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Rapporteur's Summary

Section I: ISOs: The Details Bring Issues into Focus

Over the past year, the concept of an independent system operator (ISO) has moved from a general outline for emerging electricity markets to specific proposals which are being implemented. As the details emerge and experience develops, comparative analysis offers an opportunity to explore the importance and the implications of the many differences that can be found in the various implementations. Proposed or operating ISOs have different scopes of responsibility in organizing use of the transmission system and supporting a spot market. How does the ISO handle transmission reservations? Capacity allocations? Congestion management? Pricing? Settlements? Interaction with a separate power exchange? Bilateral transactions? The details matter, and the details differ in the alternative approaches found in different parts of the country. Why are there differences, and should there be any convergence?

Speaker One

I will try to discuss some of the interesting and controversial aspects of the ISO developments in New York; the New York State Reliability Council, the ISO's role in the commercial markets, and transmission pricing. Since 1965, New York has had a power pool responsible for the operation of all bulk power facilities and generation in the state, and for economic dispatch. This fact has greatly influenced the proposals for an ISO.

The utilities have essentially been the drafters of the ISO proposal in New York. The New York Commission organized efforts to get competition going, but the utilities have made a filing which represents their best effort at compromise. There has been no reaction to the filing from FERC so far, and there is also no state restructuring legislation in New York. As a result, all restructuring is being carried out by the commission through its regulatory

authority. The utilities have challenged the commission's authority, and the lower court has upheld the commission, but the courts ruling is under appeal so progress could be impeded at some point. The utilities' filed proposal includes an ISO with a twenty eight member board to accommodate all eight utilities. In order to achieve the FERC's predetermined diversity, the board had to be expanded.

The Reliability Council also filed a power exchange proposal. A Reliability Council oversees the utility operation, which has been generally successful from a reliability and an economic point of view. However, it has been increasingly evident in recent years that commercial pressures on utilities have led to a decrease in the system's performance. The tendency is to push the system harder, and to be less responsive to the pool operator's request for corrective measures. The utilities are equally aware of this, and are nervous about turning over the reliability of the system in New York to an even more commercially oriented entity than the utilities. Therefore, a Reliability Council dominated by the utilities was proposed. The ISO would have minority voting rights, as the Council would primarily be composed of representatives from all factions of the industry. The ISO had suggested that they receive eight out of the eleven seats, but this feature was the single most opposed item in the whole filing. The Reliability Council is an agreement, rather than a corporation or partnership. The proposed voting rules require nine votes for passage, which the Commission does not endorse, along with the composition of the board, which is vaguely defined as being self-selected. The intent of the Reliability Council in the filing was poorly described in the filing, and other parties were concerned that since the transmission owners also control the

generation, a conflict of interest would exist that could lead to unfair practices.

The New York Commission supported the proposal, but not without some reservations, such as restricting the Reliability Council's scope and more precisely defining its authority. Specifically, the Council would be empowered to monitor everything in the state that affects reliability, but would be limited to writing rules on the relatively limited number of topics that the ISO would be expected to follow, such as installed reserve requirements, operating reserve requirements, limitations on operators' requirements on emergency operating states. With more focus on the jurisdiction of the Reliability Council, parties will be less concerned that the Council will serve as a voice piece for the ISO. The Reliability Council will develop rules which the ISO must implement. However, even if the Reliability Council believes that the system operator is not following its rules sufficiently, it has very limited recourse. It can try to get the ISO to modify its practices to conform to the intention of the rules, but if this fails, must then appeal to the New York Commission and FERC. It has no direct authority over the ISO at all.

Since the New York System Operator has long handled both reliability and commercial issues, the utilities and the New York Commission were not uncomfortable with granting the ISO that dual role and felt that there were additional reasons for the ISO to be involved in facilitating a commercial market. The ISO is responsible for insuring sufficient capacity on the system to meet daily demand. It can take up to a day to start certain fossil plants so the ISO cannot evaluate available generating capacity on an hour-to-head basis. The ISO must forecast the next day's load of generation capacity based on the load serving entities'

proposals, or what are called bilateral transactions. The involved parties get together, make arrangements, and tell the ISO their expected load and the generation required to meet that demand. However, New York has long wanted a visible spot market to facilitate commercial transactions and congestion pricing on the transmission system. This time, the utilities have proposed that entities be allowed to commit their units a day ahead of time so that the ISO has time to evaluate the commitment against its load forecast, and so that load and generation owners can ask the ISO to perform a unit commitment dispatch on a day ahead basis, or a unit commitment schedule, to optimize the system. Although these requests would be voluntary, the utilities have indicated they expect to participate extensively. The day-ahead unit commitments will become forward contracts for both the loads and generators. Any deviations from those day-ahead contracts will be resolved in the actual dispatch market. So, in effect, all the spot energy serves as a balancing market. The spot price is used to compensate for overgeneration and excess load consumption.

From the outset, New York was interested in congestion pricing for transmission because it has a very constrained transmission system. Several areas of constraint needed to be addressed. If possible, this should be resolved on an economic basis. One proposal is to have the existing utility service territories assume the full embedded cost of their transmission systems. The native load customers will pay their share of the transmission system through an access charge which will cover all of the embedded operating costs of the system. A pricing system based on congestion of the transmission system gives the ISO an income to offset the full embedded cost of transmission. The transmission owners thus

receive the full embedded cost of the transmission system, partly through the access charge and partly through the congestion charge. There is debate over whether this pricing should be done on a zonal or a bus basis. New York is the only place that has decided to do both. They have assigned responsibility to the generators on a bus basis and to the loads on a zone basis. Congestion charges will flow from generator buses to load zones which are essentially the average of the losses within the zone.

Speaker Two

ERCOT is unique in that it has its own electric interconnection which is entirely located within Texas. As a result, the Public Utility Commission of Texas, rather than FERC, has always had extensive jurisdiction over transmission rights. However, last year the PUC passed Rules 2367 and 2370 which were roughly equivalent to FERC's orders 888 and 889. They set forth how ERCOT could price transmission and mandated that ERCOT utilities create an independent system operator. It gave the utilities and other market participants in ERCOT ninety days to file an ISO proposal with the commission. Meeting on a weekly basis, the market entities were able to reach consensus on a proposal, filed with the PUC in June 1996. ERCOT's ISO began operation in November 1996. This proposal established the structure and governance of the ISO, placed the ISO within the ERCOT organization, and called for extensive restructuring of ERCOT. The responsibilities assigned to the ISO included all the security and reliability functions that had historically been performed by ERCOT's security centers. The ISO was also asked to coordinate energy transactions and to provide transmission system information on a comparison basis.

The ISO filing drastically restructured ERCOT, making it open to all market participants. An 18 member Board of Directors was created. It contains three members from each of six market groups: investor, municipally, and cooperatively owned generating transmitting utilities, independent power producers, transmission dependent utilities, and marketers. Each of these six groups have three members on the Board of Directors. Below the Board is a Technical Advisory Committee (TAC), which, along with its three subcommittees, sets the organization's policies. TAC's membership differs from the Board's in that each control area in ERCOT is guaranteed representation on the TAC. The Reliability and Security Subcommittee maintains the operating guide, and sets the rules of operation in ERCOT. The Transmission Market Operation Subcommittee was recently created to address emerging commercial practices, and the Engineering Subcommittee deals with planning issues and criteria. The Administrative Director of ERCOT deals with the various NERC and federal reports that ERCOT must produce and also with handling the alternative dispute resolution process.

ERCOT handles and prices transmission service according to PUC rules: Planned Service for planned transactions and Unplanned Service for unplanned transactions. Planned Transmission Service is obtained annually by all load entities and is administered through the ISO. Each load entity will file its prior year's peak demand, and will also designate generating resources to serve 115% of their forecast load. Fifteen percent is the traditional ERCOT installed reserve margin. Once this filing is received, the transmission costs of all transmission owners in ERCOT are allocated to the load entities, 70% of which is based on a postage stamp load ratio share, and

30% on an absolute megawatt mile calculation. This formula measures the distance from the generation to the load to indicate that people with remotely located generation use more of the transmission system than people with generation located close to their loads. Once these costs are allocated to the load entities, the designated planned resources guarantee noncurtailable, firm service.

There are some objections to this allocation, since the seventy-thirty split was arrived at arbitrarily. As with most compromises, no one is completely happy. The allocation rules have been appealed in court by transmission owners with compact systems and low costs who will pay more because of postage stamp allocation. Historically, the utilities only paid their own transmission costs, now they will be paying their allocated share of the total ERCOT transmission cost. There have also been some objections to the distance-sensitive component, in that some questionable capacity swaps that really haven't changed the use of the transmission system, but were made instead to designate resources closer to their load and thus reduce their distance component.

