Electricity Advisory Committee Meeting

Sheraton National Hotel
900 South Orme Street
Arlington, Virginia

8:36 a.m. to 12:37 p.m.
Tuesday, May 20, 2008

C O N T E N T S

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P R O C E E D I N G S

Opening Remarks

MR. KOLEVAR: In today's meeting, we will discuss the objectives of the EAC and the creation of at least two subcommittees, one on implementation of Smart Grid technologies and one on Energy Storage.

The Energy, Security, and Independence Act of 2007 directed the Department to establish advisory groups on these two subjects. To facilitate greater coordination in the electricity sector and to avoid a proliferation of advisory committees, DOE decided to establish a general Electricity Committee with subcommittees on these topics.

The Committee and the DOE may, of course, establish additional subcommittees, task forces, or working groups that it thinks appropriate.

You will also hear and discuss two presentations, one from a senior analyst at the Federal Energy Regulatory Commission concerning wholesale electricity markets, and

another from the North American Electric Reliability Corporation concerning current and future challenges for reliability.

Finally, and perhaps most important, you will discuss possible EAC Analyses of work products that speak to the issue of continued electric supply adequacy. You may know it by another name, but the label is not important.

This nation will require significant and sustained investment in new electric infrastructure and generation, transmission, distribution, and grid management systems over the next 15 to 20 years if we are to rise to the challenges presented by growing electricity demand, carbon emissions, and climate change, and aging and inefficient infrastructure just to name a few.

These investments will involve much new technology. Some of it likely does not even exist today, and there are many obstacles to putting those new facilities in place in a timely and coordinated manner.

Developing a thoughtful, impartial, and coherent design for this new infrastructure will be a major challenge, balancing the need for greater project certainty is a prerequisite to investment against the necessity of local and community involvement in siting decisions is just one example of this.

The Electricity Advisory Committee can and should be an influential participant in today's public debate. It is a debate that has gathered force and attention over the past several years and is likely to be increasingly important, complex and urgent.

That concludes my formal remarks. Let me say thank you again to all of the members today and turn it over to our Chair, Linda.

MS. STUNTZ: Thank you, Kevin, and thank you all for attending this first meeting of the Electricity Advisory Committee. It is a great honor and a privilege to be asked to serve in this capacity and to look around the table and

see so many friends with whom I have worked in the past and colleagues whom I have admired both close up and from afar because of pioneering work that you have done in this field of electricity.

I am going to be brief, because I think we need to hear from you, but judging from the questions that came at the reception last night -- and again I thank all of those who were able to attend, I think the importance of this committee was well evidenced by the participation and attendance of the Secretary of Energy, the Deputy Secretary of Energy, and the Under Secretary of Energy, as well as our leader, who has developed I think the Electricity Office from virtually nothing.

Eight years ago, there was not an Office of Electricity Reliability, and to what it is today, which I think is both in research and development, and policywise, playing a very important role, and it is a great privilege to be here.

We are going to spend the next 45 minutes or 40 minutes

or so talking about the goals and objectives of this committee. I think Kevin did great job of laying out an overview of what the Department expects of us, and that is what we are here to do, is to serve the Department, but judging from some of the questions I got last night, I think it is fair to say what we have now, seven months or so left in this administration, what is it that this committee can do in that time, what happens to this committee in the next administration.

Let me at least set forth some of my thoughts on those questions and talk about what I would like and hope that we can accomplish today, and then turn it over to Kevin or possibly David to talk about next steps and next meetings because I think it is important for you all to try and get on your calendars as soon as possible what we hope to do the remainder of the year and what we need to do if we are going to accomplish the objectives.

I think as Kevin outlined, our sort of hypothesis going

in, and this is up for discussion, but we certainly will have two subcommittees, Energy Storage and Smart Grid.

Rather than spend the time today to allocate members to those subcommittees, what we thought we would do is ask you to self-nominate, if you will, your participation on those subcommittees within, say, a week after this meeting.

There is information on each of you. Often we talked about going around and letting everyone introduce themselves, but frankly, we didn't want to spend the time on that, so in the materials you were given there is contact information.

If you would let David and myself know, and also copy Michael, we will do our best to accommodate choices on that. We also would propose I believe in line with Kevin's speech to establish a third subcommittee, which would be the Electricity Adequacy Subcommittee.

We will not limit you to one subcommittee, but obviously, if everybody gets on every subcommittee, it isn't going to

be terribly productive, and based on my previous experience, and I know many of you have analogous experiences, it is the subcommittee that will need to pitch in right away and get to work.

So, I would ask you to think about those things nearest and dearest to you on which you can and will spend time to help write and review drafts and produce written work products, because overall I guess it is I believe, as the Chair, it would be my goal to have some work product available for the transition teams of the next administration regardless of which party it is.

I think most of us have been about this business long enough to know that many of these issues, if not almost all, are not partisan. They may be regional, they may be philosophical, but they are not particularly partisan.

They are enormous challenges that will have to be dealt with by any administration, and so if we can develop -- and we can talk later and we will value all of your advice on

sort of what we call them -- but we will just call them interim papers now or work product to present to those transition teams who will be coming in next January.

And (a) I think it will be -- and I have every confidence looking around this table -- that it will be helpful to those administrations; and (b) I expect that it will establish the value of this tremendous group as a resource, which any administration would want to continue in some form down the road.

I think that is important because as Kevin, David, and others would attest, it is not easy to get these things launched, and once you get them launched and all of you have made time to come and attend and make this a part of your busy days, I think it would be a shame to see this go.

So, it is kind of an opportunity for us now to show that we have something to contribute to the Department, we can assist the Department and the Government broadly in meeting these challenges, and we would do that at least

provisionally through these three subcommittees, two of which, Energy Storage and Smart Grid, do have specific statutory charters.

In the materials you were sent are sort of the statutory provisions from EISA, which set forth what is expected. Obviously, I would hope we would go beyond what is expected, but we know some of the folks in Congress who have key interests in those provisions and will be working with them as the work product is completed to make sure that we are responsive to what is requested there and serve the Department in that way.

With respect to the Electricity Adequacy Subcommittee, that is a matter that the Secretary and Kevin have asked us to address in particular, and I think we will need to work closely with you and with others as we proceed on that.

But that is sort of at least what I came prepared to talk about at the outset. I don't know if Yakout, who has kindly agreed to serve as Vice Chairman, if you wanted to add

anything.

If not, I would open the floor, Kevin, if you wanted to add anything or anyone else around the table, in terms of what you hope to accomplish, if that sounds like it makes sense.

MR. KOLEVAR: I will offer one brief comment and then turn it over to everyone else.

The Office of Electricity Delivery and Energy Reliability has been in existence just over three years now. I wish we could have stood this committee up earlier than we did. I will be honest, it has been a great challenge really building the office, the capability in the office over the last couple of years.

That, coupled with a couple hurricanes and some legislation that we have had to respond to, it has challenged what is a small office. I think we have risen to the challenge. I wish we could have formed this committee earlier than we did, but we got it off the ground when the

Secretary gave authority to the office to stand this up.

It is my expectation, my hope that this will continue into the next administration. Frankly, it would strike me as rather inconceivable that any future administration would not want to continue with the benefit of the counsel here.

We have done the best that we can to stand these things up. In traditional government fashion, they are never as quick as you expect they will be once you start the ball rolling.

It is my hope that this is a committee that will endure for a long time. It is my expectation that it will endure for a long time, and as I mentioned in my remarks, we have seen the issues of electricity adequacy, of siting difficulties, of the penetration of renewables.

Now, with some new challenges that we expect to see legislated at both the State and possibly the Federal level with climate change and carbon emissions, I expect that members of this committee are going to be very busy in the

future.

With that, I am prepared to open it. David, you wanted to take us in the next direction.

MR. MEYER: Linda briefly mentioned the schedule, that we have meetings planned now for September 25th, and that will be an all-day meeting in the Washington, D.C. area. We are shopping around for a place for that meeting.

We are planning a third meeting on December 10th, again in the Washington, D.C. area, and that I expect will be another all-day meeting because, at that point, the Committee will be close to its deadlines in terms of having product to deliver to a transition team.

A lot of the work in between these meetings will have to be done by conference call, probably at the subcommittee level or the working group level, and so we will make those arrangements as needed as we go forward.

MS. STUNTZ: Reactions? It's your turn to talk about what you think we should do and how we can most efficiently

operate to produce something along the timetable that basically has written products by December.

Jon?

MR. WEISGALL: Linda, a question for you and/or Kevin. Give us a better sense -- I have a clear sense on storage and smart grid -- give me a sense of what your thinking is for electricity adequacy. It is a potentially huge area. We may all have different ideas.

To me, I think of transmission, a key component, integrating renewables, simply dealing with climate change. I could see working groups within that subcommittee, but rather than throw out my ideas, Kevin and Linda, I am sure you have got some thoughts, give us a sense of what you see that group doing.

MR. KOLEVAR: This probably isn't going to be a real satisfactory answer, but I will give you the general sense of how I look at this and then kick it back to you.

That is, throughout the different regions of the United

States, we have different resources that can be brought to bear and we have different challenges in each of these regions.

As I mentioned in my remarks, when we look out 10, 15, 20 years, there is a fair question in at least some of these regions whether we will achieve the goals that policymakers in the various States have, whether they are a greater penetration of renewables, whether it is phasing out some existing kinds of generation, and to what extent will those plans and others affect electric reliability in those States.

That, to me, is a fundamental question that we need to answer, and I think it is incumbent upon this group to speak generally to the direction that we are going right now and to address the issue of whether we can expect, in the different regions of the country, to see reliability maintained at frankly what is the excellent state that it is maintained today.

Now, beyond that, Jonathan, I agree there are at least a dozen ways you could take that, and I want to be too careful about pushing you in a particular direction. My goal is really to benefit from the thinking all of you bring to the table and the diverse experiences you bring to the table.

So, while I see this as a significant issue that the Federal Government and the States are going to be wrestling with in the future, I don't want to prejudice this the way it goes. That is why it is probably not exactly the answer you are looking for.

I really would like to hear from the Committee, feedback, I mean do they think consideration of this topic is worthwhile, do they think I am all wet and they want to go in a different direction?

I can appreciate that may be the case, to the extent that you might want to look at this, then, I would be interested in the Committee's view, the members' view of how they want to take that issue.

MR. MANSOUR: I will just offer, I think, some of my perspective or our perspective of a recent experience we had in California. First of all, Kevin, if you started this committee three years ago, probably two years later we would have been working on obsolete things.

So, it is quite well that you started now, because now is the right time. Why is it now? We are actually all in a state of transition that is so significant and so important that if we do not do it right, the goals will get to supposedly the finish line with the wrong problem.

Transitioning from traditional resources, behavior, historical behavior on the demand side, to goals that have significant amount of renewables supported by infrastructure that have a different role than it had in the past where you have a lot of energy coming from intermittent resources, and you still need the fossil-based infrastructures to support to a large extent the new kind of resources, heavy reliance on demand response.

Demand response, in my view, is not just asking people to get off the grid in emergencies, demand response has to be every day, but how far it will go, and how the behavior will change, and whether that new role for fossil fuel generation is going to be enough to actually justify investment of that new role, to what extent we really don't know we can actually have in terms of, you know, it should be like this, it should be like that, but actually, what it will turn out to be we don't know.

In the meantime, the transition period, if we go with the old stuff and accumulate those investments based on the old behavior and the old model, until we get to the new one, well, we have something invested in transition that do not do the role and it will cost a lot of money accumulated over and above the other stuff.

When you get to the endpoint where you are relying heavily on demand and the smart grid, as a resource, how would we count it?

All of that, you see that the transition has to be engineered very carefully, expectation has to be set at least in the transition, expectation has to be set that there are some tradeoffs that we all have to face, otherwise, it will be a very expensive proposition, or you would get with products that would not take us to the goal.

So, as far as I am concerned, putting that subject on the table right now is very timely.

MS. STUNTZ: Others? Reactions?

MR. BARTELS: Another non-American national to give some international flavor to the group, but I think, let's say, in some of the pre-discussions, which happened, I think we all have had, we make sure that we are really going to be, and you might say there it is obvious, but how we are making sure this really is effective, right?

MS. STUNTZ: Right.

MR. BARTELS: And not only because of the new administration, whatever the administration will be, but how

can we really make this, as a committee, very effective.

Perhaps one thing I will offer up on the smart grid topic, and I am a little bit schizophrenic because I also represent the grid alliance, an organization for smart grid, and working very closely together with Kevin's office, and there is a lot of confusion in the market and industry about what a smart grid is, right?

So, as some people confine it to smart metering, some people confine it to transmission and distribution, some people add all kind of definitions out there, but I think, if anything, what we need to get out of the committee from a smart grid perspective I think is a key understanding of what we mean about the smart grid and as an enabling platform for many of the discussions think are so relevant.

So, that is just a thought I would like to offer up, so one is how do we make it as effective as possible as a committee, and, two, how can we get to a common understanding about what we mean with a smart grid.

MS. STUNTZ: Sue.

MS. KELLY: As I look around the table and see all the various expertises and organizations that are here, it is very, very impressive, which leads me to wonder, okay, why am I here.

I think what I can just see, the point I would like to add to this discussion is the need to be not only effective, but cost effective.

There is a lot of discussion about the smart grid, there is a lot of discussion about new technologies, but I think those of us that are in the consumer side of the business want to make sure that this is done in a cost effective manner and that we don't -- we have had a lot of promises to consumers over the past 10 or 15 years that have turned out not to be true.

So, I think that it is really important that we be cost effective and that we also be honest about what those costs are going to be. I think, you know, one of the things we

can serve as an advisory committee is to tell truths and to say if we are going to do this, there are going to be costs. Those costs may be justified for various reasons.

There may be environmental reasons, it might be efficiency reasons, but I am just saying we need to be measured and very careful and be very honest in what we tell people.

That is just my statement.

MS. STUNTZ: I think that is a very good point. One point that Commissioner Spitzer's adviser, who came to the reception last night, and I said, you know, I am so glad FERC is going to be involved.

Obviously, they have a lot of the levers here about which we are providing advice, and he said if you could just do education.

You know, it sounds sort of like apple pie, but it is something I would think all of our efforts need to keep in mind is there is -- and it goes with your point about

telling the truth, I think, Sue -- there is a lot of education that needs to be done about what it takes to do what Yakout is talking about, to integrate renewables to achieve whatever the goals are.

That is certainly something we need to keep in mind I think in our work product and how do you do that effectively. Those of you that are out working or those of you in the State Commissions, maybe you can help us with that, because you are dealing with it every day.

If you have laid out a very broad vision for sort of the adequacy part, usual eloquent fashion, one of the -- I know there are different takes on this, and one of the things I worry about a little bit, and I hope if we are going to come up with something meaningful, we are going to have to find a way to sort of bite off a piece of that.

I am not sure we could do it at quite that scale. One of the things I know when we were first talking about this, you know, there have been a lot of -- I think Chairman Kelliher

has been speaking about the large number of coal plants canceled and almost a little bit in terms of, quote "a dash to gas," which we know from the U.K. experience is that a place, not that we are going to get into resources when there is losers, but is that a place where this committee in that particular adequacy area could play a role in saying, you know, is there such a thing as being too reliant on natural gas for electric generation, or if we don't want to make judgments, what are simply the consequences of that increasing reliance on natural gas, is that a problem or not, why or why not. Is that a way to start looking at this resource adequacy question, or is that too narrow?

I mean to me, it is sort of maybe the other end, but I do think we are going to have a challenge to provide something to the Secretary and to you that is meaningful and yet I do think this is one of the most important things we have looking at us.

Jeanne.

MS. FOX: Thank you. One of the things that we were discussing with some people last night is the issue of natural gas, and I come from New Jersey, and the whole Northeast uses natural gas for heating for all our homes, that infrastructure is in place, it is not going anywhere.

Those homes, mostly New England, New York, down the East Coast, a lot of places in this country use natural gas for people. I am personally very concerned that we only have so much natural gas in our country, in Mexico, and Canada, and I am very concerned that we are using too much for electricity.

I understand environmentally why we need to do that, why it makes sense to do that instead of coal, obviously, but on the other hand, doing the conservation and energy efficiency, the strictest building codes, the strictest appliance standards that we can possibly do and everything else that goes along with that, and we have to try to conserve for future generations natural gas.

