Fifteenth Plenary Session
Harvard Electricity Policy Group
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Rapporteur's Summary**

Session One: International Review: Experience and Reassessments

After passage of the Energy Policy Act in 1992, there was a major focus on studying the development of restructured electricity markets in other countries. This analysis occupied a prominent part of the early investigations of the Harvard Electricity Policy Group. Building on that experience, groups in the United States focused on their immediate problems and the development of their own market restructuring proposals and institutions. Experience has been accumulating in markets from Norway to New Zealand, and reassessments have been underway. There is an opportunity to learn about new insights and the accumulating record in restructured markets in other countries.

Speaker One

Many experts lack basic understanding of the electric supply industry and often don't focus on the critical issues. So the debate is distorted from the start. I have heard people say that since Norway is 100% hydro, there is nothing for them to learn. People say that there is no single recipe, everyone has to do it his own way, so we have to start all over again. In fact, the basic structure of the electric supply industry is very much the same in most countries.

My comparison will be mainly between the UK and Norway. Customer choice and regulation are very close linked, and differ tremendously in the two countries. Customers in Norway have a real choice. The regulation in Norway, which we call proactive regulation, is linked to removal of barriers. There is very easy entrance for all kinds of actors

This is contrary to the UK regulatory system, which is rigid and very complicated. The UK inherited some structural problems because of the structure and number of the generation companies. It is difficult to update the system. The outcome is little choice for most of the customer groups in England.

I want to emphasize the importance of the

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pool and how a pool can develop. A pool is not a static instrument but can be revised, enhanced and a facilitator to all market operations. In Norway, it was not a question of whether or not to have a pool, but of how to escalate the pool operations to be an efficient tool in this restructure process. We have a very well- organized pool that has covered all of Norway since 1971 and coordinated with Finland and Denmark. When competition was introduced in '90, '91, it was evident that we should base it on the pool we had. So creating the pool was easy in Norway.

We started with a traditional spot market organized by NordPool (Norway/Sweden). We are having discussion with the Danes, who see an interesting opportunity to facilitate their operations by participating in the pool. Germany, especially Northern Germany, is also thinking about deregulation and is eager to participate in the pool because they see the benefits.

We also have an option market, a future market, and a bilateral forward market, physical and financial. We have clearinghouses, NordPool and also a broker company in Norway that managed to offer such facilities. So we have some competition in the clearing process, and the cost for clearing has gone dramatically down, also reducing the transaction costs for trade.

Graphics show the traded volume of financial contracts in Norway in 1997. Because they are so large, they can deliver more efficient and better product and are closer to the customer. The financial instruments developed quickly in Norway because they let new actors in and created competition.

Norway has enhanced the dynamic process of the Scandinavian model, and the facilitation of new actors has played an important role. The outcome of this process has been higher volumes and development of new products at a pace that would not have happened if we had not allowed all the new actors into the market.

I will comment on two papers focusing on the British restructuring experience. One is from the *Electricity Journal,* from a year or two ago. England's system is not a generic competitive model. Britain tried performance-based regulation, but failed. Maybe theory is good and practice is bad. This again boils down to how regulation is carried out. The difficulty with the British m.odel is how to set the X formula. The X formula is critical to their success and they have not managed to do so. There are few units to compare, so a lot of traditional models for setting X cannot be used. On the other side, they don't think about how to enhance pool operation. The pool is not working because of structural problems in the industry in UK. There are a lot of good things in the UK system, but it is not carried out the right way and the system is not dynamic.

A paper by Alex Henney, "Reforming the Pool of England and Wales", emphasizes the shortcomings of the current pool and the way out of this situation. The spot market is complicated. It doesn't have demand- side bidding. Consumers and others cannot bid into the pool. They estimate the demand curve. Few people understand the complicated formulas for pool input and output prices. This is the first paper I have seen that opens with lessons from abroad, mentioning California, Norway, New Zealand, and Australia as examples.

Comparing Norway, Sweden, and Denmark as to transmission and power price: Norway

has the lowest when it comes just to power and wheeling. Sweden faces the same market but has lower prices. On the other hand, there is a high wheeling cost. I think the situation should be the opposite. Norway is a rocky country where it is difficult to build transmission lines. Sweden is comparatively flat. So the Swedes don't have control of the profit.
Norway has an integrated entity company that will be a great challenge to the utilities and will enhance competition.

Speaker Two

I will be talking about South and Central America—Chile, Peru, Bolivia, Columbia, and Brazil, where privatization started taking place last year. These are countries of very diverse sizes and characteristics. There are countries like Argentina and Columbia where there were very poor conditions of electricity service and supplies before the reform, and problems of management and infrastructure deterioration.

In Chile, like in the UK, there were political reasons for initiating restructuring. And more recent changes in Central America and other countries are following an international trend of deregulation with the World Bank pushing that trend. Reducing prices has not necessarily been the main force driving change. In many countries, prices have gone down, but in others they have gone up as subsidies have been taken away.
At first, deregulation concentrated on the wholesale market, on deregulating prices for large industrial consumers. All of the countries have chosen the idea of competition at the generation level with centralized generation dispatch. All countries have chosen the model of a mandatory poolco that handles the market. There is nothing like the concept of bilateral use of the network. In most of the countries, there is a short-term marginal cost, generation-based scheme coupled with a supplementary charge for transmission usage. All countries have tried to transfer the idea of a market of competition in an artificial way into the distribution business, either with a competition model or a UK-style price cap.

My impression, which is shared by many, is that reforms have been very positive. There have been productivity increases, climbing energy production, and a decline in the number of employees. Argentina has had severe problems with quality of service. Technical and nontechnical losses have been a long problem in South America; theft was a problem in the past. With the new structures, these losses have lessened in Chile, Argentina and Peru. Prices have gone down in Argentina. In Peru, they were low, but went up as subsidies were taken away.

The Chilean system is composed of two small, interconnected systems. The largest one is almost 5000 megawatts in demand, with 500 and 220 KV transmission lines. Deregulation took place in 1982. The assumption at the time was that poolco was going to play the Adam Smith role of perfect competition. The whole system would be taken as a single one irrespective of ownership; there was not much reform with regard to marginal cost base dispatch. For governance, the idea was that large generators would form a club that would act as an independent operator. Agreements were to be achieved unanimously, or the regulator would intervene.

The reality of the market is that, with prices based on marginal cost, the competition is really on the cost of supply. To do well in the business, you look for new increases in efficiency and new technologies. The private

sector brought natural gas from Argentina for this objective to be achieved. The group scheme operated well for ten years. But as competition increased and prices, particularly with the arrival of natural gas, decreased, unanimous agreements became the exception and disagreements arose on the spot price. Even reliability was in danger, and we had some small blackouts. There is now exploration of an extra committee between the pool and the regulator that would act to find intermediate solutions. And reliability obligations are increased.

Another case is transmission open access in Bolivia and Chile, very similar to what is happening in Argentina and Peru. The idea is global network approach transmission pricing—that agents that cause transmission expansion must pay for it. Transmission payments are based on natural economic use of lines with no relation to commercial use and contracts. There was a weak definition in these regulations and there have been disputes on how to measure natural use. The incremental measure is very dependent on marginal location. And there is no clear definition on how to handle network restrictions or the economic decoupling of areas of the system. So solutions are being studied by the regulator, particularly in Chile.

The Colombian system is the exception in South America in that it followed the UK model, restructuring in 1994, with a pool in 1995. The larger the market, the better the competition among generators. It was assumed that the closer the grid was to an infinite network, the better. Transmission congestion was seen as a minor problem for the pool. It was seen as better for competition to have frequent short-term bidding, even with a hydro system. Everybody offers and bids, dispatch is as if everybody was in a single node. But there are generators that do not generate as much as ideal and others that have to generate. The market reality is that this is a system, unlike the UK system, where there are important transmission structural weaknesses.

Also, there are generators in constraint areas that took on the character of dominant generators. They increased bids and made payments to dominant generators and opportunity costs to non-dispatched generators allocated as postage stamp. What started as a few million dollars climbed to $14 million a month. No decisions have been made on how to reduce market power.

Speaker Three

The Ontario situation will bear significantly on the rest of the country. Because of Ontario Hydro's historical status, it was the first of the big provincially owned monopoly utilities and was the template from which most of the rest of the electricity system in Canada was drawn. Ontario Hydro is a very large integrated generation and transmission utility that serves customers mostly indirectly, through municipal distribution utilities. It has a tremendous amount of control of the marketplace because it is not just the generator and transmitter but is also the regulator of the municipal utilities. It regulates them in secret and without any legal rights of recourse in event of disputes. It is also the regulator of electrical equipment safety and has used this power to harass those who try to compete against it through municipal or industrial self generation.