Unplanned transmission is available for transactions of thirty days or less. Unplanned transmission is any transmission that a load receives from resources not originally designated. It has to be approved and scheduled through the ISO, and is subject to the available transmission capacity, and ancillary services. Unplanned transmission is interruptible and curtailable, but there is the option of redispatch. There is no facilities charge for unplanned transactions, except for exports over the DC ties since the loads in ERCOT have paid for the transmission systems. There is a fifteen cent per megawatt hour fee that funds the ISO. For both unplanned and planned transmissions, losses

are paid according to a matrix method. ERCOT evaluates ATC by designating zones in the inner connection whenever there is an unplanned transmission request. ATC studies are made on a seasonal basis and adjusted daily, depending on actual operating conditions.

ERCOT has a robust transmission system. Its only real constraint is in the Rio Grande Valley where there is not enough generation to meet the localized load. If unplanned transactions are contributing to constraint, they are assigned a priority based on when the request was filed with the ISO. The requestor of these transactions is given the option of interruption or redispatch. The ISO will obtain cost estimates from the appropriate parties for dispatch and forwards those cost estimates to the requestor. The requestor must decide whether to pay the transaction cost, or to have the transaction interrupted. In cases where unplanned transactions are not contributing to the constraint, the ISO looks into redispatch and determines the lowest cost option for redispatch of generating units. Redispatch costs are allocated to load entities on the same basis as transmission costs. It is a true cost, rather than market-based, dependent on the cost of whoever performs the dispatch.

The only objectors to the 70/30 were proponents of a compact system. To ameliorate their concerns of the cost shift, a transition period has been added to mitigate the effects of overpaying an allocated amount over a three year period. The PUC has indicated they would be willing to reanalyze these effects, but the shortfall in their revenues is attributable to their current requirements and it is too soon to assess the financial impact of the 70/30 system.

Speaker Three

The ISO in California is now a California corporation. The board of directors has been established and is conducting the business of the ISO. A recent advertisement for job opportunities with the ISO and power exchange ran in the newspaper and on the Internet. The board has begun a CEO search, and is hiring employees. The facility in northern California is currently being remodeled. The ISO can best be described as strong and independent.

The governing board is a very diverse cross-section of the economic interests in California. It's a balanced board with three IOU transmission-owning utilities contributing their transmission assets to the ISO. Its governance rules are explicit: the ISO is responsible for reliability for the state of California. It must determine the transmission capacity and approve schedules for the use of the transmission grid. It determines the seasonal hourly transmission capacity and manages the ancillary services, emergency operators, and transmission congestion. It is directly responsible for ancillary services, setting the prices and allocating costs, and for allocating the costs of losses, congestions and imbalances. It supports the market by forecasting transmission capacity--what the congestion price may be on an hourly-to-hourly-basis--so the market can respond accordingly. The filing asks FERC to allow the ISO to be self-governing and regulating. The ISO requests the ability to impose financial penalties on people who do not fulfill protocols and schedule, but cannot exact punitive penalties. There are a number of potential solutions as to how to mitigate the market power of the utilities. There can be mitigation measures and controls to insure that market power abuse does not threaten an

efficient market price, there could be no controls, or there could be a balance, as the California ISO has proposed. It suggests a strong monitoring program with correct mitigation measures if the ISO finds an inappropriate degree of market power.

In the case of grid expansion, the ISO's information on generation costs must be blended with the utilities' information on transmission costs to arrive at the best economic decision. The utilities are still responsible for connecting, serving, building and expanding, but the ISO will review and comment on all economic expansion and reliability improvement plans.

Speaker Four

The New England ISO is a nonprofit corporation overseen by an independent board. The board members are neither utility representatives nor market participants. The ISO board, a prestigious group of people who come from diverse areas of the industry, has already been established and will provide the appropriate guidance. The first task of this board is to pick a new chief executive to operate the system. The board was selected by a diverse group including the New England Conference of Public Utility Commissioners attending the interviews and nominating committee process.

The ISO will have regional authority which is subject to FERC's jurisdiction. All rules will be modified and developed in a collaborative process between NEPOOL participants and the ISO, but if the ISO believes that any rule is inappropriate, they can exercise veto power. The staff at NEPOOL has already begun to act unilaterally, however, by taking control of the whole rule development process. New England is one control area, a single central

bid-based dispatch where the entire coordination of operation, maintenance, reliability, and security is determined by the system operator. The ISO will administer all the market rules and regional transmission tariffs. Monitoring market power and implementing mitigation has resulted in two separate filings, but the latest research suggests that there is no market power with the current structure due to the diversity of market players in New England. Under certain congestion conditions market power behavior could potentially develop, however, so mitigation proposals have been filed with FERC.

At the end of February, Putnam, Hayes, and Bartlett filed a market power analysis on the seven unbundled products that will be implemented in New England, including install capacity, operable capacity, energy, three different reserve categories, and available transmission capacity. The report concluded that there is no appreciable market power in New England under a wide variety of conditions, and a separate May 1 filing introduced the market power mitigation principle, which compares the bidding behavior of generators in temporarily constrained areas versus their behavior in the absence of congestion. Limiting bids based on the duration of the congestion can hopefully create a scenario where true congestion can be reflected from a pricing standpoint while not resulting in market power.

A phased implementation of the market is also being considered. The current plan is to have the ISO running as a separate corporation by July 1, subject to FERC approval. Rhode Island is phasing in retail choice over the next year, and the current target for Massachusetts is to have retail choice by January 1998. The success of this plan rests on how well the pool

handles installed capability and on the 16 month retroactive adjusted situation concerning load changes. Given that the markets, software, and such will potentially not be running until mid-1998, NEPOOL is shifting its focus to having at least the installed capacity market operational by November 1.

The ISO structure is not final--targeted cost responsibility remains a point of contention. For instance, if a generator has a limitation, its economic impact should be absorbed by whoever has the rights to that generation. However, with shared responsibility for reliability and shared reserve requirement within the pool, the New England market is at once unified and isolated. What happens to the increased capability responsibility that effects the whole pool when entity used acquires an external firm contract? Should the impact, positive or negative, be borne by the individual marketer, or the entire pool? Sadly, it was decided that the party who acquires the contract should receive the benefit from a capacity standpoint while also absorbing the offsetting reduced capability into the region.

With day-ahead unit commitment, there is the presumption that no-load cost will be recovered as a part of operation over the next day. If a next-day bid forces a unit off the grid, should the party which committed before hand, as the ISO requested, accept the economic impact? It is within the rules to make an hourly modification to, for example, an internal generation dispatch, by bringing in external powers so no other party is impacted. But placing hourly bids that will impact another party unless the economic affect can be internalized by the bidder is prohibited. In terms of socialization versus efficiency, the lost costs of transmission will likely be socialized over the course of a five to ten year transition, to be decided by FERC.

One problem is the lack of consistency in the handling of losses, expansion and congestion. Socialization of congestion is clearly not the most efficient solution. On the other hand, it is consistent with the treatment of expansion and losses. If congestion pricing is to be paid by only a handful of people, new transmission should be built equally by everyone. Paying for the increased costs of congestion can be offset by the carrying charges on new transmission lines. New England will avoid heading immediately toward targeted transmission, instead embracing but probably a socialization approach to congestion.

With regard to the issue of balancing complexity versus flexibility, the pool accommodated bilateral transactions within a central market for seven unbundled products. Participants would like the market to administer any type of bilateral contract they choose. However, the software development costs that can accommodate unconstrained capability for different bilateral transactions are prohibitive. The market should not completely abandon budgetary considerations and its schedule of becoming operational for contract flexibility. All external and internal bids are now done at the same time. These types of decisions are being made while balancing issues of efficiency, complexity, and equity. Although these decisions will not all be made correctly the first time, as long as the market is going in the right direction, some of the inequities can be corrected later by a more dominant ISO.

General Discussion

It has been argued that reliability will be enhanced by the adoption of ISOs. What are the potential risks to reliability?

In the short term, I think we will have to rely on the "socialized" approach. When it became clear to utilities in New England that there wouldn't be enough capacity available this summer, NEPOOL decided to take over in order to maximize the possibility of keeping the lights on for the summer. The socialized approach was the only way to increase capacity quickly enough, and this included turning on mothballed units, while taking into consideration environmental impacts, increasing the rate of interruptible nodes which were used to spur the demand side to respond, and committed 25 million dollars across New England in order to avoid rotating blackouts. These rates are very high, however, and many people are already anticipating similar difficulties next summer.

Many developers are exploring building new plants in New England, but these would not come online until 2000 at the earliest. This dilemma raises the question of the delicate balance between letting markets work and overriding the market to correct its flaws.

In the transition to an ISO, are computers, operational practices, and personnel concerns? Will these people be able to perform certain tasks at the right moment, and are there inherent dangers if they are not?

