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C O N T E N T S

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P R O C E E D I N G S

Welcome and Opening Comments

MS. STUNTZ: Thanks to everyone for coming. I think there may be a few more downstairs. We had most RSVPs here.

I know Ralph Cavanagh is not going to be here today, but he is going to be here tomorrow. Jeanne Fox could not attend, and I know Malcolm Woolf has been called to a higher purpose, jury duty, but he is ably represented today by Bob Howatt of Maryland Commission staff who will be making a presentation in his place. We appreciate you being here.

Let me turn it over to Kevin for some brief remarks, as I intend to make, and then we will proceed directly into our business and discussing the Adequacy Report.

MR. KOLEVAR: Good afternoon, everybody. Thanks, Linda and Yakout.

I did want to make just a couple of quick remarks, and then I am going to step away and let you do your business.

I think we have seen a demonstration in the

last couple of weeks with the hurricanes and the impact that it has had on the electric sector, and it completely, at the other end of the spectrum what we have had with GridWise today, has a renewed interest and a great public attention on grid-related activities. Frankly, it makes the timeliness of your work even more relevant than it already is.

I wanted to really stress two important issues as we move forward. The first is where you end up on the recommendations, and so I want to remind everybody we are really looking for a product that is meant to inform the next Administration.

This is not for my benefit. It is not for the -- really the current Secretary of Energy's benefit, and so to that extent, I would urge you to do what you can to really drill down on a solid specific set of recommendations, and to the extent that means you may not be able to reach consensus on that, I think that that is probably to be expected.

If we are only looking at recommendations that can be endorsed by the entire Electricity Advisory Committee, my gut tells me that these are

recommendations that we could have come up with in pretty much any form.

So I appreciate how difficult that is in a setting with this. These advisory committees are purposefully drawn from such a broad swath of the interested public, that sometimes finding agreement on items can be difficult, but I think it is important.

I think the next Administration will benefit from a very focused set of recommendations in the full committee and the subcommittee areas that probably speak with more fidelity than we have seen come out of other reports and other committees in the electric sector.

The second thing I wanted to ask that you consider is that you not allow yourself to be bound by the current state of statute and regulations at the Federal and State level.

While it is certainly the case that recommendations that you make will probably in large part apply to how we work within the current framework, I think it is also fair to say that the next Administration would welcome the opportunity to see

what can be done at the Federal level and probably at the State level as well to try and clean up some of the difficulties and challenges that we see in the current operating environment.

So, to an extent, that requires a bit of looking around the corner, but to the extent that a set of recommendations can actually start to lay out a sound policy framework for the Congress, something certainly that could be utilized by the States, I think you really would be serving a higher purpose.

As I was looking and talking at the GridWeek presentations here and talking to folks, my own sense is that, generally speaking, the vendors in the electric sector and the entrepreneurs in the electric sector will figure out the ways to squeeze the greatest deficiencies from the system we have in place.

I think a greater good is served if we can identify some reasonable ways and maybe even note some aggressive ways that the system itself at the Federal and State level could be tweaked to allow even greater efficiencies and results across the board in the next couple of years or in the next couple of decades.

So I would leave you with that. Linda and I had spoken, and she understands that I am going to step out of here. I will probably catch up with you at the end, as you guys are all breaking up, just to talk a little bit, but I wanted to thank everybody again for coming.

This is something we take very seriously at the Department. The Secretary speaks to it, and we look forward to your report.

Thank you.

MS. STUNTZ: Thank you very much, Kevin.

Now let me give a little bit of a layout of what we are going to do. You have an agenda in front of you. In essence, we are going to spend the remainder of today on the Electricity Adequacy Report.

Tomorrow morning, we will turn to the Smart Grid and the Energy Storage reports.

As you all should know, at this point, we have approached the crafting of the Adequacy Report by assigning topics to team leaders.

Yakout was the leader on the Introduction. Mike Heyeck did Transmission. Malcolm Woolf did

Generation Adequacy, and Steve Nadel did Demand Side.

Yakout and I talked about how do we present this to you in a way -- I know you have all read the drafts that have been floating around, and I appreciate that.

I think so that we can maximize our time together in discussion of issues and narrowing the issues and giving guidance to the drafters and the editors who will follow this meeting to help produce a draft, what we thought we would do is call upon the leaders of the drafting teams to make brief -- and I warned them, 5 minutes, three slide max -- right, Peggy? -- presentations of what their drafting teams have accomplished, focusing on recommendations and open issues.

Rather than do it sort of introduction, question, it was our view that we would like, if you would indulge us for 25 minutes, to go through the report in its totality as it currently exists, so that everybody gets a sense of what is in all the chapters, so that we don't engage in a discussion that maybe is covered somewhere else.

There clearly is at this point redundancy among the chapters, and that is fine. That is what the editing process is for. I think it is more important that we be inclusive and cover things. That is not what we have worried about at this point, but I think this has been -- I think Yakout expresses it, as usual, more articulately than I do.

We need to look at this holistically, and the best way to do that would be to sort of let the drafting leaders go through their pieces with you, five minutes at a time, give you an overview of the whole report. Then we will open the floor for questions, comments. So, as they speak, note down your views, and we will proceed on that basis, if that is okay.

All right. Yakout.

Presentation and Discussion of Draft Committee Report on Electricity Supply Adequacy

Introduction

MR. MANSOUR: Thank you, Linda, and good afternoon, everyone.

We had the difficult and the easy task. The difficulty is in introducing the subject and what we

are trying to achieve for the whole report and also identifying the challenges that we need to deal with. That is the difficult part. The easy part is we just find the challenge, and the solution would be the rest of you or the rest of the subgroups that are dealing with the issues in specific to make recommendations to address those challenges.

By way of introduction, I had really the help of an all-star team of Sue Kelly, David Nevius, and Bob Thomas with me. I really appreciate their efforts. The writing of the chapter was in the middle of many things in the air that every one of them had, and we had to juggle things around to meet the deadline.

I know that Sue in particular had a number of things in hand, and the deal I had with her is that I write for her, her intervention against my company, and she writes her part in this report, so we can do it in time. She actually agreed to that, and she appreciated the great customer service that we provide in our company.

[Laughter.]

MR. MANSOUR: That was a joke. I don't want

APPA to take it as if I wrote yours, Sue. I really appreciate all your efforts in this regard.

This introduction is really meant to set a basis and get the challenges on all the rest, on the transmission side or the generation side, and all the issues the industry is dealing with, especially from the planning and the resource adequacy side of things.

In introducing the subject, there is, of course, a liaison between what we mentioned in Chapter 1 and what is being dealt with in the other chapters.

By and large, in reviewing everything that was done in other chapters, we are very much aligned, but there might be some repetition between the material in Chapter 1 and the rest. That will be dealt with in the next stage of the editing.

The introduction or that Chapter 1 includes introduction on the electricity resources, some detail. There's more details in it in Chapter 2, of course, but in Chapter 1, we covered the types, the characteristics, some cost implications, environmental impact overall.

We thought that by going through that, even

though to this committee, it is well known, but for the readers on the outside, especially if it is policy-makers or new policy-makers, they would need to at least get some overview of what those are.

There is a transmission section, control centers, the human resources, and then the institution. So, overall, it covers all pieces that cover the electricity grid.

The part that I want to focus on, the planning challenge, that is what we have to work with or what we need to work on for the rest of the report, the rest of the activities of the committee.

The first challenge is, of course, the fragmented grid. I don't know which other country in the world has such a fragmented grid where you don't have the so-called national transmission grid. You would not find that in many places, not just that there is not one, but there is about 3,000 utilities and several hundreds of transmission owners in the grid. So that is the first challenge.

Also, there are mixed market structures between RTOs, and even among the RTOs, even the

neighboring ones, there are some differences between them, and some other forms of market structure.

There is missing measures of long-term adequacy, especially with the new structure. It used to be only the monopoly system. It used to be a utility that can tell you what they plan to do 10 years from now, and they have something like a 10-year plan, a 15-year plan, where it is not even 100 percent, but it is predetermined what the long-term vision is and how they meet the resource adequacy.

With the market structure we have in place now -- and actually, that is also the case in a lot of other parts of the world -- that definition of resource adequacy, of how you determine it, is definitely not the old way, but it is missing in here.

If you look at how even NERC defines it now, they look at what is on the books, and beyond a few years ahead for most of the country, they can't define much. What they do is they say we have a problem. Actually, they say we have a problem because the measure of resource adequacy, like they did in the past, when they used to find books that have 10 years

and 15 years plans in the future, and now they don't see it. They take that as an efficiency, and even the latest NERC report will also tell you that it is going down.

The fact that it would be met with other means, it is understood, but they have difficulty knowing whether actually the country will be resource adequate or not.

Again, but how do we measure it then? If it is not all the way which way?

Again, there is misconception that the world can be 100-percent green and no need for fossil fuel plants. So, with the introduction of new resources, again, that balance between the old, the new, and the evolving, and especially in transition, is difficult, and it is a challenge, if not to the technocrats of us, it is definitely a challenge to the policy-makers to understand that there would have to be balance, and that balance will shift slowly in transition until we get to the ultimate vision with the right balance.

Third challenge is both economic and environmental barriers, the fossil fuel with increasing

RPS.

Now, the RPS, the renewable portfolio standards, are defined by many States. Now probably close to have of the country now have RPS of one sort or another, and that somehow going on that track, it is almost like, again, if you look at No. 2. It is indicating do we need fossil fuel. Again, there are some barriers in there.

From the economic side, they are needed for services that are different from what they provided in the past, less energy and more service and more back bone for the system, but economically, can they be paid for it enough to justify the business model.

There are also environmental barriers. Even in California, you see a lot of municipalities are volunteering to pass resolutions within the city council to say we are going to be fossil fuel-free. A lot of municipalities want to do that, no generation, no fossil fuel generation in our municipality, and everyone is catching on it.

Always, my point is, actually, I am not passing a fossil fuel-free society. You are passing an

electricity-free society if you keep doing that because it will have to exist somewhere, and if you all say it is not in here, then where would it be? But there is definitely that balance of the old and the new to make systems that still work, and the grid that would be adequate to provide the services is a challenge.

Demand response. Expanding demand response to the full potential of it, in our view, it is a sleeping giant, that this is still not well utilized. A lot of the programs right now, they are kind of regularity programs, but not to the full extent of its potential.

Interstate transmission is still impacted, State by State, and from what we see with the implementation of RPS on the regional side or the national side, transmission is becoming more and more long, major, and interstate.

Being that, State by State, in our opinion, we cannot do it. I mean we can't concede that there is anything in a State commission mandate to say also take care of the next State, in the interest of the next State or the State after.

So it is not a matter of whether those commissions want to do it or not. It is a matter of whether they can do it or not, but again, interstate transmission is something that we see, whether the ones we have now that we are facing problems or the ones we see on the map that are likely to have problems, it is certainly one major challenge.

And I hope this is one issue that we really make solid recommendations beyond saying we encourage or we hope or something like that. This is one of those things that I hope that the committee gets to very solid and concrete recommendations in that regard.

Technology innovation. I think we believe right now that the existing technology is ahead of implementation. There's a lot of good technologies that are ready for implementation. So, on the one hand, they present an opportunity, but the challenge in getting them and somehow at least the technology providers claiming there's a lot of solutions exist in terms of technology, but they can't find the ways yet.

The skills and analytical tools are behind the needs, and this is something that, again, we are

not talking about. Even the practitioners that have been around for a long time, with the change that we have now, it is a new dimension for them. So we will have training of the novice or training the journeyman. Both are needed to a high level.

So these are the key challenges that we identified in Chapter 1 that we hope will be addressed in the other chapters as we go through all presentations and we talk about the specific recommendations to deal with it.

MS. STUNTZ: Thank you, Yakout.

Now we will see how these were addressed. I understand, Bob, you are up next to present the work of the drafting team on Generation Adequacy.

Generation Adequacy

MR. HOWATT: Good afternoon. I am very pleased to be here. I know Malcolm sends his greetings to the entire group. He just had a choice to make, and he decided that his civic duty as a juror was much more important, and he will probably shoot me for saying that, but in any event, he does send his greetings to you. Hopefully, he will be able to make it at some of

the future efforts that will be going on here.

I only had three slides. So, rather than making up a slide that thanked everybody, I thought I could do that verbally. Ralph Cavanagh, Robert Gramlich, Jonathan Weisgall, Gerry Cauley, Linda, Peggy, and Paul Allen, I think were on our subgroup, although I never actually met several of these people. I was on conference calls with them, and I wanted to express my appreciation to them for keeping me straight on the outlines and some of the draft material that we had to put together.

I also wanted to thank some of the other people who have sent me comments on the draft, and hopefully, we have incorporated some of their information in there as well on the final draft that we have out there at this point.

When we put the original outline together on Generation Adequacy, the things that we thought about was what is the state of the generation industry, and so we tried to cover the trends in the report.

Secondly, we said what are the major obstacles, and we tried to talk about some of the major

obstacles in there, identifying those obstacles that were pretty much generic to a lot of the different generations.

Financial viability is something that is a generic obstacle to a lot of generation and not just one specific.

In the report then we further broke it down and tried to talk about the specific types of generation and some of the issues that that generation faced in attempting to put new generation out there.

So we covered the overall. We covered some of the specifics with respect to generation, and then the last thing we did was we drew from the material that we had and tried to come forth with the recommendations.

So what you see up here on the slides is pretty much our recommendations that we came out. There obviously is overlap, but what we tried to do in our section is we tried to focus ourselves and think as a generator would think and look at it strictly from a generation perspective.

So, when we talk about transmission, although

there is obviously overlap, we are talking about transmission that eases the ability of a generator to put forth a project and bring it to fruition.

So, with that, let me at least step in and talk quickly about the recommendations that we came out in generation.

The very first one that we thought was extremely important was is there any way we could possibly reduce the developer financial risks in generation. The very first one was to reduce financial risks in generation.

Obviously, there is lots of tales to that issue. One of the problems that generators have is development costs, and with permitting processes and everything extending, the development costs in particular with new technologies are rapidly growing, and we thought maybe there is an opportunity to establish some cost insurance pools, in particular, for new technologies, some type of insurance against adverse outcomes.

As an example, if a developer for some reason is unable to recover his cost, his planning and

development cost, one of the things we suggested is certainly continuing the financial grants and the grants program associated with new energy technologies. We wanted to also ensure the continued funding in Federal loan guarantees for new technologies. These are things that are already in place, and we want those to continue.

We thought there is a possibility to support the creation of a developer's credit market. Perhaps a non-asset-backed credit market that could provide funds for generation developers. We were thinking a little out of the box and not necessarily making sure that we had everything available to be able to do that, but it was something that we thought would be helpful to the process.

Lastly, I think we wanted to consider the adoption of additional financial incentives in markets that are short on generation. We thought that there might be some possibility, particularly in markets where even capacity, forward capacity markets haven't been able to bring generation forward.

There might be a way to create some

additional incentives, two- to four-year incentives that may be funded by a reduction in marginal cost payments or something like that, but anyhow, that was a consideration under ways to reduce developer financial risk.

One of the other major key areas was the uncertainties around policies and legislation. We think the DOE should be advocating for the production tax credit, the investment tax credit, for much longer periods of time.

The most recent history of these documents or these credits are that they have been very shortly extended, and sometimes that also has the potential for creating boom bust cycles in generation.

So we thought the more that we could have longer periods of time with stability for production tax credits and investment tax credits, this would be much more beneficial.

Preferential grants and loans for long-term contracts with new technologies, again, trying to get at the boom bust cycle generation. If we could get more longer term loans and longer term grants

associated with long-term contracts and new technologies, we thought that would be extremely beneficial.