We know that LNG isn't going to be the solution because of the international situation, and so using more natural gas for electricity I think is rather short-sighted. We need to really plan out to not just 2030, but to 2050, and we really have to think about what is the most valuable use for that.

You also have whatever manufacturing that we have left to actually make the products. They use natural gas in that production, using methane from landfills for that production. We have some places in New Jersey where we have done that, so they are actually making steel using methane. They rotate it next to a landfill.

We have to be creative about that, but I think we really have to try to conserve for future generations, natural gas, just because of the current infrastructure.

MS. STUNTZ: Michael.

MR. HEYECK: Thank you. I have been trying to think about what to say that adds to the objectives or what

questions I have. I just caution that we don't incrementalize or extrapolate what we have today.

We need to think 2030, much like the wind report that came out, we need to think 2030 rather than 2012, and I say this because smart grid has as many definitions as there are people in the room, but at the end of the day, if we digitize and belt on technology, it's akin to a '62 Corvair that is digitized with belt on technology, but we are still stuck with the '62 Corvair.

The infrastructure we have today is aging, and the infrastructure is not where the future resources are. Again, we use wind as the opportunity there. The wind is in areas where transmission is not.

When we think about the grid, we must think about it in terms of renewal, as well as added facilities. We all see the press about the new facilities, but all of the RTOs and people that study transmission assume that the infrastructure there today is as good as it was when we

installed it, and it is not.

So, we have some advantages that we can take of the existing grid, such as rights of way and the infrastructure, but as we think about things, I would just like to see us not think about it in incremental fashion and create what 2030 is, and I do agree that definition or education of what smart grid means, so as we develop that 2030 scenario, what it is, what is it that the infrastructure needs, what are the infrastructure needs and then what are the policy needs.

My question is we have technology, but we also have the policy side, and sometimes the policy side ends up being the political side, and how do we separate the technology from the policy side or should we consider it in the same bucket as we develop our vision for whatever it is we have.

Again, I advocate that we look at 2030, and not 2012.

MS. STUNTZ: Is there agreement with that? Does that make sense? I think that is sort of where Yakout said it, don't be solving last year's problems.

MR. DELGADO: Just to add a comment to what Mike said, anytime you talk of an infrastructure, you are getting old. Of course, I remember I am getting old, too, and I like to save and replace things because they fail to work, not because they are getting old, but the fact is it is mostly they are just getting old.

There are some items that I would like to point out, as we are talking about particularly the issue of adequacy, I think almost every aspect of our discussion, we have to realize that we are blessed by great diversion in our country. The fact is that policy comes in two flavors, actually, it comes in 51 flavors, 50 States and 1 Federal.

I think it is very important to be very conscious of the proper functioning of each component. There is a failure when we ignore that, and that it is very important, too, that there be a certain sense of policy nationwide, while at the same time recognizing that also there is State policy.

Now, we are in the business of both policies given that

we are the meat in the sandwich between FERC and the States, and very conscious that we progress by agreement and coordination rather than by conflict, and that conflict is very much provoked whenever there is people ignored.

The authority that the States truly have or the Federals truly have, if I had a concern, it is that we do not oversimplify it. I think it is much more constructive when we realize that different components have something to bear, and that includes all of the components of this particular energy supply system.

In saying that, I always have to add for those of us who are very close to the Canadian border, is that in every aspect that has to do with reliability and supply. Canada has an important aspect of it to us.

I realize that it is not something that we can do. This is the Department of Energy of the U.S. Government discussion, but it is something that we keep in the back of our mind.

Were we to ignore the true authority that are there and the valid function of the different components, by that I mean the utilities and manufacturers and others, I think that, in fact, we would be oversimplifying and not doing much of a favor to the nation.

If we, in fact, were to ignore that most of us were very, very close to the Canadian border, the supply and the coordination with Canadian utilities is a major component of the whole energy adequacy picture, then, of course, we would be missing a humongous part of the reality which we deal with.

MR. KOLEVAR: Let me ask a question. I threw out the issue of resource adequacy and a couple of people have spoken to it.

Without getting into the specifics or choosing a particular direction for this as an issue of discussion, is there anybody that disagrees that we ought to be looking at this? Is there anybody that thinks that there is a more

timely discussion that we should be having?

MR. STANDISH: Kevin, to me, the adequacy issue wraps the other two, because what I think, I mean if we look at what is a smart grid trying to achieve, I think one of the major parts of that is energy efficiency and demand production, and that you are trying to get that passed. That is a source of adequacy.

The storage issue is a source of how do you get the renewables to peak and have a greater demand value to them through storage and being able to use it, that is an adequacy issue.

Then, what those two can't supply, then, you have got an incremental adequacy issue in between the two, and to me, I think it ties well together, but I think that we can take what the two charters of this are as far of the starting point for adequacy, to how much of that can we meet, do we think we can go with those two, and then how much is left and what are your other choices for going forward.

MR. WOOLF: I would agree that would be the sort of thing you can talk about reliability. I would like to look at this from a 30,000 foot perspective. To me, it boils down to three basic questions - how do we keep the lights on, how to keep the bills down, and how to keep the air and meet our environmental goals, and from those kind of very basic questions, we all know we are talking about supply and demand, and as we are thinking about supply and demand, out to 2030, I kind of urge this group to think big picture and think where we do we want to be and how do we get there.

Maryland is a deregulated state, and one of the things that we are genuinely grappling with is what is the structure to best get us to those goals. As a deregulated state, we don't see a whole lot of policy tools to make sure that we can meet those goals, and we are wondering will the market be able to send adequate signals to achieve those goals or do we need to go in a different direction.

If we are thinking big picture, if we are thinking 2030,

I think that is something that is appropriate for a national conversation.

MR. MANSOUR: When you say "structure," do you mean market structure?

MR. WOOLF: Market structure. Right now we have got 50-plus different structures in each different state. Should we have a deregulated system with ISOs sending market signals? Should we go back to a regulated system that a lot of the country is still under? Is there a different model?

This is a public good that we all assume will be there, yet, the structures are very different and all the businesses have to deal with very different environments, and if we are thinking big picture, if we are thinking 2030, I think it is appropriate to figure out what is the most effective model to make sure we are keeping the lights on and keeping bills down.

MS. STUNTZ: Let me just recap where I think we may be and then some of you perhaps who haven't spoken yet can

react and see if we have captured your views, as well.

There appears to be consensus on statutory subcommittees, Smart Grid and Storage, with a perspective to look out at 2030, big picture, as we approach the statutory direction there, and, third, that there is agreement that we should look at adequacy.

There will need to be further work on how that is defined, but again I think it seems to be the view, with which I fully share, that we should look at this from the big picture in 2030 and perhaps looking at it as beyond the transition, as Yakout suggested, with work to be done in terms of how that is further defined.

Is that fair?

MR. HUNT: Just real quickly, I completely support the focus on 2030, and I think that that is where this really ought to be focused on, but by the same token, I do think I should lend the point you and Susan both raised about relevancy today is very important, because I think we could

create some really wonderful long-term plans and visions.

And if we can't sell it in a shorter term, or at least lay out a road map that people can understand as to how we get from here to there, this will be another planning group that ultimately you can't tie back into reality.

I think it is a very big challenge for this group as to how do you lay out that vision and plan, and yet by the same token, make sure that the average consumer understands there are a number of steps that need to go into place to get there and we may have to approach these issues a lot differently than what we have in the past.

MR. ALLEN: Well, I think you make a good point, Hunter, and it sort of gets at something that I wanted to say. I think Yakout and Michael both quite appropriately raised the issue of incrementalism and thinking about the policy decisions that we might make now and do they then end up precluding better alternatives in the future, a very fair point, but we also have to remember that there is ongoing

investment that happens today, tomorrow, next week, next year.

Some of those investments will have the feeling of urgency about them. It seems to me that part of what this is group of really experienced people can do is to provide some insight for future policymakers into what has worked, what hasn't, a little bit of lessons from the past perhaps, but I think we also have to recognize and maybe caution ourselves a little bit that you can't toggle too much back and forth among different market regimes and hope to see investment happen, because capital is going to go where it's welcome.

We are talking about very, very significant investments. Some people calculate it on the order of approaching a trillion dollars between now and 2030, and so we have to I think sort of try to stay grounded in those things that we all know and bring to the table, which is the experience of actually trying to, as Malcolm says, keep the lights on,

keep prices just and reasonable, and think about environmental sustainability.

I will offer up one thing that I think is going to be a challenge for all of us, and that is, can we continue to support, between now and 2030, the price paradigm that has been at play in the United States on energy, and I will tip my bias.

I think that we can't. I think the people are going to have to come to grips with the fact that we have had in many ways artificially low prices for energy products, and the time for that is coming to an end.

MS. STUNTZ: Barry Smitherman and then Barry Lawson.

MR. SMITHERMAN: I am reminded that not too long ago I had a State legislator ask me why I couldn't do something about the price of natural gas. I think it is important, it probably goes without saying that we try to focus on those things over which we have control, and leave alone those things over which we have no control.

I don't think anybody in this room can do anything about commodity prices. I don't think anybody in this room can get the Nuclear Regulatory Commission to move more quickly in permitting and licensing the various applications that have been applied for certainly in my State.

As I think about my mission individually, and perhaps this is worth something here, I can speed up the development of transmission, I can invest in a Smart Grid, I can speed up the development of advance meter technology in my State.

I can do all of these things on the consumer side of the equation, and to some degree, bully pulpit the supply side, but to spend a lot of time on the supply side I think would be to some degree a waste of the short and valuable amount of time that we have to work on this.

MR. LAWSON: Thank you. Speaking on behalf of the nation's electric cooperatives, the number one focus for whatever work products or proposals that come out of this committee or subcommittees or working groups must be on

benefits for consumers. We cannot lose that focus in all the work that we do.

Adding on to what Sue said a few minutes ago about the cost effectiveness, we need to clearly identify the consumer benefits associated with any proposal, so in other words, that cost-benefit equation must be clearly identified in whatever we do as a committee.

Finally, of course, we must at least maintain level of reliability we have today or increase that.

Thank you.

MS. STUNTZ: Dian.

MS. GRUENEICH: Since we have as a given that one area that this committee must address is the Smart Grid and the storage battery, at least for me getting some better handle on what that encompasses would be useful to then understand how it can layer into what I think, Kevin, is an appropriate looking at the resource adequacy.

But in the smart grid we also have the joint FERC-NARUC

smart grid activity, and so I am frankly not clear what would be the scope of the examination of the smart grid that this committee would be doing versus the work that that effort is undergoing.

So, at some point today, or whenever, especially as we are looking at what role we may play on those other subcommittees, it would help me to understand what is the thinking so far about the scope of those subcommittees and the particular issues that they will be looking at.

Then, I wanted to echo what Tom had brought up, which is if you take that as a given that those will be a basis, it actually to me is interesting to think about looking at the storage and looking at the smart grid, what contribution, what issues, what barriers, what opportunities they provide in the context of the resource adequacy issue looking out to 2030, and then, you know, where do we stand overall after you look at their contribution.

The final point I will echo is what Barry said, the

transmission issue. Kevin, as you know, I very much welcome us getting some attention and some focus on that in the context of resource adequacy, looking out to 2030, because there isn't -- we have a lot of efforts going on with transmission, but really, to put it in the context of resource adequacy is a useful role I think this committee could play.

MS. STUNTZ: I want to go to Rob, Steve, and Bob, but first, Mr. Meyer would like to respond.

MR. MEYER: On these other roles, these other groups that are working on storage and smart grid, first, one member of the committee, Brad Roberts, from the Energy Storage Association, he was not able to be here today, I am sure he would be speaking very actively about storage matters if he were here.

In our office, we have one individual who works full time on storage. His name is Imre Gyuk, and he is truly an expert on this subject, and he will be the liaison to the

Storage Subcommittee, and a similar kind of functional relationship, Eric Lightner, I see in the audience, Eric, would you -- thank you.

Eric is our chief person on Smart Grid matters, and he works with -- there is a Smart Grid Task Force, an interagency task force established under the recent legislation, and there is this joint effort between FERC and NARUC that you mentioned.

I anticipate that the Smart Grid Subcommittee will need to reach out to that FERC-NARUC collaborative and coordinate with them, and understand what they are doing, but in the end, this group is advisory to DOE through the Smart Grid Task Force, the Interagency Task Force, there is the opportunity for the committee to amplify its messages to other agencies conceivably, but in the first instance, the primary audience is DOE and its Smart Grid activities, but it has a major role under the legislation as one of the handouts makes clear, that the Department leads the Federal

Government's overall activities with respect to smart grid stuff.

MR. GRAMLICH: I would like to second the proposal for education of this committee. I think that would be very helpful in that regard. I think keeping it simple because all of us know what it is like describing what we do to our neighbors and the amount of misinformation and lack of education among policymakers at the State and Federal level.

I think looking around this room, thinking about what we actually might agree to, could be very powerful, because we do have a good diversity of representation here.

One example, as Jonathan Weisgall pointed out, is transmission, and certainly from the wind industry's perspective, we are viewing that as our number one long-term barrier and we think it's important that the grid is something that we all share.

Various utilities and developers may have different views on which generation is better than other generation sources.

That is probably not a great source of very productive discussion to have, but we all need transmission, and I am hearing NARUC, and I fought NARUC for what they are saying about under any carbon constraint future, we are really going to need transmission, it is not just wind. Nuclear and Texas cull plants we might build various sources are remote. They are not as dispatchable as other resources, we are going to need transmission.

Then, I have one specific proposal for the third subcommittee that you described. I think, Linda, the consensus seems to be thus far, supply adequacy in 2030. I would like to propose two specific changes to that, change supply adequacy to reliability, because I think -- and Dave will be the authority here probably to speak on this -- I think there are some operational issues that are interesting and important, as well.

Yakout and the ISO, some of the operators could speak to that, but there may be operational issues about how to deal

with variable generation, for example, and other issues where operations, as well as adequacy might be important, and then change 2030 to carbon constraint future.

I think that is what people are saying when they refer to that time in the future, but it would be good to be clear before we all break down into work groups because if one person has a very different view about what type of future we are talking about in 2030, it might be good to clarify, so if it is, in fact, carbon constraint future, I think that will be a useful clarification.

MS. STUNTZ: Thank you very much, Rob.

Steve.

MR. NADEL: A couple of comments. I agree that resource adequacy reliability should be one of the committees. One thing I point out is the demand side should be part of that, look at demand side as a resource.

The other thing, people raised the question of Smart Grid and what are some of those issues. As I see it, a key issue

is going to be the cost and benefits and their balance of Smart Grid.

There are lots of different definitions, lots of different possible costs, you can gold plate it, you can minimize it, and everything in between, lots of different benefits, some of which have been more alleged than proven, but trying to cut through all of the rhetoric and saying what is going to be a most optimized type of system that will maximize benefits relative to cost I think would be something that would be very useful. There is an awful lot of hype going on.

Just in my own area with energy efficiency, I would point out that a lot of times people talk about smart meters and all the energy efficiency benefits. I have seen a few studies that I have found some, but most of them, they discount the price of power enough that they used up the energy savings and then some.

So, how do you do this in a smart way that really will

maximize the benefits.

MS. STUNTZ: Thank you. It sounds like a nomination for the Smart Grid Subcommittee. Those are good comments.

Bob and Vickie, and then we will need to move on to the presentations, maybe with a little question to think about during those.

MR. THOMAS: Thank you. I think this resource adequacy question is exactly the right question, and I think framing it as how the plans and policymakers affect reliability to the system is an excellent way to frame the question.

I think all we have to do is think back to when policymakers decided to restructure the grid or restructure the electric utility system, how that affected just about everything. It affected generation mix, it had the transmission system being used in ways the designers never envisioned for it, so it can have profound effects in this policy.

I think that the carbon legislation is going to do the

same thing. It is going to change how the grid is used. There are two other drivers to this change. The desire to become energy independent, energy security, is going to drive us toward new technologies and the integration of large-scale wind, TV, and all of those sorts of things, which will also change the grid.

I think the plug hybrids are coming and they are going to be an enormous driver of change. So, we have lots and lots of things on the table to think about, and I think planning the grid is critical, planning it for the uncertainty in the future, not only of the technologies that are going to come down the road, but the policies that are going to drive those technologies.

But I wanted to add another dimension to the resource adequacy issue, and that is the manpower question. The engineers that engineer this system are retiring in large numbers. There is every indication that they will not be replaced in the numbers in which they are leaving.

