not used rigidly, many mergers falling outside the guideline levels are approved. The HHI values can't be considered in isolation; other factors are taken into account to interpret what the concentration ratios mean. The value $HHI = 1,800$ exists as a threshold level of concentration because of a debate between the people who wanted 2,000 and the people who wanted 1,600, who then settled on the arithmetic average. To the extent that the economic literature on the subject arrives at a particular threshold, it's almost certainly higher than 1,800. It would be useful to explore whether the FERC could adopt a process for reviewing market power issues for mergers that is more like the FTC's process, since the FTC is, after all, a regulatory commission. By contrast, the Justice Department relies more on staff review to fix problems that emerge; cases are only rarely fully litigated.

Concerning transmission and distribution, mergers of transmission control

test for the merger should focus on the rates, terms and conditions, and other issues determining how those control areas are going to be integrated with one another in support of a competitive generation market. Distribution is an issue best left primarily to the states. Here, competitive problems should be handled just as the FTC and the Justice Department handle cable mergers. Namely, they don't care about them unless the cable companies overlap with one another and are actually competing for customers. If you've got states where there are well-defined service territories and hence no border competition, then it's probably not an issue. Where there is border competition, one could look to distribution mergers.

In my view, there will be a continuing role for FERC in containing what I will call regulatory evasion and complication, especially as corporations restructure themselves into holding companies with many affiliates. We don't want such corporate structures to bring back the pre-1935 days of the abusive multi-state holding companies and their harmful practices of cost-accounting, transfer pricing, and so on, that may make residual regulation more demanding. Preventing such abuse will continue to be a legitimate and important part of federal regulation.

The final issues are carrots, sticks, and the regulatory agenda--and what I call regulatory extortion. Should we look at companies seeking to merge and say, "OK, you want to merge? That's nice. We really can't find much of a competitive problem under the statutes. But we want you do to something for us that we can't otherwise force you to do. And therefore, unless you do X, Y, and Z, we're going to say that there's a competitive problem here, even though there

really isn't." That's bad public policy. If there are other policy agendas--for example, if we think there ought to be independent system operators that operate the transmission network--that ought to be a separate agenda item. The merger process ought not be held hostage to other causes, however worthy.

Third Speaker:

We are still in pursuit of competitive markets, and do-no-harm standards can not yet be applied. We need to remember that there is neither a single government regulator, nor any coalition of government regulators that possesses the authority to restructure the entire North American electric power industry. Who is going to take the lead in restructuring this industry? It's pretty clear that, while FERC doesn't have the authority to do it, we expect them (by default) to do it and they will do it. They will unless the Congress decides that it would like to exercise greater authority. We are indeed involved in a process of statecraft, the building of a competitive industry out of something which is not a competitive industry.

FERC is needed to restructure the industry. Yet, some people still advocate dismantling the governance system we have and letting laissez-faire reorganize the system: "Let firms do as they see fit, they will create an organization." This is a position for which I can find little support in the literature and almost no support in my own experience; frankly, I'm a little staggered that the argument is being made in the electric utility industry.

A quote from Lionel Robbins sums up my point well: "The invisible hand which guides man to promote ends which were no

part of their intention is not the hand of some god or some natural agency independent of human effort, it is the hand of the law-giver, the hand which withdraws from the sphere of the pursuit of self-interest those possibilities which do not harmonize with the public good."

Competition is something that we create and preserve. We should recognize clearly the second half of the Robbins argument, namely, that the pursuit of self-interest unrestrained by suitable institutions carries no guarantee of anything except chaos. We are not in the process of dismantling the system and then seeing what arises. We are in the process of restructuring the industry into a form which is stable and sustainable, and we almost certainly will depend upon existing policy-makers to bring that about. And, it is the FERC that is the critically important agency in this process. The task before them is to leverage powers that were not designed to accomplish what they are being asked to do in ways that are politically and socially acceptable, in order to carry out this restructuring.

One particularly insightful paper presented at the Crystal City meeting of this group last December asserted that the appropriate way to view a merger proposal before the FERC is as *three* separate merger proposals: a proposal to merge the distribution companies; a proposal to merge the transmission companies; and a proposal to merge the generation companies. The problem is that the FERC would probably be predisposed to approve the mergers of the distribution companies and the transmission companies, while simultaneously opposing the merger of generation companies.

It's obviously true that the FERC has to regulate the current industry. Carried further, the argument becomes that FERC should be limited to doing this, *and no more*. That is, it should not be looking forward. FERC's regulatory tools are not the ones that can pull off what would be called a neat and orderly transition to a new industry. They are the kinds of tools used to pull off Orders 436 and 636, which relied very heavily on conditioning authority. In electricity, we're going to see another Order 436, while Congress watches. If we're lucky, after the FERC has brought all the reforms about, Congress will pass some law ratifying the reforms and making them proper and legal.

A closing anecdote: You may recall that in 1983, the Congress chose to deregulate the natural gas industry. They went into gridlock; they failed miserably. In 1988, they brought the topic up again. This time, they passed it without question, and hardly anybody noticed it. It showed up on the back page of the *New York Times*. With any luck, 10 years from now, the Congress will pass a law restructuring the industry and you won't even hear about it.

Discussion:

One of the speakers mentioned the regulatory tool available to FERC of conditioning merger approval on certain circumstances. How does the speaker envision the use of conditioning power by FERC?

FERC ought to convey the message that it will be very generous and expedient in approving horizontal mergers if companies are willing to spin off most of their generating assets. Also, FERC ought to be willing to revalue transmission assets to something

approximating replacement cost as compensation for stranded generation investment.

Are you saying that restructuring at the transmission level cannot be accomplished by other means than through the **use** of conditioning in merger policy?

I wouldn't say that we can't accomplish transmission restructuring in other ways, but we will not always be able to rely on a powerful state that, in effect, is doing a lot of the coordination in California. Utilities are going to be driving these changes; at the same time, FERC is going to need sticks and carrots to guide the change process.

What is the market that you think FERC ought to be looking at--the current wholesale market? This accounts for perhaps only 10% of industry revenues. Should all electricity sold in the United States be sold in a competitive market? Such a standard goes well beyond current federal law.

I'm not saying the FERC should try to implement retail access; states will take care of that in a competitive market. The concept of virtual direct access, I think has pretty much reduced the importance of that decision. The question becomes the extent of the wholesale market. My argument is, every place that power is bought and sold should be a competitive marketplace.

How carefully should a state commissioner or the FERC look at efficiency benefits of mergers? Who should bear the

risks that those benefits are in fact realized, and how do you go about verifying their existence?

Regulators should not try to figure out what potential efficiencies are present in enormous detail. Looking at distribution-level mergers, one ought to ask, "Are they likely to be harmful?" It's a waste of time to do more than a general analysis on whether there are likely to be significant savings in the merger, as long as you make it clear that any cost increases from a merger will not be borne by ratepayers. The best way to accomplish this is through incentive regulation schemes at the distribution level which decouple distribution charges and energy prices, thus providing the right incentive.

Is it the last speaker's intention that the FERC should have jurisdiction over all transmission rates?

Yes, I expect the FERC to take control over all transmission rates, although forces in the industry outside of the FERC--and bigger than the FERC--are going to help bring this about. The objective here is to remove generation entirely from the scope of FERC regulation. At that point, it would be the Justice Department and the Federal Trade Commission that would be making policy and carrying out (residual) regulatory functions.