Advocating new transmission with fair cost -- "fair allocation of cost" is probably a better term -- we believe that we need to support new lines that enhance the bulk energy flows, and particularly with respect to interconnections.

Interconnections and the payment for interconnections is one of the barriers for generators, and we believe that supporting new lines that eliminate that need for generators in many cases to pay for interconnections is obviously reducing one of the barriers.

Advocating that interconnection costs and allocations that recognize the system benefits. PJM currently charges the generation developer 100 percent for interconnection cost. MISO has a 50/50 percent. Most recently, Michigan Transmission and ITC Midwest created a plan where it was 100-percent refundable, and even FERC has come out and said that prices on interconnection can be fair and reasonable and still be

different, depending on the circumstances.

What we are advocating here is that costs are okay for the generator to absorb, but they should be absorbed only to the respect that it is an actual cost and not a benefit. We believe the benefits of interconnection and the benefits of new generation should be absorbed by perhaps the people who get those benefits.

One of the big issues we think is the planning process, and it needs to be improved. We think there should be an improved and faster study process, with more accurate financials.

One of the big obstacles that generators are constantly referring to is the slowness of the planning process in looking at generation and the slowness in response to what are the costs associated with it, what are the deliverability issues. All those things need to be improved.

We also believe that you need a national review of the planning process. There's a lot of planning processes going on in all the various jurisdictions, the various markets. We thought that

perhaps a review of the planning process that generation must undergo would be very beneficial and would help perhaps pick out the best practices and the best approaches to actually doing the necessary studies and planning processes.

We believe that you also need a broader view of the regional planning processes that includes the diversity of the various resources that are out there.

I was in a PJM meeting just yesterday, and in PJM, a couple of the members of PJM brought up the fact that PJM's planning process doesn't necessarily look very far beyond its borders. One of the things they are trying to do in particular with respect to reserve margins is to get the RTO to look beyond their borders.

This is not just a PJM issue. This is also a State's issue, and it is also all the ISO's and market area issues, looking beyond their own areas of responsibility and making sure that planning takes into consideration the support that is available from other areas, as well as the weaknesses that are in other areas. So we believe a broader view is essential.

One of the things we are suggesting, in

particular where there is market areas, is that the RTOs have the opportunity to provide both transmission and generation authority.

Right now, an RTO, in particular PJM -- I will speak from experience -- right now, the only thing they can really do to resolve an issue is to mandate certain transmission.

There has been discussion that says they can actually mandate generation, but that is a backstop issue and hasn't actually been dealt with.

Actually, this one item needs to be broadened because it is not just transmission and generation. It is also demand response. We feel that the planning agencies that are responsible for our systems need to have the ability to elicit transmission, generation, demand response, whatever it needs in order to meet the reliability criteria for the particular area.

Lastly -- and this is probably an issue, but we believe that there needs to be regional planning efforts, and that may include a reevaluation of whether regional DOE offices could support that effort.

I know the regional DOE offices were out

there at one time, and then they were done away with. We thought that perhaps there might be some discussion around whether there should be regional planning offices with regional planning responsibility established.

Moving on to another major area, we believe there needs to be longer term environmental certainty. Certainly, long-term carbon, air, water, and waste policies, I don't think there is any question that that would be beneficial to the industry to have certain amount of certainty as they move forward.

Rather than adopt environmental policies, it probably should say support environmental policies that are complementary with new resource needs.

We need to look at the types of resources that we actually want to have come forward and make sure that the environmental policies are technically at least consistent with those resource needs.

Lastly, we need to support new regulations that help create environmental certainty.

Most recently, it was pointed out to me, the EPA Clean Water Act, with it being overturned in court

or at least a portion of it being overturned in court, there is the potential that generators are going to have to move to a closed-loop cooling cycle with cooling towers, which automatically will almost create about a 4.3-percent reduction in capacity across the United States, a very significant issue and just an example of where environmental certainty without courts overturning things would be extremely helpful.

I doubt that we can create changes in the judicial system, but it certainly would be helpful if we can create environmental certainty around some of these issues.

My last area to talk about is supporting new technologies with grants and loans. This is something that DOE has done very, very well, and we believe that it should be continued.

We think that we should adopt long-term funding plan for new generation programs and technologies.

At this point in time, the DOE funding is subject to the whims of Congress almost on an annual basis. We would like to see something a little bit

longer term, something that creates a little more consistency with the availability of grants and loans through DOE programs.

We also believe that we should support the efforts of efficient cost technology, cost-effective technology advancements, and improved manufacturing processes in generation equipment, solar thin film technologies, and all those type of things, which I think are things that DOE does not, but they need to be continued and need to be emphasized.

Lastly, our overall general recommendation was to support the development and expansion of distributed renewable generation. We believe that there are cost effective changes to the regional planning processes that can permit the solicitation of generation, energy efficiency, and in particular distributed renewable generation that will help support reliability throughout the system, and if those changes are made out there, can also remove barriers to new generation.

We certainly want to explore the potential for distributed renewable generation to supplant

transmission. Transmission can be made up from either generation, or it can be made up from distributed generation or energy efficiency. We need to be looking at all of those, and we specifically need to be exploring distributed renewable generation.

Lastly, another hotly contested issue is consider supporting a national renewable portfolio standard. Not that I am an advocate of portfolio standards, but the fact that it creates certainty across a broader range of areas.

So that is pretty much the recommendations that have come out of the Generation Adequacy group.

MS. STUNTZ: Thank you very much, Bob, and I especially want to thank you and Malcolm who have done a tremendous amount of work on this and who have very demanding day jobs as well, as you all do, but I think for these guys, I know they put a lot of time into this.

Let me turn quickly then to Steve Nadel to talk about the Demand Side.

MR. NADEL: Okay, thanks. Can everyone hear me? Okay, good. I prefer to stand.

MS. STUNTZ: No, Steve. We need you to speak into the mic for the court reporter.

MR. NADEL: Okay. I am going to have to move then.

Demand Side

MR. NADEL: Okay. How's this?

I first wanted to thank Jeanne Fox and Chris Hahn [ph] from the New Jersey BPU, Bruce Walker from Con Ed and National Grid. He switched jobs midway through our drafting, and Irv Kowenski from Occi who are members of the committee, and we had some rigorous debates and a lot of help with the drafting.

[Pause for technical difficulties.]

MR. NADEL: Okay. First, as king of an overarching recommendation, our group recommends that we have a national policy to promote sustainable and economically viable energy efficiency programs in order to achieve a number of objectives, maximizing cost-effective energy saving, reducing environmental impacts, reducing energy use during peak periods, coordinating with Smart Grid initiatives, and enhancing the overall reliability of the system, kind of an apple

pie.

We had six specific recommendations that we are suggesting. First, we recommend that national measurement and verification protocols and standards be developed, so that energy efficiency and demand response and other demand load management-type resources are evaluated in a consistent way and also that we know that the savings are real, we are not effectively paying for vapor watts, as someone said.

There are a number of efforts underway, whether it is in the Northeast. There's several different efforts underway moving in these directions that can be built upon.

Second, we recommend that priority be placed on updating the Federal Appliance and Equipment Efficiency Standards that DOE is responsible for -- DOE is way beyond schedule -- and also national model building codes where DOE plays a major role, but we agree that these are policies that really make sense, and DOE plays a central role.

Third, we recommend that attention be paid to the utility business models and rate-setting

approaches, so that utilities are encouraged and certainly not discouraged from pursuing cost-effective demand-side resources.

We had a lot of debate about the specifics. We agreed that the utilities should receive an equivalent return to what they might receive on the supply side for those investments.

There was concern by a number of people on the committee that it not be so generous that they are going to laugh all the way to the bank. So we attempted to come up with some wordsmithing and welcome other people's opinions about how we have done about that business case, but the idea is it should be effectively a level playing field with demand-side resources.

Third, we support increased Federal technical assistance to States and utilities to help them with demand-side programs and policies. We note things like the NAPEE program that DOE and EPA are doing. There is also some additional work that DOE is doing, working with some of the national labs and consultants. People felt this is very useful material and helped to assist

the States and utilities with their efforts. So we recommend expanding that.

Fifth, we recommend encouraging and assisting regional coordination on demand-side resources, so that programs can have a lot more commonality within regions, so you don't get the problems about a poor customer who happens to be across several different utility boundaries, sometimes within a State, sometimes across States, basically same metropolitan area, but they may have totally different programs. So we recommend efforts to help increase coordination at the regional level there.

Finally, we also recognize and we believe DOE should take a role and other people should take a role to help ensure that demand-side resources can participate in ISO forward capacity markets. We note what is already happen in ISO New England and PJM is discussing and I believe a number of other ISO's are, and that it is important for demand-side resources to participate in these.

A couple of areas that we have had extensive discussion on, some of which relate to some of our

recommendations, some of which we didn't quite get to recommendations, and we seek input from some of the broader community, one, in terms of how do you integrate demand side and supply side and also integrate demand response versus energy efficiency, do you do demand-side management or an efficiency first or a loading order-type approach saying we know this is cost effective, we need to do at least this, versus do you have a whole integrated planning process versus to what extent do you rely on bidding. We had different views among the committee on these different processes.

Also, there's some question about to what extent do you rely on market providers versus more utility and State-operated programs.

I would note on these first two that the answer may be a little different for the very large customers who are much more capable than, say, for low income or multifamily where they are much harder to reach customers.

Then there was quite a bit of debate about the utility business case, and we have attempted to wordsmith something there, but I am not sure we are

quite there.

The one other area I would throw in, having read the rest of the report, we did discuss a little bit about whether there should be more of an R&D component on energy efficiency. We decided not to include it, but I did notice that every other group did, and so we may want to revisit that. We do support it. It was just a question of how much more we could add.

So that is the results of our discussion thus far, and we welcome your feedback.

MS. STUNTZ: Thank you very much. Steve is doing a terrific job of representing a very lively committee with some disparate views, and I think he has done a masterful job of just summarizing that.

So let me turn now to Michael.

Transmission

MR. HEYECK: While we are waiting for the slides to come up, I want to thank everyone on the committee, Linda, Yakout, Jose, Rob, Dian, Hunter, Barry and also Barry Smitherman actually provided input at the end there, Tom, Vickie, Bruce, and Peggy.

What I have here, you will notice in your packet we have two views of the transmission chapter, and I don't really think that the views are that far apart. I think we can reconcile.

I delineated in red -- it is hard to see it here -- what the issues are between the two drafts.

On this page here, the group recommends as a national goal, a robust national electric transmission network to enable the future that everyone is drafting in their own sections, as well as this one.

This is not unlike the situation we had more than 50 years ago where President Eisenhower had the choice of incrementalizing the system we had or developing an overlap called a "National Interstate Highway System."

The issue that has always come to play here is how do you determine what that system should be. So planning is very important not only on a regional level, but on an inter-regional level across the country.

So the issue becomes how much of that grid ought to be built, what will be the effects on climate

change, will it be a step function increase due to electric vehicles, will we get people to actually use or plug in these devices during the evening, or how do we consider nontransmission solutions, such as demand, response, and energy efficiency.

The issue of siting transmission is certainly going to be debated and discussed. There are many opinions on this, but I think it is unanimous we don't have a construct today to deal with the interstate nature of electric transmission.

We have many States. We have the Federal Government, and in some cases, local authorities with rules and regulations regarding siting transmission, and if the transmission line is greater than or crosses a State boundary or crosses any jurisdictional boundary, there are issues.

Some of the bigger issues in the west are definitely traversing Federal lands, for example. The example in the document that I am most familiar with is the 90-mile line between West Virginia and Virginia.

We had two States, one State approved, the other State did not. We moved the plan. We had to go

back to the other State again, but the longer term issues was the Federal authorities in that case to approve the line siting.

So the debate is going to be out there whether we should have a multi-State or regional construct or are certain lines eligible for Federal siting.

If none of these, the NIETC needs to be enabled for more than congestion. We need to be able to connect what the energy future of our country is, whether it is renewables, nuclear, or all of it. There needs to be some construct to make sure the transmission is cited.

Another area, cost allocation is a hotly debated issues across the country. The issue we have with transmission is that it is a patchwork of dissimilar cost allocations, and it takes much longer actually to have a transmission line traverse two areas of differing cost allocations because it will take about two years to figure out who benefits and how it is allocated.

We cite in here that broad beneficial EHV

transmission ought to be broadly allocated across the States. To give you an idea of what transmission is today, it is about six-tenths of a cent per kWh on an average bill. If you put $100-billion worth of investment in the country, that translates to something like less than .5 cents per kWh.

The issue here is going to be the debate is whether cost accountability and beneficiary pays or these constructs, how are they used without getting into delays due to litigation.

Another recommendation is grid operations and management should be enhanced. I think Yakout in this first section had the control center issue. There needs to be a greater ability for central control authorities to be able to deal not only with markets, but also with the grid.

There are challenges ahead in dealing with variability issues. We see them in Europe. Europe has chosen to deal with them through interconnection, but variability is a very big issue across our country, and variability does need a dance partner, as someone from EPRI said, and that dance partner could be demand

response, as well as traditional dispatchable units. One way or the other, we do need that.

There is a debate whether consolidation of balancing authorities is the right way to go. There is an issue there. We need to make sure that we do it in a way that doesn't jeopardize reliability.

On the last slide here, I think we are all unanimous that the mandated reliability compliance should be continued and refined, and FERC is doing an admiral job, as is NERC and the regional entities.

Technology innovation should continue to be supported. We believe that DOE should develop an R&D road map that includes not just transmission, but all facets of the grid of the future, and first adopters ought to be encouraged and incented. We do not believe the tenth adopter ought to be incented. We believe the early adopters ought to be incented because that is where the risk lies.

The issue here is to debate the passthrough of technology incentives at the State level. At times, these technologies enabled by the Energy Policy Act could get trapped due to non-passthrough to retail

levels.

The last item we had is the barriers to financing constructing transmission. Transmission is largely right of first refusal across the country.

There are over 500 transmission owners across the country today. We are not for lack of investors, but the barriers to entry for transmission are high, and the amount of investors out there that want to participate are large. The issue is once the lines are in service, who operates, maintains, and restores. So we have to wrestle with the issue of making sure the system is reliable once it is constructed.

That is all I have.

MS. STUNTZ: Thank you all very much. We didn't quite keep to the five minutes per person, but I didn't think we would. I do think you all did a great job of summarizing a great deal of work.

I participated in as many of the calls as I could, and let me say I know you all did a great deal. I hope in the next hour and a half, you all approach this, as I did, having participated in some of these calls and read the drafts.

I think we have a real opportunity to do something quite meaningful here and something that definitely meets the standards that Kevin set out, which to remind you, solid, specific set of recommendations and obviously not to be bound by current laws and regulations.

I hope that as you react -- and I am going to open the floor to let any of you react -- we keep that in mind because I think there is extraordinary talent in this room. There is experience. There is opportunities to educate people about issues like balancing authorities, which a lot of people outside the electric industry don't even understand, and I know that we can do that with your help.

So, with that, let me open the floor.

Discussion

MR. DELGADO: Linda, I have a question which is one more of procedure.

I have seen the trail of documents coming through my desk, and I have to say that at times, it has been kind of hard to find time to keep up with the different versions of it.

What I would like to know is the process that we are going to follow. There are certain issues here that require comments, and we have to resolve some of the issues and areas where there appear to be some errors that we would like to correct.

Is this something that you prefer to get into a discussion, document by document, when we are all together, or is this something you expect us to work out when we are in the groups?

MS. STUNTZ: That is a good question.

What I would hope we could do is focus on substantive issues and disagreements. If there are factual issues or representations of regulation or things that could be done that may be of not general interest to the group, but could be done via e-mail, comments, and writing, I would prefer that, but while we are all gathered, I would hope we can focus on some of the fundamental issues that the presenters highlighted.