The education is going to need to change in the universities and everywhere else in order to keep up with the uncertainty in the future. We need to educate the new engineers in the sustainable future, and I think that should be a very large component of the resource adequacy issue.

MS. STUNTZ: Vickie.

MS. VANZANDT: I was thinking about the subcommittees and the electricity adequacy one, although the discussion has largely been about resource adequacy, I think that needs to include transmission, so a number of you have pointed that out.

The aging infrastructure that Jose talked about a little bit, we are just concluding a study in my company about the overhead asset, overhead transmission line asset, and discovered that about 94 percent of it was passive components, and that is in fine shape. It will last for 150 years I bet.

But the active component, 6 percent are things like

spacers and dampers and connectors, you know, not very elegant or interesting components, but nevertheless pretty important ones to keep what we have in place, available.

So, not to say that it's a Corvair, but we need part of the infrastructure or a vast majority of it, and we need to be able to transition to additional capability, and I believe there are opportunities for that.

We can get more out of what we have got in the ground right now, and I think largely measurements and some more sophisticated diagnostics are underway and helping, but it is also demonstrating a symptom of some problems in our three interconnections.

I think the eastern interconnection has just discovered through measurement, I think it's a half-hertz oscillation that they didn't know was there. It may have been there a long time, may be new. We had a-third hertz out in the West, traced that down finally to a power system stabilizer, so better measurements, better time tag measurements.

I don't know whether that sits in Adequacy or the Smart Grid Subcommittees, so I would appreciate some advice in that regard before we choose up what we are going to work on.

Then, Bob also made mention of the transportation sector is going to face some greenhouse gas stuff. I think the electricity sector is going to get a step function increase in load, and we are going to have to figure out what to do with that.

MS. STUNTZ: Thank you. I will let Bruce have the last word before our presentations, but let me do raise one question, because it was raised by your comments and some others, and Kevin and I have both been listening, and does the electricity reliability or electricity adequacy include transmission or do we need another subcommittee on transmission.

I mean we threw out three. There doesn't have to be three. There could be more pros and cons on that, but let

me let Bruce talk and then perhaps as you listen to the presentations from Mr. Nevius and FERC, and then we can return to that after those presentations.

MR. WALKER: Thank you, Linda.

It is interesting. It is difficult in many cases to segregate through the energy storage or Smart Grid and the electricity adequacy, but I think it is clear that that last piece of electricity adequacy does have a place for discussion, and, in particular, in the last couple minutes I heard some real key aspects including the transmission piece, which I think is really critical to that.

You know, we talked about the carbon constrained future, and Rob brought that up, and I think, you know, that helps get us past this incremental piece and really gets us to 2030, because fundamentally, I think that is a major driver, and I think that is important.

Rob brought up the work force availability, and I think that is a key piece.

The other piece I think which speaks to this area, which is I think important is our security aspect, as well as our reduced dependency on foreign oils and things of that nature, and I think as you start getting into this adequacy piece, that may be an area where we have some opportunity.

Clearly, I think it couples with the transmission piece, which ties in, you know, as a backbone for everything we do in the country.

MS. STUNTZ: Kevin, do you have anything before we move to the presentations?

MR. KOLEVAR: Let me just kind of give an overview of the major themes, and we have time to come back to this in the afternoon, I think after people have had the opportunity to chew on it a little bit and hear the presentations.

In terms of a general topic, it seems to me that there are kind of three ways to phrase it - resource adequacy, I heard what sounded to me to be an excellent proposal to actually kind of rephrase that as electricity adequacy, and

then the third area, Rob, is reliability.

So, we might discuss which one of the three we think is more representative of how we want to look at it. Certainly, the two subcommittees that we have now, Storage and Smart Grid, feed into any one of those three, and then we have the additional discussion about one or more additional subcommittees to feed into the larger one, topics transmission, topics could be again aging infrastructure, manpower. I mean we have heard a lot of discussion as to what that additional subcommittee could be.

Two other themes that we discussed, that we can pull back, are the longer term focus, say, 2030 vision versus near term, how do we maintain reliability in intervening years, education a strong focus, and then, Rob, I think a great point that we need to talk about is to what extent do we actually insert into all of this a focus on a carbon emission reduction, a carbon-free future, and I will turn it over to all of you to make that decision.

When I pull all of these things together, that is kind of where I see this falling into place. We have the FERC presentation now and we can pick this up I guess at 10:30.

MR. MEYER: Linda, I have a couple of quick remarks here. I would say that so far as subcommittees are concerned, I wouldn't go to the trouble of creating a subcommittee unless I felt it was something that was going to last as a focus for quite a long time. I think for other subjects you might want to think about just setting up, say, three-person working groups to produce papers on a fairly narrow subject. The papers could be prepared or drafted, prepared, circulated to the group. The group can review them, comment on them, and they can be put into final form.

There are many, many administrative ways that the group can organize itself to go forward, but I wouldn't assume that you need a subcommittee for everything that you want to give attention to.

MS. STUNTZ: Thanks. All right.

A presentation from our friends at the Federal Energy Regulatory Commission on the state of the markets. I will take responsibility for this. I thought that the job that was done at the March meeting, particularly the approach to this as sort of three electricity markets was really valuable, and something that I think a lot of people in that theme of education don't understand, so I appreciate you coming and look forward to the update.

I didn't get a chance to listen last week, so I don't know if you are rolling in some of that, but I heard that was good stuff, too.

FERC Presentation on the

State of Electricity Markets

MR. WHITMORE: Thank you.

MS. STUNTZ: Those of you, if you haven't looked in your folders, his slides are there.

MR. WHITMORE: First of all, thank you very, very much for inviting me. It's a great honor to be with really a

distinguished group of people. Let me just introduce myself. I am Charlie Whitmore. I am a senior market advisor at FERC. I was in charge of putting together a State of the Market's Report this year.

I think the most striking thing about the electric industry in the United States these days is that it is really three different market regimes. You can see in this slide the three regions that I am talking about.

In the Northeast and the Midwest, you have RTOs that have day ahead markets. In the West, you have a combination of straight bilateral markets and RTOs that do not have day ahead markets, and they look very much like ERCOT.

In the Southeast you have, in effect, a residuals market. Stuff just isn't bought and sold very much on the wholesale level at all. In SPP, ICE doesn't have any pricing points, and so I am not quite sure what to call SPP, so I am not going to call it anything at the moment.

The best way to see how these regions differ is to look

at how the bilateral markets are used. Now, bilateral markets are important everywhere, but their functions differ a great deal depending on where you are.

In the Northeast and the Midwest, the first two lines on the chart, there is essentially no physical trading on the spot market, day ahead and real time on the bilateral market. That is all taking place inside the RTOs.

Instead, what there is, is very high volumes of financial trading. Most of this is within the day and it is ways for people to see what is going to happen for the rest of the day.

Now, there is a lot of bilateral activity that takes place beyond the spot market for week and month, and so forth, ahead. This is just around the spot market.

What is going on here is essentially that the RTO day ahead market, as informed by its real time market, is the value setting price for power in the short run, also, accumulated over time in the long run.

Now, in the West, and in ERCOT, where some RTOs exist, and some places don't, but there are no day ahead markets. What you see is that there is a great deal of physical trading in the bilateral market, spot market.

Most of this is day ahead, and in effect, what is happening here is that people are using the spot market to create the stream of prices that will eventually determine what the value of the product is in the short run and also in the long run.

Interestingly, there is very little financial trading on the spot market in the West, there is a lot longer term. All of these numbers are from ICE, by the way, and it is not all of the bilateral market, but it's the part that we can see and it is almost certainly a big part of it.

Finally, in the Southeast, as you can see, there is essentially no financial trading on the spot market, and there is a very little bit of physical trading. It turns out that physical trading is very important.

For example, during the heat wave last summer, for the Southern Company whom we have talked to quite a bit about this, they normally buy about, oh, something less than 1 percent of their power on the wholesale market.

During the heat wave, they bought as much as 7 or 8 percent. So, as a safety valve in the Southeast, the bilateral market is very important, but that's what it is, it is a safety valve, it is not the sort of fundamental determinant of what pricing looks like.

Now, clearly, and this is stuff that I didn't talk about at the Commission meeting, but given the subjects that you are discussing today, I will talk about it now.

Clearly, these different market regimes have important effect on how investment gets done, and let me separate two values that I think we see typically for new electric projects especially generation projects in the United States.

The first is the commodity value, just the value of what

happens when you buy and sell the commodity every day. For that, in the RTO region, it is the day-ahead RTO price, but because of virtual bidding, that is tied at least probablistically to the real time price even though there are relatively few real time trades, only 1 or 2 percent usually, but through virtual bidding, you have tied the two together, not each day, but over time.

In the western bilateral market, you can buy and sell your power every day, so there is a value stream that shows up from the day ahead price, and that, by the way, is probably a more reliable way of valuing power in the West and relying, for instance, on the market, which appears to have relatively little relationship to the day ahead price.

In the southeastern market, you have to stretch to make this fit, because there really isn't a daily value that is getting established. There are many days when nothing trades at intersouthern, and there are whole regions there when nothing trades at all like Florida.

So, in effect, there are a few states in the south that do competitive procurements for power over the long term, and you can get something that is like a commodity value of what happens there.

Now, typically, people around the country have found that you can't entirely rely on the value stream of coming from the commodity value. Partly, that is because reliability means that we need to have reserves that other things being equal will probably depress the commodity price at least a bit, and so the result is you have to add to that a capacity value.

In the Northeast, that is the capacity markets. In the Southeast, mostly it's traditional cost of service regulation although there are variance on that. In the recent procurement that Georgia did, the Georgia Power agreed to absorb all of the risk of carbon law changes for the next 20 years and then they would share those risks after the 10 years after. Coal is so radioactive, to excuse

the phrase, these days that they, in fact, got no coal bids at all even with that.

Finally, the western bilateral market I don't honestly know quite how that second piece works there. I suspect it's cost of service, but I really haven't talked with people about it.

So, all of this makes a difference for what gets invested in, in the short term, and how it gets invested in. There is one longer term issue which arises because of, well, it's in line with the Georgia Power example I mentioned.

That is, that going forward you have huge systemic risks around both nuclear and coal, and in my view, none of these systems today, none of these regimes has been well tested as to how it is going to share our the risks between the buyers and the sellers, and so I will just leave that as an open question.

If part of our future is coal or nuclear, or for that matter other things that have long lead times and vast

expenses involved, then, we are going to have to work out a way to make that work in whatever market regime you happen to live under.

So, with that, thank you much. Questions, comments, thoughts?

MS. STUNTZ: Yes, Jeanne.

MS. FOX: Just a quick question. Who in the Federal Government, if at all, is actually studying, on the nuclear side of NRC, is actually studying these type of risks? Obviously, it's a lot of money. We are thinking about New Jersey, do we need a nuclear-based cogeneration plant. Obviously, places around the country are putting in, and I have said to my governor, it's an economic issue that we need to look at. Who is looking at these risks for the consumer at least point of view?

MR. WHITMORE: I don't know of anybody at FERC who is looking at. Jamie, do you? DOE?

[No response.]

MR. WHITMORE: That might be your answer.

[Laughter.]

MS. FOX: Jose was just saying it's a State issue, and I said, well, that's great, but we don't have the resources to look at that, most States don't. So, somebody needs to look at it. People are starting to put investments in, they are planning for these, and the Federal Government is getting some money, but meanwhile what is the risk impact on the consumers that I am responsible for?

MR. WHITMORE: I am not disagreeing with you at all. I am just responding to your initial question of what is the status right now.

MS. STUNTZ: I really appreciate, Charles, your coming and doing this. I think the notion of how different these regions are and the way the markets are structured, it is something that we need to keep in mind, although -- how does that fit?

Maybe I will ask all of you, not to be addressed now, but

one of the reasons to look out to 2030 is maybe we can kind of assume this all away, right? Because we will have evolved to something else by then, but I think we don't necessarily serve our charter well if we just -- if we do that, if we just assume that all away and focus solely on 2030 without worrying about or thinking about how we get there a little bit from here.

That maybe is the biggest challenge we have as a group, to figure out how to get beyond the incrementalist, but to me, this is not trivial, this is a big deal, and I think you properly called our attention to what it means in terms of new resources because it fits right into that adequacy question.

It may fit into some of the bigger transmission investments, which could be also long lived, high capital costs. I know Dian is dealing with those in California and elsewhere and others are as well in the Mid-Atlantic region where it is even more complicated.

Putting aside the siting issues, let's speak for the moment, these economic issues are very tough.

MR. WHITMORE: If I could, I think there is one other aspect of this that is important, and that is, we in effect have three different models, and we have experiences with all three.

For reasons that I have never understood, the electric industry often doesn't communicate across lines as well as it might. My suspicion, pretty strong suspicion, is that there are lessons to be learned from all three of these models, both good and bad. There are success stories in each one of them, there are problems in each one of them, and I think it is not so much a problem as an opportunity to learn how to make things work, because you can find somewhere in one of these regimes, ways to make almost anything work.

MS. STUNTZ: That's a good point.

Mike.

MR. HEYECK: I just wanted to add that all of these are grand experiments and I agree something is going to evolve. I just don't want to get bogged down in factions determining which model works.

What I would like to add is that we need to look beyond our borders. Others are trying to have experiments as well in Europe and in other parts of the world, so we should not just constrain ourselves to the United States in looking at these different models.

MS. STUNTZ: Anybody else?

MR. WOOLF: I just wanted to pick up on Jeanne's question about who is looking at this. If FERC isn't looking at it, if DOE isn't looking at it, if States don't have the capacity to look at it, and I agree that I don't think they do, to me that is a major -- I don't know if you want to call it market failure or governmental failure.

If this group, as we get kick-started here, is looking at electricity from a big picture perspective 2030, I don't

want to let this bog us down, but I also don't want to drop the ball, and I don't know whether it's a work group or a subcommittee or somehow, somebody needs to be looking at this, and if not us, I am not sure who will be picking up the ball.

MS. STUNTZ: Can I just clarify what we mean by "this"? I want to make sure you and Jeanne are talking about the same thing.

MR. WOOLF: Sure. I will throw my two cents out, which is if 50 years ago we were trying to design how are we going to provide electricity to consumers, no one would have designed the patchwork of market forces and regulatory structures we have got.

If we were looking out another 25 years, we certainly can't ignore where we are, but we should at least be cognizant of if there is a better way to do it, if we should be looking at a better way to design market forces. Someone needs to be looking at that question.

I mean the reality may be that we simply muddle through and we get there State by State, force by force, but that is a hard row to hoe, and if there is a better direction, if there is a better way we should be looking at this, if somebody in our laboratory of States of however we get there, if there is a better model, what better group than this to shine a light on it?

MS. STUNTZ: Okay.

PARTICIPANT: If I could, I thought the results of a separate issue that had to do with dealing with the risks of large capital --

MS. STUNTZ: I thought the focus was a little bit narrow, to be honest, which was the ability with any of these three systems to support large, long-lived capital investments that may be necessary for adequacy. That is the way I was capturing it.

MS. FOX: I thought you were talking about 2030 or 2050. We really need to focus on these huge investments.

MS. STUNTZ: Dian.

MS. GRUENEICH: To me, what is so interesting is how we do address this risk both of the markets and the large capital. Also, the other component is when we are looking at the Smart Grid, and when we are looking at energy efficiency, the amount of investment that is going in is huge, and those are areas where it is very dispersed, that I had the ability on the plane ride out to read one of the new reports by IBM that I would -- not to pinpoint them, but I would actually recommend reading, because it has a vision of where we may be evolving in 2030 in terms of Smart Grid, that I had not been able to conceptualize before. I think it is called the participatory regime, and it is basically a concept.

It is not just a world of the large power plants and the large transmission or the large renewables, but it is also a world with the consumers themselves having much more control and much more interaction, and what does that world look

like and how on earth are we having models whether it's attracting capital into the market where there are so many dispersed decision points that it is not just an organized market, and it is not just a regulatory system at the State level, and it is not just a DOE or a FERC or an NRC, but it is, in my mind, a whole level of complexity of both decision-making and investment in capital that is dispersed, billions and billions of dollars ranging from the very large central section, power plants, the very large transmission lines down to literally millions of consumers making investment decisions.

This is a model none of us understand: how do you make competent decisions whether it is somebody at a State policymaker, or whether it is somebody at the national level that will enhance and support this complexity, because I think we are just starting to even get a grasp of what it looks like.

MS. STUNTZ: Very good points.