A speaker at our December 7th meeting stressed the difference between what the FERC does and what the DOJ does. Antitrust analysis, she said, is very different from regulatory analyses. If we want FERC to move closer to including anti-trust analysis in its review of mergers, how does FERC make

that transition, and how do they reconcile that with the idea that they are in the process of making public policy as well? Finally, what should be **DOJ's** role if electricity is eventually going to become like any other competitive industry?

I'm not sure whether the DOJ would become any more or less active in this area because of what FERC does. FERC should adopt a more sophisticated form of market power analysis based on the DOJ-FTC merger guidelines. A fundamental question here is to what extent merger analysis and the merger approval process at the Commission is capable of creating new market conditions. Merger review under Section 203 of the FPA is designed to ensure that mergers of vertically-integrated utilities do not impede the development of competitive bulk power markets as envisioned in FERC's open access proposal.

— : Not least because mergers are increasingly crossing state lines, we must ask what states' role is in reviewing mergers? How does it mesh with those of the FERC and the DOJ?

FERC certainly ought to listen to the states where multi-state entities and cost allocation issues are involved. It would be important to know whether states see continued bundled service with no competition in retail, retail customer choice, unbundled distribution and retailing functions, or the distribution systems fighting it out on the borders. States have a role at the distribution level because that's the level where their competition policies are evolving. FERC should spend more time examining generation

market power and integrating the transmission networks and a lot less on distribution.

- The FERC and the states share a common objective of protecting consumer welfare. At the same time, the development of competitive electricity markets will require greater regional cooperation, whether in the form of RTGs, independent system operators, or new pooling arrangements. These institutions don't fall squarely on the plate of the FERC or of individual states. The FERC actively promotes RTGs; their benefits go beyond the scope of issues considered in merger analysis.

Implicit in several speakers' comments has been the concern that, even after functional unbundling, generation marketing affiliates may still have market power by virtue of their continuing association with a transmission affiliate. In the gas sector, FERC has received no complaints about self-dealing. In light of this positive report on operational separation, wouldn't this requirement in electricity satisfy concerns about post-spinoff market power, and obviate the need for a presumptive requirement to absolutely have to spin off generating assets?

I agree that gas seems to be working well. Keep in mind, however, important differences between the two industries. For one, the gas industry has downstream storage and many sophisticated players in the upstream markets. Also, the relationship between pipelines and their marketing affiliates is working as we'd like in large measure because the electronic bulletin board information system has created transparency in the market.

FERC's policy could not have been much more benign than it's been over the last 30 years. Section 203 of the Power Act, simply says that mergers have to be consistent with the public interest. There are still some substantial public-interest concerns: market power, consumer protection, to name two. These problem should be addressed by a clear policy with some analytic rigor. Then the industry, knowing what to expect, can make their decisions much more efficiently and confidently.

I understand the appeal of what some might call the strict-constructionist "constitutional" model of regulation in which commissions don't try to achieve that which they aren't directly and explicitly empowered to achieve by statute. Yet when you look at what's been happening in New England, eg, the so-called "grand bargain," this process--the antithesis of the constitutional model --has arguably made the greatest progress toward an acceptable restructuring package. This example suggests that progress toward restructuring has, if anything, been faster in the jurisdictions that have thrown the neat model of reform to the winds.

We should distinguish between two different issues. One is that there's going to be a lot of give-and-take, mediated by the use of carrots and sticks, on the way to a restructured industry. This is necessary and desirable. What I am less happy about are attempts to bury other policy agendas within merger (or other) policy, rather than addressing them directly. In my opinion, FERC's analysis of market power in generation from 1987 until after the Energy Policy Act was pretty bad, because the real focus was on other issues.

Looking back, however, I don't believe that undesirable mergers were approved, in the sense that if a more rigorous analysis were conducted, that FERC's decisions should have been different.

FERC's tier 1 analysis of proposed mergers must do more than simply look at the customers served by each merger applicant and the applicants' interconnections *before* the merger. FERC needs to take account of the new realities of the competitive open access market, such as transmission constraints arising from different dispatch patterns *after* the proposed merger. FERC is not presently in a position to do that.

The properties of the transmission system can produce some counterintuitive results in analyzing market power. It's possible to have two competing generating entities that, were they to merge, could exercise market power by *increasing* the output of their plants. This is due to the ability to exploit transmission congestion with strategically-located plants.

The more distressing piece of news is that the conditions in the network that would allow market power to be exercised in these ways do indeed exist in reality. Whether these possibilities are being exploited is another matter; I don't know the answer to that question.

FERC's conditioning authority might be useful in addressing these potential problems, which brings us back to the issue of developing and institutionalizing the analytical capabilities at the FERC to understand the exercise of market power as it arises in the particular context of electricity.

Establishing some generic "screens" for merger applications to the FERC would greatly increase the speed with which FERC processes these applications. For example, companies could propose hold-harmless conditions, rate freezes, or conversion rates. Commitments to spin off some or all generating units could be another important screening criterion.

How will an independent system operator, the emergence of demand bidding as customers get choice, and new technologies to "de-bottleneck" transmission affect the analysis of market power?

Merger reviews customarily assume that tomorrow's markets will resemble today's. If we think that this may not hold for electricity, we have essentially two choices. One is to attempt to project how we think the market will change, which adds an additional level of speculation and uncertainty. If we're unwilling to do this, we could impose conditions that we think would mitigate the problem in the short run, gather information on the evolution of the market, and then come to some more definitive conclusion after a few years had passed.

With all the talk in Washington and elsewhere of reinventing government, of streamlining or eliminating regulation, what efforts are being made to make the merger review process more efficient?

Not many efforts, as I see it; this is part of the problem. The Commission has suddenly found itself approaching a brave new world--partly of its own creation--without the tools to analyze these new utility combinations in a

FERC also has to figure out precisely which features of the new environment it needs to focus on. One of the ironies of its long-standing policy requiring merger applicants to demonstrate the benefits of their proposed merger in lengthy filings is that, when the day is done, FERC doesn't do anything with this information. Sooner rather than later, the FERC is going to have to determine exactly where Section 203 analysis fits into the bigger picture.

Afternoon Session: New Challenges for Regulators in a Restructured World

In a world of vertically integratec4 regulated utilities, the challenges of regulation were many, but were mitigated by the fact that small mistakes in pricing and cost allocation would tend to cancel out in the final aggregate rate charged to customers. In the new world of competitive electricity markets, cost allocation and pricing at the generation, transmission and distribution levels could create powerful incentives for customers who will now have choices Hence, seemingly small distortions in the rules could have magnified effects that either influence the market or create demands for new regulations. No longer will it be enough for regulators to get the total cost approximately right; now regulators must also insure that the prices and rules at the interfaces are compatible with the new competitive options. What skills will be required for regulators as an unbundled competitive market replaces cost-based generation? What tools will regulators need to assess the new company structures and markets?

Moderator:

In the United States, regulators have attempted--often for laudable reasons--to address a whole series of social problems, be they environmental concerns, low-income subsidies, or equity among different classes of customers. Many would say that these concerns share the characteristic that they are at least partially external to the regulation of electricity, *per se*. Regulators who have been trying to advance these agendas have run into enormous problems, particularly with market forces that sometimes appear to interfere with the achievement of these social ends. Why have we run into these problems and how are they dealt with?