We will be talking tomorrow after lunch, the process going forward in terms of a timeline for editing and additional drafts, but to remind you all,

our goal is to be able to approve a final report at our meeting in December. So that is the glidepath we are on at this point.

MR. DELGADO: Would then it be appropriate to mention some items that I would like to address?

MS. STUNTZ: Absolutely.

MR. DELGADO: Okay. I have to be honest with you. I have spent more time on the transmission report than I did in the balance of the report, and the bulk of my attention has been on the portion that I am working with Mike and others. So there's a lot of stuff in this report which actually is extremely good.

There's some things which I question, and I would like to make sure that we make a correction.

There is a hint in the report -- and I believe the last version that Peggy sent us this week is the one I read on the plane, just to make sure I was still up to date -- in which implies that there is such a thing as a national energy policy, and we don't have a national energy policy.

The fact is there is nothing you and I are going to do about it, or the Department can do about

it. It is a matter for Congress, but the States actually have taken the leadership and matters of energy policy. Whether you like it or not, that is the fact.

Today, the States and the utilities are working in many areas together, States and utilities, multiple States and multiple utilities to address the State energy policies.

Two things come to mind. First of all, any document that we produce must recognize that there is no Federal policy. It is very difficult to justify a transmission system on a Federal policy that does not exist.

However, if a Federal policy is to come, it must take into account the preexistence of State policies because the utilities are working on State policies, and it is very important, part of what we are seeing in generation, that there be some continuity here, and it is a serious mistake to try to just move this industry back and forth because there is a continuity required for this business.

On the other hand, the States are also taking

the leadership in across State borders transmission, and even though you might say that is only an original rather than super original, it does have the advantage of getting done, and this is where we are.

So any policy that we have on transmission has to recognize that the States are taking the initiative. I have here an announcement of five States in the Midwest, a five-State area that are for Minnesota, North Dakota, South Dakota, Iowa -- and they are working with the Canadian policies in order to do the transmission planning required and the allocation of cost for moving a lot of wind energy in order to meet the State policy.

Any Federal policy that comes sometime in the future ought to recognize that these States are taking the leadership and has to be consistent with it. Otherwise, this can be very, very difficult.

There is an appearance that wind power from North Dakota has to reach Boston. I would suggest to you that that makes no sense. The whole purpose of having clean energy and wind power and renewable is to replace dirty energy. There's plenty of dirty energy

in the middle of the Midwest close by that can be replaced.

The global concerns can be taken care locally. I think the concerns should be to get clean power, to become economic, and to get to market, the nearest market as soon as possible.

I think we have to stress that. That is a much more realistic policy for this country than something that says that somebody from Boston has the fiction that they are going to buy -- have access to some energy in North Dakota, and this absolutely doesn't make any sense.

There is such a thing as energy credits that can allow, can be paid in Boston and allow the energy from North Dakota to compete with coal and nuclear in Chicago, and that is far more economic for the country, far better for the world.

Third item. There is an appearance that least-cost planning is a bad idea. I suggest to you that, no, everybody plans least cost.

I think the biggest thing that we are seeing in this report is that we have to plan for a longer

term, but least cost must continue.

I have been asked whether I support 765-kV, and you know, I have difficulty even answering the question. I stand in front of a 765-kV line, and I get emotional. I like it.

[Laughter.]

MR. DELGADO: Okay? I'd love to have one in my back yard, but that begs the question. Who cares whether I support or not? It is just a technology.

I simply cannot justify it, we cannot justify it economically. If 765 is the best solution, I love it. If 500 DC is a better solution, I like it. If 1,000 volts is better, I will go for it.

The point, folks, is that we cannot fall in love with the technology. Government cannot take a technology. Neither you and I. It has to be picked by the application.

Somebody said technology precedes application. It always does. Otherwise, you cannot apply it.

And the last one, there is one item that has to do with transmission planning, and I am willing to

put this in writing, very brief, so it will just be one paragraph.

One aspect we have not talked about, which actually is very doable by the Federal Government, there are numerous Federal agencies to have authority over the permitting of right of way.

You only need to go out and permit any right of way in this country because you find out Department of Agriculture has an impact if it is agricultural land, the Department of Interior, if it happens to be a river, that somebody goes on a canoe, or there is a park or if it is the Corps of Engineers, anybody can navigate on the thing, and so it is quite all right. Each one has their own regulation. The only problem is that they don't coordinate.

I would like to tell you that one of the things was that we tried to see in the energy bill of 2005 -- and it didn't quite come out the way we thought -- is to give DOE the authority, not just the interest, not just the curiosity, to ask would you please get together, but the authority to line them up.

You can quote me. In transmission siting, we

prefer a quick no than a long maybe. We can save a ton of money and find an alternative solution.

These people have to work all in their own criteria. We provide them the data all at the same time. They work in the same period, and they give us a no or a yes, and we get going. We find different alternatives, and it has to be along with the States.

I think that alignment does not require constitutional change, and it is one that I believe this government, the Federal Government should be able and willing to take.

I realize there are many, many institutional barriers, but what the heck, we were told. Those are not here. That is the major problem. We should address the institutional barriers.

This, if you want to know from my perspective having built $2 billion of transmission in the last seven years in four States, is the major item this government can do, the Federal Government can do for us, and it is one that is doable today, if, in fact, you have the support of Congress.

MS. STUNTZ: Jose, let me -- and of you who

may not know -- the Department of Energy did last Friday publish an interim rule and a Notice of Proposed Rulemaking to implement its authorities under 216(h) that was enacted in the Energy Policy Act of 2005.

Well, that is kind of somewhat -- that is my personal opinion, but I would suggest perhaps, not to add more work to Mike's committee's workload, but I think it might be worthwhile to have that committee take a look at that and say whether, in fact, it is the authority that is too weak or whether DOE has been too timid in its implementation of that authority, whether you think that would solve the problem. I think that at least is something that would be useful to address as part of the report because it is quite timely now, since the rule was just published on Friday.

I am sure David or Mark, who was here earlier, could give you citations on that, or maybe we can make copies available tomorrow, if that would be helpful to some of you.

MR. DELGADO: Linda, one last item, and I will be very quick.

It is very important that we recognize what

has been done and what hasn't been done. There are thousands of lines that cross State borders in this country, EHV and other voltages.

So, when we tell State -- I meet with the State regulators of many States a lot of times. They say, "What do you mean that you cannot approve lines? What do you mean that we cannot collaborate?"

Well, the fact is that, you know, there is roadblock, and there are difficulties, but in fact, there is also collaboration. I think it is very important for us to recognize what the States are willing to do.

I think we see in the Western States, a tremendous amount of collaboration. Certainly, in the upper Midwest, there is a tremendous amount of collaboration.

I am not into getting into a middle of a fight between the Federal and the State government folks. I absolutely want to encourage people to do what they are doing.

I must support the States. We have never been denied, 51 major projects, $2 billion, never been

denied one right of way, never been denied one project. We work pretty hard to get it, and a lot of them do cross borders within two States, Illinois, Wisconsin, Michigan, and Minnesota, and it is very high voltage. Well, 345 is pretty high voltage.

The point I am making is that this doesn't have to be easy. It just has to be possible.

Some cases, they are not making it possible. In most cases, they are. I think we have to recognize where the States are making it possible.

I also have here a statement from one of the commissioners from Wisconsin who was just making a case to DOE that a lot of stuff is being done by the States. Part of it, I think is a matter of not putting salt on the ice of the people who are helping us, and I am very intent on not doing that.

MS. STUNTZ: Others, please. Yes, Commissioner.

MS. GRUENEICH: I want to thank everybody around the table for helping. I think that we have got a good start on the report.

I had four items. One is actually very

discreet, but maybe we give some thought to the title of the report. It is called "Keeping the Lights On in the New World," and that to me sounds more limiting than what we are trying to do. It also may be viewed as a negative connotation, when I have mentioned this to a few people.

I don't propose that we spend time today thinking about it, but "Keeping the Lights On" tends to be the reliability side, and what we are trying to do here is I think take a much broader look at things. So that was my first one.

The second one is I haven't had time to look in detail in the generation side, but I hope that we have a pretty good discussion of combined heat and power and distributed generation, if that is the place that it goes in, in that supply side.

I don't know if it got picked up on the demand side, but sometimes it falls through the cracks. Again, I didn't have time to look at it, but I would encourage us to make sure that we have a good discussion somewhere of the existing status with regard to CHP and distributed generation in the United States

and then what our recommendations might be going forward.

The third area is on the demand side, and just looking at it -- and this is the time that I will give the plug that tomorrow we are going to have copies for everybody of our recently adopted California Long-Term Energy Efficiency Strategic Plan that was a year in the making, and out of this, what I wonder is -- and I don't have a recommendation, and I push it more to the folks in that committee, I guess -- is the recommendations are pretty discreet incremental recommendations, you know, let's get DOE moving to get their standards done on time.

That is a good thing, but in the process of California of spending a year of thinking about how are we really going to develop all cost-effective energy efficiency, because that is what our State law requires us to do, how are we really going to use it to be the back bone of our climate change law, because that is the other thing that we have committed to do, we realize that we have to scale up beyond what we are doing.

The theme that we are using is market transformation. One example I know that DOE is involved in is the Commercial Building Initiative, which is working with all the national labs on trying to have a really solid program in the United States, so that by 2030, the commercial buildings are what is called "zero net energy."

I just wonder if we shouldn't think of having some encouragement to DOE to take on literally market-transforming initiative in entire sectoral areas.

Another area that we are thinking about a lot in California is air conditioning, that there is a lot more use of air conditioning everywhere in the United States. We know that it is a two-pronged problem.

The current types of energy, air conditioners that are being produced, need to be a whole lot more efficient, and then the actual air conditioners that are being installed are sort of the lowest common denominator.

So what we are giving much more thought about and we have committed to do is over the next five years

or whatever the time period will be, how can we transform that air conditioning market.

So I wanted to, I guess, suggest to the Demand group that they think about calling on DOE to undertake some initiatives that literally could over a 5-, 10-, 15-, 20-year period do major transformations in this area.

And then my last one is on transmission. I am not going to spend time on it. Jose, you and I didn't talk, but you certainly said very well, very articulately the concerns I have, that there is no national energy policy, and we probably all -- I assume everybody wishes we had one, but let's be real. There is no national energy policy.

We have I think 30 States now that have a renewable portfolio standard. So we have got a heck of a lot of State policies, and to in my mind have a focus that says, well, really what is driving things are the State policies, but the solution is to take away from the States then, all voice in having those policies implemented when it involves transmission is not one that seems to hang together.

But Mike and I have talked, and we feel that with some time now working on it, that our actual differences are not that major. I mean we may end up with some discreet areas that we will have to decide what to do, but I did want to say that I think we share a lot of similarities.

We have got to do longer term planning. We have got to look at transmission from a longer term perspective. We have got to get the Federal land use agencies off the dime. That is absolutely the single greatest impediment that we run into, and everybody needs to hunker down a whole lot more.

So thank you.

MS. STUNTZ: Thank you.

Rob -- or did you want to respond directly? I really do appreciate the collaboration, and I am hopeful that we can narrow the issues.

On the other hand, I think the commissioner is well aware of, unfortunately, the action of her neighbors and stymieing a project, but we don't want to make things worse. We want to make things better.

MR. GRAMLICH: Just a quick comment now

regarding Jose's point about wind out of the upper Midwest to serve points east.

There is a joint coordinated system plan supported by Department of Energy, which has benefit cost ratios, I am told between 1.2 and 1.4 now that would include $80 billion of transmission, much of it 765, some of it DC as well as AC.

It would bring on 240,000 megawatts of wind, so a tenfold increase in the amount of wind in the country really largely out of that part of the country alone.

So the important thing to me out of this report mainly is however we resolve the specific siting and other policies, I think expressing to the country the opportunities we have in the context of energy, security, and climate change, and the role of transmission in achieving those goals.

MR. HUNT: Not transmission.

MS. STUNTZ: Okay. You are allowed.

MR. HUNT: Just a quick comment. I look for what is missing in the report, and one of the biggest issues we have in the country right now is fuel

transportation.

You would be surprised at the average coal pile and day's inventory and the fact that floods and things could take out rail, and then you trap the fuel issue.

Second, if we don't do anything, we will devolve to natural gas being a bigger and bigger play, which means LNG and also siting of those pipes to get it to where it needs to be.

So I just want to make a lug for we need to address the fuel transportation issue.

MS. STUNTZ: Okay. Sue?

MS. KELLY: Thank you. I just wanted to provide some very general reactions, and I would say, first of all, everybody has done a tremendous amount of work.

I was working hard on the plane last night to plow through it all, and I think the issues of difference that we have are extremely legitimate ones and heartfelt, and I don't look forward to being you, Linda.

I'm just teasing.

On the generation chapter, I will say that it seems somewhat RTO-centric in its approach. There are substantial areas of the country that do not have RTOs that do use different models for planning and supporting and developing generation.

So I think the report, if it is going to purport to be national in nature, needs to take that a little bit more into account, and I would be willing to help with that.

MS. STUNTZ: I was just going to ask if you would. That would be great.

MS. KELLY: And I would just note that one of the methods of fostering generation is actually the use of long-term contracts to provide certainty in financing, and I think that needs to be mentioned, and again, I am willing to help work on that aspect.

Of course, especially in non-RTO areas, but in RTO areas as well, States have major primary roles in generation, and I think that needs to be acknowledged. They need to figure out how to make that mesh with our goals of more renewables, more clean energy, less polluting technologies, et cetera, et

cetera, but I think States have a huge amount to say on generation, and I think we need to acknowledge that and try and see how we work that in.

I will say that I think a national RPS, that recommendation I would have a little trouble with.

As was already noted, we already have 30 States that have RPS standards, and they are not all the same because different regions have different needs.

The Arizona solar RPS isn't going to go down and certain other regions of the country that don't have that same kind of resource. So I think that is one of the reasons why a State-by-State approach actually makes more sense on that, and so I just wanted to note that I would have some concerns about going forward with that.

On the transmission chapter, we have the issue of siting to discuss. I won't take that on here.

I would just note that recently, I have spent a lot of time on the issue of cyber security. I think we need to note that somewhere within the confines of this report, and I am not sure which chapter is the

best place to put it.

Obviously, when you create a Smart Grid, you are opening up the system, making it much more interactive, and thus making it much more vulnerable, and I think we have to approach it there, but it is also worth noting in the transmission area as well. I think it is a very important issue. We need to make sure we include that.

The last thing I would note in terms of different way to support transmission is it is indeed true that there are lots of different entities out there who are interested in supporting new transmission with their money and their time and their effort, and some of those are actually not just investment banks or pension funds, but there are transmission-dependent utilities who are also interested in that.

So I just wanted to note that the universe of entities who are interested in supporting new transmission and in buying into it may be a little broader than that chapter would otherwise reflect.

Those are my macro comments.

MS. STUNTZ: That is helpful.

All right. Others?

Steve?

MR. NADEL: Do I need to go to a mic?

Thanks. A few comments. One, I noticed in Chapters, I think it was, 1, 2, and 4, they talk about a variety of resources. They talk about transmission, about generation, about demand response. They don't mention energy efficiency. I recognize energy efficiency is primarily Chapter 3. Where you do mention demand response in Chapters 1, 2, and 4, I would hope that also efficiency would be mentioned because that is another way to help reduce the demand for generation and transmission resources.

Two, I would agree with Dian. I also noted that CHP is not anywhere in this report. I presumed it would be in the Generation section. I am happy to work on putting it in the Demand Side if that is what people prefer, but it needs to be somewhere.

Also, likewise, in Section 1, you talk about biomass and all sorts of other things, but nothing about CHP. So that should be added.