In November 1997, the Ontario provincial government introduced a white paper policy statement on where the electricity system is heading. In the parliamentary style of

political jurisdiction, such a statement has the force of government behind it. Because of the government's strong majority and its commitment to this position, the policy will probably go forward, though perhaps not on the schedule that's been set out.

The key elements of the restructuring proposal that have been put forward borrow from Ontario's experience in natural gas deregulation. When the system is opened up, in 2000, all customers regardless of size will gain the right to shop. The government's position is that generation and transmission will be separated. It has made a general commitment to separation of naturally competitive and natural monopoly enterprises. There is no commitment in the government's position at this time to privatization, and it is in the process of setting up one large crown corporation to control the entire generation inventory of Ontario Hydro. So from the beginning, it will have, based on historical experience, 92 percent of the generation market share.

The government intends to set up an ISO and has declared that it will end government subsidies for the public power sector to level the playing field between private and public enterprises. The key subsidies are taxpayer-backed loan guarantees under which all of Ontario Hydro's obligations are carried forward, tax holidays and a permanent dividend holiday for all the public enterprises. So there are potentially significant implications to those subsidies disappearing.

The restructuring process will be conducted through a series of committees. The committee charged with the technical job of composing the new marketplace is itself composed of the interest groups in the existing system, predominantly Ontario Hydro, some of the large industrial users and municipal utilities as well as some representatives from independent power producers who sell to Ontario Hydro under long-term fixed price contracts. So none of these people have any international electricity restructuring experience.

The government's position paper has four key deficiencies: A failure to endorse privatization; a failure to break up the generation assets, and endorsement of this tremendous market power problem; an absence of a coherent financial plan that could lead to serious difficulties; and political problems.

One of those political problems might arise because Ontario Hydro has a very poor environmental record. The environmental regulation enhancement and market reforms in the electricity sector should go hand in hand, in part to build the legitimacy of the process. And so a failure to commit to enhanced environmental controls may undermine the political process.

A key strength in the reform process is the government's decision to withdraw the subsidies, particularly the loan guarantee. They have had a pernicious effect on the development of the electric power system. Withdrawing that guarantee could have a dramatic impact on the behavior of Ontario Hydro, particularly if it is withdrawn in such a way that makes the existing grandfathered guaranteed obligations primary and any new obligations that it enters into subsidiary. If we end up with a first mortgage, second mortgage type arrangement for debt, there will be a powerful incentive for Ontario Hydro itself to start divesting generating stations, rather than going to the market for finance.

In the context of a state-owned electricity system with this powerful monopoly, the

penalty of monopoly on society at large has not been monopoly rents extracted from customers. Rather, the impacts have been stultified innovation, squandered capital, unnecessary technological risk and inefficient pricing. Those deficiencies that are built into the system are going to have a tremendous impact on the reform process itself.

I anticipate that as soon as we institute a market, we will see a lot of volatility in price, and that volatility could negatively influence the reform process. A lot of people could see the reform process as causing the volatility rather than as revealing something that was there previously. Creating a good ISO will be a challenge. I have been pressing for a dual market in order to avoid the WEPEX situation. There has been opposition to this by representatives of both the industrial users and the municipal utilities.

There are several interesting events breaking currently. While it has long been a truism that nukes were unprivatizable, Ontario Hydro is expecting in 1998 to get about 45 percent of its fuel mix from nuclear, and the nuclear problems are fundamentally driving the reform process. The plants are not working well, the costs are up, there are terrible management deficiencies and a lot of safety problems. Just recently, British Energy and Duke Energy have expressed interest in buying parts of the nuclear system. That is creating the possibility that this one big genco, which is going to be a major hazard in the future, may be broken up.

Eighty years ago, when Ontario Hydro was taking on its modern powers, a brilliant professor of political economy at the University of Toronto, James Maver, forecast many of the crises that eventually befell it. He forecast that they would be blind to technological risk and get blindsided by it, that they would have inefficient pricing causing distorted demand, that there would be management by crisis and a perennial crisis at the top, that they would be unaccountable, and that there would be an unseemly overlap between politics and power. So Maver had it right. But he lost the argument, and Ontario Hydro went on to become the monster that he feared.

There is a decent chance that we will succeed with restructuring, though probably not on the timeline that the government has set. But there is reason to be cautiously optimistic.

Speaker Four

The New Zealand system is fairly small, about 3000 megawatts, mostly hydro. New Zealand is a very rural country. People are spread out, so it has a long, stringy transmission line. Most of the generation is on the South Island, most of the load is on the North Island. So transmission is very important. Transmission costs are about half the retail price of electricity in New Zealand.

New Zealand has a long socialist history. The state took a major role in the development of the economy and owned the electricity department. There were scores of small electricity supply authorities around the country that did the local distribution function with an undefined role.

Around 1987, they created the state Electricity Corporation of New Zealand, still under government ownership, and separated the transmission part into an organization called Transpowers. More recently, they split off 20 or 30 percent of the generation into a separate but still state-owned

company called Contact Energy. The local authorities were privatized in a variety of ways. Some continue as nonprofit but now more formalized corporate entities. Studies were done about creating a market.

There are certain characteristics of New Zealand worth keeping in mind. The Kiwis hate formal regulation. It is a small country, so resourcing and staffing are real issues. They also recognize that it is a small island economy. You point to monopolies and they say, So what, how can we do anything here on any kind of modern industrial scale and not wind up with a monopoly of some kind?

They basically regulate through the Commerce Act, which prohibits the use of market power in order to inhibit competition. But it is not illegal to possess market power, just to use it to inhibit competition in some way. It is not clear what that means and there are continuing court cases trying to figure it out. They also use the threat of regulation, and peer pressure is important in a small society.
Politically, they are not yet ready to privatize generation and transmission, but they are good at setting up independent corporations that are state- owned but with independent boards. The main problem is that they don't have capital market discipline because they can borrow money with at least the implied backing of the state, even though the state has said it is not backing the bonds. They are talking about further breaking up the Electricity Corporation of New Zealand, and privatization is probably in the cards.

They have set up an energy market company, EMCO. The theory was that market participants did this voluntarily, although the reality was that they were all state-owned entities. The board of EMCO represents the buying market participant customer class, and there is a voting structure that keeps anyone from dominating. In principle, anyone can ask Transpower for access to the system, but they never developed rules for access. Transpower is a service provider of certain services to EMCO, like physical control of the system. So while Transpower supposedly controls the system, EMCO really does, functioning as an integrated dispatch and market pricing as well as a poolco.

The spot market has a single round spot market with nodal price. They initially planned to have a day-ahead market, but rejected that, feeling it was unnecessary and too difficult. Everybody self-commits, and thermal generators decide whether or not to turn themselves on. The hydro generators also manage their own bidding structure. Market participants can change their bids frequently, up to four hours before real time without explaining it and within the four hours for a good reason.

EMCO provides forecasts of what is going to happen and what they think the prices are going to be. After the fact, they determine normal prices for each hour independently, looking at the supply and demand bids that were provided that hour and at actual demand. There is no explicit capacity requirement or payment. The hydro generators put in bids with a very sharply steeping curve. The price goes high when they start to run out of water in the reservoirs.

Congestion rentals that are collected in the settlement system are distributed back to users on the basis of how much they paid for transmission charges. They have a DC link with a well- defined capacity between the islands, and a constrained link results in different prices on the two islands, generating substantial rents. Transpower has

been asked to develop hedging instruments, but has not yet figured out how to do so.

An obvious problem is a lack of competition in this market. There has been talk of breaking ECNZ up into three generators. There is no defined investment procedure. The rule is that Transpower doesn't invest in transmission unless someone agrees to pay for it, but the process by which that will be determined is unclear.

The major issue is undefined and ineffective retail competition. These distribution companies also are the fallback retailer. And these are totally unregulated. The only real constraint is the threat of Commerce Act action if they use their monopoly position to impede competition. There is a major court case now in the initial stages to challenge this action and define what it means to use your market power to impede competition. There is no obligation to establish a level playing field.

Victoria is the southeasternmost state on the mainland of Australia, with New South Wales just north of it and interconnected. The Victorian system is very different from New Zealand in that it is mostly big brown coal plants. It is a compact, pretty simple system. Until recently, it was owned by the State Electricity Commission of Victoria. The liberal government privatized the electricity sector, creating an Energy Projects Division within the treasury department. They set up single plant companies and sold off the distribution companies.

The Victorian Power Exchange (VPEX) was created by law to manage the dispatch and spot market as an integrated process. It is governed by a board that represents the various players in the market. The grid was set up as a company called Powernet Victoria (PNV), which owns the grid but not much more. In a sense, it leases the assets to VPEX. VPEX, working with market participants, decides what transmission investments to make. The disco retailers were ring-fenced and sell to the customers in their region or outside.