Rob.

MR. GRAMLICH: There are so many things we could discuss and not get anywhere on them, I think one of those is market structure. I know a number of us would jump at the chance and fairly enjoy such a debate, but it is not going to get the group anywhere.

Similarly, what type of State regulatory model, whether it's fully integrated and regulated versus deregulated, I don't think this group is going to get very far on that, and moreover, I think there are a lot of States who would not view us as particularly helpful if we did say something about it.

MS. STUNTZ: Okay. David Nevius. How does NERC see the world?

NERC Presentation on its 2007 10-Year Outlook

and 2008 Summer Assessment

MR. NEVIUS: While Peggy is getting my slides, I want to thank you for inviting me to be a member of this group. I

see a lot of old friends and hopefully, I will make some new ones along the way.

I am going to go through these quickly. You have the slides in your handout package and I just want to make a few points on these.

Many of you, if not all of you, know what NERC is, what NERC has become as the electric reliability organization. One of the functions that we have under the Section 215 of the Federal Power Act is to assess and report on reliability and adequacy.

We have been doing this since 1970 and I haven't done them all, but I started with our seventh annual review, so if you do the arithmetic you will know I am 29 years old. The report we issued last fall was our 2007 long-term assessment, and the findings and recommendations are the ones I am going to highlight today, but I would hasten to add that we are well into the process of developing our 2008 assessment, and we are going to be taking on some new

issues, trying to upgrade the quality of the report to make it more valuable, and I think as this group progresses, and especially if you do have a Subcommittee on Electricity Adequacy, Reliability, Delivery, whatever it is called, we can work very closely with you and keep you advised along the way as we develop our own opinions on the situation, so I look forward to doing that.

The highlights of our report last fall were that electricity use is projected to grow more than twice as fast as the supply, the projected supply is to meet it, and we think that there are a number of factors driving this, but there is a gap.

You could look at it as short-term resource planning. In many cases, a generation is not planned more than three or four years in advance. There are some exceptions to that. Further, the system is being operated, not only the supply, but also the delivery system is being operated at or near its limits more and more of the time.

We are struggling for better ways to measure this, but we see it in a lot of different ways as we look at the system and its behavior.

This slide is going to look a lot different next year. We talk about capacity margins and we talk about something called committed and uncommitted capacity. We are not going to use those terms anymore, but we are going to have some different measures of what is certain and less certain projected capacity.

But what this chart does, and it will be a similar one next year, it shows when additional resources will be needed in order to stay at or above minimum target margin levels. This is the amount of installed capacity over and above peak demand that is necessary to provide for unplanned outages of generation and weather extremes that drive load above its forecast.

Some of the issues we highlighted in last year's report really focus on transmission. That is really, as I will

mention a little bit later, the critical enabler, whether you are talking about wind, solar, or this new wave of proposed nuclear power plants, transmission is going to be needed to integrate these resources into the system.

We need active support for investment in transmission and provide for the integration of renewables and nuclear units, and it is not always just transmission lines in one particular case, the addition of two new nuclear units at an existing site will require a seven-year program that replaces 35 circuit breakers to increase their short circuit interrupting capability because of the higher short circuit currents created by these larger units, and with 30-plus units going in around the country, there is going to be a tremendous amount of work needed to reinforce the grid to provide a reliable supply.

On the natural gas front, there is a greater degree of interdependence and maybe we are just realizing just how interdependent the electricity and the natural gas

industries are.

We are calling on resource planners and generation owners to really look more carefully and more closely at supply and delivery issues when they look at their resource adequacy assessments.

It is not enough just to have the capacity, but you have to be assured that you have the supply of fuel and the delivery mechanism. There are a couple of things that have just arisen that we are going to be looking at this year in terms of gas supply.

One has to do with some different business practices that the North American Energy Standards Board is working on, something called intra-day bumping. Now, most electric generators using natural gas do not have firm gas transportation service. They rely on non-firm service because it's usually not occurring at the same time as the other gas supply issues or other gas supply demands.

If there is an intra-day bumping, you could get bumped

off and your generator is down, so we have to look closely at that. There is another gas quality issue, and this relates to LNG. LNG has a higher btu content. It has to be blended with the other natural gas, and some of the newer combustion turbines do not respond real well when the gas quality is different than what they are used to. So, we are looking at that, as well.

This is a quote, Kevin, from a DOE report, which I think really ought to be kept uppermost in everybody's mind. That is, “transmission is a vitally enabling infrastructure of a reliable power system and its modernization is vital to the system of the future.” That was in January of 2004. I am going to go back a couple more years to a report that Linda is quite familiar with and read the last concluding statement.

The ride on the transmission system needs to be a smooth one that is not plagued by the country roads or arbitrary borders of a prior century or old economy. Much depends on

adopting these solutions. Linda knows what report it is. It is an Electricity Advisory Board Subcommittee on Transmission Grid Solutions in September of 2002.

I think it is one of many references that this committee could find very useful and informative.

I won't belabor you with what transmission is used for, you all know that. This slide is compliments of some of Bob Thomas' friends that work in the PSERC organization. It is based on some modeling studies. It just gives a sense of how we are using out transmission grid more and more, loading it closer and closer to its physical limits more of the time.

Then, compliments of the Edison Electric Institute, a couple of slides on transmission investment, which many of you have seen before. There is an upturn in investment from the last 25 years until now. There are more transmission lines planned to be added over the next 10 years than there were last year or a year ago at this time. About 15,000

miles are planned to be added over the next 10 years, but that still puts a small dent in the need, because the transmission development is lagging far behind the growth and demand.

I think the first two red bullets here speak to the issue of education. Several of the committee members have talked about the need for education. I think it is educating everyone as to the need and value of transmission. This is a large integrated machine that depends on all the parts working together. It is not State by State, it is not even country by country, because many of these lines cross international boundaries, so we need to look at that. Of course, NERC is going to continue whatever it can do to support work on the National Interest Electric Transmission Corridors and the approval of transmission that is planned to be built in those corridors.

So, the challenges, you all know that siting is difficult, it is expensive. Those of you who are in that

business, Jose was talking last night about the efforts of his organization to get approvals to build new transmission.

In general, I would say that the public policy process does not adequately recognize this interstate and international nature of the grid. It's an educational challenge we all face.

For our 2008 long-term assessment, we are going to be focusing on a number of longer term issues, but the number one issue -- and many of you have spoken to it this morning -- and that is, greenhouse gas reductions or a low carbon future.

We think that this could very dramatically change what the future looks like in terms of supply and then, in turn, it will dramatically change what our transmission grid needs to look like.

So, the final conclusions from the report. Transmission does provide this critical infrastructure for economical and reliable electric supply. We need to work together to

remove whatever obstacles are there, coordinate and accelerate the siting processes, and approve permits for new transmission.

I was asked also just to say a quick word about the summer assessment which NERC just released on May 14th. Actually, it's a pretty positive assessment. Capacity margins across North America look pretty good.

Southern California, as Yakout knows, is a little bit tighter than some other parts of the country. In the Southeast, where Gerry Cauley heads up the SERC Reliability Corporation, the drought that was a concern last year has eased considerably. We are keeping an eye on it, he's keeping an eye on it.

Coal inventories are a little bit below average. Gas supply is healthy. Demand-response, we see more demand-response being projected. Most of it is direct control, load management, and interruptible demands, but it is increased in most regions over what it was a year ago, and

we are seeing more wind resources contributing to the capacity.

With that, I will stop and be glad to answer your questions.

MS. STUNTZ: Thanks, David. That was an excellent effort to try and condense a lot of information.

Any questions? Rob.

MR. GRAMLICH: It occurred to me that I haven't heard much about the status of the recommendations from the 2003 blackout report that DOE and FERC and Natural Resources Canada put together.

There was an extensive set of recommendations. Obviously, EPACT with mandatory enforceable reliability standards were the main outcome of that, and that is moving along, but does NERC or DOE or somebody else have more of a thorough report card on whether we have accomplished all of the tasks outlined in that report?

MR. NEVIUS: There was a final report, Rob, by the U.S.-

Canada Task Force. We worked very closely with the representatives from DOE, David Meyer from FERC, Joe McClellan, and from Natural Resources Canada to finalize that report.

The task force felt that all the recommendations had either been implemented or were in the hands of someone who was identified as being responsible to implement them. Many of those fell to us, and were in the form of new reliability standards which we continue to work on.

So, the task force was confident that it could go away. If you need a reference to where to find that report, I would be glad to give it to you.

MR. GRAMLICH: Thank you.

MS. STUNTZ: Barry and then Steve.

MR. SMITHERMAN: David, I would just ask you to talk a little bit more about natural gas supply, because $11.00 natural gas would seem to be a little bit at odds with your statement about supplies being healthy.

Could you tease that out a little bit?

MR. NEVIUS: In terms of just this coming summer, our information that we gathered on supplies for this summer indicated that in those areas that are highly dependent on gas, that the supply is there albeit at a high price, but it is there, so we are not concerned about gas supply shortages for the summer.

A lot of the non-electric generation use, of course, is in the winter for home heating, so the summer is usually not as critical a time for gas supply as it is in the winter.

I could go into a little bit more detail, but I think I would just refer you to our summer assessment and the section in there that talks about the natural gas supply issue.

By the way, all these reports are on our web site. I would be glad to give you links or provide David Meyer or Peggy with the links to these various reports.

MS. STUNTZ: Steve and then Mike.

MR. NADEL: I am curious. You talk about committed and uncommitted and what you include in uncommitted, I am guessing that includes some power plants that have been proposed, but not yet approved, but doesn't include like RPS or energy efficiency requirements?

MR. NEVIUS: Well, as I mentioned, we have changed the definitions, and we are not going to use the terminology committed and uncommitted any longer, and, in fact, in our summer assessment we talk about certain and uncertain. You may think that is just a play on words, but we did redefine, and we had some specific criteria of what constituted a certain resource versus an uncertain resource, and it has to do with whether or not permits had been obtained to construct and operate those plants, whether transmission service was available, and so on.

So, again, the new definitions that we did use in our summer assessment and will use in our long-term assessment are spelled out in that report, but it does have to do with

the firmness or the level of risk that the resource may or may not be here.

MR. NADEL: And how does RPS and energy efficiency mandate fit into that?

MR. NEVIUS: The definitions related primarily to supply of new resources and to purchases. We didn't assign a risk level to RPS or energy efficiency. We do have another report that is coming out with some recommendations on the demand side and how to gather more information to get a better handle on all the different aspects of the demand side, and you will see more of that reflected in this coming report, as well.

MS. STUNTZ: Mike.

MR. HEYECK: I will put you on the spot, Dave. How are we doing with respect to reliability compliance, is the trend downward? I know we still have compliance violations in the industry, but how do you feel about that trend?

MR. NEVIUS: Well, as you know, Mike, we did a sweep of

all the standards and compliance with all the standards pre-June 18. June 18th was when the standards became enforceable. We gathered, I don't remember quite what the numbers were, maybe 4,000 self-reported violations.

Some of these were small documentation issues, but it was really sort of a cleanup across the board. Everybody reported what they felt they were not fully in compliance with. In some cases, we dismissed them. We said no, you are in compliance, you don't have to worry. In other cases, they submitted mitigation plans. We are tracking very closely or I should say the regional entities that we have delegation agreements with are tracking the completion of those mitigation plans.

We do have several confirmed violations with proposed penalties that have come through the system from the regions to NERC that are in the hands of the Board Compliance Committee for processing and the decision as to whether to file them with the Commission, which is the next step in the

process.

Some of these are violations with zero dollar penalties, some are violations with dollar penalties, and that is about all I can say at this point, but I would say that there has been a tremendous increase in attention by the industry on following the standards, making sure that you are in compliance with the standards, and maybe Gerry from a regional entity perspective, Gerry Cauley, if you would like to add anything to that, you are right in the midst of it.

MR. CAULEY: I think you said it pretty well. I think there has been pretty much of a significant awakening on the reliability front and compliance. We have increased the number of entities involved from 3- or 400 up to 1,800, so we are looking at new folks and it is going to take a few years I think to kind of close the gap, but we are sort of fine-tuning, not major issues that we are discovering.

MR. NEVIUS: But clearly, Mike, I think the consciousness of the entire industry has been raised by an order of

magnitude to the requirements of our standards and to the need to comply fully with them.

MS. STUNTZ: Jose, we will let you have the last word before we break.

MR. DELGADO: David, Barry asked you a question about the price of gas and how can $11.00 gas be healthy. Will you please confirm the fact that when the industry traditionally has looked at reliability, it never looked at price, and that continues to be the case? Adequacy or supply does not include price. We basically assume that if it is available, it will meet adequacy.

Whether or not this satisfies the different responsibilities that we have at the table, we realize that that is the case, but it is important to understand that. I am assuming that we are still not considering price when it comes to reliability.

MR. NEVIUS: We are still not considering price when it comes to saying whether the supply or the fuel supply is

adequate.

MS. FOX: Just real quick. We just had a major discussion this week in New Jersey about disconnections for failure to pay bills. They are going up dramatically around the country because of the cost. I think we have to consider if somebody has reliable service, if they can't pay for it, they don't have the service, I don't consider that reliable.

MS. STUNTZ: Thank you all for keeping your comments brief and being courteous to your colleagues. I think it was a good discussion. When we return from our 15-minute break, we will need to drill down more on the specific tasks of the subcommittees, particularly this energy adequacy issue we will collaborate with my colleague Kevin. We will try and assist in that discussion, but I think that is the major task is to figure out where we go with that.

As I said, we will expect you to nominate yourselves for subcommittees if you know already. I am sure David Meyer or

Peggy, who I should recognize here in the back of the room. You all know her anyway, Peggy Welsh, but she is providing tremendous support to the committee, and if ever you have difficulty reaching any of us, contact Peggy. Thank you very much.

MS. KELLY: I was going to ask that business question, to whom do we nominate, do you send an e-mail to David?

MS. STUNTZ: You send an e-mail to David. You can always send it to me, but to me and to David would be ideal.

Thank you.

[Break.]

Discussion of Electricity Resource Adequacy

MR. KOLEVAR: I appreciate everybody's input in the morning session. We let the discussion range pretty broadly in the morning session because I wanted to get a general sense as to whether or not we would start to find consensus on some of these issues, resource adequacy, other terms, and the like, and I started to see that emerge.

What I actually want to do now to kick off the discussion for the next 90 minutes is put a little structure around the Department of Energy's interests, the Office of Electricity's interests, and give guidance to the committee on where we go from here.

Let me give you my thoughts on this and ask for your contributions in this way. I am going to ask that the Committee undertake a couple of principles as we go forward.

First off, the primary purpose I think of the work that the Committee does is going to be to deliver a product for the next administration, that the next administration can come in and look at and use as a baseline for determining what policies, principles it will adopt as it looks to confront these very real problems.

With that in mind, I don't think we can afford to get bogged down in policies. The next administration and States are going to have to deal with policies, so I am going to ask that the Committee focus on objectives, broad objectives

for the entire Committee, objectives for the Subcommittees, and I am going to ask that the Committee focus on barriers.

Within that construct, I would ask that you approach it in this manner, and that is, assume for a moment that it's 2030, and I think Dave Nevius has heard me do this exercise before, so this will be familiar.

Assume it's 2030. We have the grid that we want without identifying what it is. Picture your own grid, National, Regional, State, and we achieved that grid. We came to realize that grid without sacrificing reliability in the intervening 22 years.

So, if you reverse engineer from that standpoint, what we can begin to focus on is what happened in the intervening years starting first now, let's say in the three-year or four-year time frame, what happened in the next administration, that started to lay the groundwork for that 2030 grid, and remember, did it in a way that we achieved all of our goals in the 2030 grid, whatever they may be, in

every person's particular interest, and did it without sacrificing reliability. We kept the lights on for the American public those entire 22 years.

So, with that in mind, then, let me give a little structure to the topical focus as we move out. We heard a couple of proposals, modifications of the term "resource adequacy" to possibly electricity adequacy, possibly reliability. Personally, I like electricity adequacy. I think that sums it up well and speaks to both sides.

We have two subcommittees now, one for Storage, one for Smart Grid, and I expect that as the subcommittees are filled out, they will identify near-term objectives. Certainly, Guido, you identified one already this morning.

That leaves then a third subcommittee if folks think that there ought to be a third subcommittee. I heard a number of proposals for what that could be, a Transmission Subcommittee, an Infrastructure Subcommittee, an Infrastructure Adequacy Subcommittee if you wanted to cover

transmission and generation.