Third thing I noted is in various places, we

have various different estimates of the relative construction cost of different types of fuels. One group used some old EIA number. I think it was Annual Energy Outlook 2007, which really means 2006 numbers which are, I believe hopelessly outdated. It probably would be nice to use some recent source.

I know we wound up in our group using a Lessard Study that was just presented at NADUC. I hear Brattle is due out this week with some numbers, and we can standardize on some very recent study and get rid of some of the old and also conflicting stuff.

And finally, I did notice in the transmission, despite all the rewriting, there is a lot of commonality in the two chapters, and I am glad to see that you guys are going to try to work it out.

Yeah, I understand there are some key issues about the role of States and others that will be more difficult, but much of it struck me as quite resolvable.

MS. STUNTZ: Those are good comments.

I don't know. Maybe we should talk about this metrics issue. I do think it is tough. I think

we had sort of proceeded under the notion that we would use Energy Information Administration numbers, at least as a common platform, because they cover almost everything we are going to be dealing with.

If there is a strong feeling that those are inappropriate, then I would like to discuss it. My concern is -- I mean maybe the Lessard Study is good, but typically, those are done at the behest of someone, and they reflect assumptions that may or may not be ones that -- and we could disagree or point out concerns about staleness of data if you want, but it seems to me, we have got to have some common platform against which we can do numbers.

I don't know of others feel differently. Yeah. Steve?

MR. NADEL: I had heard somewhere that EIA is updating their numbers. I don't know if there is something very recent they can provide, but if not, I think it is safe to say the EIA is so old that we need to pick in some more recent one.

MS. STUNTZ: Do you want to comment on that?

MR. MEYER: I can't speak for the freshness

of EIA's numbers, but we can certainly put you in touch with the right people at EIA to get to the bottom of the question fairly quickly.

MS. STUNTZ: Mark just advised me that his understanding is they might be updating their gas supply estimates, but that they do not anticipate a wholesale sort of revision, because as I recall, they didn't really release the Annual Energy Outlook for this year until -- was it May or June? May.

So I don't know how. I mean I think it is pretty current now.

MR. ALLEN [speaking off mic]: [Inaudible.]

MS. STUNTZ: Okay. Paul's point was Paul has concerns about the numbers in the Generation report, and I think this is important. That is why I said I think we need to find a common reference point. I think it ought to be government data. I think it ought to be the best and most recent government data we can find.

If there are specific problems with -- you know, I'm sure what Bob and Malcolm used in the Generation report were numbers that either he had

access to or that were provided to him. So, if there are better, more recent government numbers that we can furnish to him to use, I am sure they will do that, and I would invite any of my colleagues to do that.

MR. MANSOUR: The numbers in the data in Chapter 1 were all based on the 2007 DOE numbers. So those are most recent government data.

MR. ALLEN: It is just the problem is that in certain construction costs, there have just been step change kind of numbers.

MR. MANSOUR: You mean from 2007 and 2008?

MR. ALLEN: Yeah, yeah.

MR. MANSOUR: Yeah. But then 2008, we don't have any government numbers yet.

MR. ALLEN: It may very well be that there is a way to footnote this --

MR. MANSOUR: Finesse it, yeah.

MR. ALLEN: -- to the audience, but we need to somehow reflect that we are in a dramatically different pricing environment than we have ever been in before.

MS. STUNTZ: Okay. Barry?

MR. LAWSON: I am just going to comment on two higher level issues. There are, of course, a lot of issues to cover in these documents, but I will just keep it to the macro level.

First, on the Transmission chapter on transmission citing and how we approach that in the report, right now there is a strong preference for a national citing authority, and I would prefer that that be softened somewhat to take out the word "ideally." Not to wordsmith, but that is where the preference is. Other than that, it is a good representation of the options that are out there, but we do need to soften that, I believe, and to state that we need to look at regional, inter-regional, and national alternatives but not one specific alternative.

On the second issue, balancing areas and the claim that we need to reduce the number of balancing areas, this needs to be handled from a reliability standpoint and not from any other angle.

If there is a problem out there, then we can handle that with new reliability standards. So we need to soften the approach in this document for just

stating that there needs to be a reduction in the number of balancing authorities, and these are entities that are formally known as "control areas."

There are a lot of reasons why there are small balancing authorities or control areas. It is not a simple topic, and we certainly don't have time here to discuss why there are a lot of smaller balancing authorities, but the report right now is too strong on that preference.

MS. STUNTZ: Did you want to respond to that? Otherwise I will recognize -- all right. David? Dave and then Vickie.

MR. NEVIUS: Thank you.

Picking up on what Mike Heyeck said about adding something on fuel transportation and storage, in NERC's soon-to-be-published Long-Term Reliability Assessment, we have a chapter on that, and I can make available the information that we put together to be in mind for things that could be added to this report.

The other issue that none of these chapters seem to address that we have included in our emerging issues section of our report is the rising global

demand for electric power equipment and the impact that that puts both on the generation and the transmission systems.

There are a lot of assumptions on new generation being added in a certain amount of time, new transmission being added, and the lead times, as Mike I am sure well knows -- the lead times for this equipment are increasing tremendously because of worldwide demand on a more and more limited set of suppliers, and this applies, I am sure Rob knows, in terms of wind generation, you know, the projections of how much wind will be added.

There's people all over the world adding wind generators, and the suppliers are going to have difficulty keeping up.

So somewhere, either in the resource section or the transmission section or both, we ought to address that issue of the global demand for equipment.

MS. VAN ZANDT: A few items. Some of these, a couple of them, have been mentioned already.

I think in the transmission section, there is a description of a national grid that sort of implies

that we are going to overlay the three interconnections with significant transfer capability, and although the wording in the transmission section says the way to do that is with DC, I am not sure we want to suggest that that is the way to go. I don't think it is the way to go.

DC is the only way to keep it controllable, but I think there is a lot of renewable endowment in each of the interconnections. We should get the interconnections right first, before we would imply that we are going to overlay and make a single grid, essentially eliminating the interconnections. That is the first thing.

I have a differing view on the balancing authority consolidation. I think it is the best economics, and I think it is the best visibility.

So, just thinking about it from an operator's perspective, we are asking a lot of operators these days, and the stakes are pretty high with reliability criteria and the impact of making a mistake is very visible and big consequences.

So one other thing that I don't think is

mentioned anywhere is the need to emphasize the modeling of our power system. We have it down pretty well in transmission, not so well on generation, and it is just abysmal on load. So I think that needs to get stated somewhere. It is kind of a techie comment.

Let's see. We need to emphasize the need to arrange the dance partners for the variable resources, sooner rather than later, because the integration is upon us, and it may overtake us if we don't get that part right. So it is kind of a speed comment.

Two more things, the long-term planning, a lot of the recommendations are get back to that. I remember seeing a 20-year plan that had some basis in reality when you actually got out there.

The reason that we don't have them now is because so much is up in the air and so much can change. RPS's, once through cooling, greenhouse gas, all of those things kind of shorten. When you get out past five years, it is looking in a crystal ball, and it is pretty foggy.

So maybe along with the need for better long-term planning, so we can get the big facilities

in, that would make our future, some recognition that that is harder with all of the things that are still up in the air.

The final thing is an underscoring of the competitive marketplace for power system equipment. I was reflecting a while ago that we thought we had consolidated a big order for power transformers. We were going to buy seven of them, and we were informed that China had just placed an order with its manufacturer for 350.

[Laughter.]

MS. VAN ZANDT: So it is not only the pricing, but it is the competition for the spot in the factory. So lead times are longer and longer. What used to be 18 months is now 32.

And then finally, the competition for the construction workforce, we are all in short supply of climbing line craft, and if all of this infrastructure is going to be built, who is going to actually put it together?

MR. MANSOUR: I have a number of points. Vickie took care of several of them, especially the

balancing authority, economics, and visibility.

The economics is quite significant. Vick and I were involved several times in studies like this, and really, it was in the hundreds of millions of dollars of benefit to consolidate certain authorities in the northwest.

Anyway, the issue of siting in the State versus Federal -- and I take, you know, Jose's points. They are well taken. I can get any number of States to participate in a planning process, and they love it. The planners, "Yeah, anytime. Let's get coordinated planning," and they sit down and they do planning.

The rubber hits the road when you have one for real to actually go. The diverse line has been in the plan for a long time as part of the WECC and part of the States and everything, but when it came to siting, it is basically one commission said, well, it is not in the best interest of my and I am not going to prove it.

So, if it is done at the State, fine, but in some cases, it isn't.

I also take your point that it takes effort,

but ultimately it is done, and can we afford that. If you look at the 33 percent, for example, goal of California, there is $10 billion worth of transmission. So you are talking about $2 billion transmission and it took a while or whatever. Imagine how much effort if we follow the same process, and some of it is in the State, and I trust the State will take care of its own, and some of it will be crossing States.

We have done a recent study to show how RPS can be met on a regional basis versus a State by State, and again, the benefits were tremendously more. So it, again, brings the issue of there will be more and more need for interstate transmission, and with the amount of it that is needed both for reliability and interconnections, I don't know if we can afford even if they hold the process, eventually took us the result, can we afford that volume to go through the same results. That is on transmission.

On the demand response, I actually would like to pose a question. Who is in the best position to provide comprehensive extensive demand response? Is it the utility? This is a question that we should really

discuss.

We are talking about, for example, New England was mentioned. New England has direct access. So the providers are many.

Now, I can't see how it will work actually if you have -- if you do not have direct access with the utility provider and a day ahead of schedule and then gets cleared in the price and then in real time they provide the price for reducing it, the same utility.

Just a kind of, again, on if we talking about the Smart Grid that is beyond a utility and beyond a State, to get the full benefit, again, is the utility, who own the customer, without changing their taxes or anything, would they be, again, remain to be the best provider of demand response to explore the full capacity and the full potential of demand response.

Those are kind of specific. There are some two general comments I have. When we talk about this, when we actually talked about putting together this report, it was coming to the point of how do we define adequacy in a holistic sense with all the change we have now, and we thought we would take that task, and

then we broke the pieces into generation and transmission then.

I hope that we don't forget that eventually, okay, so then how do we define adequacy. We have now a report that is in pieces, kind of putting a lot of ideas and recommendations to do with that piece, but I just want to remind the committee that when we created that task, it was to actually get back to adequacy in a holistic way.

We even struggled with we should not call it "resource adequacy," but what. Somebody said maybe "supply adequacy," maybe "electricity adequacy," but eventually, I think we have to connect all of those dots in one form of adequacy and how we define it in the new scheme of things.

Also, just generally, I hope also the last set of recommendations when we define adequacy at the end and we have a set of recommendations, that hopefully there would be a number that is manageable, we make it more crisp than "encourage," "advocate," "cheer," and things like that because, you know, as Kevin said, they could derive that themselves,

encourage or whatever. We really need to have very specifics as to how would they do that. Otherwise, you will just have a fallout and say "we encourage," and then we didn't get any further than we have.

That is all.

MS. STUNTZ: Go ahead, and then let's hear from Hunter. I would like to sort of get everybody in the mix here, and then commissioners.

MR. HEYECK: Yakout brings up a good point. In connecting the dots, what is the overarching concept that we are trying to get after.

If you read the demand response, we have tried demand response now, what, 30 years ago, and it really hasn't been successful, but if you read the chapter, probably the biggest thing we ought to decide on or actually put options out there is, is it the utility that goes to the refrigerator and shuts it off, or is it some entrepreneur that works on the other side of the meter to provide aggregation, to provide whatever is needed, dance partner or just the supply side of it.

I think there are two options there that we

ought to probably flesh out, but as we put this altogether, in connecting the dots, if you will, I think we got to deep-dive in each of the components. We really need to get that overarching principle of how in the world we are going to do this.

I think one of the biggest things -- and I think Steve mentioned it -- is going after appliances and trying to get standardization and efficiencies in the appliances, not only that, but a chip in the appliances that we can go after either as an aggregate or as a utility to address.

Interoperability. Again, a techie word, but it really talks to a control center, talking to a refrigerator. Those are the types of things that we need to do in an overarching way.

MS. STUNTZ: Commissioner Smitherman?

MR. SMITHERMAN: Good afternoon. I'm sorry I came in a little bit late.

I guess let me make this broad, consideration about transmission. I have yet to meet a land owner, a small town mayor, or a residential or commercial owner that likes transmission to come through.

MS. STUNTZ: You should meet Jose. Jose wants it in his back yard.

[Laughter.]

MR. DELGADO: You don't get them to like them. That costs too much money. You get them to tolerate it. We have a lower standard than the politicians.

MR. SMITHERMAN: If I could finish my comments.

Except we found that it is tolerable under a couple of situations, one, if it is tied to renewables, and not only do the land owners where the renewable resource is sited find transmission acceptable, but generally, even land owners through which the transmission will go find it moderately acceptable if it is connected with renewables.

Secondly, if we exercise a bottom-up, very participatory, very local-oriented process for identifying the need for the transmission, identifying the congestion and how it affects a local area, how the economics for that area will improve, and allow them to participate in choosing the route alternatives, we can

get it done.

Short of those, it becomes very, very difficult, and so I am extremely skeptical of any top-down process, any process that says that someone located away from where the project will actually be built decides that it is going to be built and where it is going to be built.

MS. STUNTZ: I am going to recognize Hunter, but let me -- I guess my take on this is that Texas has it right. You are getting transmission built. You are in Texas, in ERCOT, because you have the ability as an interconnection and a State to say this is what we need, we need renewables, you picked a certain portfolio, and you are going to allocate the cost, and you were able to make that decision as well.

Unfortunately, we do not have that in the other interconnections, and so my own view I guess is similar to Vickie's in that I think that is a real problem.

If WECC could do it, if we had one RTO in the whole eastern interconnection and they could do it, I don't think we would need to be talking about it as

much as we are, but we have three or four RTOs in the eastern interconnection and some important players that aren't in RTOs at all. We don't have any except Cal ISO in the western interconnection, and I think there is a lot of good work going on with the western governors, but as Yakout said, what has really been built of an interstate nature. It is not a lot.

So, anyway, that is how I approach that. That being said --

MR. SMITHERMAN: Linda, if I might. I don't disagree with anything that you are saying, but even in Texas, I am not sure if we built $5-billion worth of high-capacity transmission through areas that have none of that now, if it were not tied to renewables. That is my point.

MS. STUNTZ: That is a really significant point, and I appreciate that. I do think the good graces of the team here and the views that are being expressed, we can work to meld these views.

So, Hunter. Sorry.

MR. HUNT: No, no. That's fine.

Actually, the comment I have kind of builds

on this discussion and a comment Jose made before.

I think every group mentioned incentives as part of their solutions. I want to warn against that because an incentive assumes that but for more money, somebody would do something, and transmission is a good case in point.

Money is not the problem. There are a number of people who are interested in investing. The real problem is regulatory certainty, and as Jose said, a long maybe is a killer relative to a short no. Given the choice between making a few more points on a return, but rolling the dice with a regulatory process that is unclear and undefined or, alternatively, accepting a lower return but knowing if you do everything correctly, you are assured of a project, that is a real easy choice to make.

So I want to make sure we stay away from financial incentives to the industry as a main focus and really focus more on how do we clear out the regulatory ambiguities that exist.

I will come back to the KRES process. That is exactly what it did. Concurrent with the KRES

process, the commission came out with a single digit. The last benchmark on rate of return for equity in Texas is in the single digits, and people are beating down the doors to enter the State to build transmission because of the certainty that exists.

MS. STUNTZ: Good point. Let me recognize Guido and then get back to Rob.

MR. BARTELS: Thank you. A few comments.

First, Linda, we just had an extended Smart Grid Subcommittee meeting for the last four days with about 700 people. So I hope some of you were able to join that, and I have had little sleep over the last few days.

