

**Harvard Electricity Policy Group
Twenty-Ninth Plenary Session**

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RAPPORTEUR'S SUMMARY*

Session One: Working to Make Working Markets

Markets cannot solve the problem of market design. The standard market design (SMD) tackles the challenge of describing the structure of institutions needed to support a competitive electricity market. The regional transmission organizations through their independent system operators carry primary responsibility for turning theory into practice. Developing and implementing everything from business protocols to coordination of spot markets, the system operators must deal with the complexity of using markets to maintain reliability and improve efficiency. How has the developing experience shaped and been shaped by the discussion of a standard market design? Where do we stand in merging large new areas, integrating dispatch and pricing? How have incentive worked to support investment? What is being done to address continuing problems of market power? Whither the RTO and electricity restructuring?

Speaker One

PJM began working on its market around 1992. The goals were to establish a working energy market that was transparent, incentive-based and participant-driven.

PJM has a few concerns about the FERC SMD, especially because it wants to go from 65,000 MW to 130,000 MW and after the merge with MISO, to 300,000 MW. Going to larger sizes and dealing with some of the SMD flexibility issues

offers substantial technological challenges. PJM's participants have indicated that their preference is going to the larger markets over some of the flexibility areas and issues. Stakeholders also want a continuation of the transparent market.

Hourly changes can create problems in conjunction with self-scheduling. Doing both opens up opportunities for gaming and creates market monitoring challenges in ways that you really don't have to. Another concern is the forward physical

*HEPG sessions are off the record. The Rapporteur's Summary captures the ideas of the session without identifying the speakers.

transmission reservation system. With OASIS and forward transmission scheduling, the ability to schedule across boundaries allows participants to schedule ahead and to determine how to move power from A to B. If you have a purely financial scheduling system, you have to create new ways and systems to transact schedules across borders. You are creating a seam where one doesn't necessarily have to be.

There are concerns about the day-ahead ancillary services market. To me, they should be real-time. They aren't that important and they add a lot of complications. The prices in PJM for January-July 2002 are energy \$25 average. But looking at the regulation spinning reserve/operating reserve, these are tiny numbers. So don't create incentives for generators and participants to do something that is less than the ideal efficiency of your system.

Real-time availability bids for spinning reserve and CRR/TCC/FTR having a physical scheduling priority are also issues. We can do that, as long as it is only in the day-ahead market. But why would you want to? PJM has tried to break the link between financial transmission service and the actual markets.

Speaker Two

New York began with a "big bang" approach at 12:01 on November 18, 1999, that implemented day-ahead in real-time energy and ancillary services markets, including reserves, regulation and capacity. While the markets worked, the approach resulted in corrections that had to be made along the way, and it took longer than we thought to get most things under control.

Today our independent market adviser believes that fundamentally, the markets are working well. The market is about a

peak load of 32,000 MW and if merged with New England, it would be 60,000 MW. We have agreements with Ontario, Hydro Quebec and the Maritimes to work cooperatively in the development of our own market and Ontario's. The Maritimes are also considering some kind of market. Obviously, Canada will not be part of a US RTO for reasons of sovereignty, but they still can be part of the same market, or as a minimum, have markets that are compatible to ours so that energy can flow very efficiently.

The New York market, with the exception of the New York Power Authority (NYPA) is essentially a completely divested market, even though NYPA has significant generation, mainly hydro. This differentiates New York and New England from other areas of the country, because both are almost fully divested. That is not to say that one way is better than the other. But the difference results in our need that ancillary services be part of the overall market and co-optimized from the standpoint of unit commitment as well as pricing.

New York supports the SMD. Obviously, some parts will be changed, so we view this exercise over the next six months as trying to get it right collectively with FERC, market participants, ISOs and RTOs.

We have some issues. For example, the NY ISO board differs on board independence. Ultimately, that will be decided by FERC. We think having states be part of the same determination of things like reserve requirements and an arrangement where a transmission right might actually become a viable alternative at some point are good. We differ where FERC believes that states should have oversight authority over the management of RTOs and their budgets because that would severely compromise RTO or ITP independence.

We have some questions about ICAP, although the fundamental idea of having a capacity requirement for some time makes sense. With respect to transmission service and seams issues, within our markets, transmission rights and financial transmission rights are all financial. We realize that this is a problem, but under the PJM and New York agreement, we believe it is resolved, at least for deliverability of ICAP. In fact, FERC asks whether the New York pre-scheduling agreement in use with PJM should be adopted more widely. New York, PJM, New England and the IMO in Ontario have been trying to come up with a standard ICAP product.

Based on historical trends, we know how much people will want to use on the financial side, and we lock out a certain amount that people want on the physical side. While that seems to work, it hasn't been well tested. I hope we can find something that doesn't compromise the financial nature of the rest of our market system. Where FERC wants people who pay their transmission access charges to have CRRs or TCCs or FTRs, we see as problematic. Whether we want to rethink the long proceedings we've gone through to allocate the transmission rights is also a question.

Other features in FERC's SMD are on their face, not destructive, but will they work together? The law of unintended consequences is alive and well. Our comment will analyze how things need to be looked at; issues will be subject to the collective wisdom of the industry and its comments.

Participant funding is controversial, too. The US Secretary of Energy's Energy Advisory Board voted to support the transmission grid subcommittee's report that endorses cost causation as the funding mechanism. That is controversial in the New York-New England merger and there will probably be compromises vis-à-vis

grandfathered costs and new costs. Since nothing is being built on the transmission side, at least this should sharpen the debate because we have to find some way to build some transmission, and the generation and DSM alternatives must be factored in.

FERC's SMD wants ISOs to be involved in RFPs for transmission, generation and DSM alternatives if the market does not provide them. This is somewhat problematic because it almost starts to push us into an IRP mode, making us more of a market participant than an operator. If ISOs issue RFPs for generation, who owns it? Who has all the obligations?

Talking about IT infrastructure and flexibility issues with the SMD, today we run our real-time market with a thirty-year-old system that uses FORTRAN. The bad news is that it's very inflexible and the good news is that we are replacing it. By the summer of 2004, assuming that FERC's Notice of Proposed Rulemaking (NOPR) and the final rule on SMD are not too disparate, we anticipate having the new software incorporate the SMD requirements.

Making energy markets more similar, with more convergence of the day-ahead and real-time prices and having common product definitions will increase trade between regions, as will the elimination of pancaking rates. Probably the biggest controversy is that these rates represent a lot of revenue that will be lost by transmission owners. Studies we've done show that reductions in energy costs associated with eliminating pancaked rates outweigh the lost revenue by two or three to one. States would like the federal government to decide how to fix that, while the federal government would like states to figure it out. Someone has to step up to the bar.

We also have learned that we must review things down at the lowest level of detail in terms of operators and scheduling between control areas. SMD is not a panacea for seams. No matter what size the RTO, you will have a seam and the fundamentals of the market designs need to be compatible. Your rules cannot conflict with those in neighboring control areas.

Even when that is done, there will still be a seam with the potential for price differentials occurring on both sides of it, still with room on the interconnection to move power. That is an opportunity for arbitrage. The primary difficulty is that if the ISOs dispatch across the seam, while not taking a position in the market, they are making decisions for the market participants on both sides of the interface.

Finally, the timing of FERC's SMD is very aggressive, particularly if you think about an area that hasn't got a market and didn't start off with a tight power pool. The Northeast has an advantage because its organizations are in place and it has the fundamental infrastructure. It would be a shame to undo the progress made over the last few years, and wind up reducing transactions while implementing SMD.

Speaker Three

The Midwest ISO, or MISO, is in the midst of combining with the Southwest Power Pool. Combining MISO and the Southwest will result in about 170,000 MW and about 300 GW when combined with PJM. At this point, we are talking with TVA about how it might participate in this large, regional market. The desire to have a standard language and a standard market are very important.

MISO's position on FERC's SMD is still developing. There has been a lot of debate with stakeholders before we file in November. SMD is consistent with MISO's straw proposal and stakeholder

desires to have a day-ahead in real-time energy market using CRRs and LMP. MISO did not want to get too far in front of SMD, but we knew we had to start doing things while SMD was being developed.

We like an independent board, some of the governance issues need to be tweaked and we agree with the regional planning. Areas for improvement are the aggressive time frame – we'll have our market up and running September 30, 2004, the same date we are supposed to have a single market up with PJM. We have told FERC we could get a single or enhanced market portal that would look seamless to customers, but we would not have a single market up and running by the FERC timeframe.

Another concern is the ancillary services spot market, which we haven't discussed much at the stakeholder level. We were thinking it would be a year after the energy market is up and running before we could even get into that.

We strongly support elimination of the through-and-out rates. But transmission owners will want to recover their lost revenues, so we need a mechanism to make certain that happens. This is proving to be a challenge and we are discussing this with PJM.

I believe that the cost causer or beneficiary should pay, but there is both strong resistance to and strong support for participant funding, which will be another long debate.

If the penalties that the RTO or ITP has to provide are black and white, that's fine, but when it creates a lot of judgment that we have to put into assigning penalties, that makes it more difficult for us.

MISO would rather favor a staged implementation of SMD to make sure that

reliability is in place; we may have as many as 42 different control areas.

FERC's SMD says that transactions without CRRs would be curtailed first and then penalized if not curtailed. We don't think that is needed because LMP's provide a value-based curtailment. And operationally, how do you track these, particularly when you try to curtail a load-serving entity that serves all these retail positions in an unbundled state?

MISO's congestion management working group has discussed protection where not all the load has resources within the pocket. For example, we need some protection in Wisconsin. We believe that parallel flow pricing should be compensated, again with a standard method and based on cost causation. Scheduling, whether physical or financial across SMD seams or between SMD and non-SMD probably should be physical when you are going from one that's in the SMD and financial across the SMD seams. We want to look at losses in kind. We intend to provide security-constrained unit commitment for demand bidding, but it has to meet all the requirements, including market mitigation and monitoring, that other resources must meet.

We think an alternative to the creation of ATC by reactive output of generators would be to allow CRRs for reactive and some of the other sources. Will export and ancillary services be charged? We say yes for operating reserves and voltage support.

Pre-day-ahead auctions for energy and ancillary services should not be done with SMD in its timeframe. There is concern about multiple settlements because when you do pre-day-ahead auctions, you will have settlements over many different horizons. We do support the move to an auction, but our timeframe is probably four years away. MISO's stakeholders would like initial allocation of CRRs

adjusted annually for load growth, as stated in our straw proposal. However, doing a five-year auction with a reallocation for example, physically would not work, from our perspective.

Speaker Four

I give FERC's SMD NOPR high marks for the actual structure of the design. I give an A minus to some of the details about how the pieces will fit and to some of the issues. It is still very much a work in progress. Execution remains the biggest question mark.

But first, why do we need this standard market design and why is it so important? The Enron memos in California particularly indict the market design in many ways and create opportunities that should not have been there or the need for things that shouldn't have been there. People in this market will respond to incentives and try to profit as much as they possible can. When we look at the design of the market and say that the incentives don't matter, that we can approximate it and that it'll work out quite well, that is illogical, inconsistent and dangerous. So the top three reasons to have a standard market design are incentives, incentives, incentives.

Regulators now confront the strategies of go back, stand still, or go forward. I think FERC has concluded correctly that it can't go back, it's too dangerous to stand still, and it has to go forward – with RTOs, SMD, demand participation and market power mitigation.

The big lesson we have learned was that many places in this country started with the false goal of somehow minimizing the role of the inevitable independent system operator. In the process of designing things that looked minimalist, we designed markets that didn't work. The ISO was called upon to fix things up. Soon, it grew

huge, dealing with problems it should not have had to solve, if we had had a sensible design.

The core of what SMD is about is to identify the minimum requirements and integrate them carefully with the market. Markets can't solve the problem of market design. At one time, the notion was argued, principally by Enron, that if we got out of the way, the market would solve everything. I think the evidence is very strong that oversight by government and regulators is required, and we have to face squarely the mandates of FERC's Order 2000 and its SMD. The SMD comes straightforward and says what we have to do on the most critical thing. The centerpiece is the coordinated spot market, bid-based security constrained, economic dispatch with nodal prices. We may change some of these names, hoping to shed the political baggage from earlier conversations.

SMD offers a compendium of tools that may be the best of a bad lot. Its spot market is certainly its greatest strength, with the clearest instructions. Resource adequacy is more problematic. I believe that governance and SMD are more or less independent. It's mostly true that there is little about the structure of governance that influences what the SMD should be and vice versa. A lot of the focus elsewhere is on day-ahead and long-term resource adequacy and not much attention has been paid to getting the real-time market right.

People forget that in 1997, PJM went into operation with a badly designed real-time market with pricing that didn't make sense, and it wasn't consistent with the physical reality. They immediately got into trouble. I characterized it by saying, "We're going to have a market except when the system is constrained and then when it is, we're not." In 1998 PJM put in a sensible real-time design with sensible pricing; it did not even have a day-ahead

market in that situation, yet it worked quite well. They did this in stages, sequentially and consistently.

FERC's SMD is pretty good on real-time markets. It gets into the day-ahead, suggesting things that make sense, such as consistent models, coordinated operation and markets. It rejects the fallacy of having a separate power exchange and transmission market. Its discussion about reliability unit commitment is quite sophisticated.

Yes, there are regional differences that might be accommodated both in design and in sequencing. It is critical to keep your eye on the ball. Don't throw things into the day-ahead that are inconsistent with real-time. That is always going to be a problem. Ex-ante market power mitigation is targeted rather than diffuse, so that we can focus on people who really have market power. It uses bid caps more than price caps, it has safety net provisions and FERC is looking at New York's AMP process.

The resource adequacy system does need work. As I understand it, the SMD says that you forecast your resource requirements and if you have them, you are identified. If not, you go on the targeted curtailment list. If you come into the market and you are resource inadequate and you're buying in the real-time market, you have to pay excess penalties on top of the price caps. I'd like the penalties large enough to induce voluntary compliance.

That means there will be an active two-day-ahead market, because if you can get a contract two days ahead, you are then resource adequate when you come in. Depending on how the rules are implemented, if you start violating the two-day-ahead contract you just signed, then you pay penalties. To me, this sounds like the balanced schedule requirements that were mandated in California. We

recreate the incentives for people to act as though there is a balanced schedule requirement and we know that when the system gets stressed, it makes it more difficult to operate. The unintended consequence could be that the resource adequacy proposal works well as long as the system is not constrained. I do not know the answer, but this is a serious problem.