The other context that we'll examine today is England and Wales. There, we have almost the exact opposite situation. Their regulator's long-standing commitment to competition in electricity is unquestioned. Still, he's run into all kinds of problems in implementing a competitive electricity system--particularly a competitive generation system--in England and Wales.

First Speaker:

Since its inception at the turn of the century, US utility regulation has operated according to several different models. According to the textbook model, regulation has functioned as a surrogate for competition, bridling monopolies' impulses toward abuse. Under the smoke screen model, regulation has functioned quite differently, legitimizing monopoly behavior that the public, in the absence of governmental approval, would never accept.

These days, however, customer preference is supplanting commissioner preference as the star by which utility executives have to steer. While some will argue that present circumstances already justify substantial cutbacks in regulation, a convincing case can be made for more, not less, regulatory scrutiny during the transitional period. Different skills and techniques from those emphasized in the past will be required of regulators. Commissions' legal role has diminished, while the role of analysis--particularly of economic analysis--has advanced; these trends seem certain to accelerate. Commissions will be expected to

function as architects and enforcers of competition, as designers of performance-based regulation, and as protectors of consumers during a turbulent transition. At the same time, the public will continue to expect protection from environmental degradation and from monopoly abuse. Regulators should heed the lessons from revelations of windfall profits and excessive executive remuneration in Great Britain.

To try to keep a step ahead of these changes, the New York Public Service Commission undertook an extensive self-assessment in the early 1990s. The findings from this exercise are generally applicable to most economic regulatory agencies. Particular problem areas identified by the study are as follows:

- A tension between (1) the influence of cases filed by outside parties on the regulatory agenda, and (2) the Commission's attempts to set policy in a forward-looking fashion.
 - Fragmentation and consequent immobility of knowledge and resources within the Commission. Lessons and knowledge from one sector were not easily transferred to others.
 - The tyranny of the overflowing in-box had been a deterrent to innovative regulation and to improvement of management.
 - Pervasive discontent with perceived political influence on agency decisions including relations with the governor's office but also reflecting broader concern over ex
- Tensions between the concept of an independent trial staff and coherent agency management.
 - Training needs within the Commission were not receiving much of a priority. Technical and casework priorities usurped the resources needed to develop managerial skills and technical training programs.

The Commission responded to this study with an extensive array of changes. For example, it embarked upon a strategic planning process, and institutionalized self-assessment of its structure and performance as an ongoing function. A major lesson from this exercise for today's industry is that no commission can expect to preside credibly over processes that entail widespread upheaval throughout all aspects of the utility industry without examining its own functioning as well.

In a paper some eight years ago, Charles Stalon observed that the skills needed but not customarily present in economic regulatory agencies are those commonly found in anti-trust agencies such as the DOJ and the FTC. These skills are those of distinguishing between constructive and non-constructive forms of competition, those that relate industry structures to industry performance, and those that emphasize and predict not only the direct but also the indirect consequences of agency decisions. Structurally, commissions' traditionally strong fine organizations, historically prized for their mastery of technical subject matter and the ability to provide advice thereon must give way to more complex matrix management relationships in which the work of employees may be evaluated in part by supervisors in different divisions. As for external relations, the ability to work cooperatively with other state

agencies in areas such as environment, economic development, taxation and legislation will be increasingly essential.

The concept of public involvement is also in a state of flux. The experience with telephone deregulation makes it clear that the consumer protection function of utility regulation does not disappear overnight. New, more effective types of interaction between the Commission and the public have been pioneered in New York: focus groups, round tables, and closed-circuit televised meetings. The impetus for these gatherings was to get the concerned groups talking not just to the Commission but to each other, in the hope of coming up with more creative and comprehensive solutions. Whatever the vehicle for communication, the requirements of procedural due process of law must still be met. The scope and contentiousness of such hearings can be substantially reduced if procedures fostering discussions among different stakeholders are instituted and maintained.

A paradox now surrounds the concept of independence. Commissions must work with environmental agencies, economic development agencies, social service agencies, governor's offices, the FERC, and legislatures. Many of these entities are notorious in their disregard for *ex parte* restrictions and other procedural safeguards. Regulators accustomed to informal contact with utilities are ever more likely to have an unpleasant, career-shortening experience. Still, the informal communication that facilitates rapid and sensible solutions of complex public policy issues cannot become an excuse for the type of utility commissioner schmoozing that has so often discredited regulation in the past.

Finally, commissions have always had a substantial capacity for self-delusion. Scarcely a decade has passed since teamed opinions were issued on the unreliability of energy efficiency and independent power production, the disappearance of natural gas, and the inevitability of coal and nuclear as the fuel sources of the future. It remains important for commissions to understand the factors behind such self-delusion. These factors range from high turnover rates and consequent loss of institutional memory to the skewed nature of the agency's information-gathering processes. It is important to understand why commissions often casually adopt positions that seem incomprehensibly wrong a few years later.

In closing, ^{recall} the Washington Post's recent editorial stressing that competition doesn't mean deregulation. On the contrary, it means more work for the regulators. The mission of midwifing constructive competition in the electric power industry is as crucial as any ever faced by the regulatory community; it should be approached in that spirit.

Second Speaker:

Society has, for decades, used the electricity industry as a "fix" for many different social concerns, some of which are squarely the result of electric industry practices and others which are only tangentially related to industry practices. It will be difficult for us--meaning legislators, consumers, and regulators--to move away from this habit. The transition in the industry means departing from the "monopoly mindset," from old interpretations of what regulatory authorities are, and from the use of certain tools and skills, toward realizing new staffing capabilities and new authority where that's necessary.

We need to stop thinking about the electric industry so differently from other industries. A speaker at this group's December meeting remarked that in most competitive industries, nobody spends time talking about what the structure of the industry should be. The priority concern is getting competition to operate on a level playing field; then, businesspeople figure out what structure works. One of this morning's speakers made the same point: "Get the rule right, but don't keep designing the 'shoulds,' that is, declaring where mergers should and shouldn't occur.

At the recent NARUC meeting in New Orleans, state and federal regulators discussed jurisdiction over transmission. After much back-and-forth discussion about whether FERC had exclusive or shared jurisdiction over transmission, the question was put to state regulators, "Would you please tell us what it is that you care about in your jurisdiction over transmission, so that we can figure out collectively where to focus the discussion? If it's not the rate-based dollars, what is it that you really care about losing?" Frankly, nobody had a real answer to this! It is on questions like these that regulators need to train their attention. State regulators have apparently used transmission for various purposes in the past. They may fear that, if FERC unbundles and takes transmission authority back (or asserts authority that it has properly had all along), they would lose jurisdiction over other things that they care about.

All of us in the industry--including regulatory agencies--share a responsibility for educating society about the implications of the movement to a different industry structure. The very groups that, over the years, have relied on regulators to fix problems for them--

notably, consumers and legislators--are calling for *choice* and *competition*. In a competitive world, we can't think about regulators "fixing" things anymore. If rates shoot up with commodity prices at peak times, reflecting scarcity, that's the market. We should not turn to the government to adjust those prices.

Finally, a comment about legislatures. I think that the relationship between the regulators, their legislators, and the constituents is a classically thorny one. Some questions may need to be tested in legislative arenas. At the same time, we also need to explain to legislators the implications of the sabres that they're rattling for "choice," so that they don't later blame the regulators for the inevitable outcomes of choice. A world of greater competition implies a great deal of discussion and education to help realign everyone's roles in the marketplace.