Everybody has to be a member of the VPEX agreement. VPEX brings in the grid, then the bids, determines the prices of dispatch, manages the settlements. PNV opens and closes switches when asked to by VPEX and reports on the system of the grid. There is a single-round spot market with a single ex-post price, similar to New Zealand's. They ignore constraints in the pricing, as in the UK model. Again, there is no explicit capacity payment, but the price goes to a value of lost load that started at $5 a kilowatt hour.

The National Electricity Market Management Company, NEMCO, does an integrated dispatch of the entire system, which at the moment consists of Victoria, New South Wales and a bit of South Australia. The state grids remain under state ownership. The market does its pricing on a five- minute basis. Again, it is all self-dispatch. There is a possibility of getting different prices in the states when the interfaces are congested, but this works okay. They have not figured out what to do with the congestion rentals. They have not resolved the inter-regional hedging problem.

Discussion

Question: Could you say something about the mechanism for providing retail access to all customers in Norway. Unlike in the British system, they didn't go through staging in terms of who had access to the market. Response: Norway made a strategic decision very early to go for profiling

instead of waiting for or escalating the efforts to come up with a low-cost meter. The profiling is fairly straightforward. We will implement hourly metering when it is cost- effective to do so.

Question: How much does the price vary over the day in Norway?

Response: It could be volatile in an unstable situation, like rain in Norway or cold in Sweden.

Question: I wonder how the timing and sequence of restructuring relates to the timing of the creation of the regulatory system. Brazil is privatizing, but putting off worrying about regulation.

Response: You can describe two approaches, Chilean and Brazilian. In the Chilean approach, the rules for the change of market structure were set. There were two or three companies owned by the government, they started to compete, and once it was all working, it was privatized. It has since then been very difficult to change because any change would require a change in the law, involving pressures from everybody involved. But this is better than the Brazilian way, privatizing without any definite rules. I am doubtful that any really competitive changes will be introduced in Brazil because of the restrictions of this privatized process. The Chilean approach combined with keeping a strong governmental regulatory body that interacts and creates a culture of process of change would be ideal.

Question: Are the electric systems of different countries in South America interconnected? If so, how is trade handled between countries and if not, are there any plans to interconnect them to expand trade?

Response: There is an energy integration process taking place along with deregulation and privatization. There are interconnections only between Argentina and Brazil through common plants on the borders. But those are not really system interconnections. We are still far from having an independent operator working on a many-country level.

Question: What changes would you recommend in the UK to break up the rigidity of the market and open up choice?

Response: They must decide on a metering and settlement agreement that really works and that opens up the market. They need more open regulation so that all stakeholders can participate. There is the issue of how to regulate a central grid company. I wonder if we could start a forum for an international comparison of different parts of the transmission grid.

Question: How did the ice storm in the Northeast affect restructuring?

Response: The ice storm had a more profound effect in Quebec than in Ontario. Quebec has a very low-cost system, but what has been proven is that there is a tradeoff between cost and reliability that had not been previously understood. The sociopolitical context of Hydro Quebec is different than any other utility in North America. It is considered by the Francophone population of Quebec to be a symbol of Francophone achievement. So until now, arguments about competition and privatization have been treated as an Anglo conspiracy. During the storm, we saw discussion of moving towards a more decentralized power system being treated seriously for the first time. So change may come out of this. The Ontario situation was not as grave.

Question: Why did the Alberta political situation allow for the pool and the market to evolve there well in advance of most of the other Canadian provinces? And have some of the anomalies, such as price fights of $1000 a megawatt hour in the Alberta pool this past summer, led to any modifications in the way the pool is structured?

Response: The big difference between Alberta and the rest of Canada, with the exception of Newfoundland and Prince Edward Island, is that Alberta always had private generators. And the market there was always split between three major vertically integrated utilities, two of which were private, one of which was public. So there was already a greater diversification of interests. Alberta also had a complex and inefficient electricity price averaging scheme for the whole country on the theory that Albertans were entitled to prices that were equalized regardless of their location. This eventually cried out for solutions and drove that transition in that market. And those conditions don't apply elsewhere. Alberta has had a lot of volatility. They have a huge resource of gas underground and up until now haven't been using much of that for power generation. A lot of capacity is now being undertaken, particularly industrial co-generation. So that should help level out those bumps.

Question: What, if any, discussion has ensued about firm rights, either physical or financial, and how existing agreements have been managed?

Response: Implicit in the British model, the notion of the same price everywhere and the system operator spreading the cost around through an uplift, is that everybody has a firm transmission right. In New Zealand, hedging is the issue. They have locational prices, so there is always a physical right. It is the same thing in Australia, where you are going between the two markets. The way to provide a firm right is provide a hedge against the price difference, and that doesn't exist there now within the pool.

Question: Who runs the hedging process? Is that done by the grid or an independent agency?

Response: What was developing in Australia was that private traders were coming up and offering a hedge. But then it is just insurance, and a hard risk to diversify since everybody pays at the same time. So the people who were offering that took a heavy hit when all the houses burned down at the same time. They haven't solved the problem in those countries.

Response: Congestion is dealt with differently in Norway and in Sweden. We are currently discussing this. Transmission pricing is an issue that comes up again and again. Hopefully, there will be reforms this year.

Response: In South American countries, there were state-owned companies that usually overinvested in transmission. The transmission pricing arrangement has a conceptual basis that may not include the idea of firm transmission payments, since you pay for your impact on the grid irrespective of the contract. The question becomes which approach you use for system expansion. Chile has used a market approach. Argentina has used a systems approach in which a majority would have to agree on expanding and building new lines. The idea has also come up of imposing quality standards on transmission companies.

Response: In Canada, the issue has arisen

most with the utilities seeking power marketer certificates through the FERC. FERC is in this way a more effective regulator of many provincial utilities than anything that is in place. Quebec and British Columbia both have posted firm tariffs. They are calculated in bizarre ways, but it is the beginning of a discussion.

Question: What about rates of return?
Response: On the generation side in Australia, people who bought generating plants are losing money. Where competition exists, the rate of return is fairly low. Where competition doesn't work very well, regulation has not succeeded in avoiding very high rates of return.

Response: Norway has created income caps, which are the average of operating and maintenance cost, losses and depreciation and one fixed rate of return on capital. This is connected to a bond rate, for controlled income and rate of return. To ensure that we have no fat cats, we have lower and higher limits on this. About 15 percent is the most they can earn.

Response: In Argentina, fierce competition has made the generation business very risky. In Chile, rates of return have been 6-8 percent for generation. We have been less happy on rates of return in the distribution business, with rates of return of 12, 13, 20, 25 percent. We are working on how to improve benchmark regulation so as to really make these companies efficient, reduce tariffs and make rates of return reasonable.

Question: What is the appropriate level of market concentration?

Response: A major concern for Sweden is bringing in competition when they have two very large generators. But market power is currently not at the top of our agenda. I am afraid of the current system being misused to create benefits.

Response: Countries in South America have tried to curb market power. Most regulations have restrictions on cross-ownership between generation, transmission and distribution. Argentina restricts any private owner from controlling more than 10 percent of generation. In Chile, nothing like that was defined in the law, and some market power has developed. Economies all over South America are discussing the economies of scope and scale that would give advantages to larger companies. But market power can arise, as in the Colombian system, because of location. It is not clear how to handle some of these problems, particularly these locational problems.

Response: In the Ontario situation, our only hope is interconnects, although that would only help with market power in mid-dispatch and low- frequency dispatch. At the bottom end of the market, it looks hopeless. The existing interconnects represent potentially 20 percent of the peak, depending on the configuration of the transmission system. Hopefully, that will apply pressure.

Question: How are the Victoria hedging financial contracts any different from gambling?

Response: Presumably, you can always offer a financial instrument. The problem is that the way banks are doing it, if they are not backed by the congestion rental that's connected by the grid, then they are little more than a form of insurance. You could deal with inter-regional hedging by trying to diversify risks, but the only way to keep it from being pure speculation is to have the congestion contracts or inter-regional hedges

backed by the money that comes out of the settlement system.

Question: What are the experiences internationally as to how the lines have been drawn in the area of market monitoring in terms of what is okay and what isn't?

Response: An important aspect is educating customers as to what to look for. When they're not seeing these gains, they should have some sort of association or platform through which they can pass this message on. New actors—brokers and others—will soon reveal market failures or barriers. There needs to be a forum where they can raise this issue and close connections with stakeholders and organizations that can remove some of these barriers.

Question: What about a specific generator that has locational market power? That is, during some hours, if that generator is not running, the lights will go out.

Response: The only practical thing is to have a contract with that generator. Victoria and New Zealand have system operating contracts in case power is needed at a specific location. In the UK, while generation itself is unregulated, generators have a license obligation to provide ancillary services at reasonable cost. There need to be conditions that if the operator needs something from you, you have an obligation to negotiate with him in good faith to provide it on reasonable terms.