Bob talked about manpower and some of the others. I do take David's point that there are a number of issues out there that can probably be addressed with a smaller working group. My own sense is that manpower is one of those, but I want to kick off the discussion now generally on the issue, then, two issues, one of electricity adequacy, principal barriers, principal objectives, barriers that were overcome if you assume this 2030 exercise, and then objectives then to be pursued to overcome those barriers, and I would also like to have a discussion and perhaps maybe we can go to the subcommittee discussion first, so it flows into the larger or we do it after, a discussion as to whether or not we need to have another subcommittee and feedback on that subcommittee, do we have an Infrastructure Subcommittee, a Transmission Infrastructure Subcommittee as a component of the larger committee.

MS. STUNTZ: Okay. So, I think for Storage and Smart

Grid, we have statutory charters. We have I think the definition in Smart Grid, and I think those subcommittees, as they begin their task, and we will talk a little later about how that is likely to happen, I would say that a lot will be done off line once we have them staffed. Also, when you nominate yourselves, nominate a chairman, each subcommittee will have a chairman.

If we don't receive nominations we reserve the right to pick one who, of course, will serve we hope whether or not they volunteered, and then expect meetings, telephone conference calls primarily, and exchange of drafts and outlines, and so forth, I think so.

So, what we really are left with then is sort of electricity adequacy, and I thought, Kevin, in a sense, if you look at the top, this is the Electricity Adequacy Committee, because all of what we do is about what I think it was Malcolm who said, you know, we have got to keep the lights on, we have got to do it at a price that is

reasonable, and we have got to do it in an environmentally sustainable way. That is really the charter for the advice.

So, we have Storage and Smart Grid are a part of that. They are a part of meeting those needs, which I would summarize as electricity adequacy.

The other part is what we are struggling to define and I think Kevin just helped, which is we need to have that 2030 end date in mind, but in order to come up with something that is useful for policymakers in the next administration, we can't assume that all the transition has gone smoothly and all those issues have been resolved by somebody else.

So, how do we get at that issue, I think we have all been a part of efforts where you look at barriers, what are the barriers, are there market structure barriers, not that I think we would talk about which is better. I agree with Rob, we don't want to get into that, but I think if our friend Charles is correct, that none of those structures appear to support long-term, high-capital investment right

now of any kind.

That is a barrier if you think, if we think as a committee that that is where we need to go to have the right grid in 2030. So, that maybe helps a little bit in terms of at least looking at the barriers.

We don't necessarily even have to agree exactly on what that 2030 grid will look like, if I understood your concept, but hopefully, we can agree on some of the barriers that will stop us from getting to what we think it should look like, and what are some things that we might be able to do about the barriers.

I, too, agree manpower is an issue, but I believe some of you recall the 2005 Energy Policy Act directed the Department to do a study on that. I think it was a pretty good study, so I think there are some things the committee can't do, and maybe as part of the discussions over the next hour, or should not do, as part of giving us an ability to focus on things that we can usefully do, so that we have a

product the next time around.

So, I guess my final thought is I would not, for me, I would not support breaking transmission out because it seems to me it is such an integral part of adequacy, of resource adequacy. If we break it out separately, you might get more attention on it, but the Department has done some good studies on transmission planning and transmission in 2030.

I will be interested in what Rob and some of the rest of you think, but to me, as Dave's presentation pointed out, it is such an integral part of providing adequacy, but to split it out just to have an Adequacy Subcommittee and a Transmission Subcommittee doesn't make a lot of a sense to me, but I am open to suggestions on that.

So, hopefully, some of what you have heard will motivate you. Why don't we, maybe just to make sure everyone gets a chance to speak, we will just go around the table. If someone has something that they believe is immediately pertinent to the comment that was made preceding, we will go

out of order, but again I would appreciate it if you could keep them brief, so everybody has a chance to speak.

MR. WEISGALL: Let me get started. A couple overarching points. I do think we need to have a paper that a transition team can look at, so I think the 2030 model is good, but I think we can reverse engineer with okay, here is what you need to do in this administration quickly to find your way to get on the road to 2030.

Number two, I think this thing should be readable and general. I think that falls in the education side. To me, Linda and Kevin, I see the whole committee as an electricity adequacy committee. I think that Smart Grid and Storage are parts of what I would see as an energy efficiency part of electricity adequacy.

I see an education component going back to Susan's original point of what's the education. We are headed to a low carbon environment. In 2030, that is where we have to be and maybe the education component is simply to spell that

out and to talk about the short-term and long-term impacts of that on our resource mix.

We have talked about the rush to natural gas, we are going to see that. We are looking at the constraints on coal short term. That's important.

I see a third component as transmission, again all under the rubric of electricity adequacy. I see a fourth component, something we haven't talked about yet this morning that I care a lot about of R&D. Again, I will just put it on the table, maybe people will disagree with that, but I do think that the Department of Energy needs to be telling the Congress and the White House that if we by 2030 want to have the low carbon environment, that our policymakers, both domestically and world wide, have decided we need to have, we have got to be spending the money on the low carbon technology especially to help the fossil area, not to mention nuclear, as well as some of the renewables, so we have got to get that R&D in there.

That, to me, is the structure I see of a committee, and I can see, therefore, under the rubric of electricity adequacy, subcommittees on the basic educational overview point of headed to low carbon.

2. The R&D.

3. Transmission. I agree work force is not a big deal.

4. Sort of this Energy Efficiency/Smart Grid/Storage.

That is kind of where I am going, and having worked on the AB32 ETACT Committee for Governor Schwarzenegger, in 9 months we were able to turn out a report by dividing into topics that were, you know, we sort of bit them off.

We had agriculture, we had electricity, we had transportation, and we were able to bring all that together into one report with recommendations both short term and long term.

MS. STUNTZ: Bruce.

MR. WALKER: You said a lot. I guess getting back to the barriers that would lend themselves to things that we would

have to overcome for 2030, I think from a generic standpoint, the concept of standards, whether it's in things like renewable portfolio standards, whether it's in Smart Grid standards, transmission standards, some of the standardization of our marketplace.

You know, I think those are opportunities or potential barriers that we would have to consider in our move forward during this evaluation.

MS. VAN ZANDT: A question for Kevin. When you describe the grid of 2030 and the entire power system supply and demand side and wires, I was agreeing with Linda that I don't think transmission should be broken out and studied separately because the structure we have today that separates the merchant function from transmission has kind of put an inhibitor on integrated planning, which pretty much needs to be the outcome of this picture.

I think that's it.

MR. THOMAS: Yes, I think that this resource adequacy or

electricity adequacy is an overarching framework for all the rest of the stuff that we are talking about doing - Storage, Smart Grid, whatever you want to do is really about that adequacy, so I don't think breaking out transmission is necessarily a good thing to do. I think these things are highly integrated.

I think that you can't consider one without the other. I do think this point about R&D is very important, and I think it does relate to the manpower issue. I think the manpower issue is, despite the report in 2005, there hasn't been a whole lot done is one of the big problems.

I think that the R&D is very much related to our ability to do the R&D, is related to the manpower issue very strongly, and I think we should talk about that in whatever we do.

In terms of the transmission system, I think that designing for uncertainty into the future is an important principle in which we don't know what technologies are going

to come down the road in 2030. We don't know what is going to be the game changers, but we certainly know that there are drivers that are going to cause us to operate very differently than we do now.

We don't know what the policy will be, we don't what the technologies will be. There is a lot of things we don't know. So, Smart Grid is a good beginning on addressing those uncertainty issues, but there are other things that we can do.

MR. STANDISH: If I think about barriers, what my mind went to was the barrier in the '60s of trying to get to the moon. If you leave the expense side unconstrained, you can overcome just about any barrier you have. You can just keep putting money at it, and you can make it.

Therefore, can you overcome barriers? Absolutely. Can you do it in an economical sense to get to where you need to go, although that makes the problem a lot harder, which I think then, well, what does that say? It says that there are

priorities then that have to be structured. I think that as you look at this issue of adequacy, what it really comes down to is priorities, and priorities don't remain the same for 22 years.

Priorities for the next three or four years aren't going to be the priorities 10 years from now, because all the dynamics and fundamentals will have shifted somehow.

So, I think what is difficult about this, what I think the barrier of how do you get there is how do you construct something so that as those priorities, as those economics change, as you go through time, it's dynamic enough to be able to respond to it in an industry that is so capital intensive, it does not respond well to any kind of asset changes, because once you make that commitment, you go to build a nuclear plant, I mean that is an expensive asset for a long period of time, and the dynamics move around it.

So, what I see as a real challenge of this is constructing the resource adequacy model that you want to

put forward in a way that is dynamic and allows those priorities to be able to be fluid as you go forward.

MR. SMITHERMAN: I would say that at the end of the day, I am not real concerned about us keeping the lights on. I think we will have adequacy because as prices rise, generators will move in to take advantage of those opportunities. That is the way a market works. It is not a bad thing at all.

What I am most concerned about is striking the right balance by empowering consumers to be able to react to higher prices by altering their consumption, and to do that we need Smart meters. Maybe we are going to need to empower the consumer with a tool that gives them an opportunity to respond to what I think is going to be a price signal that at times is going to be pretty high.

I think we should be careful to have as a goal reasonable prices, because really what we ought to be aspiring to is rational prices, because rational prices allocate resources

better than reasonable prices and I am sure we could probably all differ on what reasonable means.

But we have got to empower the consumer in my mind, and this is what we are trying to do in my state, so that they have some degree of control over their consumption and accordingly the price they pay for electricity.

MR. SLOAN: Last Friday, I chaired a discussion group on transmission technologies and public policies at FERC after spending the morning with Kevin and his staff, learning more about the research projects that are being funded by DOE and what is going on at Cornell and elsewhere.

What we really were focusing on that afternoon at the FERC was risk management and how do you get the PUCs and the elected officials and the others to allow utilities to experiment, and we will spend a lot of time, I do here and I do elsewhere, on Smart Grid.

Not everything that is coming out of R&D will work well the first time it's put on a system, so what we were

focusing on at the FERC was what policies do we need to address or what visions do we need to have that utilities can risk, the PUCs will be willing to accept the risk, and allow them to cost recover and even maybe earn, whether that is on demand side management or whether it's on Smart Grid or whether it's on something else.

But I would hope that some of those conversations and work products that are going to come out of the FERC discussion, if you excuse the pun, would flow through here, as well, in terms of how do we move the public sector. And by that I mean the PUCs, as well as elected officials who have to guide public opinion into accepting that yes, the utility bills will rise.

There are compensatory rewards presumably, but those entities on the cutting edge who are willing to try the new technologies being developed are not left at great risk and therefore adverse to making change.

MR. SANTACANA: It seems to me that if we start thinking,

all of us, about the grid of 2030, that we are going to potentially end up with 30 different visions, and that is going to take some time to try to convert all those visions into something that we can work on.

Wouldn't it be better to start with a set of criteria of what the needs of society, American society are going to be in 2030, some criteria that we can all converge on and then from there start looking at what kind of grid, Smart Grid, energy storage, transmission we need to have in order to satisfy those needs at that point.

MS. STUNTZ: Maybe, Yakout, you might want to respond to that. I think it's a good question, but I do think, you know, DOE has done a 2030 transmission study, and we don't need to repeat that.

We have agreement, and I think it's significant that we need to look at a 2030 grid that supports a low carbon or zero carbon economy, which will be significant in driving things. I don't know that we -- I think you are right and

yet I guess I hesitate to think that we are going to be able to agree upon, you know, beyond broad penance like that, to think about what we need to do in 2030, we could spend a lot of time and then not have any time to talk about sort of how we get there.

So, I don't know. Yakout, you have had some strong ideas on this transition.

MR. MANSOUR: Well, first of all, I hope that we don't end up, when we talk of the transmission issues, that we don't end up with saying we need to do a planning study or start to determine what needs to be done, because I can tell you there is hundreds of reports already on the shelves gathering dust, and if you put more than maybe a handful of people in the room and lock them, say what needs to be built, they can give it to you in a week, it's really getting them done.

We spent more money on studying what needs to be done than actually the cost of what actually needed to be done

over the last 20, 30 years.

So, there are other as I said in transitioning, the definitions are changing, the definitions are really changing. We talk about adequacy, and I am glad that we are trying to find a broader definition or a broader title, instead of results adequacy, just a generic adequacy and what does that mean under all of those variables that are coming at us, whether the result is tight, the behavior, the expectation, the reliability compliance, all of that stuff needs to be, quite frankly, redefined, so understand it well before we start saying, and then when we say it, defining it, defining it in a way that does not take us to the vision that we have see in 2030.

That is actually a most important question to deal with right now, so when we talk about adequacy, it is not just the results in terms of generation, but holistic adequacy that includes the type of new resources, the demand, the transmission, the jurisdiction.

Again, if we talk about even adequacy, if you look at the old definition of adequacy, nameplate of generation that's in there to load, and we have enough, that's simplistically, then, advance it, make it kind of some local, kind of localized kind of definition.

Now, we are talking about adequacy with new resources that's going to come across the State, a lot of interstate stuff that have very much interstate nature.

The older definition of adequacy, it was a State issue. Anytime the Federal tried to say adequacy or mentioned the word adequacy, anything Federal, the State will jump in their face and say no, that's a State thing.

Now, we are talking now about under even the new definitions of resources that are broader in terms of meaning of diversity, come from everywhere, is that jurisdiction valid, that it is a State.

You leave it to every State, what about transmission that goes through five States. Would any State in the middle

have the right to block that just because the transmission is going to go through there.

So, you are talking about now, we are talking about even things that have definition and are changing now, is going to have a lot of implication on what need to change if I am going to be standing at barriers of meeting that 2030, and if we do not change today, we will not meet that vision 2030, it will not address that.

That will be before we do studies in detail as to what really need to be specific, that need to be done to get us there.

MR. SANTACANA: I was thinking in much simpler terms than that, such as are we going to start thinking about the grid of 2030 driven by what is technologically possible, is it going to be as all the great points that were made here this morning driven by consumers and what is the lowest cost possible.

There is going to be a tradeoff between reliability and

cost, and at what point do we stop making that tradeoff and say no, this is the level of reliability that needs to happen regardless of cost.

So, it is not trying to define everything, there has already been studied and agreed. It is just some basic criteria that we just are going to, well, what is technologically possible from energy storage and regulatory standpoint. There is a lot of things out there, but they may not be feasible because there is an issue in New Jersey or an issue in Texas or an issue in some other states that may not allow that to happen because of the cost, because of consumer choice.

There is a lot of, you know, just basic criteria. I just don't know how to start looking, thinking about the 2030 grid without some parameters to constrain, to put some boundaries around the thinking and do something reasonable in a short period of time.

MS. STUNTZ: I guess I would just basically, you know, it

has got to support a low carbon economy, it does have to keep cost in mind. I think there has been agreement around the table that this is not about whatever the cost, and I think -- the other thing is it has to be sort of environmentally sustainable.

I don't know how to get too much more specific than that because I am certainly not smart enough to figure out what technologies are going to be around, but it seems to me with those overall drivers, we ought to be able to work back, remembering what Kevin said, and start thinking about what recommendations can we make in the near term to assist in the transition that gets us to that.

Dave.

MR. NEVIUS: I started out throwing a little matrix and then I added a third dimension, and when I got to the fourth dimension --

MS. STUNTZ: Oh, oh, sounds like an engineer.

MR. NEVIUS: Yeah, well, anyway, so my little Rubik's

Cube that I am at now, along one axis we have the physical elements of this electricity system. You have the generation including the fuel supply, you have the transmission, you have the distribution, you have the demand side management basically, the customer, and I guess I could put distributed generation in that bucket, as well.

Then, you have the people who operate this machine, the people and their tools, so they are the physical elements, and then you have a number of dimensions or factors that affect how those physical elements work together and how they will develop in the future. You have technology as an issue.

You have environmental requirements, constraints. You have the infrastructure, the equipment itself, and the availability of equipment. I mean I am hearing people talk about concerns that are being raised when they talk to their corporate purchasing managers about the difficulty of being able to get equipment. Even after you decide what you want

to build, can you even get it from the limited number of suppliers that are out there today, and is it going to be the same quality equipment.

There was an article about parts that were stamped with one name on it, and they really weren't made by that company, and then you have the work force issue. I got to I think Bob Thomas' point is still valid. There may be a little subgroup that works on that in particular, but I think that is part of it, too, and throw policy or regulation into the mix and then finally standards.