Third Speaker:

In Britain, the majority of the problems associated with their system are attributable to the fact that only two generators control 70 percent of installed generating capacity. The regulatory system in Britain consists essentially of a single individual, with minimum levels of due process and few checks and balances. For the most part, Britain's regulator has adopted a "hands-off" approach toward the generation market; the hope appears to be that, in time, this oligopoly will be eroded. In fact, it is eroding rapidly already. The regulatory process is driven by the regulator's initiative. From time to time, he will issue a memo saying essentially the following: "As I'm thinking of doing something, anybody having comments is welcome to write me a letter. I may or may not read it or respond to it. I will tell you in a few months what I decide to do. If I feel like

it, I will issue a statement in support of my action."

Many countries around the world--New Zealand, Australia, Canada, to name a few--have started to think about how electricity restructuring should look. What is to be the role of the regulator? In reality, until one figures out what the structure is going to be and how it will operate, it's difficult to know what the regulators should do or what skiffs they should have. In countries where the discussion started from first principles, the resulting structure looks pretty much the same. At the core of all restructured systems is always an open wholesale spot market coordinated by a system operator. Within this framework, market participants can conclude any kind of contract they wish. Transmission and distribution are separate from generation, which is more or less competitive. The question then arises of how one ought to regulate each of these areas.

In all restructurings to date, it has been clearly demonstrated that once you set up private companies and give them incentives to maximize profits, they do a very good job of it and costs go down. As a consequence, they start making a lot of money. The British have been rather tolerant of monopolies making money, which is one reason that incentive regulation has been accepted. In general, however, countries need to decide if they are prepared to live with this. In the United States, as soon as companies start making a lot of money under incentive regulation, we typically say, "Well, that wasn't such a good idea after all..." and go back and rethink it. Most restructurings have gone ahead with some version of incentive regulation--basically cost-based regulation with a five-year regulatory lag.

A big problem in ^{all} of these restructurings is how residual natural monopoly activities should be managed. These include transmission service, grid assets, the real time dispatch process (essentially, what has come to be called the independent system operator) and the spot trading process. These activities are difficult to structure and to regulate; interactions among individual activities are poorly understood or simply not taken properly into account in setting up the new regulatory function.

Under the traditional industry structure of regulated monopolies, the inability to manage short-run market operations made the long-run obligation to serve necessary. Until you can operate the short-run system with a market, nobody can make long-run investment decisions without having a contract with the manager of the short-run market. With modern information technology, we now know how to manage a short-run market. Given these structures, we can leave long-run planning to the market.

The current debate in California concerns important cost issues associated with transmission. How are we going to price transmission in the short run--in particular, how are we going to price transmission constraints and losses? If we can price these things efficiently in a short-run market, we can reduce the degree of regulatory intervention. In the UK, they didn't get it right. They set up a system that did not adequately price things, which caused a lot of problems. In particular, the British didn't recognize the relationship between the grid and transmission service, that is, the function of coordinating generation on the grid. Proper coordination, among other things, ensures efficient power flows in the transmission network.

In the UK, the pool contracted with the grid company, NGC, to operate the dispatch and determine the short-run operating costs, which then comprise "uplift," a component of the tariff. NGC didn't have an incentive to control these costs, which soon got out of control. A related problem concerned transmission investments, namely, that there was no incentive to invest in the grid. To address these problems, the grid company has been made responsible for managing the short-term cost of operation; it gets to keep a share of the realized savings.

We need to consider the regulatory implications of proposals to keep commercial trading separate from the ISO. This means, among other things, keeping trading information from the ISO. The higher the degree of separation imposed here, the wider the gap between the market in which commercial trading takes place and the reality of the constrained physical system. Fundamentally, the bigger the gap between these two entities, the greater the costs that must be loaded onto the monopoly, ie, the transmission function that must bridge this gap. The next question that arises is how grid investment decisions will be made. To make the ISO behave efficiently, it must bear responsibility for the costs of congestion. Once this has been done, because of the tradeoff between grid costs and operating costs, the system operator should also be made responsible for the grid costs. At this point, it is tempting for market players to say, "We just want to buy and sell energy, we don't want to have to worry about all this transmission stuff--it's too complicated. We'll trade as though there are no transmission constraints. Once we've figured out how we want to trade, we'll inform the system operator, who may well tell us that our trading plan isn't feasible." There

is thus a need for a second, parallel market with side payments that will get market players to do what they have to do--given the constraints--to achieve more or less efficient system operation.

Fourth Speaker:

Since the UK's privatization, the big winners have been company shareholders and also, arguably, executives. Profits of the regional electric companies and the dismembered parts of the old CEGB have doubled between 1989-90 and 1994-95. Meanwhile, the grid company earned about a 9% return on its current cost valuations, despite having a guaranteed income stream and hence very little risk. Even though profits have risen significantly, prices tended to be fairly stable because costs were being reduced. As a consequence, profits were not a politically controversial topic. If costs have been reduced, why haven't those benefits been shared? This raises the question of the distribution of the gains from privatization. Distributional issues have not been addressed by anyone, including the UK's regulator. This lack of attention is due, in part, to the lack of transparency of the UK's regulatory system, to which I'll return later. Only in the course of recent takeover bids did the profitability figures become public, whereupon the financial community could finally see what cash cows the regional electric companies had become.

I'd like to sketch a series of problems--essentially political ones--that afflict the restructured industry in UK. First, the initial privatization deal was flawed in several respects. To start with, only two generating companies were created, aside from nuclear assets. This is too few for satisfactory competition. As a partial remedy, the

regulator has required the generators to divest themselves of some 6000 MW of capacity. Over time, the ease of entry into the business would further mitigate this problem.

A further flaw in the initial terms of privatization was the highly political co-purchase contracts which tended to distort the market. The third problem was the initial deals with the regional electric companies (RECs). The deals were fairly simple, incorporating the familiar formula, "**RPI - X**". The deals also allowed the RECs to increase their rates by 2¹/₂% every five years; rates were thereby locked in for five years at a time. Finally, as the previous speaker noted, the flaws in the procedure for transmission pricing have created their own sets of problems.

The second political problem is that the regulator enjoys relatively little legitimacy; hence, his actions meet with little public acceptance. This lack of legitimacy is attributable to the concentration of significant power in the hands of a single person not directly accountable to the political process.

Third, the regulator often suffers from inadequate information. Until the Trafalgar House takeover bid, the regulator was apparently not aware of just how profitable the RECs had become. Compounding this problem is a regulatory staff that is too small--due, in turn, to wrangling over the size of the license fees that finance the regulator.

Next, undue emphasis was placed on the stability of the regulatory system in the U.K. In fact, the regulator needs to balance *stability and flexibility*. The rationale behind the quest for a stable regime was the favorable business environment created by scheduling distribution price reviews five years apart. The

new generating companies were thereby placed on a firm financial footing, but just how firm wasn't anticipated! A corollary problem is the enormous pressure on the regulator to get things right to begin with; it takes five years before any mistakes can be undone.

Fifth, the regulator has been criticized for almost exclusive concern with economic efficiency, giving too little attention to equity and distributional questions. This bias is perhaps only to be expected from a professional academic economist. As an arm of the state, however, the regulator is inherently part of a larger political process and has to be thinking in those terms.