The current computer systems will remain in place, so it is more a matter of modifying new systems. It's just a question of finding the right balance between regulatory oversight and faith in markets. I am confident that the new systems and the ISO will maintain reliability during the transition. I'm most concerned about the transition while the new systems are becoming operational, and while personnel is being trained. New technology can take six months from the startup phase before it is fully integrated. The system will be administered

under the old system until the ISO has seen enough simulations and is confident in their system's reliability. It's like a relay race--the old system will keep running until the ISO puts their hand back and takes the baton. The emerging market in ancillary services is also worrisome. The market will eventually increase reliability, but its initial impact may be less positive.

After the change in emphasis from short-term operations to creation of markets, how will the market regenerate supply and demand for generation?

The reason for the shift in focus is to create a robust and dynamic generation market place, and there is a lot of activity below the surface of new merchant plants ready to come onto the market place. The merchant plant will be able to place a bid in the pool and sign any customer or wholesaler to a bilateral arrangement.

NEPOOL has a settlement process where each participant's load, resources, and operational costs are calculated, then compared to the cost of a single central dispatch. In the future there will be hourly markets with seven unbundled products which generators can study to find the spot markets. There'll be a clearing price for those seven markets, but the spot market clearing prices can be tracked every hour on a bid basis, as opposed to the current system where units have to be sold through the replacement fuel cost process.

In New York, there is every intention of creating a robust market for generation. Reliability is already assured through the power pool, so opening up the market became the primary goal. However, since virtually all the generation now is either owned by utilities or under contract to utilities, and at the outset

there will be a wholesale market, it is not clear that the market will open up quickly. Nonetheless, I think that even under wholesale conditions there will be a robust short-term market for energy and ancillary services. The market for capacity may take longer to develop as utilities divest generation. As retail competition nears, utilities won't be able to hold their captive customers any more, which will accelerate the market's development.

Why is the New England model with its smaller, non-market participant board, not seen as superior to California's?

The sectional boards, comprised of as many as 28 members, are extraordinarily weak bodies. Therefore, there is a power vacuum which a de facto dictator must fill. Either the agenda setter, usually the chairman of the board, who can orchestrate market outcomes, or the decision maker, often the chief operating officer, who can make the decisions which the board could not, is capable of becoming a dictator.

The California system is very similar. The board is limited to broad policy decisions that require considerable debate, and it is nearly prohibited from participating in day-to-day operations. The management team, on the other hand, has very broad discretion and authority. The larger the board, the more difficult it is to reach consensus unless smaller, separate committees deal with specific issues of limited scope.

The market participants and the California legislature agreed that experienced personnel was necessary, even if it compromised independence. The governor appointed an oversight board which emphasized balancing experience with diversity in its deliberations.

I'm convinced that the Western System Coordinating Council (WSCC) structure is better than the California's. The WSCC has opened the market to competing economic interests which are uniting for the common good of the system. The regional transmission groups are a fine example of this trend. People that know the system and have an inherent economic interest in it should be managing, rather than criticizing, the system.

I think the circumstances and the history in each area are crucial to determining the correct system. In New England, there is no history of a single pool entity. The creation of rules will therefore be done by a combination of NEPOOL, where both knowledge and economic interests come together, and the ISO. Hopefully the combination of a strong single entity and diverse economic interests competing can be resolved at the regional level. California and New England have adopted separate strategies to achieve similar objectives.

Does this mechanism provide an incentive for utilities to relieve congestion? It clearly provides an incentive for generators to locate in particular areas to avoid congestion, but if congestion rents are simply returned through a fuel charge mechanism, is there intended to be an incentive for utilities to construct new facilities to remove constraints?

There's definitely not an incentive intended for utilities to build new transmission. There is an incentive for commercial parties to fund transmission expansion in exchange for the rights to increased capability. This method is the utilities' first preference for transmission to be built. In New York, a state power authority which owns a large portion of the transmission has been the default provider when the utilities couldn't agree on

transmission expansion. Another alternative is that the public service commission can regulate at least the distribution part of the utilities, including the authority to require additional transmission and a rate base.

Some critics of the ISO point to the separation of ownership from control and, indeed, whether the very concept of an ISO is stable considering that utilities will continue to own transmission, be responsible for the construction of transmission, without physical operational control over the asset. Is this a fatal flaw compared to a regional transmission company that could join both ownership and operational control of the asset?

The ISO has responsibility and liability for its actions. Transmission owners are accountable for any damages that occur from operations. They are accountable and liable for any consequences as a result of actions from improper operations of the line. The ISO can discern economic advantages in potential transmission upgrades, a crucial ability as expansion moves from state to federal jurisdiction. Investors are mainly concerned about expansion because of the lengthy recovery of transmission costs. The speed at which the market is evolving discourages huge investments with twenty-year cost recovery.

However, merging ownership of the transmission with its operational control doesn't solve this problem. Efficiency and incentives are issues that must be solved on their own terms. New York utilities have expressed the concern that they will be liable for problems for which they are not responsible. The ISO will make the error and blame it on the utilities. This had been a concern at ERCOT because the owners still maintain direct control of their systems. Future expansion will involve the ISO since all

future costs of expansion are going to be shared by everyone.

Should NERC remain a voluntary organization?

The WSSC has ruled that NERC proceed as rapidly as possible to mandatory protocols and obligations with financial consequences if it does not, since the ISO, by state law, must comply with all WSSC criteria. Reliability standards need to be enforced even if it requires federal legislation.

As they proceed from voluntary to mandatory, NERC and the regional reliability councils are reexamining all previous requirements and standards. Presently, they are somewhat self-regulating, but many believe there has to be some oversight, whether from FERC or elsewhere. Local cooperation and responsibility is necessary, but so is regional and federal regulation if self-enforcement fails.

NERC needs a clear understanding of the separation between reliability standards and how they're achieved. This issue has always been under FERC's jurisdiction, and both sides need to be sure it does not interfere with the others' agenda. The ultimate decision needs to rest with FERC to produce better decisions because it is solely accountable for the ramifications.

Is the NERC governing board really representative of broad interests? Some players are claiming they do not have enough influence.

The NERC board is cognizant that if NERC is to be seen as a standard-setting organization, there has to be broader consensus for the rules. NERC's first step was to remove the regions, since they are not comprised of a full

range of participants, out of the approval process for new standards. Standards can be proposed by any participant. Each board meeting brings an additional change. NERC is steadily opening up the process.

NERC created the independent interconnection operator (IIO) as an agency that would be a public utility that could impose fines on ISOs to create coordination between them. The IIO is strictly a high level coordination entity, similar to a reliability council without a power pool, and it's not under FERC's jurisdiction. The ISOs are likely to coordinate voluntarily. Many of the states voluntarily adopted the national electric safety code as part of the general rules for utilities. FERC might be asked to endorse NERC's procedures.

The targeted-cost responsibility approach for socialization should be balanced with considerations of losses, congestion, and expansion of transmission. Socialization implies in part that the locational and network effects are inefficiently priced but can be managed and then allocated to broad groups of people. If efficiency is sacrificed up front, however, can the new system later be upgraded at a similar cost, or will reliability and productivity suffer?

People will always object to any substantial financial change as a result of new rules. Significant cost shifting will occur in the transition to a single transmission rate across New England, although it also will clearly stimulate competition. FERC has yet to rule on the proposal. Moving from a socialized combination approach to a more individualized and efficient one could be achieved with some transitional cost mechanisms.

Traditionally, utilities have reduced costs by operating in a rate cap environment to garner efficiencies between rate cases. How are asset owners in the ISO-environment compelled towards efficient maintenance and cheaper expansions? What drives the ISO operation to use the network efficiently to avoid expansion altogether?

If the ISO is solely responsible for reliability and is not a market participant, it is then likely to become extremely conservative and not observe proper risk management. The ISO's compensation should be tied to how efficiently it maintains reliability. As for incentives to maintain the system, under state law the ISO must establish reliability standards and maintain performance standards or suffer financial penalties.

The ISO should run a system that is running reliably and at maximum efficiency. These two interests are at cross purposes, and any management compensation incentive will have to strike a difficult balance. Perhaps there should be a board of the ISO that monitors the performance of the ISO operators, could oversee the balancing decisions and give them the signal to change direction if that's needed.

Areas with a PX/ISO function are better equipped to utilize the network. In the future when generation and transmission are separate, communication and logistics at first will be difficult, and neither company will arrive at the correct balance at first. Once economic realities come to the fore, however, reliability concerns will become less crucial, and some working procedure will emerge to meet necessity.

Areas moving quickly to retail competition should develop robust generation markets so that merchant plants will be built to safeguard against the lights going out.