First of all, I think it is very good work and also the description, but what I have seen out of the team, I think it is very good work.

A comment at the end made early about and also commenting on the title of the report, the thing about transformational incremental, what I was wondering when I was looking at the work of the committee, is this all consensus and what things did not make the report. Of course, those are often the

things which are transformational and really address the kind of changes which can make an impacted. I also reflected on our own work as a Smart Grid Subcommittee, so what are the things you don't reach consensus on. Quite often, you have some very interesting points there.

The other point, I think Vickie made a point about skills and resources and to what extent that has been seen. It is often a longer term problem and also a longer term solution, but to what extent has the team looked at that and considered actions in that area.

MR. GRAMLICH: Thanks.

Back on the question of, I guess, top down versus bottom up, for lack of a better framework, on transmission, first of all, I can't question what Commissioner Smitherman and what Jose have done to get transmission built in their areas. They are on the front lines, as well as Commissioner Grueneich in a very difficult environment in California getting some transmission built there, and all three of them have more executive experience than the four Presidential and Vice Presidential candidates. So they are in the

hot seat.

I wonder whether, since it was questioned, the value or cost and benefits of the EHV overlay system in the chapter -- well, on that question, I wonder whether -- and since Secretary Bodman noted the potential benefits of that system this week, I wonder whether some more study -- and I mentioned some numbers earlier about what these studies in the eastern interconnect are coming up with.

I think there are similarly, almost eye-popping numbers coming out of the western, southwestern-focused study, and I think these are extremely important. Maybe we could recommend more study effort or reporting or analysis of the reliability and economics of that EHV overlay.

I think probably the regional planning and cost allocation issues are less threatening than the siting issues when we get to the policies and support of these types of frameworks, and maybe we could all agree more in that area and put the framework -- and as Commissioner Smitherman said, it is nice for him to say it and not me, but if it transmission for renewables,

then it does seem to go down better, and you know, these regional plans can show, again, many, many gigawatts of renewables coming on. So put in that framework, perhaps we could get the regional cost allocation figured out.

Barry mentioned the balancing area issue, and Yakout and Vickie responded. That is probably not something I understand, Barry's views and his members' strongly held views. We are probably not going to agree on that.

I wonder. However, we do have a responsibility for education and informing the public. I wonder whether some more study there on the reliability and economics of either actual control area consolidation or a virtual control area consolidation, which the latter is usually much more acceptable and easier to tolerate, but I think providing information on that would be critical. I know that it is certainly a very high priority of the wind industry because you can integrate a lot more wind if you have larger balancing areas or balancing areas that act as larger systems.

MR. SANTACANA: Along the lines that Rob made on digging a little deeper on the EHV, I think we should answer the question or at least address the issue of why more and more countries around the world, emerging countries, mature countries, some of them much more energy efficiency-minded than we are, why are they going more and more to higher and higher voltages. What do they see that we don't? What are the benefits that they are considering that we are not? Why can they do it, and why we cannot? I think that question needs to be addressed somehow because somebody is going to ask that question. It is in that part of the solution.

MS. VAN ZANDT: I just wanted to clarify my comment about EHV.

I am all for EHV. The losses are so much less, and the flexibility into the future is so much greater with a higher capacity line or lines, and you are careful with scarce right of way.

So sometimes folks think build something that is good enough for four or five years and then come back and rebuild it. Well, you can't take it out of

service to rebuild it, for one thing, and it isn't cost effective in the long term.

So my point was merely I think we ought to have an overlay. I just think we ought to have three of them, and they are limited to the interconnections that exist, and it is mostly a controllability issue. It is hard enough to manage, particularly the west. That is where, some experience and it is kind of twitchy.

MS. STUNTZ: The last two comments do bring to mind something I would ask you all to keep in mind, and I think it is a legitimate function of this committee to make recommendations about additional study, and it may be a way that we can bridge some of the gaps if we don't have complete consensus, but not to lose the thought to educate and to make suggestions about further work, whether it is this balancing authority issue, or I guess I agree with Jose that I do not necessarily think it is a function of the advisory committee to be picking as between whether something should be 765 or 500 or DC or AC.

I am only a lawyer. Heaven forbid, I play

engineer to that degree. Come on.

But I would say -- and I know this is something David and I had discussed. I mean this committee is not going out of business at the end of this year. There will be -- it is not my decision, but my expectation is there will be additional reports to be done, and certainly, some of the things, if we can only sort of make a sort, identify an issue and frame it and make a specific recommendation, keeping with Kevin's views about further work that needs to be done, either by DOE or by this committee, I am okay with that.

I would hate to see us sort of get to that on all the hard issues, that being said, but I think it is a legitimate point that we could keep in mind in some of these areas.

David, do you want to add something?

MR. MEYER: Let me add just a little bit to that, sort of two points.

One is that on areas where there is disagreement or what seems to be a disagreement within the committee, when you think about can you then say --

I could see people saying, "Well, I am not ready to buy into a particular recommendation because I don't think certain key questions have been answered." Okay, that is very useful.

What are the questions? How do we get the answers that are needed to those questions? So that is one way to deal with possible points of disagreement, and it plays into this idea of the longer term role for the committee because I think particularly when we get to the December meeting, the December meeting, the first order of business will be to do whatever remains to be done, which I hope will be very, very little, with the basic report that is to be handed over to DOE and to the transition team.

But it is also that will be the time to think about what sort of a proposed work program do you want to put forward to the new Administration. I think it would be very appropriate to come up with a list of proposed things to work on, and I would expect the incoming people to tweak it, maybe strike some things and add some things, but I think they will be favorably impressed if -- the thing that you don't want to do is

to just be sort of sitting there waiting for assignments from these people because they are going to have a lot of other things to do besides worrying about assignments for this committee.

So be preemptive here. Come up with some things that you think would be appropriate, next things to focus on.

MR. WEISGALL: As a quick follow-up to that point, I wanted to raise this anyway. A process question to think about is priorities, do we want to set priorities.

From my perspective, for example, I can't tell you how many reports I have read that have called for streamlining siting among Federal agencies. We have read about it for 15 years.

Maybe we need to explain why it hasn't happened. Maybe we need to add just a little bit on natural gas pipelines, perhaps how electric lines are built up differently, but we may agree that that is something we can push. That could be an easier one than other recommendations and could have more impact, maybe some of the energy efficiency. I don't know

which ones, but I like to raise that as an issue, but certainly within transmission.

Maybe it is incumbent upon us to break out from that last 20 years of studies and be a bit stronger in what we do have to say about this issue, and the time has come. We can't wait any longer on that.

MR. WALKER: Thank you.

The discussion about the transmission, particularly the EHV piece of this, I guess made me really start thinking about some of the coordination between all of the recommendations that we have.

I guess as I listen and we go around the room, we keep talking in terms of our regional entities, you know, like local RTOs, and it strikes me in a sense that perhaps we are falling a little bit short because it reminds me of the vertically integrated utility model insomuch as we are not looking at this nationally, that we are willing to just accept the fact that we are going to look at some of these things regionally and perhaps forego some of the best opportunities we have to be able to perhaps bring

things from California to Boston.

So, you know, I guess I am troubled a little bit as we talk through this that perhaps we are not really looking at how far we can push some of the items that we are talking about, and in pushing that, it will be difficult, and there are going to be some significant challenges. I am not suggesting that I know how to overcome them, but I just debate whether or not we are really pushing as hard as we could.

MS. STUNTZ: I'm sorry. I can't see you. Ralph.

MR. MASIELLA: There has been so much discussion about resolving the siting difficulties through simplifying or rationalizing the process.

Should we also suggest technology R&D into mitigating the reasons the public resists it so much? Having been peripherally involved in a couple of these contentious siting projects in Connecticut and Virginia, one thing that eases it with the public is if you can underground it.

I am aware of the technology and cost issues that come into play, but maybe with enough R&D, there

would be ways to make undergrounding less unattractive, economically and technically, and that would be a big step towards solving the siting problems. It would certainly be easier politically.

MS. KELLY: I just wanted to note that we too, and my membership is quite concerned about the inability to site and build transmission, and that is a serious issue for us. I do think we need to think about ways that we can push that envelope, while still trying to respect the various viewpoints.

Maybe one way to do that is to note that the status quo is unacceptable, here is a possible number of different ways to proceed.

I just wanted to also comment very briefly on the idea of cloaking new transmission in the renewable kind of rubric. It is absolutely correct that that makes it go down easier, but it also can lead to some -- how do I put this? -- less than educated ways of looking at the issue, and I think part of our job is to educate.

For example, we have seen legislation that says 80 percent of the power that moves over this line

has to come from renewables, and we try to explain to people, you can't do that, it is an interconnected grid. Once it becomes interconnected, you can no longer dictate which electrons are going to go over it.

So it is absolutely true that one of the prime purposes of building new transmission is for renewables, and that is a good reason to be doing it.

I, for one, wholeheartedly support that, but that can't lead to perverse policy outcomes, and I think we have a duty to educate, to explain that that is not the way the physics work, and that other power will also be moving over those lines.

We have an education responsibility, as well as a recommendation responsibility. I just wanted to note that.

MR. HEYECK: I guess I can't resist.

Regarding the EHV overlay or whatever we are calling it, when we envisioned the interstate highway system, we didn't envision exactly what we have today. It was just a concept. Actually, a lot of the interstate highway developed through local need, not necessarily a national need. So there is an

incrementalization to the concept of having what the goal is or what the objective is.

I wanted to provide a story because EHV overlay, by the way, does save -- we are talking in the neighborhood of 10 gigawatt on peak of losses that it could save in concept.

This EHV overlay is going to be built in sections. Every segment, there is going to be something that is justified by some regional entity or some inter-regional authority or some local authority. It is really providing the concept, and I want to get the story out.

South Korea had the unfortunate opportunity of building from scratch in the middle of the last century. Even though they did build from scratch, they did have a dissimilar distribution network, which actually took them 30 years to standardize. They standardized the distribution network and the appliances. They have 22.9 KV, 220 volts. It took a long time to do that.

One of the most remarkable things about South Korea is their infrastructure for delivery is 4 percent

losses, where our infrastructure is 8 percent at best. The reason they did that is their lowest transmission voltage is 154 KV. The United States has at least 15 different voltages. They have three.

So, if you put in the overlay, maybe some of the lower voltage transmission can be retired, and efficiencies can be gained from that. So there is a goal to provide I think, this group, a concept of what this is, but it does develop in regions or locally or inter-regional as to its achievement, whether it is siting or whatnot, but I do think that we have to break down the barriers of siting. We have to break down the barriers of cost allocation and so on of what impedes transmission siting.

One of the other areas I just wanted to mention too is where is it incented that when we build things new, that we choose the most efficient option to do it.

The transmission owner is not rewarded for building lines with advanced conductor for more efficient operation. The distribution is not rewarded by doing anything other than the ordinary.

Now, DOE could provide the standards by which we can apply it, and certainly, distribution transformers is one area that is being done, but as we develop these systems, we ought to develop it with the most efficient use of wire, transformers, and devices possible.

But right now, except for the regional authority coming up with the least-cost option, how is it that we could reduce losses and choose the right options in those segments?

I know I rambled a bit, but the ultimate thing is EHV overlay is a concept for 30 years form now that we can build incrementally through regional authorities, inter-regional authorities, or based on local authorities, much like the national interstate highway system was built, and if we do build it, let's build the most efficient options and the most efficient use of right of way.

MR. CAULEY: Thanks, Linda. I had comments in three areas.

One is in terms of the generation adequacy. I think it is easy in these times to get excited about

new technologies and renewables and those things, and I think those are rightly included and emphasized in this report, but I think really to get to a sustainable energy picture 30 years from now, we have to really include all technologies, including existing technologies. So I think we need to balance our focus between the newer, including renewable technologies, as well as coal and nuclear.

I think the answer is going to be we are not going to survive unless we have all of these things, and they are all robust, sustainable types of energy in that time horizon. So I think we can just -- I would prefer if we balance the emphasis on resources in the final report.

The second thing, on the transmission piece, most of the comments I have heard strike a chord with me.

I have trouble comprehending how we could go out and intentionally say we are going to build a transmission super highway or things like that because I think actually the decision-making in terms of costing and assenting projects and making decisions to

build is not really broken. I mean that process works.

Deciding if there is benefit there and the cost is right, people will build, and I also don't think the planning is necessarily broken, and if it is, if it isn't a local or regional area, if the planning is broken, then shame on them, and it needs to be fixed.

But I think the real obstacle that has been kicked around here is in a couple of areas. One is the regulatory certainty and the environmental certainty and the siting, and I think the problem is not going to go away by just deciding to build an overlay grid or multiple overlay grids. The problem is going to be solved by getting tough on those issues.

There is going to have to be a long-term set of policies for transmission, and including environmental impacts and so on, so that there is some certainty over a 20-, 30-year period about where this is going to go, and I think the siting piece, although I understand and support a lot of the comments on really it is local and grass roots and I think that's right, but I think at the national level, there needs

to be a backstop for that, that is firm and that can balance the national interest between environment and energy and property rights and individual rights.

There has to be some firm backstop that this just gets resolved, and if not, it is just going to continue to be a roadblock.

My final comment on the demand side portion of the report is I was surprised that one of the recommendations was not highlighted that we need to set some kind of target, some kind of mandated targets for demand side. It is one of those things that everyone agrees is good, but nobody wants to do it. Everybody still wants their SUV. Everybody still wants all the energy use that they can use and all their electronics and all the things that they can do in a house.

I think it is just going to be a pill that we are going to have to swallow to get things moving forward is to set some kind of program.

I understand it can be done on the State level, and many States have taken that initiative, but I think getting success on the demand side is going to take some kind of at least threshold level-mandated

targets.

MS. STUNTZ: Let me just ask the leaders, excluding Mike who had to leave the room, whether you have any questions about the feedback you have gotten.

I know, Bob, one of the things that has been mentioned, I thought you have some discussion of distributed generation, but it clearly didn't speak to those who were looking for something specifically on CHP. Do you have the guidance you need to go forward? Are there people that you want to tap to do that?

Then I will ask Steve, Yakout as well, and Mike when he gets back in the room because I want to see if you would like to follow up on any of the discussions that you have heard, with comments on the Generation Adequacy chapter.

MR. HOWATT: No. Actually, I appreciate the comments, and some of them were absolutely on target. There are some other areas where we probably didn't emphasize the material that people were looking for. So I appreciate the comments, and I think I have got all the guidance that I need on that particular draft.

MS. STUNTZ: Okay. Steve?

MR. NADEL: I haven't gotten too many comments, just a couple of things. So, if there are more people, I think people -- there will probably be a process to e-mail them in. Let us know how we correctly wordsmith things. I maintained we will probably have an R&D, and I haven't heard any objection to that.

I would be interested in other feedback on this last comment about whether we should add more about the targets. That was hotly debated. I certainly support it.

We had one committee member strongly opposed, but if other people have opinions here, we --

MS. STUNTZ: Who would the targets be applicable to?

MR. NADEL: It could be either States or the Federal level.

As of last week, Michigan passed. We are up to 18 States that do have some type of target.

MS. STUNTZ: David?

MR. MEYER: While we are on this particular topic, I was struck with Yakout's opening -- one of his

opening points, that the sleeping giant is still snoring, and the question is what are the recommendations, what are the actions that would wake that giant up. I think that is a provocative approach.

MS. STUNTZ: I agree.

Gerry, do you want to elaborate?

MR. CAULEY: Well, his question was what are the targets. The ones I was talking about was targets toward residential, commercial, industrial. I mean it is toward the end consumption. How the problem is solved, I don't think we need to say how it is solved because the vendors and suppliers and utilities will jump in.

What I was trying to describe was targets toward end-use consumption.

MS. STUNTZ: Irv. You have been quiet today.