The challenge is that the details of FERC's SMD matter. We all need to think about what should be required, what should be recommended and left optional and what is less important. Some of the priorities include the seams problems, transmission investment and the planning process and drawing the line between merchant and regulated.

My list of priorities includes real-time energy and ancillary services, coordinated spot market and pricing. Market power mitigation and demand participation are critical. I would breathe more easily if I had a good demand participation and market power mitigation scheme in a real-time market and I did not have anything else. My longer-term list includes financial transmission rights, the day-ahead market for scheduling and pricing and investment rules for transmission and generation.

The SMD Notice of Proposed Rulemaking is a great milestone. We know what to do. We're making a lot of progress. The Midwest of course is much farther down the road. Let's keep our eye on the ball so that we don't get trapped in the arguments about why, when you have hydropower, it makes things different. It's an issue, but it's not fundamental that fish matter, or whatever.

We are giving people the flexibility to do many different things and we want them to make their own decisions. If we give that that flexibility, we have to get the incentives correct. The complexity of

electricity requires an internally consistent design, market and operations. That is what SMD focuses on.

Discussion

Question: How much impact do the role of the stakeholders and the power of the board of the ISO have?

Response: Stakeholders are critical. At PJM, stakeholders looked for leadership. They asked for definitive points to be made about SMD that they could then follow up with personal and company comments. Obviously, the board makes all the real calls, but it is not going to be expert. The members are the expertise. They are the incorporated knowledge of the industry from the past decades and that is where the discussion occurs. Typically PJM has 75-80 participants at energy market committee meetings. There were about 150 people representing close to 100 different companies at the meeting to discuss FERC's SMD.

Response: Governance and the use of the word, independence, are big issues in California and throughout the west. Some argue that it means independence from participation in the markets, and from a political standpoint, it's another way of saying independence from accountability.

Comment: Because the SMD deals with the market, I, too, wish there had been away to divorce the governance issue. But I think that the current governance systems do not differ from the one advocated in the SMD in ways that would make a big difference in the implementation of the market design changes. FERC has to deal with this, but I hope it does not become the cause celebre. PJM and New York have parallel committees and the same-sized boards. There are some differences, of course. FERC's SMD requires the committees to be essentially advisory. New York has

shared 205 filing rights with market participants, and after the first year and a half, it has worked fairly well. The 205 filing was used to prepare for the merger filing on the Northeast RTO with New England. It involved 15-20 meetings, including plenary sessions. We are making the same collaborative effort with comments on the SMD, to ensure that all market participants' views are made to the board. If the entire country goes the advisory route, market participants must have a huge role; boards can't be dictatorial because it is other people's money and other people's facilities. Market design is what results in the money flow and that is the most important.

Response: MISO will take comments from its stakeholders and then formulate its own opinions as management of the Midwest ISO. All the other stakeholders will make their own comments. The board is an eight-person, independent board. It will not become involved, other than hearing what's going on, because they are businesspeople, not the ones who are technically astute.

Comment: Some New England regulators do support participant funding, cost causation and ISO-New England standard market design. FERC's SMD talks about market upgrades and reliability upgrades, but doesn't clearly distinguish between the two.

Response: It's not black and white, particularly when you are trying to solve an economic problem and the market hasn't responded. If there is a reliability problem, it probably means there is a constraint somewhere and probably a generator could solve it, but has been unable to find an economically viable way to do it, or it is virtually impossible to build a generator for environmental or local reasons. At that point, if you've really exhausted all the market solutions, you're at the point where a transmission

solution could solve the problem. In an imperfect world, I would limit it to that. I would not go the IRP route, which is essentially what it would become. There is no bright line between economic projects and reliability projects. But when you get to that point, there is probably a reason why a generator isn't going to work and the ISO can't force it into whatever resisted the generators in the first place – not that putting in a transmission line will be easy. However, an economic transmission project will generally give you some improvements in reliability. The classic murky issue is in Central East in the eastern part of New York. In 2000, congestion costs for the entire state were \$1.2 billion, about 20 percent of the total cost of energy. Central East probably contributed half of that. Although it is down now, it is still hundreds of millions of dollars. From a consumer standpoint, we should consider doing something, and there are some economic projects that can be identified in this way. Whether they can ever be forced to completion is something else. The famous line in West Virginia that's been bouncing around for 10-15 years is a good example of something with a huge reliability benefit to the Eastern Interconnection, yet it can't be built. There has to be an acceptable solution from both FERC and state standpoints on the obvious, few bright line reliability projects.

Response: Beyond the reliability argument, it's a market failure argument. If we set up all the other components of SMD and it's attractive economically to build it because it makes things better but no one wants to, it has to be about free riding. It usually follows in the transmission examples from lumpiness – you build the line and then there is no congestion and then you can't make any money and everybody wants a free ride. Many things compete with transmission but they should only be included if they have the same characteristics – that they are big, lumpy investments, because if

they are not, then there is no market failure problem and you should be able to do them now. You can do them in small scale over time. The trick is to identify ones like a big generation plant that can only be built on one site, has to be 1,000 MW and will completely eliminate the congestion – or it isn't worth building. I don't think there are many of those. In principle, even though there are a lot of small things that are good to do, you can't make the market failure argument in the same way about lumpiness for them and therefore, I think they should not be included in the IRP process.

Comment: A concern with moving to SMD is the cost inequities that result from seams reductions. In the New York-New England proposed merger, we are trying to identify that with a mechanism that identifies costs and benefits for New England, but I think this also exists with seam reductions as a result of FERC's SMD.

Response: Cost-benefit studies are necessary for any of the larger groupings and organizations and the technology to do them is readily available. You do have to be careful in reading and using the results. In a lot of cases I think the benefits are enough that in effect, when you divide up the pie, you're making it bigger, and if it is big enough and efficient enough, you also equitably share those benefits among all the players.

Response: FERC acknowledged in its SMD that there will be winners and losers, depending on the conditions. It will take leadership on the part of FERC to figure out when adjustments are necessary, and it need only be for a transition period so it does need to end at some point. A temporary fix cannot interfere with the buyers and sellers in the real transactions that occur. The cost shifting flips under certain circumstances in both New England and New York. For example, if gas prices go up, New York starts to

export more power to New England and the benefits go the other way. Within New York state, there are different fuel mixes upstate and downstate and the savings never flip because downstate is so expensive that the benefits always flow there when you improve commerce.

Response: Try to do the cost-benefit analyses first when eliminating the seams. Weigh the costs and benefits carefully and do not mess up the market in the meantime.

Comment: I recommend that if you cannot get all the software developed at one time, put in the options and if there is a computational problem, turn them off. This is much less expensive. Demand-side bidding is essential to both the politics and the success of the markets. Many things that were put on the table as too difficult were essentially giving the demand side of the market the same options that the supply side has. That has both political and efficiency aspects; do not shortchange them. Load growth is not free. The current process is that you pay an access charge based on your peak load, but then you can slip in some load growth on the side. If you do that, you need to count it in your access fee at a very minimum. We want ITPs to have a lot of flexibility in assessing penalties and file the penalty structure at FERC under fairly straightforward rules. Resource adequacy is a process to make everyone aware that they should not all be in the short-term markets. I think most of us believe it's a process that should basically be in the control of the states. Governance in SMD is proposed to be mandatory. I think FERC's SMD is somewhat silent on how to deal with governance when the ITP is an RTO. If you know where expected load growth will be and it's not a large regional market, you also know who's benefiting from a reliability upgrade. I'm not sure that even reliability upgrades need to be outside of the realm of participant funding.

Comment: I have a problem with ITPs identifying and imposing penalties on participants. I am afraid that penalties just become economic alternatives for participants and also I don't want the ISO/ITP/RTO to be the entity that assigns the penalties. I like having both an internal and external MMU. FERC should hold on to the penalty responsibility. I don't want to be a judge and jury. FERC's SMD resource adequacy construct does not appear workable; the technology doesn't exist and the penalty structure is inadequate. PJM, New York and New England will present their proposal to FERC. It might be a three-year forward auction, or a shorter time period. Right now there is demand-side bidding in day-ahead markets. We agree that it has to be represented equally, with all the options that other resources have in the SMD.

Comment: It is important to be clear about which priorities in the SMD should be completed and which can be appropriately let go.

Comment: Studies have shown that there are huge savings from eliminating the pancake rates, even without combining the markets and having one large eastern interconnection dispatch. Our customers can save if we deal with the seams issues while we try to get a very good – not perfect – market design.

Question: Why would private investment respond to an RFP issued to solve a problem? What is the purpose of an RFP issued by the ITP if the TP is not a market participant and is not in a position to actually buy the service?

Response: The TO agreement that formed MISO provides that if no one is willing to build transmission that we deem to be needed, we can contract out for it and then spread the cost to all of the owners. FERC's SMD says nothing about how that would occur. Our regional plans will look

at the places to build and whether generation is a trade-off for transmission and demand-side response. There is lumpiness and one has to focus on the long-term things, doing what you can do quickly and now. Who pays? As a non-profit entity, we cannot own the assets, so if we have to pay, it goes back to all the other owners, unless FERC comes up with something different.

Response: People will respond to an RFP because it has compulsion going for it. The regulators will make people pay, whereas the merchant investment is on its own nickel. You could have lots of people prepared to build if you are willing to have the regulator back it up and sign the contract.

Question: What is the process to get the detailed rules that underlie a successful SMD? By creating an organization that spans such a large area as perhaps MISO is doing to exercise command and control to get the rules at the detail level right, or through smaller entities like New York, New England or the two combined and their neighbors? Profits in generation companies are often made during short times of scarcity. With the generation marketing companies on life support, near bankruptcy and at very low financial credit ratings in a world with volatility and uncertainty on rules, are we presuming that we'll actually get the resources built?

Response: A large organization gets the rules. MISO has very large stakeholder meetings and it is a great forum to get things done. When most of the state commissions participate, all the market participants are there. We always have a straw proposal because if you start with a blank piece of paper, nothing gets done. Could it be done in a smaller area? I suppose so, but then you are talking about reaching consensus with a lot of different parties, all with different views. From our perspective having one central

organization, or a large organization, has been the way to move forward.

Response: There is a difference between an emerging market and putting the rules in place, and the difficulty of resolving problems at the seams between existing markets. The original MOU among PJM, New York, New England and Ontario was intended to deal largely with the seams. It failed, predominantly because of the size, and partially because of a lack of clarity on who would be in charge. While we are not perfect now, we do make progress. Usually, problems are brought to us by customers: “This can’t happen,” or “I’ve got a problem with transactions,” and so on. We come up with recommendations that we take back to our respective organizations to get agreement. The agreement has a dispute resolution process that ultimately winds up at FERC if we can’t solve a problem ourselves. One issue actually got to the pre-FERC level of decision-making before we were able to resolve it. We told everyone not to do that again. This is a different process from we use in our normal governance, but it has proven effective. I vote for the current “smaller is better” process just because it works at the moment.

Response: The key is to set up your market philosophies ahead of time and do things incrementally. You want general agreement on things such as the real-time energy market, focusing on the fact that you have to do something for the common good and to create increased efficiency. You want a transparent market where participants are incented to do the right thing, make their own decisions and no one tells them what to do. Then you need to work it on a large group; you may need some level of expertise to lead that kind of discussion. Such expertise is available at the ISO or from consultants. Come up with the market philosophies and stay true to them as you lead a regional discussion about the actual market rules. Keep the seams in mind so that you can build

systems that can work with your neighbors’.

Response: Different facts and views in different regions may also affect the timing of doing things in seams. I say do the easy ones first.

Question: If we build all this tremendous infrastructure based on a premise that people are going to show up and build things, do you believe that SMD will in fact get us there, especially in light of the current financial state?

Response: Part of what happened, at least in the last year, is a result of natural market forces: a lot of people built a lot of capacity. Excess capacity results in depressed prices because everyone needs to run their capacity to increase the cash flow. Wait a few years and there will be a period of deficiency – and that leads to the need for resource adequacy, because you need something to mitigate the time when the shelf is empty. You also need to find a way to get the prices to be high enough to sustain the generation that has been built. PJM is still struggling to get sustainable prices in some of its market power areas, developing the appropriate types of reliability must-run (ROR) contracts to keep generators in the right place and to appropriately incented.

Response: New York went from being capacity deficient to having a small surplus locally and statewide. FERC’s SMD specifically mentions some of New York’s mitigation schemes, like AMP 1 and AMP 2, and if you talk to a generator, it has a list of the things that depress prices. These are necessary to prevent the abuse of market power. Having said that, the board is concerned about not having scarcity market pricing right. Our business is to run a market that gives fair price signals. Right now, our emergency demand-response program can throw in 1,500 MW of non-clearing price supplies at the bottom of the bid stack. Now, that

just moves the price right down. Changing that is a priority by next summer. Also, we will be setting high prices in our reserve market and then we will start eating into reserves, and there is no scarcity price for that. The generator solution is that whenever you eat into one megawatt of reserves, the price should go to one thousand dollars. I am not sure that consumers and regulators would agree. But we have to solve that so the market sends the best price signal it can. I think the mitigation works fairly and operates in a bright line fashion so that at least everyone knows the rules and what bright lines not to walk over if they don't want to get mitigated.

Response: If it weren't for the fact that prices went to \$7,000 a megawatt-hour in 1998 in the Midwest, I don't think you would have seen as much construction as we have had. I am not a big fan of price caps, but you may have load pockets that just cannot get electricity in. I am not sure I have the answer, but you will see a boom and bust.

Comment: Consumers do not believe in a boom and bust cycle for electricity. They want an adequate reserve and they want someone responsible for it. They simply want to turn the switch and the electricity goes on; they don't want fancy products. I understand that the technicians just want to dispatch the power plants in an order that makes the most sense. But consumers do not believe that the new RTOs or ITPs will be capable of delivering stable, reasonably priced electricity. They have to believe there is an institution that will keep the lights on at a price they can afford to pay. That is the first priority; other things can come later.

Response: You need SMD and something like the ITP if you are going to give people choice. If you do not do anything else, customers will face very volatile prices for the reasons we talk about. They can start contracting, either directly in the

case of large customers, or in a more traditional model where a utility provides and contracts for them. It is a mistake to lay it all on the single activity of the SMD. It is not sufficient for solving all the problems, but it is necessary.

