BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

- -x

IN THE MATTER OF:	:	Docket Number
ELECTRICITY MARKET DESIGN AND STRUCTURE	:	RM01-12-000
FEDERAL ENERGY REGULATORY COMMISSION	:	EX01-3-000
and U.S. DEPARTMENT OF ENERGY DEMAND	:	
RESPONSE CONFERENCE	:	

- -x

Washington DC Convention Center

900 Ninth Street, N.W.

Hearing Room C

Washington, D.C.

Thursday, February 14, 2002

The above-entitled matter came on for conference, pursuant to notice, at 8:45 a.m., Pat Wood, III, Chairman, of the Federal Energy Regulatory Commission, presiding.

BEFORE COMMISSIONERS:

COMMISSIONER LINDA KEY BREATHITT

COMMISSIONER NORA MEAD BROWNELL

COMMISSIONER WILLIAM L. MASSEY

APPEARANCES:

DAVID K. GARMAN, Assistant Secretary
Energy Efficiency and Renewable Energy
United States Department of Energy

ROBERT K. DIXON, Deputy Assistant Secretary
Office of Power Technologies
Office of Energy Efficiency and Renewable Energy
United State Department of Energy

JOEL GILBERT, Apogee Consulting

ERIC HIRST, Consultant

SUE COAKLEY, Northeast Energy Efficiency
Partnership

DENNIS KELLY, Green Mountain Energy

KEVIN LAWLESS, Xcel Energy

GARY SWOFFORD, Puget Sound Energy

-- continued --

APPEARANCES (CONTINUED):

BOB ANDERSON, Montana Public Service Commission

NANCY BROCKWAY, New Hampshire Public Utilities Commission

MICHAEL CALLAHAN, Mississippi Public Service Commission

TERRY FITZPATRICK, Pennsylvania Public Utilities Commission

MARILYN SHOWALTER, Washington Utilities and Transportation Commission

GORDON VAN WELIE, ISO-New England

DON GILLIGAN, Predicate Consulting

ROSS MALME, RETX

BRUCE CARHART, Ozone Transport Commission

P R O C E E D I N G S

(8:45 a.m.)

CHAIRMAN WOOD: If everybody could come on in and take a seat please.

(Pause.)

CHAIRMAN WOOD: It looks like everyone's come on over. My name is Pat Wood. I'm Chairman of the Federal Energy Regulatory Commission. I'm pleased to welcome you all to the FERC's Department of Energy's Joint Demand Response Conference for today. We have a good agenda, and we're going to go with that in just a minute. But I still see some folks milling around, so we'll let everybody come on over and take a seat.

As an introductory thought here, I wanted to share with you all what the point of today is. As the Commission goes through its effort that began many years ago, to complete the setting up of competitive wholesale energy markets in the country, we have found repeatedly and across the spectrum that people are talking about the absence of a proper and mature demand response to market price signals.

We have talked incessantly about what it takes to get new generation built, what it takes to get new transmission built, but we always seem to forget about the third leg on the stool which is, what if you don't need

supply at all? What if you can do something to manage the demand?

I think for a guy from the right of center spectrum, like I am, it was not an issue that I came to naturally. But in the mid-90s in Texas, as a state regulator there, it became clear to me in particular, as we moved around the state, during the integrated resource planning days, I know some of you may either shudder or jump with delight at the mention of those great words, but in the integrated resource planning days, as required by our state law, we'd be forced to go ask customers directly what is it you want to do to meet the needs of this region of Texas for the next 20 years. We would find, to much surprise I think from all of us, that a very large majority of customers, in some cases it was the winning alternative, was energy conservation.

Certainly the numbers were higher if it was energy conservation paid for by somebody else's money but even when energy conservation was paid for directly by the customer who did the conserving and got the benefits that was a very high percentage and so it started to become clear to many of the policymakers in my state, and I think across the country, that this talking about demand response was not just an issue for the esoteric chattering class. It was something that Bubba and Sue Anne cared about too.

Therefore, so did I.

One of the things that has come about as we move into looking at wholesale markets more broadly at FERC and do we want to put that up?

(Slide.)

This is an hourly load duration curve for PJM over the past couple of years. We use PJM because in fact our electricity that's lighting this building today comes off the PJM grid, so we thought we'd give a plug to the local ISO.

But looking at the load response curve there, we found out, and I think this is no surprise, I'm preaching to the choir here, but from zero to 100 percent of the hours here, you realize that there's a pretty pronounced peak as far as the number of megawatts that are used at the last, I guess it looks like five to six percent of the hours here tend to be a good 13,000 megawatts out of the total of 53. So that's a pretty good percentage of the megawatts that are being used just in the last five percent of the hours.

(Slide.)

Now the more interesting question from the regulator's point of view is so? What those last percent of the hours actually cost us? PJM was kind enough to give us a price duration curve. These are the different colors for '98, '99, 2000, and 2001. They're all pretty close. What

you see right here again for that last five or ten percent is you start looking at about 70 bucks or so accounts for about the last four percent going up over to the thousand dollar price cap that they have in the PJM, so there's a lot of dollars in here for a pretty narrow amount of hours. And because we've got really in this market even and PJM is making some efforts which we certainly applaud to introduce demand response. But this is the case to be made, this is the visual, and I hope you think back through the day as I think back through often in my job. There's a big part of the price curve here that is just kind of being left. We're not doing much to address that. It's being addressed only now by the old what we call clunkers that come on line to create those last little, often dirty kilowatts of kilowatt hours of power to meet the needs of the customer, and there's not really an offsetting organized response to that other than people just saying, well, I'm not going to run my air conditioner today.

Well, when you have rates that average eight or ten cents a kilowatt hour, they're not differentiated to reflect that. In fact, we should be paying here 20, 30, 40 cents a kilowatt hour for them. People aren't getting much of a price signal, so there are a lot of different ways to slice this, but as one who's interested in making markets work and making them work in the most efficient way

possible, we recognize that a demand response is missing, and we need to have it. There's been a lot of discussions with our colleagues at the state level and I appreciate so many of them being here today, that we could squabble over jurisdiction over this is our job or your job; it's our job to make sure that these three efficient methods of efficient generation, transmission where needed, and demand response where possible, that those three things complete on as equal a playing field as possible to make the most efficient use of the energy resources in our country.

That's the philosophical and mental point today about what we are about. I certainly like a lot of things about demand response when you say to somebody that's good, but also from a market point of view, it addresses market power. The ability of maybe the owner of the one or two plants up there that are causing those price spikes, if he faces a little competition from somebody that has the ability to respond by turning off an air conditioner or ramping down an industrial plant process, for example, then that's a great offset to the market power that the supplier, in the case of this load curve, could present. And as a regulator, we do care a lot about market power and making sure that it doesn't rear its ugly head.

The reliability aspects of demand response are always untalked about. The ability of the network to be

designed to be more reliable in reflection of price response is very important. And finally, I think a price discovery technique, price discovery is real important and we don't have organized systems out there I think to the level to allow people to see what the efficient price of this is. This curve actually had to be created for us at our request and PJM is probably one of the more sophisticated groups out there to do this.

But the ability of a customer out there to understand what prices are and to have the ability to react to them is something we haven't done much about, so that on its own has a lot of benefits.

I have the honor to serve on our Commission with a bright and inspired man who has been here quite awhile and has guided a lot of the competitive initiatives of FERC over the last eight years. It's wonderful when a right of center Republican and a left of center Democrat see directly eye to eye on a topic. And this is one of the many that we do. I'm pleased to introduce my colleague, Bill Massey, for some thoughts.

(Applause.)

COMMISSIONER MASSEY: Thank you. When I was sworn is as a Commissioner at FERC in May 1993, almost nine years ago, the Agency was in the process of aggressively implementing Order Number 636 which we all know was a rule

requiring all interstate natural gas pipelines to unbundle supply from transportation so that wellhead competition could flourish. In 1996, the Commission chose a similar course for wholesale electricity policy under the leadership of Betsy Mohler who was the Chair of the Commission at the time. We issued Order Number 888. We crossed the great divide, so to speak, between old-fashioned cost of service regulation on the one hand, and an approach relying primarily upon markets to discipline wholesale electricity prices.

Once you cross this great divide, once you choose a market-based approach, it seems to me that you have the absolute obligation to ensure that the markets benefit consumers; otherwise, there's absolutely no point to this, and you may as well try something else. Since issuing Order Number 888 six years ago, FERC has been focusing feverishly on making the markets work for customers. That's what Order Number 2000 is about. Reorganizing the transmission grid to provide a solid, reliable, pro-market trading platform.

What we've learned is that regulators can't simply open the markets, adopt any old market design, and declare let 'er rip. We can't be satisfied with chaotic markets, poorly-designed markets, and markets that don't provide customer benefits.

The federal courts have told us that in meeting

our statutory obligation to ensure just and reasonable wholesale prices, we can rely on old-fashioned cost of service regulation. That could include some inefficiencies but the courts have told us that it will produce prices that they consider to be just and reasonable.

If, however, we move to an approach that relies upon markets to discipline prices, and we have done so, the courts have told us that we must ensure that the market is functioning well. Otherwise, the price disciplining effect is insufficient to ensure just and reasonable prices, and we failed to carry out our statutory responsibilities under the Federal Power Act. So we're required to ask some very basic questions that have somewhat complex answers.

Question number one. What are the elements necessary for a well-functioning wholesale market? We know we need adequate supply. We know we need sufficient transmission resources. We must have a balance of long-term and short-term contracts, a rational approach to congestion management and the like. We could go on and on. But what if half of the market, the demand side, is simply not involved? Can you have a well-functioning electricity market if half of the market is simply not playing? And, as it turns out, we now know it is extraordinarily difficult to have a good market for any commodity if a demand response is not involved.

When prices spiked in California during the summer of 2000, the FERC was absolutely desperate for solutions. I had seen a supply curve graph similar to the one that Pat just put up on the screen that showed when the supply curve is steep during peak hours when it goes vertical, a fairly modest demand response can have substantial price-dampening effects. I began to ask two years ago, well, what is FERC doing to facilitate a demand response? I was told that the FERC does not do the demand side, that it was a state issue, and that we should stay focused on supply issues, but that's not the right answer.

Obviously, resolving demand issues necessarily implicates state policy but here's the problem for the FERC. We are responsible for ensuring just and reasonable wholesale prices, yet it may be impossible to carry out that responsibility without the price disciplining effect of demand resources participating in the market.

So the FERC must be involved with these issues. Obviously demand programs have been around for a number of years but what's different now, as Pat pointed out and I will underscore, what's different now is the new-found respect for demand resources as highly valuable resources in a market environment.

Hence, the FERC is cosponsoring this conference. You probably wouldn't have seen this level of FERC

involvement a year or 18 months ago. Why is demand responsiveness so important? First, it can be an important market resource for ensuring adequacy and reliability. In the planning arena, demand responsiveness can be a critical factor in determining generation and transmission adequacy. In the operations arena, demand responsiveness can be a key factor in congestion management. We all know that congestion can be relieved by siting a new generator, by adding transmission capacity, or by facilitating a more robust demand response. Demand resources can be just as important as supply resources.

Second, demand resources, as Pat pointed out, can be an important tool in mitigating market power, and I think the FERC is focusing more and more on this aspect of demand response. Robust demand responsiveness can help reduce the need for regulatory intervention in markets. Our dream is to have markets designed in a way that require the lease regulatory intervention. This is critical.

In some of our markets, price caps have been viewed by some market participants as a substitute for demand responsiveness. And so there's a lot to talk about here today.

We know that market design and FERC, under Chairman Wood's leadership, has embarked upon a Notice of Proposed Rulemaking that we hope to issue within the next

few weeks, that would move to a standard market design for wholesale markets. And we are learning that perhaps a day ahead market is an important feature for a robust demand response. Perhaps locational marginal pricing is important as well because it shows the true costs of congestion so that demand response can be appropriately valued.

Well, here are the questions that I would like to hear discussed today. First of all, what concrete steps must the FERC take to facilitate a robust demand response. Cheerleading is important, jawboning is important, but it is insufficient in and of itself. I want to know what specific policy choices must be made at the federal level. In other words, how should I cast my vote when issues come before the Commission tomorrow and the next day and the next that bear on this critical issue of demand responsiveness?

Second, what steps must the states take.

Thirdly, what concrete steps must the FERC and the states take to coordinate in this area.

19

20

21

22

23

24

25

Fourthly, what technology must be made available for this to work well, and how broadly must it be made available?

Fifth, what programs seem to have great potential in this area? What programs seem to be working now? You are the experts. I look forward to hearing your responses. Thank you very much.

(Applause.)

CHAIRMAN WOOD: FERC is only half of the bill. The Department of Energy, with the Administration, has been a great co-sponsor and good partner in putting together today's conference. And we couldn't have done it without them. At this time I'd like to ask and welcome David Garman, who is Assistant Secretary for Energy Efficiency and Renewable Energy at DOE to come up for some thoughts. David?

(Applause.)

MR. GARMAN: Thank you, Mr. Chairman. Thank you for the chance to speak to all of you this morning. On behalf of DOE, let me welcome you here. And traditionally, DOE and the FERC don't do joint conferences, and it's about time that we did. And I want to thank and commend Chairman Wood for his initiative in this and Alison Silverstein of FERC and Bob Dixon and Bill Parks of my office for their efforts in making this conference a reality.

You won't hear much from me at this juncture of the program because Chairman Wood and Commissioner Massey have really expressed the reasons why we're here and what we hope to accomplish. But I'm ever mindful of the fact that the President in his national energy plan challenges us to increase and modernize conservation. The President's balanced approach to achieve a more robust and reliable electricity infrastructure demands that we consider the demand side of the equation.

So before I do sit down and spend the day with you to listen and learn and interact, I just wanted to briefly outline just a couple of the things that DOE is trying to do to get its arms around this problem, including our long-term investments in energy efficiency and our short-term responses to daily and hourly market signals.

As many of you know, my office has extensive research and development programs underway to develop more energy efficient appliances and equipment for U.S. manufacturing and process industries and for commercial and industrial buildings. We also developed energy efficient standards for a number of products, as well as promote with EPA through Energy Star, consumer purchase of products that exceed energy efficiency standards.

These efforts have led to the development and deployment of energy technologies that reduce our overall

electricity use, but these embedded efficiency improvements provide a low cost foundation, and only a foundation, for the demand response portfolio. Our energy R&D programs to date have not had much focus on reducing peak demand. And in response to the President's national energy policy, I've asked our technology managers to begin to explore new efforts that can have value in boosting the economy's demand response.

For example, one of the several promising opportunities that we're working on for consumers to manage their peak load requirements is the use of combined heat and power system in buildings. These systems couple natural gas-fired distribution generation with thermally activated cooling and humidity control equipment to meet a building's energy and indoor comfort needs.

There are also a number of other examples from our existing portfolio, including the integration of solar energy devices in buildings, industrial power systems and electricity storage devices for power quality.

We're also looking at the value of embedded logic, the merging of the information network with the electricity network, and similar technologies that frankly weren't available to us just a few years ago.

The Department of Energy is of course not alone in pursuing these objectives after the reliability crisis of

1999. The nation's public utility regulators adopted a resolution calling for market-based demand response mechanisms and cost effective energy efficiency and load management investments to enhance the reliability of the nation's electric system and reduce its costs.

FERC has also taken positive steps to tap the value of demand responses, finding in several recent orders that demand side responsiveness is essential to mitigate market power, lessen price spikes and improve electric system reliability. We at DOE are pleased to join our colleagues at the state utility level and Commissioners at FERC in addressing these critical needs.

So we hope that today's event will help us shape our thinking at DOE, will help advance the thinking of FERC,a nd we're very interested in your views and experiences and how we might do a better job in this area. So that's really enough from me at this juncture. I look forward to the exchange of ideas that we have in store for one another today. Thanks for coming.

(Applause.)

CHAIRMAN WOOD: Seven years ago as a brand new commissioner on the Texas Utility Commission, I put an ad, a want ad, in the Austin American Statesman for an assistant, legal, economic or otherwise, to come help work with me at the Texas Commission. I got a resume in response to that ad

from a woman named Alison Silverstein, who on paper came from Johns Hopkins, had an MBA from Stanford, worked for PG&E, had recently moved to Austin with her husband, and he worked for a high tech company, and was interested in getting back in the workforce. Well, needless to say, the woman that walked in behind that was quite much more than was on the paper and has been with me for almost the last seven years as a friend and comrade and compatriot in moving the energy industry into the third millennium.

It's been a pleasure to work with her. And it's also a pleasure for all of you because I know from reviewing her Rolodex on occasion that many of you in the audience are in it. So I'm glad that you all are here, too. Thank you, Alison, for your leadership in putting this conference together. She's going to tell us what is in store for us for the rest of the day. Alison?

(Applause.)

MS. SILVERSTEIN: Good morning. Happy Valentines Day. Thank you for coming today, and our thanks and apologies to all of your significant others, squeezes, valentines, for letting us have you for part of the day.

I'm going to say those dreaded words. There are seats toward the front of the room, and we'll get that out of the way. I'm shocked and delighted to see so many people here because this conference, the idea for it, started about

April, last April, when I was having lunch with BIll Parks oF DOE, who will be my co-moderator for the day. We were going to have the pleasure of having Bob Dixon of DOE as our moderator and MC and question asker, and he got a better offer and is in Morocco as we speak. So Bill and I are going to try to sweep up behind him and help to pick your brains on behalf of the audience today.

But Bill and I said when, I think the President had just named Pat to be on the FERC, and Bill and I had been working together on distributed generation issues for about a year, and it was clear that demand response was the next issue that had to be handled, and we started thinking, okay, what could we do about this? How do we pull these pieces together? What are the questions we want to answer? And we said, gee, let's hold a conference and find some of the best thinkers in the nation to help us figure out what the right questions are and what the right answers are.

I am tickled to say that some of the people who we both agreed were some of the most interesting and innovative thinkers in the business today are here in this room. Many of you we couldn't fit onto the panels today, and I thank you for being magnanimous enough to share your ideas by being here in the audience among the people who are speakers.

A couple of organizational things. We have

handouts on the side table over there. Most of the conferences that you see advertised on demand response are by technical wonks for technical wonks, and they are about how to design a program. And when this one was put into the field, here's how many people responded, and here's sort of the metered bake-off. This is not about that.

We tried to provide handouts to give you some of the technical material so you can take it back and figure out how to do this stuff at home, but we thought the value that we could add was at a higher level, to thrash out some of the most important policy issues about why is this something important to be done and how do we bridge that incredible gap between what needs to be available in the wholesale market to make demand response work and what needs to be available in the retail market so the customers who need to respond have an opportunity to do so, and how do we get it from the retail customer to the wholesale marketplace.

So that's the focus of this conference today. So please pick up all of the technical materials from the various exhibitor tables and from the handout table, and take them back with you to supplement your understanding and to get more ideas of who are the experts in the field whom you can call if you want information on the meters and what some of the best programs in the industry are.

I'd like to thank DOE. It has been a pleasure for the last several years working with all of you, and I look forward to doing more of it. We have some exhibitors with some very innovative technologies and programs here to share with you today. I encourage you to use your lunch break and your coffee breaks to go meet with them and look at what they've got to offer.

What else did I want to tell you? Just a quick overview of the program, and then we'll kick it off. The basic themes are fairly obvious. The first is, why do we need demand response in the first place? The previous speakers have talked about it at fairly high level, but we thought we'd get some of the best people around to talk about what does demand response mean for price and market power, what does it mean for reliability, what does it mean for the environment.

One of the big questions in people organizing demand response and thinking about this at the state level is, well, are customers going to be willing to do this? Will they care? Will they respond? Do customers want to fret their little pretty heads over this in the first place? And it turns out that the answer is yes, yes, yes, yes. They do. They will. And so we invited some folks who have a lot of experience with customers and with programs that reach a number of customers to share their experiences and

insights with you.

In the afternoon we've invited some state regulators to share their concerns and to talk about what are the things that could be done on the retial side to help make demand response happen and just as valid, what are some of the issues that are going to keep that from happening, and is there anything that we can do together or individually to resolve those obstacles? And last, how do we make demand response work in wholesale markets? Just to bring us back to the issue that FERC can do something about.

I'm excited about this program. I think it's going to be a great day, and I thank you all for being here to share it with us. If the first panel could come up now, we'd appreciate it.

(Applause.)

MR. PARKS: My name is Bill Parks, and I'm very pleased to see you here today. Panel 1, we're going to talk about why demand response is needed, and we have two speakers here. And if we're lucky, Sue Coakley will show up. She's around here today but we don't see her here yet. So we'll get started with Joel Gilbert. He's going to talk about demand response, electricity prices and market power. Welcome, Joel.

(Applause.)

MR. GILBERT: Good morning. Okay, it looks like

technology works. When I was asked by Alison to start this off, I thought, well, what do you tell people who already probably know what's in the way of demand response being implemented in the market? And I said to myself, well, you know, we've got economists in the audience, we have state regulators, we have consultants, we have a lot of people who are very, very knowledgeable and can probably throw their hand in the air and prove that, frankly, nothing can be made to work because there all these reasons why we have to make everything perfect before we make anything work.

And what struck me was when I addressed the California market before it went into congestion almost four years ago, three years ago, the phrase that whatever exists can be came to mind, and that is exactly what I want you to realize is that long before you woke up today and decided that demand response has some things that would keep it from working, the fact is, it already exists. It just doesn't exist to the level we need it collectively.

And, therefore, given that this is a job of linking markets, the wholesale and the retail market, and those markets are not in a full state of deregulation yet, one might even argue we'll be here quite a while, I thought it might be good to go back to the four P's that are keeping it from being an effective market, and that's my talk today.

So I know I'm preaching to the choir, but I'm

going to try and cover four P's in the marketing mix that are disabling the market from moving forward. Now for those of you who believe that we're better off today than we were three and four years ago in demand response, I have some very bad news for you, and that is we have lost demand response over the last few years, and many members of the Peak Load Management Alliance, which met last night at the social, can talk to you about the detailed reasons why. I'm not going to go down to that level.

I'm going to try to keep this up at a very high level, a strategic level, and talk about the disabling P's, four not-so-easy P's, that collectively we must overcome, and the first of which is to treat this as a portfolio and not an ISO/RTO-only type resource. This is a huge portfolio opportunity. Not all customers will be that interested in the kinds of rigors that an ISO and an RTO would impose. A lot of customers are more interested in different types of relationships, and I'll talk a little bit about that.

We also need to directly address the issue of the price caps that exist, specifically in the WSCC, and I'll talk a little bit about what they're doing to demand response in that region and what that ultimately means to all of us. And then, frankly, I want to land a little bit on the issue of the politics of moving forward rather than being very eloquent and arguing your way right into doing

nothing.

There is a huge problem we collectively have which is the ability to just raise our hand in the air and say I can prove that won't work. Can't work. That's not very constructive. We need to move past that.

And then the last one that I want to talk about before you giving you something kind of funny to take home and use in your own jurisdictions when somebody asks you about deregulation, the last one I want to talk about is rearing this one back up, and that's the question of prudence, and is doing nothing really being prudent, given what can happen in the market? And is doing too much being prudent? The sword cuts both ways.

Now when you talk about this, it's interesting to me that we don't look at history as a sign of the early authors of any set of rules and what it took to make a market work. And what I thought might be helpful to you is to take a look at 1920 and the U.S. War Department and the rules for flying an aircraft in 1920. There are only 25 of them. I'm only going to read a few of them to you. By the way, all the rules could be printed on one sheet of paper. I guess there weren't any lawyers yet.

So the rules. These are five of the 25.

Number one, don't take the machine into the air unless you're satisfied it will fly.

Two, learn to gauge altitude. There of course was metering even back then -- especially on landing.

If you see another plane near you, get out of the way.

(Laughter.)

MR. GILBERT: We would argue about that as to really whether they had the rights to be in front of us, right?

Never take off until you're familiar with the airplane's controls and instruments.

And the fifth -- remember, this is only 25. If any of you are interested, give me you card and I'll send you all 25. In an emergency while flying, land as soon as possible.

(Laugher.)

MR. GILBERT: My suggestion is that we, because we know so much, can make this more difficult and confusing than we need to. And I'd like you to keep that thought today as I go through this. I'd like to keep this very, very, very simple. Because I think the biggest problems that are disabling it are at that level. To develop it robustly will require more work.

(Slide.)

MR. GILBERT: I don't know how many times you're going to see this today. This is the classic supply-demand

intersection shown to the right, which is the vertical line, which is a disconnected demand response, and this work came from the work that Bill Smith at EPRI and I have been doing and others at EPRI have been doing and a lot of you have been doing. Everybody's got the same set of curves. But I wanted you to focus on one element here, and that is that anything is better than an inelastic demand to curb market prices. We all know that. You've heard already why that's true.

But there's another dimension to it. Technology enables increasing elasticity at that curve. Meaning very simply, the more options and technology customers adopt, the more customers learn how to automate their response to price, the steeper that impact will be at that clearing price. So we have an obligation to not consider this just a transient issue that occurs one year and possibly disappears the next. There is -- and I hate this -- a socially optimal answer here that we will not let markets obtain.

Markets do not plan. They take advantage of the lack of planning of others. If we believe that this elasticity is in the long-term best interests of markets, we've got to figure out clearing mechanisms to pay for it. Now I'm not going to try and get myself in the middle of this this morning or we'll never move beyond it. We must not consider this a market-only-based issue. That raises a

whole bunch of issues. We'll come back to that in the Q&A.

(Slide.)

MR. GILBERT: The portfolio elements of it are staggering. Strategic efficiency. Conservation. Load management. Seasonal agreements using different forms of energy systems, as you heard, everything from buildings that have combined heat and power through thermal storage, a lot of things that we've lost along the way, all have a play, all have a counterparty in the market. As we go to that left, and we're trying to avoid building construction, there's certain types of efficiency and conservation measures and load management measures that avoid capacity.

As we move into seasonal situations where indeed it's supposed to be a hotter or a colder season, there might be other opportunities that might be customer opportunities. And of course, once we move into the reliability and the actual clearing markets and the spot markets, there are still other opportunities that customers can do. It's a whole portfolio. And admittedly today, we're probably most focused on market rules and what's going to make the overall market work.

I'd like to remind you all that most of the market is forward. It's bilateral. It's long-term. And the spot market and the ISO market is the tail on the dog. If we keep thinking we can wag the dog with the tail, I

think we're missing the mark. Ninety-plus percent of the market should be forward. Less than 10 percent of the market should be in the spot market. We've all seen what happens when you don't get that right.

(Slide.)

MR. GILBERT: The next one is the way the spot market clears. And the value of that last avoided megawatt. I know this is too small for you to see up on the screen. That's why it's in your handouts. Please get it. But what happens here, if the spot market is deep, if indeed there's a lot of megawatts in there, what we have is a multiplicative effect of volume times clearing price. Sure, the spot markets are perfect to have the generators bid in a lower and lower price and develop the optimal stack. That's all fine. But when the market knows that by withholding a little bit of capacity they can get that clearing price up, we all understand how we would try to police that out of the market.

And by the way, the traders within two days can break any rules you set. So if you think you can trap a thief by market rules, I would submit to you, lots of luck. Market monitoring is always a part of making market work. But you don't make the rules complex, or nobody will ever fly.

What we have here is multiplication. It's not

just that clearing price you saw Pat Wood use. It's the combination of that clearing price times all the volume in the spot market. The result, one could say withholding demand response is equally onerous as withholding the generation side of this business. And we unfortunately have some other things that are causing that to happen.

(Slide.)

MR. GILBERT: Now what is a fair price in the market? Why do we need these price caps? A thousand dollars a megawatt hour. That's certainly high enough. No it isn't. No it isn't. It depends on how often that power is going to be needed. That is not a fair price. If somebody's going to put capacity in the ground, pick $500 per kW, if that capacity has to be paid for because somebody has a loan out to pay for that capacity, there's about $75 per kW per year that that owner of that capacity would probably feel was an appropriate payment to have it just sitting there waiting to operate. If somebody has to use a market to pay for that $75 per kW and there's only a few hours in the market, one day and four hours in that market that I'm going to recover that, a fair price is $18,750 per kW.