Response: In Norway, there will be a mandate in the license to deliver if you are asked to and are able. If you do not deliver, there will be an investigation and, if you are trying to manipulate the market, a penalty. We are having a dialogue with generators and transmission owners as to having such a system on a voluntary basis.

Session II: Retail Restructuring: Old Issues in New Guise

As California, Pennsylvania, and other states forge ahead in the restructuring of the retail power market, the debates sharpen. One issue that has eclipsed others in recent days in California, and another, which has captured intense interest in Pennsylvania, merit examination. First, what limitations, if any, should be placed on affiliate transactions, use of incumbents' "brand names," or other such practices that arguably might bias the outcomes in retail markets in a particular direction? Are there lessons to be learned from other industries (e.g., telecommunications, natural gas) that might shed light on this emerging debate? Second, the battle over securitization and the right to market energy to retail consumers has raised considerable controversy. Beyond the specifics of the actions in the Keystone state, the conceptual issues raised are significant. Is the revenue stream from stranded asset recovery of greater value to some market participants than to others? If so, should the rights to receive such revenues be put out to competitive tender? In short, are there ways that the costs of stranded asset recovery and securitization can be reduced by the discipline of market forces? Is this the resurgence of the old idea of franchise competition?

Speaker One

The context is the Pennsylvania law for retail access and unbundling of electric services in Pennsylvania. Under Pennsylvania law, the only way the PUC could get an initial rate reduction was if Philadelphia Electric (PECO) agreed to it. PECO's proposal was for an initial 7 percent rate reduction, which can kill competition for a long time. With a high competition transition charge (CTC) and a high transmission and distribution charge (TDC), you have to have a small energy credit (ECC)—theirs was 2.8 cents. PECO got everybody to sign on except the power marketers, and it looked like a done deal.

Then Enron came up with its own plan. It proposed to take over everything that PECO now does, to step into PECO's shoes. It would use PECO's assets, personnel and management, and do it with a series of contracts with them. Instead of 7 percent, Enron offered a 14 percent rate reduction. And Enron coupled this with a multi-million dollar ad campaign characterizing PECO as the evil, greedy, lying utility. PECO responded with ads saying, Don't trust these damn Texans, we're your fellow Pennsylvanians.

Enron had the same TDC, but a higher initial ECC, mainly because it reallocated the CTC, starting with 1.37 instead of PECO's 3.04. But over a ten year period, PECO's 3.04 would have gone 3.04, 3.14, 3.14, 2.96, down to about 2.68. With Enron's temporal reallocation of the CTC, it would start at 1.37, leaving a lot more room for competition in the ECC but increasing every year to 3.68 cents, well above

PECO's in the out years.

One way of looking at this case is that Enron lost. The only point on which the PUC was unanimous was to not accept Enron's plan. But by a three to two margin, on all other issues the PUC accepted the PECO plan, but with a few changes: The CTC goes from 3.04 to 2.43 and the TDC from 3.11 to 2.93. PECO had put all of its overhead costs into the TDC, and the PUC took some of that out because they thought it was appropriately allocable to the energy side of their operations. There was now not a rate cap. But the PUC predicted, quite plausibly, that under its plan there would be a 15 percent price reduction.

Is it accidental that the PUC predicted that its price reduction would be 15 percent, 1 percent greater than Enron's and twice? They have a massive ECC. This was one of the most brilliant victories ever. Enron had no expectation that it would win in the sense of having its plan adopted.

The PUC adjusted the CTC first by making some adjustments to stranded costs. PECO had claimed stranded costs of $7.5 billion, and claimed that through use of its proposed CTC it would be able to recover $5.146 billion. But the PUC found that it had only incurred stranded costs of $5.024 billion. PECO estimated the market value of its generating assets given its predicted future market price of electricity at $1.865 billion; the PUC said it was $3.96 billion.

The PUC made two other adjustments to the CTC. PECO said cost of capital for the unamortized balance of its stranded costs was 9.52 percent. The PUC said that once it approved this plan whereby PECO was assured of recovery of all stranded costs, the risk goes way down, so the actual cost of that capital will be only 7.47 percent. PECO had projected no growth in sales for purposes of the CTC, but did project sales over the same period for many other purposes. The PUC required them to recalculate their CTC on the assumption of a 0.8 percent per year growth rate in sales.

One way of thinking about this is that Enron was initiating a bidding contest to perform the provider of last resort (PLR) role. This doesn't work. Enron was not trying to get the PLR role on a stand-alone basis. PECO wanted the PLR role, but only as part of a broader strategy. This was, in PECO's case, about using the PLR role as part of an overall strategy to stave off competition and maximize recovery of stranded costs. For Enron, it was about keeping PECO from being successful in fulfilling that strategy.

Ways of dealing with the PLR role include letting the incumbent fill the role. The PECO case illustrates the problem with that. The incumbent has an incentive and often an ability to manipulate the restructuring plan in such a way that it can use the PLR role to keep competition from taking place. Another possibility is auctioning the PLR role to the lowest bidder. But what is a provider of last resort in a competitive market? It has no place in a competitive market. Nobody has a problem buying bread or toothpaste. So we don't want to have an auction in

which we wind up getting the best competitor as the PLR, because that kills competition.

A third option is to authorize the power exchange to perform the role. That is a mistake. The PX is a market maker, not a market participant. Prices on the PX are likely to be highly volatile, and most consumers are not going to want to buy on an un-intermediated basis from a highly volatile market. I like the approach of the environmentalists—to get rid of the role and allocate the people who don't choose to all other suppliers. But our goal should be to get rid of this role as fast as we can.

What this case was really about was an old economic concept called "You slice, I choose." How do you induce people to be fair in valuing and dividing up assets among co-owners? At the service academies, eight people sit at a table and an uncut cake is brought over. The person who cuts first, takes last. This induces a real concentration on fairness.

Enron used this very effectively in this war with PECO. Enron said, we'll enter into a power purchase contract with you at your proposed ECC and resell it to your customers. PECO said, that's way too low. Enron responds, you sliced, I'm choosing. You came up with this allocation plan. Even more telling, Enron says, You say that with your CTC you will recover $5.416 billion. Instead of filing comments explaining how that won't be true, we'll pay you $5.416 billion. And we'll issue transition bonds and will recover using our lower CTC. PECO says, if you allow Enron to do that, they will make $1 billion immediately by reselling that bond. Enron's response is, You sliced, I chose.

Coming in with a proposed doubling of the rate reduction got the consumer groups and the populace aroused and changed the political environment. With the two uses of you slice, I choose, the effects on PECO were devastating.

Speaker Two

There is concern about the potential for incumbent utilities to raise barriers to entry by favoring their own affiliates and disadvantaging others, and to extend utility logos and brand names to affiliates.

Free market economists see branding and logos and trademark usage as hard-won gains, assets that come about from superior performance. "Creation of brand equity" is the current term. This group sees branding as either neutral or pro-competitive. The industrial organization people see branding as an impediment to market entry, as raising prices, and as perpetuating a meritless dominance by incumbents. Marketers unequivocally celebrate branding.

Two related subjects are diversification and PUCs, and why regulators tend to prefer structural separation rather than accounting safeguards. With respect to the former, in the 1980s and early 1990s, PUCs acquiesced to the idea that utilities could diversify into both germane and non-germane activities. But PUCs

were concerned about risk shifting and cost shifting. The result was that corporations sold off subsidiaries.

On the matter of structural versus accounting separation, the arguments for structural separation are that it reduces the likelihood of cross-subsidization and anti-competitive behavior; makes for easier identification of cost allocations, revenues, plant investments, and various services; allows easier enforcement of arms-length transaction rules; provides easier control of information flows; and results in a more competitive environment overall. The downside is that it hinders the realization of economies of scale and scope.

In the telephone industry, branding has been a prominent and very contentious issue. An issue is, when they go to repair someone's telephone service, who do they say they represent? The two categories of problems are operator and directory assistance service; and direct customer services. Should they brand, unbrand, or not say anything?

State commissions have come down in different ways. Vermont and New Hampshire have taken a strict line and required NYNEX to unbrand all their services. New York decided that unbranding is undesirable, leading to customer confusion. Michigan said unbranding would violate the FCC rules. Kentucky requires Bell South to unbrand or rebrand services. Ohio has said it will take things case by case. Colorado and Montana do not require branding vehicles or employees. But they do require that employees tell the customer that they are appearing on behalf of a competitive carrier. Florida requires unbranded information, such as generic repair slips with a space to write in who you represent. Missouri and Texas allow Southwestern Bell employees to identify themselves, but require that they say for which company they are doing business and leave generic documentation.