Response: The debate is whether to use markets or to use the old regulated system to supply electricity. My concern is not will it work in the end, because I am convinced that it will. Somebody pays for mistakes in price signals and sustained, even unintentional, market power. FERC, state regulators and everybody with a dog in this race need to make sure that the people who really only know about the light switch are not disadvantaged when they should not be. Having said that, I assume we will try to supply this commodity with markets. If we do another very difficult political debate will occur because most of the market mitigation and market power abuse goes away if the market extends to the buyers on the same level playing field as the sellers. We try to create artificial demand elasticity to substitute for what is normal demand elasticity in most other markets. But until we get to the point where customers are exposed to the real-time prices, we will never see a real demand elasticity that will then balance so we do not have to have price caps or AMPs 2, 3 and 4. I think that debate will be very difficult.

Comment: In the SMD I do not believe the cost-benefit studies, because you can get any studies you want. Their relevance is probably being overstated. The notion that there are winners and losers in these studies is almost laughable in the sense that you cannot know any of that without knowing people's hedges or market positions at all. You might think someone is winning in New York, but they have locked in at a long-term price, so they are not winning, but the marketer in Texas who is selling to them is. If you had to unwind everybody's market position, you would be upset to find out who were the

real winners and losers. Presuming that we are embarking on SMD to increase efficiency, the tool in the SMD is there to reach the regulatory objective or removing discrimination. And presumably, even if it was a break-even, if you truly believe that is the objective function, you are saying that someone is doing something wrong. The law is not being used in a fair and non-discriminatory manner.

Response: If you give people choice and you have to treat them in a non-discriminatory way, it then becomes necessary to have something like SMD. If you could give people choice but you could discriminate, that is a different model -- basically the way it runs in England. Non-discrimination is a critical part that makes SMD a necessary component.

Response: FERC is attempting to create a legal justification to do a lot of other things for which there isn't otherwise clear legal and historical authority in FERC. If you call it overcoming undue discrimination, then how do you break up bundled service that has traditionally been under the authority of state commissions?

Question: What are the consequences of not implementing the SMD or the RTO?

Response: It is a real risk and why I wanted to separate it from the governance questions. We do not know for sure what the consequences would be. One can imagine a scenario where we muddle through, but given what we have already done about offering people choice, selling off assets in various places and the law about discrimination I think if we do nothing, we set ourselves up for the problems that we saw in California or in the early design in Texas. The problems may come a lot faster when the market becomes tight.

Response: The mere threat by FERC of the SMD will cause a lot of action. You

have already seen success in many of the northeastern states that traditionally were high cost. Prices and stability have improved. Success breeds success. I think FERC has to reward the transmission owners who participate voluntarily. I think there will be a steady progression whether or not the SMD comes to fruition the way FERC would like.

Response: Industrial customers were the first who were clamoring for open access, particularly where electricity was a large component of their costs, or where it was causing real competitiveness problems -- either in their state or region, or in the last ten years, internationally. I think the initial response of FERC Order 888 to at least open up the transmission system responded to that situation. Now if we just stop, there are huge amounts of efficiency dollars, particularly internationally, that will be left on the table and those dollars that are part of our international industrial commerce will disadvantage our industries more than if we went to a competitive market with its attendant efficiencies. I still believe that a driver is to get industry the most efficiently priced product.

Response: The Midwest will go ahead. Our state commissions are on board. The impacts for us will be where we have the seams. ITPs are not mandatory and they will have to live by the SMD rules. We will have to work things through. Not having SMD will make things either more difficult or more expensive for all of us.

Comment: I think resource adequacy is critical from a consumer point of view. The answer is not to charge residential customers seven dollars a kilowatt-hour when the price gets high. I am interested in where we are headed in terms of a resource adequacy model that might actually work in PJM and in the Midwest, because historically, they have differed in the way they have handled these issues.

Response: The resource adequacy construct is extremely important. It has a positive effect on the market. Historically, state regulators used to ensure that we had adequate resources overall on a company-by-company basis. That was their job. We want to maintain the one-in-ten reliability standard. Also, you need to perform an engineering calculation to determine your reliability and reserve requirements. If the LSE provides the reserves, it either pays for them or bilaterally contracts with generators to ensure that there is sufficient capacity and reserve. The only difficulty is how to come up with the price. In the northeast we have been working together to create a construct to calculate the price on a going-forward basis so we know in time to either build or that we will have to pay a particular kind of price. It will do exactly what the old regulatory compact did.

Response: MAIN, MAPP and the Southwest Power Pool have all had reserve-sharing agreements, and their own resource adequacy requirements. It seems to have worked fairly well, but at times it has pushed prices up. The Midwest has not yet come up with a plan, other than using the reserve sharing and requirements that are already in place in the various regions. It is a priority.

Comment: The limited way that FERC can put penalties in place is to approve them in tariffs. There is an initiative to try to change that through legislation.

Question: Part of the push for an IRP-like process for transmission planning has been a belief that the existing rate regulation scheme for TOs which

essentially ties the firms' profits to the investments they make leaves them in a position where they have an incentive to bias toward their own investment, as opposed to another solution. To what extent do incentive regulation schemes that tell transmission owners, "Your profits increase when congestion goes down," as opposed to "Your profits increase when you put more transmission plant into the ground" alleviate the problem and reduce the need for some kind of planning process? If that is the case, to what extent does SMD accommodate these types of ratemaking schemes?

Response: We would not get into expansion until we had already concluded that it was economically desirable. Other things might be better, but it is economically beneficial and it is caused by market failure. Therefore, limit competition only to the things that meet that category – that have the market failure component to them. I am not eliminating all the alternatives to transmission, but only the ones that are not like it in the sense of being large and lumpy. There might be an incentive for a TO, for example, to prefer large, lumpy transmission rather than large, lumpy generation. I don't think there are large, lumpy demand-side programs, so I don't include them. But reducing congestion costs is only part of the story. The goal is to have efficient system operations and some congestion is a good idea. In principle, this is SMD and performance-based incentives and regulation. For the market failure argument, I think it is a matter of the way the principle tells you what to do.

Session Two. Energy Trading: Promoting Efficiency or Profiting from Manipulation?

The ranks of energy traders are thinning. The risks of trading have dampened the appetite of players in the market. Many business practices of traders have been called into question. The Enron and California debacles have had substantial ripple effects on an industry that seemed to have carved out a very substantial role for itself. Policy makers are contemplating whether to impose new regulations on energy trading. How important is the trading function to the efficiency and operation of the marketplace? Have traders made a valuable contribution to the evolution of competitive energy markets or have they simply given competition a black eye? How many trading entities can the market sustain? How, if at all, should energy trading be regulated? What are the prospects for the imposition of new regulations or restrictions? How much transparency should be required? Which trading practices constitute intolerable market manipulations and which are market makers or enhancers?

Speaker One

We could have had a better decade since the Energy Policy Act passed in 1992. We should have had competitive bidding for the construction of power plants. We firmly believe that we need a good interstate highway system for electrons. The problem is that FERC is not interested in building and operating a highway system. The irony is that people began to push for deregulation at the retail level. The people in states that voted for restructuring constantly cited a famous study assuring us that we would get a 42 or 43 percent reduction in the cost and price of electricity.

In 2001 FERC found between three and five percent efficiency gains. Actually, empirical reality gives us about the same estimates. Why so little? The physics of electrons are so demanding that we give the system over to engineers who are pretty careful; we don't give it over to economists. The engineers decide what has to happen. We discover that the effort to build this incredible complex set of transactions to decide which electrons the engineers say have to flow actually creates what I call the dis-economies of de-integration.

When you de-integrate this industry, you create immense transaction costs and

immense needs for more resources. We know that in order to avoid market power, we need to either create demand-side responsiveness or carry huge quantities of excess capacity. We know that risk dramatically raises the cost of capital. The DOE's study of why any price mitigation in California would hurt the state's consumers proved that it is impossible to build a peaking power plant with any sort of market intervention because DOE assumed a three-year payback. But you can't build infrastructure on a three-year payback. These are 20- and 30-year facilities. If the market insists on a three-year payback, utility finance is always cheaper than merchant finance and the only way we are better off with that is if the regulators make huge mistakes – which they did once with nuclear facilities.

In addition, this industry is dripping with rents and there is scarcity in this. The scarcity is social, environmental and political. I don't see these as transitional rents. Should we monetize that scarcity? The answer is that we would rather control the rents through regulation and a political process about where we build power plants.

Here, I have presented the case against these markets without mentioning market power. FERC's SMD spends an immense

amount of time trying to convince us that it will control market power. Frankly, even if you could perfectly control market power, one cannot get away from these other problems. Therefore, my answer to the question of the role that markets do play is simple: they can have a little role. They can do a little bit of market clearing. But the heart of this industry ought to be a public interest obligation. We have to have a series of public values; we build our society on a stable flow of electrons, which is remarkably difficult to do. The transactions on top of it contribute three-five percent and the risks are far greater than the rewards.

What about the role of the arbitrageur? What about the markets? In the end, engineers really do run the system and they don't do such a bad job. In thirty-three states, the restructuring genie is still in the bottle. If the northeast chooses to have a market, so be it, but we do not want to see it imposed on the rest of the country.

Speaker Two

We are trying to move away from cost-of-service to market-based and incentive regulation. Notice I say market-based, not deregulation. We want to introduce market principles and incentives. I agree there are problems in FERC's SMD such as entry barriers; demand response; low demand elasticity; high market concentration because of historical ownership; the market segment due to congestion so you end up with profitable withholding.

The political reality is that most politicians are concerned with high prices. SMD will get enough information to show that high prices are the result of legitimate scarcity and not the result of market power. It is just as important to prevent market power as it is to explain that prices are high because people have not done their

resource adequacy properly and contracted ahead.

The answer for market power and other problems is SMD, monitoring and mitigation. The question is, how should the trading markets be regulated? You should regulate them so society is better off and you should let them go if society is not better off. We do know that when you exercise market power through withholding, it is generally a wasteful activity and society is worse off.

SMD says we mitigate in the spot markets in an ex-ante way: we monitor and we enforce the rules of the SMD market. We have resource adequacy requirements with demand-side bidding and the information to help explain if the prices are a result of scarcity. If you are the demand side of the market and you are willing to bit into it, you are pretty much clear on the resource adequacy requirement. If you haven't fulfilled your resource adequacy requirement, you may pay a high price in the market. What people interpret as a penalty is essentially a way to assess higher clearing prices if you start to short reserves. In some sense, resource adequacy puts a warning label on short-term markets. A better way to explain resource adequacy is that if you don't do resource adequacy and you spend your time in the short-term markets, it could be hazardous to your financial health.

There are many problems with end-use markets. Probably the most successful demand-side program is Georgia Power's industrial program. Puget Sound recently installed real-time meters for a \$30 add-on to the conventional meter, and a long-term lease from a communications company to read them. My favorite is to create portable entitlement programs: the supplier of last resort maintains them and when someone wants to leave, they carry the entitlement with them, but not a price cap. At any time if they over- or under-

buy their entitlement, SMD's spot market picks up the difference.

How are forward markets disciplined? You make a forward market decision based on what you think the price of a forward contract is today, versus what the price of the forward spot market should be. If you think market power rents will continue into the future markets, then you are willing to pay more than you should for a futures contract. How do you determine that? FERC's SMD says that the spot markets are mitigated when necessary; consequently, there will be no spot market with market power, and your forward contracting decision is disciplined by the fact that the spot markets are disciplined.

Mitigation requires the creditworthiness of the buyers. We really do need demand-side bidding or a contract cover that is resource adequacy. When the market is tight, we develop figures for mitigation to keep people from withholding. Because of the market design, this withholding scheme is non-punitive. We try to get bids at marginal cost and clear the market. You try to structure the competitive outcome as best you can. This requires a rough calculation or an estimate of marginal cost. It does not require informational capital cost or the regulation of marketers or forward trading.

Hydro and energy-limited resources complicate the opportunity cost calculation. The best I can figure is that we try to develop an ex-ante scheme which includes hydro operators or energy-limited generators posting some kind of program, and we monitor that to see if they are coming close to the program or ex-post, whether they have made rational decisions. The hydro people tell you about their other constraints – when they will be protecting fish or doing erosion. Then you know approximately what their behavior should be if they were rational.

SMD is a national common carriage program. It mitigates market power. It sets up a program for infrastructure development. It does not repeal PUHCA. We need good competition, design and information, compatible incentives, and the recognition and mitigation of market power. SMD is a market with market rules.

Interestingly, every market that has adopted LMP-type or SMD-type market design is still in operation and still doing reasonably well, even if they are fine-tuning. In the US, every market that didn't do the SMD-type market design failed.

Speaker Three

I will focus on merchant energy, the perception that market participants engaged in improper conduct and the consequences of that from the perspective of Congress. Obviously, the trading community had a lot of things going for it on the way up. It was perceived that energy trading was a profitable market and therefore, utilities were setting them up left and right and many intermediaries were coming into the market. Obviously all of this created a lot of trading volume. I've seen some statistics that the amount of trading of power went up a hundredfold in a decade.

Now on the way down, the key focus politically is on questionable trading practices: the subjective valuation associated with them and therefore, a lack of confidence. It is assumed and attributed to Wall Street, but there are many factors that are drying up the capital use for this line of business, such as the very substantial investigations respecting manipulation and market abuse. It would not surprise anyone to see any substantial number of indictments in a relatively near timeframe. In addition, the Commodities Futures Trading Commission (CFTC) and FERC's investigations throughout the

country are particularly interested in wash trading and market manipulation, especially in the area of fraud. A substantial chill in the market against these levels of conduct will have positive effects, perhaps beyond any legislative initiatives.

The view of many in Congress and other places as well, is that there cannot be too much market transparency. The pending national energy bill provides that any seller of electricity in interstate commerce must provide sales prices of electric energy, posted on the Internet as soon as practicable and updated as frequently as practicable.

Other initiatives that have been publicized, initially inspired by Senator Diane Feinstein and picked up by Senators Harkin and Lugar, address trading abuses and the regulation of derivatives trading and physical trading. If the legislation evolves, it will include trading in any commodity. It empowers the CFTC – primarily a regulator of exchange-traded futures products – to be responsible for a broad range of activities.

The legislation defines a covered entity to include trading facilities and any dealer in the market, regardless of how the product is executed. Basically, any dealer in power – and it could be any utility because the definition of dealer is not in the statute – could be covered by these requirements. There must be adequate financial, operational and managerial resources and the CFTC regulatory infrastructure will keep records and report notice and registration requirements. It is unclear how the responsibilities of FERC and CFTC will be sorted out.