Now admittedly, if somebody's going to go and run it 365 by 24, a fair price for that capacity is fairly low. When you cap the market, what you do is force the bilateral

agreements into more hours to finally get an agreeable type contract. So when you $1,000 cap a market, all you do is on that peak day, you force more hours into the transaction. That's all you're doing. And when you cap it where it is right now in the WSCC down at around 100, what you do is fundamentally shut down any form of growth in that market on a capacity or demand response. That's a disabling cap.

(Slide.)

MR. GILBERT: Well, Joel. You know, I am a wine drinker, but it's not the w-h-i-n-e I'm talking about here, the fine whine of politics today. No offense to anybody in the room about who's going to take what shots to whom. But we need to move past this. We need to move past the whining and learn how to make this work together. What I'd suggest to you is that the ISOs are in an almost impossible condition right now within the United States, because their constituent stakeholder groups -- they have some of the most elegant and eloquent whining I have ever heard. Let's argue about baselines. I don't like that. They have the same access I do. I want to see the same -- oh, get over it. It's whining, folks. And what I'd submit to you is the people who whine the loudest are probably the least good at trying to get you to where this market needs to be. And I'll close with some of that thought.

So, what's really necessary here? What we

probably need to do is to take the whining and take out the ability for them to disable forward motion. Put the whining into an implementation mode rather than in terms of a stall mode. My observation today is we're stalling forward motion rather than trying to creatively solve problems. And I don't think that there's frankly -- I think there's plenty of room for the discussion. But people who whine frankly don't want to have you win at this job.

What else should we do? And I'm going to come back to this. we have to look at the prudence issues of what's really going on at the state regulatory levels in order to get some of the other whining to go away, because in truth, there are all too many load serving entities who are not being asked to attest to whether they're using excuses for not acting.

Okay. The last one I would suggest is that FERC might want to set up some guideline market rules but then let the states actually implement those rules under some kind of a master of knowledge of where things go.

You know, it's interesting to me, and I'm not trying to get this on a religious tone, but it was interesting to me to, looking through the Old Testament and realized that Moses when he finally had to go and talk to God about the rules for life came up with Ten Commandments. We then saw in the New Testament Jesus reduced that to one,

and today we can't seem to make anything work because we all want to argue over how you implement those ten and that one. And here we have probably some of the more wars are fought over this. And what it is is humanity, folks. That's where we are. We're all, frankly, just all guilty of the same original sin.

It's human nature. I know that. We need to move past it or we'll never get past this issue.

So what would I suggest? Well, this isn't going to be easy. I understand that. Prudence especially isn't easy. Many of you at the state regulatory levels have told the load serving entities they don't really have a role to play in demand response. They shouldn't be the ones talking to customers. There should be curtailment service providers. Well, the fact is that the curtailment service providers can't find those customers. We are disabling right at the start. We must realize that the most common relationship to the customer is with the load serving entity, because the customer won't switch.

Okay. Now I know that many of you in order to talk about this have to go back on promises, and I'm going to end with something because my time is running and will answer through Q&A on some other points on how we implement this. But I know many of you at the state regulatory levels have a challenge, because what you thought you were getting

into isn't indeed what you found yourself into as this business deregulated.

So I'm going to take a little play on words from a southern politician who was asked to explain his position on alcohol when his town wanted to move from a dry county to a wet county and do something cute hopefully on deregulation. A politician was asked where he stands on deregulation, and the newspaper editor said, where do you stand? And the regulator said, sir, I had not planned to discuss such a controversial issue at this time, but far be it from me to sidestep any issue, regardless of the nature, regardless of the consequences.

But first let me be sure I understand your question. If when you say "deregulation" you mean that devil's brew, that poisonous scourge, that bloody monster that robs senior citizens of their lifelong savings and takes the very bread out of the mouths of babes, if you mean that vile force that destabilizes the rightful budget planning of every man and woman and throws them into the bottomless pit of despair, bad debt and the humiliation over having their service disrupted, sir, if you mean that unlawful tax on humanity imposed by greedy generators without regard to the outfall on all citizens, if that's what you mean by deregulation, I want you to write in the paper that I promised my constituents if elected that I will

fight to destroy this demon with every strength I possess.

But, on the other hand, if when you say deregulation you mean that provocative force of market transformation, that philosophic virtue of open competitive markets and efficiencies so sought by socially conscious professionals when they assemble, puts a song in their hearts, laughter on their lips, warm contentment in their eyes, if you mean that economic principle that puts the spring in an economist's step and gives them hope that the real world operates according to theory, if you mean that nectar of the gods, the pursuit of which avoids the heavy handed, dull instruments of regulations and makes this world a better place in which to live, if that's what you mean by deregulation, I want you to put in the paper if elected that I will fight to protect the essence of this divinity with all the strength that I possess.

MR. PARKS: Amen, Joel.

(Laughter.)

MR. GILBERT: We can do this. We can do this together. We're not missing technology, we're not even missing customer interest. We have politics to get past. Let's work on it. Let's roll. Thank you.

(Applause.)

MR. PARKS: We will continue to move. We'll have the speakers and then we'll open it up for general

questions. The next speaker will be Eric Hirst, and he'll speak on demand response and reliability.

(Applause.)

MR. HIRST: As an engineer, I ought to know how to do this, but I don't. My charge, according to allison, is to talk with you about reliability and how the demand side can participate in reliability markets and ensure reliability.

(Slide.)

MR. HIRST: I think our goal ought to be to ensure that retail loads have the opportunity to participate in all wholesale markets, because they are all at bottom reliability markets. And by that I include the day ahead markets for energy and congestion management, the day ahead markets that reserve ancillary services, in particular the reserves that are needed for reliability: Spinning reserve, nonspinning reserve and 30- or 60-minute replacement reserves.

Demand ought to be able to participate in the real time intra-hour markets for energy and congestion management. And I want to introduce a new idea with respect to involuntary load interruptions. When all fails, when nothing else is working, what the system operator does is involuntarily interrupt some loads that preserve the system. I want to talk about that.

My note on the right there I think is quite important. That is, you don't want to just permit demand to participate in a passive sense. You want them to participate exactly as the generators do so that they can be price setters as well as price takers. Unfortunately, that's not where we are today.

(Slide.)

MR. HIRST: As an example, I'm going to cite NERC's Policy 1. This is sort of the fundamental NERC policy with respect to real time system operations, what the reliability people call security. NERC Policy 1 limits spinning reserve to unloaded generation that is synchronized. Notice the word "generation". To make things worse, at least 50 percent of the contingency reserve requirement that every control area must carry must be, according to NERC policy, a spinning reserve. So here you've got this very important reliability function and current NERC policy excludes the demand-side from participating in that market. Well, maybe there's a good reason for it.

So you look and say, well, what's the standard? What is the NERC standard that requires the use of spinning and supplemental reserve? And it turns out to be the NERC disturbance control standard. Well, the only thing that the DCS requires is that you recover from an outage within 15

minutes. It doesn't say anything about how fast you do it. It doesn't say anything about what resources you do. It just says with 15 minutes of a disturbance you've got to be back to your pre-disturbance situation.

This demand exclusion is not trivial. It has substantial reliability and economic efficiency effects. What it does is, is limits the amount of reliability resources available, which creates problems in market power. And in ever one of the ISOs, there have been problems in the reserve markets from time to time where there's just not enough generation resources that are being made available to the market, and the prices skyrocket.

Well, if you could provide an opportunity for demand to participate, that would weaken that kind of market power. Secondly, by limiting on the demand side, you're automatically raising the price to all consumers to maintain reliability. Joel made a point about paying the customers, and that's important here, too.

(Slide.)

MR. HIRST: This is data from the New York ISO, which has reasonably well functioning reserve markets. In the left hand bars, the blue ones show the price by month of spinning reserve. The middle one, the white bars, show nonspinning reserve and then the red bars show the price for the 30-minute reserves. And the pattern is exactly what

you'd expect. Spinning reserve because it is more valuable costs more than nonspinning reserve. Nonspinning reserve, because it has to be provided within ten minutes instead of 30 minutes, is more expensive than -- that right-hand one should be replacement reserve.

And you can see that the average price over this time period for spinning reserve at $3 per megawatt per hour compared to $2 for the nonspin. So you're prohibiting the demand side from participating in an important market.

Now fortunately, NERC is in the process of revising its policies, and its proposed Policy 1 is technology neutral. That is, it doesn't say anything about generation. It just talks about the function, and that's the way it ought to be.

(Slide.)

MR. HIRST: Now it turns out that there are resources. This is not just a theoretical notion. There are resources on the demand side that could provide spinning reserve. John Keck and Brendan Kirby, two colleagues of mine from my days at Oak Ridge National Laboratory, really looked into this and they found out that water treatment and pumping accounts for about 3 to 4 percent of total U.S. electricity use.

Because there's so much storage -- think about all those water tanks on top of the hills in almost every

town -- it would be very feasible to provide spinning reserve from these facilities without in any way affecting customer service. That is, when you turned on your tap in your kitchen, you would still get water flowing out of it.

You'd probably want to put on adjustable speed drive motors, adjustable speed drives to operate the motors, and that would help both in terms of providing the reliability resources, spinning reserve, and it would improve the operations of the water treatment facility, and it would provide the money to do so.

Any other customer that has storage capability is also a good candidate to provide spinning reserve. And that ranges all the way from the small residential customer that's got an electric water heater -- 52-gallon storage tank -- all the way up to very large mining operations that store the output of their mines.

(Slide.)

MR. HIRST: Slightly different topic on reliability. When all else fails, as a last resort, the system operator interrupts load. And the reason for doing that is you don't want the system to crash. You don't want to have the kind of outage that occurred in the Western U.S. in July of '96 or again in August of '96 where you've got a major system failure islanding occurring, because that can take hours or even days to rebuild the system. So either

you call for a rolling blackout as the California ISO did several times early last year, or there are automatic switches that when the system frequency gets too low, certain loads are automatically cut off to keep frequency from going down and to bring it back up. The same thing with voltage.

Customers are not paid when their loads are interrupted, so there's an equity issue here. We pay generators to provide spinning reserve and supplemental reserve and so on. Why don't we provide loads that are providing comparable reserves?

My reason for mentioning this goes beyond equity and really deals with efficiency. Let's say, as an example, we decided that we were going to pay customers that were involuntarily interrupted a thousand dollars per megawatt hour for this interruption. A number of things would happen. Some customers would say, geez, I really don't want to be interrupted, my processes are so delicate, I can't afford it. I will pay you $1500 per megawatt hour not to be interrupted, I'll pay you $2,000.

At the other end, there are some customers saying, you know, a thousand dollars, that's a lot. Normally I pay fifty dollars, sixty dollars. You can interrupt me whenever you want. Just pay me two hundred dollars or five hundred dollars and before you know it, we'd have the kind of markets that I think Joel had in mind.

(Slide.)

I want to switch gears for a few minutes and go to the kinds of questions that Commissioner Massey was raising in his talk this morning. I think we're pretty much agreed across the policy spectrum that we need more demand

response. The only question is, if this is such a good idea, why is so little happening. I think today we really need to spend some time on that. Alison raised those issues this morning also.

In slightly different words here I think are the same kinds of issues that Commissioner Massey was raising. To me, the critical one is, we're regulators, in particular state regulators, permit customers to face real time prices. I think there is unfortunately substantial evidence to suggest that state PUCs in their effort to, quote, protect customers, will not let this happen.

Secondly, will customers, if given the opportunity, choose to face real time pricing. And if they do, will they respond in any way to real time prices? Will the technologies and programs that we put out there be cost-effective.

And then an issue that I think FERC needs to address is, is it enough for the RTOs to be absolutely fair and consistent in their treatment of demand and supply? That is, should they accommodate price responsive demand, or do the RTOs need to go beyond that and actually create demand side markets and run programs. What we've seen in the last couple years is that the ISOs are running small pilot programs. The real question is, how far do we want the ISOs and RTOs to go in that direction.

(Slide.)

To me, one of the key obstacles is our traditional view of electricity. We tend to think of electricity as just a commodity and that we have an entitlement, it is our right to be able to buy as much electricity whenever we want at a fixed price with the fixed price being set a year or two years ahead by a state PUC. I think a lot of us believe that it's either in the U.S. Constitution or the Bill of Rights that this is our entitlement. In actuality, the price of electricity has two components. One is the commodity which might be embodied in, say, the spot market wholesale price.

The second, the part we always ignore is the insurance, the risk premium that we pay for protection against price volatility and protection against quantity variations. So there are kind of two things that we're getting when we buy electricity from our local utility. But my sense is that as customers we don't recognize this and perhaps more important, regulators don't recognize this risk premium. So that utilities may not be adequately compensated for providing this fixed product service, I won't say anything more about it. There is a paper in the package that I wrote on the financial and physical insurance benefits of price responsive demand. If you've got comments on it, I would love to hear them.

(Slide.)

Another issue I often hear is, gee, it's going to be so expensive to put in the metering and communications infrastructure. Well that's not necessarily true. What this chart shows is the fraction of customers relative to the fraction of load. It turns out, if you could meter the largest one percent of the customers, it would cover about half the load. The U.S. industrial sector accounts for .4 percent of the customers in this country, but it accounts for about a third of total electricity consumption. So with a relatively few meters, you can cover a lot of load.

I don't want to dismiss or preclude the residential sector. Gary Swofford, later today, will talk about the very successful program at Puget Sound Energy that is focused on the residential sector. I'm just saying you don't have to go that far and you'd still have a very big effect.

(Slide.)

My perspective is that the regulatory barriers may be the most important with respect to limits on price responsive demand. Where we have retail competition, every state has put in place standard offer service provider of last resort, and I think customers are beginning to realize that that standard offer service ignores the risk management premium that I talked about before and it tends to under

price electricity to customers. That has two serious adverse consequences. One is it robs customers of any incentive to change, or to even consider any kind of dynamic pricing opportunity. Secondly, it robs pricing of any ability to compete. If the price is artificially suppressed by the regulator as a way to, quote, protect customers, how are you going to have competition?

In states where you don't have retail competition I think you have the same kind of problem in that the PUCs don't recognize the risk premium, so electricity may be under priced and again it means that the local utility is either unable to or has no incentive to offer these kinds of programs. There are also other problems that I won't go into in terms of load profiling, competition for the metering, and communications system, and then issues that utilities are legitimately concerned about in terms of the possibility of lost revenues, potential stranded costs, and a kind of subtle one that says, well, we've got this customer class and we've designed a rate for this class on average. Now, if we offered this other option that's real time pricing, what customers are going to take it? Well, it's the high load factor customers. They're the ones that are cheap to serve so they go out of the rate class and that means that our rate design is no longer adequate to cover the cost of serving the remaining customers.

Some people say, Joel might, utilities are whining because the dollars lost here are not very large. I don't think that's the right perspective. How are you going to encourage a utility to do something by saying, look, you're not going to lose very much money. No, no. The issue is how can we incent the utilities to do something that is in the public interest? I don't want to get hammered by Bill so I think I will quit here. I've got a couple more slides. But I think you get the point. Thank you very much.

(Applause.)

MR. PARKS: The next speaker is Sue Coakley. She'll speak on demand response and environmental impacts. Thank you, Sue.

(Applause.)

MS. COAKLEY: Thank you. I want to begin by thanking Alison Silverstein in particular for inviting me to speak to you today about the environmental impacts of demand response options. Basically, my question to answer is will demand response programs improve or degrade air quality.

(Slide.)

I want to acknowledge the work of a number of other individuals who have been working on this actually more than me and particularly the regulatory assistance project or the distributed resource and emissions

collaborative have done same very good work in developing model regulations that I'll talk about. Also the work of Dr. Jim Lentz and Dr. Julian Allison at the University of California, and Joel Bluestein at the Energy Environmental Analysis have done some important work in this area.

(Slide.)

I have four basic points that I wanted to bring to your attention today. First of all, something that probably everybody here knows quite well. Electric power generation does degrade air quality at summer peak. This is very important to consider when you look at demand response programs, many of which are focused on peak demand which occurs, in most cases, in summer. Demand response options can reduce, degrade, or exacerbate air pollution at summer peak. It just depends on what options are chosen and how they're managed and that's an important policy issue.

Finally, there are some clear environmental winners when you talk about demand response options including energy efficiency, renewables and fuel cells. These are non- or low-emitting and should be an important part of an integrated policy to achieve not only economic but environmentally beneficial demand response.

(Slide.)

What I have here is a map from EPA's Web site regarding ozone non-attainment areas in the country. The

U.S. suffers from severe air pollution in the majority of urban areas in the country. This is a very significant problem. A major portion of high population air in the United States are in non-attainment areas for criteria air pollutants including NOX, SO2 and particulate matter.

Electric power generation contributes significantly to the air pollution problems. Ground level ozone, which is depicted here on this map, is a major component of smog. It's a serious air pollutant that is a product of photochemical reactions involving NOX in the present of sunlight and warm temperatures that occur simultaneously with summer peak.

We see here that the California/Los Angeles area and also parts of the northeast are in extreme non-attainment. We have serious issues also in the northeast region, moderate issues in the northwest and midwest. So we have a significant problem to solve in terms of our ozone attainment. Ozone is a particular concern in developing demand response policies for a couple of reasons. One, demand response programs are coincident with summer peak when air quality is at its worst. Secondly, air pollution is particularly acute in urban areas which is where demand response options to serve peak load are located. So how do we solve this problem?

First, let's take a look at what are the

environmental impacts of demand response options. The environmental impacts depend on two things; which technology option you're choosing, and what is the basis of comparison. Are we comparing to average emissions? Are we comparing to marginal emissions?

(Slide.)

I've categorized demand response options for the purpose of this discussion into four categories. You can have energy efficiency and load curtailment, both of which are going to avoid power use and therefore power production at certain times. We saw from Eric's slide about wastewater management that we have significant opportunities for load reduction and efficiency in wastewater treatment, also loads that are coincident with peak demand. You also can shift loads into three scheduling processes. You could also, in shifting loads, have cycling air conditioners and water heaters, chilled water systems. There's a number of things that could be done to shift loads. Shifting loads doesn't necessarily avoid production or energy use, and in some cases could use more. So it may not necessarily reduce our air quality problems. It can be a drop or it can be a problem.

Finally, we have distributed generation. Distributed generation can be engine generator sets, emergency generators, a new generation of technologies

including fuel cells and PV, also combine heat and power. There's a lot of ways customers can respond if they are given the appropriate economic price signals.

(Slide.)

Let's jump to this slide here which will give you an idea of what the impact of energy efficiency and load management can be. This slide is from a study done by Steve Nadel at the AT EEE. It took a look at load reductions both in energy efficiency and load management in the United States from 1992 to 1998. The main point I would have you draw from this is that energy efficiency programs contribute as much to load reduction as load management programs. It's a significant resource not to be overlooked and again price signals are important to achieve this.

(Slide.)

As I said earlier, it's not just about which technology you use but it's also about what you're comparing it to. If you're creating a benefit in economics, you're looking at the cost of reducing or increasing costs. Here are we increasing or reducing air pollution? It depends on what your yardstick is. When you look at distributed generation generally some may argue that you want to look at average emissions across the United States. When you look at peak load, it's very important that you look at marginal emissions, what is the emission profile associated with the

unit that would be dispatched to meet the next load?

Here you'll see U.S. average emissions compared to marginal emissions of a peaker, and you can see the average emissions are six times that of a peaker. A peaker typically is somewhat cleaner, so if you're trying to set an environmental yardstick, the question is what is emitting on the margin. Here I would suggest that it's a peaking plant.

(Slide.)

I want to thank Joel Bluestein in particular for the information for this particular chart. What you see here is what are the NOX emission rates associated with different types of technologies.

At the top of the chart, you can see what U.S. average emissions are as one yardstick, and go all the way down to the bottom of the chart, you'll see what the emission profile is of a brand new combined cycle plant with SCR. This meets new source requirements. There's a huge variation in between. The worst of the options in terms of environmental impacts would be a diesel engine which is the majority of emergency generators in the United States, largely because they need to have on-site fuel. So the problem and challenge we have from an environmental perspective is when you're looking at average emissions or you're looking at a peaking plant, a diesel generator has a significant NOX emission. That is something to be

addressed.

Even if you put SCR on it, we still have very significant emissions. There are some winners in addition to the fuel cells obviously. We do have certain types of turbine technologies that also can reduce emissions. But we need to take this into account if we just have a lot of emergency generators operating in response to a price signal at summer peak. We're going to have a smog problem.

(Slide.)

So what can be done? There are several things that can be done. They are importantly environmental and energy regulation need to be coupled together. There is a set of recommended regulations that have been drafted by the Regulatory Distributed Generation Emissions Collaborative. Some of this has been adopted by the City of New York City already and that is first you can limit the hours of operation of distributed generation sets if you're talking about distributed generation.

If you limit the hours, we can control the amount of air pollution. A very important step though to be taken is to establish minimum emissions standards for small scale systems. Establishing a schedule that will allow emissions reductions to be achieved over a period of time is one way of doing that and also allowing for offsets for systems. Offsets can be by increasing efficiency through combined

heat and power by using waste fuels, such as industrial flare-offs and you can also have offsets from increased engine sufficiency in a facility that is the host for the generator.

To make this work, several things will be needed on the environmental side. And this is something again that regulators need to be concerned on the energy side. One is that manufacturers should be required to establish nameplate emissions and to certify those. We need an environmental permitting system and a reporting system. Again, the City of New York has begun to implement some of these recommendations.

So I think the energy policymakers need to consider the environmental impacts of demand response options. As we set those price signals, we need to think about what the environmental impact will be. Regulations are clearly needed, particularly in urban areas for distributed generation if we're going to protect air quality.

Finally, it's very important that policymakers are establishing policies that promote energy efficiency, renewables and fuel cells at the time of peak response, and there are a number of programs and options that can be addressed. Thank you.

(Applause.)

MR. PARKS: Thank you. Let's open it up for questions. Come on, we didn't do that good a job.

MS. RABL: I have a question that I'm going to address to Eric, but the only reason for addressing it for addressing it to Eric is because he said something that triggered some thoughts. In the statement you made, roughly, let me paraphrase, that we will need just a few large customers to take care of much of the problem. And maybe before I say anything else, I should say that I believe that eventually we need a system where everyone participates equally, whether they're customers or providers or transmission delivery providers. But that requires a system with a kind of communication, the end response that I don't believe we can put in place very soon.

But let me get back to the question. I think one could argue that the entire power system is there to serve the customer rather than the other way around. And I'm getting a feel that the way we are looking at it in this meeting, and perhaps it's appropriate, given FERC's mandate, is the other way around. Is asking, well, how can customers help the system? And I would like to ask the question how can the system help the customer?

Now Eric's statement about needing just a few customers really implies that there is a group of customers who can actually participate in the system and benefit from

the restructuring, benefit from being able to participate in the market. One could also argue that there is another class of customers, and that's the residential customers who benefit from what's going on by having their rates capped, whether it makes market sense or not, I think that's really what's happening.

But there is an entire class of customers that are sort of in between -- the smaller businesses, and I don't think anyone has really solved the problem of incorporating the small business into this market. And I don't know whether Eric wants to talk about it or whether we should leave it to the session on the PUC issues, since perhaps that's an issue that PUC should address.

MR. PARKS: Eric?

MR. HIRST: I'm not exactly sure what the question was in there.

MS. RABL: The question was, how do we --

MR. HIRST: Veronica, don't repeat it.

(Laughter.)

MR. HIRST: I want to clarify, though, what I think I said, which was not which customers should participate. My comment about the large industrials was limited to the metering and communications infrastructure. My point was simply that you can get a large fraction of the load by focusing at least initially on the largest

customers, which is quite different from the point Veronica was getting at, which is which customers ought to participate.

I think I agree with you, Veronica, that these programs ought to be made available to all customers. Everybody ought to have an opportunity. And I think customers are very heterogenous, and different customers are going to respond in different ways. And if we can unleash the creativity of markets regardless of whether it's a regulated utility or a retail competition situation, the market providers will find ways to attract different market niches. We sell telephone service to residential customers and we also sell telephone service to large businesses. It's not rocket science, as they say.

So I think all of this is feasible and desirable. You also asked kind of a question about is the power system there to serve customers or vice versa? I think we would all agree that the power system is there to serve customers. We want to give customers the opportunity to interact with the power system in ways that they want to. Many customers are going to say, I don't want to make 8,760 decisions a year on how much electricity to buy. I just want a fixed price, and I'm willing to pay the insurance premium. But other customers are going to say, I'm willing to make some decisions. Call me when the price gets real high, and that

brings you to things like Joel's demand exchange.

There will be other customers, maybe few in number, who say I am willing to make 8,760 decisions a year. The problem is today, customers aren't given that choice. They're basically prohibited from making those kinds of decisions.

MR. PARKS: Could I have the people asking the questions identify themselves and their affiliations, please?

MR. GILBERT: Can I just add something to that? Just a couple of quick ones here, Veronica. And the FERC Chairman addressed this issue, too. Eric's point was where the meters already exist, and therefore, since the meters exist, there's an easy loop around so you can clear the transaction. There is no technology limit now, and there is no real disabling ability for customers to not participate in all classes, from residential through the mid-market.

The disabling element here is, honestly, the counterparty to help the customer get to the market. The market right now is not transitioning to open market models as quickly as we all wished, for lots of reasons we can all blame. A counterparty, therefore now might be the regulated load serving entity to at least bring them to the market at the interim, knowing full well over time the market will ultimately link them as well.

But right now, most customers who don't switch will probably fall fallow on the load management issue, because they can't find a counterparty to bring their resource to the market, and that resource can be done with load profiling. That resource can be done with a lot of the technology you'll see out here. That resource can be linked to counterparties using things like our exchange. There is no missing limit technology-wise. There is a missing relationship. And the fact is these customers can't be secured just yet using open market mechanisms because the cost of acquisition is too high.

MR. PARKS: Very good. Next question.

MR. HORNBY: I'm Rick Hornby with Tabors Caramanis. My question actually follows up directly to Joel's comments and Eric's comments. A critical issue at the retail level in a state that has introduced retail competition where you have standard offer service, let's assume you get the standard offer service priced correctly and people are moving in that direction. So let's assume it's priced correctly. The bulk of the customers are on standard offer service. And one of the arguments that competing marketers and load-serving entities or prospective load-serving entities make is that they'd like the standard offer service to be a plain vanilla service so that they have some value to offer to attract customers to switch.

And one of the values they can offer is time of use pricing or demand management and so on that the customers are not getting on standard offer service.

On the other hand, one could argue that that's going to take a long time to occur, and if you want to give everybody access to the benefits of being able to participate in load management or at least some sense of a correct price signal, you should have all standard offer service at least have some price dimension to it, even just peak, off-peak, a simple breakdown. So I see that is going to be quite potentially a controversial issue at the state level as between load serving entities who want to keep the standard offer service pretty vanilla and perhaps advocates of demand response who want to sort of get things moving. So do you want to comment on that?

MR. HIRST: I think the key is the phrase that you made initially, and that is that the standard offer is priced correctly. I would argue that today in most states it's not priced correctly, because it doesn't account for the risk premium that the provider entails in terms of managing the volatility around a very volatile wholesale spot market.

Whether the standard offer is the plain vanilla hourly spot price or it's a fixed price I think doesn't matter. The regulator I think could choose whichever it

wants. If it's priced correctly, there will be opportunities for competitors to come in and offer alternative services and still earn a profit. For example, competitors may think they can do a better job of managing risks than a local utility. They may be able to offer better kinds of dynamic pricing programs. So I think the key issue is what you said earlier, is that standard offer correctly priced?

MR. PARKS: Next question, please.

MS. De MARCO: Hello. I'm Patricia De Marco, a commissioner from the state of Alaska. I would like to comment on your statement that 90 percent of the load is not operating on the peak in response to market pricing. And I wanted to recall the opportunity that was abandoned with the Tax Reform Act of 1986, which was that of allowing customers to deduct investments that they made in energy conservation from their tax forms on their income tax. That response dropped sharply after the Tax Reform Act was put in place, and I wondered if that was the kind of a policy matter that we should reconsider as a way to give customers an immediate, highly visible incentive for the kinds of things that don't respond on the margin-to-market price.

MR. GILBERT: There are a lot of pieces to this puzzle, none of which are unimportant, but let me tell you what I think will get the ball moving faster. This is all

about incentives and disincentives. If we had the right incentives for those who can get to the customers with resource, people who can participate in these markets, and we could eliminate some of the disincentives of why they're not doing that now, I think we could unleash this without having to worry about changing depreciation schedules and deductions for whatever, because the free market would come in and offer it as a bundled service, because most customers, frankly, are not interested in doing that much.