So, these are some of the dimensions of that, and then the third axis is time. Here is where we are now with respect to all of these physical elements and all of these other factors, technology, environment, and so on.

Then, the possible futures, and I think, Linda, you sort of outlined what some of the broad terms of reference are there in terms of low carbon, environmental issues, and so on.

Then, the barriers. So, that is the way I would kind of start thinking about it as a Rubik's Cube and maybe not all of these little squares get filled in, maybe some of them are null sets, but I think it is a way to structure our thinking, because otherwise we will just wander around aimlessly.

MS. STUNTZ: John.

MR. McDONALD: I think, like many engineers do, sometimes we look at the technology first, and I think one of the barriers with Smart Grid that I see right now and going forward is truly determining the value proposition, the business case for Smart Grid.

We know that the technologies that make up Smart Grid have a business case unto themself. What we are really talking about here is the incremental benefits over and above the traditional stand-alone technologies, and when we integrate these together in a new way, thinking outside the box, we realize additional benefits that we haven't thought

of yet, and these are the incremental benefits that Smart Grid can provide us.

So, I think technology is important, but I think we really have got to look at the value proposition, what is the business case in a completely different way with several tiers, one tier being the traditional technologies that make up Smart Grid, but the second tier is something new, new paradigms that we are thinking about in industry.

They aren't new from the point of view of ever being tried before in different industries. They are new from the point of view of being tried before with electric utilities, with the type of things that we are doing with Smart Grid.

The second set of incremental benefits. I agree the education component is extremely important. Anything new that we do in the industry, sometimes we jump to technology right away. We buy equipment and we put it in, and that's not a good first step.

The first step has to be education, because we need to

understand, we need to feel comfortable with anything new that we are trying, and many times we short-circuit that. We don't spend enough time on that.

One of the biggest barriers and challenges I see with Smart Grid is that it requires a holistic view in two ways. A holistic view within the utility, in other words, bringing together a number of diverse groups that typically do things on a silo basis.

They need to work together to a common cause. That is how we realize these incremental benefits of pulling together stand-alone, what have been traditional stand-alone technologies, but also a holistic view within the suppliers, within the team of companies that can supply the technologies, they need to work together also, integrating things together that haven't been integrated before, new analytics that we haven't even thought about before, bringing value to data, data that we have collected, data that maybe we even haven't collected, making use of that in

ways that we haven't thought of.

On the R&Ds side, we need to push technology, the R&D, to think bigger. I think a key problem is scalability of the technologies. A lot of pilot projects that we have. What we really need bottom line is incentives for utilities to take on initiatives sooner rather than later, but also particularly larger scale than pilots.

If we don't have a strategic road map in place in an organization, we tend to buy technology, put it in on a number of different pilot projects, and they never get anywhere, they just die.

Pilot projects are good or small-scale projects, but they need to be in the context of a longer plan, so we know when those are done, what the next step is.

Education not only for the suppliers and the utilities out there, but education for the consumers. I think that is really important. The grid is one thing, but the Smart Home to me is a whole new paradigm in itself, and to think that

it is very real today, that as a homeowner you could put all the clothes in the washer, put the soap in there, and program it, so that you say when the price of electricity is below a certain level, I want the washer to turn on, which may be a 2:00 or 3:00 or 4:00 in the morning, and you truly can manage the energy consumption within your home with all of the tools that you have available.

So, I think consumer education is just as important as utilities and suppliers.

Thank you.

MS. STUNTZ: Ralph, please.

MR. MASIELLO: Individual non-utility investors and customers are already taking the resource adequacy problem into their own hands with distributed generation and renewables especially, and we can't put that genie back in the bottle.

So, today the grid, whether it's transmission or distribution, is at best a passive element in their thinking

and at worst an obstacle. So, we have to think about Smart Grid as an enabler for what an unmanageable set of independent decision makers are going to do over the years ahead of us.

If we think of the FERC presentation, the markets are telling us that the investment community is not going to support a multibillion dollar one decision now for the next 20 years kind of investment. That trillion dollars isn't going to be available on that basis, so Smart Grid has got to be put together in a way that allows annual incremental decisions that adapt to the technology and to what the customers and the technology developments and the investors are all doing.

MR. NADEL: A few comments. First, I would point out I believe this is the Electricity Advisory Committee, not the Smart Grid Advisory Committee. There is more to an electricity system than just a Smart Grid.

I think I am picking up on what Linda said, that in terms

of resource adequacy in the broad sense, everybody here has interest in that, and maybe rather than having that be a subcommittee, that's the whole committee.

In terms of how to get there in terms of ultimately a committee report, I am leaning towards having a series of work groups picking up on some of the things that David said, small work groups, two or three people who get to draft something that becomes a straw man for the whole committee to react to at the next meeting.

I see work groups in relatively small areas. Maybe we can combine them later. I mean there probably would be Smart Grid, there would be Storage, there would probably be other transmission issues. We may start getting into individual resources like gas. There was a bunch of issues there, probably likewise with coal with nuclear with efficiency versus a load management at that level. Maybe we could even add a few whether it's education, work force, et cetera, but the idea would be each of these work groups before the next

meeting would draft two to three pages that would provide a straw man for the whole committee to debate.

I see them focusing in on where do we want to be in 2030, and then how do we get there. Maybe things that need to take place over, you know, call it quarterly periods or something, four periods before now and then in order to lay that groundwork, what are some of the key decisions points, et cetera, in order to get to those objectives.

I am thinking if we have maybe eight of those or something, you know, by the next meeting, we can really have a fruitful discussion, and I am sure it is going to get rearranged and grouped in different ways, but how do we tee it up to have a good full committee discussion.

MS. STUNTZ: Thank you. Good proposals.

Barry.

MR. LAWSON: While the time frame of 2030 is a very important one to be focused on for this committee, we can't ignore the overall set of adequacy issues that we are going

to need to focus us for the next 10 to 15 years.

There are many, many challenges we are going to face as an industry just to get through those years before we can get to those latter years around 2030.

So, we must focus on any product, any proposal that comes out of this committee, we really need to focus on the mid-term and the long-term dates, and make sure we are doing that to look how we can maintain reliability of the system at the most efficient cost for the consumer.

With regard to transmission being separated out from the overall adequacy issue, I am not sure that's a great idea. Transmission is a necessary element in any electricity adequacy proposal that's out there. There will not be a successful proposal without transmission being part of that equation. So, separating it out, I am not sure if that is the wisest thing for us to do.

From an R&D standpoint, in order to make sure the incoming administration understands what we believe to be

the priorities, maybe we need something along the lines of an R&D road map to present to the next administration.

That could be a product I think we could come up with, hopefully, without too much difficulty, but I think that might be very useful for the next administration.

Thank you.

MR. KOWENSKI: First of all, Kevin and Linda, after hearing all the comments, and I am sure more comments to come, I don't envy your job. My comment is going to center around let's keep it simple. You have a mandate, I think you have a mandate to look at energy storage and Smart Grid. Let's stay with that.

Second, November elections are coming up fast. Let's do something that presents the next administration with something by then. After that, I don't think it matters because I am not sure we are going to be around to do anything.

Given that, keeping it simple, educating the next

administration on these two issues and the public is I think what is important here. Why is it important to have a Smart Grid? What the potential costs and benefits are, and what is energy storage, why is that important?

What are the costs and benefits of that if you can do that by November and tell the administration why they should be looking at that, those two issues, I think we have done our job.

MR. KOLEVAR: Irv, if I can make one point. I am hoping to kind of put this issue to bed with respect to the status of the Advisory Committee after this administration. The Department maintains a number of advisory committees. I am not aware of another one that has been eliminated except for the Secretary deciding, Secretary Bodman deciding that he didn't need his own advisory committee.

Generally speaking, the advisory committees that you see at the programmatic level, that would be the Coal Council, the Petroleum Council, environment management side, all

enduring constructs. I would expect this would be the same.

MR. KOWENSKI: Okay.

MS. KELLY: I hope the next Secretary won't shoot us at dawn.

I just would like to make a few remarks based on what I have heard.

First of all, I am very gratified to hear that there is a recognition that cost effectiveness is an important part of our mandate and very much appreciate the fact that people have internalized that, thank you. I think that's good.

I agree that it is difficult to separate out transmission and generation when you look at adequacy, but I would also urge that we look at demand-response and demand side. It's kind of a third leg of that stool and look at it holistically. I think if we don't do that, then, we will be dismissed by the next administration as just a kind of a pro-industry group.

I think we need to understand how important demand side

and demand response has become, and make sure that we integrate that into our discussion fully of resource adequacy, because I think we won't have a lot of credibility if we don't do that.

I agree that we should probably not get into a holy war on what market design is the best one to have in 2030. I really don't want to go there, and I think this group would not be well served by doing that.

I think Charlie Whitmore did us all a service by kind of presenting us with the three models that are there and just kind of giving us a reality check that this is what we have to deal with, and I think our mission is to how to best get the investment that is needed out of all three of those models, going forward rather than arguing about which one is the best one, because they are the ones that have it.

The last thing I would like to comment on is we have got a lot of elephants in the room, market design is one of them, but transmission siting and generation siting,

especially transmission siting is another elephant in the room, and if we are going to have a reliable and adequate system by 2030, it's a little harder to dance around that one, because it really is important.

I just thought I would try and offer some small concepts as to how to maybe try and move forward into the great beyond together.

The first is, is that there is very much a tug between State and Federal, and perhaps the best way to bridge that gap is regional. That has got to be the approach. People at the State level need to understand that they are tied to their neighbors. The Federal level needs to understand it is really a series of regional risks.

So, if we could perhaps posit or support more regional look and more institutions that can give that regional look, then, that might be a useful way for us to proceed. Another thing is to try and broaden out the universe of entities involved in this.

There are entities who are interested in participating in projects and interested in building or owning or supporting joint ownership of transmission, and one way perhaps to garner more support within a region is to broaden the universe of entities that are involved.

There is more money at the table, there is more ability to influence, state by state, county by county, siting processes if there are more people at the table.

So, I just kind of put those out as some general ideas that might help us as we feel our way through the all important transmission issues.

MS. STUNTZ: Good. Thank you.

Hunter.

MR. HUNT: I really applaud the desire not to be prescriptive either in technology or structure in terms of what the view is in 2030, because the one thing we can guarantee is that we were all wrong in whatever our current vision is, and that the technology or structures that are

prevalent in that day might not even be in existence today, so I want to stay away from anything that is prescriptive.

I think as we focus on barriers, I kind of like the Chinese food and menu approach of we all have a different vision, let's try to figure out even the breadth of all those different visions, what barriers apply to all of those and really focus there.

That kind of goes into the broader I guess focus on barriers. I have a firm belief that really what we ought to be looking at are things that cut across all stages as opposed to things that are differences between States and ways of optimizing models, not just avoiding holy war, but also not really getting into the tweaking of if you only did this or that, we are in a better position.

Just an example of that, unbundling, or, you know, taking T&D out to where you can start to really push energy efficiency programs or what have you. A lot of people view that as back door deregulation.

Coming from Texas, we don't have a problem with deregulation, there are a lot of other jurisdictions that do. It seems like we could spend a lot of time, effort, and money on debates that we aren't going to make that much progress.

If you dip down into submetering, you know, there are applications of submetering that make money in New York that are illegal in the State of Texas. You know most politicians don't get fired from office over smaller issues. I guess what I am saying is there is a lot of low-hanging fruit that we could focus on.

If the first rule of winning a game is getting on base, you know, I think it is important for this group to focus on some of those low hanging fruit issues, have some relevancy on the map to 2030 that people can sink their teeth into today and move forward with.

One person that I think is missing from this table is a representative of debt financing on the issue of finance.

If you assume that virtually everything in this industry that is being done is financed over 50 percent with debt, half of every dollar of any idea that we come up with is coming from a financial source that frankly we have no voice for. We have a lot of equity folks at the table.

We may want to think about how we bundle that into this process. Finally, on the cost side, I think we need to stay focused on what can we sell to the American people, but again I worry about being too prescriptive on that and echoing Barry's comments, you know, Americans will pay premiums for value that is delivered to them.

The problem I think we all face right now is electricity is usually a God-given right. It is just something you plug your appliances into your wall and it works. I don't know if it's true, but I remember cheering about a poll they did at the height of the California crisis where they asked people where does electricity come from without giving them a list of choices, and number one was hydro, number two was

electric generating machines. It is comical, but it's a reality.

So, the education component I think is very important. I think if you share the view that the days of cheap energy, if they aren't over, they are certainly drawing to a close. I think we have our work cut out for us in terms of balancing out expensive solutions versus educating the populace that there is likely to be a paradigm shift in cost, and we need to get ready for it.

MS. STUNTZ: Michael.

MR. HEYECK: I would like to start where he left off. We are talking about cost effectiveness. I don't want to get the idea that we are talking about cheap. I am paying more for telecommunications now than I ever have because of the value it brings. Actually, the value it brings to my kids.

We need to look at the value proposition. What is the value for energy independence in the United States? I mean we moved from leaded gas to unleaded gas, and it costs us

money. What is the value for energy independence? What is the value to reduce liquid fuels for transportation by using electricity? What is the value of all these things?

Now, certainly, we need to be cost effective in providing that value, so let's not assume that bills are going to be cheaper as we move on or even at the same. It is not, but we need to bring the value.

Transmission. I believe we do need to have something focused on transmission, but not do planning studies. I agree with you, we have so many planning studies on the shelf. The problem is transmission today is just-in-time transmission. Cost allocation is micrometers measuring mud puddles.

We are in a Byzantine structure of cost allocation that is phenomenal, and in New England and in Texas, it has been solved, but in other parts of the United States, cost allocation is really a very difficult process.

The other issue, siting, certainly I am going to use the

garbage analogy, because in Ohio, we tried to stop garbage from New Jersey and New York, and we couldn't, because of the fundamental tenet in the Constitution being interstate commerce, but yet in a transmission, we can't site a transmission line that benefits interstate commerce because of the intervening states.

So, we need to develop some national solution with respect to siting and who pays. Basically the two barriers to transmission is who pays and in whose backyard.

In addition to barriers in our focus, I would like to add discontinuities or those changes that are going to create step functions in our view of electricity, such as plug-in hybrids, such as wind and the increase in renewables, such as the value proposition that is brought to the consumer.

I do believe that consumers are going to have automated homes. They are not going to sit on their laptop figuring out prices. We need to figure out what the discontinuities are because I think energy demand is not going to eke at a

1.2 percent rate. I think it is going to have a step function somewhere in between that we need to be ready for.

On the issue of the Committee, if we have an Electricity, what would you call it, Electricity Adequacy, I think everybody would want to be on that committee, and Smart Grid and Energy Storage would probably be trying to find a few people to sit on that committee.

I would suggest that we consider infrastructure and if there is some alternative to the supply side issue, or the demand side issue on the supply side, but admittedly, that is a dangerous topic, but I think infrastructure is important whether it's transmission or distribution, but I agree we do not need to develop the next planning study.

Lastly, when I mentioned 2030, it's nice to know where you are going in order to develop the road map, so there is no dismissing the intervening years to get there, but I think we need to know what the vision is, and then develop the road map to get there.

MS. GRUENEICH: I think I am going to echo the evolving concept that maybe we look at instead of a Subcommittee on Electricity Adequacy. That is a committee-wide approach, and what was suggested, that maybe we pick out the different areas, the different resources made sense.

As I have been sitting here this morning, to me, one way of conceptualizing this is looking at the year 2030, what can this group produce that would be informative to the next administration, to the next Secretary, as well as we are going to have many changes in Congress and throughout government.

The fact that the range of resources that we are going to have available in 2030 both on the supply side and on the demand side is going to be fundamentally different from what we have now and especially what we had 10 years ago.

We are in a transition state, but 10 years ago our range of resources was pretty discrete. I mean it was central station coal, it was oil plants now natural gas,

hydroelectric and nuclear, and now with the transmission and distribution, the world of 2030, while we don't know exactly what it is, we know with some parameters, is going to be a lot of different technologies on the demand side ranging from energy efficiency to Smart Grid to demand-response, a lot of different people controlling that.

We know on the supply side that we are going to have a lot on renewables, and then we are going to have some variation on our other hydroelectric and nuclear.

So, a basic concept I think to get across as we are looking at this is the actual range is going to be dramatically different. And what does that tell us then in terms of reliability, what do we even know about the reliability of a system that has major components of a Smart Grid?