Dealers must maintain sufficient capital commensurate with the risk of the transaction, not defined in the statute, as well as certain entities that are otherwise regulated: for example, banks coming into this market. CFTC jurisdiction would also

apply to all agreements, contracts or transactions, according to the language of the statute.

The statute also contemplates that there be a self-regulatory organization responsible for policing the market in addition to the role provided by CFTC, and probably funded by the market participants.

The President's Working Group is comprised of the Chairman of the Federal Reserve Bank, Secretary of the Treasury and the chairmen of CFTC and the SEC. The four signed a letter expressing severe concerns about these legislative initiatives, particularly the disclosure requirements, recognizing that customized products may not serve price discovery functions and may lead to pricing confusion, and also chill the proprietary interests of market participants and market designers. They expressed concerns about the capital requirements, saying that the rationale is unclear and could duplicate or conflict with existing requirements. And in the form and code used in Washington, DC, they talked about the unintended consequences without describing what they are.

In my view, regulators and legislators who have spoken in terms of new legislation have talked about renewing confidence so that market participants will come forward, or engage in this activity. I do not think that legislation per se instills or creates or renews market confidence. Instead, I hope that the enforcement activity, combined with regulation like SMD, are the better way, rather than having an omnibus regulation of trading activities in hopes that somehow we will have a better world.

Chairman Greenspan is acutely sensitive to any additional regulation of derivatives for fear that this new efficiency by market participants will be undermined by a regulatory regime. It is really the marketers, not the enforcers, who are part

of the President's Working Group. Obviously we need new entrants to the market; we have seen people step out of the trading markets, but also some banks picking up some of the Enron business. Curiously, hedge funds want to play that intermediary role. I think there are valuable opportunities for intermediaries, separate and apart from a producer or utility.

The growth of clearing houses is an important one for trading, because they take the credit of a counterparty out of the trade and reduce counterparty risk. NYMEX, the Intercontinental Exchange, the London Clearing House and the Board of Trade Clearing Corporation have such initiatives.

Some of the growth of electronic trading was set back by the dotcom bust, but there are some electronic programs and trading environments that offer potential. If they grow, it will be a plus for market transparency because we will have locations where people can discover price. In my view, this way forward is better than regulatory initiatives along the lines of Senators Harkin and Lugar.

Speaker Four

I represent a more positive view of the power trading business than you read in the press these days. I will talk about the role of traders in power markets, as applied to the western market crisis and looking forward.

I have seen the evolution of oil trading through the years. I've been there from the beginning of the power and gas markets on several continents and I am a firm believer that open, vibrant markets have been instrumental in helping people manage the risks of their business. Traders have been an integral part of that process. Open markets also work to balance supply and demand and they do encourage

investment. Whether it's crude oil, refined products, natural gas, power or other commodities, the markets have been tested by wars, natural disasters, weather and plant outages, political events and many other surprises – not the least of which was September 11. Almost universally, they have answered the challenges unbelievably well. Industry responds quickly to some types of dislocations, particularly traders who are always looking for arbitrage opportunities.

East Coast power markets had an unprecedented spate of volatility in 1998, after five plants were knocked out by a tornado during the middle of a significant heat wave. One reason why prices skyrocketed was that several participants reneged on their contracts and people found themselves unexpectedly short, and had an obligation to mitigate any price to cover their lost counterparty on these contracts. Generators reacted very slowly and hoarded their surplus capacity rather than take advantage of the fact that the prices went up. I think traders, generators and distributors learned a lot from that experience and now react more decisively to changing fundamentals, making it much less likely that a similar event would produce similar price volatility in the future.

What we have seen in California's power market is a perfect storm: surging demand came from the booming economy, the tech revolution and a growing population; a major drought really of almost historic proportions left hydropower generation at a very low level; virtually no new plants were constructed for almost a decade; there was a very tight natural gas infrastructure; and some ill-conceived deregulation required major utilities to divest their generation, freeze their retail rates and confined them to operating only in the spot market. I think there is a strong case to be made that market forces also played a role in the process. Many new peaking and baseload plants were rushed

to completion, including one in Reno that started up only eight months from the beginning of conception.

Californians, very responsibly, did listen to Governor Davis and cut back their usage of electricity, and industrials and industries such as aluminum smelting dramatically curtailed their activities because they saw the prices flow through in their business.

People have talked about manipulation as the main culprit. I believe that this is overstated, although I want to state clearly that any manipulative activity should be treated very severely. There is a big difference between manipulation and speculation. Much of Enron's strategies did not constitute manipulation, even if they were contrary to the spirit of the California system design. Obviously, putting in false schedules is a totally inappropriate activity, but exporting power out of state to a higher-priced market is a different kind of behavior. Ricocheting it back is inappropriate, but it is also a byproduct of price controls that has occurred whenever any such controls exist. Mark Rich and others made fortunes in the oil business during price controls by certifying old oil as new oil and this is criminal, but it would not even exist without the dysfunctions created by artificial market constraints. While more instances of market manipulation may turn up, I don't think they should be used as a premise for re-regulating the market and eliminating the potential benefits of open markets.

Discussion

Question: Can you make a distinction between the actual physical product and financial instruments? It would seem that one would be more liquid and less subject to manipulation.

Response: Certainly, the hourly and day-ahead markets have the capacity for people to look at how a system is designed, as Enron did, and take advantage. There are incentives to do that. I do not know if that qualifies for manipulation. I do not know yet where somebody operating in a different part of the market could create illusions of higher prices. As a player, I didn't feel that was being done as it was occurring. I hope it wasn't done, for the future of our business.

Response: I think the law does not recognize the distinction. For example, CFTC has jurisdiction over both manipulation of the cash markets as well as the financially settled markets, although it is fairly well accepted that it is almost impossible to manipulate the financially settled markets without actually participating in the cash market as well. You need to control the supply in order to have an effect on the market price. Merely controlling financially settled contracts does not give you that level of influence. CFTC and DOJ investigations will look at both markets. There are allegations with respect to activities in California that were probably exclusively in the physical market.

Response: We feel we know where the markets are and what they're worth. We may be right or wrong, but we have our strong opinions. To the extent that Enron ever tried to represent or have an incorrect view in our minds of where the market was, we had no inhibitions about being on the other side of the trade with them. Others in the marketplace also viewed Enron Online as a place to make a lot of money. We did not look at them as a huge competitor that was stifling our business, but rather as a potential source of income. But because of the way they carried themselves in the marketplace, I am happy to see them gone.

Response: If we do not police ourselves, somebody will do it for us. I am a supporter of fair markets but I think we have to be very careful about what additional oversight is brought in. I am not opposed to markets being transparent. I am not afraid that somebody has a record of all of our trades.

Response: I do not think a case has yet been made for additional regulation or legislation. As a general matter, what has been identified is illegality, fraud and manipulation. My own perspective is that it is extremely difficult to regulate. That is really an enforcement responsibility. It's sort of a paradigm: you can't regulate against fraud. But if you think legislation will instill new confidence in the market, then I think your goals are undefined and will not be satisfied.

Comment: If there is a question that the authorities do not have the legal jurisdiction that they thought they had, if the court throws out a case that the CFTC did not have the authority it thought it had, obviously we would look at amending their authority – or FERC's or Justices's -- to make sure it is prosecutorial. FERC is going forward with amendments to its legislation to give it more authority with respect to penalties and recognizes the reality of the role it ought to be playing on the enforcement side. One point is that because it's Enron, axiomatically it must have been bad. I think many elements of Enron's conduct probably are marginal in terms of their illegality, although they certainly do not fit well in terms of public perception of the right thing to do. Whether they in fact violate the law and violate criminal law are more difficult judgments.

Comment: The incentives on the side of the market manipulators are immense, particularly because the rents are so big. Have we invented a game of cops and robbers in which FERC says that withholding is illegal and we're going to

spend four or five years arguing? Withholding is sort of like a sick day. You call in sick and then the boss has got to figure it out. In the end you can get fired, and so you only take a certain number of sick days. There are certain activities that we simply legislate out of existence because the risk of abuse, whether it's immoral or illegal, is too great. From my point, to listen to the notion that the court of public opinion has gotten so screwed up that they are going to muck up the market really has lost touch with reality. The only thing standing between legislation that really does discipline the industry and legislation that does not is an immense amount of political contributions and campaigns. The court of public opinion is very negative on all of these shenanigans and the fine point of what's legal and moral have been decided in the court of public opinion. The question is how public opinion is translated into political actions.

Question: Would you legislate energy trading out of existence?

Response: No. I would prefer to start with the new institutions I need before I get to the markets. If we need regional transmission organizations to overcome society's inability to build transmission lines, we should build those institutions now. I wish that FERC had said that first. Then plan and execute a series of hard upgrades; show it can actually be done before FERC lets people start collecting scarcity rents.

Comment: There are a lot of activities that Enron did that I think were perfectly legal, but were distasteful. I do not know if that is a strong enough word. They were not things I would have condoned. I think it is a very bad standard to fall back on just whether something is legal or not; People need to be held to a higher standard and Enron is rightfully being looked at because it tried to draw the line in that way and in many cases, went over the line into illegality. But it is still a situation

where just because it was distasteful, just because it was not in the spirit of the way the system was designed and what people anticipated, that did not make it manipulation in terms of impact in prices. It made it an activity that you might want cut out, but it wasn't the reason in my mind why prices were high.

Comment: My view of the world is that the gray areas where lots of behavior falls are not usually that profitable. This is the great concern about electricity: because of the ability of prices to run up so high and the numbers of electrons that are transacted, the incentives and the moral fiber of people are eroded by the immense amounts of rents and profits that this particular commodity can generate.

Question: Is there a new day in this industry that looks at products and services beyond electrons, and that looks at new innovation and quality of service, new ways to do things that would not occur in a risk-averse, rate-regulated environment?

Response: In places where regulators have done an awful job, retail restructuring delivers few regulated benefits and there is very little competitive market benefit. Price reductions were regulated, not competed down. That may or may change. It remains to be seen whether the competitive states actually ever get their prices below the vertically integrated states. On average today, the states that are regulated have much lower prices than the states that are deregulated. And FERC has made no progress in ten years in getting an interstate transmission system that is adequate and open. It has assumed that it is impossible to have an administrative system of non-discrimination. We haven't tried that.

Comment: FERC does not have much authority to expand the grid and no one has ever actually asked it to expand under the authority that exists now. FERC is

addressing market power and giving people voluntary markets to play in. It is not requiring anyone to bid into these markets, except where FERC exercises its responsibility to mitigate power. The commission is acting the way it was told under recent US Supreme Court decisions. Its SMD is a reasonably comprehensive proposal and a combination of the empirical results – international to some extent. There may be flaws here and there but the groundwork to make this whole process work and to put it on a track where it can work is there.

Question: To what extent are the trading problems in electricity markets common to other commodities? What if this whole sector just disappeared? I have always thought of trading as extremely necessary to a well-functioning market where customers have a lot of choices.

Response: My sense is that wash trades are more a product of the electricity market. I think their purpose has been generally misrepresented in the press. When the power trading business started, it was the first business in the energy side of the market that actually had all the trades reported to FERC and then this was made public. I think some players thought it was important to be a Top Five or a Top Ten player. I think they engaged in trading where they would try to buy and sell at the same price and not lose money and build up their volumes. Maybe sometimes they lost money in the process of trying to just trade for volume's sake. Ultimately they fell into a trap of just saying, "I'll sell to you; you sell it back to me and both my volumes go up." I don't think there is much evidence that there was any intent of doing it at prices that were different from where the markets were. Ultimately, that activity becomes more complex and questionable if you start to spin off your affiliates into the public marketplace and say, "Measure me because I am big." That is a separate issue. Mark to market accounting is something I think is

misrepresented in the press. Our whole business runs in mark to market accounting; I can't imagine a world that would be better without it. When people say they want to get rid of it, do they want to go to something where I can do business that I lose money on and I don't have to report it? I think a lot of the mark to market problems that Enron had in bandwidth and in paper and pulp and other places that have illiquid markets; I don't think there is anything wrong with the system, but it's wrong how Enron used it. Maybe we have seen more evidence that people abused mark to market in electricity. But the analysts did not fully understand it, either. Williams had a huge spark spread position in California. When the value of those spark spreads widened, it recorded profits. I am not sure that was inappropriate. Williams lost a lot of money when the crisis was alleviated, supply was increased, demand was diminished and those spreads collapsed. I think that reflected the company's true economic condition, but a lot of people did not understand that at the time. Part of it was being in the power business, but part of it was just being in the go-go period of dotcoms, telecom and high stock multiples – the world we lived in when all this took place.

Response: Looking at the history of events of fraud and manipulation, what is different about power is that it is a new market, it has a lot of inefficiencies and a substantial amount of volatility, which does pick up on the point about incentives. I do not think there is anything unique about electricity that justifies a different regulatory environment or legislative environment with respect to trading. I think what you will see coming out of some of these investigations will be actions not just involving power, but also involving natural gas. That further supports the point that it's a broader range of commodities than just power. The market will not go away. It can be restricted and legislated in many ways, but

there will continue to be participants. There are some new players who are very high-level traders – for example, some hedge funds. That indicates that the market is a buy opportunity from the standpoint of a trading environment, because of its depression. FERC Chairman Wood, SEC Chairman Greenspan and others have recognized that the need for intermediaries in this market is absolutely critical to connect the two worlds. Whether they themselves are utilities or not is not very important, and may in fact be beneficial from a standpoint of market efficiency.

Question: If some worry that rents are so high that all kinds of abuse have been given an incentive, low profits give players significant disincentives to come in. If you own generation, if you're just a little old utility somewhere that has load, you need to hedge those positions or you are in trouble. Either you do it yourself, or you become a customer of a Morgan Stanley or someone else. It strikes me that as a matter of public policy, it's good to have many participants, maybe as many from different business models as you can have, and bring down the cost of hedging for the parties. Yet the current trend is that you need significant capital adequacy to show that you are creditworthy; you need significant risk systems; you need significant intellectual property to make this all go, and that doesn't work without volumes. Is there a place for the generator or utility company to perform its own marketing and hedging?

Response: I do rate cases and restructuring cases and have an interesting experience sitting across the table trying to negotiate a settlement over the divestiture of some power plants from a utility. One utility wanted to spin plants off into an unregulated subsidiary. It also owned QF's and some other things. The proposition was if they could not get all their 40,000 MW into one company, they could not survive in the marketplace. They

were the little guy just trying to raise a little capital. They theory was that I could break them up into 500 MW companies or plants and I would have competition.