MR. KOWENSKI: Yes. We did discuss the issue of targets and quite extensively, and the problem, I was the one that voiced a lot of concern about it.

The problem is what is the target, what is the cost, and how is it going to get paid for. If you set targets, there are limited resources. We all know

that actually our Congress is right now debating those issues, and we need to make sure that we spend our money in the right areas.

Setting arbitrary targets that now we will be throwing money at just to achieve is not -- I don't think it is the right thing to do.

So demand response efficient is good. We need to look at best ways to implement that, cost-effective way, and a way to measure it, a consistent national way to measure it.

MR. MANSOUR: I just want to make the point that on the cost side, money, interestingly enough -- money is actually being spent already. Look at how many billions of dollars is being spent on the so-called "smart meters" right now.

They are called smart meters, but the vision at least Guido can speak also to that. Meter is actually a misconception. It is a device. We are talking about smarter devices at the retail level. We are spending billions of dollars on it, and those are not the platform. They are pieces of the platform. The platform need to be established, first of all, and

those things are connected. They can all talk to each other and talk all the way up in the stages all the way to the grid side because called the grid, smart grid.

So my concern is there is a lot of money being spent, but the point is, back to Gerry's point, just as spending it is not making it that you did it, it is what do you get out of it is the key, and I think that -- you know, when you look at the expenditure in California and other places, it is already being spent, but what do we get out of it?

And again, the question I asked earlier, when you look at it, how it is implemented now, it is a utility-owned, between a utility and a customer, and if you want to really utilize that, is that the best model, that it is a communication, two-way communication between the utility and the customer, is that the best model. Maybe it is; maybe it isn't. But the investment is being made. The vision is very different from what is being implemented now. Talk about vision of smart grid which you are going to talk about tomorrow, I guess. It has to have those targets in it, why we are spending the money and why we are

planning in the future.

MS. STUNTZ: Hunter?

MR. HUNT: Just on this point, I do want to reiterate there is a lot of money there. There are probably hundreds of millions of dollars of money that is going toward demand response from dozens of different players, and a number of those are not government or rate base-driven dollars.

The reason why the investment is being made is because there are a lot of people that do think you are going to see value come out of it and it is a sustainable business.

So I would caution being too prescriptive as to what the right framework of demand response looks like.

The other thing I would caution -- and I think NEPOOL has a good case in point on this -- you have a situation where you have had a tremendous amount of demand response being kind of bid into a market that is impacting wholesale prices, and there are people that would debate how effective that program is or what are the consequences of nonperformance.

My greatest fear in demand response, frankly, is that it gets ahead of itself and that it discredits itself. I think it is very important that the market have a way to sort out winners and losers and the best way to implement that technology as opposed to it being government-driven or a regulatory framework that mandates something that can't perform and then loses credibility.

MS. STUNTZ: You had a snippet of the challenges Steve had facing his committee, but let me see if you can wrap it up with an energy storage perspective.

MR. ROBERTS: Well, I just wanted to add to what Hunter said.

In looking at using smart grid technologies and smart meters and all of those things are the main thing you have to implement to make really, I think, demand response work, and it is not even mentioned in the Demand Response section, that it doesn't seem to really talk about smart grid technologies and what all is the vehicle to try to get there, and I think the same thing is true of energy storage.

That is not mentioned in the report, and I think it is going to be one of the facilitating factors that make all this come together because we are trying to gain greater control of the grid, and to do that, we do need storage to help implement that. So it bothers me a little bit.

MS. STUNTZ: One of the things Yakout says that we need to do in connecting the dots is to connect in the storage and the smart grid paper.

I tasked the drafting leaders to do what they have done, which is sort of look at their pieces. We knew that you were looking at those subjects, and the committee can make the decision tomorrow whether those should remain separate and be cross-referenced in the Adequacy Report or included in it.

Right now, I will tell you I am leaning toward the former, but clearly no one is intending that this would come out without mentioning these things. We have already started talking about it as soon as we started talking about meters or anything, but it raises a broader issue, as Yakout says, how we get to this adequacy point and whether we change the title is of

less concern to me. Then we have to think at the end of the day, what we are looking for is what people want, which is power they need produced in a manner that they find acceptable and at a cost -- from a cost and environmental standpoint.

That is ultimately what all of this is about and how we stitch all of this together once we get the pieces done, whether it is done up front as part of your introduction morphs into an executive summary or there is an executive summary in the back.

I am asking these questions now, not that you would necessarily have the answers tonight, but I think we will need to discuss them tomorrow. So I would ask you to think about them, after we have heard your pieces.

MR. ROBERTS: I knew that would be a bigger focus for tomorrow because we have to deal with the issue of the mandate of Congress --

MS. STUNTZ: Right.

MR. ROBERTS: -- for the other part of that report on energy storage.

MS. STUNTZ: Well, we want to get the benefit

of your work and this work too. Otherwise, it is kind of just for Congress.

All right. Rob, I will let you have the last work and then turn it over to Peggy on housekeeping, or just everyone knows that we are going to be a L'Enfant Plaza tomorrow. Right? So don't come back here. We are liberating you from this building.

We are going to start at 8:30.

Committee Housing Keeping Announcements

MS. WELSH: Yes. We are at the L'Enfant Plaza, Ballrooms C and D tomorrow. Registration will be from 7:30 to 8:30, L'Enfant Plaza, Ballrooms C and D, registration 7:30 to 8:30. We will begin promptly at 8:30.

We will have a break in the agenda for lunch. The agenda that we sent around contemplated a working lunch, but we recognized that that would not allow the people in our audience to also break and get lunch. So the agenda has been changed a little bit to shorten our time where we will move to another room and have lunch tomorrow and then come back and concentrate on next steps after lunch.

MS. STUNTZ: Rob. Then I am going to give Mike a chance. I am going to ask you after Rob whether you had any additional questions on any of the feedback you have received. We will be talking more about this tomorrow, and we can talk among ourselves, but I gave your colleague drafting leaders an opportunity to ask any questions on anything that had been said concerning their subject matter. So I wanted to give you the same opportunity.

We will let Rob go first, unless you want to go now.

MR. GRAMLICH: First, in response to your question there about how to tie things together a little bit, I would propose one way I think of bringing in the storage and smart grid and some of the other issues that have come up in terms of promoting flexible resources.

I know Vickie and I agree on this, she fro the system operator perspective in a control area integrating a lot of variable resources and I from a wind generator perspective. We know that we are not going to get much more on their grid until they find

ways to get more flexible resources.

I would think Yakout is thinking about this just a little bit. I would think Commissioner Smitherman in Texas is thinking about getting flexible resources on that grid.

I know areas of Europe are way ahead in thinking about how to do this, and there are very many solutions out there, but promoting flexible resources, including Smart Grid if it can be cost effective and storage if it can be cost effective or combustion turbines if they are the cost-effective choice or more coordinated system operation, however you can get it, demand-side resources.

So I would just propose that as a framework and a general category of a national goal that we need to really think about. That is one.

The other one, I guess I don't have a dog in the fight on this too much, but one issue that I heard a lot I think at the last meeting -- and I don't see it jumping out here -- is how all of the generation and other options going forward are much more expensive going forward than in the past.

I think this may have been what Paul was getting at earlier. Looking through the generation section here, I don't really see that stated. Certainly, it doesn't jump off the page anywhere for me in our public education role here. That may be something we really want to highlight. I know it is a common discussion at NARUC and other places. Maybe it is not news, but I just put that on the table if people want to emphasize that more.

MR. MANSOUR: In Chapter 1, there was about alternative costs of all resources, and they chose that, but maybe it should move to Chapter 2 or something.

MR. HEYECK: Just a couple of questions. One, I have a lot of process questions, but I can talk to you on the side on how we get that done.

The two questions that the team came up with, one is we had a section on consumer benefits, and we thought that it should be moved to the first chapter on consumer benefits.

I think there was a lot of discussion on what part of the bill or what part of the income is going to

be spent on electricity, but I think we need to make sure that we don't get expectations out there that the bills are going to be any lower. We may stem the tide, but affordability is important, and I think consumer benefits deserves a section and a front.

So we had that section, and we boil it down to a paragraph, but I think it is better in the larger picture.

The second is compliance. I actually was reading the paper, and it was like the last minute I entered the section of compliance liability standards. Well, transmission is only about two-thirds of play. There is compliance and all other aspects of the business of the bulk electric system, and I think compliance needs its own mention I think in a larger venue, and again, maybe the front section might be the place it should be.

So those are the two areas that we covered in transmission, but are not really limited to transmission.

MS. STUNTZ: Sue, last word.

MS. KELLY: I would just note that there is

something on the reliability standards in the introductory chapter. So maybe we can put that there.

MS. STUNTZ: Okay. Thank you all.

Steve?

MR. NADEL: Our chapter is a little bit weak. I wrote some things, but our committee members didn't have a lot of expertise there. So if there's some people on the full committee who want to suggest some places to beef up demand response, like on demand response potential and some of the other things, I am very open to that. There are even a couple of: "Gee, does anybody have better information?" So our committee was a little short on demand response expertise.

MS. STUNTZ: Mr. Kolevar, we will give you the last work.

MR. KOLEVAR: I was going to say, not having been here, I think the only words I can say is it is raining outside.

[Laughter.]

MR. KOLEVAR: But I will say that as I kind of look around the table and actually like I kind of

see hair mussed up, so that typically tells me that people have been thinking and working hard.

If this is the end, I want to thank everybody for their participation today, and I really don't have anything else to add, and I will see you tomorrow and turn it over to the chair.

MS. STUNTZ: Thanks a lot. See you all tomorrow morning.

[Whereupon, at 5:55 p.m., meeting adjourned, to reconvene Friday, September 26, 2008.]

U.S. Department of Energy
Washington, D.C.

Electricity Advisory Committee Meeting

8:39 a.m. through 1:35 p.m.
Friday, September 26, 2008

L'Enfant Plaza Hotel-Ballrooms C and D
480 L'Enfant Plaza, S.W.
Washington, D.C. 20024

C O N T E N T S

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P R O C E E D I N G S

MS. STUNTZ: Good morning, everyone. If you could take your seats, let's try to get underway soon, so we are not too far behind.

We are going to start with Brad Roberts on the Energy Storage Committee here shortly.

Discussion of Draft Energy Storage Technologies White Paper

MR. ROBERTS: All right, everybody. Please take your seats.

I would like to begin by thanking everybody on the subcommittee. We have the largest subcommittee, I believe, because we have a mandate from Congress that we have 15 members. So half of the total committee is on our committee, but we have had good participation.

I would like to specifically thank Ralph Masiello and Bob Thomas for the extra effort they put in and some of the extra effort that Barry put in, in spite of the Hurricane Ike and all the problems he had been having down in Texas.

In looking at what we are trying to accomplish, basically there's two objectives, and we kind of touched on it yesterday at the end of the meeting, about what mention of storage should be in the overall report that this committee is developing, and that we have to develop basically a road map for DOE, as defined in the Energy Independence and Security Act of 2007. It asks for the formation of a specific committee or council to advise DOE on that subject.

The approach that we have taken so far in the report that we have been working on is a stand-alone report. So I think we are definitely going down that path. We have to do that I think to meet the mandates of that requirement that was in that act, but I would hope that we would add storage, as well as smart grid parts to the overall EAC committee report as well.

So let's kind of move in and look at that a little bit and talk about some of the key issues and kind of where we are in that context.

So, if we look at basically the actions and funding of subtitle (d) basically, I tried to take the highlights, and subtitle (d) is the Energy Storage for Transportation and Electric Power portion of that act.

So what we have tried to do here is look at the highlights of what is asked for in that document in areas where activities should take place.

We held a special meeting two weeks ago to invite experts in to speak to us about what should be done in these areas, and looking at the key areas where Congress says money should be spent to make the U.S. competitive in energy storage worldwide.

In research and development, obviously we had some good inputs on large-scale material evaluation and what leads to bigger and better, more cost-effective storage.

The Act also talks about the establishment of centers of excellent for storage and transportation and grid application, and I think the DOE Office of Science is doing some centers of excellence work right

now. There is an RFP out, but this one was quite specific on energy storage for transportation and grid applications.

And the basically to support collaborative and interdisciplinary activities between the DOE, the labs, universities, and industrial partners that is going on, we got some good input from Southern California Edison's Electric Transportation Lab. They gave us some very specific recommendations as far as meeting the requirements of that Act.

This one is kind of lengthy in the area of applied research and development activities, demonstration activities, and basically, we tried to look at the areas that were most important, basically studies to consider the full scope of requirements for commercialization of advanced batteries for vehicles and utility application, increase funding to accelerate the improvement in weight, size, cost, and all of the features that will drive plug-in vehicles.

There is a lot going on, obviously, we are all

aware of, and there is a lot of coordination that probably needs to take place between other agencies in this area.

Fund demonstrations to test smart grid technologies, interacting with energy storage and the grid with PHEVs as part of the load, to start learning how to do that better.

Support applications of batteries and flywheels and other fast-acting storage in the frequency regulation and other ancillary service market, that is starting to happen. I think you will see a fair amount of larger demonstration projects. There is good cooperation from the ISO's in several major regions of the country on writing the rules to make this happen and give it a chance to show its capabilities.

Support research and demonstrations targeted at the value of storage in conjunction with large wind energy sites that are currently experiencing transmission or other operational issues and

constraints. There is already in areas a fair amount of curtailment starting to take place, and is there something that can be done in that area to capture that renewable energy that is currently being lost?

And then support demonstrations and utility grid to measure performance with regard to reducing losses and system reliability improvement because the more storage that is in the grid, we think there is a significant upside there.

Now, what we are looking at here basically is the broader issues that are beyond the requirements of the subtitle (d) Act issues. Basically, the big issue out there is where does storage fit. It can be a generation asset. It can be a transmission asset. It can be a distribution asset, and it makes it difficult to place the value or where do regulators assign value, and so helping to figure out that as a control issue, is it a control function and how would that get paid for or can it be paid for, that is probably the biggest single issue that has to be dealt with, and we

need to work to come up with a fairly firm or fairly defined recommendation in this area, and I think that is one of our major tasks.

One area where there seems to be growing acceptance is in the area of frequency regulation and ancillary services that I mentioned before, and open access in all of the regions, I think is happening, but I think that is where storage will see its greatest performance and the quickest.

Basically establish as a part of our requirement to the Act of '07 is to establish five-year goals for improvement of fuel consumption, emissions reduction, and other performance increases for PHEVs, which was mandated in the Act. I think that is going to be a hard one for us to kind of get to the point where we are really comfortable with providing some real guidance to DOE.

Kevin's remarks he made at the opening yesterday, he asked us to focus on very specific recommendations, and I think we have got a broad issue

of items that we have to cover to kind of meet the requirement of that. So we will be working with that to try to make sure that we balance that as best possible in the report.

So those are my opening comments.

MS. STUNTZ: Comments? Questions?

I might have one. As I reflected on our meeting yesterday, it occurred to me there was sort of a hurricane all around us, and we were swimming along in the eye. Nobody ever talked about access to capital or what happens in credit markets.

Did your committee consider, you know, talking about establishing financial incentives, how those would be funded? If we are facing a $900 million or billion-dollar deficit -- and I would make this generally applicable to any of the committees -- how are we going to fund any of that? Who is going to pay for it?

MR. ROBERTS: I don't have the complete answer for that.

I think we cannot achieve the objectives of a cleaner environment and reduction in carbon emissions without spending money. It is not going to happen for free.

We are currently funding and supporting other activities that are fairly significant.

I think in the case of storage, we are not trying to reach a 20- or 30-percent penetration of the marketplace. It is going to be a very small number that is going to have a major impact.