In natural gas, allowing branding is very common. I can only find two states that do not allow it—New York and Wisconsin. Standards of conduct are almost always employed. Pennsylvania has an interim code of conduct that requires complete separation—no staff sharing, joint marketing, or dealing on inside information. But marketers are still complaining. Maryland issued a generic code of conduct prohibiting some joint management and shifting of employees, but there was no structural separation. They believed that there were economies of scale and scope that ought not to be injured with too many constraints on the incumbents. They announced that complaint systems were to be set up with reporting directly to the PUC. And they reminded the companies that if there was misbehavior by way of a pattern of violations, the commission would move toward divestiture of affiliates. Marketers seem to be satisfied with these arrangements.

Massachusetts created a code of conduct using a collaborative of all the interested parties, and drew on the Ontario Energy Board experience. They said this was tentative and would

be revisited. They instructed that Boston Gas marketers say they are an affiliate of Boston Gas but not that they are Boston Gas—a fine line. Other marketers are suspicious about the workability of this separation. Ohio has employed a standards of conduct, requiring new complaint procedures and saying that it will look to the Attorney General for participation and, in the enforcement process, to the fair trade and antitrust laws. New Jersey requires only accounting separation of unregulated affiliates in their pilot programs.

In a recent case, New York got at the employee revolving door problem by disallowing transfers for more than 18 months at a time. It also ordered a royalty feature for gas customers to compensate them, in the form of a ratemaking credit, for the affiliate's use of the name, logo, reputation, and expertise of the company.

Turning to the electric industry, numerous commissions are devising codes of conduct for use in restructuring. They probably got their start in FERC Order 889. New Jersey and Pennsylvania are using working groups and collaboratives, and completed an agreement with ConEdison. The royalty was set as two percent of the capital investment in the affiliate for use of the logo.

There has been a nine-month California rulemaking, just completed, to establish standards of conduct for relationships between energy utilities and their affiliates. The outcome was fairly strict, with a middle position with respect to branding. The tone of the order conveyed a great seriousness about these matters.

This is a time of very immature markets for competitive utility service, and we ought to err on the side of strictness in dealing with incumbent utilities, that is, employ the full range of prohibitions and constraints on the incumbents in dealing with their affiliates. Branding transfers should be prohibited for several years, perhaps five. There should be a prohibition on strategic transfers of utility personnel. Structural separation should be chosen as the better arrangement for consumer protection, and access to records should be complete. Prompt and effective complaint procedures should be established, with early involvement of the commission, and notification, if serious enough, to the Attorney General. Monetary and divestment penalties should be available.

Why take such a strict stance? The arguments against intervention with respect to branding and conduct are exaggerated. We are restructuring an entire industry, the stakes are high, and a badly done market structure will be hurtful for a long time. In trying to bring about local competition to local telephone and, to a lesser extent, natural gas, we vastly underestimated the power and the will of incumbents to resist and frustrate change. Public policy has been generous with the incumbent utilities, with substantial concessions like transition cost recovery. Commissions have the task of inducing competition, and consistent with that task is to make the hard calls in favor of strictness on lowering barriers to entry and

minimizing anti-competitive behavior. Managed competition is neither an oxymoron nor a bad term.

Speaker Three

California didn't come off on January 1 as planned because of computer issues, but the 10 percent rate reduction for residential and small commercial customers has begun. More than 9,000 customers, and probably more by now, have signed up to change their energy providers. We have over 100 energy service providers. The potential for new investment in California is substantial. By replacing the present generation, there will be a 40 percent increase in energy efficiency and in emissions reductions.

It is inevitable that all states will participate in this process. There should be benefits to consumers if an arrangement is worked out with the companies to share some of their profits.

Having an ISO will assure people that they are getting equal access and not being treated as second class citizens. We looked at transcos initially, but found that it would take four or five years. But it is appealing and will presumably come to pass at some point. The PX ensures that the utility doesn't make special deals with the larger customers at lower rates. It is a sort of insurance policy that gives a cash market immediately, so that everyone can look in the newspaper in the morning and know what the wholesale price of electricity is. The PX and ISO were originally one entity, and the large industrial customers were concerned that the ISO and the pricing would get intertwined and they would be second-class citizens. So the final version split the two functions.

The perception is that if the utility controls metering and billing, there will be concern about whether they get equal treatment as far as service requests and such. I am enamored with virtual direct access, where the customer stays with the utility, gets a realtime meter, and sees if he can decrease his bill by taking advantage of the lower rates in off-peak periods. The reality of the situation is that the meter available to commercial and industrial customers costs almost $2,000. But a year from now, meters may cost under $200.

The vote on the California order on codes of conduct was 4-1. The main issue was whether the utility affiliate should be able to sell in the utility service territory without any restrictions and be able to use the name, logo and goodwill of the utility affiliate. The PUC allowed the utilities to sell in their own service territories, but with monthly reporting of the number of transactions and the volume of sales for the affiliates as compared to the non-affiliated companies. We are getting those numbers now, and I don't believe they are healthy. With three or four large customers, a utility's numbers get large quickly.

California's gas strategy, just published, raises a few market power issues not dealt with in electricity, including those related to combination companies that sell gas and electricity.

It was recommended that the combination companies divest themselves of all generation, including nuclear and hydro, on the theory that if they can control gas prices in any way, they could escalate the PX price, and the delta between nuclear and hydro in the PX price would be a benefit to the utility.

Another question is whether a combination distribution company should divest its electricity if it is a gas company because of the competition between gas and electric being diminished by a combination company.
The urgency in resolving this is that gas companies will be able to sell electricity in California on March 31, but electricity companies cannot sell gas.

This raises the issue of whether California should have an ISO, since pipelines around the state are controlled by two major companies, and there have been market power issues for years. There is also the question of whether there needs to be an independent procurement officer for the utilities to buy gas or whether there should be a PX. If we have an hourly electricity market, there will be people selling gas to track electricity for those customers who have the option of switching back and forth in short intervals. This may not happen, but we need to think about it. Convergence is the name of the game, and we need to figure this out quickly or we will have residual problems with electric restructuring.
The California PUC issued an order recently that allows a developer to build its own distribution services after the company bids. Otherwise, the utility can bid on doing it all, then the developer can decide whether he wants the utility to do it or whether he should go out and do it himself. That is another situation that opens the market up to competitors on the distribution side.

Discussion

Question: In terms of auctioning, you could try to value the brands and auction them, or set a price for purposes of standard asset recovery. I am wondering why this has not been done.

Response: This is an intriguing idea, but a few questions come to mind. I am not sure how an auction of that type would be structured and, perhaps related, I would think that the presently vertically integrated utility would want to retain the value of its brand name and logo in its continuing capacity as the provider of the distribution services.

Response: I am aware of a situation in which a company was going to sell its brand name, and the buyer would have exclusive use of it. They estimated they would make millions on the sale.

Question: If the brand name carries an inordinate amount of market power, doesn't selling it mean that the problem remains?

Response: This idea wouldn't necessarily fix the market power problem. There is a value associated with many things that we are requiring

people to sell off or value. I wonder why we don't treat this like Nabisco, which sells various brands, and a completely different entity starts to sell the product.

Response: One of the differences is that name and logo were never part of utility property. But now they are associated with the utility.

Response: A whole series of decisions says that you cannot capitalize good will. This is not too different from the New York case where a royalty is charged back as a ratemaking credit when an affiliate is allowed to use the logo. The idea that you could sell the logo to someone that isn't your affiliate if it was that valuable is in that tradition of a royalty payment.

Comment: The important point is capturing that value for whomever generated it. That hasn't been part of utility rates, but it didn't particularly have a value when there was no competition. The real issue is whether regulatory commissions should recognize something in the nature of a value. It has been attempted to be captured as a royalty for marketing purposes by affiliates. I think that is a reasonable thing for it to do. It does not address the market distortions, but at least compensates for the value.

Comment: Regulators think they know what is best for consumers. When are we going to recognize that when we go to markets, customers have choices and ought to be allowed to make them? If someone is the lowest-cost provider in the marketplace and they happen to have a familiar name, is that a bad thing for the consumers if they're getting what they want? Price is what will ultimately drive consumer choice.

Comment: The question is whether the continuation of a brand name impedes the development of a competitive market by confusing customers or serving as a market barrier to new entrants.

Comment: It takes time for markets to develop. In telephone, there is competition occurring on the local level. But there should have never been an expectation that there would be huge competition within two years.

Comment: At the end of the day, the question is whether you trust markets or not. If you do, you'll get out of the way and let consumers make choices.

Question: Public power companies have issues with respect to their merchant activities and their regulated or infrastructure activities. Who is going to police cross-subsidy, self-dealing and market power?

Response: They have been given too much of a free ride in most of these reform debates on pricing.

Question: In the PECO case, the PUC had suggested that the PX might fulfill the role of supplier of last resort. Does the idea of customers buying on the spot market rather than having the PLR role merit discussion?

Response: The only people who are going to be buying power from the PLR are those who don't choose. They will be fairly unsophisticated.