Question: Can a medium-sized player make it, or is it the money centers or the major oil companies?

Response: It will have to be sizable companies. I don't think that is just the Morgan Stanleys. Oil companies like BP Shell can be in the business. I disagree with the people who said they needed 40,000 MW. I think our business in our three little plants is probably healthier because we could actually manage that size portfolio, which you can't in a big portfolio. I think small players can maneuver financially in the generation business perhaps even better than big players. For example, our first plant was built in Alabama. We dismantled a plant in Oregon and moved it to Alabama because the economics were better; there was no reason to have the generation at the time on the West Coast. We found turbines for our second plant in Ecuador and moved them as fast as possible to build a plant in Georgia. We found the turbines for our third plant in Japan and brought them to Nevada. If we had an opportunity to move that Nevada plant anywhere else in the world, we would do it in a minute, because from the day it opened, that plant has not run.

Response: It is particularly unfortunate in the current environment that the trend is toward the bigger. A huge number of utilities opened up trading arms. That has completely fallen out of fashion for two reasons: the use of capital is extensive, and the ratings agencies woke up one day and decided this is a bad business. The other reason is that a lot of people set up those trading arms without understanding the business at all. I think it is a hard business for a traditional utility to get into. At the end, the last buyers were people who were somewhat desperate, saying,

"We have to be in this business at whatever cost," who paid enormous amounts of money, hired people who were the cowboys of their generation and are now paying the price, so that reputationally in the usual cyclical way, we are looking at a real shrinking of that kind of business and outsourcing it to the bigger players. Over time, it will probably evolve back to a more rational result.

Comment: FERC did try an administrative system for non-discrimination and the open access to the transmission grid. That is what Order 888 was and that is what TLRs were in combination. A better way to procure the next round of generation would be for a distribution utility with captive customers to issue an RFP. In order to support the utility's ability to use that generation, were it built anywhere other than next to the native load, would require all of the things in the standard market design. Of course, FERC's SMD also deals with trading activities.

Response: FERC Order 888 did not establish new independent entities to operate the grid. If I want to acquire load generation to meet new load, under SMD I need new transmission rights and I have to acquire them in a market. I guess the entity could build transmission, but it will be built predominantly by the transmission organization. Those organizations do not exist today. SMD proposes to create them. I don't know whether they will work. This is why I want FERC to demonstrate to me that it has successfully created those organizations.

Comment: Transmission-only companies have only one product and only one investment field. If it is based on customer needs, customers are very willing to identify their needs and to pay you to build the system they need.

Question: One motivation for the development of spot markets was to be sure there would be equivalent efficient

access to the transmission system. Will you get this kind of access without the spot market mechanisms? In other markets, private trading organizations exist and function as the spot market. Under SMD, if you need electricity at the last minute, the ITP sells it to you, or if you have excess to sell, the ITP buys it. You can imagine a world in which people enter into various bilateral contracts that then just sit there. And when real-time or day-ahead comes, people settle all their imbalances at the spot price and there is not much trading to be done two days ahead or a week ahead. Enron recognized this. It opposed the development of day-ahead and real-time markets because it wanted to do that. It lost that battle and found other things to do. What difference does this make for the role of electricity trading and markets? What is wrong with the strategy of entering into long-term contracts and then cashing out your imbalances in the ITP market in real-time or day-ahead?

Response: I prefer having FERC police the TLRs rather than police the market power afterwards.

Comment: FERC tried to police TLRs. It found that when a vertically integrated entity exercised a TLR, it did so to maintain reliability on its system to protect its native load. It is difficult to get the technical details when the specs on reliability are not written down, so the entity can simply invoke them. Invoking a TLR blocks others from trading. When the independent ITP invokes the reliability rules, it does not do so for profit. The exercise of the reliability criteria is independent of the market price at which the power will be traded.

Question: Will FERC decide whether to call a TLR?

Comment: The entity calling the TLR needs to be independent of the profits that are made when the TLF is called.

Response: Again, the difference between the administrative rule of saying the TLR doesn't stand and simply setting the price does not matter. FERC doesn't want to reject the TLR because it will be blamed if the lights go out. Do the best you can to reduce the market power, but don't worry about keeping the lights on. If they go out, that's the worst outcome.

Question: The party is either hedged or not, and if not, where is the source of the power that is being replaced?

Response: Physical hedges tend to keep the lights on; financial hedges do not.

Response: As my business grew into New York, New England and PJM, it was advantageous to just have the pool system balance it all out for us. Our interest was longer-term transactions where we can really add value to the equation; I don't know that we add a lot of value to balancing out the system in the last day of trading. We don't do much of that in natural gas, or in oil on the crude side. We do a little more on the product side because we have a rack-type real physical operation at the end of that chain. We think there are better ways to get enough information to make judgments about whether supply or demand is loose or tight than the front part of the market.

Response: Conceptually at least, it is worrisome because it is a market artificiality.

Question: Five years from now, some of the SMD market infrastructure may be in place or close to being in place. Would divestitures enable these markets to work, or will there be such concentration within regions because of the companies that now own the generation that the price will be controlled all of the time?

Response: The less concentration you have in the market, the less you are able to profit from a Nash-type strategy. There

are other ways to mitigate market power. It is not clear exactly whether FERC could undertake a large divestiture program. In theory, if you get spot market mitigation correct, concentration does not matter. Also, when you try to measure concentration, if you have much of a forward market, you will have huge problems getting the concentration measures correct, because it is a net position that you have in the market that has to be measured, and the net position includes your contracts. When you start to read forward contracts to figure out everyone's net positions, you have to read all of them. This is why I am more comfortable with the SMD mitigation program than with divestiture programs and concentration calculations. And these markets run remarkably well during normal periods. They go out of whack when it doesn't rain or snow as much as usual, or it is exceptionally hot. Then you expect the spot market price to rise because you do not expect everybody to be over-hedged. During these periods, FERC's challenges are to make sure the price doesn't go higher than in a normal scarcity regime; that the scarcity rents in the market allow people to see proper price signals; that the market power rents are out of the market so we don't spend the rest of our lives in litigation about mitigating market power and refunding, and then mitigating the forward contracts that were signed during that period. Doing this ex-post is not a good idea for society.

Question: When does economic scarcity end and market power begin? Will there be an interactive, ongoing war among regulators to identify and fix the problems? How robust will the evolving system be?

Response: The theory of market power versus scarcity is easy. There are no market power rents if everybody in the real-time market bids their marginal costs and you clear the market. There are market power rents if people withhold or

bid higher than their marginal costs; the market can clear at a price that is too high. A demand curve in the market is necessary for all of this to work; otherwise, there is a huge amount of indeterminacy. The problem is that when you try to mitigate, you can get it wrong in either direction. You do not want to mitigate when you really don't have to because there is a lot of work that goes into it. There are a lot of political choices, too, but I think it is pretty clear how you can lay it out. Interestingly, probably the most difficult entities are the hydro generators, because most are public entities that we do not regulate. In the west, a lot of trading occurs outside the normal franchised area on a regular basis. How do you deal with that?

Comment: Talking about highways for transmission piques my interest. Would the existing utilities build them? Are there new entrants involved? Is it generation? When will we know that we have enough of the highways to then move to more liberalized market structures? Will it be when we have eliminated congestion? When we eliminate price differentials and price arbitrage?

Response: It's hard to know where to draw the line between economic rent and market power. The concern is that we are launching the markets after a decade in which we have neglected the transmission grid for a variety of reasons. It seems to me that we don't want to launch markets during periods of artificial scarcity or create institutions that we do not know can alleviate scarcity, whether artificial or real. People know the next set of upgrades needed and where they would like to build them. Who should do this? I am not opposed to having the members of the transmission organization with an obligation to serve issue a competitive bid under all circumstances. I would like to see those entities acquire the next round of upgrades and when we have reduced congestion then it is time to try the market

because we need more subtle instruments. I think there is no lack of economic rewards for building them, but the difficulties are environmental and social.

Question: Some of the discussion about market activities is that they are not necessarily illegal, but they are distasteful and so the more ethical marketers do not engage in them. They are distasteful for a reason, but whether legal or not, they are gray in whether one ought to act in such a way. Essentially, this leaves us in the gray area of distasteful activity with something that we tolerate if it is not illegal, and it either happens or it doesn't. If it steps over the line, you have the option of criminal prosecution. As a lawyer, I do not particularly like this option because the burden of proof is difficult, especially if you are relying on fraud law that is a fairly arcane subject. Criminal prosecution is not a very effective means to regulate the marketplace. What do we do in a situation where the market we have established is dysfunctional for whatever reason? I agree that marketers can bring efficiency gains to consumers, but it seems to me that it is a difficult argument to make that there should not be some regulatory activity applied either in the context of the disfunctionality of the market or in the gray area of distasteful but not necessarily illegal activity.

Response: Calling it distasteful is not necessarily saying that we just have to put up with it. But if it is still legal, I think regulating it doesn't much help. Washing trading is an example where we could say, "We do not want anyone to do wash trades" and we pass a law prohibiting them. Maybe it is not a good analogy, but in the political community for example, someone might say, "If you vote for my project that gets me something built in my district, I'll vote for yours." I think that is distasteful. But we have put up with it for years.

Comment: I don't say we make all distasteful activities illegal. Rather, I view it as a nuanced set of issues. When you deal with these and in the gray area, you may need some ongoing oversight, as opposed to making something illegal because that may not be advantageous, either.

Response: What kind of action can an overseer do if you have oversight but it is not illegal? You have to figure the cost benefit of having your population self-regulate, refrain from doing business with these people and refuse to tolerate these activities in the same way that you can choose not to reelect someone who does something that is not illegal, but with which you are unhappy. If you say, "We want to eliminate the potential for anybody to do anything wrong," there will not be much of an economy left. That is not to say that we do not have to look at some things and say that the cost benefit has reached the point where we have to do something about it, maybe even pass a law, even though that may constrain some people from doing things that are actually legal. It is very tough to put the responsibility to regulate something that is legal, but that you don't really like in the hands of a regulator.

Comment: It is difficult to construct ways to discover what traders are doing that is illegal versus what is not, or how to make the rules. My choice is to retreat to an area where I feel more comfortable in mitigating market power.

Question: Talking about things that are distasteful but not illegal is more than an aesthetic or even moral judgment. It's bad business. In the long run, a good reason for a Morgan Stanley not to have done these things is because it wants to make money. People who did short-term greedy things got hurt. Isn't there a disciplining effect from doing dumb things that are not necessarily illegal?

Response: You incentivize your staff to think long-term and your manager's incentive drives you to think long-term. However, we have seen a lot of incentives, and not just in the power business that suggest that short-term, immediate gratification is being rewarded. People are able to profit and get out before the whole thing collapses. Today, some people are looking at the Glass-Steagal Banking Act of 1933, who five or ten years ago called it an antiquated law. That law was a disciplining effect that is being rediscovered, now that we're back in the business of re-legislating a barrier between investment and banking.

Question: It appears that there is enough transmission to deliver generation to supply the load. The problem is the congestion of moving low-cost power to somewhere else. How do we build new infrastructure if we don't know what is needed, because it is a function of competition? How will it be paid for?

Response: If we conducted a national power group survey, we would guarantee a set of lines that 99 percent of the people would agree are the next candidates to be built for either reliability or economic purposes. I want the moral authorization of a regional organization to overcome parochial local interests. People will not accept power lines unless they really think they have to. The "really think they have to" part has to be created by the process.

Question: Does rate regulation really provide the incentives and environment for the marketplace that we're trying to build? How much can still be done under the old regime, when we have a lot of empirical information that the old regime did not necessarily serve us in the best ways that we want to go forward?

Response: The constraint is primarily environmental and social. I believe you will go farther if you build a political institution that has a chance of gaining the acquiescence of a substantial majority of the people. Like highways, we decide and frequently contract out to the private sector to build them. That model will get you more transmission lines built.

Comment: You can probably build the same or more transmission with SMD if you can find somebody to pay.

Comment: The highway isn't a good analogy for transmission because generation and transmission are substitutes in the way that a highway system would not be. If I want to tour the wine country this weekend, it's important for me to physically show up in the Napa Valley. It is not as good an alternative to call my brother-in-law in Fresno and tell him, "I can't get through, so please go to Napa for me, drink up and call me Sunday night and tell me what a good time I had." But this is how generation and transmission work; if you can't get through, you bring up the local generation to meet that load. And transmission is only 10-20 percent of the total cost of electricity. You could double that and it would not make a dent in prices. Nobody would notice, the problem would be solved and trade would flow. But that has little to do with the reality of trying to build transmission. I disagree that we would know where the wires needed to be built. We could launch off in one direction, taking years and spending a lot of money, only to wind up with a higher-cost system that still didn't solve our problem. We could make the cost of congestion transparent and let consumers see it and then ask them, "What combination of high prices, new generation, new transmission or reliability problems do you want to live with?"

Session Three. Retail Competition: A Failed Experiment or an Essential Reform Just Beginning?

The pace of the movement to competition in retail electricity markets has slowed demonstrably. Some states have even elected to undo reforms already enacted, while those that had not yet opened their markets to competition show no inclination to do so. In many states whose markets have been opened, the results in terms of robustness and sustainability of competition is suspect in the views of many observers. Where do we go from here? Do we abandon retail competition for some or all customers? If only for some, how do we demarcate which customers are contestable? Do we alter the structure of retail markets and keep on trying to stimulate competition? What changes would be required to accomplish that?

Speaker One

Wholesale competition is a necessary, but not sufficient condition. It is absolutely essential to have retail competition to get the benefits, such as lower prices, technological innovation and customer focus, to end-use customers. Unfortunately, what we have seen so far is simply deregulated monopolies, or the transfer of monopoly power to other entities, and the results have been very predictable. We increased prices. In many instances, we stifled, rather than created innovation, and it has negated any customer focus.

What went wrong? Some of the key flaws have been centralized power exchanges with single-price auctions – a perfect fertile ground for gaming. Flawed capacity markets are another. If you divest generation as a block and do not deal with market power, it causes major problems. Rate freezes are a detriment in stimulating competition. Provider-of-Last-Resort (POLR) services have had significant problems. There has been too much focus on market design and not enough on eliminating barriers to competition and mitigating market power.

The bottom line is that markets cannot be designed by committees or by political compromise and yet, that is what we have seen. Some of the factors by themselves are relatively benign, but when taken

together, they cause major problems. The problems are not the same everywhere, but they do occur throughout the nation. Political power is not with consumers, but with others. To move things forward, those political powers have brought about compromises.