The interesting thing that we're watching specifically watching the energy companies who are doing this, is most of our demand exchange activities have been in areas where there is no deregulation yet, with our 3,000 megawatts of resource, most of it is coming out of areas where there is no standard offer to beat the energy companies, because their relationship with the customers have not been blunted by the disincentive that exists in many of the other jurisdictions, are looking at this as a strategic opportunity to position themselves as the conduit to the customer for a full range of free market options.

And that is a natural end point that we all wish would happen, is that the free market would offer the service and the, what you might call wires company, might be the conduit to the customer through whom those services were coordinated and made sure they answered the long-term

planning needs.

In a sense, then the load-serving entity can backfill what's missing from the free market to assure the obligation to serve to all and to assure that the regulatory compact is still maintained.

We don't have the right incentives in front of the load serving entities right now. The incentive right now is to do nothing and pray for stranded cost recovery.

MR. KING: Hi. I'm Chris King with E-Meter and also with the Demand Response and Advance Metering Coalition. We're all here to try to put solutions together and hear solutions, and I realize that there are a lot of challenges and barriers out there.

I'd like to imagine that for one day you have all five votes at the FERC as well as every vote at every one of the 50 state utility commissions. What would you do with those votes -- and I'd like you to limit it to two or three things -- to make demand response work?

MR. GILBERT: All right. I'll give them time. I already wrote them in my points. First thing is get rid of the WSCC price cap right now, right today, right this minute. Vote it out. It is disabling demand response in the WSCC. It's disabling an awful lot. Okay. Now that one's passed.

The second one I would want is an incentive for

the regulated agents who have no incentive now to do demand response to do so.

MR. KING: What would that be?

MR. GILBERT: Give it to the shareholder or the stakeholders. The fact is, with the fuel clause adjustment and with a lot of other reasons and a disabling regulation that keeps them out of talking to customers, let the people who have the relationship with customers use it.

MR. PARKS: Sue, do you have any comment?

MS. COAKLEY: No.

MR. HIRST: I agree with Joel. First of all, you need to address me as either Commissioner or Chairman.

(Laughter.)

MR. HIRST: Something that has never occurred in my 58 years. It's my moment. I agree with Joel that both the FERC and the PUC mostly need to get out of the way and eliminating the existing obstacles. I agree with Joel that it would be helpful if FERC could as gracefully and quickly get out of price caps as it could. Also I think FERC should continue on its path to create large regional RTOs that are truly independent of market participants.

And as part of the standard market design, ensure that every step of the way, demand side resources can participate; not favoring the demand side, but just making sure that whatever platforms are built in terms of market

rules and software, that they can accommodate the demand side.

At the state level, I think the problems are greater. And that is, commissions need to stop worrying so much about protecting customers and instead making sure that customers have the opportunity to make decisions for themselves. This goes back to the earlier question about making sure that the standard offer is fair and that entities that choose to offer these kinds of products, whether it's the regulated utility or someone else, they have an opportunity to make money doing so.

So, again, it's removing the obstacles, as Joel said.

MR. PARKS: Sue, did you want to add something?

MS. COAKLEY: Yes. Commissioner Coakley says -- I'm going to speak again from an environmental prospective. That is what I bring to the table here today in particular. And I would hope that we could agree, all the commissioners across the country, that we would not worsen air quality with our regulatory policies and that we would agree to work with environmental regulators to make sure that our policies are headed in the right direction.

And I guess the other thing that I hope we could agree today is that energy efficiency programs are still needed. We need price signals so that people can respond to

the price signals with energy efficiency and load management. But it doesn't take away all of the market barriers to energy efficiency. And those states that do have restructuring policies with subtle benefit charges are making -- focusing some of those resources towards peak demand response and load reductions. It overcomes some of the market barriers so that everybody can participate, getting back to Veronica's point earlier, how does everybody get to participate.

So remember the environment, and energy efficiency is not going to just magically happen in all cases, so you need to continue to have programs.

MR. PARKS: Further questions?

MR. NORDHAUS: Brooks Nordhaus, Pennsylvania PUC. I believe it was Eric Hirst who commented that PUCs needed to get out of the way as far as protecting customers in response to DSR. And I'm wondering what protections are you suggesting that need to be removed from protecting the customer?

MR. HIRST: I think the key one is the one I've been hammering on, and that is the standard offer service. In most states, it's completely uncoupled from wholesale markets. How can you as a state regulator order your jurisdictional utilities to sell a product at a certain price that bears no relationship to the wholesale market?

How does that encourage any kind of economic efficiency? How does that benefit anyone in the long run? Sure, in the short run, it might provide customers with a discount. But you either pay for it now or you pay for it later. PG&E's bankruptcy is exhibit number one in that case.

MR. NORDHAUS: Thank you.

MR. PARKS: Yes?

MS. ALLEN: None of you mentioned having each of the state commissions -- I'm Edith Allen, staff in the New York Commission -- mentioned real time rates for those customers who are already on interval meters. Why wouldn't you have the state regulators act in that area?

MR. GILBERT: Great question. Why isn't RTP, real time pricing, the right answer? Eric answered it, but I want to answer another way, showing you why it backfires. Eric pointed out absolutely correctly that when we offer real time pricing compared to a standard tariff, the people that jump on it are the ones who realize that it's a discount in disguise. So you don't get anything for it. All you've done is bastardized your situation because now the people who stay on the rate are no longer in the rate class that you used to calculate the rate.

The second part, honestly, is the problem that real-time pricing creates in wholesale markets. This is going to be an enormous problem if real time pricing is

persistently pushed by commissions. Number one, the volume risk created by real time pricing in the wholesale market is enormous, because you do not know what the customer is going to do in response to price unless you're going to try and predict that, but as Eric pointed out, the vagaries of that response vary with production and the economy, and that's dangerous at best.

So what happens is that real time pricing may offer the customer a price signal, but you'll get in response to that a volume uncertainty which of course triggers back and affects price. That is why the New York ISO asks demand response to be bid into the stack to get the clearing price rather than to be just simply a price taker after it's optimized. RTP will bastardize your process, and you don't go there.

The RTP was done in the southeast by Georgia Power as a rate discount in disguise for economic development to compete against the co-ops and the munis because customer choice was enabled 20 years ago when they tried to get stranded cost recovery on a nuclear plant. So don't be fooled by real time pricing.

MR. HIRST: I wouldn't go quite as far as Joel does.

(Laughter.)

MR. HIRST: I was kind of harsh on the last

question. I'll try to be a little more moderate on this one. I agree with Joel. I like the New York ISO approach that has demand bid into the day ahead market. My guess is that most customers would prefer to make decisions day ahead rather than in real time, so I think there are both customer service and system benefits to having participation day ahead.

But just as we have balancing markets for generation, there's no reason why loads shouldn't be permitted to participate in real time markets. And indeed, I think they'd have to. If you schedule day ahead a certain demand, so many megawatts at a certain price, and then it turns out that it's a little hotter in real time, so you consume a little more, that increment is going to be settled at the real time price. I don't think that throws the system into chaos. It just settles things exactly the way you do with a generation imbalance.

So basically, I agree with Joel, but not quite.

MR. PARKS: Next question, please.

MR. BELL: My name is Andrew Bell and I work at PG&E in San Francisco and I've been involved in implementing demand-side programs for the last dozen or so years. I was very glad to hear Joel express some of the downside just from the questions about real time pricing. I'll ask Eric a question. But before I do that, I wanted to say that I

think it's careful not to overestimate the market potential. I think that we can do better. And I do think that Eric's slide that showed that one percent of the customers have 52 percent of the load is correct, but I also think it's important to recognize FERC reporting is by size of load, not by SIC category. Large industrial means over one megawatt of load.

In California, and I don't think we're that different from the rest of the country, we have an awful lot more office building load and hotel/university load that gets reported as large industrial than what you think of when you think of smokestack industries and industries and industries that can interrupt load at the drop of a dime.

I also was pleased to hear Sue point out the questions about diesel generators, which are very real. A We've spoken in the past for our environmental programs with municipal water agencies which probably are 5 percent of the load, but there's a problem, which is that water system peak loads and electric system peak loads and air quality constraints all have a high degree of coincidence with each other. The water agencies have told us that they would like to sign up for our program, but to do so, they would have to rely on their back up generation and they know that they can't get their air quality boards to approve that.

The question that I want to ask that I think

perhaps Eric could speak to about real time pricing is that in light of Joel's slide that showed the portfolio of programs, if you talk about a healthy market having only 5 to 10 percent, let's say, of the market being traded at the spot prices, how much room is there for putting, to use the example in Eric's paper that's in the handouts, how much room is there to put 20 percent of your load on a real time price and use the real time price as a proxy for the pricing if they're competing for only 5 to 10 percent of the spot market?

MR. HIRST: I think perhaps when I spoke I didn't clarify real time pricing. I used the phrase sloppily, and I apologize for that, Andrew. By real time pricing, I mean customers that face prices that vary from hour to hour. The issue that we're discussing and that was raised in the earlier question is when are those prices announced? They could be announced a year ahead if you've got time-of-use pricing. I think we're kind of coming to an agreement that day ahead markets make a lot of sense.

Bernie Nienan yesterday gave a really interesting talk about the New York ISO program, which from what I can tell is probably the most sophisticated of the current ISO demand response programs. That one involves customers bidding into day ahead markets. And as Joel pointed out in his portfolio approach, you'd have a much smaller amount

that would participate in a real time market. That makes sense to me.

MR. GILBERT: Just one of the excellent points you raised and I'm glad you did, and we don't have time to go on all of them, but I would offer one other issue that I think -- another P that we must consider here, and that's persistence of this customer interaction and persistence of the customer resource.

We're I think kidding ourselves to think that markets when they appear and offer high prices will keep this resource going. Customers need to plan, and in order to participate at whatever levels, large, small, or whatever, they may not persist. One of the challenges here if the economics of their business affects whether they're in and out of these programs, if the economics of the market affect whether they're in and out of these programs, if the inability for your portfolio that you're trying to assemble to include them is precluded because of emissions issues that are rightful and whatever, there is a persistence question here, and therefore there's a planning question we really have to address.

There is no one number that we can all feel good about. My view is we're losing this year because of the belief forward markets are soft, customer interest and demand response. We're losing the ability to retain

customers in these programs because the incentives seem to be disappearing. The business case is getting tougher.

So I'm very concerned about persistence in this resource even where we are right now.

MR. BELL: I just want to offer -- I'm glad that Eric spoke about the need for looking at day ahead as well as real time. I want to point out that we've already seen three or four different versions of the L-shaped curve this morning. And those are all based on the real time spot prices, and we don't have good information I don't think about what kind of hourly prices are appropriate when you talk about day ahead and what a day ahead market or a week ahead market --

MR. GILBERT: My curve was for day ahead. All our exchange operates day ahead, and with 3,000 megawatts is day ahead. The real time market usually settles a different portfolio. The point is, once the ISO sets up the ancillary services market and has demand response in it, that is the real time. I didn't explain my chart. But you look at the top, it's how far ahead you are, and there are day ahead. We run week ahead. We run month ahead markets on our exchange.

There is plenty of resource out there. The challenge here is keeping it persistent in the market, and I think Ross is going to talk about this this afternoon on the

principles to make sure this market stays a market.

MR. PARKS: If I may, a few more questions.

MR. COLBURN: My name is Ken Colburn, the Air Quality Director for the State of New Hampshire. Sue's graph of the United States showed air quality non-attainment areas based on the one-hour standard. For those who aren't aware, the EPA has adopted an eight-hour standard which perhaps doubles, increases perhaps by more, the number of counties involved in ozone non-attainment. That standard has been litigated but has survived at the United States Supreme Court. So while there's some implementation issues waiting to be dealt with, it's a question of when, not if, the impact of that, because of the Clean Air Act, relates economic development to air quality, and ultimately if price responsive demand is not done well, the burden of emission reductions will come back on generators or worse, on small businesses and other economic development entities, or of course mobile sources which are notoriously politically difficult. Thank you.

MR. MOLINDA: John Molinda, Director of Strategic Product Development at Strategic Energy. I want to direct this question to Joel. You made the comment that LSCs are destined to play a key role in bringing these services or linking the retail load to the wholesale load. We acknowledge that and we understand that but the limit that I've had and have had for several years is something you

just noted to a few minutes ago, is making the business case. What I'm going to ask might sound like a copout but have any of you, who have been more involved in this than say we have as a retail provider that's basically cranking away at our own business, have any of you gone through the business case and demonstrated that the revenues would exceed the costs including the uncertainties in the environment. If so, I think that would go along way in helping someone like me, who has really only about one percent of my time to dedicate right now to this, to actually take the plunge and go forward with this.

We know we're supposed to be one of the key participants in this program, but that's sort of like the Catch 22.

MR. GILBERT: Let me just give you a short answer, and let's talk about it on the break because I'm not sure the interest is general, but let me give you another answer which I think is of general interest. I think those of you in the room who have gone through the efficiency game and understand where the load serving entities have an obligation on efficiency, and in most cases use the free markets to actually implement their efficiency programs, what we've done there is we've said that the load-serving entity has an obligation to pursue efficiency, and therefore must spend some money and they'll receive cost recovery and

very often an incentive on top of that to make sure that resource is secure and we have examples all across the country; Connecticut Light & Power, Northeast Utilities, and others who administer a fund that indeed was mandated, that it's an investment in the well being of the region for environmental reasons and others.

I think we need to rethink the same thing on load management, and I'm not trying to get ourselves in a least-cost planning discussion here this morning. I'm saying we just need to start thinking that the people who have the relationship to the customer become the custodians of that relationship and the well being of the system by enabling free market agents like yourself to enable the technology and enable the customer to be able to do it, but they become the stewards of the opportunity, but they need an incentive to do that.

MR. PARKS: With some reticence, we'll take one final question.

MS. SILVERSTEIN: Thank you, Bill. Alison Silverstein. My question is for each of you. How much demand response do you need in the market to make a difference, both from the price perspective, or cost savings perspective, from the reliability perspective, and from the environmental perspective?

MR. GILBERT: I've done too much talking. I'll

give you my quick answer. You know you're beginning to get enough when the generators bitch at you.

(Laughter.)

MS. SILVERSTEIN: Can we get a more quantitative number than that?

(Laughter.)

MS. SILVERSTEIN: In terms of either load or customers?

MR. GILBERT: If you took a statistical view of markets and you looked at this from a resource perspective, and you looked at those curves and the way they are shaped, in general you'll come up with two conclusions. When you forecast a peak, that highest point on Pat's curves this morning, that very, very top peak, and you said how needle-like that peak is from a reliability perspective, you probably need something in the range of five percent of that peak standing by as some form of callable option.

From a price perspective, you'll probably need something in the range of another three to five percent to give you the price assurance to discipline the market. So one could say if you were at ten percent, you're probably fat, dumb and happy. But because of the characteristics that Pat mentioned this morning, there is some mutuality to these two. You could probably get away with a little bit less of a number.

MS. COAKLEY: It's a tough question to answer from the environmental perspective. I think if you wanted to know how much demand response you need to achieve environmental goals, you have to able to say how much is generation contributing to a certain environmental problem, an air quality problem at the moment. A very radical view on it would be that the demand response should be enough to nearly eliminate our peak so that we can eliminate the air quality problems of summer peak. That's a very big number and a very significant piece. I think we should try to do as much as we can both to reduce use on peak but also to have clean resources meeting whatever peak resource, peak load that we do have.

MR. HIRST: I agree with Joel. We need just a few percent. It's important to note how non-linear it is going back to what the Chairman showed us. That first megawatt of load reduction provides more benefit than the next, which is more than the next. So at some point, you get a diminishing margin of returns. I suspect Joel is right. If you had five percent, that would be good. If you had ten percent, maybe we'd be dumb, fat, and happy. We probably don't need a whole lot.

Alison, in the long term, I would answer your question differently, and that is to say if FERC is successful in achieving its RTO goals, and if the states

open up retail markets so that customers have choices, we won't need to ask that question because whatever happens in the market, however customers respond to prices, that's what's economically efficient. We're not there yet so your question is very important during this transitional period.

MS. SILVERSTEIN: Thank you.

MR. PARKS: Okay. First I'd like to thank this panel.

(Applause.)

MR. PARKS: Then I'd like to revoke their commissions.

(Laughter.)

MR. PARKS: Panel two will convene promptly at 11:00 o'clock. Thank you very much.

(Recess.)

MS. SILVERSTEIN: Okay, you all, let's start heading back to your seats, please.

(Pause.)

MS. SILVERSTEIN: One of the big questions that state regulators are asked about and respond to is sure, it's a good idea but are customers willing to let me do this to them, or are customers willing to do it themselves?

The purpose of this program and this session is to have some folks who know a lot about customers and a lot about demand response programs that customers respond to

tell us just that; what do customers want? Why do they want it? Why do they like it?

Our experts for this morning are Dennis Kelly of Green Mountain Energy; Kevin Lawless of Excel Energy, and Gary Swofford of Puget Sound Energy. I do want to mention that the speakers were given such abbreviated introductions, what's your name, rank and serial number, and only that because all of the speakers impressive bios are in the attachment in the handout in the package that you picked up when you came in.

Let's start with Dennis Kelly of Green Mountain.

MR. KELLY: Thank you, Alison. It's a pleasure to be here. I want to share with you some of the learning we've had at Green Mountain Energy about how consumers make choices, why do they want choices, and also draw some parallels to other industries.

(Slide.)

We have about half a million customers choosing cleaner electricity in six states, soon to be seven states. We've been in business for about five years. We're growing dramatically through a cleaner electricity offering. We think there are a lot of parallels to cleaner electricity and demand response, and some of the research you'll hear from me and others today shows there is a lot of interest at the consumer level for this product.

My thoughts today will be based upon both consumer learnings and how many customers we have and the research that we've done, as well as some of my beliefs about consumer products gained over the last 20 years as I sold soda pop and potato chips and electricity to folks.

A couple of words about consumers. When you do research with them, you've got to be very careful, and as we talk about consumers, I'd also suggest that we all be very careful what you say about consumers; you're probably living with one and if you want to know what a consumer thinks, usually the best way is to ask him or her across the breakfast table. They'll give you an immediate and quick feedback to what your idea is of how responsive it is.

(Slide.)

So with that, the first observation I'd like to make is that there are lots of other industries that have gone through what we're going through today. We regulated and when consumers were offered choices that the responded very positively. Not all consumers, as you'll see in a minute, want these choices. But as technology and as regulations changed, consumers were offered choices. Tons of mistakes were made, but great products, great brands, and great winners came out of that.

I want to spend just a minute on this slide. As we think about for example, time of day pricing, pricing

signals in our industry, it's scary as you talk to consumers, yet consumers are very, very aware of the value of time, the value of a weekend minute versus an evening minute in long distance. They're trained on that and they understand that. They understand that there's a price difference for that and the other thing about that is that as long distance at local telephone have evolved, there have been many, many evolutions of the product. Constant evolution going on in that product category.

I predict that as our industry moves toward this, the economic forces that I believe demand move toward it, you will see an explosion of innovation and creativity as the technology enables it and as the price signals do come through. The flip side of that is pretty interesting. Fred Smith, when he launched Federal Express, his proposition was you could mail a letter usually reliably and get it in a day or two. What if I offered you a product that had a one thousand percent premium by guaranteeing to get it to you the next day?

This is a Harvard Business School case on this. People laughed at him. They said no way will anybody choose that product. Yet Federal Express was a wonderful company built upon a time premium. Consumers understand time premium.

A couple of other things. An interesting

statistic I read yesterday that this year 2002 there will be more wireless telephone numbers worldwide than there are wired numbers. Let me repeat that. There are more cell phones worldwide today than there are hardwired phones. I think there's a metaphor for us, an analogy for us, in that consumers rapidly shift and adopt new technologies. They price it, they understand the pricing differently. It's our job to present them with those options going forward.

Banking. Who would think of a software company competing with your friendly neighborhood bank? But that's happening. It's when price signals are allowed to come through the consumers, that people like us and your utilities and others will create products to satisfy consumer demands. In the last five years, we've made a ton of mistakes. But it is through those mistakes and watching our competitors and real time learning and talking to consumers that we've actually come up with products that have a true economic basis that the price signals are coming through and that consumers can participate in the value that's created by optimizing against that.

There's a ton of good research out there that I would encourage you guys to look at, stuff that's coming out of NREL, stuff that's coming out of EPRI, people like XEnergy, the Wilbert Starch folks all have great insights as to how folks approach products and services, but also

electricity products and services. We've done a lot of research ourselves. It's the only way we can survive. We understand the needs of consumers and adapt rapidly to that. Our product is cleaner energy. We sell it at a premium, and that, as I talk to people and talk to a lot of you folks, don't understand how that can happen? How can we get a half million consumers? Why are we audacious enough to believe that tens of millions of American families will choose a cleaner product at a premium. We've got research to back it up.

I want to primarily share with you research that we have done in the green product area that we are using to formulate products that are demand responsive. We'll talk about our own efforts in this area, and you're going to hear about some real results from my two colleagues up here.

(Slide.)

This is audience participation. You've got to find yourself and your partner in this slide. This is research we did with a thousand families around the country in-depth interviews, what researchers call "quantitative research." We did it for about 15 utilities all over the country. We think it's projectable to every part of the country. And it's pretty interesting about the million families in a family -- I'm sorry, the hundred million households, roughly the hundred million households in

America, you can break down into this category. Pretty interesting. I'll talk a little bit more about it, but 21 percent consider themselves active and involved. They're going to be a key target for products like demand response products. Products like green energy. There's another group, pretty significant group, about 20 percent, that are service starved. By the way, we found this across 15 different utilities. I'm going to talk a little bit more about that.

These two categories are, we think, the target rich environment for consumers who will respond to a well-positioned, well-crafted, and branded product offering in this space.

Importantly, there's about 50-60 percent who will not respond to this product unless you make them, and they will probably be grumpy about that. The apathetic, the contented consumers, and what we call the harried and constrained. This segmentation research we use a lot. We know how to find these consumers. Therefore, for our green offering -- and I would suggest in a competitive market, offering a demand response product to consumers, I would suggest that you want to focus on people who are going to choose this product, focus on these two categories, active and involved and service-starved.

(Slide.)

The active and involved are a pretty interesting group, about 21 percent of the population. As households on the retail load for homes, they consume more than their share of electricity, bigger homes, pretty big electric bill. There are some Texas numbers in here so that weights it a little bit. We use a lot of electricity in Texas, but interesting, they're very open to new ideas. These are the people that will switch to a new long distance carrier. They don't think power is a commodity. They understand, they're knowledgeable, they are highly educated, they're twice as likely to have a college degree. Their behaviors, that's what's key to us as marketers. How can we find these folks? They're most environmental, most philanthropic,

highest social and recreational activities. You can see the demographics on there. There's a bunch of these folks that represent a bunch of a load that are ready, willing, and want to talk about these products.

(Slide.)

Another really interesting group that we have we call the service-starved. This is a real surprise to us. I predict that every load-serving entity has consumers in this category. They are about 18 percent of the population. They are very open because they are not happy with what the monopolies offered them up until now, and they're getting increasingly unhappy, both in terms of customer service, the product, the way it's priced, it's reliability. There's a whole host of reasons.

Remember from a consumer's perspective, electricity is just about the only product they have no choice on. They're used to choice in every other product category, even water. That's the reason soft drink companies are offering essentially refined water to take home because they want an alternative to their water source. These consumers are expecting demand, want choice, they want to see innovation, and they are going to be very open to this opportunity.

(Slide.)

A final graph I'll show on these people to

demonstrate why they're interested is when we asked them how happy are you with what you're currently getting, look ta the responses we got. The two groups that we think are most open to this, there's only about a 50 percent satisfaction level with the products that they're being offered today. This is terribly important. This correlates well, by the way, with studies that have been done at the University of Michigan on customer satisfaction for the electricity industry. I would encourage you to think about that as you think about your own customers. The segments of customers that will respond to this offering are already very open to thinking about this going forward.

Now, as a marketer, people that have a half a million customers and aspire to have many millions of customers buying cleaner electricity and buying demand response products, we think this information is terribly important, but it validates I think the underlying hunger and demand for products like this. The barriers to it are quite frankly pricing signals and the infrastructure to get the metering through.

Now, we are proud to be involved in six states, as I said. We believe that in Texas, the pricing signals to us are we're bust enough that we think if we can get around the infrastructure issues, we will be launching a competitive product that has demand response capabilities in

it in a competitive market. We think our competitors are gearing up to do the same thing. We think in a state like Texas and cities like Houston and Dallas, you will see demand response products come forward if we can get over the infrastructure issues. The price signals are there in ERCOT. We think they're pretty close to being there in PJM as well. You'll see folks like us bringing products along those media.

(Slide.)

The last slide I'll show you is, so if consumers are so anxious to get it, how do you go about getting them. This would be our plan in the competitive market. We would build a demand response product along with our green offering. That's our core business, cleaner electricity, because after all making electricity is the dirtiest industry in America in terms of air pollution which is our fundamental positioning for consumers.

We'll bring in a demand response product in addition to our clean air offering, and we'll go through the same steps as the utilities. As PUCs are thinking about offering this product, I would suggest that you think about a marketing program that looks a lot like this. You've got to do product development. You've got to develop a bundle of goods and services that are attractive to consumers. You need to go out and talk to her; go out and talk to the

person in the household who makes the decision. You've got to segment and target.

We know that by taking the segmentation I just showed you, we can translate that into zip codes, we can translate that into mailing lists, we can decide why one household will choose it and predict it, the other one won't, and for what reasons. You've got to have positioning and pricing versus the competitive offerings. You've got to brand it. People make choices based upon brands. You remember all those other products I showed you? It's all about branding, it's all about positioning, and building that brand up with the consumer.

Then you've got to talk about it. We think that aa product like this is not going to be successful in a competitive mode unless you get between 40 and 50 percent awareness. You've got to do a campaign of television, radio, public affairs, all those elements, a Web-based program to make consumers aware of the benefits they'll get. Your competitors will do this as well. Then you've got to sell it. You've got to sell an idea like this because consumers need to see and understand the benefits, and I'm talking about competitive markets, not unregulated markets at this point in time.

Don't forget about fulfillment and customer care. We think it's terribly important and one of the reasons for

the relatively low satisfaction levels is customer care is not thought of as being a key function of electric companies. We take that very seriously in following up on it. And finally, if you want to keep these customers, which is the objective, think about retention efforts, think about spending between ten and twenty bucks a year to keep these customers. Ten to twenty bucks per year per customer to keep these customers on your product. Otherwise, they'll slip back to what you don't want.

We are very carefully looking at these products. We think, as we said, the wholesale price signals in Texas are robust enough for us to build a product around. We're trying to figure out a way around the metering infrastructure issues. If the metering is in place, as you'll hear from my colleagues in a minute, then there will be an explosion of competitive offerings, I think, because of price signals in places like ERCOT and PJM. And we think that we can make a product that will be attractive enough to consumers to make money on.

Thank you very much.

(Applause.)

MS. SILVERSTEIN: Before Kevin starts talking, i'd like to point out that of all the things he mentioned about good marketing programs, our next two speakers are from companies that have actually done the kinds of work

that Dennis recommends. I'd like you to note the difference in the kind of programs that Puget Sound Energy and Xcel Energy offer. They are two very different kinds of approaches to demand response and peak load management, but they are both tremendously successful in their own ways.

MR. LAWLESS: Thank you, Alison. It's a pleasure to be here today. We know our customers want to save money and we know they want to manage their costs, but as we configure this industry, we really have a challenge; that's to help our customers, make it easy for our customers to participate.

(Slide.)

I'm from Xcel Energy. For those of you who don't know us, we're the fourth largest combined gas and electric utility in the country. We also own most of one of the largest IPPs in the world. We touch about three percent of the households in the United States within our regulated footprint. Our business is centered in the Twin Cities where our headquarters is and Denver. Post-merger, we're really focused on leveraging the people, processes and programs the best we have, and taking those across the rest of our territory.

I'm going to talk mostly based on our experience in our north territory, which is really the five states in the upper midwest; the Dakotas, Minnesota, Wisconsin, and

Michigan.