Response: The PLR concept was an important part of the Massachusetts legislation. Legislators wanted a place for small customers to ease into the market. There was a standard offer for a period of time with a 10 percent rate reduction, but the utility had an auction so wholesale suppliers would bid in to supply that power.

Comment: In telecommunications, the principal role of the PLR was to take care of people who wouldn't make a choice.

Comment: Also, there were substantial rural areas which many of the long-distance carriers had no intention of serving.

Comment: I fully believe that we should trust the market. But this is a dual-state entity, both regulated and unregulated. If we want to rely on the market, the best way is divestiture.

Comment: That was supposed to happen in telecomm. Divestiture is an easy regulatory answer, but doesn't take into account what the customers want. The line between regulated and unregulated keeps moving. We have to accept that we are in a transitional market. We have to let the regulators go, and the regulators have to let go, including brand name.

Response: The paradox here is that rather than letting go, you are implementing an elaborate scheme to keep track of this mixed entity, so that you don't have the cross-subsidies and the market power abuse. This won't work; the regulators won't be able to enforce it.

Question: Should a generating company that buys gas have to divest? What about a large power marketer that owns a lot of gas contracts, and acquires generation, including nuclear?

Response: The Attorney General's office in the state or the Department of Justice would be knowledgeable and would probably look at it.

Comment: We can't be as laissez-faire as some might want because there are multi-level marketing schemes.

Question: The affiliate rules have been cast in terms of dealing with market power. But in a situation like California's, once the utility distribution company has divested its generation, has to buy and sell into the PX, and has an ISO regulating transmission, where is the market power that we're trying to protect against?

Response: There is a cross-subsidy issue, taking costs that could be allocated to the utility and allocating it to the non-utility.

Comment: We need to be careful about ferreting out market power. Consumers wouldn't benefit from, for example, breaking up Intel, even if they have 90 percent of the market. I would rather see more of a focus on consumer welfare and putting in place those elements that will allow customer choice.

Response: There has been enormous staying power in the cereal and

tobacco industries. A lot of that had to do with brand names and anti-competitive behaviors.

Comment: It seems that the difference between the incumbent utility's name and a marketer's name is that customers perceive that the incumbent utilities are going to stay around and that the marketers aren't.

Comment: Many logos are important to the regulated utilities because they provide the customer with the security that PUC is policing the utility and adjudicating disputes. If that logo is sold, it is misleading to the customer. On the question of 'trusting the market,' 'market' is a vague phrase, a social and political arrangement for conducting economic transactions that might be constructive and might be destructive. Our job is to try to separate the two.

Comment: My understanding is that the importance of brand names relates to how successful you are in separating regulated business from unregulated business, mostly at the distribution level. The concern in South America is on the other end—markets do not work if you have only one supplier and one demander. Monopsony is also a danger. In Chile, one distribution company has about 60 percent of the market. And in the future, there will be companies that sell everything—electric, gas, water, telephone.

Response: It was decided in the 1940s to break up combination energy companies. This was a major policy change. The re-aggregation of combination companies is dangerous. There should be some social redeeming features to it—long-run average cost curve should behave in particular ways, etc. But these aren't there.

Question: Do you have a sense about what kind of convergence might occur and how you judge whether there is too much market power on a national basis?

Response: I would say that five equal-size firms is safe. I think there is going to be a lot of consolidation. Convergence poses a risk only when there is no competition.

Question: Is this presuming open access?

Response: If one marketing company can sell everything, the only way they can make money is on resale. If these discounts are not significant, they all fail. That is what happened in telephone. So you have to distinguish between facilities-based competitors and non-facilities-based competitors. In telecomm, we need to finish unbundling and get the prices right.

Comment: Branding will be less of an issue where there is a large group of consumers who are choosing to choose. Perhaps we're getting to branding and codes of conduct issue before we have maximized the opportunities to choose.

Comment: Both generation and metering and billing are technology businesses. Over time, technology industries tend to end up with one dominant competitor or, at most, two

or three. In electricity, we will probably end up with this kind of paradigm.

Comment: This has happened in every other industry worldwide—trucking, rail, airlines. For example, there are four dominant, national carriers in the U.S. in the airline industry. We should all step back and wonder why we are so concerned about consolidation in this industry that has occurred in every other industry in the U.S.

Response: We never had a debate over whether we are comfortable with this result.

Comment: Some of us have not made the decision to go the deregulation route. Some of us don't think this is the way to go and don't see any way that we can do it and not get hurt.

Comment: There is a Minnesota Supreme Court case that says that royalties and brand names belong to the company; the ratepayer bought electricity and that is what they got. This was a gas company case litigated about five years ago.

The transaction costs of all of this are very high. If you add them up, they may take over whatever efficiencies existed originally.

Session Three: Market Monitoring: Knowing Where to Look, or Looking Under the Lamppost?

Recent discussions of the Harvard Electricity Policy Group raised questions regarding market monitoring such as:

- *What criteria and standards should we invoke?*
- *What evaluative measurements will be needed?*
- *How should the measurements be used?*

The results produced a consensus that identification and reporting of appropriate monitoring data would be important activities in the newly restructured market. There was, by comparison, little guidance on precisely what information should be collected and what analytical needs should drive the definition and criteria. The independent system operators and other parties now face responsibility for carrying these general concerns into concrete programs for market monitoring.

Speaker One

In looking at market power, you have to set some threshold, decide where the bandwidth is. In England, the bandwidth was set very wide. I don't want the bandwidth in California to be too narrow, because then we will have tight regulation and no market. The ISO will rely heavily on a market surveillance committee and will look at the experiences of other markets.

What are we concerned with? The

presumption is that if there is market power, people will be able to bid high and to sustain some economic rank. We are worried about gaming, things people can do to get the price higher and get the benefit of that higher price. One way is withholding infra-marginal capacity. Another is creating congestion by affecting transfer capability of the system. Finally, gaming in the ancillary services and in balance energy markets because of the fact that the rules are not perfect.

How are we going to look for these things? We will look at the hourly market clearing prices, both in the ancillary service and congestion markets, and ask, "What's anomalous?" You look for things that look funny, like a blip or that the general level appears high relative to similar conditions in terms of load generation, availability, fuel price, etc. Do we see normal, competitive behavior? If things don't look right, we start investigating in detail potential market abuse and closely scrutinize participants' activities as to bidding behavior of a particular entity, whether holding back infra-marginal units, etc.

We look at who were the price setting bidders, patterns of bidding and strategies, comparing bids to operating costs. The market monitoring protocols give enormous power to go to any market competitor and ask for their data. We have to find the right balance so that we can do our job without overly imposing on the rights of competitors. The balance has not yet been struck.

Market share is something to look at, and unit availability. There is an enormous amount of data in the public domain about the units' fixed costs, variable costs, availabilities, etc., since many of these units have been around and were regulated. So we have a starting point. We will look at what is going on with the congestion auction, whether someone is playing a game, and whether we are seeing excessive and/or persistent imbalance problems.
What kinds of things can we do? They fall into two categories. First, we can make generic adjustments to the rules. Second, we can go after a particular participant, imposing a bid cap or a bid floor. There are sanctions and fines, but FERC has said that it must approve the appropriateness of sanctions. We can also report to regulatory agencies, the Department of Justice or FERC. The ISO is effectively performing a screening process. Where participants feel that the rules don't foster efficiency or equity, I expect that the rules, whether tariffs or protocols, will evolve over time.

We will hopefully be able to stop egregious behavior while also leaving a wide enough bandwidth that the market can really be a market.

Speaker Two

It is important to recognize that we have made a choice that competition is better than regulation. Regulation has significant hidden costs, in the form of inefficient price signals, the misallocation of resources, disincentives to innovate, and inadequate incentives to reduce costs. We need to provide the incentives to allow that technological innovation to

work its way into our industry.

Markets don't spring out of nowhere. When going from a regulated to a deregulated industry, the first thing is to decide on a structure. We have been regulating electric prices for so long that we have to sometimes step back and change our thinking and be willing to take some leaps of faith.

In focusing on structure, one of the centerpieces has become the ISO. The PJM ISO is being drawn slowly into the role of performing a quasi-monitoring function in the retail markets. There has also been a recent turn in FERC policy as a result of the California restructuring wherein the California utilities suggested that the ISO perform a role in monitoring the markets.

There is a difference between the electric industry and other industries, like natural gas, that have gone through similar restructurings. In the others, the primary regulation falls to the anti-trust laws. We have taken a different road in electricity. In the late 1980s, FERC started getting applications for market-based rates from independent power producers. It started to develop a standardized process for reviewing those applications, called a Tier One analysis. It looked at all of the entities directly interconnected with the vertically integrated utility, treated each as a geographic market, and then looked at two segments—total generating capacity and surplus-installed capacity (the amount of capacity above that required to serve its native load). Below 20% market share, FERC left them alone, above 20% FERC took a harder look.