Other market designs maximize the use of forward contracts. There are bilateral markets that are more resilient to potential market power. If you cannot deal with market power completely, then you need to move down to a structure that emphasizes bilateral contracts. Both supply and demand must be included in the market. The latter is very difficult to include, especially since the states believe that they control the demand side for all practical purposes.

Market design must abide by a contest of economic principles, not political influences. The California and Enron debacles have focused attention from getting it right to getting somebody and that will not get us to where we need to go.

What needs to be done? Maximize the use of forward markets with bilateral contracts and tradable transmission rights. Very large purchasers of power believe that electricity ought to be treated just like any other commodity. To buy it over the time periods you want means you need hour-ahead and day-ahead markets and long-

term bilateral contracts. That has been a void in centralized bid-based markets.

We need markets, not programs, for price-responsive customer loads. Loads should be treated just like supply. If it's okay to pay supply \$25, it ought to be okay to pay load \$25; if it's okay to pay supply \$6,000, then you ought to be able to pay load \$6,000. We don't want a program that just simply says you get a little bit of a credit if you happen to cut back. Maximize the use of all available resources. Enforce short-term reliability and create an appropriate, but limited, transition period. Ensure an adequate natural gas supply and new generation. FERC's SMD focuses on wholesale, so we do not expect it to solve the retail problems. However, there are many good things in it to help create the necessary -- not just the sufficient -- wholesale market.

A few years ago, an important and very wise FERC chairman reminded us that everybody is somebody's native load. We should not forget that. A single tariff is probably the most important thing in the entire SMD. If we can truly require everyone to be under a single tariff, I think the rest will ultimately fall in line. FERC's SMD emphasizes the use of bilateral contracts and calls for 112 percent, either in owned assets or bilateral contracts. It requires ITPs to establish and operate both day-ahead and real-time markets; large RTOs; inclusion of demand side in the market; allocation of transmission rights or the value of the rights to load. It also emphasizes the importance of market power mitigation and offers great guidance on governance in paragraph 561.

Obviously, there has to be some improvement in its 630 pages. For example, LSEs are load-serving entities, not load; there is a big distinction. It needs to draw a bright line between transmission and distribution. What is behind the meter and in front should be treated all alike, but

you can't reach through the meter, in my view.

We have to clarify that existing contracts will not be grandfathered forever. We have to ensure that the bids in the LMP system reflect marginal cost. In my view, the entire theory of the LMP model falls apart if the bids do not somewhat reflect marginal cost. The market must be truly liquid and transparent. We need a customer focus because customers pay the bills. If you have bilateral contracts, suppliers have to find out what their customers want; that is not a revolutionary concept in the United States.

In my view, the negative experiences in California and other states in my view, show a failure of regulation, not a failure of competition. We haven't had a failure of competition because we haven't yet had competition. All too often, the states simply made major mistakes when they went this way.

I wish we could wipe the word "deregulation" off the map. We are really talking about trying to bring competition into an electric industry through a restructuring process. If the future is similar to the competition we've had, particularly the retail competition, we do not want it. We are not ready to stuff the genie back in the bottle and return to cost-based regulation, but it's going to take some very significant fixing, and if history is any indication, a lot of time.

No matter how good FERC gets it, as long as the states keep doing what they have done, customer benefits will not go to the end-users.

Speaker Two

My company is a retail supplier that serves commercial and industrial customers in states where there are opportunities. There are a few others like

us and only a handful, I would say, that work nationwide. We do two things for customers: solicit customer interest where we can, and sign contracts. They can be from a month to three years in length, either fixed or variable price.

As a load-serving entity, we do all scheduling at the ISO: we take the meter reads from the utility and do billing, either through the utility or on our own. Essentially, many aspects of what we do replicate what utilities have done in the past, with the exception of meter reading.

Do we have a failed retail experiment or some success? Many of the states that passed restructuring legislation five or seven years ago are asking themselves, "What should we do next?" Retail suppliers' loads in some areas of the country have grown dramatically over the past two years. Customers are becoming more familiar with the market and there have been tweaks in market structures that have made more opportunities available both for customers and suppliers.

But there is some room for potential improvement and this is where we are at the crossroads. Thirty-three states still remain uninterested: either they have not passed legislation, or they passed some and introduced some form of competition, but it's fallen off the radar screen. They are not implementing things, or they are moving backwards and retreating.

There are very few examples of competitive retail markets and quite frankly, it is an uncertain business climate, largely because of the issues related to California, wholesale market issues and regulatory uncertainty. The latter includes what FERC might do with its SMD.

The definition of success depends on your perception and where you sit, or a mix of these. Is it economic efficiencies in a market? Societal or individual savings? Does an individual group of customers

need to see "savings" to believe that they have success? Do the politicians? People often say, "Well, we expected to see price savings in this market," comparing it to 1970s prices, not in 2002 real terms. Is it new products? Is it participation switching and choice? A theoretical person may think success is an absolutely perfect market without intervention. Finally, is success happy politicians who do not need to pay attention because things are working smoothly, they aren't hearing from their constituents and it's not on the front page every day?

It is a combination of all of these. We struggle to find what the goal is and how to meet the demands of various constituencies. And our job is to find the right marriage between markets and choice in competition at both the retail and wholesale levels.

A perfect market consists of many buyers and sellers, liquidity, many different types of players. That is different from many buyers and sellers because many entities offer different products and conduct different aspects of the business. At this point, we have to acknowledge that achieving a perfect market may require some regulatory intervention. How much is too much and what do we really need to prompt these markets to move forward?

The successes have been focused. We have seen growth in the commercial industrial sector and involvement in retail competition in Massachusetts, Maryland, New York, Maine, Texas and Illinois. There has been limited market success for residential customers in Texas, New York City and Ohio. Due to some issues in the wholesale market, progress in Pennsylvania and California has been more limited. Several retail suppliers conducted a survey of how much load we're serving. Last summer nationwide, it was 3,600 MW, larger than the load on ISO New England and larger than New York ISO.

The common characteristics I've had seen include: more mature wholesale markets; rules that provide liquidity; more buyers and sellers, including LSEs; realizing that a fixed price for all customer groups and classes isn't sensible and that backstop pricing from the utilities needs to reflect the differences in load profiles, usage patterns, payment patterns and so forth. And more retail competitors – enough to sustain a good, competitive market where customers see choices and receive options.

Where the regulatory environment has allowed POLR to be market-based or closely tied to the wholesale market, there is more reelection or customer willingness to participate in choice. Customers actually see the true cost of service at the retail level; it is not just a wholesale pass-through.

From a commercial and industrial supplier perspective, I challenge the notion that we should leave everything the way it is and not touch other customer groups. I think there are good reasons why we should think hard about how to make this work in other parts of the country.

New products are beneficial to customers. They're also beneficial to wholesale and retail markets. For example, we need to create the demand for call options, puts and so forth. The more liquidity in a market or a given industry, the better the market will be in terms of pricing and efficiency. It is clear that the wholesale market could operate better if there is a real reflection of what customers want. That does not mean that an individual customer is actually participating in the wholesale market, but it might mean that a company like mine is helping them do that, and the demand is reflected in the wholesale markets. Having multiple buyers avoids monopsony pricing.

We think SMD is good. We think it's essential to fix some of the market power

problems. FERC can do little to force states to introduce retail competition. But for FERC to see the full success of what it is saying would work for a wholesale market, there must be more retail competition. We will see more benefits in the wholesale market structure that has been proposed, if there is a more vibrant retail market – because of the liquidity, because of having customers involved, because demand will be reflected, and because of all of the parties that provide some of the liquidity and that come into play.

Speaker Three

To measure success, we need to step back and ask, "What is the objective?" The answer certainly does not depend upon theory, but rather on the economic self-interest of each of the stakeholders. You are likely to receive very different answers from big customers, little ones, generators, marketers, and you should ignore the theory we will all throw out to persuade you that neutral principles just happen to come out our way.

I measure success from the viewpoint of low-income residential customers, whose major interests are reliability and prices that are as low, affordable and stable as possible. I am a lawyer. I approach this question empirically. I do not oppose competition, at least in principle. It sharpens most of us, and I have argued for wholesale electricity competition for about fifteen years.

But there has been very little retail competition, even after five years or so of trying. For example, by service territory in Pennsylvania, the saturation of competition is under one percent. Even in the one place where it has hit thirty percent, the market still does not serve seventy percent of residential customers.

According to a survey by the Energy Information Administration, residential competition saturation is in single digits everywhere except Ohio. Keep in mind that Ohio's result is somewhat artificial; some have called it retail choice by bribery.

The significance of the EIA list is that competition has failed even where marketers' wish lists have been met, for example: "Don't kill competition with kindness in the form of customer-friendly default service. Customers should see market prices." In Massachusetts, default service serves almost 600,000 residential customers who pay rates that merely track spot, just averaged over six months for most customers. The price variation is 50 percent. But if you only looked at generation, in some service territories there has been an increase of as much as 63 percent and the volatility is two and a half times in just the last two years. Even with all of that, there still is no residential competition.

Another item on the marketers' wish list says, "Retailers need headroom in order to compete." Pennsylvania provided plenty of that until wholesale prices rose to eliminate it. A marketer calls New York state ideal because it has no price caps. The maximum penetration there is less than in Pennsylvania – 21 percent. Other territories in New York range from 10 to 0.1 percent. Texas took the utilities out of the retail business altogether. One result is that POLR prices are as much as 40 percent above the standard price-to-beat price.

Empirically, retail competition is just not taking hold. Why? For most households, electricity is too small a part of the budget to make much difference. On average, all household energy for heat and light, heat and power, represents about 2-3 percent of the income for the median non-poor family. So even an impossible 20 percent savings on gas and electricity would

increase wellbeing at the median of zero by 0.6 percent. This is why residential demand response is so difficult, and why proactive energy efficiency programs have been the successful residential demand response vehicles. Eric Hirst has sown that one percent of customers account nationally for 52 Percent of the load. From a system point of view, you can probably get a lot of competitive load with just a few customers. In any event, competitors have not shown up in great numbers. I think price volatility at wholesale has been as difficult for them as for their potential customers.

Headlines and studies over the last few months have shown that retail competition has not developed or is failing. In mid-September, a five-state study conducted by the National Center for Appropriate Technology stated: "With few exceptions, restructuring laws have not resulted in lower prices or increased choices."

From a residential customer point of view, the biggest change is increased price volatility, making electricity more difficult to budget. While electricity prices may not be a big deal on average, they are a very big deal for the 20 percent of so who are worse off, even though their usage is about 20 percent less than others. The burden on their income is, nevertheless, triple or quadruple, if you compare medians, and eight times at the extreme. Imagine if you had to spend that fraction of your income just on heat and light. Thirteen percent of \$100,000, for example, is more than \$1,000 per month.

If true shortages and price spikes are a necessary part of the boom and bust cycle, they are simply not acceptable socially with respect to the electricity commodity. Perhaps we felt we had transferred risk from regulated customers to unregulated suppliers. If so, that is illusory; we did not eliminate this from the system; we increased it. There was an irrational exuberance to build followed by a gigantic

surplus, a price crash and new power plant cancellations. Some Energy Information Administration data illustrate this. Additions announced totaled 36 percent of existing capacity from the year 2000; 14 percent of additions were actually built.

Surplus is another word for bulk reliability: I am concerned that we will see that decrease as well. According to the media, Williams is paying 30 percent interest on loans in order to avoid bankruptcy.

My recommendations are first, to manage utility resource acquisition in the wholesale market to reduce volatility. Do that with a mix of durations and dollar cost averaging. Maine has an excellent start on this, although a greater mix and longer terms are ultimately what are needed there. Still, compare Maine's three-year stable rate to the volatility in Massachusetts.

Second, manage supply to assure reliability and to discipline the wholesale price by preventing shortages. This may require a public authority constructing a peaking plant – exactly what the New York Power Authority did a few summers ago on Long Island. Perhaps the model is Oregon's, which has permanent regulated rates and most important, special assistance for low-income customers.

Finally, from the orders of Rhode Island's Public Utilities Commission: "The creation of competition is beneficial only if it produces savings for ratepayers. Higher prices to create a competitive market is economic logic turned upside-down."

Speaker Four

My own definition of whether retail competition is working or not includes the following characteristics: a robust wholesale market with broad geographic

scope; everyone with access to bilateral markets; no incumbent advantages, and preferably no incumbent at all; and default services prices at market, or at least not below market.

The first question we ought to ask is about failure. In 1987, Maine's prices were exactly at the national average. By 1999, through a combination of regulatory and utility brilliance, we had contrived to increase that rate to about 170 percent of the national average. Residential customers bore the brunt of the increase because the state's public service commission had a conscious policy to make sure the state did not lose its industrial base.

We had a good idea of what the failure was, and that led to a good definition of success: to get the number back to whatever the national average happens to be. The device chosen was to get government out of the procurement business, particularly out of the planning business, to the greatest extent possible and with some degree of public confidence.

Why should we trust the market? In answer, first, it is a temporal issue. Over the last few years, the efficient size of generation has shrunk and continues to shrink, and thus, private capital can do what or publicly compelled capital could accomplish. It is now possible to bring the advantages of a broader market in ways that were previously unavailable. Information development's technology is a critical component.

I think a more fundamental question explains at least some of the fervor, if not much of the logic of the current debate on SMD. The emergence of congestion that people see when markets are open suggests that prior to opening the market, dispatch was extremely inefficient, if you look at it broadly. Stated differently, vertically integrated structures mask very

substantial system-wide, though not necessarily zone- or company-wide, inefficiencies. Put yet another way, how long should each company or state be able to guard its current, largely historical or accidental advantages in pricing at the expense of regional or national good?

In my view, robust wholesale and retail markets can achieve a system in which the overall cost of the electricity product is lowest. Allocation issues ought to be dealt with separately. But I don't think you can achieve what I see as an overall lowering of costs without moving to these markets. Why isn't wholesale competition enough? I think it retains the monopsony role for utilities or their surrogates, the PUCs, and essentially recreates the problem of a government allocation of resources, which I find unattractive, and which some states are not very good at. Beyond that, it is unlikely to push innovation hard enough. Whatever you might say about the beauty of the old Bell system when Bell Labs was running it, I think it did not produce the kind of innovation and access to the market that it might have.