Finally, the system lacks transparency, as mentioned earlier. The regulator is empowered to collect any information required to do his job, and people are free to supply the regulator with whatever additional information that they may choose. But details on what information the regulator collects, where he collects it from, how it is analyzed, how the regulator uses that information, and whom he communicates with are not readily available. Moreover, people who want to provide input to the regulatory process but who require information either from the regulated entities or elsewhere have no real easy way to obtain it, even from the regulator. In an attempt to avoid what the British saw--I think fairly--as the key pitfall of the American regulatory system, they created a system with almost no transparency. As a result, their system is easily attacked on political grounds, not least because the distributional effects of regulatory decisions are consciously disregarded.

The lessons from the British experience follow straightforwardly from the analysis of the problems. First, a positive lesson is that

utility disaggregation has, in fact, allowed fair access to the network for existing players and new entrants. Next are areas where there are real needs for improvement: more emphasis on flexibility and somewhat **less** on stability, a better balance between economic efficiency and equity, and the injection of a greater degree of transparency into the regulatory process. Finally, competition shouldn't necessarily be seen as an antidote to the influence of the state. There is enormous difference between deregulation and competition. The job of the regulator in a competitive market may be far greater than it is in a fully integrated monopoly market, where it not only regulates the residual monopolies but also polices market power in competitive markets.

Discussion:

Private companies facing restructuring are constantly attempting to identify their core competencies. Applying this question to the present discussion, what are the core competencies of our regulators?

A key objective that regulators share is that they must keep their eye on the mark of the public interest. This is the essence of their job, and is nobody else's job in the hearing room. Of course, the interpretation of the public interest is seldom straightforward.

I would add that regulators have a sense of accountability toward their duties. Also, there is a sense of obligation to protect the "little guy."

Regulators are also great legitimizers, which is vitally important in the democratic process. Second, regulators are essential when the world changes and the legislature doesn't

have time to respond. They help fill a gap between the hourly market and the ideal circumstance by making incremental adjustments.

Some earlier speakers have commented that regulators are going to have new and different roles in the future. One of the things that I don't often hear regulators say is that if we're going to a competitive system, one of the most important things regulators need to do is to put themselves out of business. A favorite quote of our chairman is that the problem with people who have nothing to do is that they seldom do nothing! My worst nightmare is the "in between" scenario where we start opening up the market to competition while we still labor under an intrusive regulatory system.

It's clear, however, that some traditional roles are not going to go away. Somebody must regulate the residual monopoly, monitor distributional effects, deal with consumer complaints, maintain the flow of necessary information, and police anticompetitive conduct. We will also have entities that operate simultaneously in competitive and in regulated sectors, where it will still be necessary to monitor cost allocations and ensure that we don't see intolerable levels of cross-subsidies. Because of these essential functions, it's a mistake to confuse competition with deregulation.

- At the same time, some combination of extensive retraining and staff turnover will be needed at state commissions. Whether competition means that an agency's resources should be cut or whether it means that it's finally cost-effective to do all the things you should have been doing with regard to the monopoly functions but weren't, is a much

tougher question. For example, there hasn't been any substantial reduction in commissions' telecommunications staffs around the country. The same is true for gas.

It's unacceptable to allow restructuring to worsen the level of environmental protection that we now have, whether the activity in question is currently regulated at the state or federal level. It's a mistake, however, to focus exclusively on utility regulatory agencies as the implementers of environmental policies for the industry. In designing the transition, regulators should ask whether there are more efficient mechanisms to achieve or enhance the current level of environmental protection. Examples are the so-called "bargains" in New England in which some energy efficiency programs are discontinued in return for the upgrading of older power plants. Finally, we need clearer and stronger statements from the environmental agencies as to the most appropriate overall standards, standards that affect all competitors equally.

I often wonder whether regulators will actually give up the job of being the keeper of reliability at the generation level, in the sense of the obligation to build facilities. In light of the still-extant state laws leading to IRMs and effectively establishing an obligation to serve, I'd like to see more emphasis on the view that the market will deliver. It's clear that *this* group believes this assertion, but do the regulators and legislators "out there" agree with this?

My sense is that utilities' capacity construction decisions in New England have always been driven more by NEPOOL's reserve requirements than by anyone's IRM.

Of course, there's going to be continuing concern about the level of service available to people who otherwise can't afford to pay.

Under Massachusetts law, however, if the DPU deems that the utility has a need in ten years, the utility has to issue an RFP for the new capacity.

It is important to distinguish between the obligation to serve and the obligation to build capacity. Clearly, as more and more customers can exercise choice, the pressure on utilities to build is going to diminish, because people can turn to the marketplace. Customers with no choice, ie, those with a monopoly supplier, will have to get supplied. This doesn't necessarily mean that a utility has to build. Buying is always another option.

Several of the panelists mentioned the necessity of regulators developing new skills, such as management, communication with constituent groups, and proactive leadership-- basically the skills we look for in our political managers in government. This is interesting because historically, we have tended to isolate our regulators from political forces. At the same time, we're beginning to move away from the exclusive use of adjudicatory rule-making processes emphasizing rigorous procedures, cross-examination, expertise, and analysis to more collaborative ones, emphasizing the balancing of values, political positions, and issues such as who gets to sit at the table in the negotiating process.

There is a real conflict between the concepts of commission independence and the expectation that commissions will now

interact, effectively and quickly, with many different groups.

I challenge the notion that regulators today are unwilling to change. NARUC and NRRI recently held a retreat to think hard about what regulators would be doing in the year 2000. The major conclusion was similar to this discussion, namely, that command-and control regulation would decrease in importance, if not be eliminated. The biggest challenges expected in the future were to precisely identify the nature of the residual monopoly and to design effective regulation accordingly.

In my state, most of the resistance to change has, in fact, come from utilities. Utilities have persuaded our legislature to create significant regulatory barriers to entry into the local telephone market. This change increased our responsibilities, and the legislature actually augmented our budget to enable us to effectively carry out these additional functions. While I can't claim that exactly the same is going to happen in electricity, it would not surprise me if most of the resistance to change comes not from regulators, but rather from those comfortable with the status quo and from the legislature.

Preempting the states with a uniform competitive model would be a big mistake. A process in which a few states move ahead is likely to proceed much more quickly, interestingly, and effectively than would one governed by a uniform and perhaps stultifying federal model.

There's no inherent value in having somebody in Washington decide how to

organize retail markets. On the other hand, there is a legitimate federal interest in ensuring that states don't exercise parochial interests that inhibit commerce in electrons. If we want a competitive market, we should encourage diversity in the marketplace. In a country with lots of diverse interests, we need to sort out what should be uniform across state boundaries, and what can vary from state to state.

The Independent System Operator and the Power Exchange: Two Functions or Two Sides of the Same Coin?

While many participants in the restructuring debate have come to the conclusion that some coordinating mechanism is necessary to keep electric systems operating smoothly in a competitive market, there is less consensus on the role and structure of the coordinating body. In some venues there have been proposals for regulatory action to create a Power Exchange (PE) separate from an Independent System Operator (ISO), while in others there is only an ISO with no requirement for a separate PE. The proposals put forward in California, New York and the PJM power pool differ in this regard and in the questions they raise: What should be the scope, criteria and functions of the ISO? Is there a separate and separable set of functions for a PE? Would a single ISO face a conflict of interest in providing reliable, least-cost service? Would the efficiency of the system be disrupted by a separation of functions between the ISO and a PE?