(Slide.)

I'd like you to consider this chart. This is real. This is 800 megawatts of load reduction on our peak day approximately equal to ten percent of our projected peak for that date. It's measured, it's actual, and our system operators, the transmission operators, all depend on it in the MAPP region. Really what we've built is two large customer-centric power plants. Now it's over 800 megawatts. Last year we operated these plants on 15 days and Commissioner Wood's chart of a load duration curve is very similar to what we experience in our territory. You take a few days, a few hours, and what I've always historically thought about our system in the midwest is we need 800 megawatts ten days out of the year. If you don't have that 800 megawatts, we end up way on the upper extreme on that price duration curve.

Our programs have produced benefits that we estimate conservatively at over half a billion dollars. We've reduced plant construction by 800 megawatts in conjunction with our conservation programs. We think the savings will exceed a billion dollars.

In 1999 when upper midwest prices were in the four to five thousand dollar a megawatt hour range, we think, just on a few days that summer, we saved our

customers $100 million. One of the things you're going to hear me talk about over time here is that because we helped managed the prices in that region, I can talk about what we saved our own customers. But we obviously are saving customers within the entire region. And one of the things that I think, sa we move ahead, we need to recognize the cost savings that accrue to customers, even though they're not the participating customers.

(Slide.)

What we've learned is that customers are very motivated to participate. On a macro level, I don't think it's any rocket science to understand that business customers want to control costs and manage their risks. Consumers want to lower their bills and they want to play their part in preserving the environment, but that's only to a point. They're not going to do some of these things naturally and on a more micro scale, they have to have an option or options that are very clear that make a lot of sense to them. They have to be certain that if they do something, if they take an action, they are actually going to save some money. They need to feel like they are retaining some control. The control may be as simple as they have an opt out of their agreement with us, that maybe they've got a penalty structure that they can look at and assess, or really that they have an option to set the amount

of load curtailment they may provide.

What's really important, and I think Dennis sort of hit on this, is the seller support is really important as well. They need to know somebody's there to support them, and I think my family -- and Dennis talked about the breakfast table. Probably back 12 years ago, we used to go to Best Buy to purchase electronics. They were the first big discounter. We knew the price was right. And they had pretty good selection. Then they went through a period where their on-the-floor sales staff was commissioned based. They weren't very helpful and you really could hardly ever find them. We stopped going to Best Buy. More recently Best Buy has dropped that on-the-floor commission and you see a lot more customer service within the store. You see people being more helpful. We've returned. Again, it's this idea of seller support. It needs to be in some sense unbiased support, but it's something that's very important.

(Slide.)

If you're going to capture demand response, you need to actually offer customers an option. We have built, our strategy has been to allow or to offer at least one option to every customer in our service territory. In the northern territory, as I said, we have 850 megawatts across our entire 12-state territory. We're approaching 1400 megawatts of customers involved in these programs.

(Slide.)

Our Servers Switch program, which is a residential, air conditioner load control, very simple. Customers get a percentage discount on their bill which actually relates pretty directly to sort of the things we've been talking today in demand response, because in the summer is where we need to run this more often. If their bills are higher, they get a bigger discount. When we've got a cooler summer, they get a base discount. We don't run the system as much, their bills are lower, their actual dollar discount is lower. We have a quarter million residential customers on this program representing between 40 and 50 percent of all our central air conditioning customers in the north. We also have thousands of small business customers. And they're very active participants.

We started a program for this segment about four years ago, and it's been going very well. Again this was probably the segment of customers that we were missing in our programs over the years most directly. Our larger customers have a variety of load management options, some of which are based on basically peak capacity requirements, some of which are more energy based when prices are high, and some of which allow them to sell into the market. All of these are successful.

We're probably moving more to the economic

dispatch. I think Joel Gilbert's chart this morning across the bottom you saw the options. We're moving across that chart very clearly from left to right. What we do with these programs is we actually are able to phase them in, and as we look at a particular date, maybe a day we only need 600 megawatts. We make some selections about which programs we operate based on a lot of criteria. But all these programs we tend to have either an implied promise to customers or a contractual agreement in terms of hours and days of interrupt and/or control.

Frankly, it works pretty well. I think other utilities have tried to implement programs like these and they tend to be more emergency-based. For us, these are standard summer operating procedures.

(Slide.)

We also know customers are very creative and flexible. Almost half of our business customers in these programs basically just find some equipment to turn on. What we do is we allow them to nominate a part of their load that will go off system during our peak periods and they have a choice of how much load they contribute. The minimum is 50 kilowatts. We know customers also enroll in what I would call our saver switch program. They'll cycle AC. We know about 18 percent of our customers will turn on backup generators. And I must say, Susan's talk this morning we're

conscious about these issues and working on those. But again, it's actually a fairly small percentage of the customers who are doing the generator side of it. Others will actually change their production schedule. They'll move work to night shifts or weekend shifts and I think the real message here, the trick is to design a customer friendly program that allows customers to choose their strategy, to choose their amounts, and really make their own choices about how they're going to participate. If we do that, they will participate.

(Slide.)

Our customer power plants, though, require maintenance. Customers are not light switches. You cannot turn them on and off. So what we do is our customer-centric approach to this is, particularly with our business customers, before we get into the season, our history is to have a series of breakfast meetings with the 3,000 customers on this program. We review with them their contractual arrangements. We review with them how to get a hold of us. We review with them how we're going to get a hold of them, whether it's Web, telephone, pager, whatever. Actually we use all variety of systems.

We go through what the outlook looks like for the summer. Some years, we can see that we may be blessed with better capacity in the region, and maybe we're not expecting

as much control, some seasons we may be expecting more. We review internally and externally with all parties the procedures.

We reassess our internal strategies relative to the market conditions we see facing us, and let me tell you they vary differently.

We had a hot summer in '99. Prices were $5,000 a megawatt hour for a few days. Last year, we had another hot, humid summer. In fact, I think more warm and more humid than in '99. We never saw market prices over 200.

As you look at the market as you're going into the season, it's very important to have a perspective on what you're likely to see. We also do system tests. We make sure all of our communications strategies with customers work. We also make sure they know they're working.

In terms of ongoing monitoring and measuring of impacts, we monitor all our control processes in more or less real time fashion to make sure, for instance, on the load control program, that signals are going out. This is actually an interesting application of automated meter reading, because what we do is take a sample of meters and bring them back and we have an ability to check to see that customers' air conditioning systems are responding appropriately.

And, of course, on an ongoing basis, we do a lot of load research. It's a critical part of what we do. It's a way to monitor and assess whether or not your systems need additional in-the-field maintenance, and we also use our automated metering system to actually locate specific switches in the field that allow us to do maintenance on a spot basis rather than a broad general basis. We probably cut our maintenance costs by two-thirds by using this.

In terms of moving ahead, what are some of the things we'd like to see if we're going to have a robust

demand response market? One is customers actually don't know boundaries. State lines, utility service territories really don't make sense to a lot of customers. When you're advertising, customers will pick this up in other service territories. When you're working with business customers, they typically have more than one location. They want to know why they can't get this in Illinois, Iowa or anywhere else.

So I think what we want to be able to do from the customer perspective is make this as seamless a process for them to participate as I think FERC's approach is to the RTO market in terms of transmission need. That it's one seamless entity.

In addition, we want to take a look at what models we have. One of the things we look at as a provider, and I think this is really a great learning for me personally and for the company as a whole after we've merged is how the different regulatory models in 12 states really hinder your ability to offer these types of services in a cost effective, scalable, consistent fashion. And I think if there's one message I have here for FERC and the state regulators is to really work hard at this. The different models really have an impact on our ability to offer services.

One of the other things that's missing as we

unbundle the industry is that incentives for participation have really become sort of disbursed. And where we used to be able to look at a traditional bundled utility and you could pick up the long-range generation capacity reduction value, you could pick up the transmission system reduction value, you could pick up the distribution value, really in today's world it's very difficult to do that, because all the different players have been sort of shuffled, and what we need to as we go forward is find ways where we can bring the whole value back together so that entities who are offering services can bundle up that value and match that up with the customer aggregation work they're doing.

We also need to be sure that we value the capacity of these systems as well as the short-term risk management, price management perspective of these. When you actually don't have to construct power plants because 10 percent of your demand is embedded within your customers' systems, there's a lot of value to society.

In terms of being consistent with laws and regulation, we need to be sure they're open-ended and allow demand response to compete with generation and/or transmission alternatives. And we really do need to remember that customers are not like light switches. They're more like a house plant. If you water them and care for them, they'll enjoy your company for a long time.

Investors are much the same way. They need to understand that there's an earnings stream here. They need to understand that there's some relative certainty, and they need to be able to see the financial rewards.

And finally one thing that's not on my slides here, we also need to learn how to value the resources that are already out there. And I think you heard Joel talk about his programs. Some of us utilities haven't allowed these to dissipate in the rush to deregulation. And I think we're going to need to find a way to value the resources that are already there.

Thank you. And I'll be glad to take your questions later.

(Applause.)

MR. SWOFFORD: Good morning. It's a pleasure to be at a meeting where for once I can talk about this subject and it's not from the perspective of whether or not we should do it, whether or not we could do it, whether or not it's timely to do it, whether or not customers would accept it. We're here to talk about, I think as Chairman Wood, as Commissioner Massey and as Assistant Secretary Garman said, we're going to do this. Our challenge here is to figure out how to move forward to do something that we all believe is in all of ours and our customers' best interest.

I want to talk about two things this morning.

One, I want to talk about our specific experience with our what I call a universal demand response program in that all of our customers are participating in this program. And then I want to close with a specific suggestion, a proposal for how we do move forward from here.

(Slide.)

MR. SWOFFORD: First just briefly, here's who we are. We're Puget Sound Energy. We serve about 1.5 million customers in the Puget Sound area. About 935,000 of those as you can see are electric customers. The rest are gas, and 300,000 of them take both energy sources from us.

We have a very strong residential base in our area. We started this program from an informational basis about 15 months ago, and these are the customers that are participating in the program now. We have about 1.2 million of our meters that are automated, and this program is basically available for.

This is a pilot program now, and these are the customers that are currently on that program. One hundred and fifty thousand, as you can see are information only. Three hundred thousand, residential, 20,000 business customers. Those customers aren't just getting information. They're actually being billed on a time of use basis off of this program now. What do they receive on which they can make their choices on? They receive information about their

usage, they receive information about the price as well as suggestions as to how they can take advantage of that information and use that price information.

The technology base we use is an automated meter reading system, an advanced customer information system and some software.

(Slide.)

MR. SWOFFORD: Schematically, it looks like this where the usage information comes into a new CIS system -- don't be disturbed by the words real time pricing, Joel. This is not a real time pricing system. Currently it's time of use. The technology has the capability to do more, and we have a proposal to do more. But it can take the real time pricing information in. It can match it up, usage with pricing information and we could actually bill a customer on basically what's close to a real time pricing basis.

Customers have access to that information via the Web. They can call our access center over the phone. They can communicate by fax, a variety of ways to access the information. The little graph on the right just tells you that our access center people also have this information available to them. So they can help customers when they call in and want information about this program.

(Slide.)

MR. SWOFFORD: Phase 1 was the information

program, as I mentioned. It started in November of 2000. It was across all of our service territory where at that time we had the technology installed. It started out with about 400,000 commercial and residential customers that were on the program. And we broke the day up into four time periods, two on peak and two off peak periods under which we were going to propose pricing in the future. But again, this was an information-based program.

(Slide.)

MR. SWOFFORD: I love this slide because it really helps me emphasize the point on how customers can help you communicate with them. Our customers designed these communications. This is what customers receive in their bills. We originally designed it ourselves, formed four focus groups, took it out to them and said what do you think of this? And they said we hate it. So we said, what should we do to improve it? They basically worked it out and this communication now is what they designed that they get every month in their bill that shows them on average how they're using for that month period energy in four different time blocks.

At the information period of time when this first came out it just showed them the four time blocks when it was expensive, as you can see, and when it was less expensive. In the left-hand corner it showed each customer

for them, for the last month, how much energy they were using over that month in each one of those time blocks.

(Slide.)

MR. SWOFFORD: They could go to our Web site that we developed for this program for personal energy management. They could click on personal energy management. A residential customer saw a home. They can click on each one of those rooms and get suggestions on what typically is in a kitchen, what typically is in a living room, what typically is in all the rooms of the house, as well as suggestions on which of those are available for shifting as opposed to which of those are just energy conservation. I don't mean just energy conservation, but how you can actually affect your usage as well as shift your information, thus, shift your usage.

(Slide.)

MR. SWOFFORD: The next thing they got was a seven-day rolling period that showed them for their individual homes how much they were using in each one of those time periods. So now they had information split into four blocks on a daily basis in which they could see what their usage in each one of those time periods that are shown there on the right.

This is probably the most popular or the most used piece of information that we provided them where they

actually were able to see what they were using. They could make changes on one day. They could look the next and they can see what the impacts of those choices were. They could look at it over a month. They could look at over the time period from since they received their last bill, or they could see this seven-day rolling average.

(Slide.)

MR. SWOFFORD: In April of 2001, the state of Washington and indeed the whole Northwest was in a drought. We had this particular program up and running. We filed a pilot program with the Commission to actually implement this program on a pilot basis for customers, again to assist with the energy situation in the Northwest both peak and off peak. We implemented that program beginning May of this year. We had a long an interesting discussion over if it was a voluntary program or whether it was a program we were just going to put people on. We came down that we were going to put people on the program, but they had the ability to opt off if they for some reason didn't think it was for them, they wanted want to use this program, we gave them the choice that they could remove themselves from the program. And I'll tell you today that less one percent of the customers, it was .7 percent, actually opted off the program.

(Slide.)

MR. SWOFFORD: They also began receiving specific pricing information now in each one of those time periods. Okay. Now I'm on it. I'm going to be billed. How much am I going to pay in each one of those time periods? So now they actually got the information that they could match with their usage in those time periods. Here's the price they're going to pay in those time periods.

(Slide.)

MR. SWOFFORD: We did a survey. That initial pilot ran from May through September. We did a survey in August of customers to get some sense of how they liked the program. I'll show you specifically some slides here in a minute that absolutely were astounding to us. They were overwhelmingly positive, as I've said on there. They understood the information, which was a major question for people. Will customers be able to understand this enough to do something with it?

Ninety percent of them reported they had taken action, and 85 percent of them were satisfied with the program and said they would recommend it to their friends and their neighbors.

(Slide.)

MR. SWOFFORD: Specifically, we did a survey during the information campaign, too, so what I've contrasted for you here is the difference between when we

just had an information only program and we converted to billing, the difference that it made as far as the results we were achieving. You can see that we were delighted with 80 percent off an information program with people who said they had taken action. We even moved that up to 91 percent.

(Slide.)

MR. SWOFFORD: What actions did they take? Here is where it really gets interesting. Shifting usage, we doubled it when we added the pricing element to it from 43 percent as you can see there to 89 percent. The other interesting result that we got is it was thought that all we were doing was shifting usage. That usage wasn't going to come down. Customers as a result of the information we provided them, the whole house, they could click on a room. We actually have seen, as they have said they were doing, reducing their energy usage along with shifting their energy usage.

(Slide.)

MR. SWOFFORD: Overall satisfaction with the program, which you can see from this slide, was 85 percent. We're satisfied with the program. We've been obviously delighted with the results that we've seen with customers on this program.

(Slide.)

MR. SWOFFORD: To match that up, we had the

Brattle Group come in with results and actually take a look at what we have achieved with this program since it started last May. We've actually reduced usage on peak. And if we just compare the people that are on the billing versus the people who are getting information, which is what this does, we saw a 5 percent reduction at the time of peak in the load. I was interested in Joel Gilbert's number this morning of 5 percent.

Recognize that these are lifestyle changes people are making here. This isn't going out and buying a bunch of equipment and doing some other things. When I tell our residential customers we're not asking them to make dramatic changes, small things. It's a lot of people doing a few things that results in this. But here we were able to demonstrate that it was a lot of people doing small things resulting in a 5 percent reduction to time at peak in this program.

(Slide.)

MR. SWOFFORD: From a conservation standpoint, we saw at the same time that on average, a 2 percent betterment in how much conservation was being achieved by people that were actually on the billing program than those that weren't. I don't mean to say by this slide we only saw a 2 percent reduction in usage, because the baseline that we started from was about 6 or 7 percent. This is 2 percent

more conservation that we saw as a result of people receiving the billing information.

(Slide.)

MR. SWOFFORD: Phase 3, the first pilot ended at the end of September. We went into the Commission. We had the results of our program of what we had established. We asked for an extension, because we wanted a whole year. We're a winter peaking utility. There were concerns about would customers stay with this program? Was it sustainable through a full year period? Particularly in the winter when we peak in the winter. So we've extended that program through May of this year. And I can report to you that we have seen consistently since that first survey went out and the analysis has been done, we're continuing to see a consistent 5 percent shift off of the peak load period into the off-peak period as well as a maintenance of the kind of efficiency changes that we're seeing. So we're again delighted with that.

We also added 20,000 commercial customers to this pilot through May for this program.

(Slide.)

MR. SWOFFORD: Probably the most frequently asked question I get is, yeah, but this is expensive. We simply can't -- we can't afford a program like this. Well, there's the cost that we've incurred to do this program. We've

changed out over a million, million two electric and gas meters. Our gas customers also have a real time -- have an automated meter reading system installed in their facilities, homes also. We've averaged $30 per meter on average to either remove the meter, put a chip in it and put it back on the house, or 30 percent of them had to be changed out because of the age of the meter. But the average cost has been consistently over the three years we've been installing these meters, $30 per meter.

The network cost. We leased a network. It's a fixed wireless network that we lease. The incremental costs -- this is incremental -- there's a basic charge for that network of $1 per meter per month. For the time of use provision of this, this is an additional incremental $1 per month to actually have a time of use capability off of that system. So it's $1 per month additional cost. That's it.

The other cost that you see on there at 16 cents are the educational costs that we've incurred for customers for our own in-house staff to learn how to talk to customers about this system and some software costs make up the other 16 percent. Those ramp down over time as the education builds up.

(Slide.)

MR. SWOFFORD: The next step for us in this particular proceeding is we have filed with the Commission

now a pilot program whereby our plan is, the next step for us is to move this to, I guess after this morning's discussion, I would call it a day ahead system whereby our customers if this program is adopted, will see 10 percent only. Some discussion this morning about the load shifting changing and the customers' expectation that their whole load will be exposed to daily time variable pricing. We're taking 10 percent because that's all we're into the market for, so we shouldn't expose our customers to any more than that. So 10 percent on a daily basis we'll provide basically day ahead price signals to customers. They'll see what the price is. They can decide what they want to do with that particular information. Do they want to use more, do they want to use less based upon pricing?

The time of use shape will stay the same so they also get the signals. It's important to think about when you're using the energy. It's also important to think about what the price of the energy is on a daily basis. So we're incorporating that into the program also.

(Slide.)

MR. SWOFFORD: What conclusions can we draw quickly? Universal demand response programs can be done today, and they can be done cost effectively. Residential customers can both and do understand and respond quickly. We started seeing those results within a month after we

implemented this program. Provided they get the usage and price information. I hope you saw on there price matters. They do respond differently when they get a price signal than when they just get information.

We can have a meaningful impact today with what are essentially lifestyle changes only. Think of what we can do when you introduce technology into that and smart appliances and software systems that you can program price information into that will automatically turn appliances on or off. And those are coming. They're here today, they're being piloted. What we need is the marketplace to put in a system whereby customers will be interested and manufacturers will build those kinds of devices.

And lastly, customers in general really like the feeling of being in control, of actually managing their usage in a way that they feel at the end of the month when they get a bill, they had something to do with it. It didn't just happen to them. And they also appreciate the choice that they get to make in this system and not us making it for them.

The last thing I want to just say is, I want to express because we've had a lot of discussion this morning about the need for PUCs, state PUCs and FERC to work together. And I'd just like to express my appreciation to the Washington Commission here for both their interest and

their willingness to pilot this program. It was not and is not without its detractors. But we won't make changes. We won't do anything different than we have in the past unless we have people with vision and we have people with courage to make the changes that need to be made.

And again, the WTC displayed the leadership that we now have the experience that I can come to a place like this and present it to you, and I doubt that I'd be here this morning if we didn't. So let me say thank you and let me conclude by saying we have a proposal that we have put together with a group of other interested parties on a specific action that FERC can take to actually have this go forward now and let's move it to implementation.

Clearly, FERC needs to continue what they have been doing and generally speaking, talking about the need for demand response programs, I would just like them to see them add for all customers, all retail customers. Specifically in their NOPR that's coming out, I think it's called the Electric Industry Transmission and Market Rule that's under development.

But they should require that the RTO transmission planning process involve state utility commissions along with utilities and other regional stakeholders, require the RTO planning process to explicitly consider the role time-based retail pricing can play in two areas: Creating a

customer responsive, wholesale power market, and optimizing the use of the existing regional transmission and generation facilities that are currently available and therefore reduce the need for new generation when it's not needed.

And three, where it's shown to be cost effective, to develop a plan for implementation and show in that plan how costs need to be shared between the RTO and the states. There are regional benefits to these systems, and those regional benefits we as a group believe should be passed on and recovered in the transmission costs in the tariffs of the RTOs.

There is an actual paper that is over there on the table that describes this in a lot more eloquent detail than I can. It's available to all of you over there, and I thank you for your time.

(Applause.)

MS. SILVERSTEIN: While you are rushing for the microphone, I'm going to take the liberty of asking the first question. And since, Dennis, your metering and software shopping, I'm gong to save you a little research effort and ask Gary the following question. Thirty dollars per meter? What's up with this. Most of the things that we hear are that interval meters or real time meters are going to cost $500 to $1,000 per meter for installation. So how do you get away with $30 per meter?

MR. SWOFFORD: Well, people are quick to point out to me that these are residential meters that I'm talking about when I use a $30 a meter average. If you look at commercial industrial meters, then I think we can get to the point to where we're talking $300, $400, $500 per meter. But residential meters, you're using the existing meter, at least in our system. So all you're doing is putting a chip in it and reinstalling the meter. So basically the cost is to take it out, put it back in and put the chip in, and 30 percent of the meters were new. But again, the average cost was $30. Everybody in this room knows what a meter costs, and it's about 50 bucks, $40 to $50. So it's pretty hard to get to the $300, $400, $500 numbers for residential customers. I don't know where those come from.

MR. GILLIGAN: I'm Don Gilligan from NASCO. My question for Gary. The price differential that you showed in your time of use price structure, number one, are those prices cost based? And number two, if the price caps come off in the Western region, how would you expect those prices to change, if at all?

MR. SWOFFORD: Number one, they're not cost based. When we put the pilot program in place what we wanted to do was do it because we weren't in a rate case, do it on a revenue-neutral basis. So we took our average rate that was filed with the Commission and approved at the time,

and we simply increased it in some areas and decreased it on others.

But the objective was to have it over the time it was in place to come out on average at the same level of revenue that we would get under our current tariff. So it was not a cost -- it was cost based in that it was the cost to produce an average rate. It was not market based upon what the price was in those time blocks. We were trying to signal customers that there was a difference, and we used that mechanism to do it.

MS. SILVERSTEIN: Let's take a question from the back microphone, please.

MS. BROCKWAY: Nancy Brockway from New Hampshire PUC. This is a question for both Mr. Lawless and Mr. Swofford. Mr. Lawless, you mentioned that there are barriers to IOUs pursuing these programs because I assume that one of the things you were referring was the fact that if customers reduce their energy use, it goes directly to your bottom line. And I also understand that in Oregon, at least some of the utilities have programs that mitigate that impact and thus help to remove those barriers. And I wonder if I have it right that that is one of the barriers and if you could discuss what are some of the ways of removing it.

MR. LAWLESS: I think clearly that is one of the barriers I was hinting at. When you take a look at the

cost, the full cost of a program that you're building I don't think you want to get into a mode where these types of programs drive you to a rate case directly. But we do look for some way to recover the costs. And those costs include the costs of enrolling customers, the costs of marketing and educating the customers, the software and systems involved in operating the systems, as well as the discounts.

MS. BROCKWAY: So you're not talking about lost profits?

MR. LAWLESS: Well, when you take a look at this, obviously lost profit could be a part of the question. My sense is that the lost margin, so to speak, need to be built in some other way and comparing them to the lost margins you may have gotten from a generation resource I think leads you to a conclusion that they get very large very quickly. And you really need to find a way to make this a profitable business on its own as opposed to only comparing the margins you would have gotten on a 30-year, fully depreciated asset type of approach.

MS. BROCKWAY: How about Oregon? You have some rate designs or revenue recovery techniques that try to mitigate that, right?

MR. SWOFFORD: I'm from Washington.

MS. BROCKWAY: Nevermind.

(Laughter.)

MR. SWOFFORD: Okay.

MS. BROCKWAY: I'm from New Hampshire. You know, it's all the other coast.

(Laughter.)

MR. ANDERSON: I'm Bob Anderson, Montana Commission. My question is really very similar and that's to the two utility guys. And that's what incentives do you perceive and how do these programs affect your earnings, your bottom lines? And then what kinds of changes in the incentives that you perceive would you recommend to state commissions so that there's a good alignment between your shareholders and your customers?

MR. LAWLESS: We actually in Minnesota where a lot of our program is based, we actually do get cost recovery of the program costs. But the discounts are another matter. And what we've targeted the price of the discounts to is the marginal costs we think we see in the long run market. We basically look at this as a peaking plant and we want to give customers an incentive that looks like we might have to build a peaking plant. Instead, we give them the discounts.

In the short run, I think more recently the market has actually come around to where if we want to buy capacity, we do have a capacity market in the upper Midwest. If you do want to buy capacity, it is approaching the cost

of a peaking plant, and then we'd look at the risk management aspects of it. So it's the two pieces, the capacity piece and the risk management piece.

MR. SWOFFORD: I'd answer that question from the perspective that number one, when we decided we were going go down this system, we looked at, number one, was it going to be cost effective for us to make an installation like this during a period of time when we weren't going to be in for rate relief. And concluded that there were efficiencies in there in a system like this that could drive internal cost down for the utility.

We also looked down the road at where the market was going. We're a utility that purchases somewhere around 75 percent of the resources that we use to serve our customers. Most of those are on long-term contracts, but there's a portion of that that, you know, sometimes were long, sometimes were short. We looked at the future and said there appears to be a movement towards relying more on market resources as opposed to building our own resources. How would we like the market to work so that we could ensure that when we were out buying in the marketplace, we were getting the lowest cost resource available that we could and therefore we could pass on as low a cost as we could to our customers?

I think it was really our situation as a utility

that relies more on purchase power, whether they be long, medium-term, short-term contracts, and a market that's going to work on that. And how do you make the market work was of very much interest to us also.

MS. SILVERSTEIN: Let's go to the back microphone, please.

MR. HORNBY: Yes. This is Rick Hornby from Tabors Caramanis. This is a question for Mr. Swofford. It sounds as if part of the background to your program or what enabled you to put it in place was a major investment in automated meter reading system. It sounds like you converted all your meters to an automated meter reading system. And I just had a question as to whether when you embarked on that, did you do it with a view in mind of introducing this particular program, or where there other cost reduction goals associated with that series of investments?

MR. SWOFFORD: There were other cost reduction goals. This program of time of use was identified as one of the things that we wanted to do. When we did our look at this program to analyze it, we did not include values. We didn't know how to include the value at that point in time of the market impacts upon going into the market and purchasing at a lower cost, a longer term or short term.

So it was primarily identified with internal

operating efficiencies that we could gain with a system of this nature with identifying options for customers, basically rate options that would be available with the system in place.

MS. SILVERSTEIN: Chuck?

MR. GOLDMAN: Chuck Goldman, Lawrence Berkeley Lab. My question is for Mr. Swofford. My question for you has to do with context. You're basically showing five percent reductions, about 95 percent due to life style, with an on-peak/off-peak price differential from your slide of about 6 cents to 4 cents. And there's been a lot of other time/use programs around the country, and your results are remarkable in the sense that most other utilities have had at least five to one difference between off-peak and on-peak to get the kind of reductions that you're seeing.