If there's an outage and customers are going to call the local utility, most companies will accept the responsibility rather than blaming the upstream provider. Utilities will accept the marketplace liability in exchange for the customer satisfaction. The customers will look to the utility to solve the problem, especially since it decided on a single ISO.

FERC shouldn't be asked to rubber stamp the individual rules, but rather approve the general process that produced the rules, and then allow the ISO to determine what the rules should be and make appropriate amendments. FERC cannot manage the details of the protocols.

Under the current NEPOOL agreement, any participant can seek redress through a dispute resolution process that can wind its way all the way up to FERC. I think the big question in New England is how the relationship between the independent ISO, NEPOOL, and the technical advisory committee evolve. NECPUC did support the ISO filing at FERC but the Massachusetts DPU had some concerns with the Board. To what extent do the market participants have influence over the independent ISO? How will the Board take charge among these committees which are dominated by NEPOOL members and the ISO.

Should the size of the ISO, be it a single company-wide ISO or a region-wide ISO, be a concern?

The West coast has the regional and the IndeGO ISO, and they are trying to work together so that a future merger is possible if desired. FERC has to be vigilant about encouraging the spread of ISOs.

*Section II: Are There Disparate Air Quality Standards and
Are They Distorting Electricity Markets?*

Many in the environmental community and elsewhere fear that introducing competition in electricity markets will be to the benefit of old, coal-fired generating plants. Competition, they contend, will both extend the lives and increase the output of such plants, thereby causing a diminution in the air quality. Others, including, not surprisingly, the owners of coal plants, contend that these fears are unjustified in that their plants are subject to the same environmental standards as others and that the emissions produced will not cause a drop in air quality. Much of the anxiety, they argue, is rooted more in fear of competition than concerns about air pollution.

Speaker One

Restructuring the electric industry must involve all the disparate interests in order to achieve the maximum level of benefits. The plan is guided by two axioms: competition will reduce costs, and changes in economic competition will have a profound effect on environmental regulation. Competition will lower prices and improve products and services for the customer. It is the natural progression to drive waste from the service sector so that basic industries can compete globally. The environmental issue is not being pursued as a means to delay competition.

However, competition should arise in a way that is fair to the customers, in terms of costs and the environment, and investors, in terms of stranded assets.

Unlike railroads, telecommunications, banking, and all of the other service sectors which have embraced competition, the electric industry has just recently developed a connection with environmental issues. A report issued by the NRDC reveals that NO_x, nitrogen oxide, a precursor for ground level ozone, is a bonafide health problem. Thirty percent of the present levels comes from electric utilities. 80% of that 30% stems from the thirty seven Eastern states. 66% of sulfur dioxide, which causes acid rain, comes from electric utilities. 36% of

CO₂, the so-called greenhouse gas, comes from the electric industry, as do 21% of mercury emissions.

Restructuring of this industry will clearly have a huge impact on the environment, and the industry has traditionally been fairly responsible on this issue. It's therefore important to recognize that a free market could create an unlevel playing field and also could have negative effects on the environment. Most of the emissions come from the Midwest, the South, and the Ohio Valley, although the level reflects compliance with existing environmental rules. These rules treat what each power plant produces inconsistently. This disparity will create an unlevel playing field in terms of a competitive environment if left unaddressed. Many plants in the Midwest and South are essentially unregulated. Pollution should be removed from the economic equation. The ability to pollute should not be a competitive advantage in the restructured marketplace. Dispatch pricing signals are also going to change as access to cheap generation increases. Cheaper, older, pollution-producing plants will increase their output since demand for their less expensive kilowatt hours will rise. Price elasticity will increase demand. The existing pattern of production will gravitate toward

plants which produce more pollution, and this movement will effect both economic competition and air quality.

What is the environmental impact of transport in the Northeast? The Northeast has already done a great deal to improve its environmental quality. NOx travels up to five hundred miles in the atmosphere. Therefore, an emission in West Virginia becomes an attainment in Pennsylvania or New Jersey. 46% of the non-attainment areas in the East are complying with EPA rules yet emissions within 100 miles of these areas persist. Eighty percent of these power plants are located within 200 miles of non-attainment areas. Thus, transport is an intra-region issue as well. Power plants complying with existing laws are nonetheless contributing to non-attainment. The days in the Northeast with the highest level of ozone non-attainment are usually marked by air patterns from the Midwest and the South. When the Northeast is clear, the weather pattern shows a Canadian front. There is a clear correlation between air currents and ozone problems.

There's a lot of debate whether regional strategies will help the Northeast's transport problem. Ground level modeling of ozone through regional control strategies can drastically reduce emissions in the Midwest. Yet these estimates do not consider high level atmospheric ozone, as compared to ground levels. A 1988 study revealed that ozone transport was so bad that even if New Jersey shut down completely, no cars, no factories, its ozone levels would still be in nonattainment. The ozone must come from somewhere, likely the Midwest.

Eighty five percent of the problem is solved just by applying standards to the generators. Automobile manufacturers, glass companies,

and other industries do not comprise a meaningful portion of the problem; it's primarily caused by power plant emissions which have been uncontrolled since the 1970s.

Fatefully, achieving a level field economically and competitively can only occur by taking steps to improve the environment. The EPA suggests that if Path-4 emissions can be reduced to 650,000 tons of NOx east of the Mississippi, there will be clean air. Using this amount as a cap, the amount of kilowatt hours during the ozone season can be limited to a generation performance standard. Each kilowatt hour can only carry so much Nox.

Speaker Two

Air quality standards' effect on the electricity market should be a secondary consideration. Should air quality standards vary by region? What is the difference in NOx emissions between the Midwest and the Northeast? What is the cost of achieving mandated air quality standards for the electricity market?

Air quality standards are derived by the National Ambient Air Quality Standards. They are uniform, threshold levels of ambient concentrations established to avoid dangerous health effects with adequate margins of safety. The levels are standardized, there are no regional differences. Limits on particular sources are not uniform, only the total air quality. Urban areas, with more economic activity and therefore more emissions, have lower source limits because of their congestion relative to rural areas. The lower limits appropriately recognize the costs of congestion, and gives proper incentives to locating industries outside cities. Appropriately pricing environmental effects is difficult, especially when it is unclear that uniform emission limits regardless of location

is the best method. Air emissions in the Midwest have been regulated for over twenty years. Its method of implementation differs from the Northeast's, but each region must comply to the same federal standards.

NOx emission source limits have to be lower in the Midwest considering how far they can travel. However, examining the average emission rates from 1990-1993 does not reveal a clean Northeast-Midwestern disparity. New Jersey and New Hampshire have higher NOx emission rates, higher every year than Pennsylvania. Units affected by Phase One of the Clean Air Act have to meet the NOx limit of .45 parts per million BTU by 1996. The primary effect of Title IV was not to reduce NOx emissions, but to reduce SO2. The costs, therefore, of implementing Title IV should be put into perspective; by the year 2000 Phase Two will require much lower levels. In 1995, there was a great deal of overcompliance with Title IV, some 3.4 million tons under the cap.

The Phase Two Requirement is the percentage reduction required by the Phase Two Allowance Issuance. It is about a 60% reduction in the Midwest, 30% in the Northeast. The reduction in SO2 emissions has been greater in the Northeast, except in New Hampshire, than even the issuance of allowances in the year 2000, when Phase Two begins. The Midwest will have to reduce emissions by another 40% to reach the allowance issuance level. This level is unlikely to be imposed, at least in the aggregate, within states. Only in New Hampshire is the issuance allowance for Phase Two less than 1995 emissions.

The claim of differential impact is puzzling. Air quality regulation for human health purposes is uniform. In addition, while historically there are regional differences

between average emission rates, the distinction is less clear than it once was. Phase One's NOx limits seems to have eliminated much of that difference, and Title IV has been just as effective with SO2 emissions.

Speaker Three

At the end of Henry Lee's paper, "Where We Should Be Going," it is noted that competition could be good for the environment. Why should there be any market distortion, given that the air quality standards are enacted at the federal level? Comparing seven cogeneration plants all located in the Midwest shows the disparity in related NOx emissions. This may be caused by areas having a capacity to absorb pollution levels. If national policy were more logical, perhaps new plants would have similar levels of emissions to other plants. It is distressing to see new plants on similar sites in the same state yield significantly more emissions than before. There's no argument that the states are uniquely virtuous, but plants need to be competing against consistent requirements. An omnibus air pollution bill needs to be presented to Congress to consider, to meet public health objectives, and to integrate this reduction into restructuring. Otherwise, projected emissions will decline, but not quickly enough.