In 1994, FERC took another important step. In a case involving Kansas City Power & Light Company's application for market-based rates for an affiliate IPP, FERC said it didn't think there was a generation market power problem for new generating units. It saw significant evidence of ease of new entry, so no longer required new IPPs to make a showing of no generation market power in order to get market-based rates. They reaffirmed that decision in Order 888, and that is currently the law at FERC.

Once FERC approved market-based rates for an applicant, regulation of that applicant was light-handed. FERC required the company to file a code of conduct designed to prevent affiliate abuse. It required it to demonstrate after three years that there had not been a structural change in the market that would lead FERC to conclude it did not have market power. And it required all sellers with market-based pricing authority to file quarterly reports of their transactions after the fact.

Just before FERC issued Order 888, it agreed to take a closer look at transmission. FERC also initiated an inquiry on its merger policy. Prior to Order 888, the necessary requirement to get a merger approved was the filing of an open access tariff. Since 888 was issued, merger applications have involved a searching analysis of generation market power.

In the California restructuring,

generation market power was a critical issue from the start. There was a lot of discussion of potential divestiture. When the utilities filed applications to restructure the market, they included a request for market-based rates and extensive market power analyses. Among the most complicated issues was transmission and the problem of must-run generation. FERC saw a potential market power problem and took a harder look at structure, and said it would rely on market power monitoring and mitigation in order to get over the hump. That was a watershed decision: FERC said it would regulate behavior in order to control the market because of its discomfort with market power.

The ISO and the utilities created a market power monitoring and mitigation proposal and filed it with FERC, which has conditionally approved it. The elements FERC approved included an express approval of the comparison of bids with marginal costs, an analysis of unit availability over time, and the detection of the creation of transmission constraints. FERC said it wanted the ISO to monitor day-to-day behavior, but also to evaluate market structure. FERC approved in principle the idea of sanctions and penalties. And it said it expected the ISO to collect data.

A similar process was going on at the same time with NEPOOL. NEPOOL sponsored a market power mitigation proposal that was narrowly tailored to deal with the situation of transmission constraint. It gave the ISO limited authority to step in. The New England Conference of Public Utility Commissioners opposed the filing, saying it felt a behavioral analysis of bidding strategies was needed. After negotiation, there was a far more pervasive market power monitoring and mitigation proposal that did away with the limitation on constraint conditions.

So FERC was going down a road leading towards fairly deregulated prices, took a turn in the California decision, and now there is ISO monitoring and mitigation. What happened? We created ISOs both to help solve a vertical market power problem and as a vehicle to help create regional markets. But they became a repository for other responsibilities that regulators no longer wanted to undertake or felt were inappropriate in a competitive market. The closer focus on generation market power uncovered serious problems involving transmission constraints that FERC either had not understood earlier or was willing to ignore in approving market-based rates. We started to take a harder look at load pockets and segmentation of the market geographically because of transmission constraints, and we started to look at the supply curve more closely. There was a dynamic in which there was no one in the negotiations to stand up and argue that this was a bad idea. In California and New England, the negotiators had already agreed to divest their generation.

There are concerns about this. We are now regulating with private entities rather than the government. The law disfavors the delegation of regulatory

authority by the government to private entities. Who is going to be the regulator? FERC is run by five people chosen by the president, who is elected. That is not the case in the ISO. Ideological predilections will have a large role in what kind of regulation we see. And the people who do the market monitoring and mitigation, with new jobs, mortgages, a desire for success, will have an implicit incentive to find more problems.

Investigations by the ISO will be ongoing. Companies will hire lawyers, spend a lot of money, and will be inhibited in their market behavior. What conduct are we regulating? Egregious behavior will be easy to identify. But in a competitive market, people are always making judgments based on opportunity costs. You cannot use the historical regulatory concept of variable cost very easily in a competitive market. In most markets, people do, and should, price aggressively.

Penalties are a government function. We should be very careful about giving this authority to private entities. FERC's authority to sanction people for their prior conduct is fairly narrow. Does FERC have the legal authority to allow ISOs to impose sanctions that FERC cannot?

Some recommendations: We need monitoring and mitigation in must-run situations. If we know in advance of persistent and known transmission constraints that divide the market, the market analysis that justifies market-based rates has to include an evaluation of those constraints. Where unknown and random constraints take place, wait to see if market power problems arise. Finally, FERC must get back to market structure.

Speaker Three

I want to focus on the task of the market monitoring committees in deciding what constitutes appropriate competition. The word 'competition' has different meanings to businessmen and to economists writing in textbooks. We are looking for anomalous behavior. That assumes that there is something called normal competitive behavior. But there is no such thing, which creates the conflict we have.

Competition is largely a strategic game for the giants, molding the market to create the circumstances they want. The task is distinguishing the rights of people to participate in a market versus the rights of people to organize the market themselves. And second, to distinguish between dynamic rivalry that normally exists in any capitalistic system and the pursuit of monopoly power, which quite often is almost indistinguishable.

Economists have created a model for evaluating market performance, thereby helping to distinguish constructive and non-constructive behavior of market participants. In most of the economic literature, the rights tend to be defined as functional rights, rights that will facilitate the achievement of the desired result, which is efficiency and performance. If you ask an economist how to create efficient results, you would talk about

creating a structure equivalent to a commodity market.

This is not the standard used in the business literature. There, commoditization is a blasphemous term. In the business literature, markets are 'business ecosystems,' and firms are 'possessors of core competencies.'

Many of the economic policy debates take as a given that national policy ought to be designed to maximize social welfare, defined from the existing resource base. But they also take as accepted that unregulated monopoly power tends to cause social welfare to be smaller than it could be. This conclusion creates a paradox, that despite this hostility to monopoly power in this subset of literature, American public opinion and public policy are not universally opposed to unregulated monopoly power. The American anti-trust laws do not prohibit the possession of monopoly power. They only prohibit monopolization, which is normally considered an abuse of monopoly power. There are very few cases where the courts have declared any practice to be illegal per se. Horizontal price agreements are about it.

A large part of the American business community does possess substantial monopoly power. And a large part of business strategy is an attempt to gain more. One bestselling business author writes that the goal is not to become an industry leader, but to be a destroyer of the old one and the creator of a new one. I am struck by the arrogance of that. While the literature never argues that business wants monopolies, they all want to dominate their market. The goal of getting unregulated monopoly power is clear.

In most of the economics literature, governments are expected to play an important role in standardizing the language, contract terms, even creating standards for products so there can be efficient communication between buyers and sellers. In this business literature, government is evil and should not do this; the businessman should be able to change the terms whenever it is convenient for him.

This problem is not new. But the function of the market monitoring committees is absolutely critical. The principle that I have always found important is that the burden of proof should be on the person who wants to show that unregulated monopoly power is superior to competitive markets with no unregulated monopoly power. This is never the view in the business books, which say that this type of behavior promotes technological change and rapid economic growth. I would feel more comfortable with that if economists had a truly good model to describe this kind of behavior. But we don't.

Thus, there are quite conflicting views over what constitutes appropriate competitive behavior in the unregulated sector of the American economy, and as a consequence I would expect to see substantial conflicts over the appropriate roles of the market monitoring committees.

Discussion

Question: It seems to me that we will have an enormous number of financial transactions going on around the pool and the ISO that will not be known to it. How can somebody do an effective job of monitoring transactions, given that that is going on?

Response: The three strategies are micromanaging, trying to figure out every single strategy of every company; what happened in England, where the bandwidth was too wide in terms of establishing the rules; and the middle ground, where you do not try to track every transaction and figure it out, but are able to at least capture the more egregious activities.

Question: I am very concerned that with the potential for such close monitoring, the futures market won't develop because of fear of what the monitors may do. Is there something we can do to loosen this up?

Response: The FERC is the ultimate authority, and the authority of the ISO and the market monitoring committee are derivative. Can an ISO have more authority than the FERC can give it? I think in New England you might say yes, because of the peculiar contract between the ISO and NEPOOL, but elsewhere I think the answer is no.

Response: I am less concerned about California than New England, because they started off from a fundamentally different philosophy. California's was to let markets work and only in the last instance do command and control with the ISO, and that permeates all the rules. The other protection is the possibility of changing the rules or going after egregious behavior by a single market participant. In either case, FERC is the ultimate decisionmaker.

Comment: I was disappointed in the recommendation as to the regulatory treatment of must-run. I would have expected a recommendation that must-run unit owners earn large profits to induce technological innovation to get around the problem or maybe even the construction of a transmission line.

Response: A lot of these must-run problems involve situations that are not resolvable in the near term because they involve an innovation that is many years off or it is a matter of not being able to build alternatives. You are stifling innovation by not letting prices rise. But realistically, I don't see that happening.