So my question for you really is, one, did the Brattle Group look at the other literature out there? Two, was your stuff really driven by feedback from the crisis in the Northwest and California about either you reduce consumption now, consumers, or you're going to get a 25 percent rate increase like Tacoma and Seattle and California? And do you think these results are sustainable?

MR. SWOFFORD: No question the environment we've been in in the Northwest influenced the outcome of this program. I don't know how to measure that. But the

environment in the Northwest for the period of 2000-2001, you couldn't turn the radio on or the TV on or read a newspaper without reading about what was happening in the energy market. We did not have any rate increases during that time. But nonetheless, it was certainly in the literature and it was certainly being talked about.

We've been very concerned about this, but I can only tell you the results we've got so far from April through December basically, we have not seen, at least in this point in time, a diminution of the levels of savings and shifting that we started seeing immediately.

MR. GOLDMAN: I recall the BPA administrator with wide press releases saying that the region looks like 100, 200 percent rate increases unless consumers cut consumption over the next six months. So my question really is media message content for national audiences to sort of get a sense of how to interpret these results.

MR. SWOFFORD: It added influence. Again, I don't know how to measure it.

MR. LAWLESS: If I could add to that, I harken back to the days when California was first going retail competitive and the state spent, what, $8 to $100 million on advertising. I think what you got on the PR side in the West this past year was worth a whole lot more than the $80 to $100 million. The day in, day out coverage. Negative

publicity is worth more than positive publicity. I just, not so much Gary's program, but I think the results purported to come from California, I think you need to be very careful about the environment. Lots and lots of negative publicity day in and day out. The governors' bully pulpit and everything else.

And from my perspective, it's very hard to determine whether any of the programs that operated there actually had an impact in and of themselves.

MR. SWOFFORD: Let me just add one thing I think is critical to this. Customers like this program. And if you're going to get customers to participate in spite of what the environment is, they need to like the program.

MS. SILVERSTEIN: Let's go to the back microphone, please.

MR. PEARLMAN: Brett Pearlman from the Texas Public Utility Commission. And I want to switch to the competitive side of the market and ask Dennis a question. Thoughts, Dennis, on whether it's advantageous to have metering unbundled or whether there are economies of scale that may indicate that metering should remain part of the regulated service?

MR. KELLY: It's an interesting question. We're really struggling with it. We think that, for example, in ERCOT, the wholesale price signals are driving us very

quickly to offer demand response products. The nut we're having trouble getting over is what we calculate to be more like when you're going from a traditional 30-year-old meter, the switchover cost is more in the hundreds of dollars, as you know. How you fund that is what we're struggling with, because that adds a whole lot to the equation.

The answer is I'm not sure. It seems to me you'll see an explosion of these programs if you are able to cause the actual one-time cost of getting the metering technology switched over. We'll bear the network costs. It's how do you get the truck roll and the actual meter switched over where the technology doesn't exist today? That's the real struggle we as marketers are having getting over.

My inclination is is that it probably ought to be on the regulated side, and it probably ought to be some sort of mandate and incentive. And when you do that, you'll see marketers like us jump all over it. Because I think the price signals from the wholesale market will drive us there. We can handle the network costs for the same reasons that Gary was talking about, there's actual savings in reading. Then you'll see an explosion of products. But that's our guess right now.

MS. SILVERSTEIN: Yes, sir?

MR. LOUGHNEY: Hi. I'm Bob Loughney. I'm with

the law firm Couch, White in Albany, New York and we represent large users of electricity. I wanted to pick on something Mr. Lawless said, and that is that the customers who participate in these programs need to know that they have -- need to be able to quantify the benefits of participating and be reasonably sure of receiving them. The New York ISO program is in place and it's very successful because the customers have an opportunity to bid against generators and are reasonably sure that they will be paid, either because they can participate directly and be paid directly by the ISO or they are paid through the utility.

And here's an instance where the Public Service Commission came into play, the New York Public Service Commission helped the situation by mandating that the utilities would have to pass at least 90 percent of those payments back to the customers.

So I think it's just real important to emphasize the fact that in a lot of these situations, it's an economic decision. And customers who are going to shut down a plant, take down a production line, need to know that the benefits are great enough and that they in fact have a reasonable assurance that they are going to receive them. I wonder if the panel disagrees with that, that a lot of this is based on economics?

MR. SWOFFORD: From my perspective, I think if

you give customers the right information about their usage and what the price is, they'll make the decisions that are in their best interest. You don't have to buy it back from them. They'll make the decision based upon how much they're willing to pay to do whatever it is that they're doing.

MR. LAWLESS: I think the economics run it a lot, but I also, on the slide where I had the micro factors, it's really the program support, the clarity of what they're going to get, the clarity of what they need to do that's important. They know they want to save money, but frankly, for a lot of large customers, although they might have big bills, they have a lot of bills that are a lot bigger than their electric bill. That's not true across the board, of course.

But for most customers, I mean, you look at say the commercial sector, the small business sector, they have a whole lot of other things on their mind. So they need it to be simple to participate. They need it to be pretty clear. The economics have got to be pretty good. And that's one thing where just depending on the short-term cost perspective is going to underplay this market. Because if they've got to go two years without savings because the market is depressed before they maybe hit it big one year, you know, it's going to be really hard to keep them in the program, keep it persistent.

MR. SWOFFORD: There may be a way that you'd work this where there's two things that are working here. There is what I call a demand management as opposed to a demand response program. Demand management is where the utility or the ISO or the RTO is going to stay in control and they're either going to buy it back or they're going to implement some other program.

A demand response program is where the customer responds, and may respond to information or the kinds of things that they receive and where they make the choice as to whether or not they want to participate or they don't want to participate based upon price. One of them is really more who's going to be in control of this? Is the customer going to get the information then decide? Or is some centralized function going to take a look at their needs and then go out for bid and see what's available in the marketplace?

MS. SILVERSTEIN: Back microphone, please. And since we have reached the official stopping point but there's still a little more interest, let's ask nice crisp questions that will let the panelists give you nice crisp answers so you all don't starve to death.

MR. DEAN: Art Dean, US EPA. Quick question for Kevin Lawless. On the slide describing the different actions business customers take, there's a category called

fuel switch at 8 percent. I was wondering if you could clarify that. Is that replacing electricity use with some sort of fuel combustion on site?

MR. LAWLESS: Typically the answer would be yes.

MS. SILVERSTEIN: Next?

MR. LAIRD: I'm the energy manager for Home Depot, one of the few customers in the room here. And I just want to put it into perspective, make sure you look at it at the right angle, that when you're making these rules, our core business as has been talked about already, I want to reiterate exactly what Kevin's been saying. And that is, our core business is either merchandising, it's something other than electricity. And so when you make these decisions, you've got to keep that in mind and the incentive really is for me a guaranteed, up front payment for those summer months, such as like a call option, a scenario where I can go sell it to my management going forward that I can give them some return for their investment.

For example, if I'm going into a 100 store market, I've got one regional VP to sell. I've got 20 district managers to sell. I've got 100 store managers to sell, I have 500 assistant store managers and 20,000 store associates that I have to train on these programs. So I need to make sure that when I go in, I can show them up front that there's going to be some savings, and that's why

I like the call option versus the RTP option that could or could not happen, depending on what kind of summer I'm going to have. Because I have to put a lot of resources in place to make it happen. Being able to make it clear and also to structure programs that are similar, and this really comes into the FERC's requirement, I hope that they're similar from one region to the other.

There's a lot of good things about what we did this summer in New York. But one of the things was we had two programs into the exact same area, one from LIPA and the other one from LISERDA. And we literally got confused between which call was required for which stalls. We literally got a call for curtailment between noon and 4:00 p.m. and an hour later we got a call between 11:00 a.m. to 6:00 p.m. It just causes a lot of confusion. So clarity is very important. And I appreciate your time. Thanks.

MS. SILVERSTEIN: Thank you.

MR. LAWLESS: Just one quick comment on that. About five years ago we did some research on our commercial sector customers, not the industrial but the commercial, and we found that 70 percent of them in our territory in Minnesota and Wisconsin, 70 percent of them made their energy decisions somewhere else other than in our territory. So the decisionmaking here is not easy. You don't just walk up to the front door and sign business customers up.

MR. LAIRD: And the other comment, out of those hundred stores, I can shed 7 to 10 megawatts.

MS. SILVERSTEIN: Front microphone please.

MR. MOUNTCASTLE: My question is for Gary. Brooks Mountcastle, Pennsylvania PUC. Gary, when you did the focus groups, what was the customers' reaction to the name "personal energy management"? Did they suggest other alternatives or were they relatively comfortable with that concept and they clearly understand it?

MR. SWOFFORD: They liked it a lot. We had a bunch of names that we were considering when you're going name a program. They really liked the idea that personally that they were going to be involved in their energy management. So it stuck a chord with them.

MR. MOUNTCASTLE: Thank you.

MR. BREWER: Jay Brewer. I represent large consumers around the country. Quick question for the panel yes or no. Are your programs designed to be revenue neutral?

MR. KELLY: No.

(Laughter.)

MR. SWOFFORD: Currently, yes.

MR. BREWER: Thank you.

MR. LAWLESS: Designed but not necessarily operating that way.

(Laughter.)

MS. SILVERSTEIN: This is our last question.

MR. CATHAN: David Cathan from ICF. The question goes to like I think one of the subjects of this conference. Given that you are operating these programs as electric utilities and you're in regions that do not have RTOs or have RTOs currently have demand response programs, what do you see the role of the ISO or RTO-run demand response programs?

MR. SWOFFORD: I see the ISO or the RTO, if you will, as I indicated in what I recommended to FERC as being an integral part with states on the planning of how we're going to serve most cost effectively in any region of the company with a load that's there to be served. They look at all of the options that are available to do that, including demand side.

Once that planning process is complete and identified what specifically kinds of demand side options will work to then put in place the plan that will make that work, and there could be a variety of different programs that would be in place. But to me, their function is the planning. It's not necessarily the implementation.

MR. LAWLESS: This may not be a totally a corporate perspective yet because we're still developing our positions here. But on a sort of personal level, I'd much

prefer to see demand response be seen as part of the wholesale market and regulated on a much larger scale than the state level. It's the only way we're going to get consistency. It's the only way we're going to get scale, and it's the only place we're going to be able to actually get the long-term capacity benefits figured out.

We run these programs, you know, we cost benefit them on the basis of what our customers see. But we know because we've got 800 megawatts in the upper Midwest that operates in this fashion that we're creating tremendous benefits for all the other utility customers in the Midwest. We don't have any way to capture that on a sort of state and/or utility regulated basis.

MR. KELLY: We are in a competitive RTO in ERCOT and in pretty competitive markets. We're not a utility. What we would ask for is exactly what Brett was talking about -- how do we get the metering technology up to the state of the art, get that cost built into the cost of getting us there so that we as a society can take benefits of all the technology that smart metering has to offer us? Who's going to pay for it and how it should be paid for? I think there's a role for FERC. I think there's a role for the RTOs. I think there's a role for the commissions to think about how is the social benefit of smart metering going to be paid for?

When you see that, just as the infrastructure of wireless or cable and all those other infrastructures that somehow got paid for, we put that infrastructure in place, you'll see great things happen as a result of product design, product development, and allowing consumers to choose and control what they're doing.

MS. SILVERSTEIN: Please join me in thanking a terrific panel.

(Applause.)

MS. SILVERSTEIN: Lunches are at the far end. You can pick it up and then eat at one of the tables in the middle. We'll start up again at I think 1:30 or 1:15 p.m.

(Whereupon, at 12:25 p.m. on Thursday, February 14, 2002, the conference was recessed, to be reconvened at 1:20 p.m. the same day.)

AFTERNOON SESSION

(1:20 p.m.)

MS. SILVERSTEIN: For our first panel this afternoon is to ask the musical question, how do we get wholesale and retail to sync up in demand response? And to do that, we've got some of our leading state regulators, and we're going to start with an overview of some of the regulatory issues from the retail perspective from Rich Cowart with the Regulatory Assistance Project and then get some comments from Chair Showalter of the Washington Utilities and Transportation Commission, Commissioner Anderson of the Montana Public Service Commission, Nancy Brockway of the New Hampshire PUC, Michael Callahan of the Mississippi PSC, and Terry Fitzpatrick with Pennsylvania PUC. I will note that under other circumstances I should be calling them all The Honorable. But yesterday at the House something-or-other committee proceedings, everybody who was up there they abbreviated all the honoraries and referred to all as "Hon Wood" and "Hon Pitt" and so I should have thought of doing that for Valentines Day, but thank you all for being here.

Rich, do you want to take it off please, Hon?

(Laughter.)

MS. SILVERSTEIN: He's an ex-Hon.

MR. COWART: Oh, that Hon. She sent me a

valentine, too. It was appropriate for the day. I appreciate the very nice introductions and what have you, but the formal introductions never list what I used to think was one of my proudest accomplishments, which is the following. I have two teenaged children with whom I have had engaging and productive conversations about energy policy.

(Laughter.)

MR. COWART: Or at least that's what I thought. I said to my daughter Helen that I was coming to this conference and I had a lot of things to say. I wasn't quite sure what to say. And she said, oh, that'll be easy, Dad. Why don't you just bore them to death just like usual?

(Laughter.)

MR. COWART: I actually don't think this is boring at all, and I have to tell you that I stand here with a great deal of latent excitement about the promise that demand side resources can bring to the nation. The comments of Chairman Wood and Commissioner Massey this morning set the stage extremely nicely, and I just want to pause for a moment of thanks to them and to Allison and to the Department of Energy for the work that they're doing in this area.

I've got four themes today. Essentially, these are based on the belief that customer-based resources, and

that includes distributed generation, energy efficiency and load management, could provide cost effectively 30 to up to 50 percent of the nation's load growth over the next 10 to 15 years. It's an extraordinary resource that we as a nation have to learn how to tackle.

Now here are the four themes. First of all, we need to recognize, as some of the speakers did this morning, that demand response has a time dimension. We tend to focus on short-term demand response: Hourly, weekly, day ahead, what have you. But there is also embedded energy efficiency, which in many respects is a long-term response by customers to price, and we need to tap that resource as well.

Second, links in the market chain. We need to think about this process from the wholesale market level through transmission and distribution wires systems to retail rate design, all the way up and down the chain.

Third, we need to strip out barriers. And when you think about this, think about barriers to whom. From the point of view of customers, we need to reveal the value of demand side resources. We need to align utility profits with cost effective actions and we need to ask constantly what is the profitable business model for this particular kind of activity if we want to incent competition, new entrants, innovation by alternative service providers.

And fourth, this conference is really all about this: The challenge to FERC and to the states. I'm reminded of course of those phrases like it takes two to tango. I think that's true. Demand side success is going to take both state and federal action.

Well, let's take a look at the barriers. Eric Hirst asked this morning if this so terrific, why is there so little of it? I think that's a terrific question. So we ought to examine the barriers. I'm mostly focusing today on the retail side, but we need to understand that the barriers exist both at wholesale and at retail, and we have to figure out how to break down those barriers so these systems work together.

Bidding systems that allow supply only to bid. The system of load profilings used to assign wholesale power costs and settlements. Reliability rules and practices that don't permit demand side resources to bid on a technology-neutral basis. And there's some hidden problems like subsidies for wires and turbines that might not be so apparent. Related to that are the ways we think about transmission.

There are also a host of retail barriers. Averaged rates and default service plans, as many speakers have already noted today, block price signals and slow innovation.

Distribution rate design -- this is a topic that hasn't been mentioned so much this morning. Distribution company rate design encourages throughput and discourages distribution companies from reducing kilowatt hour sales, whether or not that's cost effective for the system. We need to fix that.

If we have uniform buyback rates for demand release programs or curtailment service programs that don't also include the distribution value of the curtailment, we are splitting the value associated with the curtailment and not allowing the full value to appear. We need to think carefully about the competing roles of the utility. Is the utility a gatekeeper that can block alternative service providers from providing innovative services to customers? Or is the utility a facilitator of interactions in an innovative way with customers either by the utility or by competitors?

And finally, as was mentioned this morning, we have metering traditions, metering costs and standards that can block action here.

Now I'm going to talk about the entire domain that we need to keep our eye on. Because it isn't just about price responsive load. There are five substantive areas that we need to pay attention to:

Price response in the wholesale market.

Reliability programs and ancillary services.

Transmission rates and investment strategies.

Retail rates and tariffs.

And then we need to consider the entire system of barriers and incentives for energy efficiency deployment at both wholesale and retail.

I'm going to take you quickly through the elements of what could be called the demand side road map. Now you all have a handout in your red folder called the FERC demand side road map that covers a lot of these topics. And I'm told there are, at least there were copies of a longer paper entitled "Efficient Reliability" that includes a whole host of agenda items for us at both the wholesale and retail levels.

At the wholesale level, we need to work on the rules for demand side bidding. We need to ask about the day ahead problem that was alluded to by a number of people this morning and how that's facilitated by multi-settlements markets, and we need to facilitate short-term demand release resales to take advantage of changes in spot market prices.

These are important elements of standard market design, and I would urge FERC to include them in standard market design. But I want to emphasize that FERC cannot create these markets all on its own. We also need to look at the retail end of the line.

So what are the state issues? First we have the question of power supply. If the power supply that's actually delivered to customers is purchased in markets that are not exposed to -- that just average out and don't recognize short-term value of demand reduction, then the ability to flow through those benefits to customers is going to be diminished. How liquid are those markets? We really need to think about that.

Who can sell released power? Joel Gilbert argued this morning that demand response should be offered by those who have the closest relationship with the customer, and that makes a lot of sense. But others also argued that that shouldn't exclude the creation of new relationships from new providers to those same customers on a competitive basis. States need to pay careful attention to who is authorized to work with the customer in order to sell back released power. And again, revealing the full value of demand response.

Can we figure out ways at the distribution level to offer customers the full value of their demand response? I will touch briefly on the load profile problem. This is one that arises both within FERC jurisdiction and within state jurisdiction. At the end of the power period when wholesale markets settle up costs, we need to attend to the manner in which load profile customer sales are assigned. If a load serving entity can't get a better load profile by

actually improving the loading profile of its customers, then you've just cut out from under them an incentive to do a better job. This is an issue that both state and federal regulators need to pay attention to.

Road map element B is reliability programs. ANd here we have issues that arise again both at wholesale and at retail. We need neutral terms for bidding reserves into those markets, as you heard this morning. And at the state level we have again the question, who is authorized to actually make that sale? Can curtailment service providers get to customers and deliver a bid to a trading floor, or is this a function reserved entirely for the incumbent utility?

State regulators can also make sure that we avoid burdensome interconnection rules and charges, and state regulators, utilities and others have to figure out how to coordinate RTO sponsored or system operator sponsored emergency curtailment programs with economic programs offered by utilities and through state law.

When we come to the question of reliability, we need to also pay attention to some aspects of the system that in a more quiet way, in a more hidden wy, block the value of demand response getting to the market. And the efficiency reliability decision rule is intended to force us to do that. And without going into all the details here, what I'll simply say is that we need to pay very careful

attention to those circumstances in which we decide to socialize something because we think it enhances reliability. Because when we do that, we are taking away a market signal that would otherwise be sent to somebody else. And we can come back to that in the Q&A if you like.

Many speakers today have paid attention to area C here, transmission policy. THey've made the point that if we simply conclude that congestion problems or load problems are transmission problems, then we will exclude from our menu of solutions a number of cost effective opportunities.

Transmission congestion pricing reveals the value of load management efficiency and load response in load pockets, and we have to be careful about rolling in the costs of facilities generally, which is very much akin to socializing them.

The same principles apply to transmission expansion. And here I would propose a four-step process. First, regional transmission planning has to consider both transmission and alternatives to transmission to solve congestion, reliability or markets problems. And I would strongly suggest that state government agencies, state siting agencies and PUCs should be involved in that regional process.

Second, we should apply the efficient reliability rule to any proposal that suggests we should be socializing

transmission upgrades because of their reliability benefits. Let's look for the least cost way to meet that need.

Third, we ought to take out of the transmission planning process the preferred solution and test it in an open market. There should be an open season for transmission upgrades and their alternatives in which the grid enhancements are essentially put on the table. And suppliers who have better ideas, whether they be demand response, energy efficiency, distributed generation or central station generation just located differently, all of those folks should have the opportunity to come forward and say, I have a better answer. It's lower cost. It's at least equal reliability, and I should get the same opportunity to hang those costs on the wire as someone who is proposing to build transmission.

This leads directly to step four, which is demonstrating need in transmission siting processes at the states. States need to recognize regional needs, but they need to consider as part of that recognition that need requires an analysis of alternatives.

Demand road map D has to do with retail tariffs. And here I'm just coming back to something that a number of speakers have touched on this morning, the state policy dilemma. Most customers really want relatively uniform retail rates, even if they're segregated, as the Puget rates

are, into well established time blocks. But time-based rates and market-based rates in particular are needed to improve price response in the wholesale market. So what do state regulators do? What's the right answer to finding the balance between time sensitive and stable and understandable rates for customers?

Again, the metering comes up. What about advanced metering? State policies are required to enhance the deployment of advanced meters. Should they be mandatory or optional, and who owns the meter and who owns the data from the meter if you're trying to promote competition in an evolving world?

Energy efficiency. Here I'm just going to repeat something that you heard several times this morning, that energy efficiency investments, long-term demand response are essential to a balanced demand portfolio to deliver the energy needs of the nation.

And I will close by talking about something that has come up a number of times this morning abut the importance of states and regional entities and others to work together to develop programs that work across the entire array that I've sketched out here, the entire road map. An example of that is just now being launched called the New England Demand Response Initiative. This is a facilitated stakeholder process in the six states of New

England with participation also by folks from PJM in New York. Sponsored by the ISO of New England, the six state PUCs and environmental regulators as well as DOE and EPA.

The purpose of NEDRI, the New England Initiative, is to bring together all of those people to do the work that is getting discussed here today in this conference. To look comprehensively at the entire array of demand-side opportunities and at the entire array of policies, both barriers and innovations, that could provide incentives. And over the next year we will be developing a coherent set of policies at both the wholesale and the retail level to call forth greater demand response.

Thank you very much.

(Applause.)

MS. SILVERSTEIN: Now to frame the rest of this discussion, let's be clear that most state regulators are pretty sharp people and they know that demand response is a pretty good thing. If it were so easy, they would have done it by now. So the question that we ask these panelists to think about and share with you is, what's keeping you from doing it and what can be changed to make it happen? And what would you like to do if you were king? So we're going to start with King Showalter.

MS. SHOWALTER: Hi. I'm Marilyn Showalter. I'm the Chair of the Washington State Utilities and

Transportation Commission. I want to make two overriding points. The first is that residential and small consumers I think are a potent source of demand response innovations. And the second point which maybe is a more important point on this particular panel, is that these innovations can occur within the regulated system, and in fact I think there may be some advantages to a regulated system in trying to achieve them.

For example, I have chosen to put my one sheet of information on a yellow piece of paper even though I'm a regulator, and that's a little innovation that at least enables you to find the summary.

Necessity is the mother of invention, and the necessity that we faced last spring was a drought which was the worst or the second worst in history, depending on which side of the state one was on, combined with the California wholesale market debacle which drove our prices very high.

So at that point, we were looking for just about any way we could find to affect demand. What we did in the spring of 2001 was enact very quickly, adopt very quickly nine different demand response programs. Some of these we took one day to adopt. Some were five days and maybe another was about 45 days. But we put these in place very, very fast, because we knew that if we didn't, the summer would go by and the crisis would continue.

These ranged from some of the more common industrial programs, industrial buyback programs. We had an irrigator program where irrigators could forego the whole summer of irrigation. That is, they would not grow their crops in exchange for payments from the utilities.

But the ones I want to talk about first are conservation incentive programs and second time of use. But since you've just had a lengthy presentation of that, I won't dwell on it.

The conservation incentive programs were really an eye opener to us. You've heard of California's 20/20, and these were similar. We have three different investor owned utilities that we regulate, and they all had variations on the same theme. Avista gave a five cent a kilowatt credit for any kilowatts saved beyond five percent of last year's use. Puget's was five cents beyond a 10 percent threshold, and PacifiCorp had both a 10/10 and a 20/20.

The point is that when we authorized these, we had really no notion of how responsive the consumers would be. All we knew was that it was worth a try because we had to do anything to get demand down. And I know that the first one we approved was PacifiCorp's 20/20, and everyone in the room was skeptical. We flat didn't really believe that the customers would be able to save 20 percent of the

electricity that they used in the prior year. But what's the harm? Well, we were really, really surprised at how responsive consumers were. And you can see here that half -- half -- of Avista's customers achieved the five percent threshold in order to get their credit. And you can see what the others are. And even at the 20 percent, 16 percent of the customers reached that 20 percent threshold.

What it tells me is that small customers really are more sensitive than we thought. I was a customer myself. I was shocked that I managed to save 25 percent off my first bill by doing almost nothing other than turning off the lights. One of the issues that the economists are worried about is, well, how high a price signal do you have to give in order to get somebody to think that it's worth it?

My view on the small customers is that it is more of a qualitative issue than a quantitative one, at least in the beginning. That is, the basic signal, if you can save five percent over your last year's use, you will get a credit. They didn't know what the price was. They don't know what five cents a kilowatt hour means. But they knew they would save money if they conserved.

And the same was true in the time of use. There was a question earlier, well, gee, the price differential isn't very big between 4.6 and 6.5 cents a kilowatt hour. I

don't think most consumers know what the price is. What they do know, if the education program is correct, is that your power is going to cost more at the breakfast hours and the dinner hours and run your dishwasher at night. That's the kind of general message that they understand and they respond to.

My second point is that these innovations can occur in a regulated system. The first advantage of a regulated system is that we actually, if we've got our act together, can act very quickly and affect a lot of people practically overnight. I noticed that in the state of Oregon which is deregulating to a degree with a portfolio system, has available to average residential customers real time metering. And I think they've signed up 63 people to do that so far. That's just the beginning.

But we had 280,000 people, customers, more than that in terms of people, on real time pricing in a matter of a month, it was done. That's what regulators can do. And the same with these other incentive programs.

(Pause.)

I lost my train of thought here. Another question that came up is, well, how can you take into account the risks and rewards and take into account the sort of iterative effect of these time of use programs or other credit programs on the companies' costs and revenue

projections? To me, these are not really different issues than what we ordinarily do as regulators. What we do as regulators is try to align the risks and rewards properly among shareholders and ratepayers so as to achieve what is in the public interest.

And that exercise is somewhat more complicated or sophisticated when looking at innovative programs, but it's not really different. Our fundamental job, if we're still regulating the utility, is to see that the utility gets enough revenue to get a return on its investment and of its investment and to make adequate projections of what the revenues will be, which means projecting what behavior will be in response to the different rate programs.

So I think it's a mistake, as I tend to hear people say that deregulation means competitive markets means innovation means lower prices, and regulation means that old stodgy system that will lead to inefficiencies. Efficiency is not a god, it's a goal. But it's only one goal. And it's an important goal. But the other goals are reliability and affordability and I would say just as important for electricity is accountability. Someone still needs to be in my view accountable for delivery of an entire system that satisfies consumers' needs.

I'm not here particularly to advocate that everybody stay regulated. I am here to advocate that for

states who are achieving those goals through a regulated system, that that be respected and that whether you're a regulated state or an unregulated state, I think you can learn from Washington and from some of the programs that the regulated states have, the potential of demand response.

Thank you.

(Applause.)

MR. ANDERSON: I love you. Or if we haven't met, Happy Valentines Day.

(Laughter.)

MR. ANDERSON: I'm Bob Anderson from Montana. It's my pleasure to be here. I want to thank FERC -- Pat, Nora. I saw Bill and Linda here earlier. And especially Allison, who really put this together and I think had the vision to see the importance of demand response both at the wholesale and the retail levels. She has experience at both, and I think she's an excellent catalyst for making these things happen.

I have a disclaimer. A PowerPoint presentation creates some illusions. One illusion is that it's professional and competent. The other is that it's prepared in advance.

(Laughter.)

MR. ANDERSON: In this case, neither of those is true. This is really just note taking this morning and my

attempt at organizing some of my thoughts. So consider this a work in progress. But I think the challenge, we have several challenges in this world. And Marilyn mentioned the first one, and that's aligning incentives. We have goals, and she mentioned those. And in order to achieve those goals, we need to align the incentives of the utilities, the load serving entities and other companies in the business, generators -- everybody really -- and the interests of the customers. It's not a contest, a competition or a war. It's a system in which everybody has interests and we can achieve the best outcomes if we align those interests as well as we can.