I think that PHEVs are going to happen. That is moving forward, and storage is going to become a huge part, what we do in the interim, but I think that some money is going to have to be -- you know, there was $300 million proposed in that Act, and I think some portion -- all or some portion of that needs to be funded to allow the full potential of storage to come to bear because --

MS. STUNTZ: I think I saw Mike and then Hunter and then Barry.

ATTENDEE [speaking off mic]: [Inaudible.]

MS. STUNTZ: Sorry. Sorry.

MS. KELLY: I had thought this was a very well written report, and I wanted to compliment you on that.

One of the things, when we were drafting our introduction, when we talked about the various different types of generation, one of the things that we were careful to include was a discussion of the environmental aspects of that.

I noticed there was a lot of discussion about lithium ion batteries and ramping up their production, et cetera, et cetera, and I was just wondering if there was any consideration given to discussing what the environmental impacts of that might be; in other words, battery disposal, that kind of thing. It is just something I wanted to point out that I didn't see in here that I thought if we are going to be fairly assessing the pros and cons of all the various ways of serving load, that we probably need to have at least

some discussion of that, just to keep us all on the fabled level playing field.

MR. HEYECK: I also want to commend the group.

I know one of my players was on the group, and I am only there in name only. I appreciate he being allowed to participate.

A couple of the areas, probably the most fundamental areas of need is research and battery chemistry. There is so much that could be done if we could focus our energies on trying to figure out what is the right battery, but having said that, we do have batteries out there that are longing for commercialization, and we are going to get them out there.

What I would just caution is let's get them out there to demonstrate. I understand the issue and arguments of whether it is a T or D or G or what kind of asset it is, but let's get something out there to demonstrate as well.

The last, the PHEVs and the EVs, there is

going to have to be some sort of tax incentive to really move. We can't hope that gas prices will stay there to incent the notion that people need to switch to these types of vehicles.

If we do want high penetration, there needs to be some sort of incentive for the individual beyond the gas price because right now I think the break-even is still tens of thousands of miles on these vehicles, and we need some penetration for our grid.

Thank you again.

MR. SMITHERMAN: Linda, to your question, how do we fund these, Mike's company has a project in Texas right now that I can't talk about because it is a contested case, but they are proceeding along the line as if it were part of the transmission and distribution utility, and so in that particular regard, the funding issue comes a lot easier for implementation of what is probably an innovative technology used in an innovative way.

Having said that, we are still hearing from

people who say this is a substitute for generation, rather than being part of the wires and poles company. If that is the case, you can't put it in rate base. So that is part of the issue. The funding issue goes hand in glove with the regulatory treatment issue.

Secondly -- and I am going to send around copies electronically to everyone in our committee -- in our Texas State Energy Plan, which we introduced in August, we specifically identified two areas where the State was willing to put money into additional development. One is carbon capture and sequestration. The other one is storage.

We have at least one company in our State that has received some emerging technology fund money as seed capital. So we probably -- Brad, I need to share that a little bit with you, but hopefully, we will see that sort of laboratory-like seeding around the country.

MR. MASIELLO: First, to speak to Susan's comment on environmental issues, well taken, disposal.

The thing that is not in the report that perhaps should be added is the auto industry is seriously considering after the battery's useful life in a vehicle has ended, does it have utility applications, because when it is degraded to say 60 percent of nominal charge capacity, it is still very useful in a substation. So that is actually an upside. You get these things managed somewhere instead of disposed of.

With regard to the financial incentives, the table in the report talks about where existing market structures support use of storage and where structurally it is an open question today.

The issue of generation versus transmission could lead to a discussion, and I will throw this out, knowing it is contentious. If storage is used to accommodate the variability or the diurnal cycle of renewables, you can make a good argument for it being a generation resource.

Perhaps in those cases, the cost of it should

be eligible for the production tax credit, if it is added to the capital cost of a wind farm.

Okay. I see Rob glaring at me because that is not necessarily the right answer from that perspective.

[Laughter.]

MR. MASIELLO: But these are the kind of issues that need to be worked through.

MR. SLOAN: Thank you.

Following up on something Mike said where he was talking about incentives for consumers to acquire PHEV or EV vehicles, I think the other question is whether we are better able to influence direction by stimulating the consumer purchases or the development of the infrastructure to serve those consumers, a good example being the E85 vehicles. They are manufactured, but in many communities, you can't find a station that provides that kind of fuel. So, again, it may be a duel incentive, but one that needs to be looked at.

MR. THOMAS: A couple of things. On the incentives, two days ago, the Senate just passed an incentive package for PHEVs that provides for $2,500 credit for any vehicle with 4-kilowatt battery or more, and an additional -- I don't know where they got this number -- $417 for each additional kilowatt hour. That must have been some negotiation there, I think, up to 75 --

ATTENDEE [speaking off mic]: [Inaudible.]

[Laughter.]

MR. THOMAS: Yeah, it is probably some formula.

Up to $7,500, and it was passed, and it looks like it has support. So I think the incentives are going a long, are coming along.

We heard in our discussions that Brad talked about -- we had three experts come in and talk to the committee. One was Professor Don Sadoway from MIT who is a materials guy, and one of the things he wanted to do was to basically do a genome project on battery

chemistries, look at basically the periodic table match-up as much as you can with the experience and try to figure out what battery chemistries might be the most productive.

I thought that was a really interesting idea because it is something that we could certainly do. It would be very computationally intensive, need some money, but it would give us a really nice base for discussions of further battery chemistries.

I think in terms of financing, piggy-backing on the amount of money that is going into the automotive industry for battery development, because that is the key to -- the ultimate goal is not plug-in hybrids. It is all-electric vehicles with 300-mile range. That is what people really want to shoot for in this business.

So piggy-backing on that for the electric industry can be very helpful for us, and so I think that alliance can turn out to be very beneficial in the long run with the auto industry.

MR. NEVIUS: I was made aware of another storage technology using compressed air, but Brad can see this here. You are familiar with this. I don't know whether we want to go into mentioning all the different technologies that are out there in this report, but it was something that was rather unique in that it directly compressed air, used wind turbines to directly compress air, not produce electricity, store that compressed air, and then allow it to be used to drive an expander and generate electricity when needed by the system.

It was a somewhat different approach. It is developed by Mechanology, and it is under the heading of General Compression. I guess that is a subsidiary, but you are aware of it.

The other one is something I don't even have the Web site here, but it talked about using -- compressing water in rivers and lakes and then letting it expand and using it in a similar way to this compression of air.

I can find out more specifics on it if you haven't seen or heard of it, but it is another way to store the energy when you don't need it, and then to extract it and use it when you do.

MS. STUNTZ: Mike?

Mr. HEYECK: Just to clarify on the credit issue, the credit needs to be sufficient enough to provide the break-even, and that is where we need to be. If you make the calculation, the credit needs to be somewhere in the neighborhood of maybe $5,000, rather than $2,500.

Then the other side of the equation is as you have more EVs and PHEVs, the gas tax funds some projects in our infrastructure, and how do you remedy the fact that that might be declining? I am almost thinking maybe it goes the way of the tobacco tax, but the point is that you could ratchet the gas tax to leverage that break-even point.

Obviously, there is an issue there with respect to the impoverished that may not be able to

afford to change the vehicle. So the gas tax issue is important.

There is mention in the energy storage -- it just triggered my mind -- about mass transit. The gas tax does fund mass transit, and we need to make sure that as mass transit is being funded, that there are incentives to make sure that the funding is not diesel and the funding is not gas or gasoline or at least encourage the movement to electric or alternative uses.

Thank you.

MR. THOMAS: Just a point of clarification in the bill, it is 2,500 for 4 kilowatt hours, but a 40-mile-range car is going to have something like a 10-kilowatt-hour battery. So it will get probably the full $7,500 tax credit.

MS. STUNTZ: David.

MR. MEYER: Bob, going back to the Sadoway's genome project concept, was there any sense of cost there? What would it take to get that off the ground?

MR. THOMAS: I don't know.

I talked to him more about it in terms of what was needed. Certainly, high-performance computing horsepower is needed, and I don't think that is a big problem because the labs have a lot of that, but the real issue is that it takes people with materials experience to interpret the results and refine the models and that sort of thing.

I sort of got a feel for what the project would look like, but I have no idea what the cost would be like.

MR. ROBERTS: Things like that haven't been possible in the past without super computers, but there's so many centers with super computers now, that the technology exists to do that.

So you don't have to buy the computer to do it. It is just the time on the computer and the people to interpret it.

MR. BARTELS: I just have a question to the team. I am not by any means an expert in it, but do

you guys when it comes to PHEV in full electric cars, did you look at the Better Place, concept model which Shai Agassi is leading? Are you familiar with Better Place?

MR. ROBERTS: I am not. No.

MR. THOMAS: I am not either.

MR. BARTELS: Okay. So I will make sure you get some information on that.

MR. ROBERTS: Okay.

MR. BARTELS: I think it is very interesting. Shai Agassi, former SAP out of the industry, is the person who is leading that, and a far-reaching progression.

I see one person is at least nodding yes.

Right now, Israel has signed up as a country to go to that concept where they would be going fully on the electric cars. Denmark is a second country which, of course, is important, looking to the next Copenhagen/Kyoto meeting.

So I will make sure you get some information

on that.

MR. ROBERTS: Thank you.

MR. MANSOUR: First of all, on the second recommendation, consider using energy storage as a primary source of grade frequency, I would actually suggest that it is not considered its use.

There is now a point of consideration in there. If it is there, it is actually -- here is the -- and I don't know what committee, the group should consider highlighting that in the report.

Batteries, at least in theory -- and I know that even in demonstration and practice -- they can do many jobs better than a generator, and if you try to even look at the economics of batteries and say are they really viable or not and compare them to generators, maybe in certain things, they are not as cost effective, but in a number of services, they are actually more capable than generators, and it is a matter of defining the products that they can do and pay them for it, especially more than the generators

because they do a better job than generators.

If you talk about ramping, for example, they can ramp better and faster than a generator.

If you look at even their availability, generators, if they are not committed a day ahead, you don't have them in real time. So these ones, they are there on instant reply, more or less.

So they need to be treated fairly, and because they are different from generators in what they can do, treating them and actually financially evaluating them as generator is unfair because there are a lot of things that they can actually do better than generators.

So I wouldn't say consider it. It is use them, and actually, there are a lot of stuff that they can be used better than generators.

In response to, for example, we have five-minute markets, energy markets, where kind of the price spikes, and most generators don't want to follow that market because for them, just following five-

minute dispatch, it is not very effective, but for batteries, they would. If they participate in that market, they probably will get their money's worth, even if the cost is higher.

So they do have a competitive edge in doing a lot of things that the generators cannot do as good as the batteries if they operate right.

So those are things that we really need to highlight as the advantage of batteries in lieu of generator, and not just for consideration. It is because they are doing either the same or better.

A good note or a positive note, we have four -- in California, four -- two demonstrations and two commercials that are coming. The two demonstration projects are coming within a month or so. Each one is 1 megawatt, and the two others are basically coming and probably within a year or so on the commercial size, bigger size and a commercial basis.

The interesting thing is the demonstration one did not ask for any financial support or subsidy or

anything. They just wanted interconnection, and they would participate in ISO market, and they did their business case that they actually can participate in the ISO market.

There are some technologies that are coming now with a number of hours of duration, up to seven hours. This technology is catching up. It needs to be accommodated for what it can do and be awarded for it and not necessarily compared to what the generators do, and then you judge it to whether they are actually more or less expensive.

For what they can do better, then they are worth it. For what they cannot do, the generators do better, maybe they would not participate in that piece, but overall, it is a great potential, and the potential is not very long term. It is actually sooner than we think.

MR. ROBERTS: One question. On the five-minute response, is that a higher value service? In other words, is it paid more than --

MR. MANSOUR: The spikes actually --

MS. STUNTZ: Rob is nodding yes, and Jose is no.

MR. MANSOUR: Well, actually, the five-minute, there is a lot of times where the five-minute spikes is at the ceiling. Right now in California, 400, and it is going to be a thousand very soon, and even at that high price, you don't find that many generators or even many load response to it, either way.

MR. ROBERTS: So it is a function of what is bid into the system?

MR. MANSOUR: And also, there are times when you have, for example, over-generation, let us say, low loads. You have high wind or good wind capacity, run-of-the-river hydro, and nuclear. There will be times with the massive amount of wind in the system. There will be times where generation is higher than load, when load is lower, and at that time, actually there were times where the price is negative.

MR. ROBERTS: Right.

MR. MANSOUR: And that is where the battery charged and get paid for being charged.

MR. ROBERTS: Right.

MR. MANSOUR: There are times where it's -- right now, the negative ceiling is minus $30 in California, and it is probably going to be increased when we have higher penetration of wind.

So you can see there is a lot of stuff in there. With technology like this, it is going to have an advantage.

MR. ROBERTS: Well, there is an increasing proposal underway in Northern California to look at a very large amount of storage, and it will be interesting to see if the economics makes sense without any incentive at all right now.

MR. GRAMLICH: Maybe I will just jump in.

I strongly agree with Yakout's suggestion to define the products here, and I do think the instantaneous product or the five-minute product is a premium service that will be even more valuable in the

future, and its higher cost supply sources can be justified for those very short-term premium products.

They cost more than, say, something that can respond within an hour or two hours.

I think in areas with a lot of win, the hour or two hours or sort of four hours, that is the sweet spot where there will be a lot of value in getting flexible resources in that time frame. That is usually where the wind integration studies show a great need. It is the ramp issue, and Vickie and I had been talking a lot about Bonneville's, concerns with that going forward, and that sort of one-to-four-hour time frame is an important product.

I think we could do a great service by clarifying the products throughout this chapter. One point that I raised in the meeting we had on storage that didn't quite get in -- and I very much appreciate how renewable resource and the tie to storage was treated in this. It was not assumed that you need to have a storage backup or that storage is

required to get high renewable penetration. Those points were not made.

But the example in here of certain location-constrained areas with transmission constraints may have a need for storage. In other words, storage can provide balancing for the overall system, but only if there is transmission capacity to do that.

So there may be areas, pockets of say, for example, wind generation where storage could be useful.

One thing people said in that discussion is some of the storage sources are mobile, and I think that is an important point to put in here for the research road map and development road map because a lot of those areas are temporary. You might have a couple of years where you have got a lot of generation, but then the transmission lines get strong and energized in a couple of years. Well, then you don't have that value, that need for storage at that location.

So, if you can then move that storage facility to somewhere else around the grid, then that would increase the value of the storage. So I would like to see that re-included.

And then just finally, there is a statement in here about extending the production tax credit to storage. I think if we are going to ask for any incentives, it shouldn't be taking it just from wind. We should take it from -- I guess not identify whose incentives we are taking it away from.

We can advocate for incentives, but I think Linda's point is critical there. If you kind of look through the whole report, we have got a lot of areas where we say we should provide incentives for this, that, and the other. Well, maybe at the end of this, we should prioritize; that is, given the budget constraints we are going to be under.

If we are going to be advocating a whole bunch of incentives at the end, maybe as a group, we want to figure out which ones of these are really the highest

priority.

MR. MASIELLO: I have a stylistic question triggered by this discussion.

To try and make things concise, we put a lot of these discussion points in these three tables in the document. Is that, in fact, not a good approach for a document like this?

In other words, for instance, we define all of the different ancillary services, Yakout, and tried to explore how storage is or is not already being applied, what the structural issues are to successful application and so on, but is that not a good way of putting it in a report like this?

I don't know the answer to that question.

MS. STUNTZ: For me, I guess I thought it was.

MR. MASIELLO: Okay.

MS. STUNTZ: There are, as Brad pointed out, statutory requirements applicable to this particular report, and so if the committee feels it needs further elaboration to make this -- fulfill the education

function that we have been talking about, I would really leave it up to the committee at this point and those others of you in the room.