Maine has one of the more successful default models. It is market-based; we actually go over different time periods, depending on the market. For larger customers, we go relatively short. For residential customers, we go out for a year. We would be willing to accept a three-year bid, largely for political and stability reasons. Essentially, it is a state obligation. Our utilities are completely out of the retail business, and have no obligations whatever.

There is a clear relationship between the wholesale price, standard offer price, and the degree of shopping. When we raised the standard offer price when the wholesale price was declining, we saw an enormous increase of shopping. We happened to be rebidding right at the trough of the market, so even though we took the price off the market and did not

try to adjust it for any regulatory reason, it happened to be a very low price. When the wholesale price began to climb back up, people began to see the standard offer price as a more attractive option, and the penetration in the bilateral market dropped rather dramatically.

This is not an indictment of the overall structure of going to the market for a wholesale price, but it does suggest that we have to find ways to make the retail market more attractive. We have urged marketers to sell longer-term products. We are now considering whether we should even go shorter for the larger classes: in other words, go to a three-month or six-month standard offer price. We introduce price uncertainty into the standard offer in a way that will make the retail price more attractive.

Obviously, there is a balance in our default product, in our standard offer, and it is a very difficult balance between avoiding an unnecessary price umbrella. I think it is fair to point out that there are some load uncertainties for the larger classes that actually tend to move that price up. There ought to be some room to sell under it. We are reluctant to put artificial price adders into the standard offer price for residential classes. You will find there is a net loss to everyone if you provide a price umbrella for inefficient competitors to come in.

I do not have a good solution. The margins are not very big, and people have not figured out a way to get the acquisition costs sufficiently low to make it worth their while to move into the residential market in Maine. Another issue is whether we should extend some credit protection to the retail sellers, or remove it from the wholesale sellers for the standard offer.

What needs to be done? First, get the wholesale markets to work, including demand and transmission. A problem is that transmission, generation and demand

response are under three completely different regulatory and governmental regimes, and therefore the markets in each behave separately and differently. FERC's SMD provides some hint that perhaps it is time to consolidate the regulatory treatment so that the markets themselves can begin to behave and interact in some rational and efficient way.

Another issue is the right balance between capacity planning, which I reluctantly have concluded is politically necessary to avoid politically unacceptable price swings, and market forces. Going some distance out into the future with a regulatory governmental overlay on capacity will be necessary, even if you lose some benefits economically. And Maine needs to continue to work on its default supply pricing.

Is competition only viable for large customers? I think it is an open question as to whether all residential customers will benefit from shopping *per se*. If you can have a default product that wrings a significant amount of benefit out of the wholesale market and the market is robustly competitive, maybe you have achieved quite a bit, maybe enough. I see no reason to prevent residential customers from shopping, because I think if they don't, it means that the load risk will be that much less on the default product.

The impact of wholesale markets is critical. I am a little less sure about the impact of the lack of price signals. I think as long as they go down to the retail customer's supplier, you can capture a lot of the benefit. I do not worry too much about having a retail price structure for residential customers that doesn't move hourly. As a practical matter, that is already going to happen for the larger customers. I am just not sure that it needs to be the highest bid. Clearly, the price signals have to go to whomever the intermediary is who's interacting with the customer.

How much is customer attention a factor? Maine conducted a survey to ask whether customers had heard of electric restructuring and to ask how large a price differential on their total bill was needed to shop. It was in the range of 10-20 percent for small commercial and residential customers. That is huge, particularly in the current situation, where about two-thirds of the bill is related to stranded costs and transmission distribution charges. You are really looking at reductions in the range of 30-50 percent on the energy side only, at least according to what people are saying, to stimulate significant movement into the bilateral market.

That suggests that people will have to find some very attractive ways to make it easy for customers to move, and also that people should start selling packages. Instead of selling x number of kilowatt-hours, sell me a 70-degree house.

I do not see the current and transitory lack of expensive residential market participation as a problem. It is no problem at all for Maine's ability to deal with low-income, because the state simply carves them out separately and subsidizes them directly, rather than redesigning and thus distorting a whole system for a relatively small constituency.

Discussion

Question: Would you expand on your view of what IRP means?

Response: I think FERC has not designed it correctly, but the idea is a forward obligation or capacity assurance mechanism so you have some insurance. It is not IRP in the traditional sense; it is a bid system and it is much shorter.

Question: How do we get the competition we need?

Response: FERC's SMD is a tremendous step in the right direction to get us some real wholesale markets, especially if it will be fine-tuned.

Response: It is absolutely essential that you not have what could become a politically driven price competing against a market price, because why would a marketer come in, if industrials or anyone else can tell the regulator, "Lower my price on this regulated side." Get the incumbent and the regulator out of the business, whether it is setting the default price or something else. You do not want a situation where marketers legitimately fear a political price that undercuts them.

Question: Is Maine's standard offer a regulated price?

Response: No. Maine's standard offer price is taken off the market. We do not lower or raise what the bid is. All the risk of that price is on the supplier. For example, in Bangor Hydro territory, the price for residential customers went from four and a half cents to seven cents and back to five cents in a three-year period.

Question: It seems that the logical implication is that you put customers under a traditional rate set by the regulator and don't allow them to switch. You don't say you can cherry-pick; you just say you're in this category. You said you were not sure if it was necessarily worth all the trouble for the small residential. It worries me that we tend to go to extremes; if you are in favor of any competition, you must expose everybody, or if you are against, you can't expose anybody.

Response: I am a long way from concluding that we should prevent even residential customers from switching. I still harbor a modest hope that some sort of green market will develop and I think that has some potential on the residential side. If you cut off switching, you lose that possible constituency. I do not see any

economic, structural or philosophical reason why you couldn't treat a residential market where switching is going to be difficult from markets with 50- or 100-kW customers.

Response: The Oregon model has a green option; RPS in Massachusetts is another. You could do both.

Response: But nothing works if you don't get wholesale right. Even if you decided to have a retail rate for residential, if you are in a state where the utilities no longer own the generation, you have to figure out how you will regulate that, and if there will be some interaction with the wholesale market. What you do will have some influence on how well the wholesale market works.

Comment: It will be difficult, as long as large customers will now be shopping, but still under the control of the state regulator who wants to protect some classes of customers. If you want to put the industrials into the wholesale market, take them out of state control completely. I have not seen states ready to give up control over the large customer for a variety of reasons.

Response: The model is that there is still some backstop service and now it's auction-based. The structure matters. If you include all the risks, it is too long. If all the issues that arise with LMP and congestion are not part of the bid that is made, it might work in the short term from the customer's perspective, but the supplier of the bid will probably be eaten alive in the long run. There have been some successes in Maine and Massachusetts with that in default service, but not a lot elsewhere. You need that transitional mechanism if you go that route.

Comment: Florida is tough compared to Maine. The weather is dramatic and there is no industrial load, so the number of

customers will be competitive and very small. Should you make me go there?

Response: I can understand that the enthusiasm for moving to a national average price might be less than Maine's. If you view electricity as a differentiating element – in other words, if Tennessee's electricity is cheaper than somewhere else and therefore, it is an economic development tool for Tennessee, then Florida should be able to keep its low price. However, if you think we should strive to have the lowest overall cost for the country, or the region within which you can trade, then Florida has to be part of a system where we dispatch in a way that yields the greatest efficiency. And that might come at a cost to Florida. Right now, the debate between New England and New York is colored by that beneficial inequity. Some transitional things may need to be introduced to resolve it. But I think it is a crime to leave money on the table where that money can be achieved by building an overall better system that integrates the various areas. Wholesale and retail competition is just the vehicle to get you there.

Comment: I've thought that the electric distribution utility of the future – at least for residential customers – will look a lot like the natural gas distribution company of the past. The electric utility would probably be able to acquire power for most of its residential customers, hopefully at a reasonable cost. It's true that most residential customers would shed no tears if they were stuck with that power. On the other hand, the utility or the aggregator ought to do the best job possible to get the lowest, stable price for its customers. But you can't go to a system where you buy whatever on the spot market that day and expose your customers to volatile wholesale prices for no good reason.

Comment: If you want to extend the period during which the stability is

provided, you cannot both cherry-pick and shop. There is no free lunch. If you want the stability, then you have to say no.

Comment: Although in Pennsylvania, if you leave and come back, you have to stay for a year.

Response: In the past, we also bid on default and standard offer supply as a wholesaler. Depending on how LMP will affect pricing, you will see some customers leave a certain area. Many suppliers bidding into these auctions have real difficulty, which isn't necessarily bad. That's what the market is, so let them price the risk accordingly.

Question: What alternative do you propose to operate the complicated wholesale markets without a spot market at the center?

Response: I do not see any alternative other than along the lines of an LMP market for a real-time balancing market. PJM says 80 percent of its load now is in bilateral contracts. Those are vesting contracts. We are concerned that a security-constrained, single-priced auction will be put into effect where generators find it so profitable to simply operate completely in the day-ahead and hour-ahead market, or day-ahead and real-time market that they will not want to negotiate any other kind. Exactly this kind of problem occurred in the UK and after ten years, they finally scrapped it. Ninety-eight percent of the transactions are in bilateral contracts; less than two percent is in the spot market. It isn't perfect, but prices have fallen dramatically. While the concept is good, the implementation is difficult. We have to monitor the bids to make sure they do reflect costs. There must be tremendous market monitoring. I think it is much better to create a bilateral market where there isn't reliance on the short-term.

Question: If we go to a NETA-type system, can we abandon market power mitigation? Do you have a plan to mitigate market power?

Response: They went from a regulated monopoly to a regulated duopoly, which from an economic standpoint, did not make much sense, either. They tried to get the generators to sell off some generation and create some competition, and these were major problems. I do not have a plan. I just think market power will not be as significant if we create a situation where there is a heavy emphasis on bilateral negotiations.

Comment: If you suggest going to a different market design, you should include the mitigation that accompanies it because I don't know how to design market power mitigation in NETA, given FERC's rules.

Response: I am not saying we should get a different market design than the one in FERC's SMD, but how will the implementation occur? What I don't want is that all transactions are in this kind of market. I assert that the greater the amount of bilateral contracting, the less market power problems.

Comment: If you are going after residential customers and trying to get volume, you probably can't start offering them the opportunity to have a price that is reflected in the spot market. They don't want volatility; they want a better produce, or something that's either more stable or maybe a rate option that they can take advantage of – time of day or seasonal. I am curious whether Maine would have the same structure if it had a cost-of-service structure closer to what might exist in the west or in places that had a lower price. Surplus is really another term for reliability. If you assume that merchant plants, not the utility, will build new generation, then you have a different level of surplus and cost-of-service. If the

new generation is coming from merchant plants, regulation will have to reflect market rate. If the utilities build the new generation, will customers really accept the costs that come with the stability of having the same high level of surplus and reliability because generation is lumpy? Part of the solution is driven by the assumption of who builds the new generation, where you want it to come from and what your assumptions are. It seems as though the arguments about the market are traditional: arguing about market power and how to deal with that, and what's the best market design. But the question about whether to go forward arises from assuming that the utilities will add new generation, or that you want the merchants and the risks of new generation to be on somebody else. Those two assumptions lead you to very different conclusions separate from the issue of which retail customers ought to be exposed to retail competition.

Response: There are administrative costs associated with offering different prices in the residential market. For other reasons, you may see a more fixed or more uniform price for residential customers, rather than having them all see spot prices. Another model that is not option-based is the Texas model. There has always been a boom-and-bust cycle for energy. Who bears the risk? When do you see the price? Is it ten years later, or at the time that it is happening? Personally, I don't think that is an outcome of competition. Out of principle, my preference is that the vertically integrated company does not build generation. I don't care who builds it, but I do care who's buying the long-term contract.

Response: The customer. Then you are back in the IRP process where you try to decide the right investment if you were taking the risk.

Response: It seems to me that the customer will wind up paying the freight,

no matter what. It will just come at the customer in a different way. Now we see the cost of capital going through the roof for some suppliers. That has to work its way into price at some point. One of the achievements of traditional regulation was to get some control over the cost of capital. A lot of other bad things came along with that, perhaps, but at least it benefited residential customers. There have been big surpluses and shortages in the past, but how residential customers saw those costs really matters. You may think of that as a political issue, but rate stability has always been, as much as is practical – and I think should remain – a goal of government supervision of electricity.

Response: You might be back in the IRP debate if the utility builds and then the regulator tries to tell it what the regulator wants to build. In my view, that is what IRP did.

Response: Some utilities have made exceptionally good decisions on building over many, many years. Some of them are in the Southeast and are adamantly opposed to moving now because of those decisions. They weren't in big IRP states; they put in some very efficient baseload units. I prefer that we have a good, working wholesale market and third-party people build plants and take the risk. But if we don't have a working wholesale market, the risk is transferred to the customers, as it always has been.

Response: The IRP debate was about demand response in a lot of ways. I am convinced that the comparative market offers greater opportunity and better ways to do demand response. An efficient low-cost baseload plant shouldn't have any problem with an IRP process. Regulators have a responsibility to determine whether an investment was prudent and the IRP process did that. If we do not go back to that, we still face a situation where, to the extent that a utility relies on purchases in

the market from non-utility plants to supply new load, then you see a reflection of that market in the cost-of-service rate.

Comment: I'd like to see it reflected in the end-user, once the market rate is below what it has been in the past.

Question: What happens if you have a year and a half in which the wholesale price is high and the retail price is held low? How likely is it that the provider will be as quiescent as retail customers have been?

Response: We had that situation. We had a standard offer price for residential customers of 4.3 cents and the wholesale price climbed to about six cents. They were not quiescent. We threatened to take them to court and paid them a little money to go away. But our risk was on the order of \$140 million. We resolved it for something under five. We learned some things about the kinds of bonds and sureties that you need.

Response: Shorten the term of the bids so that they are more reflective of the wholesale market.

Question: And you think there will be less volume risk to the bidders and they'll get a lower price?

Response: Possibly less. There are many things that go into that factor, but it takes customers a long time to move even when prices are bad. By the time they get switched, it is three months later and you're in the next cycle.

Response: Bidders are learning as the rest of us are learning. After that year, people built more of a premium into their price. Yes, they are losing opportunity costs, but even this one provider did not actually lose money – it just didn't as much as it would have liked. How you administer the bids is a market issue, but I don't see it as a huge problem.

Question: You don't like thinking of the standard offer in Maine as a regulatory price, but as a market price. In the sense that it is a bid by market, that is fair enough. Yet if the price is actually driven by how you write the terms and conditions including the temporal term and the scope of the obligation to serve, and everything from when you can disconnect to what are the sureties and bonds, is this a long way from what you'd get in a bilateral price? You are really the buyers' representative as opposed to the buyers' umpire.