First Speaker:

PJM's objective in designing their model for an open access transmission system was to facilitate a competitive energy market while maintaining the current accepted levels of reliability. The model starts with the existing PJM power pool and makes four key changes. First, it envisions a pool-wide transmission service rather than having individual owners provide transmission service. Generation will be scheduled and dispatched in accordance with a competitive energy market. A regional planning function will open system planning to all energy market participants. And finally, the model relies on an Independent System Operator.

Three agreements and contracts are to be filed with FERC that, together, will codify the "rules of the game." First, the reserve-sharing agreement spells out the rights and responsibilities for using the generation and transmission facilities while preserving reliability. The second agreement is the transmission owners agreement which gives authority to the ISO to direct the operations of transmission facilities in support of the regional power market. It also specifies the

terms by which transmission owners commit to use the ISO as the agent for operating their systems. Third is the market operations agreement which establishes the mechanism by which the spot market and the short-term energy market will be operated and integrated with the physical operation of the facility. These three agreements are tied together by MACC, the regional reliability council, which will continue to be the watchdog for reliability in this region. PJM believes that the only way to make most efficient use of facilities in the region is through combining market and grid operations.

The ISO will provide the necessary services to operate the control area and the energy market. The ISO, an independent organization, is not a market participant and has no economic interest in the operation of the market. It will be overseen by a board of directors who will ensure that the ISO has the resources, staff, and equipment to carry out its responsibilities under the three service agreements.

Next, let's look at each of the performance agreements and ask what the ISO's responsibilities would be under each

performance agreement. Under the reserve sharing agreement, the ISO would calculate and allocate the regional requirements for installed capacity reserves. Further, it would monitor the performance of the system relative to projections and collect data needed to administer this process.

Under the transmission owners agreement, the ISO would administer the regional transmission tariffs. It would receive requests for transmission service, evaluate the capability of the system to satisfy those requests, and do the accounting and billing according to those tariffs. In addition, it would coordinate transmission line maintenance, including scheduling of transmission line and generation unit maintenance to the benefit of the regional power pool. This precludes facility owners from removing facilities from service to increase profits; such removal may create problems on the system. Further, the ISO will direct hour-to-hour operation of the regional transmission facilities. It will provide information about congestion, identifying the changes in generation levels necessary to avoid overloading the system. Finally, it would conduct expansion planning studies.

Under the market operations agreement, the ISO would develop short-term load forecasts and conduct the generation bid and commitment process (including that for ancillary services, such as operating capacity, spinning reserve, and regulation). It would direct the hour-to-hour operation of the market and provide the dollar and megawatt accounting and billing.

Discussion:

I have a question on the reserve margin and how that operates. With a market available for those who wish to buy, how does the reserve margin work? Do you have to buy, for example, twice as much capacity as you use from the spot market? Or do the generators themselves have to maintain a reserve margin?

If the load-serving entities choose to sign the reserve sharing agreement, they would be obligated to commit enough generation resources to satisfy their load as well as to provide their allocated share of the Pool's reserve requirement. That commitment of resources then implies a further commitment to cover a share of the fixed cost of the transmission system.

Does your model allow for retail access? Is the ISO a distinct company like a utility? To whom is the board of the ISO responsible?

- The issues of customer choice at the retail level have not been built into the model, although it could probably accommodate those changes if and when they happen. The ISO will be a not-for-profit corporation and doesn't report to anybody. It is not responsible to anyone except to agreement signatories through the aforementioned performance contracts.

Who may sign the market operations agreement and what kind of governance structure is contemplated there?

The market operations agreement will have schedules attached describing the mechanisms for operating the marketplace.

There would also be service agreements, to which every participant in the market--suppliers, load-serving entities and so on--would be signatories.

How would new transmission be added? Who would own it and who would decide whether it was needed and approved?

- The transmission owners are responsible for providing the necessary transmission capability. The ISO provides, among other things, a regional planning function by conducting periodic planning studies using input from all market participants. The ISO then evaluates whether or not the existing system satisfies reliability requirements and makes recommendations accordingly for reinforcing the system. The transmission owners have the obligation to make the reinforcements agreed upon in that planning process.

Who is actually designing these agreements? Who sets the rules for changes to the dispatch in the presence of transmission constraints?

The current PJM member companies are in the process of drafting these agreements for filing. The ISO would carry out economic dispatch, direct the loading of generators, perform day ahead scheduling, and make the real-time adjustments necessary to stay within the physical limits of the system. The market operations agreement establishes the rules that the ISO will implement.

Second Speaker:

Niagara Mohawk has offered, through its power choice proposal, to be the first in the New York Power Pool to open its service

territory. Basically, NiMo envisions a spot market administered by a separate PE and an ISO. Customers can buy from the spot market directly. Transmission owners lease their transmission systems to the ISO. Power suppliers who choose to participate--this is a voluntary spot market--may sell power and reliability services. Bilateral suppliers selling directly to customers acquire transmission and reliability services from the spot market. Without locational marginal spot pricing, competition will make reliability worse and costs higher. Why do you need the ISO and the PE? The old New York Power Pool split the-savings approach was never designed to accommodate competition. One needs a way to maintain the reliability of the current system and yet facilitate a competitive market.

The ISO is FERC-regulated; it is not-for-profit and hence not able to take a commercial position in the market. It is responsible for maintaining system reliability, dispatching and scheduling all power suppliers, determining requirements for maintaining reliability, and acquiring reliability services at market prices. The ISO also executes the market functions under contract through the PE. It takes bids for capacity, energy, and ancillary services, implements the unit commitment process, completes the settlement process, sells transmission rights, and performs the transmission-planning function under contract with the PE.

The ISO would employ 20 or 30 people. Its assets would be a building and some computers. So governance of the ISO--ie, how it is controlled--is an important issue; there aren't large amounts of assets to disallow.

The PE is not itself a corporation. It will be a voluntary organization for people who want to participate in the market. The PE would be a self-regulating, not-for-profit organization under the FERC RTG rules. While participation is open, there are costs for participating; it's not a free ride. The PE comprises a number of committees, one each for power suppliers, transmission-owning entities, transmission-dependent entities, and then an advisory committee. There's also a management committee. Finally, the PE also provides for a, for regional transmission planning and commercial dispute resolution.

NiMo proposes the separation of the ISO and PE for a number of reasons. First, state regulatory commissions want reliability responsibility to remain with the regulated entities and the utilities. Second, downstate utilities, for whom reliability is very important, do not want to surrender control over reliability criteria to marketers who don't share the same responsibilities or objectives. Finally, some marketers say that separation of the two organizations reduces the chance of *ad hoc* regulatory intervention in the marketplace, because it's then easier for regulators to control both entities.

Discussion:

Are the rules of the dispatch set by the PE alone, that is, won't the ISO affect those rules?

The dispatcher is heavily constrained by reliability criteria, so both organizations have an influence. Locational marginal cost pricing would be part of the PE agreement, but reliability criteria that affect dispatch are determined by the transmission-owning

:Are the bilateral contracts taken as given?

Yes. Bilateral suppliers simply have to provide information about the production schedules and loads that they will serve. They do not dispatch the bilateral supplies except in emergencies.