Questions: There is a tremendous focus on physical delivery. But sophisticated players--those holding themselves up as middlemen to serve the unsophisticated players--are going to act with financial instruments to take the volatility out of what I pay for as a homeowner or small businessman. How does this get woven into the market function? At any given time, almost any generator can fall into must-run status. How will this be addressed in the real world?

Response: On the volatility, there are checks and balances. And there will be parties that will respond to customer desires to have a flatter cost curve generally. Some will be happy to take the volatility, but the customers I have

seen who were anticipating the market wanted that curve over a budget period. They want a flat cost curve, yet the nature of the market is volatile. That is the role of the scheduling coordinator in California, which will be the risk manager dealing with the translation of volatility to flat. In the future, I would be worried about development of monopoly power not through acquisition, but through competence, in the scheduling coordinator area, where generators will gravitate to the scheduling coordinator who will pay them more and energy service providers will gravitate to the scheduling coordinator who will have them pay less. I think we will start to shrink the numbers of scheduling coordinators who are then the ones who provide us information into the market.

Comment: The effects of the financial contracts side are not obvious. You can construct examples where the outside financial contract results in people exploiting market power, or not. It can go either way, depending on how it is structured.

Comment: As a clarification, the deregulation of natural gas was for the first sales only. FERC still has jurisdiction over sales for resale and interstate commerce in the natural gas area. In terms of looking for a penalty authority for violations of market power or for strategic behavior, I would suggest that you put all the rates into effect subject to refund. Then you can simply refund back to marginal cost if you detect market power. I have not seen the market monitoring committees as a huge delegation of power from FERC, but more as the kind of settlement conference that FERC often holds, in the location where the process is taking place. Hopefully, the industry participation has a balance with the correct tension to help design market rules, and some independent observers would help the process along. I don't think FERC is ready to delegate too much at this point. FERC hasn't let go, but wants regional players to be involved first.

Question: Might the ISO leverage the data it is sitting on, and might it be possible for others to help enforce market conditions in the ISO?

Response: The ISO does intend to try to figure out how to leverage the help of others. In order to maintain confidentiality, data will be aggregated, and the challenge is to aggregate the data in ways that will be meaningful for others to look at. I do expect that others will be able to do analyses using the data. There is an obligation for the ISO to report to FERC after three years on how the structure is working. Stakeholder involvement has been key in the California experience.

Comment: The idea is to make this self-policing and let people bring complaints to FERC. The debate is just starting over what data is proprietary, sensitive, for how long data is sensitive. It is an important debate. For example, we could see whether customers in the market, without revealing sensitive information, are getting taken advantage of, or even whether the computer algorithm was wrong.

Question: Is it possible to make the software public?

Response: It is not ours to make available at this point based on the contracts that we have with those vendors.

Question: Would you agree that the amount of market monitoring that should be required or tolerated is inversely proportional to the quality of the market? That is, the better and more efficient the market, the less monitoring would be required.

Response: No, I would prefer that we focus on structure upfront, and then let the market go, recognizing that we have some natural monopoly problems in this industry. We have to have some intervention, but an ongoing view of whether the market is working well is subjective and a matter of ideology.

Question: I am still wrestling with what we define as market power. What are the problems that require solutions?

Response: Market power is the ability to block entry of competitors who may or may not have better deals than you got. Alternatively stated, it is the ability to charge a price significantly higher than your marginal cost of production because of the discretion you have. After that, we get into more esoteric measures of monopoly power and how it is created. But barriers to entry are the principal dimension of it.
Response: But for the decisionmaker, that definition doesn't help, because it is qualitative and you ultimately have to look at things quantitatively.

Response: If you have a truly open access transmission system, you will be able to respond to those kinds of pricing movements because people will be able to enter a market and compete on a price level. But if everyone can bid into the pool, why are we worrying about prices going down?

Response: In California, the investor-owned utilities, because of the nature of the arrangement that exists in both the commission and legislation, have an incentive for prices to be low over the next four years. And if they were to control the bidding to put in predatory prices, that would exact a higher amount of funds from ultimate customers through the competitive transition charge. I would expect the incentives of market participants would be to try to get prices that are higher than an effectively competitive market, and we have to look at whether they are able, through whatever practice, to exhibit enough market power that they can go over some accepted standard of what is okay versus not okay.

Question: Do you have any guidance for the ISO?

Response: I would say being able to obtain ancillary, backup and balancing services, because these are the kinds of things that can be very difficult to provide and can only be provided efficiently through the ISO.

Comment: Not all of those services can only be provided by an ISO or PX.

In fact, markets will develop around providing a lot of these services, and the struggle is when will that emerge. I am concerned that we are building complex models to deal with particular concerns at this time, and not looking far enough down the road.

Response: With monopolist versus the market, it is not that there is only one way to get any particular thing, it is just that it is a lot more expensive. You can get software better than Windows 95 if you pay someone to write it from scratch, but that would be so expensive that no one would do it. Doing it through the ISO facilitates smaller people entering easily and getting balancing services without having to go to a big player.

Comment: The definition of market power as the ability to raise price above what it otherwise would be for some extended period of time misses some important concepts. Market power can also be raising market share to some level above what it otherwise would be. That may not impact price, but it impacts competitiveness and increases profitability for the company that can do it at the expense of the competitors who may not be able to get into the market. Maybe we should be talking about unfair trade practices.

Question: Will the ISO at some point operate the market for natural gas? What is the notion of the scope of essential facilities that you are concerned about?

Response: Decisions about electric are done on a regional basis, and have been done on an integrated planning basis by utilities. Looking to the longer-term future of California, somebody has to look at grid planning to say what makes the most sense in terms of the expansion of the transmission system. This is different in the gas area, where there is not the same kind of interplay between transmission and source location.

Comment: I understand the concern as that once the ISO starts down the road of trying to identify the improper exercise of market power, he may find himself looking deeper into things such as the use of gas transmission capacity to leverage market power in subtle ways.

Comment: Having to provide information is a disincentive to enter the market and a disincentive for market growth.

Comment: I agree that we need to get structure right and resist creeping re-regulation. But I'm not sure how a concern with market monitoring follows from that. We are running a grand experiment with five different regional markets, with somewhat different structures, and a lot of variations in characteristics. Trying to figure out how each of those markets is performing, so that several years down the road we will have data, is a good idea. But what to do with it undoubtedly will provoke a lot of debate.

Response: There is a distinction. When the Western system's power pool was set up, FERC said it wanted to hire someone to evaluate how it was working and recommend changes.

That is a form of monitoring, and I am in favor of it. But these market monitoring plans are about investigating individual behavior. They are literally ongoing antitrust investigations of people's pricing behavior. That is an inordinately difficult thing to do, and it threatens to undermine some of the basic behaviors that we are relying on to produce market results.

Question: If price is going above marginal costs, what does that signal? Does it signal that, at some point, there is a quasi-rent being earned? When you have all of this data, everybody will want to jump on any price differentials and say there is market power.

Response: We will have to be very cautious about what we call sustained prices and above long-run marginal costs where we would expect an entrant to start providing additional supply that would bring prices down.

Comment: The kind of entity most likely to succeed in recreating the ecosystem is the outsider. There are many that are unforeseen, that will come in and be even more successful because of the kinds of regulations that are being put into place to limit the players we know.

As to the dichotomy presented between commoditization and re-monopolization, there is also something in-between which is something like differentiation. In a monopoly, the customer gets plain vanilla at a high price. With commodity, the customer gets plain vanilla at a lower price. Then you look at differentiation, where the customer is getting a variety of products and services, probably better service. It may be at a higher price, but it is more choice for the customer.

Response: We all understand that in the real market, differentiation is important. While there is nothing in the logic itself which says that it is anti-competitive, it in fact has the consequence of changing the economies of scale necessary to enter.

Comment: We haven't stepped back and asked what consumers want. Regulators are highly disconnected from consumers. There is a danger that we are producing a system that, in the long run, may actually raise costs. Government has no business being involved with determining what kind of differentiation society should have. Americans enjoy differentiation. If there is an additional cost to society because General Motors doesn't make only black Cavaliers, that is their choice. They can choose to buy from someone who produces only black cars in the long run.

Comment: We worry that, on the day the market opens up, we will open the paper to find out that the hourly cost was $10,000 a megawatt hour from 2 to 3 yesterday. And you know it can't be that, so something is wrong. As to market monitoring, if you have that kind of problem, you will have to deal with it quickly because it is an aberration that means something is wrong with either the bidding systems, the protocols, or there is gaming.

Response: I endorse that. It is the big issues we need to worry about to start with.

Comment: Our objective was to try to gain the efficiencies of a competitive market in several different places -- not only in generation, but also transmission and distribution--and those efficiencies will be greater than the transaction cost. Time will tell whether we are right or wrong. I don't think we did it without considering the small customer. We feel that efficiencies will be gained and will be passed on to him through the power exchange and through the efficiencies of the distribution and transmission.