Emissions of sulfur-dioxide are down from a decade ago. Eighteen to twenty million annual tons of sulfur dioxide has been reduced to 12 million, with a goal of 9 million by early next century. Although much of the progress spurred by the Clean Air Act has already occurred, future progress is certain. Nitrogen oxides have to be reduced by less than one million tons to reach the projected goals. Relatively modest reductions remain, some of which is being threatened by litigation. Fine particulates also need to be addressed; they are

responsible for some 60,000 premature deaths annually. This issue is more related to state-based pollution than to regional problems caused by emissions from transportation. Particulates are the most significant environmental protection issue; a conclusion reinforced not just by EPA's proposals, but by overwhelming scientific evidence. Professor Dick Wilson of Harvard and his colleague John Spangler issued a study, "The Fine Particles in Our Air," that strongly influenced EPA's thinking. It found that approximately 4% of the U.S. death rate can be attributed to air pollution, up to 15,000 premature deaths a year from electricity-generated emissions. If this research is valid, the effect is one hundred times as large as all the other pollutants the U.S. Environmental Protection Agency regulates.

It cannot be credibly argued that the current levels of reduction anticipated under the Clean Air Act will approach a level that would allow major population areas to comply with public health imperatives. A protracted battle between the environmental community and the utility industry is unfortunately very likely. The Clean Air Act will continue to set the overall ambient air quality standards, and the transport issue will be largely ignored, which may eventually result in major restructuring difficulties, or the system can attack the problem head-on: "We're going to work out a way to solve this problem that makes maximum use of market mechanisms while minimizing the costs of compliance and removing the prospect of anyone suggesting that this industry is part of the problem rather than part of the solution." A structure of emission caps with market-based mechanisms should create a set of uniform environmental standards by emphasizing competition rather than an environmental agenda. If this system can be implemented, carbon dioxide, nitrogen

oxide, and sulfur dioxide emissions will plummet. Utilities will be able to sell plants to a market aware of emissions standards, which will reduce the seemingly inherent conflict between the utilities and the environmental movement.

Speaker Four

Disparate standards are a good idea because plants were built on the basis of maximum emissions, which the state then factored into their implementation schedule, along with weather conditions, anticipated economic growth, and population. An extra margin for safety and various contingencies was also adopted. Under the Clean Air Act of 1990, Phase Two affected units are governed by various formulas that control emissions. There is not a single plant that is exempt. There is also a NOx averaging plan, under FERC because their first Environmental Impact Statement which found that wholesale competition would have a minimal impact on NOx emissions fails to take into account 990,000 of NOx emissions which EPA has admitted would occur through full implementation of Phase Two of Title Four and Phase Three of Title One of the Memorandum of Understanding. It was never factored in. The projected increase evaporates when the emission reductions are noted. The EPA had already told FERC to address all the analytical flaws, yet after FERC did just that, the EPA never amended their original assumptions. The goal of the Clean Act Amendments was to reduce NOx from all sources by two million tons. The EPA is now calculating the current levels have been reduced by somewhere between 2.4 and 3.1 million tons, so the industry has already complied. The industry has worked in conjunction with the EPA to develop new technologies for controlling NOx, such as self-

burners, wet bottom and roof fire units. Many environmental advocates suggest comparable environmental standards with new sources. The debate as to whether performance standards are adequate to protect public health and the environment continues, but should subside by 2000 at the current rate of progress.

Speaker Five

The environmental community very ambitious plans to revise the National Air Quality Standard for Ozone. They couldn't convince the world to adopt their stringent air quality standards, yet they want Congress to enact the legislation anyway. However, the movement failed because their flawed research methods and dubious conclusions proved unable to stand up to scrutiny.

Since the policies cannot be justified by scientific argument, it is inequitable to impose cost control on the electric utility sector and to suggest that will solve the environmental problem. The states have always had the right to allocate emission reductions off the contributing source set. Imposing external control would take away that right. By removing interruptible contracts, reserve capacity in the year 2000 will be down to 9%. There is not much excess capacity to sell and the dictates of the current regulatory regime force the operation of these plants. Some people are building new generation capacity, though not in the Midwest. New emission control firms will similarly affect regional competitors. Since utilities are competing against predominately coal-based utilities, they must demand an equitable reduction in NO_x and SO₂ emissions. The requirements must be uniform.

What about the global playing field? Reducing emissions should not occur for the sake of mere restructuring, but for genuine air quality problems. Has a homogenization of competitors or cost ever been applied to an industry? How can the industry guarantee lower costs to its consumers, even though the politicians seem to require this assurance before they will vote for competition. How can the rate-payers be given a reduction in costs just as retail competition begins?

The issue of ozone transport needs to be resolved. The current conflict between the Northeast and the Midwest stems in large part from source-NO_x and VOC reductions benefiting local areas, since ozone reduction benefits diminish with distance. Since a 75% utility NO_x reduction in the Midwest provides only a 2 to 6 parts-per-billion benefit in the Northeast on peak days, subregional modeling provides a more accurate assessment. The Midwest realizes it's making a contribution to the problem, but it's unclear how large it is, because the subregional modeling hasn't been done. Transport could be much less than 500 miles, and the Midwest wants to address its contributions to existing non-attainment areas. According to OTAG research, reducing Midwest utility emissions by an additional 60%, other industrial sources of NO_x by 30%, and mobile sources by 30% will still result in a serious non-attainment problem in the Northeast. How will emissions be reduced if controls are concentrated on the electric utility sector alone? There is an emerging consensus that the science linking precursor emissions for fine particulates and public health concerns with respect to ozone is somewhat flimsy. If the country is serious about limiting CO₂ emissions, it should be addressed before SO₂ controls for fine particles, because retrofit scrubbers on coal-fired power plants can make incremental SO₂ emissions reductions right

now, which will not occur if CO2 emissions have to be reduced as well, instead plants will be switched from coal to natural gas.

General Discussion

What contribution has the electric generation sector made on NOx compared to the other regulated sectors? It is relatively less than the transportation or industrial sectors. A coherent national approach to defining the industry's role will be much more effective than a disjointed state-by-state response. It should be part of any national restructuring legislation.

Is there a difference of opinion, with respect to the initial starting point, that national caps combined with marketable emission permits are the right approach?

The SO2 allowance program has been an enormous success; the EPA has reported that in 1995, the first year of the SO2 control program, utilities affected by Phase One overcontrolled by 49%, yet did so cost effectively. Addressing ozone is not easy because during the ozone season tradeable market permits must be restricted. Many of the policies that have been advocated for NOx control challenge the limits of existing control technology. It is impossible to cost effectively overcontrol and trade those benefits to higher marginal cost control units.

While there are difference in our proposed solutions, we all recognize there is a problem, which is encouraging. Only a cap system, followed by a trading system, satisfies the dual requirement of a competitive level playing field and substantive environmental benefits.

There's an ozone nonattainment problem, but who's contributing to the problem and how

should it be most effectively addressed? A subregional approach seems to be the best method. If emissions are reduced in eastern Ohio to meet Pittsburgh's nonattainment, Pittsburgh will make similar reductions, and the whole region will benefit.

What about an emissions per kilowatt hour standards?

Environmental performance standards are a tough sell in this industry. Reducing emissions to the level necessary to help a city attain the ambient air quality standard for ozone should be the goal. These reductions will be directly linked to, as the Clean Air Act requires, attainment of localized ambient air quality standards. Those standards should dictate the ozone level and the mix of reductions between contributing sources. The states and the Clean Air Act has worked well for the most part, and it's highly inequitable to apply a basic standard across the whole industry.

Whether there are uniform or disparate air quality standards, the fossil plants will be most effected. Looking across each region of a state, are do these units have average NOx rates? Perhaps a state like Connecticut that is heavily dependent on nuclear power will have much lower emissions, on average, if nuclear generation is included. High emission rates could be masked in the average because of the nuclear factor. It is logical to assume there is a big difference in the rates on the fossil plants.

Delivered prices assume that a competitive market will set the costs of a marginal plant and the price of all competitors at the margin. Many plants have marginal costs which are so low that environmental compliance costs may not effect marketplace prices. However, the lowest cost of the producer, rather than the marginal cost producer, sets the price.

In the short run restructuring will not change that much because there is already a fairly efficient bulk power market and the industry is getting an economic use of the system, except when uneconomic plants are kept in the system to collect historical costs. Short term, wholesale power will still come from the same places, so new incentives have to be created to shut down some of the older plants.

The market will give incentives to do certain things, such as forming tighter power pools. There will be more interchange in seeking out freer power, since getting through some bottlenecks may take a year or two. People will invest in transmission, and there will be other changes to bring buyers and sellers together.

Coal fleets are now operating at a 60% capacity factor. If the FERC EIS is correct, that level can be raised to 80% within the constraints of the existing grid. Increased use of these facilities would have profound consequences if it occurred within the context of existing air regulations. There is significantly increased capacity potential; the AEP system average capacity factor in 1996 was 64%. The potential capacity factor in aging power plants, on average 25 years old, ranges from an optimistic maximum of 80% to a perhaps more realistic 75% maximum capacity factor.