Now one way to do that is to enable customers to be more than just ratepayers. There's a key distinction between the terms "customers" and "ratepayers". If we treat people like customers, we're enabling them to make some of their own decisions and manage their own lives a little bit more. Some people don't want that, but if they do want it and can learn to want it, we should give them that opportunity.

Another one is that, you saw all those graphs this morning that show how much of the cost is on peak. Well, we can achieve enormous economies and efficiencies for the system and environmental benefits if we just reduce the peak. That's not the whole story, of course. But if we

just prioritize and shift, lower the peak, we can really accomplish an awful lot.

There are lots of ways to organize our thinking about this. One is the wholesale/retail split. FERC operates at wholesale. I'm not here to give FERC any advice about its business, although state commissioners are not shy about giving FERC advice, especially when the subject matter affects the retail side of the business, and oftentimes it does.

We operate on the retial side of the business, and that's really where most of thoughts are concentrated today. And some of what I have to say is advice to state commissioners like myself. I include myself when I give advice. We state commissioners tend to resent it when other state commissioners give us advice because we operate in our own states with our own laws and our own political motivations and accountability and so on, and our processes are contested cases and so on. So we tend to resist it when we get advice from each other. But we can also at the same time help each other think about things, think about tools that we can use to accomplish the goals that we have.

Most of what I have to say here, if you take one thing away from what I have to say today, it's that we state commissioners need to develop a better set of tools so that in our states, we can pull out the toolbox, look at the

tools, examine how well they might meet our needs and develop those tools in a better way to accomplish the many goals that we have.

Another way to think about these things is long term and short term. Long term programs tend to be institutional and structural. They're efficiency standards and even rate designs, things that have enduring performance and production of these things. Short term maybe is the more narrow focus of this conference and the subject which is if you give a customer the right price signal, how will that customer respond? And conventional wisdom is, the better the price signal, the better the response for everybody.

There are lots of long-term issues. I'm not going to go into that. Whether you're deregulated or not, the distribution company or the vertical utility has lots of things in its incentive structure that we state regulators supply, and they're based on state law but they're also based on regulatory principles, and they affect the behavior of the utility and they also affect the behavior of customers because of the way that price signals either get dampened or deliver through these many different kinds of things that we do. It's rate design. It's different kinds of performance regulation, price caps, decoupling. It's a variety of things in addition to rate of return, rate-based

regulation.

Planning is important, whether you're planning for generation or transmission or distribution or programs. The way you go about planning, the way you consider alternatives in a robust way, and by the way, considering things that are outside of markets like environmental effects is really important and important for customers.

In the realm of price response, one of the challenges for state regulators is reconciling the twin goals of efficiency, which can come from price response, and consumer protection. Most state regulators are reluctant to do anything that would be perceived by their clients, which in most states is governors and legislators, as removing protections for customers. And in those circumstances oftentimes that means anything that raises prices. So there's a conflict there that needs to be reconciled. And in most circumstances, there can be some reconciliation of those things, probably some compromises and some risk taking involved. But we need to be conscious about those kinds of things.

And we need to think about programs like Puget has done, putting in some advanced metering and some innovative rate structures involving time of use or something closer to real time pricing so that some price signals can actually get through to customers. And if

customers choose to do that, then they're essentially saying, okay, I'm going to give up a little bit of protection in order to pursue my own desires to have some control and exercise my own economic choices.

One way to do this is to do it by customer class. Start with the industrials. Industrial customers are often eager to have more ability to make their own decisions and more ability to make intelligent ones because they can often afford to hire people who are professionals to help the managers make those decisions. So maybe we should start with the big customers and work downward and see how these things work. And the rate at which we approach small customers will depend on success. And we can learn along the way. So there are different ways to approach price signals.

Our national association recently in November adopted a set of electricity policy principles, and one of those was to promote demand side management to achieve the most efficient use of electricity. Our national association is well aware of this and thinks it's important. And there are some other details in that policy document. You can go on the Web site of our national association, NARUC. Anybody heard of NARUC before? There's a couple. You can think of it as the National Association of people who do what I do.

Anyway, our national association Web site has

more details, which are mostly aimed at what Congress should do. But there are some important principles there too.

Our national association, NARUC, has recently hired a consultant, ICF, whose principal David Kathan is here today, and he was one of the questioners in the morning session. He'll be issuing a whitepaper which will do lots of things to help us develop our own toolbox. Part of it is about the ISO level of things, but it's also aimed at state policy issues and will help us develop our toolbox of opportunities. There will be a whitepaper, and who knows? That may be followed up with a conference to help us transmit those ideas and those tools to our colleagues.

In conclusion, my advice to myself and my colleagues is, first of all, do stuff, especially good stuff. And what I mean by that is let's begin developing these tools, examining them, applying them in our own circumstances and see how they work. And as we do that, we can deliver a better efficiency and all the other goals that we have for our customers and our utilities. And in the end, pursue that magical thing that we call the public interest. Thank you very much.

(Applause.)

MS. BROCKWAY: I was going to sit down, but I couldn't keep my eye on Garvey, and you've got to watch him every minute. I want to thank Allison, who has been an

inspiration on so many levels, and the Federal Energy Regulatory Commission and the Department of Energy.

I want to say, those of you who heard Pat Wood this morning claim to be an idealogue, don't believe it. He's actually quite a thoughtful and responsive thinker. It's all an act.

What I want to do with my time this afternoon is to rail against what I call the "eat your spinach" syndrome on demand side resource planners. You will see this in the expression, "Customers must be exposed to price signals. Customers must face the variability of rates." Eat your spinach. Well, I think it's quite clear that customers don't want to do that. In fact, I would disagree with my good friend, Bob, that industrial customers want to do that. I would assert that industrial customers are no fools, and they want to do that when it's a benefit. But when the market turns, they want to come back under the tent and get the protection, and they often have the power in the legislature to get us to let them back in.

So I don't think it's going to work that way if we're all about trying to shave that peak, trying to identify and maximize the ability of load to contribute to reducing market pressure, market power, to reducing environmental problems, to reducing prices overall. What we're going to have to do is figure out, what does the

customer want? We know what the system wants and needs.

My good friends in our ISO and in other ISOs and in vertically integrated utilities, they want to have load response that's like -- that's dispatchable. They want to flick the switch and bang, they know exactly how much load, exactly where is going to get reduced. Now they will tolerate some uncertainty if it's in the determination of what we in New England call your objective capability, or your capability responsibility. Because that's a function of your projected load requirements and you can reflect in that some of the softer, squooshier types of expected demand response. But when it comes down to you're facing that peak and you're going to have to cut voltage or shed load, man, you want to know it's there. Understandable.

I will continue to be pushing the idea that if you need 100 megawatts and you get 200 megawatts that kinds of squooshy and you know to a statistical certainty that of that you're going to get 150, you should be able to count that. But sometimes having too much load response throws you off for other reasons. So there's a certain level at which they've got to know down to the gnat's eyelash.

The other thing is, we're trying to identify all of the benefit to the entire system that these load reductions provide. And as we've seen in New England, the closer you get to being able to identify exactly what it is

that any increment, or decrement, if you will, of load produces for the system, the more variable that estimate will be and the more risky it will be. Because they're you're talking about those perturbations minute-to-minute almost. It may only be captured in 10-minute intervals, but it can be extremely variable.

And you also, like your fellows in the generating sector, have got to deal with the pesky FERC and the pesky state regulators and their interference with your markets, and the pesky ISO that you think is probably manipulating prices in the name of reliability and all of these other regulatory risks.

The demand response, in order to face the value that it provides to the system, must also then face the entire set of risks that the system faces. And they are enormous and hard to manage.

So what can we do? I don't think that it's an either/or proposition. I don't think that you have to -- first of all, you can't. I mean, let's get real. But I don't think you have to, luckily, force every consumer to have a real time meter and get them priced at every ten-minute interval, nor even do that necessarily to your largest customers, which is one strategy. I think there are huge technical potentials for load response that consumers would willingly, gladly gravitate towards, and not just in a

crisis and not just out of a civic sense that we're all in this together, but because it makes sense. And what the sweet hell, you know? If somebody's going to pay me some money and they want to cycle my air conditioning and have my chiller off for 15 minutes every other hour on a hot summer afternoon, you know, I can handle that.

So what is needed? I believe the chief thing that's needed are institutions that can serve as intermediaries to manage the risk and capture the value presented to the consumer as a stable, certain value. Ironically enough, I understand that Enron used to do that for some consumers. And there is this idea that this is the type of institution that we're all trying to bring into existence and that will do this for all of us.

I have for other reasons a conviction that at least for most of the load, we're never going to be able to get a retail market to get going in the way that people envisioned without subsidizing it, and I'm done with subsidizing suppliers. Been there, done that. Eleven cent per kilowatt hour PURPA policies in Maine. I take responsibility. I am sorry. It was wrong. But I am very much into presenting the value to the system to people who can meet that value.

I don't have a vision for you of all the institutions that could do this. You can imagine a

distribution utility doing it and you can imagine an independent system operator or an RTO doing it. And there are problems in either case, one of them for the people trying to play in a wholesale competitive market is that here's this socialized cost supported entity monkeying around in the market and distorting it. I don't think it has to be as distorted as that sounds, and I agree with the road map in so many respects, and one of them is, let's get some of this socialization out of there. Particularly, I'm trying to make sure that we don't in New Hampshire have to pay for a transmission line in Southwest Connecticut that we don't get any benefit from. Zero. Zip. Nada. And it is being put in because the good people of Southwest Connecticut want to have pool pumps running all the time and 6,000 foot square houses and don't want those dirty power plants next door.

So whatever your region, I don't want people to be able to lean on one another. I think congestion management is very important and not socializing costs is very important.

This gets us now into this question of the state and the federal government and jurisdictional issues. Edison Electric Institutes provides for state regulators a briefing book for the NARUC convention, and I was interested to read their little article about the PJM proposal for load

management that went to the FERC and was approved last May.

And if you read that summary -- I haven't read the actual document so I'm just going on what they've said. They're usually pretty accurate, though. None of the state commissions argued that FERC lacked jurisdiction to approve this load response program by PJM. It was one of those ones where you pay customers. There's two versions. YOu either pay them in advance and get an agreement that you can cut them off, or you give them a price signal with a time and it's voluntary. We have something like that in New England.

But some of the investor owned utilities argued that our state jurisdiction was being preempted unconstitutionally or illegally. I won't spend a lot of time going into the reasons why I think that mix of attitudes might have come out. But that was the first time it ever occurred to me that there might be a jurisdictional issue here, and I saw the argument, once I saw it. We in New England, I've never heard anybody raise that jurisdictional issue. It just has not been an issue for us, because we all understand, as Michael knows, we in New England understand how superior we are. We just understand that we want to do this.

(Laughter.)

MS. BROCKWAY: I actually was trying to make a joke at my own expense, but I managed to -- I'm supposed to

wrap up. Okay. So, yes, the road map, especially the not socializing without exhausting lists or cross-market resources. Collaboration with the states, yes. And developing ways so that we don't lean on each other's good nature, yes. That's one of my biggest problems with a bigger RTO is I don't have any control of what's happening in another region, and I don't want them to lean on me because the institutions don't exist for them to meet their responsibilities.

And I'll just put in one little pitch for a program that we call pay as you save, which is maybe one other mechanism for retail customers to pay for their own advance metering and their own distributed generation on the meeter, and this would require state commissions involvement and distribution utility involvement.

So I think there's a lot that could be done, and it doesn't necessarily require trying to beat anybody over the head to do it. I think it requires our working together to develop institutions that help mediate between the variable uncertain wholesale value and the need of consumers for a stable, certain retail value. Thank you.

(Applause.)

MR. CALLAHAN: I'm not going to get up to the podium. I'm going to sit right here. First of all, so I get my due credit, when Anderson did his little slide show,

he wanted regulators to do stuff, and I reminded him that some of the stuff we do could be bad, so I'm the one who inserted the good stuff in. I want m y proper credit for that.

The second thing, Ed Garvey, good friend of mine and I like him because he's honest, brutally so. And last night in the lobby of the hotel I said, you know, I really don't understand why I'm on this panel today. I don't think I have a lot to say about this issue and I don't know a lot about this issue. And he looked at me and said, oh, I can tell you why. We needed someone from the Central Time district and everybody else had went home. So with that in mind, please take my comments for what they're worth.

The eldest member of our commission asked me when I was coming back from NARUC and what I was doing, and I told him I was going to be on this panel. He said demand side management. He said, they're doing that again?

(Laughter.)

MR. CALLAHAN: I said well, what do you know about it, oh, Obi Wan, please teach me. And he said well, he said, I can boil it down in a nutshell for you. We went through this five or ten years ago and it's real simple. They want to raise the rates of our constituents 10 to 15 percent in a promise that 20 years down the road they'll all be better off. But in the meantime at the next election,

you'll be out of a job and won't care one way or the other. So that really struck home to me and really laid it out.

Now I think in the past five or ten years it's kind of changed from where it was when he lasted visited it. In speaking for Mississippi in particular, and maybe even the Southeast in general, we have ample generation and adequate transmission. And for those reasons, we don't have consumers and businesses really jumping and pushing this particular issue. Now that's not to say we don't have some. I think like many states, we have interruptible contracts. We also with our casino industries have special deals and other companies that have their generator and capability, at certain times we will actually pay them to run those generators and help us out.

But one of the biggest problems I think that we have with regard to demand side management is, we just have cheap electric prices. And that's a good problem to have. The economic slowdown has hit Mississippi very hard. We are a manufacturing state. I hate the term, but a lot of people use it. We are old economy. And as the businesses have struggled, I tried to help them because I think that demand side management programs are good.

And as we went to the companies and tried to craft something to help them with their electric prices, what we found is they were not responsive. They were not

willing to shift because their savings was only going to be nominal and by the time they have to pay their employees to work from 10 to 6 and the owners have to be there from 10 at night to 6 in the morning, they just said, you know, we'd just rather stay with what we are because we've got a good price for our electricity anyway.

And so I think in the Southeast, you're going to have problems with us getting real excited about this topic because of how we're situated. I think it was Eric Hirst who asked the question, you know, will commissioners allow customers to face real time pricing? No.

(Laughter.)

MR. CALLAHAN: Someone else talked about cell phones, how we now have more cell phones than we have wire phones. And I can tell you why. On the cell phone on my hip, for $90 a month I can call anywhere in the country and talk for 1,000 minutes and I know I'm only going to pay $90 a month. I don't have to have a local provider, a long distance provider. I don't have to have a calling plan that's going to change every three months. I know what it is. I know what they cost. And this is the bottom line. I have a choice, but I have a choice that is simplistic.

And I think the guy who got up, I hope he was with Home Depot. I hope I'm getting that right. I think he had a very good point. And that is, these businesses are

not in the business of electricity. Yes, it's an important part to what they do with regard to cost, but that is not their business. So while they welcome opportunities to save, it has to be simple enough for them to take advantage of it without having to form a whole 'nother energy division of their corporation in order to manage it.

Last -- I'm going to try to stay on time so I'm going to close real quickly. I think the biggest thing we need in demand side management, and for all you guys out there who have the blues, think about this, when I go to the grocery store, the decisions I make on what I buy are driven by price. Whether I buy the top of the line steak or ground round comes down to a price. Now my wife, she buys name brands. And so when I go and bring home the generic cheapest thing there is, I get fussed at. Hence, I am no longer allowed to go to the grocery store.

(Laughter.)

MR. CALLAHAN: Therefore, I have gamed the market. Be careful about that. That can happen. But that aside, my point being, I make a consumer choice. A year ago when natural gas prices were skyrocketing, consumers -- and this is real interesting because other than, you know, your water, your gas and your electricity, can you name anything else where you don't know what the bill's going to be until it gets there? Except maybe your credit card bill when you

haven't kept up your receipts. But it's a guessing game.

And to me, I think the greatest demand side management tool we could have is when you go to that thermostat and you go, boy, you know, I'm cold, I want to cut it up, if that thermostat says, by the way, right now your bill is at $85.95, and if you move it up it's going to $95. Do you still want to make this choice? I think consumers at that point can go, well, you know, I'll just go put on a sweater, because that bill doesn't need to go over $100 this month and I've still got ten days to go. That I think would be the greatest thing we could offer consumers: To allow them to make an intelligent price about the product at the time they're buying it. Because you're not buying it at the end of the month when the bill is there. You're buying it during the middle of the month when you're deciding to cut on the lights or cut off the lights and this, that and the other.

And by the way, let me say, the second biggest argument we've ever had in my house, I grew up very poor. We had a 40 watt light bulb and a TV and that's all we had at night, which is probably why I'm half blind right now. I was also the remote control before we had remote controls. Michael, channel 2, Michael, channel -- thank God we didn't have cable. I would be worn out by now.

(Laughter.)

MR. CALLAHAN: But when I get home tonight, hopefully at a decent hour, I can assure you every light in my house will be on because I think my wife is scared of the dark. And I tell her, I say, darlin', I am the public service commissioner from the state of Mississippi. We need to set the example. And she reminds me it was not her idea for me to be public service commissioner of the state of Mississippi.

(Laughter.)

MR. CALLAHAN: So with those, I will close and I'll pass it down so we can try to stay on time. Thank you very much.

(Applause.)

MR. FITZPATRICK: Hi. I'm Terry Fitzpatrick from the Pennsylvania PUC. I'm going to sit as well. I conspired with Mike on that. Just a couple of Irish guys sitting at the end of the bar her. I won't be nearly as funny as Mike, though, I can promise you that.

I chair the demand side response work group at the Pennsylvania Public Utility Commission. We started our group a little over a year ago, and really it was in response to some things that I read coming out of the California situation. One particular thing I remember is the FERC staff report. And it said that part of the problem out there was that when the prices really went up during the

peak periods, there wasn't much response or wasn't much to hold the demand back. And that was identified as an issue that retail regulators ought to be looking at.

In Pennsylvania, we are a retail choice state. We're trying to do what we can to have an effective program. And I saw that this was something that wasn't getting done, that we ought to get started on to see how we can get more demand response, try and keep prices down in the wholesale PJM market and therefore help our own retail choice program.

The key element there, the key notion I think is that wholesale markets and retail markets are interrelated. What happens in one affects the other. And I think you usually see this, though, that the retail regulators are telling the wholesale regulators what to do and telling them how those policies are going to impact them.

One of the comments I want to make is that it works the other way, too. What we do at the retail level affects the wholesale market. So I think that line of communication can go both ways. I think that the wholesale regulators ought to be telling us what the impacts of our policies are on what the wholesale regulators are trying to do.

Our work group in Pennsylvania, I'm going to be very brief on this, our focus has been on programs to try to encourage the electric utilities to put certain demand

response programs in place. You might ask why focus on the utilities? Well, because the reality in Pennsylvania right now is that 90 percent of the load is being served by the utilities, even though we are a choice state. Therefore, that's where you're going to get the bang for the buck, by trying to get the utilities to do it.

All of the utilities in the state have set of megawatt programs for industrial customers. They put those in place before the summer of last year. We are also pushing the utilities to put in place smart thermostat programs for residential customers and just about all of them are going to go ahead and do that.

The results so far have been minimal, frankly. But that really isn't surprising. We're just getting started with this. And before you decide how you're going to do some of these programs you really need to just get started and do a pilot, get some results back and then tweak it and expand it, and I think that's just the natural progression that you're going to have.

I think in the future we're going to look at what we can do to improve the existing programs, to make them broader in scope. And I think we're also going to be looking at how we can encourage and facilitate more deployment of advanced metering. And I think that's a very important issue that you've heard discussed here, especially

in the presentation of Gary Swofford of Puget Sound.

But let's step back from a 30,000 foot level. What's the nature of the problem that we're trying to address here? In my view, the problem is that flat average retail prices do not reflect the value of the commodity of electricity. Now think about it. Half the states are retail choice states. The Federal Energy Regulatory Commission is trying to encourage competition. We all like to talk about relying on markets more, and yet the retail price does not reflect the value of the commodity during peak periods.

Now how fundamental is that flaw if you're going to try to be relying on supply and demand and basic market principles to govern instead of falling back on regulation all the time? I think it's a pretty fundamental flaw. But I also understand how we got here. I mean, we're coming out of a monopoly era when these prices were flat and averaged all the time, and probably a lot of customers just assume it's always going to be that way. So we have a lot of inertia that we're up against here, and it shouldn't be surprising that this is something that's going to take us a while and it's really going to be a project, but we have to have, as I think one of the prior speakers said, courage and vision in order to make progress on this.

The best answer here to this when we look at

types of programs -- and I'm just going to talk about a general direction and not about a specific program. But we need to move towards pricing that reflects better than it does now the time varying value of electricity. By doing this, I think we're taking a market-based approach. We're sending the right kind of price signal. We're then letting the market decide how it wants to react. I think that type of approach will encourage innovation.

For example, if customers pay more for electricity during a peak period, maybe they start to look for technologies that allow them to avoid that. And I know that there's -- I don't think they're really cost effective right now, but there are batteries that are being developed that you could power your home. You could charge it during off-peak hours and run your home off of it during on-peak hours. But there's really no encouragement or incentive for customers to have that sort of thing now because they just pay the flat price during all hours.

I support, even though I'm a retail regulator, I support RTOs in getting involved in this because, you know, I'm a practical person. I see that this is needed at the wholesale level. I'm not going to be jealously guarding my jurisdiction when it's really, as a practical matter, going to hurt you. And I certainly want to compliment PJM for its foresight on this issue as with many other issues I think.

In the Mid-Atlantic area we're blessed to have an RTO like PJM which sees these problems and really does its best to try to solve them.

So I think it's good that RTOs get involved in this. I guess it is my opinion that long term, this is really something that needs to be addressed by looking at retail pricing policies.

And finally, I want to say that -- and I think we all know this, although it doesn't get discussed a whole lot in places like this. But, you know, it's really easy to throw around the words "price signals" here in this group. But those of us who are retail regulators, boy, go back home and start talking about price signals. Or go back home and write an editorial to your leading newspapers and talk about the need to send price signals. And we all know that it's a different response that you get. And I say that really just to illustrate the challenge that's before us.

But we are going to have to move in this direction, and we're going to have to do it gradually. It's going to take a lot of courage. It's going to take a deft touch. But really, this is the way of progress, I believe. So the sooner we can get started on it, the sooner we can really make some of that progress. Thank you.

(Applause.)

MS. SILVERSTEIN: I'd like to invite any state

regulators in the room who'd like to offer their views to get up and grab a microphone. But in the meantime, I'd like to throw out a question for each of you for starters. Several of the prior speakers have encouraged some degree of regional consistency between programs and supporting the notion of programs for price responsive demand or different kinds of DSM that cross many state boundaries and would appear to match regional energy markets, if I may. What are your views on that as a state regulator? Is that something that you could support?

MR. ANDERSON: The answer is the same as the answer to most of the questions that we get asked, and that is, it depends. It depends on some things. If the purpose is to align for simplicity customers who operate in different states, that's a good reason. But outside of compelling one by itself, I think the important thing is to in each state to align price signals and programs across the interface between wholesale and retail markets. And that's where the utility or the load serving entity resides. And I think that's a more important thing. And we also ought to consider the need for uniformity.

RTOs are going to be regional, so a lot of those things that we have will be similar. And so it may not be hard. But we have to follow state law, and I think we have to look at that nexus between wholesale and retail where our

own load serving entities reside.

MS. BROCKWAY: I usually go to conferences with the hubris to think that I'm not going to learn anything new, and I've learned a lot of new things today. And one of them has to do with the thing that Jim Laird of Home Depot brought up about the realities facing end users like that who have franchises or divisions all over the country.

And that crystallized the sense -- we've always in New England had a sense that the best way to approach a lot of things is regional. We're all in this together. It now seems to me that what we also ought to explore is national demand management programs, which necessarily are going to have to be heavily -- that FERC is going to have to be heavily involved in this.

A question about does it have to be within a particular boundary of a particular wholesale market, I think obviously that makes it easier to identify what the value is to that region. I could conceive ultimately of cross-RTO programs. It would simply make the job of whoever the intermediary is that I was talking about more complicated. But I don't think it's insurmountable, because the gap between the variability in any area and what the customer needs to see anyway is huge.

Conversely, or alternatively, if you're talking about marketing to a consumer, and I'll just use Home Depot

as the example because we've had it before us, it's conceivable to me that as long as their regions have some similarity to our power regions, it would diminish the extent to which you'd have to do any kind of averaging of what the value is across power regions, and a national entity could offer these values on a different value for different regions.

MR. CALLAHAN: I'm going to do like Bob. It depends. I think to make it easier for folks like Home Depot, that it would be nice to have uniform rules. But I think in a perfect world while that's what we would do, the reality is, that depending on who's in your region and how your state stacks up to their state, there's going to be maybe some winners and losers. And while it would be nice to do that, the reality is, it just may not be possible.

MR. FITZPATRICK: I honestly haven't thought about this issue all that much because I tend to think of demand response more at the retail level where I am and where we're trying to get some things done. Let me clear. I'm not saying -- I'm not drawing any legal conclusions there that we should be doing it but that RTOs or FERC shouldn't. Just as a practical matter, I really think this is primarily related to retail pricing. And so I'm just more focused on what we can do at the state level.

MS. SILVERSTEIN: Just to be clear, which clearly

I wasn't when I asked the question, what I had in mind was something more along the lines of a set of programs that would be offered in retail jurisdictions by individual utilities or load serving entities but that would follow a consistency in model that's rolled out so that you don't have to redesign them fresh in every single state or utility.

MR. FITZPATRICK: I'll jump in there. I think that's a great idea. And I think as we go forward and we're putting some of these things in place, one of the things we're very conscious of in PA is trying to measure what the results of it are, to know what's worked, because then we can report on that, we can share it with each other.

I think it would be a great role for FERC to put together best practices that we could do at the retail level to try to create demand response, because it helps you do what you're trying to do: Get the wholesale markets working more effectively, which in turn will help states like PA which have retail competition.

MS. BROCKWAY: I want to jump in if I can to add another pitch to have the boundaries of regional transmission organizations not simply be driven by the biggest size that you can imagine working. We in New England have worked together as a region very tightly for many, many, many years. And we know each other. And I like

to say that New England is one state with 12 senators. And that institutional base is fundamental to this type of sharing working. And I'm hopeful that the New England Demand Response Initiative will be one vehicle where we might try to do exactly what Allison is suggesting.

But if you then tell us, well, we've got to go with New York and we've got to go with PJM, you just bust apart that institutional base that allows consensus to develop around things like that.

MR. ANDERSON: Terry, the best practices that you mentioned may be the same thing that I was thinking about when I talked about a tool box of tools. And hopefully we can develop that tool box through our national association and bring it to our states within a region so that states within a region will be digging in the same tool box and there's a good chance that we'll pull out the same tools and use them in a very similar way.

MR. TIMMERMAN: I'm Calvin Timmerman, Chief Economist with the Maryland Public Service Commission. I've been at the NARUC meetings earlier this week and here this morning. And we hear a lot about pricing during this entire time, but I think realistically when we say price, we have almost entirely meant generation price or unbundled generation service price or something to that effect in the course of all these discussions.

And Rich's slide I think this afternoon in one line was the first mention I'd actually seen of a DISCO price. In our unbundled rate world and when we had to separate generation prices from distribution service prices, in Maryland I know we initially struggled with a variety of rate concepts that actually addressed the issue that distribution service cost of service price principles are not the same as generation cost of service price principles.

In fact, an argument on cost of service basis could be made that distribution service for mass market customers should be nothing more than a customer charge. No usage charge at all. Maybe for somewhat higher demand customers, you could make a clear case that it should be a customer charge and a demand charge. Again, no usage charge at all.

That of course would go to the point that if we adopted what many people would feel would be an appropriate cost of service rate design for distribution company service, that the usage rate for any given customer for a mass market customer, for example, the usage rate would go down by 35 or 40 percent. Yes, the bill wouldn't necessarily go down by that amount, but the marginal rate for that customer would because if the usage rate now becomes zero, you're just left with the generation rate. For a mass market customer, that generation rate is

probably, in Maryland anyway, about 60 percent of the bill. So 40 percent of the marginal rate would go away.