What do we know about reliability, the system that has a lot of distributed generation? What do we know about a system that has to have a lot more transmission where there

is a lot of barriers and obstacles?

I guess that is how I would frame it in terms of what do we know about the reliability, what does the next administration need to start thinking about to get some of those answers, because we are not in six months going to give the answers, but we can at least posit here is where we don't know enough and where collectively, we think the Department of Energy should be focusing some of its efforts in the next couple of years.

So, that is my thoughts based on what I am hearing today.

MS. STUNTZ: Rob.

MR. GRAMLICH: Thanks. I fully agree with Ms. Grueneich's vision of the grid in 2030, so that would be a good place to start.

I do want to say I appreciate your comments, Kevin, about the relevance of this committee in the next administration. I think we all recognize at some level that there is great risk that we could be deemed irrelevant or we could get a

"thanks but no thanks" type of answer.

At least a different administration may come in with a very different conception of the types of resources or their vision of a 2030 grid, so for that reason, I think it is very important and I will echo Hunter's point about focusing on what barriers apply to all.

Some folks, we, in the wind industry, obviously think that the recently released Department of Energy report on 20 percent U.S. electricity from wind is the best future option, and that includes a lot of wind and then some capacity resources, maybe gas-fired flexible generation to meet the capacity needs, as well as the energy needs.

A lot of other folks, I have heard Kevin and Linda talk about large, long-lived, high-capital costs types of resources, and they may be part of the picture, took but I think we should try to avoid, as a group, debating those competing visions of the resources we need and again focus on the barriers that apply to all, so the common

denominators.

I think I have heard that transmission is a leading one, but we will understand through the process what we all find to be the main barriers that apply to all.

I would just like to submit one additional one now to the list. I tried earlier to change the term from "adequacy" to "reliability" in order to bring on the power system operation issues.

I will submit to you that I think in the future the challenge will be not so much meaning the peak summer hot afternoon on July 28th or whatever day, but more the day-to-day power system balancing needs where you may, if we have a lot of nuclear plants, they are going to want to run all night, if we have a lot of wind plants, they are going to want to run when the wind is blowing. The coal CCS may want to run all night.

We are going to have a lot of issues of who gets to operate at night, and that day-to-day power system operation

is going to be very challenging, and that is one area where Smart Grid and Energy Storage come in and become very useful to the power system.

So, I think again in that context, if we could include some form of power system balancing, and I think Dave in his matrix, which made sense to me, included system operation tools and infrastructure, and I think viewing the system operation's infrastructure as part of the infrastructure we need would be very helpful.

MS. FOX: I think this group will probably continue because it is critical to the future of the country and whoever the new administration is will see that, but obviously, the product that we need for the new administration is what we need to focus on in the next several months, but we could probably tee up for what they should be looking at a year from then.

I think the issue of near-term infrastructure investment where the capital is going to go, things are being planned

now, things are starting to be built now, looking at 2030 and beyond, and the cost effectiveness of that to the people who are going to be paying for it.

Even in the areas where we have a lot of market-based capital doesn't seem to necessarily be invested where you have a need, does it really have to get, so the capacity cost is so high producing it that people literally won't be able to afford it.

The affordability issue I don't think is something that this group should be dealing with, but it is something that I think we need to keep in mind, at least not over the next seven months.

It is something that the new administration will have to focus on, but I think at this point, for the next seven months, I don't think it's useful except teeing it up as something that we have to consider for those who are working class people in this country living hand to mouth.

They can't get to work now because of their energy

costs, and it is only going to get worse, but I don't think we should be working on that in the next seven months or so, but we need to tee that up.

Research and development and where that is going and where the money is coming from is a very scary thing. I think the Federal Government has to get involved in that, but I think that is also an issue we need to tee up, where is it happening now, where it has happened in the past, but has stopped happening primarily I think with utilities to a large degree, and where that money is coming from for these new technologies.

On the issue of whether we have another subcommittee or not, I can understand which we way we go, it doesn't really matter to me, but I think the issue of carbon constraints and how that plays in is major. That is definitely in our future, and the integration of generation transmission demand side all has to be looked at in that area whether as subcommittee or not.

Where the generation comes from has to be look at in the eyes of carbon constraint, the demand side of carbon constraint, transmission, we obviously need more transmission, how much we need, where we need it has a lot to do with what kind of generation we are going to be having and where that is coming from, so we really need to factor it in, and I think to a degree tee that up also for the new administration.

The issue of education is huge and somebody said, I can't remember who, that not just the industry has to be educated, and they do, not just the politicians, and they do, but changing our lifestyle, our behavior, our society, the American society, our culture is one where we use to a lot of stuff, as much as we can, and it shows that we are important people by doing that.

We have to understand that we have to downsize and we can have a good life, and, in fact, enjoy our life just as much, if not more, not driving a Hummer because my neighbor thinks

it's really cool, or, well, cataracts are getting better, they are getting better, and focusing on what our culture is and changing our mindset, that we understand that you don't always have to have bigger is better. We don't all have to be the size of Texas. I mean we could be like Delaware.

That education thing is a huge thing that doesn't necessarily have to be costly, but we have to get the experts who know how to do it, how to reach out to people, but we have to change where we are coming from culturally.

MS. STUNTZ: Jose.

MR. DELGADO: I will try to be brief. First of all, we are here to help DOE. That is the purpose of the whole thing. DOE has legislative mandates, let's get it done. Let's make sure we meet legislative mandates.

Regarding electrical adequacy, which is a term I like, electricity adequacy, it sounds good for many reasons, I would like just to say two things.

First, 2030 is not very far away. Now, let's understand

that. It takes us 10 years to put together a major transmission line when we do very well. In some places, we are trying to take a year out of it, and we feel very good about it, but we are already planning the lines that we are going to have to put in 2025.

So, I mean anybody who is planning for next year doesn't know what they are doing, you have got to plan, I mean we have been looking at 2030 within a year. From our perspective, that is an issue.

Then, the second one is let's focus on what the Federal Government can do, because we are advising the Federal agencies and the Federal administration.

Let me suggest to you that not only 2030 is not too far, but that the wires will still be up, the cars will still run on wheels, and power plants that we have chances are will be running. Okay.

The Constitution will not be very different from what it is today. States will still have authority over most of the

stuff that has to do with adequacy. So, what can the Federal Government do? They can regulate, we can legislate, we can provide encouragement, tax, R&D, and then there is a fourth one, which I would like to suggest is exercised more individually. We provide leadership and coordination of activities of States.

I think this is an area which I would like to have a chance later on to talk about in great detail, how a Department like DOE can not only provide guidelines to what the Federal Government can do in legislation, regulation, and encouragement, which are the things that government does, let me put it this way. Besides that we can attack somebody, but we are not going to do it. The military is totally busy right now.

The other one is that we, in fact, can also look at the fact that there is a serious necessity for coordination, and we just heard from fellow friend and commissioner here that the commissions don't have resources for doing certain

things which are required.

So, there appears to be that there is room for Federal agencies to provide leadership, coordinate, encouragement in order to make sure that the components that have authorities such as State Commissions, can, in fact, work together.

There is no original law in the U.S. I am not a lawyer, and I don't think we are going to get it, however, States can voluntarily collaborate under the leadership of the Federal Government. I am eager to go that direction. I think States have taken great leadership, I think the Federal Government can support it. I think we can do a lot in that direction.

With those two things, time is short, and let's make sure we focus on what the government can do, which is limited but powerful.

MS. STUNTZ: Thank you.

Gerry.

MR. CAULEY: When I first heard Kevin's description of

the problem and how we are going to go at it, I was a little bit struggling with that in terms of what we could really accomplish, but I was encouraged by a lot of the comments I heard around the table after that.

I think sometimes we can be our own worst enemy, but in two respects we can be our worst enemy. One is in terms of the consumers and their expectations. I think we have gone through at least decades at this point where consumers expect that electricity just comes out of the plug and it is as cheap as it can be.

I think to get where we need to go we need to have a new realization of what it is to be energy independent and also to be able to co-exist with the environment, and what does that vision look like.

I think that consumers need to be a part of that solution and need to recognize that prices may change over that time. So, one of the things we need to do, and I heard somebody else say it, is figure out how do we make consumers part of

this and empower consumers.

I think that ties in, instead of technology buckets like demand side or Smart Grid or this or that, it is what can we do to remove barriers to empowering consumers to make cost effective decisions, and decisions that will make their lives better.

I think the other area where we are our own worst enemy is in the area of policy, and I was taken aback a little bit by Kevin's statement that we don't want any recommendations or any guidance on policy.

But I think one of the biggest barriers we have now is that we are existing under an utter hodgepodge of policy at every different level. I mean it cuts across environmental and energy, consumers, and so on, and it cuts across Federal and State, NERC and standards, so we really have not been able to converge on a vision and a policy to get us there, and I think the continuation of existing hodgepodge is going to be problematic. It will be our biggest barrier I think.

I think if we continue responding to the next environmental policy or the next oil crisis, then, we are not going to get to where we need to go.

So, I have a couple of suggestions. One is I think we do need some kind of broad, not specific at all, but some kind of sense of a vision, you know, that we need to have sustainable fuels, that we need to be able to co-exist with the environment.

We need to allow consumers to make choices and things like that. So, whatever that broad vision is, it doesn't even have to be the right one, it doesn't even have to be the one that we plan to get to, but if you can lay out a vision like that and think about how do we get there, it will tell you what the barriers are that is going keep us from getting there, and what are the enablers that we need to put into place.

For me personally, I think the enablers of getting there are really two, and everything else fall under these

categories.

One is enabling or empowering the consumers, and the other is empowering the investors, and all this stuff about siting and risk and whether it's one market or another, I think really fall under those, how do you get smart people.

We don't have to make a deterministic road map, we don't have to have a precise endpoint, but how to remove the barriers and encourage people to invest, and how can you encourage consumers to make smart decisions with something in mind down the road that we are going to recognize electricity is different than it is today and has been in the past.

MS. STUNTZ: Guido.

MR. BARTELS: As we say in my country, I also don't envy you your task, because listening to all the good input, how do you make chocolate out of all of this, I am sure that doesn't translate.

But on a serious tone, I think being here in U.S., I

heard a lot of descriptions around matters of national importance. I always look, when you look at infrastructure in general, I think in U.S., you are looking at a matter of national importance whether it's your energy infrastructure, your road infrastructure, your air traffic control infrastructure, your health care infrastructure.

I travel a lot around the world, and it is clear that the other geographies are not sitting still. I think in China, there is a lot happening under the radar screen, and I think if you look at what they are putting in, in terms of intelligence in their grid, I think it's pretty astonishing.

I am sitting here, although it says IBM, as chairing GridWise Alliance, many of you are members of that organization, and we believe that Smart Grid is a key enabler to transforming the National Electric System, a point I would like to emphasize there is that I heard one of the other members say, well, it looks like the Smart Grid Committee, and not Energy or Electricity Advisory Committee.

I think Smart Grid looks very much as an enabler, and I heard that from other speakers also, a critical platform to enable many of the things we talk about in this committee.

We talked about in the long-term vision, 2030 vision, you need a road map, but you cannot map out the whole road, and there are so many absurdities down the road, that one thing you do need to know is that you need flexibility, and if that flexibility needs more intelligence in your energy value chain, so that you are able to adapt along the road.

I do agree you need a long-term vision, 2030, clearly, and we talked over breakfast a little bit about that, your man on the moon, and then if America sets its mind to something, it can do anything, but I think you do need that long-term vision.

Standards, as IBM, we are a little bit like a converted alcoholic when it comes to standards. We were a company, notorious route for prior resistance. We have learned our lessons there, and many IBMs will find our converted

alcoholics on the topic of standards. I think if you want draw investment and ideas and talent into an industry, standards cannot be overemphasized in terms of importance.

Last but not least, no, I didn't pay off or tip off to make a comment about the research my company has done, but I think empowering the consumer, and I think, Barry, you used those words "empower the consumer."

One of the analogies we have done in that piece of research is some other industries, like, for example, the media industry, so we all, I think we are all kind of the age that we do remember at the time we have a couple of channels to watch television, we got cable, and we had hundreds of channels, and we were able now to produce our own content, the consumers want choice it is clear in every industry.

For them to have choice, we need to enable them to act on that, and at means the Smart Grid environment. So, as somebody said here, it is easy to get people into the

Electricity Adequacy Group, and more difficult to get somebody in the Smart Grid Group, I think it is clear where I am volunteering for.

MR. ALLEN: We are sort of getting to the part where it's like a congressional press conference, where everything has been said, but not everybody has said it.

I do want to associate myself and our company with a number of the things that have been said here. I think it is especially interesting and important that we have had this discussion about sort of cost effectiveness and value proposition, because while Commissioner Fox is right, we are not going to solve the affordability thing in the next seven months, we definitely can't ignore it.

It is essential to the discussion about what can be done, and particularly so because if you think about the real world implications of a low carbon economy in 2030, I think there is general agreement that it could be quite expensive and what is really important there is not to try to avoid

that price signal because if we seek to avoid that price signal, we will not get the technologies that we need to be truly addressing the problem, and we won't get them to be efficient.

We do have to recognize the fundamental regressivity of it, though, so that whether it starts out as it seems highly likely to do as a cap and trade regime, at the end of the day, at the consumer level, it is a tax, and America is going to have to have a difficult dialogue about what to do about that tax and see that it doesn't end up hurting a lot of people.

So we have a big dilemma and I think that is one that needs to be teed up for the next administration in reasonable stark terms.

Having said that, there is also a great opportunity for job creation and for transformation of the economy, so that the value proposition of Smart Grid and cleaner and better technologies is actually I think quite high, and

particularly if the public understands that what they get for their potentially much higher prices for energy is greater environmental quality and a renaissance in American jobs.

All of those things are really truly achievable if we put our minds to it.

We need to identify I think some gaps as well as barriers for the next administration to focus on. In this country, because we have had a little bit of de-industrialization, you might say, there are some fundamental aspects of the American manufacturing sector that are just gone.

My company has a joint venture with EDF and Arriva and a number of other international companies to try to build new nuclear plants. Well, there is only one place in the world where you can get the heavy forgings needed to make the reactor vessel heads, and that is Japan Steel Works.

So, as the next administration and this administration wrestles with issues pertaining to how to do some of these

transitions, we have to recognize that energy and dependence has a lot of different meanings, and some of them I think are really quite a challenge.

So, in that regard, it would be helpful to know a little bit from DOE, and to I hope have some dialogue at the full committee level here, about what DOE feels its current suite of programs and structures are that can help to address some of these problems.

R&D has been mentioned and I would like to know more about how the National Labs can play into that and what DOE's thinking is around that, so that as we have our dialogue here at the committee level, we can undertake all that.

I guess, then, I would just like to kind of conclude by signing onto the peace agreement and the notion that this is not the place where we can resolve a lot of market structure issues, I think that is correct, but I do think that FERC's presentation today may be at a slightly more granular level,

ought to be incorporated into whatever it is that we hand the transition team, so that they really do understand that we have got these sort of multiple arrangements, they are all flawed, but they are what they are, and you can't ignore those realities, you are going to have to deal with them and then we will have other forums for airing our thinking about where we ought to go next.

MS. STUNTZ: I appreciate that, Paul, and we hope at the subsequent meetings to, in fact, we had talked about having some lab involvement doing R&D, but as you have ideas about things that would be useful to you to hear, let us know, let David know, let me know. We will be pleased to try and work it in.

I am cognizant that each of you has taken time away from important positions to be here, and so it has been my view that we needed to hear from you rather than have a lot of -- listen to a lot of presentations, so we want to keep that balance, but certainly things that you want to hear.

MR. ALLEN: Quickly, before I relinquish the microphone, I do want to say Hunter really made an excellent point about debt financing not being at the table.

MS. STUNTZ: Kevin and I talked about that briefly, and it is obviously up to the Department. You know, my initial response was if you asked Jose about what is going on in the debt market or anybody from these major utilities or Mike about what is happening, they know a lot about that, because they are trying to raise capital, but certainly if it's something that you think we need, we can do it.

MR. ALLEN: I would be happy to speak for them if they will let me -- no, I mean for the debt market.

MR. MEYER: The Committee has the latitude to consult outside experts on an as-needed basis on any subject. That is one way to deal with this problem. Another way obviously is to put people on the Committee who have that kind of expertise.