What kind of market for permits and trading will arise, since ozone does have seasonal problems? Although an effective SO₂ market has developed, it doesn't seem that a national market for trading NO_x permits would work because plants outside of those areas could sell their emission rights to plants within the area while not eliminating the problem. Will trading be on a subregional basis, and how will

that sort of process differ from the SO₂ markets that have developed?

There are regional NO_x and SO₂ cap and trade programs. These need to be addressed without jeopardizing the federal restructuring bill, and also because it is primarily a midwestern/northeastern problem.

Should needs be filled from incremental increases in generation from existing sources or from construction of new plants? The data shows a large environmental disparity between those two, up to a cent per kilowatt hour.

A generation performance standard would internalize this environmental subsidy in the market clearing place. Proper market signals for encouraging new plants to be built will emerge.

Incremental generation needs to fulfill a stricter environmental standard, which implies a pretty complex market arrangement.

To set up a market for the 21st century, the disparity in the existing environmental standards need to be amended to form a regional electric market with common environmental standards. There is plenty of natural gas available, and the price similar enough to coal that dispatch will not significantly change. Correct pricing signals can remove the environmental subsidy from the equation.

If environmental problems arise, the emission standards can be made stricter. Why should environmental reform necessarily be coupled with restructuring? Does the EPA have the authority to do this?

There is already a strong justification for reducing these emissions further, the ozone

standard was last revised in this country over twenty years ago. Electricity causes 36% of carbon dioxide emissions, 30% of nitrogen oxides, and 2/3 of the sulfur dioxide. With these statistics in mind, to say that the environment is somehow inappropriately linked with economic restructuring seems absurd.

Air quality concerns should be resolved in the existing regulatory programs. The retail competition movement should not be derailed by coupling it with environmental legislation; joining an already divisive issue with what has historically been one of the most contentious issues ever debated by Congress.

Nitrogen oxides are very much an issue in the west. Visibility is a major issue, and one cannot argue that the air quality implications of fine particles, ozone, and certainly global climate affect only the eastern half of the country. The political resolution of industry restructuring at the federal level may involve the environment, but if it includes environmental performance standards, it will not pass. If, however, the quid pro quo for competition is a program to insure that reasonable expenditures be made for energy efficiency investments, renewable energy development, and energy technology, the legislation will garner more support. A partnership between the federal government and the private sector on energy technology R&D is being aggressively promoted, and is absolutely critical to the resolution of the climate change issue.

It is striking that the hurdles of coupling the two issues are so difficult, and yet the environmentalists seem to think their political interests are served by introducing the Clean Air Act to this Congress. The risks are too

great, and the provisions they cherish might be destroyed.

Under the current rules, one part of the Clean Air Act cannot be amended without the entire bill being reexamined, and it would take a Herculean act of leadership in the House and the Senate to overcome these longstanding rules.

The idea of dealing with car pollution vis-a-vis transport in the Clean Air Act is problematic, yet if it could be blended in to the rules for the new generation commodity markets, it would be worth analyzing ways around the procedural rules.

Other interests will join the fray, and then new rules will be added that will overcome a utility-backed veto. Any reintroduction of the bill in the House will inspire countless interest groups with agendas opposing both the utilities and the environmentalists.

It's unclear whether the next 18 months will see hearings on restructuring legislation, and adding a clean air provision only makes it less likely. However, states are to it proceeding at an unanticipated quick pace. The problem with lobbying for a federal restructuring bill is that potential legislation could bog down, and as it bogs down, the states may decrease the pressure for a federal competition bill.

As more states act there will be more pressure for the federal government to come up with a solution that accommodates the critical interests of the major parties, yet utilities cannot necessarily rely on Congress to solve these disputes.

A market with substantial externalities is not efficient to the public who cares more about the nonprice impact of their choices. The

industry needs to support energy efficiency, renewables, and fuel diversity as potential environmental solutions--there are many other strategies besides emissions control. What about a voluntary emissions cap imposed by the buyers of electricity themselves?

States have always had the right to establish more stringent clean air requirements. However, cheaper power will always be the primary motivation of the market.

Section III: The Challenges of Implementing Retail Choice

A number of states have already made the policy decision to offer retail customers full choice in selecting power suppliers. As contentious as that may have been, the real perils may lie ahead in the implementation. State regulators are now struggling with a myriad of implementation issues. How far should services be unbundled? When should each customer class be offered choice? What needs to be done to assure a fully competitive market? Should suppliers be licensed and by what standards? How should various services be priced? How should issues like handling and labeling be dealt with? The list of matters to be addressed is virtually endless. How are state regulators dealing with them?

Speaker One

Rather than dwell on the specifics of the proposed legislation, I want to draw some comparisons between the electric utility restructuring in Texas at the retail level with the restructuring experience in the telephone industry. Under the federal Telecommunications Act, the industry can allow unbundling beyond basic network services by the state when it is technically feasible. Texas utilities are required to unbundle their transmission services from their ancillary services. Ancillary services are provided by the host utilities, such as activities relating to load following. Unbundling of metering and billing services may eventually be required. In the long distance markets, large commercial customers are first ones to unbundle. The Texas Public Utility Commission put a proposal before the legislature of different options of opening retail markets. One approach is to allow 15 percent of each customer class the opportunity to have incremental retail competition over a seven-year period. Under Governor Bush's bill all customer classes would move to retail at the end of 2001.

In terms of addressing questions of market power, there is the horizontal market power that ownership of generation confers, and the problems associated with the vertical

integration with the integrated utility system. There must be safeguards against self-dealing, such as an independent system operator to ensure that ownership of transmission doesn't necessarily guarantee open access. The problem of retail competition market power could potentially be solved by incumbent utilities using its recognizable presence as a means of bolstering itself in newly competitive markets. This has been a recurring theme in the telephone market. At minimum, unbundling of the utilities' basic services along with competitive services must occur. Recognition is still an obstacle potential competitors will find difficult to overcome. In a related case, Southwestern Bell was not forced to cover up its name on its trucks, but was not allowed have its workers leave brand-name door hangers after service calls. Branding is a major advantage in retail markets. CINergy decided to pay to have its name in a ball park. CILCO was able to use their utility's name and reputation to enhance the competitive opportunities of their retail marketing affiliate. Its progressive attitude rubs off on its affiliates. Incumbents will continue to enjoy this built-in advantage of name brand recognition.

To ensure competition, electric utilities must set rates that are not unduly preferential,

discriminatory, prejudicial, or anti-competitive. However, the telephone industry had several competitors with enough resources to prevent anti-competitive conduct. Slamming is a problem in the long-distance markets, and steps are being taken to make sure it doesn't arise in local market competition as well. Virtually every jurisdiction which adopted a retail electric competition proposal has some provision on slamming. The question on how to deal with customers who do not actively choose a utility-- whether they should continue to be served by the incumbent electric company or be assigned a new service provider out of a pool of potential customers-- has been a topic of much discussion in Texas. Enron is seeking to amend the proposed bill so that it ensures that non-electing customers will be switched to another pool member. This policy would introduce the potential of unaware customers, a sizeable number, feeling slammed. The ensuing backlash could potentially overwhelm the resources of the regulator.

How should competitive services be priced? There were different goals in pricing telephone and electric retail services. In the telephone markets, the incumbent provider was allowed to provide wholesale rates at a level that would encourage a resale market. New entrants that were not facilities-based had to be able to rent capacity, so wholesale rates couldn't be so low as to discourage them from building their own facilities. One of the goals of the federal bill was to provide for facilities-based competition. Therefore, the wholesale rate must be low enough to encourage new market entrants by resellers, but high enough so those resellers ultimately build their own facilities. The electric industry has a different agenda. It wants the existing infrastructure to be run and managed more efficiently to achieve optimal economic price signals where

to locate new generation and new transmission capacity. Since distribution and transmission will remain regulated monopolies, there is no need to engage in marginal cost pricing methods. Should competitive transmission charge be disclosed on the bill? Texas Utilities do not want to have that separate item identified; a recent bill calls it a qualified intangible charge. If this charge ultimately appears on customers' bills, there will be an immediate backlash.

We should be exploring how the regulator should alert the public to the existence of retail competition, the availability of other service providers, and price information.

In Texas, the customer information office was sorely underfunded when it undertook this operation, and it was recommended to the legislature that its budget be increased to handle the increased responsibilities. If retail competition comes to Texas, the budget will have to be increased even more, since the number of inquiries of the Commission would skyrocket.