In the together-versus-separate debate, isn't the real issue the question of a distinction between *who sets the rules* versus *who implements them*?

It is very important that the implementation be done together. It's difficult to conceive how separate implementation would actually work. You'd take bids at 8:00 AM and then what do you do? You tally them up and you stick them through a hole in the wall to the ISO who then does a re-dispatch--it's crazy.

I should emphasize that the market proposed here does allow people to do stupid things without shifting the associated costs to others. With visible location-specific prices, people will acquire a clear understanding of how these prices vary. Eventually, most suppliers will find that they can't maximize profits without dealing through the spot market because of the physical dispatch.

Third Speaker:

The California PUC decision of December, 1995, envisioned two key players in a proposed new market structure: the ISO and the PE for the spot market.

The ISO is responsible for the operating functions and reliability. The ISO will have the capability to dispatch during

emergencies; any costs that are incurred for such dispatch would be passed on to all customers by the ISO (in the UK, these costs are part of uplift). Further, the ISO provides non-discriminatory access to transmission facilities and real-time energy balancing, ancillary services, and settlement.

The PE's fundamental responsibility is, on the basis of tomorrow's expected load less the resources committed to bilateral contracts, to procure the energy in the marketplace to meet this residual load requirement not served by bilateral contracts. The PE will have supply and demand bidding, allowing customers to see price signals and decide whether to consume or to conserve. The PE's operations would be based on economic dispatch of generation, which will yield a visible market-clearing price for bid-in generation. A key point here is that these are not cost-based bids, but are whatever market participants decide they want to bid.

After the signing of the MOU preceding the PUC's decision of last December, three key debates continued to rage on, one of which is still continuing. The first debate was whether the PE and the ISO should be separated. The Commission's policy decision has endorsed separation, so this debate is largely settled. The second issue was the PE's pricing method: Should generators get paid what they bid or should there be a uniform market-clearing price? This issue has also been settled; there will be a uniform market-clearing price in the power exchange, consistent with marginal cost pricing principles. This avoids incentives for gaming and also eliminates confusing multiple price signals to customers. The third debate concerned transmission congestion management and pricing. The principle

enshrined in the MOU was to use economically efficient principles to allocate transmission during congestion. The commission has given us additional guidance that pricing should be marginal and location-specific. Current discussion centers around whether prices should be uniform or whether a nodal approach should be used, which might entail several thousand nodes for California alone. We favor a zonal approach, keeping in mind that it should still provide marginal signals and location-specific prices.

We view the separation of the ISO and the PE as the right way to proceed for the following reasons. The PE is responsible for meeting the residual load requirement by procuring energy in the spot market. These functions are distinct from power system operation and the maintenance of reliability. Separation makes the interfaces between the functions more transparent, and eliminates the perception of discriminatory decision making. Without separation, regulatory intervention might introduce a harmful bias in the ISO's practices, because a large portion of PE transactions are likely to be on behalf of native load or residual customers.

Discussion:

What are the functions of the ISO and PE?

The ISO is responsible for reliability, dispatch, non-discriminatory open access to the grid, provision of ancillary services, coordination of day-ahead power scheduling and real-time power balancing, the real time settlement function and condition management protocols for the transmission grid and the network. The ISO will submit the proposed schedule assembled on a day-ahead basis to

the PE. The result is a visible market-clearing price and day-ahead schedules that are agreed to by the PE.

Utilities will turn over operational control (including dispatch) of the underlying bulk power system to the ISO. The responsibility of the underlying transmission owners becomes passive in the sense that their responsibility is operation and maintenance of the bulk power system subject to performance-based rate making. The PE runs the daily spot market. Generators can voluntarily decide to participate in bilateral contracts, in the PE, or some combination thereof, which could change from day to day.

Does the spot market price coming from the PE reflect transmission constraints?

The day-ahead spot market prices--which include constraint prices--will enable market participants to voluntarily adjust schedules. Those that choose to participate on the basis of these day-ahead prices face locational prices. Then, the principles of economic dispatch are used to determine which power should actually flow. The key point is that the bilateral contracts and those on the PE's schedules will pay the same amount for transmission during congestion periods. There is neither preferential allocation nor allocation based on physical transmission rights.

Who receives the congestion rentals?

- Distribution utilities receive a revenue requirement consistent with performance-based regulation using the prevailing embedded-cost methodology. The revenue requirement is then recovered via an access charge; there remains the issue whether

calculated on a demand or energy basis. Those who cause losses pay for them. Congestion rents, if any, get rebated back to customers, not to the owners of transmission facilities.

Fourth Speaker:

There's actually not much disagreement about the substance of the question of separation between the ISO and the PE; this is mostly a semantic or a labelling problem.

A fundamental technical characteristic of the transmission grid is loop flow in the presence of congestion in the grid. This characteristic has a number of implications, perhaps the most important of which is that we have no workable mechanism available to define property rights for use of the transmission system. Put another way, because of loop flow, we can't actually calculate the short-run cost of transmission without also knowing the dispatch-related prices determined in the spot market. In short, transmission pricing can't be separated from the spot market.

Similar conclusions have been reached by others who have examined the issue. The problem lies in the fact that the externality--that is, the way that constraints shift costs onto third parties--is actually quite large. The FERC NOPR, which adheres to the convenient fiction of the contract path model, makes a series of flawed assumptions that fly in the face of this reality. For example, the NOPR assumes that we can identify a transmission interface, figure out how much transmission capacity exists on the interface, divide that capacity up amongst the various market participants, have tradeable rights to transmission capacity, and achieve equilibrium

through the invisible hand of the marketplace. Further, these misunderstandings mistakenly imply that the system doesn't require an independent system operator to be involved in administering the spot market.

It's not that the utilities haven't known about these complications in the past. On the contrary, power system operators know all about these problems. Operators manage these problems through a central coordination mechanism. What we need in the competitive market, therefore, is to have some form of coordination mechanism to get the prices and incentives right.

I would be very nervous about arguments that we should ignore this problem because it doesn't come up very often or is insignificant. The United Kingdom assumed this problem relatively small and that they could handle it with *ad hoc* methods. They bundled all the errors into what they called uplift. The uplift started out being small, but grew over the first three years at a *monthly* rate of 2 1/2%. Ultimately, the regulator had to draft rules in order to prevent people from imposing costs on the system for their own benefit.

The December 1995 order of the California Commission, like other competitive market proposals around the country, envisions a PE and an ISO. It's very important to understand precisely what the responsibilities of each are going to be, particularly those of the ISO. In particular, what information does the ISO get and what does it do with that information in operating the short-term spot market? The essential information is described in the "ten commandments" in the Commission's order. First, the ISO receives the information about

all bilateral transactions, specifically, on quantities in and out for each period during the day. The ISO also gets the information from the PE not only about what the power exchange would like to do, but most importantly on the bids coming via the PE from generators and loads. The independent system operator takes all of that information and finds the least-cost dispatch. In so doing, he treats the PE bids and the bilateral transactions in the same way to achieve the least-cost dispatch *for the total system*. It is decidedly *not* the responsibility of the ISO to find the least-cost dispatch for the PE alone. This is a very important point to emphasize. In the process, the locational prices associated with the least-cost redispatch are also calculated. If plants want to run must-run on a bilateral contract, that's fine; they just have to pay the locational difference in these prices for transmission service. This procedure is only for the final schedule. For the final actual dispatch, there's another intricate process required. The set of rules for this process is critically important.