So I guess I was quite intrigued by Rich's sentence that indicated that perhaps DISCO rates encouraged too much throughput, where in my mind, the cost of service argument could be made that sure, the correct DISCO rate really might encourage way too much throughput from a generation side but would be an appropriate rate from the distribution side.

I'm wondering, therefore, as we go forward and start thinking about distribution-only rate designs when we have the end of our rate freeze periods, when we're able to make rate design changes in distribution rates -- because, frankly, most of our distribution rates right now I think just embody the legacy of the former bundled rate design that our utilities had -- what should we do? Should we in fact use the distribution rate as a proxy for a failure in the wholesale market and a failure in the retail generation market, or should we in fact work to design our distribution service rates so that they in fact follow appropriate distribution cost of service principles.

MR. COWART: Thanks for a great question. I guess my reply would be to take your point and aim it in the other direction. You're right that we do, and I would recommend that state regulators carefully consider

distribution company rate design. But I don't think that moving to a large, fixed charge is the right answer.

We do need to remove -- for one thing, it's built on the false premise that everybody would get the same or roughly the same large fixed charge, when in fact if you studied the costs, particularly the marginal costs of a distribution system, there are huge variations in the marginal costs of additional throughput in different locations on any company's system. Just ask the folks in New York City who are now spending something like $1 billion to upgrade distribution lines in certain neighborhoods. The same thing is true in Chicago.

That's one problem. The other problem is that you really do not want to have a distribution rate design facing the customer that encourages the customer to make consumption decisions that from a societal point of view would be uneconomic. And therefore, until we solve a lot of other problems upstream, I wouldn't recommend having a basically zero cost for additional consumption at distribution.

An answer that solves both problems is a performance-based ratemaking system for distribution companies that is based on a revenue caps formula. Namely the distribution company is assured of recovering its costs. It does so by giving customers a per kilowatt hour charge,

and it doesn't lose money if those customers consume less.

MR. SILVERSTEIN: Thank you. Grayson?

MR. GRAYFORD: Yes. Several of the speakers today have spoken about the social benefits or the regional benefits or the nonparticipant benefits of demand response programs, and that together with Commissioner Callahan's story about the other demand side management made me want to ask this question. And that is, to the extent that there are certain justified costs in order to implement demand response programs, do you think it should be considered a public benefits type expenditure on the part of state commissions? And maybe I can just get a tally on that.

Let me give an example or two. Innovative meters, the additional cost of innovative meters, and perhaps compensating distribution companies for the lost revenue that they have when customers sell back to the market.

MR. ANDERSON: I'll answer that quickly. I don't know. That's the kind of a question that we would want to examine in some detail and hear different points of view before we decide it.

MS. BROCKWAY: I would answer that if there are benefits that are now being socialized to the system and that can be identified and captured to help offset the costs of actually putting in the technology or whatever, or if

they do offset the costs -- because we shouldn't do it if they don't offset the costs -- there are devices, and I mentioned Pay As You Save as one way to take that right down to the customer level for making it worthwhile for a customer to play, where they actually pay for their own meter.

And I think with respect to the lost revenue problem, what Rich Cowart was talking about, about the revenue per customer cap, is directly focused on achieving that benefit.

MR. CALLAHAN: I would kind of agree with Nancy. I think it would depend. Right now in Mississippi where we're long on generation and have adequate transmission, I would say no. And if we were in a situation where we were getting short and it was down to building a $500 million power plant and/or doing some type of demand side management, it would be something you'd have to study. And at that point if you found it would be better for the customers, at that point it would be a public benefit and you probably could roll it in. But at this point where my state is, I would not roll it in as a public benefit.

MR. FITZPATRICK: With regard to the meter question, I really think that this is something that's probably going to get done by the utilities and I think that if you really want them to do it, you're going to have to

give them their cost back. That's the way I see it. I see it as part of their basic distribution system service infrastructure and it ought to be recovered that way.

On the problem of the socialization compensating the industrial customers when they sell back to the system, that's a difficult issue and there's probably no perfect solution. That's why when I look over the longer term, the way I really think that this thing ought to be addressed primarily is through setting the price right to those customers in the first place to reflect as best you can the value of the commodity. I think that's the cleanest approach. It's probably very difficult to put in place, so it's going to be a long-term project to do that.

MR. COWART: My answer would be that, to echo what Terry just said, that getting the prices right and getting sound market structures in place is the first and most important thing to do, but that we ought to take a very careful look at those things that we are in fact socializing today, whether we know it or not, and ask ourselves whether we could lower those costs by investing those dollars in something else.

MS. SILVERSTEIN: Okay. We have a bunch of people standing up. We have five panelists, and we're supposed to end it right now. So let's take about five more minutes and ask easy questions or at least short ones.

MR. COLBERT: I'll try. Ken Colbert, state of New Hampshire, AIR director. A question or comment mostly for Mike Callahan. Mike, I appreciate the way you ended up on demand response and I agree with you also on grocery shopping. I use the same technique.

But I want to take a little exception to what might be characterized as it's the price, stupid. You mentioned Home Depot isn't in the energy game and it isn't just a function of price, it's also simplicity. Consumers are in the same place. There are other issues that are important. They're really after quality of life. This was brought home to me listening a couple of years ago to an Idaho commissioner who said they had 4-cent power, which coming from New Hampshire, I didn't even know that was possible. But they were 42nd in the nation in per capita income. And I said wait a minute, would I switch being seventh in the nation? I think not.

So I went and graft all the average electric rates and the per capita income and lo and behold, there's a positive correlation, a weak one, but a positive correlation, which makes sense because if it were two negatives then you would expect New Hampshire would have the worst economy in the country, which it doesn't.

So there are other things at play as well. Reliability, certainly security, environmental issues,

overall quality of life. And I think we're beyond the point where you can say to your environmental regulators, that's your job, not my job. You know, AIR guys have been accused of setting energy policy in recent years. Likewise, the energy issues are my principal problem. So I think it's not just the price anymore. Thanks.

MS. BROCKWAY: See, Michael? What's a regulator to do.

MR. CALLAHAN: Yes. Tell that to a company who's trying to grow revenues on Wall Street.

MR. OHLMISTER: Phil Ohlmister, ICF Consulting. A simple response from the regulators to Eric Hirst's earlier question, is electricity a commodity or is electricity an entitlement?

MS. BROCKWAY: It's neither. It's a service.

MR. FITZPATRICK: I'm going to say it's a little bit of both. Really, you know, if you're going towards markets, you need to look at it as a commodity. But if you think you're just going to look at it purely as a commodity and you don't have to deal with the sensitivities to putting in place time varying rates on to raising the rates, you're going to run into an awful lot of trouble.

So that's part of the challenge, though. We're coming out of a history where anytime you talk about raising rates, people are going to complain like heck. I like to

compare what happened with electricity with what happened with natural gas prices. At least in Pennsylvania, where we have rate caps on electricity, the reaction you get when you talk about raising electricity rates is, it's going to be the end of the world. Yet gas prices went way up last year, and it did cause some problems, including some social problems. But then they came back down and now nobody's talking about it.

But getting there, getting the courage to be able to do some of those things in electricity is really going to be a challenge, and it's going to keep us busy, put it that way.

MR. ANDERSON: I don't like your choices. It's not an entitlement. It's partly a commodity and it's also a service. It's kind of a good or service that, in Justice Brandeis' terms, is affected with the public interest. So it has public good characteristics.

MR. STALICA: Hello. My name is Larry Stalica and I'm the energy manager for BOC Gases. It's a large industrial energy user across the country. We have about 500 or so megawatts of highly demand responsive load, and I wanted to just give a comment, because I've been hearing a lot of things about keep it simple and what customers want. And although I appreciate Xcel Energy and Green Mountain Energy and a lot of other fine people telling me what I

want, I thought I might take the opportunity to tell you what an industrial customer really wants. And I appreciate Home Depot for speaking up as well.

Keep it simple is good, but it's good for only some customers: Residentials, some small commercials, people who don't have a lot of impact for energy on their bottom line. At BOC Gases, 70 percent of our costs is electricity. So it's our largest cost item. So keep it simple, although good for some, is not good for everyone. And what keep it simple sometimes promotes is the middleman that's providing that link between the market price and the customer usually ends up taking a pretty big piece of the pie. And when that happens, that actually diminishes demand responsiveness because the customer, if that big piece of the pie has been taken by somebody else, doesn't want to respond to that price signal because he's not getting the full benefit.

So keep it simple is good but not for customers who are sophisticated enough and whose costs are great enough with regard to electricity for responding on their own. What we're looking for is price transparency. We want to see the market price. We want to respond to it, which we're able to do.

The second thing we want is we don't want -- we want that middleman, although it might be necessary, whether

it's a curtailment service provider or an EDC or a load serving entity or a guy with a laptop providing the service, that cut needs to be as small as possible. And I don't mean to sound greedy, but that's the reality. If that cut is small and the benefit can go to the customer who's supplying the benefit to the system, then the benefit goes to everyone. Because if we respond, price goes down for everyone. If we could see that true signal, get the benefit, we're apt to respond more quickly and more often. So those two thoughts I leave with you. Thank you.

MR. LAWLESS: Kevin Lawless, Xcel Energy. We do appreciate BOC's business and we also do recognize and have that you and your competitors are in a different class all by yourself. My question to this group of commissioners is, if I'm operating in a state where I'm let's say going to implement a large scale time of day, like we saw this morning with Puget, program that's going to create a lot of demand response benefits and we're in the time period where Chairperson Wood showed us this morning that we're way on the right side of his price duration graph, the whole market is benefitting from the demand response program. But there's only one group of customers paying for it.

And when you're looking across the region, I'd like to understand how the commissioners think these benefits ought to be shared with all customers as well as

those middlemen in the middle who are actually creating the benefits by aggregating both the value and the customers. And I'm just interested. Because I think a lot of the problem with demand response is the overall value is being highly underpriced by the market.

MR. ANDERSON: Do you expect me to write you a check if I conserve on bread and the price of bread goes down? If we're creating markets with good price signals and we each act in our own self-interest, we respond to those signals, we try to maximize our own value. And in doing so, I don't think we expect somebody else to write us a check.

MS. BROCKWAY: To my mind, that's an example of eat your spinach. And I think that we have a tragedy of the commons here. I think unless there's some way to present to the individual customer who can benefit the whole system more of the value of the benefit that they bring, they're not going to do it.

MR. FITZPATRICK: When I compare what happens in the wholesale market with wholesale prices compared to what happens with retail prices, what I see is that retail prices don't change on peak days. But I look at the wholesale market and I see those prices change all over the place. Again, that tells me electricity is worth more when it is most scarce. It's worth more during peak periods because more expensive units have to come on line. It's worth more

because it can't be stored very efficiently. That's the reality.

I think at some point you've got to get to the point, to me, and again, you have to do it gradually. It's going to be tough, but you have to get to the point where the price the customer pays reflects the value of the commodity. Because if you don't, if you can't get there, how can you rely on markets to regulate things? It's a tough challenge, but I think that's where we need to go.

MS. BROCKWAY: I don't think we can rely on markets to regulate this. I don't believe it is politically possible, even if we wanted to, to achieve 8,760 prices for all but perhaps BOC Gases. I'm thinking about a couple of points of example. We have in our gas industry in Maine summer and winter rates. And for at least one of our electrics, we have summer and winter rates. And that's a gradual thing and it puts some price differential according to the change in the cost of service.

But other states which have tried to put more price differentiation in, other commissions have gotten their heads handed to them. It simply will not stand politically. It cannot be done. And my attitude is, okay, if I can't do that, what else can I do to achieve some of these benefits?

MR. CALLAHAN: Yes. Just real quickly. Terry, I

would tend to disagree. I don't know if the power is actually worth any more. I think there's a constant cost to the power. I think the reason that you see it go up and down in the wholesale market is because you have a market where people are gaming the system.

And the speaker talking about the middleman, and just real quickly on my soap box, that is one of the problems we have. We are now, as we open this market, we are bringing in a player that was never there before. When you were an integrated utility, you didn't have the middleman that you have now. And every time you have a new player in the market, he's got to get his share of the pie. He's got to get his cut. First of all, assuming we have a market, if we want to keep it as efficient as possible, I think we need to be careful of these middlemen coming in.

It's one thing if you build a power plant or you build a transmission line or you do something that adds value to this industry. It's totally another thing when all you're doing is taking advantages of climate, transmission constraints and other variables that are really nonfactors to the actual delivery of the service simply so you can make a cut. And if we allow ourselves to go down that, us as regulators as other people are going to be in a tough business.

Because let me tell you something, folks, water

is probably the most important thing we have because we'll die if we don't get it in about two or three days, but I don't think anybody wants to live a life without electricity. There is really no viable substitute for it now, and we have to be real careful when we start playing and making a market out of this stuff.

MR. FITZPATRICK: See, you knew we'd get at it sooner or later, didn't you? We don't agree on this. Just one thing I'd say in conclusion, I'm not calling for real time hourly pricing for all classes of customers. I don't know if we'll ever get there for residentials. Maybe the best you can do for residentials is something like what Puget Sound is doing where you set out time of use rates ahead of time, but you do manage to get some response. You do manage to just basically get the message across to people that electricity isn't worth the same at all periods of time, and different complexities of rate structures are probably appropriate for different types of customers, because some can handle it and some can't.

MS. SILVERSTEIN: Please join me in thanking the panel.

(Applause.)

MS. SILVERSTEIN: We're going to start our next session at 3:15, please.

(Recess.)

MR. PARKS: If we could find our seats, please, we'll get started with the fourth session.

(Pause.)

MR. PARKS: Okay we'll get started this afternoon. Our first speaker is Gordon Van Welie. He's speaking on demand/response programs in the New England ISO.

MR. Van WELIE: Good afternoon, everyone. It's kind of the graveyard session here, so let's hope I can keep some of you awake. I was asked to talk a little bit about what we are doing in New England and I'll give you a perspective on demand response from the wholesale market operating point of view. I think I've got that on a slide here somewhere.

(Slide.)

I'm going to give you a brief background about the New England system and talk a little bit about what happened in the last couple of years. We had a pilot program in 2000 that went into 2001, some thoughts about how we're going to get into the future, and some issues on our perspective, both in terms of our role and also in terms of how we think we can work together with the various state regulators and the Commission in terms of driving this issue in the industry.

(Slide.)

I'm not going to read through that line by line,

just point out some points here. We've got about 28,000 megawatts of installed capacity, a peak load of around 25 gigawatts. The one thing that's perhaps a little different about neck of the woods is that there's no very large single blocks of industrial loads. But probably the biggest industrial load, if you wanted to call them that, are the storage queues operating the markets already. So down at the retail level most of our load is fairly small by comparison to other regions of the country.

(Slide.)

You've seen this slide a couple of times or this message, but I think it's worthwhile reinforcing. Market response is key to a well-functioning and balanced marketplace, and that dirty word "price caps" probably won't be able to go away until we have something to replace it in the form of demand response. And we'll talk a little bit more about that as we go forward.

(Slide.)

This pilot program, as we referred to it in 2000, has been rolled out and implemented in 2001. I think it was a pretty innovative Internet-system which enables wholesale market price visibility to customers. The thing that's important to us is that it gives that feedback signal right straight into the control room, so it's very important from a system-operating point of view to be able to see the

effects in order to be able to count on this. As I mentioned, because we don't have any large blocks of industrial load, the program, as we rolled it out, was intended to target customers in the 300 kilowatt to five megawatt size. Really there are two classes, the one emergency, which is very similar to what was done in the good old days, it's really an interruptible load program. We guarantee a certain level of interruption, and then pay the customers according to that specific guarantee.

The other one really is the one that is market-based, which we've termed "economic." That's a price responsive program where end users are paid the energy clearing price when they voluntarily respond to an ISO notice. As you can see, we signed up 18 sites in Class One for about 6.8 megawatts and 106 cites for about 60 megawatts in Class Two.

What we learned during 2001 is that technology is not a barrier. I think proof for that concept works very well. The barriers are in other areas. I'll speak to those in a moment. I think the biggest single barrier is aligning the incentives from the wholesale level down into the retail level. I think many people have spoken about those issues during the course of the day. The economic incentives I just covered. I think if you look at and spend a little bit more time on it, it's not just the issue of responding to

high prices in terms of energy clearing. The demand response can really be a surrogate for or replacement for long-term capacity to some degree, and spinning reserve and non-spinning reserves. That has a real cost in the marketplace.

Up in New England, we have coal-fired units and oil-fired units in order to produce reserves. If you can have demand response that you can really count on, you can actually reduce the number of reserves that you carry, and that has a real benefit to end consumers. It also has a real environmental benefit which is often not immediately visible to people because of course those units that we're spinning are causing some degree of pollution. So we've found a common partnering with the environmental regulators, and that's another issue that has addressed in terms of reducing barriers to making demand response work.

Transparency and accessibility to the end use customer is I think one of the big issues. This is really aligned to the retail rate design and also getting load-serving entity commitment to this. Quite honestly what we've seen is that at the sorts of numbers that we were paying for demand response in New England, the load serving entities found it hard to get excited about it. The basis for this is in order to try to make this as market-based as possible, we link these payments to our reserve markets, and so. I can illustrate the linkage between wholesale market

design, for example, the reserve markets, all the way to the market incentive to the load serving entity, and then to the end retail customer. So we're going to tackle that problem and make sure these two pieces fit together.

The other thing we found was a big discussion about, if you're going to pay people, and in the beginning it's socialized, that's where we are at the moment, how do you track back who ought to pay for that? And so the whole issue of market-based settling and payment mechanisms is a significant issue in its own right.

(Slide.)

As we look forward, there's kind of two stages to this. We've got a load response program at the moment which is kind of working in parallel to our wholesale market. It's fully integrated. What we'd like to get to is a fully integrated system which is part of the standard market design, which are the new wholesale markets, congestion management, multi-settlement based on the PJM model which will get into New England in the next 12 months or so. What we're doing for this year is to essentially take some of what we learned during the past year or two and tweak the existing design to make it more valuable, to try to get a better alignment in terms of the economic incentives. So what we've done here in terms of the Class One program is allowed end use customers to be eligible to receive a

saleable capacity credit. We've provided for a minimum payment of $100 a megawatt hour, a minimum duration of two hours, and more flexibility in terms of the end time in the program.

In terms of the economic program what we found was in the technology we were putting in was a barrier from an expanse point of view for some customers. So not everybody wanted to spend the money, a couple of thousand dollars, that it took to put the infrastructure in to get access to this Internet-based signal. So what we've done is allowed for low tech participation by fax, emails, and pager notifications. We've also incorporated a congestion multiplier. One of the things we've got in southwest Connecticut is a severe transmission issue in terms of capacity down in that neck of the woods. Just looking forward in terms of the summer and the next few summers, until we get locational pricing in, which will be in 2003, as a surrogate for that, what we are essentially providing is a multiplier of the payment for high congested areas like Boston and southwest Connecticut.

As I said 2003 and beyond we want to integrate the demand response with standard market design, and then work with the regulatory community to address barriers in retail markets, and I'll want to say a few more words on those barriers.

(Slide.)

Rich Cowart spoke very well about this earlier on. We've got a very good arrangement with the state regulators and with the ISO to try and put this forward. We've really got to find a way to synchronize retail market design with wholesale market design. One of the earlier speakers said this is something that we ought to standardize across the country. You'll find that I tend to be a strong supporter of standardization. That way we really do get to seamless markets in the end and drive costs and risks down. If we can find frameworks that are common, I really think it makes it easier for people to play in these markets and for us to get some kind of meaningful response.

The barriers that need to be addressed, people have mentioned access to low-cost technology. I think we need to design these things in ways that don't always require technology. To pick up on Nancy Brockway's point earlier on, we've got to find a way of providing for consistent treatment of distributed generation currently for diesels, for example, up in our area. One of the keys to providing demand response to reduce our level of reserve that we carry is to be able to count on the demand response. We have to count on those emergency diesels that are out there in these facilities. Those facilities in turn need to have the proper permitting to be able to do that. So we've

got to be able to provide mechanisms for those resources to be treated equitably.

Customer baselining. When I said promoting consistency in customer baselining, what we mean there really is how do you determine how much load was actually shed by a customer and what that is worth. That needs to be consistent in terms of how one formulates the framework and the practice going forward. That's something we need to solve as well.

I think what California showed is, just by getting out there and telling people to reduce power, I think there's a promotion and education aspect to this as well, and we'll be doing a lot more of that. You'll see us doing a lot more of that during the summer in southwest Connecticut. And then the very last point I think is very important in terms of getting the economic incentives right for the load serving entities. If we're going to engage them in a meaningful way -- this is more of an irritation to them at the moment than any kind of meaningful program, and I've heard a lot about programs.

One of them that was put to me recently, which I quite like, is we expect some load serving entities to come up with some sort of installed capacity obligation. I think the same thing can be said with demand response. If you have to play in the wholesale market, you've got to bring

some demand response in order to play in that market. That's something worth thinking through. I don't claim to have all the answers, but it did appeal to me.

(Slide.)

In terms of ISOs and RTOs, obviously our role is to facilitate both the emergency load management actions and economic curtailments until the market structure signals are clear. The reality is today that it's very embryonic at this point, that is load response and demand response from a market perspective, the only reality that it tends to be socialized at the moment so we're not going to leap from that situation into a fully functioning market in a nanosecond. It's going to require investments and it's going to require continued pressure and focus by the entities that are involved. For some period of time, it's going to require funding. And just like New England, we deem other infrastructure to be important. We ought to find a way of putting somebody behind it.

In terms of tools, we've got to be able, from an operational point of view, to be able to guarantee that we can shed load when we need it and you have the forward contracts' meaningful reward and penalty provisions. Just like our markets today, if a generator doesn't show up or doesn't go where we dispatch them, there is a disincentive or a penalty, and I think the same really ought to be true

if you're going to give load and load response the same kind of value as generation, they've got to subscribe to the same rules.

And then proper evaluation of the capacity represented by interruptions. There's a very intricate linkage here between how you value you that and how you place value on your reserve markets, and perhaps on ICAP. There I think we need to do a lot more thinking. We haven't got an answer yet. We are struggling to come up with the answer. This is something that we can jointly, the ISOs and the Commission, can be working on. We obviously need to work with the Commission and the state regulators to ensure that demand response is part of the standard market design. We've got a very unique opportunity here, with this big push from the Commission, to standardize the wholesale market design across the country to some extent. We have an opportunity to link into that standard framework for demand response and I've been very supportive of that. I've mentioned standardized customer baselining practices and in terms of payment approaches, I think we have to be consistent in that area as well.

That's all for me. Thank you.

(Applause.)

MR. PARKS: The next speaker will be Don Gilligan and he's going to talk about what energy service companies

need to make demand response work. Don?

MR. GILLIGAN: Thank you, Bill. I'd like to start off by thanking Alison and the FERC for inviting me to talk here today, representing the ESCO industry and putting on this company and the people at DOE for their part. I would also like to thank the Department of Energy, both the Office of Power Technology, Bill and Larry, as well as the Rebuild America Program, who have sponsored some of the research work that NAESCO has done in this area over the past couple of years. We have found the Office of Power Technology to be on the forefront in these issues, and we thank you for it.

(Slide.)

I'm going to return to the analogy that Joel started off this morning; the rules about how you operate complicated machinery. He had the 25 rules of flying. Since I come from the ESCO industry, which is a little bit simpler, I'll go back to the three rules of sailing which I learned. The first rule is keep the water out of the boat. The second rule is keep the boat off the land. And the third rule is try and know where you are.

(Slide.)

With that, I'm going to try and talk about three ideas. Number one, introduce the ESCO industry to those of you who may not be familiar with it, and talk about some of

our capabilities, and why you should be paying a little bit of attention to us at least in this whole realm of demand response. Talk about the problems that we see with demand response programs as they are currently structured, and why it is very difficult for us to participate in them, and then to suggest some fixes which we think are not that difficult to get demand response rolling.

(Slide.)

The ESCO industry is a pretty big industry. Chuck Goldman and his team at Lawrence Berkeley have been studying the industry for several years. They think it's about a two billion dollar a year industry now, which delivers energy efficiently, retrofits distributed generation, and outsourcing of whole utility operations. The industry consists of hundreds of companies across the country, led by subsidiaries of some of the major controls companies; Honeywell, Johnson, Siemens, people like that, a number of subsidiaries of the major energy and utility companies and a host of national and regional independent companies.

(Slide.)

If you want to understand the capabilities of our industry, it's important to understand that we really in terms of profitability and business look a lot like construction companies. We tend to be very conservative in

terms of approaches to business, and our profitability is like a construction company's profitability, which means that at the end of the day, we're bringing home low, single-digit percent net income. What that translates into is a very limited amount of money left over for experimentation. Successful ESCOs really stick to their knitting. They really concentrate on what they're good at, which is delivering energy efficiency projects, delivering distributed generation projects.

So one of the things which happened at the beginning of the demand response industry a couple of years ago was that people who designed the programs thought that they could put together these nice experimental programs and the ESCOs would just flock to them. Well, that didn't happen.

(Slide.)

Because there's a fundamental sort of disconnect in the way that we look at the world and the way that we perceive at least that these initial programs were developed. The initial programs were really developed around what we would see as the trading model of the energy industry. You set a price for everything, you set markets. It's been talked about ad nauseam today. But that really boils down to two different ways of looking at the world, if you will. There's the trading view of the world in which

people really make money on uncertainty, and there's almost a straight line relationship the more uncertainty that customers perceive in a situation, the more value a trader can bring to that customer, the more value that they can harvest for themselves.

The history of the ESCO business is wringing all the uncertainty out of the energy arena. If you trace the business back to the early eighties when it started, ESCOs have spent literally two decades grinding the technical uncertainties out of the business, grinding the financial uncertainties out, grinding the contractual uncertainties out, a step at a time, very incremental work. So there's a real issue there about which world are we playing in. Are we playing in the world that we think most of the customers live in which is customers aren't real time, they don't respond real time. If you're dealing with an institutional customer or an industrial customer, the time frame in which they make changes in their operations is measured in months. Or a really top notch organization might be able to make a significant change in 30 to 60 days. This is not an hourly world. Customers are risk-averse. They don't like risk. That gives them the willies. They want to know what energy's going to cost, they want to know what percentage of their product or output or cost structure that's going to be.

From our perspective, the initial demand response programs that have been out there area very risky. Programs were launched where, at the beginning of the summer, you didn't know what either the economics of the program or the rules of the program were or what the settlement routine was going to be. We launched programs last summer where we didn't know at the beginning of the summer how we were going to establish a customer baseline against which savings would be measured. Again, ESCOs have spent years working on exactly those things. So before they go into a contract with a customer, that baseline is very well established, very transparent, everybody is exactly on the same page.

So if we're looking at programs that are going to be good for four months, and our projects are projects we have to live with for ten, 12, 15 years sometimes, it's a real mismatch. The final element was that the public messages were confused, particularly last summer. We see this filtering down to the customer. On the one hand, there were a lot of people out there saying, look, we're going to have some problems this summer, we really need demand resources, you know, we've really got to get this cranked up. In the same regions, particularly in the northeast, you would have then political people coming out and saying, now, wait a second, we've got plenty of energy. We're not going to have blackouts this summer, we're not going to have

reliability problems.

Customers were hearing both of those messages and what they were saying to ESCOs is, hey, have we got a problem here or not? If there's a problem, then we'll work on the problem. If it's not a problem, then get away, I've got a business to run here. If this isn't a problem, if this isn't going to happen this summer, I don't need to talk to about this. That's a very important issue which I think goes way beyond getting what's been talked about here a lot today which is price signals and some of the other mechanics of the programs. There's a sense I think among a lot of people that if you just get the mechanics right, then everything will fall into place. There's a whole area of public communications, marketing, et cetera, surrounding those mechanics which has to be right as well.

(Slide.)