Speaker Two

New Jersey's master energy plan Phase Two Restructuring Report was issued on April 30, 1997. This plan essentially is a recommendation from the Commission to the governor's office and state legislature to form the basis of electric restructuring legislation. The plan is currently being reviewed by both houses of the legislature, but it's very doubtful that any recommendations will be made until after the election. Seventy-five different constituency groups have been involved in the process of bringing this report to the legislature, which will assuredly demand enough changes and amendments to require a second edition of the report. The report is

being presented as an energy tax reform bill. New Jersey has one of the highest energy taxes in the nation, a gross receipts and franchise tax of 13%. The legislation proposes to reduce that tax by 45% over a six year period, beginning in 1999. This reduction will cause energy bills to decrease by about six percent. The retail competition market will open in October 1998. Because customers were concerned about competitive disadvantages, the percentage of allowable entry was increased so that by July 2000, the market will be completely open. All customer classes will participate equally as they are phased in. A rate reduction was an indispensable part of any restructuring filing that the companies would make. The plan calls for restructuring plans to be submitted by each utility by July 1997. Those restructuring plans are designed to unbundle the rates, deal with the valuation and handling of stranded costs, and the implementation of a rate reduction.

If utilities are looking for 100% stranded cost recovery, they must propose a 5-10 percent rate reduction at the beginning of the competitive period. This cut, coupled with the Energy Tax Reform, would allow the marketplace to begin with reductions between 10 to 15 percent for all customers. How can rate reductions take place when there is 100% stranded cost recovery during the four to eight year transition period? While the structure is still unclear, the Commission is confident that these results can be achieved. The valuation method of stranded cost recovery will be defined as restructuring plans progress. There is no mandatory divestiture of generation assets. Market power issues, however, may be revisited. There is also a strong push for municipal aggregation, by which power marketers want to acquire residential municipalities. The Commission was not in favor of such a radical, untested approach.

The issues of municipal aggregation and the rules of competition will be reviewed by a consumer protection task force which will prepare its report for the legislature by November. The task force will revisit all old statutes and try to apply lessons learned from slamming and the experience of the telecom companies. Twenty other lobbying groups are participating in the hope of greater acceptance and consensus in the political realm.

The Commission has made a commitment to the issue of securitization. The governor, in accepting the proposal, has made a commitment to it as well. However, the House is divided, and while it doesn't necessarily doom any securitization proposal in the future, it will make passage difficult. Passage of an electric restructuring bill in New Jersey would probably occur in early 1998. It's very doubtful that legislation this comprehensive and complex could be introduced in a lame duck session. This would give us ample time to deal with our filings and setting up all the necessary rate orders prior to entry into the marketplace in October 1998. In terms of the environment, New Jersey is a severe non attainment state under all EPA rules. The Commission supports EPA's new emission standards and the OTAG process. The Commission has also been a strong proponent of emissions trading, something akin to the acid rain model program. There is a federal implementation plan that calls for caps and trade and disclosure of generation supply standards.

Regarding energy efficiency during the transition, New Jersey wants to preserve the current levels of its energy efficiency programs. There are a number of demand side management filings that the Commission is willing to encourage so that other companies will increase their energy efficiency portfolios

and try to find ways to support them in a competitive marketplace. Thus, energy efficiency and demand side management is being preserved under the current energy master plan proposal.

Speaker Three

The Pennsylvania Commission began talking about restructuring three years ago. In December 1995, the legislature started to get interested, and one year later, after overwhelming bipartisan acceptance in both houses, the Governor signed a restructuring bill. Pilot programs are being implemented this year, and utilities must file their general restructuring plan by September 30, 1997. There is a required phased-in competition phase which will place tremendous logistical demands on the Commission. The Commission has already issued over thirty orders to meet these deadlines, but is also trying to instill the spirit of the stakeholder process with dialogue and hopefully consensus. Public forums and working groups were created to deal with generic issues that could be resolved, then reinserted into the general restructuring proceeding. Universal service, energy conservation programs, customer-supplier interaction, metering, reliability, competitive safeguards, customer education and information billing, and the phase-in to competition were each designated a working group. Customer education is a substantial challenge in Pennsylvania. Thus far it has not met with much success, but the legislature just allotted additional funds to create a "competition hotline" which should improve communication.

The Commission has issued various orders on what each filing should contain, and also is auditing those utilities to assist consideration of the filing. The dockets are open for any

party who wishes to participate, and there has been significant interest. The restructuring filings are reviewed by an Administrative Law Judge. The Commission is encouraging settlement. Six pilot program preliminary orders were issued on May 8. These exist to gain experience before full phase-in. The Commission required the utilities to file proposals for pilots on March 1. The pilot period lasts until the phase-in, and customers who participate in the pilots may continue to be a shopping customer when phase-in begins. The programs cover five percent of the peak load of each class, 275,000 customers statewide. All customers, all classes, and all tariffs are eligible to be selected, including low income customers. No single customer may equal more than 10 percent of the class load. If a customer is randomly selected, they do not have to participate in the pilot. Customers are chosen by volunteering, random sampling, and geographic areas of concentration. The statute requires that customer protections that are in existing law continue. Preliminary orders require utilities to install and read meters, and can have an alternative supplier put a new meter in as well. The two billing options are for the existing utility provides the billing exclusively for all services, or a bifurcated billing where the alternative supplier would provide a separate bill for the portion of the services they provide. When the customer chooses a third party supplier, they receive a three cent credit from the utility, a surrogate of a market price proposed by GPU, and accepted in the pilot preliminary orders.

There is no limit on the number of generation suppliers. Utilities must offer ancillary services, but suppliers may obtain them competitively or separately. Utilities may not impose extra supplier fees for services already included in rates. The statute requires the Commission to establish a new licensing

process, which is in place on an interim basis for the pilots. The licensing is focusing on financial fitness, an assurance that a supplier has the ability to fulfill their contracts. Anyone who wants to sell electricity in Pennsylvania has to get a license. There are certain instances where it would make sense to waive the licensing requirement. The pilot program preliminary orders require unbundling. It has a formula that includes a market price and a stranded cost sharing mechanism. These programs are as important as the PECO securitization issue. Utilities may also file for securitization. PECO filed for \$3.773 billion of qualified transition expense, but the Commission only approved 1.1 billion, the remaining amount was denied without prejudice, and referred to the ongoing stranded cost proceedings.

The legislature concluded that cost prices have increased since 1970, and that regulation of generation had essentially failed. Competitive pricing of generation would be fairer to efficient producers with an ability to attract customers by the products, services, and prices they offer. The high prices, and the wide disparities in prices, even in bordering regions, convinced the government it was time for a change.

Pilot programs were created as a way to acquire practical experience. They force utilities to deal with nitty gritty issues. They are small enough not to be overwhelming logistically, but large enough to represent a real test of competition.

Procedurally, there are two processes in the securitization statute. The PECO case is the only securitization filing the state has received, but a utility can petition for securitization at any time during the context of their general restructuring petition. Any savings from

securitization must be flowed through to ratepayers. The taxing authority is independent from this whole process. In the PECO case there was discussion of a trust that would offer the bonds to the market as a private entity.

The securitization transaction must gain credibility with outside stakeholders. Securitization may provide monetary benefits if the amount of stranded cost investment is lessened because all the money is given up front to the utility, resulting in guaranteed payment in rates for consumers. So the ratepayers benefit as much as the utility. Securitization is an attempt both to mitigate the stranded cost recovery problem and to achieve rate reduction. However, utilities must realize that securitization alone cannot solve their problems if their transactions are to gain credibility.

Speaker Four

The restructuring process in Vermont has been going on for a couple of years. It began with a round table on competition a few years ago, which was entirely public, involving every interest and customer groups imaginable. The investigation produced a report to the legislature. Significant restructuring would require a legislative enactment in Vermont, so the Vermont Public Service Board Report was issued to the legislature in December 1996. The legislature is now busy studying the issue and will hopefully pass legislation next year. Competition doesn't signal the demise of the regulator. Regulators have to cope with Herculean tasks in the competitive era.

Dealing with stranded costs is somewhat analogous to Hercules cleaning out the Aegean stables; stranded benefits to retrieving a golden apple at the end of the world, and market

power to killing the Hyrda, whose multiple heads perpetually grew back. These challenges can be more precisely defined by relating the Vermont experience. Equitable treatment of potentially stranded costs has been a tremendous challenge. There's a tension in Vermont between those who want the regulators to review every potential stranded cost to determine their recoverability under traditional rate-making before considering their eligibility for stranded cost recovery. Others argue this method would eliminate opportunities for a settlement that would quickly resolve the problem and lower rates. Should there be a lengthy, comprehensive review before even beginning discussing securitization or stranded costs recovery? Many Senators argued that the rate-payers shouldn't have to pay more than fifty percent of the stranded costs. The utilities immediately claimed this policy would bankrupt them. The goal of a competitive industry is horizontal market power, but Vermont is small enough that market power has to be dealt with largely at the regional level and by So creating an independent system operator. Preventing abuses of vertical market power, allocating costs between the wired business and the so-called competitive parts of the business, and preventing cost-shifting, absent divestiture are all very tough problems. The proposed legislation permits the public service board to order divestitures at any point if it is determined necessary to prevent abuse of market power. Divestiture is not mandatory, but the regulators can correct abuses by ordering divestiture.