An earlier commenter remarked that it sounded like we have a PE in New York, while we don't have one in PJM. I submit that the distinctions between New York and PJM at the level of this discussion are entirely ones of semantics and labelling. What's critical is that the ISO implements its rules on an hour-by-hour, day-by-day basis. This implementation must be handled by one entity, because we need a mechanism to deal, in the absence of property rights, with the network interactions and associated externalities in a constrained or a congested system.

Finally, I want to address some of the criteria that the last speaker suggested. I think they are good criteria, but I come to a different

conclusion. Consider the constrained case. If you had not participated in this conversation today, you might think that the PE implemented the process of determining the prices, and that the ISO had nothing to do with determining locational prices. But that's wrong. In fact, in the constrained case, it is the ISO who determines the locational prices and the transmission prices simultaneously with the least-cost dispatch, and then publicizes that information. You have to have participated in a lot of conversations with a lot of people to understand that "administering congestion management protocols for a transmission grid" means, among other things, calculating the *locational prices* of doing the redispatch based on everyone's bids in the system. The labels are confusing people, and this confusion plays directly into the confusion that some people want to create so that they can profitably game the system.

In closing, I want to stress that responsibility for the implementation of the spot market rules has to be vested with the ISO. How far to disaggregate, whether well be pricing zones or nodes is another issue. To try to put some of the semantic issues to rest, I purposely did *not* say, in my recent paper, that the separation of the ISO and the PE is a bad idea. Rather, I said that the implementation and administration of the spot market has to be in the hands of the ISO.

Discussion:

Isn't it true that in California, the PE does have some implementation responsibilities? For example, does the PE perform the constrained dispatch for the case of a constrained system?

No, that's done by the ISO. In California, the ISO determines the spot market prices for the PE, reflecting transmission constraints.

The ISO receives all bids from the PE, does the least-cost dispatch, and then if there's congestion, it tells bidders that their schedules are not accepted. Using their bids, the ISO gives the PE a redispatch of bidders' schedules. The redispatch takes into account incremental and decremental prices from bilateral contract parties, to the extent that they've submitted them, and seeks the least-cost combination of the whole.

The question of efficiency arises with respect to at least two distinct procedures: (1) the day-ahead unit commitment, and (2) making changes during the current day because of changes in conditions. In New England, we've handled both of these in a highly integrated fashion in the sense that we have had a *single entity* making unit commitment decisions for the entire pool and the same entity has been responsible for making changes along the way. The competitive market rules that others in California, New York, and elsewhere have drafted are similar to NEPOOL's, in the sense of optimizing single-unit commitment via a centrally coordinated process.

Fifth Speaker:

I'm going to speak as a businessman whose job is participating in the electricity market on the consumers' side of the meter. In *consumer choice*, consumers have finally found an energy issue that they can be involved in. Every consumer either understands or thinks s/he understands it. The advocacy groups representing consumers are

willing to employ their political and economic capital to get their way in this debate. These consumers' desire to control their own destinies and to protect their interests is so strong that a company like mine can sign twenty percent of the market in California within nine months of starting up business. The main objective that consumers bring to the debate on electricity restructuring is enhancing competitiveness in a global economy. Choice is the vehicle for achieving this objective.

A major lesson that industry experience teaches us is that all markets and all regulators are indeed imperfect. If you had to choose, an imperfect market is probably preferable to an imperfect regulator. Market imperfections offer incentives for corrections. These are generally absent in a regulated, command-and-control regime. The issues involved are technical and sociopolitical. The important sociopolitical issue is that, as we create new regulatory institutions, what authority do we choose to vest in these institutions? I'll guarantee you that any authority will grow over time; it could be called the "regulatory growth axiom." Or, to use a biological analogy, every plague starts as a single cell.

What do consumers want to see? They want a market that empowers them to be able to protect their own interests and to deal freely with suppliers. They want a market that encourages innovation. I don't think we can begin to predict the nature of the transactions' that will be possible. They want a market that encourages long-term investments in both generation and transmission. They want a

market that both manages and mitigates constraints. They want an adaptable market.

As for the question of separation, I'm not offering answers as much as I am raising questions. Pragmatists might ask questions like: "Does our system really need to be born perfect?" Do we know enough about the future, about how constraints are going to be mitigated? About the ways in which technology is going to be deployed? About the innovative methods that are going to be used to manage transactions in the future? I believe we rely heavily on the notion of avoiding cost-shifting as a reason for doing certain things and for not doing other things. We need to be careful when we use this argument in a market that consumers probably don't believe has a fair allocation process in the first place. Consumers may not care how far we deviate from the current standard that's in place.

What incremental benefits are expected by combining the ISO and the PE? The principal objective of doing so seems to be constraint management. It's not clear whether constraints are an anomaly, or whether they are an everyday occurrence. I'm not saying that, even if they are an anomaly, they're not a big problem when they occur. I am just trying to raise the question that, if they indeed are an anomaly, do they warrant the creation of a new institution or, more importantly, the vesting of spectacular command-and-control power in that new institution? Is it wise to expose ourselves to the potential abuse that may be seen once we have established some command-and-control authority in the ISO?

Combining these functions is a problem. I can't conceive that if the PE and the ISO combine, that furthering the well-

'One example of this innovation involves metals manufacturers who are negotiating deals with Canadian electricity suppliers, whereby the electricity price is indexed to the price of their metal.

being of PE would not be one of this composite entity's missions. I think the market wants to see the ISO do two things: facilitate fair access, and start ^{Small}small. in terms of the authorities we invest this institution with. We can always ratchet up later on, but we can **never** ratchet back. We also need a better dialogue on the apparent presumption that all the rules and procedures that we now have don't work. Whatever we implement ought to be subject to what we call regulatory litmus tests, for example, that whatever proposal is adopted should bring some reduction in regulatory oversight.

Buyers are going through a transition. Ratepayers are in the larval stage, at the moment. They're going to emerge someday as consumers. They're going to expect this system to behave just like any other consumer system that they have. If you really want to empower consumers, then you ought to regulate the system so that it meets consumers' needs. If you find yourself having to regulate the consumers or the market participants, so that they adjust to the needs of the system, we're not there yet.

Discussion:

If you go through the words in the California Commission's decision and through numerical examples, you will find that California's model is identical to what you think of as bid-based economic dispatch. Does the California Commission intend for all generators, including bilateral contracts, to submit themselves to economic dispatch by the ISO?

No. The conclusion is that everyone will have the option to submit bids. Those who don't submit bids, don't submit bids;

are treated as must-run. When the ISO does the redispatch, it calculates the least-cost redispatch given those bids. If somebody is must-run, they run. But if they bid and had said that they'd rather be backed off than run, then they would be included in the least-cost adjustments that go into determining the locational prices. The same thing happens in New York and in PJM.

On the issue of providing price information to the ISO: Is the California contingent saying that the ISO should or shouldn't have pricing information?

What we in California are saying is that, for reliability purposes, the ISO will have total control in the sense of being able to dispatch for reliability. For congestion management purposes, the ISO needs to have cost information. If a bilateral generator decides not to submit the information, then they are still obligated to pay the congestion price, whatever the price turns out to be. Bilaterals have the option to voluntarily submit incrementals and decrementals for dispatch. If the protocols require submission of incrementals/decrementals for reliability management, then that would be their obligation also.