Response: When regulators try to match the terms as closely as possible to the terms available in the retail market, that is an ongoing process. Maine's regulators see themselves as a statewide aggregator for a variable load. Even though there are not many products like that, the regulators try to replicate the retail market. The characteristics of a regulatory price are that you play games with timing: you go long or short when it's convenient to do so. You continue to try to narrow the parameters of that game.

Comment: I think that Maine's default service design is one of the best in the nation. Shortening the length of the bid addresses the discontinuity, but more compelling is to shift from an all-requirements procurement to a partial procurement. Right now, power bid by the suppliers is for 100 percent of the company's load. Alternatively, bid for 50 percent, 25 percent or 10 percent of the load, and stagger the contracts with a dollar cost averaging method. This has the effect of muting the discontinuities at any given point in time. I think that a bid-based approach is compelling over the long run because when there is a discontinuity that allows the competitive market to defeat the default service, the most attractive customers are taken away. If they are gone for any length of time and there isn't a real free rider opportunity for them to come back, they stay gone. By the time you get around to the next bid, it will

be for a group of customers who are just slightly less attractive from a load profile standpoint and so the price presumably is marginally higher for that next round. Over time, this progression will result in a slowly but steadily increasing price for the customers who stay with the distribution company, and favorable prices for those who go away. It isn't a magic bullet that gets you to retail competition overnight, but it does get you to a quite significant amount over time. The higher prices being charged for default service are a reflection of the real cost to serve those customers. Their load profile is reflected in that price, so there is nothing unfair about it. Obviously, you need a mechanism to address the particular problems of low-income customers, but that should be engineered on the side, not made the central design feature.

Question: I've heard people say that we need to maximize the use of forward markets with bilateral contracts. Another comment is to ensure that truly liquid and transparent forward markets develop. I agree that we have to resolve the market power issue satisfactorily for any of this to work. I always thought these markets would develop; that we would put the big customers in the market, meaning prices reflect supply and demand conditions. When we opened up our markets, prices were in the 2 to 2.3 cents range. We projected 2 to 2.5 for the next three years. When we opened the markets, spot prices actually went below two cents. The big marketers told us that they went to our big customers and said, "I'll sell you hedge service for 2.3 cents." The customers said, "No, but I'd like a hedge price at 1.8 cents locked in." The suppliers said no, the customers said no, and that was the market outcome. Then in January 2001, gas prices went through the roof. Some large and very vocal customers cried to the politicians, "The market's not working. You have to save us." But the market worked fine. You may be sorry in hindsight, that you did not sign that 2.3

cent hedged price, just like I am sorry I didn't buy Microsoft at eight. In neither case does that mean the market's not working. I have a problem with implying that there ought to be a way to force people to sell below market, assuming it is working correctly. When you say we need to maximize the use of forward contracts or ensure that truly liquid forward markets develop, why hasn't that happened? Does FERC need to set up and formally run an auction for forward markets?

Response: No, it shouldn't run markets. We should have a working wholesale market with market power truly mitigated, and with bids based on marginal cost according to the theory underlying LMP. But that is not the way it's been.

Comment: Some people at FERC spent the middle 1990s running estimates of stranded costs. The number settled around 200 billion dollars, I think. We built 100 nuclear plants by 50 different utilities. Probably at least 30 of them never should have been in that business. The reason they were was because they were the vertically integrated utility and there was no competition. One of the reasons they had cheap capital was because they could throw their mistakes into the ratebase. So I don't understand how we can romanticize the old system.

Response: I'd be the last to romanticize nuclear power. That was a huge and costly mistake and residential customers paid for it. It's illusory to think that residential customers will not pay for the very substantial mistakes in the competitive market over the last few years. We will see it through the cost of capital instead of through a direct pass-through.

Question: Will the increase in cost of capital be equal to all the capital costs the IPPs have eaten in the last year and will probably eat in the next?

Response: I hope not. I'm suggesting that retail residential customers cannot cope with the volatility of the wholesale pass-through that is what most, or many, restructuring systems are providing. They need to see something closer to what Maine is doing – a series of longer-term purchases, at least where there is no utility plant owned, in order to dampen that volatility. Perhaps we can get the benefit of both regulation and competition in a controlled way at the same time.

Comment: There was more damage done in a few months in California in terms of billions and billions of dollars of losses to society than had been done in many prior years by regulation. Many people favor competitive procurement of generation as a way to avoid the problems of the past. But that doesn't mean you expose every residential customer to volatile spot prices to get those benefits.

Comment: I was on a panel where the stranded costs were \$561 billion. I smiled then, because I said, "See how broke the old system really is?"

Question: Did we sell retail competition improperly in the sense that we recognized there were places where a congestion-based pricing model would show that prices would have to go up because supply was tight, and consumers felt that if they spent \$2,000 a year on power that then they were going to spend \$1,500? With competition, the market fundamentals would not really dictate that, in addition to the fact that maybe the input costs – such as the cost of natural gas – would rise and that would have an impact? Did we sell it long, and how are we defining the savings for customers? Did providers at the residential level offer more than just power?

Response: I think people did sell it wrong. Maine was extremely careful. No one promised the legislature or anybody else that prices would go down. There is

nothing in the law or the regulatory structure that requires or even suggests that prices will go one way or the other. We were lucky in that we were able to get about a 10 percent reduction. Over the long run, Maine will trend towards the national average and that is a good thing because Maine will be tough if it tries to beat it.

Response: In terms of bundled services for residential customers, state laws were passed in the mid-to-late 1990s. I think that people believed that certain things had to happen before residential suppliers could offer some services.

Question: We thought we'd see a lot of load aggregators in the marketplace. Actually, Massachusetts encourages municipalities to aggregate load. The most natural load aggregation I can think of is how states handle LIHEAP funding. To what extent do they use that to stimulate competition, or to what extent do they rely on the traditional utility supplier and whatever the price is? There is a consensus that we need more demand response. Why aren't we getting it? What are the entry barriers? If suppliers see the prices, why aren't they acting accordingly?

Response: I don't know of any state that uses LIHEAP for aggregation. I can think of one state where in one small part hedging is allowed for oil prices. I am not sure I understand why that is so, but risk aversion is part of it. It is similar to what you see among the natural gas distribution companies today when somebody like me would suggest doing some hedging on behalf of residential customers instead of putting them on spot in the middle of the winter. There is probably some justification for the fear among LIHEAP's administrators that if they guess wrong, they'll be accused of being imprudent. As a philosophical matter, LIHEAP's administrators are more involved in promoting energy efficiency. Residential

customers tend to be small customers and the smaller they are, the less load they have that is worth shifting, or that even can be shifted, or that would be desirable to shift from a social point of view.

Response: I think there is a little bit of a game being played between regulators and marketers on DSM. An important feature of a successful demand market is real-time meters, and they are expensive. I think regulators are waiting for the market to put them in and the market's waiting for regulators to socialize the costs.

Response: Technology infrastructure is one impediment. For the most part, the utility is still a conduit for all data on customers. It's very hard even now to get interval data on customers, which you need on a real-time basis. There are not many incentives from a C&I perspective to work on demand response. Some people are looking at ways to provide incentives for people to participate that aren't necessarily subsidies. We have customers that use our curtailment program, but it is not at the capacity we would like.

Comment: Columbia Gas doesn't aggregate by LIHEAP, but does purchase gas for its low-income customers in Ohio and Pennsylvania.

Comment: The key fundamental that brings in investment is focusing on the bilateral contracting for active commercial contracts between buyers and sellers.

Comment: One mistake that Texas made was to treat POLR as default service that was applicable to and used by customers who needed a supplier in an emergency if their retailer went out of business. The commission also threw non-pay customers into that and pulled the ability to disconnect from the retailers. Recently, that has been fixed: the new rule in September 2002 separates those so that the POLR bids that go into effect in 2003 will

be more applicable to customers who may need emergency service for a short time in case a supplier goes out of business. People who have a hard time paying for whatever reason will go to the price to beat with the incumbent retailer in that territory and pay that price until they can find another supplier. They always have that backstop that is close to market or at the market price. We are still hunting for that just-right default service model or POLR price model.

Comment: The reason that AEP is mothballing its numerous old and inefficient steam plants in Texas is because 20,000 MW of new, high-efficiency was built by Dynegy and Calpine. When plants do not run on a real-time basis, they need to be retired unless there is a reliability issue. AEP has applied to ERCOT to tell them which units can be retired. So that part is working. It's a success because that investment is the true litmus test of any market. TXU will probably spend close to a billion dollars over the next four years. It spent half a billion in the last three on new transmission lines. Although the US is getting a little better on the wires and pipes investments, we're still not seeing much activity outside of Texas. I invest in Texas and beyond the US that have opened their markets. Will that create some sort of economic imbalance on a global scale for customers and companies that live globally?

Response: Clean is good. But there has to be oversight to be sure that the incentive to withdraw plant in order to drive the price up – the extreme case being California – doesn't put us in an unreliable bulk power system. My job is to protect residential customers and provide them the most stable, affordable price, not necessarily to provide the highest return for investment capital in power plants.

Response: The kinds of problems that can bring relocation of industrial facilities are

much bigger than an electricity issue. The latest business survey says this is the worst environment in the US for business right now. While I am not shutting plants, neither am I talking about doing any additions or major renovations.

Question: I want to reconcile the issues of customer choice with the need in FERC's SMD about a long-term capacity-planning obligation. How do you reconcile them without creating new stranded costs or a variety of exit fees?

Response: I think the issue of future capacity assurance is fundamentally a political question. You have to decide how much money you are willing to spend and how much volatility you want to remove from the energy market. I think that is a function that probably belongs in the ISO with appropriate input and FERC supervision. The mechanism would be to assess your need two, three or four years out; conclude how much additional capacity you need; collect the money today to pay for that; allocate it based on bidding from people who guarantee they will be in the market and pay them when they're still there three or four years out. This is completely disconnected from any particular LSE because you socialize the cost up front and pay it to the particular providers when they get there. There is an estimation risk with that, but it's a political overlay to dampen what would otherwise be a politically unacceptable level of volatility.

Response: It is also a complicated one of how to match the political interests with one's own, even within the same company. Don't limit it to physical assets; think about options and puts and calls, and financial mechanisms that may be used in that market.

Question: What would you like to see to make the market work on the demand side? What should FERC do?

Response: If the demand is vertical or perfectly inelastic, you don't have a market. We are still approaching the demand side as a program, rather than as a market. Demand should simply be treated as supply. If it makes sense for the supply side to bid in an hour-ahead and a day-ahead, or a lot longer and get paid the market-clearing price, then the demand side should also have those opportunities. All too often, we hear that the demand side should give residential customers five dollars a month if they'll put their water heater on a remote-controlled radio switch or something. We'd like to see an aggregator of residential loads install the switches and respond to the real-time market. Turn off zones of people at various times and they get the \$100 or whatever else it is. We think there is enough incentive to make it really work that way – but it takes a different mindset. You don't start with a program and then try to make it work.

Response: If you think of a congested load pocket, there are three solutions: demand, transmission and generation. I think all of them have to be integrated and treated the same way, really be market-driven rather than regulatory-driven. There's a real-time market in which demand can participate equally with the other two, and a planning market, to the extent you have one in which demand is seen as an equal component, or has an equal opportunity to deal with the problems you see two, three or four years out.

Response: Efficiency markets are not exactly new from the residential point of view. A lot of inefficiencies in that marketplace especially during or as a result of the oil crisis provoked the development of more efficiency programs. We have learned that in the absence of those programs, the efficiency just doesn't happen.

Question: Could we believe choice is forced behavior and we do it through

prices? And then there is extra money that somehow has to come back around because it's not really in the market price.

Response: I would hope that the people who shop are driven closer to the energy price.

Response: Maine had a year in which the standard offer price was substantially below wholesale. If you looked at this over then years, you wouldn't have a lot of money left on the table on either side.

Question: I wonder if you will get any real demand involvement in an energy market with some kinds of resource adequacy mechanisms.

Response: Whatever mechanism is chosen, it should lower the peaks and bring up the troughs a bit. I realize that is a delicate balance. To the extent that you bring demand into both short- and long-term markets as an equal player with generation, the less need you have for the long-term adequacy product. If I were looking ten years out, I might be willing to say that if you have demand that can really react quickly, the need for any future capacity demand assurance diminishes. Perhaps it is not completely eliminated, but you can give the volatility wider scope because people can react to it.

Response: Requiring bilateral contracts of at least 112 percent adequacy is a concern. Unless you get the market straightened out, there is no motivation for suppliers to strike a deal with the end-users, and they lose all of their bargaining power. They would have to beg for contracts that almost by definition will be greater than the LMPs.

Question: Do we now have a stable arrangement to keep the distribution companies providing all of the customer service and billing functions? It seems to me that these are not natural monopoly functions. The fact that they are still

vested with the distribution companies is really an artifact, I think, of history, precedent and political power, more than any economic efficiency argument.

Response: The distribution company in Maine has no role in providing the energy. It does perform billing, but that is branded as a retail product by the default supplier. I am sure the regulators would permit the direct billing by anybody in the market. The billing is consolidated through the distribution company more as a practical reason. Regulators have been reluctant to let retailers do the billing because it cuts off the relationship between the customer and the distribution company that actually does provide some services to customers. It's a bit of a fairness issue. I think we would like to reach the point in which the degree of the retail relationship between even the default supplier and the customer could be dictated by the default supplier itself.

Question: I have three cautionary comments on hedging. The first is that since the hedge is for the provision of power to meet demand, there has to be the ability of power to meet demand. The power has to be there with an expectation of being paid. Is a mechanism that provides an out-of-market payment for what is expected to be an available capacity to back up the hedges an adequate solution? The second caution is inherent in any hedge: the risk of calculation error by the person providing the hedge. The cures are either default or premium, each of which has costs. The third comment is that hedges do not reduce costs but only spread them out. And they charge to do so. They actually increase the sum of long-term payments. Is there a significant chance that those payments will wipe out a decisive amount of the benefits that you see by going to a market?

Response: Hedges can transfer some of the risk. Then it becomes a situation of

seeing how good you are at guessing whether that risk is going to be transferred.

Response: It's important to distinguish between hedging and speculation. A lot of what we call hedging is really placing bets on prices and that is where money gets lost. From a residential view, real hedging that locks in a price may be worth the extra cost – depending of course on what that extra cost is – to achieve the stability.