The bill contains a consumer education program which is paid for by a wires charge. The wires charge is four and a half mils; for the low-income program, and the energy efficiency, consumer education, and research and development renewables charges. The

whole industry will pay through a consumer education fund to provide basic information to the public. There is a public service department which will begin operations as soon as the bill is passed. Bill unbundling is a major way to let customers know what is going on in the electric business. Customers need to know the market and imbedded price of power before a restructured environment arrives. The bill will also promote aggregation, for small customers in particular. The voluntary aggregation of people through a municipal organization should be promoted. The bill calls for licensing of retailers, who will have to insure that they are treating customers fairly and telling them the truth. There is a pro-active means of assisting small customers to compete effectively in this market called a "consumer co." A consumer co. would charter a state-wide consumer cooperative that would be able to aggregate customers anywhere. It is being conceived as a regional entity. The consumer co. would provide energy services for the members of all the different cooperatives on a voluntary basis. It's a pro-active way of allowing customers to aggregate.

In order for the market to work, customers have to know what they're buying, and need accurate information about price terms, the fuel-mix of the power supply, and the emissions characteristics of the facilities. The Vermont bill mandates disclosure of these terms in a consistent, understandable way for customers in every power offering. The bill recognizes that many programs have to work at the regional level. The last three challenges to discuss are stranded benefits, energy efficiency renewables, and the environment.

With respect to energy efficiency, the legislature adopted an updated energy efficiency standards program for the state for

new building standards; second, it supports a state-wide efficiency utility. The traditional link between the electric company and the delivery of energy efficiency will be broken so that Vermont efficiency utilities only concentrate on efficiency. They will be supported by a wires charge to the extent necessary to surmount market barriers. The commission has adopted a renewables portfolio standard, starting with Vermont's current reliance upon small-scale renewable resources, about fifteen percent. That figure excludes large-scale hydro from the definition of renewables. The legislation also will support a small wires charge for renewables research and development to help commercialize renewables technologies that are particularly valuable in Vermont. Environmental protection will be accomplished through disclosure, renewables, and through energy efficiency. An emissions portfolio standard has also been adopted and more regional standards are being developed. The commission wants to charter the efficiency utility to relieve existing utilities from having to spend money on demand-side management measures they don't support. House leadership has considered passing a securitization bill by itself, and there's another committee in the legislature dealing with a labor bill, also on a stand-alone basis. All the interest groups are removing their issue from the larger bill and trying to get it added separately. This strategy will likely fail, however, and instead a comprehensive bill will be passed sometime next year.

General Discussion

As an alternative supplier one discovers that dealings with implementation issues must focus on quickly creating a truly competitive marketplace. Commercial and residential consumers are confused, and this confusion

causes inertia which is new market entrants' greatest obstacle. Unless from the outset the market is truly competitive, buyers that can't buy market share will have a difficult time. Disclosure will help cement relationships with customers, and marketers realize that. Commissions have not addressed, however, the role of Disco as the gatekeeper. Are competitive suppliers allies or enemies of the utilities? Phase-in will be difficult for people to accept because once competition takes hold, more consumers will want to participate fully. California's decision to meter and bill as a competitive supplier was hugely significant--it creates direct contact with the customer. By controlling the billing, marketers can create value-added services and lower energy prices. Bill unbundling is not breaking into transmission distribution. Other marketers are more willing to provide services to customers.

This echoes my point that branding creates the all-important customer contact. I agree that the metering and billing decision of California is significant because it gives the competitive supplier that customer relationship just by sending an envelope to the customer. Without this contact, the playing field inevitably tilts to the incumbent service provider and there will be competition in name only.

These issues are being addressed in Pennsylvania in the preliminary pilot program orders. Access to homes is a very delicate issue. Customers have such an established relationship with utilities that the utility has the ability to access their property. This level of trust cannot be threatened, those who come into contact with customers must be carefully evaluated by drug-screening and background checks.

In New Jersey, unbundling was not mandated as part of the initial restructuring plans for the

utilities, but utilities have the option. If utilities do not unbundle voluntarily, a customer services working group will propose recommendations about the unbundling of metering, billing and administrative services related to the household by July 1998, a few months before the onset of the competitive market.

With respect to metering, the Vermont legislation states that no company shall perform both monopoly and competitive services unless they're functionally unbundled and provided by separate legal affiliates. This does not preclude any seller of either a monopoly or competitive service from offering the customer a single bill containing charges for all services. Providers must cooperate in supplying any information the consumer requests.

Congress has seen many states switch positions on whether they want federal legislation or not. The issue of reciprocity is coming to the fore, competing with the interstate commerce issue of opening all state markets at once. A reciprocity requirement would restrict the seller from doing certain things. An example of this is interstate compacts for low level waste. Also, if stranded investment is provided for at the state level, the utilities may not need reciprocity.

NARUC has been discussing reciprocity for some time. If states wanted to impose a reciprocity condition as part of its retail access program, that would be legitimate, but others argue that reciprocity as an issue is a sham contrived to block out competition. It can protect utilities in markets where competition has been introduced so that they can better compete in other markets. If Congress were simply to mandate a uniform reciprocity condition, NARUC would disagree simply

because its ideology rejects the imposition of prescriptive terms and conditions in opening up retail markets. There's general consensus that Congress should not improperly intrude upon the states' ability to craft the proper terms and conditions of the markets as they see fit. Where people differ is over whether Congress ought to adopt anything addressing reciprocity, and whether states will seek reciprocity at all. With reciprocity, the markets will gain more participants and have lower priced generation. On the other hand, states may need to impose reciprocity so as not to aggravate stranded cost within their own native utilities.

What does reciprocity mean in the case of a marketer. Many new suppliers aren't going to be identified in any particular state, and thus would not know which state rules to follow.

Reciprocity and the issue of a certain federal date are two sides of the same coin. The Pennsylvania statute gives the commission authority to delay competition by a year if there are problems with reciprocity. What is served by a public purpose federal mandate? The interstate commerce clause is the principle public purpose and allowing states to remain closed to competition, for whatever reason, attacks that public purpose.

A reciprocity requirement would limit interstate commerce because it mandates that all states must open up by a certain date. States should not be allowed to interfere with the public purpose of having a competitive marketplace in electricity. Why should a utility have reciprocity if they are given stranded investment recovery? Even if utilities do not receive all their stranded investments and try to recover by capturing new customers, if they can't access all markets their opportunities for mitigating stranded investment is unfairly

reduced. Utilities which are in states that do not give statutory protection deserve an opportunity to mitigate their costs.

If a township votes for municipal aggregation, is skepticism toward allowing them to aggregate consumers justified?

It depends whether the marketplace should be optimized for competition or undergo a socialized process. Customers should take the affirmative step to choose to move to a new supplier rather be moved passively, and then have to take an affirmative step to move back.

What does Congress need to address to assure fair competition, and how relevant is Congressional action to those issues?

Federal action should be focused on solving problems that the states can't solve. They should respect the state's authority over retail sales which FERC instituted in Order 888 by allowing states to impose performance standards on retailers. I also would support initiatives at the federal level to promote the nation's long term public interest in areas such as renewables and energy efficiency. Generating stations should also be held within reasonably comparable environmental performance standards.

There is a legitimate federal interest in promoting fair competition if individual states are not able to adopt measures to insure fairness at the retail level. Congress should not prescribe the terms and conditions of entry and fairness in market competition. If there is a multistate utility, particularly under a holding company structure which could allow it to engage in unfair competition by means of cross-subsidization, the federal government would be right to intervene. The question of PUHCA repeal and PUHCA reform is also on

the table and while aspects of PUHCA need to be modernized to reflect the evolving market structure, there is a proper role for Congress in lieu of PUHCA to endorse certain measures. There needs to be federal authority in terms of holding companies to maintain structural protections between regulated and non-regulated activities, and to prescribe states the right of access to the records of utility holding company affiliates.

Idaho power is participating in a regional energy efficiency group which has proposed a flat charge of twenty-five cents a month on residential meters. What are the pros and cons of that approach?

It will vary from state to state depending on the rate design for stranded cost charges and the rate design for stranded benefits charges. There is a lot of debate as to who is benefitting in the long run from these programs. Is it a sales tax, a customer charge, or a usage charge? The bill authorizes the public service board to apply rate design principles to all the charges, but to start with a usage-related charge. Who benefits from energy efficiency? Do industrial customers benefit since demand is depressed and therefore the market delivers lower prices?