So what are our proposed fixes in this situation? I think the first thing that we would suggest to regulators is that we deal with the real world. As a number of people have pointed out today, the real world is not a world in which there are large competitive portfolios being managed by private market energy supply companies. The real world is that 90 plus percent of the customers live under a regulated regime so that the portfolio management which people envisioned for the competitive market in which the

owners of those portfolios or the suppliers of those portfolios will do their own balancing of supply and demand and their own internal economics within those portfolios isn't happening in a lot of places, because it's the regulated companies which have to do that in this interim, in this interim period. It seems to be lasting a lot longer and it seems like it will go on a lot longer than anybody has anticipated. During that period, we think that the regulated utilities and their regulators have to deal with the issue of who is managing this portfolio of supply and demand on behalf of the customers. Right now in a lot of areas I would suggest it's nobody.

The second point, which I think a number of other speakers have made is that generators like inelastic demand. This is swell as far as they're concerned. If you were in their position, you'd like it too. To the extent that they influence the way ISOs make decisions, we shy away from really effective demand response programs.

And I think the third basic observation is that customers, by and large, at least the customers we deal with are not motivated by technology. That doesn't mean they don't like it. That in the appropriate situations, they will employ the latest technology. It just means that because the technology is available, the programs aren't going to automatically happen. There has to be a compelling

business reason for someone to get involved in demand response, and to use all of this wonderful technology which is out there. A number of speakers have said that technology isn't the problem. There's a lot of great technology. The problem is why should a customer do this?

I think our second big point is we would really urge regulators on both the federal and the state level to recognize the value of permanent load reductions. A number of people have talked about this. Again, there have been some studies done. This is not so theoretical as you might think. In California and PJM, there are studies which are available now which say that the value of load reduction on average is somewhere between two and three times the price of power, and as the system approaches peak demand, that value rises to five times the price of power. Under price caps in California, the year that there weren't price caps, it went up to eleven times the price of power. That means if there's 70-cent power, 70 cent per kilowatt hour, the price of load reduction, the value of load reduction is about seven dollars. All we're talking about here is the effect which Joel talked about at the beginning of the day. You're not looking at just the value of the marginal kilowatt hour. It's the price of the marginal kilowatt hour times all of the quantities of kilowatt hours that are floating at that price at that time. It's a very

significant multiplier effect.

And we think that permanent load reduction, DSM programs, energy efficiency, people have given it different names today, has got to be part of this demand response. People respond in different time frames. Not everybody can respond in an hourly time frame. That doesn't mean they're not responsive. It just means that they have a different way of looking at this problem. And we think that to a large extent, demand response programs to date are really concentrating on the symptom which is these price spikes. It's like looking at somebody who's got a fever and saying, well, what we need to do is we need to dump this person in a bath of cold water. When you bring the temperature down to normal, that's it, that's the end of the problem. Well, the problem is really much deeper than that. There's something organically wrong with that person. We would suggest that there's some load issues, there are some capacity factor issues which are fundamental to the system which can be fixed with long-term load reductions. We've got to address some of that.

(Slide.)

So our suggestions are to regulators connect the dots. There's a tremendous among of activity in this area. There are ISO demand response programs, there are system benefit charge and DSM programs, there are retail rates

which should be renegotiated, adjusted. Sometimes participating in a proceeding in New York, which is setting a whole new category of rates in New York which will apply to distributed generation. There's no obvious connection between any of these things at this point.

In New England, we are probably spending somewhere between $200 and $250 million a year in ratepayer funds on energy efficiency and renewable energy programs which have no obvious connection to what Gordon's group is doing at the ISO in terms of trying to manage demand. That's got to be blended together. I'm not suggesting it's an easy job.

I'm suggesting that in order to make this work, we've really got to pull this stuff together. And finally, we would urge, particularly in times of crisis, that as much as possible people speak with one voice. I think that was an issue in New England last summer. I think it was an issue in PJM. I think if you contrast what happened in those regions with what happened in New York, where everybody, the governor, the PSC, the state agencies, like CERTA and NIPA, were all talking about the same things. They said, we've really got a problem here. This is how we're going to approach it. They kept repeating that message over and over and over again. That's what you need to get for the customers. And to the extent that customers

are hearing conflicting messages, they just back off. They say, I can't figure this out. When you guys get it figured out, come back. So those are our suggestions. Thank you for your time.

(Applause.)

MR. PARKS: Thank you very much. We're going to see if you're still awake. Thank you for staying with us. We have two more great talks. Chris James is going to go next. We'll switch the positions of the hitters here. He's going to talk about designing demand response programs for environmental improvement.

MR. JAMES: Thank you. I especially want to thank Ross for switching with me. I was scheduled to bat cleanup which of course is a usual position for environmental regulators, but I was sort of pushing a little close to my plane departure time this afternoon.

(Slide.)

I want to focus on three basic messages. First is to provide some initial background about who are these strange environmental regulators and what are the things that are driving our interest as well as our overall objectives. Next, I want to talk about some of the work that we've done to date working with ISO New England, PJM, and others on some of the initial demand response programs from an environmental perspective. Then, third, go into

what actually is happening on the ground with a pilot project that we're looking at in the southwest Connecticut load pocket, a real high thing. So hopefully this will connect some of the dots, as Don had mentioned.

(Slide.)

I think the first element whenever you're working with different groups of people that have not traditionally operated together, and that certainly happened when you had environmental energy officials start this process about 18 months ago, was to learn each other's language. For those of you who are not familiar with the Clean Air Act, it's a little known fact that the acronyms in the Clean Air Act are derived from the children's book by Robert McCloskey "Make Way for Ducklings." We have faxes, maxs, quacks, keybacks, bacums, wackums, you know, those things.

(Laughter.)

MR. JAMES: I would suggest that the energy official have a similar book to give to the environmental folks so we could easily learn the acronyms, like the IOUs and the NUCs. That's an action item. Over the last several months, we've been working collaboratively with the folks in the northeast and mid-Atlantic from Maine to Virginia involving the A officials state energy offices, as well as public utility officials to identify what really are some of the issues from both an energy and environmental

perspective.

(Slide.)

What we are looking at in terms of overall objectives are these following: First is to overall reduce the peak electricity load. That's something that often coincides with peak poor air quality days -- and I'll get into that in a minute; it's not just ozone that we're talking about here. We obviously understand the need to provide greater power system reliability. There are incredible economic drivers behind that that we've all heard very eloquently today.

Then we're dealing with this thing currently that we have not fully integrated into the electricity equation; consideration of environmental performance. So taking that existing structure, we then want to move forward to first integrate those public health and environmental issues into the overall dialogue and then work with some of these structures that have been established under the restructuring acts that many of us all operate with. The system's benefit charge funds that have been established, proprietor interest, et cetera, to look at a glide path over the next few years that can provide not only certainty from a reliability and stability standpoint, but also to help us with our overall environmental objectives.

(Slide.)

These are just kind of a quick sum of some of the concerns that we have. Sue Coakley this morning kind of teed up the ozone issue, and obviously for those of us in the northeast and mid-Atlantic, ozone has been an issue we've been working on and have made significant progress over the last 25 years. However, that is by no means the only pollutant we are concerned about. And more and more frequently, we are very much interested in working with and designing and implementing programs that look at sort of harmonizing strategies on this whole list of pollutants.

So, for example, when we hear about demand response programs, the first connection that environmental officials would make is with diesel. Diesel is of particular concern to us because California regulates diesel exhaust as a carcinogen. The emissions occur at very low stack heights, and in densely populated urban areas, which tends to also have a lot of asthma type issues that we're dealing with as well.

We're obviously concerned about fine particulate matter. That's connected to visibility and haze issues that we're all working on. Sulfur dioxide is another issue that is of concern. So, yes, ozone is still of importance but we're more and more concerned about this entire menu of pollutants as well as not only from air quality, but also from other environmental effects.

I think people are familiar with some of these issues that air quality and public health officials deal with as of particular concern to us in urban areas.

(Slide.)

Connecticut, for example, was seeing incredible increases in asthma rates in the past several years, especially in our urban populations. Anything that exacerbates that exposure is something that is of tremendous concern to us. Obviously, there's also environmental justice issues that can arise from many of these urban issues as well.

(Slide.)

So when we first got involved in these demand response programs -- go to the slides in your packet if you can't see these up close -- these are some initial data that have been developed basically from last summer's efforts among the various ISOs. I first want to congratulate ISO New England for really doing an incredible amount of work to at least come up with some basic environmental information for us to work with. We've had a very excellent dialogue with the ISO on how the programs have been designed, and also trying to get some live data from actual units, so that we're not just using some emission factor that was developed 20 years ago that may or may not have any bearing or relevance to the particulate units that are being deployed

in these programs.

I do want to also put a very large asterisk of caution and a caveat. These are initial data. As you can see from the ISO New England program, these data are based on five units, so they're not to be extrapolated to any conclusion other than the fact that it does underscore the need or the benefit and the relevance for environmental officials to be integrated into this entire discussion about demand response. We did see from this limited program, you know, increases in air pollution which we had suspected but it was nice to see the ground proof data. This is obviously an area we need to mine more carefully and monitor more closely, but it's something I think this is a nice beginning.

(Slide.)

So where are we going? One of the things that previous speakers have noted, and I wholeheartedly endorse, is they need to recognize the facts that we have a number of programs out there that promote energy efficiency and conservation. We need to make sure that when demand response programs are designed and implemented, that we try to link to those as much as possible to not only leverage some funds, especially for load management, but also to make sure that we achieve the maximum possible benefit in the congested areas which also happen to be the same areas that

we are very concerned about from an air quality perspective.

And I guess the other point that I really want to emphasize is that environmental officials are interested in this from a holistic perspective. We're not espousing a generation-only option or demand conservation efficiency-only option. We see that there's incredible opportunities to leverage both of those and achieve maximum possible benefits using both clean generation as well as further improving the overall efficiency and load management. So to that end, I would just echo the remarks that we continue to work with these various systems benefit charge funds.

For example, I'm on the board of the Connecticut Energy Conservation Management Board. I think that's been a real plus having that environmental representation on the board. So the third bullet is one that I think that would be of interest particularly going forward, recognizing the regulatory structure that we have, we need to first look at the short-term, particularly the congested areas and deal with those real problems that we have, but recognize that over the medium and long-term that a diesel only solution is not going to be a minimal or supported by environmental officials. We need to think about where we're going to be three years, five years, seven years ahead.

I would just echo some of the work that has been done by the Regulatory Consistency Project. We're trying to

get standards for distributed resources. That effort's been funded by DOE. We've also done some similar work in New England to develop consistent policies on a state and regional basis. I'm not sure how I'm doing on time, so I'll skip over these. You'll have these in your packet.

(Slide.)

The action that we do take collaboratively provides several health as well as environmental and societal benefits. You all can read these as well as I. But the main thing of course is the urban areas. We do want to reduce the exposure to the criteria and toxic pollutants that we're seeing and these areas tend to be the same areas where demand response programs are contemplated. And that's very important that we work together to make sure that we not only do no harm but that we improve the overall quality of life and the environment. Because as I sort of alluded to earlier, demand response and power plant emissions are not the only things that get our attention. We have to look at the entire menu of things that our polluting in our states. Any additional emissions that occur from a small type of resource have to get added to those reductions that we are all required to achieve by the plans that EPA has approved for us.

(Slide.)

I'd like to talk about this pilot project. The

goal here is to improve air quality as well as reliability and to do so in a manner that achieves some sort of results over the next couple of years. What we want to look at is what is the framework, what is the structure, what are the policies and procedures that we need to put together that will result in a real robust demand response program in the southwest Connecticut load pocket, and hopefully in other areas that could learn from our lessons, the positive results that were expected.

The second bullet is that we are obviously very much interested in providing a platform to assist in the development of clean distributed generation that is not diesel, that is not diesel with retrofits. I would strongly advocate that the funds that we're all looking at spending in these programs be used toward investing in the cleanest possible resources. Yes, a diesel retrofit can give you some reductions, but you're still four to eight time dirtier, even with the SCR than a clean, centrally-fired cogen plant, which is much cleaner for NOX. That's really the platform that environmental official is looking at. Obviously there are some folks who will disagree with that and we can have a healthy discussion, but given the range of programs that we have to deal with, that's the goal and that's what we're aiming for. Obviously it's a very high goal but we believe that without some sort of strong

regulatory driver, like that present, we don't have the necessary incentives to provide for development of the cleanest possible resources. State agencies, we're working with not only environmental but also energy. ISO we plan on involving as well.

(Slide.)

And we're looking at doing this in a couple of phases. Phase one would happen basically in 2002. Again, this is more of a framework structure, architecture-type thing. What are the mechanisms we can all agree on, and then moving forward in 2003 looking at real hardware types of things on the ground at various businesses, whether they are in hotels, hospitals, server farms, et cetera. Those are the types of things we would want to look at, you know large types of load.

Then associated with that, where can we target investments of our conservation and load management with the generation to achieve a maximum possible benefit in those areas. Obviously, there's a lot of discussion about transmission and things like that in southwest Connecticut. That's something that obviously is discussion for another day.

What we're hoping for is by really focusing on kind of the demand side and load management, that we can at least improve the efficiency, improve air quality in that

area, and also provide some sort of model that could be replicated in other parts of the country.

Thank you very much.

(Applause.)

MR. PARKS: Our next speaker is Ross Malme. He's going to talk about proposed market rules for successful demand response programs.

MR. MALME: Home stretch, last one of the day. I want to thank FERC, DOE, and NARUC for their patience and for your participation in this conference. It's been an outstanding conference. I'm the President and CEO of RETX. We're a provider of demand response infrastructure technology to ISOs, RTOs, and LSEs. I have another job as well. I'm the President of the Trade Association for this industry. And several of you, if you participated with us last night, saw us roll out a new paper that's called "Demand Response Principles For Regulatory Guidance." Basically what this is is a framework if you're in the business of designing demand response programs. These are things we think are important for you to consider. If you haven't got a copy of that, I urge you to get one. There's a booth over here and you can get one from our Executive Director, Elliot Boardman, sitting at this table right over here.

Back when FERC was putting this conference

together, I went to Alison and Commissioner Brownell and asked them what I could do to help. They were very direct with me, and they said, give me a set of market rules for an RTO to implement demand response. That was a tall order. I'm happy to say that as of 5:00 o'clock last night, Alison, we delivered. There are copies of this paper which again is a detailed set of rules on implementation of demand response at an RTO. I want to say that it's probably closer to the beginning than to the end. There's probably still much work to be done here. We value your input on this and participation. We'll be putting out a Version Two of this in the not-too-distant future.

(Slide.)

So let me talk about the process we went through to make this happen. We put together a set of our colleagues with several other companies in the industry, some of which are Apogee Interactive, Good Cents Solutions, Summit Blue Consulting. They did a lot of the mass marketing work in here, Customized Energy Solutions, E-Cubed, that was on the DG side Price Responsible Load Coalition is kind of the New York version of the PLMA locally, and EPRI as well.

Where we could extract things and didn't have to reinvent the wheel, we did. There's a lot of work going on in New York from PJM and ISO New England and several other

jurisdictions. We pulled out that experience. Finally, I'll say this is an example, this is a program designed with PLMA principles in mind, so it's kind of an example of that.

(Slide.)

The mission we had was essentially to propose a set of market rules, a standard set of market rules for ISOs and RTOs to use. Again, I want to stress this. We believe this is a starting point, not an ending point. There's certainly more work to be done in this but we think there's a lot of meat in this thing. We obviously think that local markets are going to have to add some degree of customization to this set of market rules.

(Slide.)

The call to action. We think demand response needs to be an integral part of a standard market design, so we're not trying to put demand response into markets after they get designed. We've been through that experience in New England and have been through it in PJM, and in New York, and it's hard.

Five percent of demand response can reduce peak prices by about 50 percent. As Gordon indicated, not only do we believe that ISOs and RTOs should promote DRR participation but they should support it financially. This is an embryonic industry. It's going to need some help getting off the ground. That means there's going to be some

degree of socialization of costs.

In New England, NEPOOL provides funding for that. They're providing funding for some of the necessary hardware and the infrastructure and settlement systems and so forth, to make that happen. Probably, these financial supports ought to be reviewed once we meet our goal. So at some point in the future.

(Slide.)

The financial support. We think the customers and LSCs should be able to keep the market clearing prices and energy costs and whatever bilateral arrangements the LSCs and the customers have, that should not be interfered with. We need to have some infrastructure to make demand response work. That means probably some time-based metering and we need to have advanced metering and communications infrastructure to help make this work. Gordon alluded to this in New England. What they're going to try to do next summer is essentially to put a multiplier effect in there, which will approximate what that locational marginal pricing is.

We think that load should be treated the same as generation from a congestion standpoint. I think that the game for demand response in the next couple of years is going to be all about transmission congestion. Demand response is probably the least expensive way to solve the

transmission congestion problem. We can do it fast, we can do it within months, not years, and the payback is going to be in months and not years.

(Slide.)

The operational support. We think the customers ought to be able to play in essentially all the markets, energy markets, reserve markets, ancillary services markets, and the capacity markets. We need to have a standardized data exchange format. A lot of this data is coming from disparate systems. Some of them are legacy systems out there, and the ISO can essentially be the regional megawatt hub. It has to have some way to bring that data in and standardize it and be able to act on it and create settlements. We need to have participation for all market classes. A couple of Commissioners at the NARUC meeting came up to me and said that this stuff you're doing with commercial customers is great, but with the mass market we've all got to play in this somehow. So to make sure you don't leave the residential customer behind, and we have to work with the environmental agencies to simplify participation for distributed generation.

We have one large telephone company in New England that's got 500 KW generators. We'd love to be able to get into the emergency program. It's really a bear to get those units permitted. And the customers threw up their

hands and said, it's too hard. We should be taking a look at that.

(Slide.)

So our recommendations to FERC.

One, we're recommending that the policy recommendations and the pro forma tariff that's in the paper be approved or at least certainly considered. We'd like to have ISOs and RTOs provide a semi-annual status report on where they're at, how they're doing on demand response, and we'll probably have to have an independent third party come in and audit that. We'd like to encourage FERC to host conferences like this going forward, maybe two a year.

(Slide.)

In conclusion, we've come an awful long way in the last two or three years with demand response but we have a tremendous long way to go for everyone to reap the benefits. FERC is key to making this demand response industry happen, and these policy recommendations and business rules are the way to do that. Finally, let me wrap up and say we're very happy this is intended to be an inclusive process, not an exclusive process, so we welcome your comments, we welcome your input and we'd love to put your name on the next paper when it comes out in Version Two. Thank you.

(Applause.)

MR. PARKS: Any questions out there? These were some great comments made here.

MR. HIRST: I hate to be the person who stand between you and the reception, but I will. We've heard a number of times today that because participants in the program have provided public benefit that extends beyond the private benefits, we ought to commercialize those costs. This morning, I spoke very strongly in favor of those programs, but I'm a little bit afraid that we're about to enter a slippery slope that we'll then regret.

If I was a customer cut demand at the time of very high prices, and come down that price spike, just as Chairman Wood showed us this morning, and that does provide a benefit for everybody else. By the same token, if I offer to build a combustion turbine in Gordon's region, and I agree to operate it at the time when prices are higher, I ought to be able to make the same kind of claim for the market that I'm providing the public benefit. So unless we are prepared to pay supply resources for that kind of public benefit, we ought to be very careful about paying for demand resources.

But one area where I think you can make a claim is the industry argument and the subsidization as you did in New England for some of the infrastructure costs. There you're not really paying the customer extra to do something

but you are, in a sense, building a highway that permits the customer to benefit. I'm kind of giving a speech and I haven't asked a question, but the question is, what do you really mean by subsidizing the customer? How far to you want to go on that? I'll go to any one of you.

MR. GILLIGAN: I'll take a shot at that. I think when I put up the numbers, that the value of load reductions is two to five or maybe ten times the price of power. I'm not suggesting that people who implement load reductions be paid that full two to five times or ten times. I think they need to be paid some fraction of that which motivates them. The bigger point that I'm trying to make is if you don't recognize the value of permanent load reductions, through some sort of contractual mechanism, it's like having the supply side of the market without long-term bilateral contracts. We know what that looks like. We saw that in California in the year 2000. It doesn't work.

So what we've got in the demand response world so far is sort of the functional equivalent of the California supply market 18 months ago. You get a little bitty piece of it and it's not working very well. There's a whole other chunk of that market out there that can make a significant contribution, but it needs to have a reasonably well-established rate of return in order to justify the investments.

MR. Van WELIE: Let me add to that. My comment was more directed at the infrastructure, but I'll give you an idea to give the sort of figures that you saw up there in our chart. We probably spent about half a million dollars last year with RETX to just try to get actually a very small response. So as a business person looking at that, I'd say it really hasn't paid for itself. The problem you've got is there's a barrier, a threshold issue in terms of infrastructure. And you've also got the issue where, for now, the wholesale market price incentives and the retail price incentives haven't been aligned, so for some time until you have that aligned, you're going to have to have some kind of payment mechanism that's kind of CEDO market, which is kind of where we are at the moment.

So two things. One, you have to tackle infrastructure and until we get the wholesale markets and the retail rate design and markets well integrated, there's an element of subsidization or socialization that's going to take place and it's not going to happen otherwise. The intent of the long term of course is you really want the market to be able to fund this. If you go out two or three years and we're still funding this, I think we've failed.

MR. MALME: Eric, I agree with that too. What we're looking at here is the socialization of start-up costs, getting this thing running and the infrastructure, so

to speak. In terms of the value of demand response, Bernie Dean in the back of the room, New York has gone and documented that in some detail, so Bernie, you can provide some more detail on that.

MR. HIRST: Bernie would point out that some of what we consider to be the public benefit in terms of the price reduction is really not an increase in efficiency; it's a transfer of wealth from the producers to the consumers. Thanks for the answers.

MR. PARKS: We'll take one more question and we'll make closing remarks.

MR. RYAN: Don Ryan from Navigant Consulting. I have a question for Don Gilligan, and the rest of the panel can comment if they wish. The message I took from your presentation was that ESCOs are not particularly good for market and demand response. Maybe they're better for marketing energy efficiency than they are marketing demand response. It seems to me there are two categories of ESCOs, those that provide straight energy efficiency and construction type services, and those that in addition to that also provide commodity electricity and commodity gas to their customers. I guess the factual question is, does your organization represent the second type of ESCO as well?

Regardless of the answer to that question, how might your presentation change if we take into account the

fact that some ESCOs do provide commodity services as well?

MR. GILLIGAN: The answer to the first part is, yes, there are some members of the organization that do provide commodity services. They have gotten away from it. If you go back two or three years, there seems to be a trend in the industry to put together totally bundled offers much like the Enron offer. You buy everything from commodity-supplied information services to retrofit services from a single vendor. That seems to have gone away for several reasons.

But what exists now is some companies who provide, along with the energy efficiency services, commodity consulting or commodity procurement management, something like that. I think the point I was trying to make is not so much about the ESCO marketing capabilities, which I think are somewhat limited, but also more important that ESCOs shy away from what they see to be experimental or undefined programs. The ESCO business is a tough business. The project development takes typically 12 to 18 months for a major project. They spend a lot of time, as I suggested, wringing the uncertainty and the risks out of these projects. To date, the demand response projects are sort of at the opposite end of the spectrum in terms of risk. A lot of things aren't defined, the programs are very short term, it's just something that the ESCO industry kind of shies

away from.

MR. PARKS: Does anyone else want to comment?

(No response.)

MR. PARKS: Okay, thank you. I'd ask a couple of things. I'd ask that the panelists stay up here with me while we sit through the closing remarks.

Chairman Wood?

MR. GARMAN: What did I learn today. You should learn that there are still two more speakers between you and the bar.

(Laughter.)

MR. GARMAN: I'm sorry about that but not really. I have very much enjoyed today, and I have learned what intuitively I think we all knew, that demand reduction programs, demand response programs can be effective tools, but let's not force everybody to reinvent the wheel. Let's learn from each other. I think that's part of the reason that you're here today. It's part of the reason that we put on this conference. It's why we have a team at Lawrence Berkeley National Lab to provide help to state commissioners and ISOs and others who are interested in learning how to design a demand response program and it's why we're funding the Western Governors Association, NASEO, and some others to do some work on these sorts of programs, and we will continue to do that.

And I guess the question is where do we go next, what do we do next? First, I'm announcing that we are going to assist, DOE is going to assist with the funding of the New England Demand Response Initiative that Richard Cowart spoke about in his presentation. So, Richard, the check is in the mail.

Of course, you know, with the problems we've been having with mail at DOE right now --

(Laughter.)

MR. GARMAN: It may take a couple of months, and we'll explore some other possibilities as well. I'm intrigued with the notion of perhaps illustrating some demand response tools in the federal sector. The federal sector has 500,000 buildings and we manage a lot of the work of electricity purchasing through our Federal Energy Management Program. So I'm intrigued with the possibilities that are presented by that.

I'm intrigued with the possibilities that we might have in supporting regional approaches and discussions through my six regional offices across the country. One size clearly doesn't fit all. Maybe we can do some more work. As we learned in New England, we'll take that show on the road. I'm intrigued with the possibility of integrating some thinking about demand response tools in our buildings program at DOE. We're hoping to design and influence the

design of the literally millions of buildings that are going to be built in this country in the next decade. Might it make sense to incorporate in that design some of the features that might facilitate demand response activities?

Finally, as a personal note, I'm intrigued and fascinated by the Puget Sound electric experience as a consumer of, I'm proud to say, less than 500 kilowatt hours of electricity a month because we're very efficient in my house. I still would love to have the customer experience, to be able to go on to the Internet to see my trends and uses, and I want that. I've seen it and I want it. And even though it probably wouldn't pay anybody to provide that service to me in terms of what it might do to change my behavior, there's no more room for a compact fluorescent anywhere in my house, they're all full thank you very much, but as a customer I want that and I think other customers having the opportunity to see that would want that. And that of course brings the whole notion of melding these tools and integrating all the tools and possibilities that are presented in Internet technology with the electricity network to see just precisely where that can take us is an area where I'm certain we're going to continue to explore.

Again, Chairman Wood, I appreciate the work of you and your staff, and I appreciate the work of our staff in DOE for helping to make this happen. Thank you very

much.

(Applause.)

CHAIRMAN WOOD: It's nice to see the regulator and the department working together and I appreciate just for the work alone, David, and the hard work of your staff and our staff, especially dear Alison and everybody associated with this. Our good exhibitors over here, the attendees, all of you who stuck it out. I know that that cash bar is just dripping with that melting ice right now.

I thank the people in this facility. It's the first time I've gotten a chance since the inauguration to be in this facility. It looks a little bit different than it did that night. The role of and the need for demand response in wholesale markets has been an easy, ethereal idea like motherhood and apple pie. People are nodding along with it all the time. What today did for me, and I think for a lot of you, is translate that into real achievable what I call low-hanging fruit, so we can start.

And I think really, Gordon, it's not low hanging for you. You've already eaten it and digested it. But as more and more comes off the tree, that's a very important way to kind of bring to a concrete level what we're talking about here. As one whose kind of a hands-on engineer type, that's what I like. The ideas are great, but convert them into something we can actually bring out on the road.

That's how you get it out to the market. Thank you for that leadership by example.

I just want to thank not only New England ISO but the others that are evolving into similar type programs. I know there are obstacles to that that are economic based. They may just be inertia based, but people need to recognize that what we're about here is good markets that work for customers. Once that happens, everything else just sort of takes a second seat.

I appreciate the work right here at the very end that we talked about from RTEX. I expect to see many of those ideas integrated into the Commission's on-going standardized market design efforts but it needs to be more than just a flirtation. Demand response advocates such as you and others need to be involved on a continuous basis and I know that means money and time in D.C. or time on the telephone. But to get this off the ground, it's worth it.

We had a similar program at the retial level in Texas where we successfully standardized all the retail energy efficiency programs that were funded through a public benefit fund type mechanism and in order to reduce transaction costs so that customers get the ultimate benefit we did standardize them and it worked very well.

So I hope we can build on what I was intrigued to see was a number of very state commissioner willingness

today to consider the possibility of a multi-state or regional demand response program, templates that could work both in the wholesale and retail level, because as we've seen today, the lines really are quite blurry.

Finally, I just want to say, as a former state commissioner, and a current federal commissioner, I do appreciate the opportunity to work with state commissioners and their staffs on these important efforts to kind of move beyond the jurisdictional squabbling and just say, let's get something that works good for the people.

So, on their behalf I thank you and conclude today's meeting, and welcome you to join us all at the cash bar. Have a good evening.

(Applause.)

(Whereupon, at 4:35 p.m., the hearing was concluded.)