But, in general, the point is that with the Committee

with as potentially diverse a range of interests as this, there is no way you are always going to have the talent that is needed right at the table, but I think many of the people here have run into this kind of problem before where they say I or we do not have the expertise that we need, but we know where to get it, we know who the people are, we can reach out to them.

So, identifying the needs, we will find a way to bring those people into the discussion.

MS. STUNTZ: Last word before Kevin.

MR. WOOLF: Always good to have the last word.

Let me kind of congratulate Secretary Bodman and Assistant Secretary Kolevar for putting this together. I think this is great to have a vision of let's give something to the next administration.

As I sit here and have listened to all your comments, I think we have had a group assembled and I think we can really produce something that is of value.

A couple of thoughts that I think have been said, but add a slightly different twist. From my perspective, what is success, what are we spending our time doing here. I think if we have a broad vision, but give the next administration something that is very practical, very concrete, they will use it.

If we talk about affordable, reliable, clean energy, and leave it at the kind of platitude level, it is going to just collect dust on the shelf. So, I think that is our challenge, is to make it concrete and real.

In terms of process, leave that to you. From what I have heard, it sounds like we need something on grid, something on storage, whether we have a third subcommittee on infrastructure or electrical liability, whatever we call it, it sounds like we need some kind of catch-all that could have all the work groups, that can deal with the work force, R&D, and all the other groups that are needed.

I did want to throw out a couple of ideas with respect to

barriers, building with a slightly different twist on what has been said. I think we all recognize the need for education.

I come at it with a somewhat cynical perspective, though. The inconvenient truth is that the American consumer is inconsistent. We want cheap, affordable, clean power, but we are not necessarily willing to sacrifice to get it.

We all want lower bills. How many of us have actually put insulation in our homes? We all went energy independence, but we are meeting here at a hotel not easily accessible by mass transit. There are all sorts of inconsistencies in our own life that we have had to deal with, and there is a limit to how much education is going to be able to change that, which is why I really like the idea of empowering investors.

I think that is the way you get real transformation, is you don't rely on millions of people to make millions of different decisions, but you have really got to do it at a

macro-big scale.

To me, unfortunately, I see questions about market structure as a barrier to that kind of investment. I know this isn't going to be the forum at which we resolve those issues, but I think we do ourselves a disservice if we don't flag it as a barrier and at least recommend some other process under which we deal with some of those issues, because I don't see how we get the trillions of dollars of investment if we continue to have all sorts of market uncertainty and market structures.

So, with that, I look forward to process.

MR. KOLEVAR: Thanks, Malcolm.

This has been very helpful. It has been very interesting to hear the evolution of remarks as we went around the room. Really, we started talking, when folks on this side of the room were talking, the focus was more on what we need to avoid, what we shouldn't be doing, things to stay away from, and gradually, right about the half point, it kind of

flipped over and we started focusing on the things that we ought to be doing.

I will say I am a little surprised by the level of consensus that we have seen as we have gone around the room thus far. Probably it is because we have maintained a very high level of discourse, but it still makes the devil's advocate in me want to come out and like challenge, like why do we need reliability or something like that.

But frankly, I think it speaks well to the Committee's ability to produce quality materials in the future.

A couple of things that I wanted to highlight that jumped out at me, in no particular order.

I liked the discussion about what the Federal Government could do, a focus on the capabilities, everything from the bully pulpit to legal capabilities, to regulation. Frankly, I liked the discussion on Federal resources. He is not at the table, but I will have to have Jose sit down with the Congressional Appropriations Committee and make that same

point.

I liked the discussion, Mike, about the value proposition. I think that is very, very important point to make. It is one thing to say your bills are going to come up, it's another, frankly, to say your bills are going to come up and here is everything you are going to get for it.

They may still not like the fact that their bills are going to go up, but at least you can have a dialogue at that point.

Irv, I like your point about keep it simple. You are right. The next administration takes office 8 months from today, so let's keep it simple if we are actually going to see a deliverable here that is really a useful document.

I like the point that was made about speaking to broadly defined barriers. I think most people at this table know what those are, but it goes back to the point what is made about education.

We all understand that there needs to be a broad

education campaign, so that means we all understand that while we know what these barriers are, and we are encountering different ones in different parts of the country, it doesn't mean that everybody else understands what those barriers are.

Hunter, I really like the point you made about getting to first base. That is the art of what is doable. When I look at it, I kind of think in terms of maybe you lay it out in terms of imperatives, necessities, opportunities. I think that would be a very worthwhile discussion.

Then, the last thing that we heard repeatedly was clearly articulating a vision. That might actually be a little harder to do than you would think at first blush, just because you are right, Malcolm, I mean to just go through and just generally say we want to maintain reliable electric service, and it needs to be clear and affordable, probably doesn't do much of a service to the extent that you can articulate one a little more in depth, I think that would be

very useful.

But this has been very helpful and it leads me to believe that we are going to be able to see something effective develop in the next eight months.

Next Steps

MS. STUNTZ: David, would you like to talk about sort of specific next steps or at least throw out some ideas, so that we can give people an idea of what you anticipate and how we expect to move forward from here>

MR. MEYER: I have been thinking about that as the discussion went around. My suggestion would be for a small group of people to come up with a kind of outline of the deliverable, the principal deliverable, if you will, for December or for the transition team.

It could include Smart Grid and Storage components, or those could be produced as separate deliverables, and that is something that we can deal with, but for the broader electricity supply adequacy part, there I think it is

important to do the kind of thing that Stuart was talking about, that is, let's figure out, well, first, develop the outline, the different chapters, if you like, and then there would have to be some discussion about, well, what is the appropriate sequence to be able to introduce these concepts.

But then people, once you have that kind of outline, then, people can start working on the pieces. I think we do need, given the short period of time, we do need to be thinking about the deliverable pretty quickly.

For immediate next steps, we will work on getting the subcommittees established, if people will let me know which group they want to be on, we will take care of that, and we will, in one way or another, identify subcommittee chairs, and the subcommittee chairs then will help us get some conference calls established, so that the groups can start talking about what they see their roles and functions being.

MS. STUNTZ: Thinking about your comments, and I sort of think about Steve's proposal, because it seemed to me it

fits together, and we don't have to make these ultimate decisions, but to go ahead and do sort of Smart Grid and Energy Storage, leave maybe the Adequacy as a committee of the whole, if you will, but guided by an outline, then, assign small subgroups to particular pieces.

The only thing I am sort of struggling with is how we sort of get that done quickly, because we would need to circulate an outline, somehow get consensus that we have got it, and then identify subgroups and really get that all going before September. It is not obvious to me exactly how we do that, but it should be feasible.

MR. MEYER: Well, we can have conference calls and maybe we can -- I will have to talk to some people about something more -- we could see if maybe some kind of webcast thing, so that everybody could be looking at the thing and talking at the same time. There are some possibilities that we can explore.

MS. STUNTZ: What if we -- it's dangerous thinking out

loud -- at the time you developed an outline for circulation, we also, with that outline, proposed small subgroups, so that it could be circulated to all of you, you could react to it, add, subtract sort of at the same time, look in the subgroups at the same time you look at the outline, so that way we could come to closure on something fairly soon.

You would just have to give us the ability to maybe be a straw person, outline and subgroups, and then you all react to that, so that we could come to closure on something maybe by -- certainly within a month, and then we would just have to try and get people assigned to those subgroups, because I do think -- I like Steve's notion, you know, pretty small sort of drafting teams with some guidance as to what we are expecting.

I mean I don't think this has to be a huge document at the end of the day. So, individual pieces I think would be manageable knowing that you are all very busy.

MR. KOLEVAR: Peggy just informed me there is going to be a members website.

MS. WELSH: Yes.

MR. CAULEY: I was just wondering, maybe a suggestion for proceeding, to go back to the lines of infrastructure and getting investors to invest in the infrastructure and consumers, maybe we could slice it in that direction rather than a bucket of Smart Grid and Storage.

Take it as the bulk grid and infrastructure and how does Smart Grid technology improve or impact that, and then look at siting barriers and other things about building the backbone and then have separate group work on basically the consumer side, but include once again Storage and Smart Grid technology, but more drive toward the consumer side and deal with the main response programs and technologies at the consumer level.

Maybe that's a different way. Instead of slicing it by technology, slice it by infrastructure versus the

consumption level.

MS. STUNTZ: I guess what I was thinking is we do have these statutory requirements to do Smart Grid and Storage, so those need to move. Think of them as modules maybe, and whether or not they end up standing alone or whether they could be incorporated overall in the other work product or cross-referenced in that product, but I do think those need to be in fairness to meeting the statutory requirements, as was pointed out, we need to do that.

Maybe what you are suggesting is in terms of the other parts of the report.

MR. CAULEY: I am just thinking they could be additive in terms of the consumer slice and you took the infrastructure slice, and then you say, well, part of the solution is Smart Grid and Storage. It's really additive then what things get done to help the infrastructure and the grid.

MS. STUNTZ: I think your point about -- and maybe this for those subcommittees, too, your point about empowering

consumers and empowering investors is real important, because those things are not going to happen. My concept of Smart Grid is certainly that that is a lot of what this is about.

MR. CAULEY: I think you might actually get a more even divide of resources on the Committee if you split it as the consumer and the infrastructure. I know where I'd go, but maybe there might be more of a desire to put people, put themselves in the group.

MR. ALLEN: As a point of information, can you say a little bit more about what DOE's responsibility is to deliver a report on Smart Grid and Electric Storage in terms of its congressional mandate? How can we help DOE make sure that it gets done what it has to do?

A subsidiary question to that is does this committee need to make a report that the Secretary accepts, is there a process at the end of this that we need to be aware of just so that we are able to work backwards from whatever it is we

really have to accomplish?

MR. KOLEVAR: Two questions there. The 2007 Act according to statute, the formation of two subcommittees, they were in different parts of the statute. They are actually very, very different.

The Smart Grid Subcommittee, it was understood would fit under the construct of the full Electricity Advisory Committee, and so that is why the language is crafted the way it is. I don't remember what the specific deliverable with respect to the Smart Grid report is. I know Eric and some others in the audience would.

The Storage side, we had to -- how do you refer to creative interpretation -- we were working so quickly that we had to take some liberties with respect to the members that sit on this committee, which by the way we cleared with our congressional friends, and the same is true there.

So, we do have study requirements, but they are farther out on both of those. I don't know the specific time frames

involved for the storage.

To the third question with respect to the creation of a report, as you understand, this is a public advisory committee, and so everything that is done, is done in front of the public.

The Committee itself is responsible for the substance of the document. The Department is here in a support fashion, and that support can be logistical support, contractor support, certainly covering the finances to make sure that members can participate freely, and when this report is delivered to the Department, typically, in a draft fashion for comment, and then in a final, all of those even in the drafts are publicly available documents. Everybody sees the iterations that the documents go through all along the way.

We will have to follow up on your others, Paul, we will have to provide for the members, David, more specifically, the statutory requirements of the Act on the two subcommittees.

Are they in here now?

MR. MEYER: The statutory requirements are there. I know Eric has a very informative handout about Smart Grid that we can distribute. I will talk to IMRA about similar things on storage.

MR. WOOLF: I just want to be clear on what we are being asked to do. It sounds like we have got two committees, the Smart Grid, the Storage Battery Committee. We are dealing with the other issues at the committee as a whole, so we are not being asked to volunteer. That is not one of our options in terms of committee assignments.

If I am understanding that right, I guess I have got a practical concern. If all those other issues, the eight subgroups, whatever number we end up having, are being reviewed by 25 or 30 people, it could end up being just -- I want to make sure we get a product that is practical. Let me just kind of throw that concern out on the table.

MR. KOLEVAR: We can discuss, but I can't imagine that

the subcommittees would be capable of turning a product that the full committee hadn't approved of, so understanding that that is going to be difficult I think by necessity.

MR. WOOLF: I am just not sure if all of us need to be reviewing the first draft of every iteration.

MR. MEYER: No.

MS. STUNTZ: That was just an idea. I just got the sense that everybody also was interested.

MR. KOLEVAR: To be clear, I didn't envision an Electricity Adequacy Subcommittee. By my view, this kind of is the Electricity Adequacy Committee. To the extent there might have been a subcommittee, my thought was you could take it into infrastructure adequacy or infrastructure something like that, but it sounds to me like we have kind of moved on at least for the time being, and if the Committee wants to revisit that later, they can.

MS. STUNTZ: What we might want to do, again to move things along if you all would consent, is in addition to the

outline, we may even sort of assign people to some of the work groups on a provisional basis based on what we heard this morning, and if we get it wrong, let us know, but at least that way we will give you something to react to.

You are right. You will have the ability to decide whether you want to review what that work group has done or not, or wait until later down the road or whatever, and it is not going to be expected that everybody reviews every single thing.

MR. NADEL: Two things. One, I did take a look at the Smart Grid section of the law so nicely provided, and we do have to provide a report within one year of data of enactment, so by December we have a Smart Grid report that is due, so that should be worked into the outline and committee plan.

MR. MEYER: Sorry, that is a requirement for DOE.

MR. NADEL: Oh, okay, not for us. Very good.

MS. STUNTZ: We would certainly be happy to provide

advice on that I would imagine.

MR. NADEL: The one other point I wanted to make is I noticed as people were going around the room, lots of people said, well, the era of cheap energy is over, the costs are going up.

One of our goals here is to provide advice to DOE, and I note that EIA is probably alone among forecasters who are actually predicting that electricity prices are going to go down, and so we may want to provide some advice to DOE on whether we think that DOE is potentially speaking out of two sides of its mouth.

MS. STUNTZ: Independent agency, but I think it's a fair point, and we ought to have EIA maybe come to some future meetings. I think it is a whole area for discussion in terms of -- I don't know if we will have time this year, but in terms of sort of how are they modeling and where are they coming from.

Let me recognize Hunter. Then, it will be time for our

public comment period, and I apologize to you all, but I have a previous commitment that I have got to leave at 12:30, so I will turn it over to Yakout, and thank you all again for participating. It has been a good discussion.

Hunter.

MR. HUNTER: Just a real quick comment on pricing. Again, I worry about being too prescriptive. I think the National Petroleum Council study on natural gas in 2000 put out a price forecast that was immediately wrong within six months.

Rather than focusing on the implications of the higher cost commodity future, lower cost, I really do think if we simplify it back to what are the barriers to achieving, implement the technologies, we all know the grid needs is probably a better way to go. I would like to stay away from forecasting prices, please.

Public Comments

MR. MANSOUR: Now, I have the pleasure of opening the

floor for public comment.

I would like to remind everyone that it is restricted to about three minutes each, so we can get to the point, not necessarily that we don't have time for everyone to speak, but also just to get to the point, so we don't lose it.

Any member of the public that would like to speak?

MR. GRAY: I am Ed Gray from Elster Integrated Solutions. We sent a number of comments in to David Meyer, and instead of going through those, those are primarily focused on AMI, which is our principal product line, I would like to make some comments based upon what I heard.

First of all, I think we have to recognize that Smart Grid is happening now. This is not something that is going to happen in the future. The manufacturers around the table and the company I work for make Smart Grid products and offer those to the marketplace.

Secondly, I think we have to -- and I think one of the earlier comments by the California Commissioner, she was

talking about an article she wrote on the airplane, over time this will probably transition from more of a hardware-based business to a software-based business, and in our company we are already seeing a lot of the ramifications of that when things happen out there, so we need to think, if we are looking at 2030, a lot of this is going to be software driven.

I think what counts from a regulatory and policy standpoint is how we can facilitate a transition from the hardware we have to something that will be software driven, not only the new products, but what we currently have.

From a personal standpoint, I worked on the Act we are talking about here that my prior employer, and a key thing I think there was the establishment of the NIST coordinated standards program for interoperability.

Once we get all the system working together, then, we can make a lot of things happen.

Thank you.

MR. MANSOUR: Thank you. Anyone else?

MR. SHAY: My name is Eric Shay. I am with the National Electrical Manufacturers Association. We have submitted written comments to David Meyer. I hope you get a chance to read those and thank you all for your service.

MR. MANSOUR: Thank you.

Anyone else?

[No response.]

MR. MANSOUR: Any concluding remarks that we have not addressed, any of the members want to just make a mention of it or anything that you would like to speak to before we conclude the meeting?

[No response.]

MR. MANSOUR: With that, the meeting is concluded and thank you very much.

[Meeting concluded at 12:37 p.m.]

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