One thing I would say, we have been joined by Patricia Hoffman, and I hope you all know who she is. She is the Principal Deputy Assistant Secretary of the Energy Delivery and Reliability Office.

One of the functions we do besides the paper, I think is the kind of informed discussion that we have been having this morning, and I just wanted to thank you all and point out that even when we are not producing paper, you all, things that you take for granted because you do them every day, like the five-minute market and the value or storage in the five-minute market can be valuable. So keep that in mind as you talk, and there are others in the room, I suspect, that are learning as you talk.

I don't know if there is more to add on that. I think it is really sort of up to those of you on the committee, if you feel that you need to add further

explanation.

Are there other staff we wish to introduce?

MR. MEYER: Sure. We have John Schnagel from our office here, Imre Gyuk who is our storage person, and we have Eric Lightner. Who else? I see Steve Lindenberg who is not in our office, but he is an important DOE person and a friend of our office.

MR. LINDENBERG: Thank you very much. I have been raised to a higher level of accomplishment.

[Laughter.]

MR. MEYER: Right.

MS. STUNTZ: All right. Vickie and Gerry, please.

MS. VANZANDT: I was just thinking about Ralph's comments about where storage ends up as a GS or a TS, and this is a notion for it being included in transmission, that occasionally for stability additions or improvements on one end, breaking on the other end, storage, that could unlock the capability of existing transmission assets and make them quite a

bit more useful.

In the west, some of our long high-capacity lines are stability-limited, and this would potentially be a very good addition to, for instance, get more capability out of the California-Oregon inter-tie. So it would be more useful more often.

MS. STUNTZ: Gerry.

MR. CAULEY: I did participate in this group, and I thank Bob and Ralph for their heavy lifting, but i was more in a learning mode but certainly enjoyed and appreciated the work that was going on.

I think to Vickie's point, since she just raised it, one thing I have learned is really the value of storage I think in the time horizon we are talking about is going to be throughout the production and delivery and consumption realm. It is not going to be one or the other. It is going to be all of them because it has such pervasive benefits in freeing up transmission or being another, shifting generation and so on. I am really juiced up about the potential and

value for storage.

The two points I wanted to make, somebody said yesterday about DSM is the sleeping giant. I think in the storage arena, the sleeping giant is also on the consumer end, and I think the introduction and the push for electric vehicles and hybrids is going to really open up the consumer to the technology and awareness and acceptance and things like that.

I think the real benefit is going to be on the consumer end again, sort of in a distributed fashion where you have commercial building codes or residential codes, where basically we get to where we want to in terms of consumption and demand shifting through the use of storage and through technologies that people understand.

So I think, once again, as my comment yesterday, I think we need to be focused on setting targets and incentives at the consumer end to make that happen because that will be the real driving economic engine to get this going.

My last comment is I think the United States can either be a leader or a follower in the battery technology, and I think unless we put a significant R&D effort into the technologies and the materials, things that we were talking about with the professor from MIT, I think we should choose, and I think we should make a recommendation in this report whether we are going to be a leader or a follower, because if we sit back, these advanced battery technologies are going to be available from other countries, and we will be a consume of those, and we will be dependent on others.

But we could strategically take a path of this is an area of technology, this is an area that is going to create jobs, this is an area to have a strategic advantage, and in the United States, we should be a leader, and I think we need to choose one or the other.

MS. STUNTZ: All right. I have David, Bruce Walker, Ralph, and then Steve.

MR. MEYER: I want to add to what Gerry was saying.

I heard Don Sadoway's presentation, and it was educational, certainly for me, but the point that I took away from it is he is saying we have only really begun to see the potential that lies here in terms of developing battery chemistry.

He went through some calculations, which I couldn't possibly repeat for you, but the implication was that there is the potential there for a four-to-five-time increase, fivefold increase in the efficiency of battery storage, and he is also thinking about huge, massive batteries as being potential.

So that gets to the question of this genome project. We may need to decode that a little bit for you because there are a lot of possible alternative chemistries for these batteries, and what he is talking about is just exploring them systematically.

It sounds like it may be something that could be done relatively cheaply because it takes a lot of

computer power. It takes some expert manpower, person power, to think through the experiments that have to be done, but the payoff here potentially is enormous.

MS. STUNTZ: Bruce Walker.

MR. WALKER: Thank you, Linda.

I just wanted to point to a little bit of the conversation I have heard back and forth with storage with regard to it being a T or a D asset or a G asset, and I guess what I would like to set forth is, I mean the reality is it is an asset that can be used by any level of the distribution or transmission or generation, basically the entire infrastructure, and that is really what makes it so valuable.

I think Rob pointed out earlier, the portability of these assets, the smaller type storage, 1 megawatt, on the distribution can be tremendously, tremendously valuable as we try to do things like offset load and use it for some very specific items.

I think the piece that we don't want to get caught in here is where does it fit because I think it

fits across the board, but really I think our charge really would be getting the agencies, the regulatory agencies, State regulatory agencies, FERC, to recognize these as assets and allow recovery, just like they would for a typical transmission line, distribution line, a pole, a transformer. I mean it is just nothing more than another tool in our tool box that allows us to really meet all the goals that we strive for in the infrastructure, whether it is reliability, safety, efficiency.

So I just wanted to note that because I think there's a lot of points that are being made, and storage is clearly an opportunity.

MR. CAVANAGH: Thank you, Madam Chair.

This is the first Federal advisory committee on which I ever served with two Ralphs. So I would just alert you all that this is a historic moment.

[Laughter.]

MR. CAVANAGH: Madam Chair, as you know, I am a member of this subcommittee by compulsion of the

chair, but I am glad she did it because two rather counter-intuitive things came strongly home to me here, which I just want to see if we can actually say together.

The first is that the storage is a crucial part of the integration solution, obviously, for variable output resources, and there has been a tendency around the country to assume -- and Rob, you were referring to this earlier -- that the integration problem is one for which the responsibility and cost of solutions lies with the resource sponsor, which if we go that route, it is just crazy. It massively increases the cost of variable output renewables, and it overlooks the fact that the system almost always has a lower cost solution than any individual resource sponsor.

Those who say storage costs ought to be recoverable in rates like any other resource are I think making a common-sense observation that they see storage and integration solutions as a system resource

that ought to be part of system planning, whose costs ought to be recoverable based on any other appropriate and prudent system solution.

I just want to note if that is the view of the group, at least for those parts of the country that are continuing to use utility system planning, it is an important observation to underscore, not simply to avoid suggesting that every intermittent or variable output resource has the responsibility to find its own integration solution, but to firmly seek the lowest cost solution responsibility and opportunity with the utility system, and to identify that as an appropriate and indeed integral part of system planning and system cost recovery.

I think, Vickie, that is exactly what we do in the Northwest. Bonneville has shown over and over again that the lowest cost integration solutions are system solutions, and a lot of variable output resources are getting integrated as a result.

The other very quick point is what came across

to me in the storage presentations -- and if this is, again, the view of the group, it is important I think to help make it clear. In particular, as the efforts go forward to add grid, people see grid value in storage that is on vehicles, but it was clear, at least in the presentations as I heard them -- and I hope anyone on the subcommittee will contradict me if they heard something differently -- you are not going to see much grid value in the first generation because the people who are developing the vehicles are not eager to have the power system pulling power off the vehicles.

Batteries are not being designed that way. The warranties are not being set up that way. The first generation is simply going to be -- the battery is going to take power off the grid and store it, but it is not going to give it back.

Yet, there obviously is the potential to do that, and the report of this subcommittee and the report of the ultimate body I am sure will be bullish

about that. It needs to be clear that there is a transition here, and to the extent that grids and utility systems are being called upon to help underwrite the initial costs, it will need to be clear that there is a rationale for that, separate from immediate grid value, because the immediate grid value, at least as I heard the presentations, doesn't seem to be there.

If anyone feels differently about that, I hope they will speak up, but that is something for us to be clear about.

There are State regulators here who will recognize that it will be more challenging, therefore, to socialize part of the cost of the first generation of infrastructure, to support these vehicles. If we think the case can be made, we should make it.

MS. STUNTZ: Steve, John, and --

MR. NADEL: Yes. Ralph just made some of the points I was going to make.

I think in the nearer term, the next decade,

the primary thing is going to be on the grid, whether it is T, G, or D. Vehicles is longer term, which is not to say we shouldn't do the appropriate studies and appropriate demonstrations. There are a lot of battery issues. There are a lot of issues about, gee, if you start using this as a resource, do you then start recharging on peak, or what if someone comes back to their car and, oops, it is de-charged, and they have to go home, some of those things. I am sure they can be worked out, but it is a longer term thing. We should be careful to phrase it as "here is the nearer term," "here is the longer term."

I also think at least in terms of the plug-in hybrids, the discussion seemed a little boosterish almost, and some things I am not sure are quite right, like, gee, they always run for 40 miles, then they switch over.

My understanding from auto makers is it will be much more complicated algorithms than that, just like the current hybrids are much more complicated.

So we have to be careful.

Also, I am seeing all sorts of different figures out there, about, gee, is that 1,800 kilowatt hours a year or 5,000. We need to kind of straighten out if this is going to be a widely quoted study, just make sure we get our facts and figures right on this.

MR. WEISGALL: Well, the new Ralph made my point, but while I have got the floor, I want to follow up on one of Gerry's points on the technology.

Am I correct in saying that Chrysler recently announced that for their new electric car, they will be using Japanese batteries? I think that announcement was made public sometime in the last 10 days. I think that is worth noting.

Certainly, one of our recommendations on the technology side here is we want the U.S. in the forefront. I was struck by that Chrysler announcement that the electric cars they intend to market, beginning in 2010, will be using Japanese batteries. We are not in the forefront there.

MS. STUNTZ: Robert Thomas.

MR. THOMAS: First, in the spirit of historic firsts, this is the first committee like this that I served on where there is only one Bob.

[Laughter.]

MR. THOMAS: In our section in the report called a "Three-Phase Approach," we do recognize the fact that this isn't going to happen right away, that, in fact, the beginnings will be simply a one-way flow charging of vehicles.

In the next stage, it will probably be just vehicle to home, vehicle to buildings, and the two-way flows at the utility control is probably along way off.

The point we wanted to make here was that the IT part of this, which is very crucial to being able to do it -- this is a real marriage between energy and IT and control-distributed resources, that that is ahead of the flow on how these distributed batteries might be used because you need to have that

infrastructure done as well.

It is fairly straightforward, I think, to just put the charging infrastructure in place, get the vehicles up and going, get some experience with it, get some battery experience and so on, and then move into these, stage these movements in concert with the IT needs in the smart grid.

MR. MANSOUR: Last time I tried to actually find out if there is another Yakout. I Googled under "Yakout," and I found that the other person was a lady that was charged and deported. So there is actually one Yakout now.

[Laughter.]

MR. MANSOUR: Not just in this room.

Anyway, the issue of how the costs are recovered, as I said, really the very pleasant surprise is that all four projects that came to me from proponents, none of them asked for cost recovery as part of the grid.

They feel very strongly that they have

products that generators cannot provide, and they can provide at reasonable cost, and they were right. If they really provided, they would have better than cost recovery. Their business case is well made, and some of them are going for demonstration without any subsidy.

The reason it is a pleasant surprise, not just because it is good to see that, but if you get them into the process of they are part of the grid and the integration and what is the best solution and you go that process to find is it transmission, is it storage, is it generation, that is a longer process, but what we are looking for is an entrepreneur who is actually confident with the technology and they can see the service.

If we define the products well that they can provide and give them the opportunity with the ease of interconnection, I think from discussion with them, that is more valuable to them than getting them into the longer process of integration or the system

infrastructure.

I was very pleased actually with the ones that came to us. None of them was, as you just said, I know your market here, there are products that I can participate in, and I know that I am going to be very competitive.

MR. CAVANAGH: So you think price signals from the ISO will get you all the storage and integration solutions that you need?

MR. MANSOUR: Well, especially from those batteries. There are stuff that they will provide that generators are not able to provide.

So, if you talk, for example, about -- let us say if you cover for regulation for wind, for example. It doesn't matter how accurate the forecast is going to be. We are going to be off, and we know how much we are going to be off.

So I have to either take my chance or be on the safe side and have unit commitments in the day ahead and pay them for times where they actually may

not operate at all most of the time because the error doesn't happen.

That is not the case with battery storage because they are there, and actually, I would be willing to pay more when I need them, but it would be less than committing generation in the day ahead and not choose it most of the time, just because of error in forecast.

So there is a lot of stuff that, as I said, if you just treat them not as -- that they are different and they provide different products, and if you define the products right, I think they have competitive advantage. If you give them those opportunities, define the products for them, ease the interconnection, and give them that chance, I have -- as I said, the more I talk to developers, the more I am confident that they will be competitive.

The other thing about the technology, the interesting thing is one of the most promising technologies that I have seen, which so far is I

believe over 300 megawatts installed, is Tokyo Electric.

Tokyo Electric has been installing 14 megawatts per year, and they want to expand it to 80 to 100 megawatts per year of that technology.

That technology was developed by Ford in the 1960s, and it was not utilized. The Japanese took it, bought the patent, developed for larger commercial, and that is the one they are selling back.

So it was interesting. It was actually an American invention that the Japanese bought, and they are selling back. It is the one that has multi hours of capacity, up to seven hours.

Actually, there is no limit on how much. It is just a matter of opening factories that can accommodate the volume, but there are no limitations on how much you can stack, provided that you have the real estate.

So there is a lot of promise in there, and as I said, if we just give them the chance, ease the

interconnection, and define the products well, especially in the new environment, I think from what they are telling me, they are going to be very competitive.

MR. DELGADO: I am going to revisit a little bit some of the things we were talking about yesterday, but I would like to kind of segue into the issue of priorities.

When we are talking about either regulation law or technology, I am watching very carefully, the difference between what is, what could be, and what should be, and I think we have to be very serious about it because from the operations point of view, we only work with what is.

I am excited about battery technology. I am excited about any storage technology because I think it has great potential. I love wind because I believe that, in fact, it can really fill a spot.

If we follow that, from the perspective of operations, as we are changing the whole variety of

components in the network, I think the priority has to be, above all, on the load side, and I will try to explain myself.

Efficiency is important not because it reduces demand, but it opens space for new demand. We are getting new demand. We need to open space for it.

Electricity is a driver for efficiency. manufacturing, and living, and as a consequence, it will continue to increase, but if we, in fact, can make it more efficient, we can open up more room in the existing infrastructure for the new load.

This is terribly important because even as we talk there are portions of our territory that grow at less than 1 percent in demand a year in energy, but there is one particular spot in the center of the State that is running at 4.5, and 4.5 begins to be really troublesome. It gets ahead of what I can do and try to supply it, put on the other side.

Look at it from my perspective. We cannot remove congestion in transmission system. By

definition, it is impossible. So everybody lives in a pocket. The pocket may be bigger or smaller.

As we find that there is a mismatch between generation and load, all the technology in the world that needs to be turned on can fail to turn on some of the time, but I can guarantee you, the stuff that we turn off turns off.

So you can always match. Load is always in the right place. Generation, very often it is not.

The point I am making is as we are trying to integrate wind, batteries, storage -- and you know, these things, we don't select the location very easily because sometimes wind turbines have to be where the wind is. You cannot put them where the wind is not. So, as a consequence, we need to move it, but the fact is to live with it as we integrate it, sometimes I am concerned, for example, that in some pockets, the wind may out-raise the ability to manage it.

Frankly, the best way to manage it in the interim is through load control because when the wind

disappears, the fastest way of reacting would be with load control.

Let's say we see the cars taking off, and all of a sudden, the load at night is the same as during the day. It goes flat. Most of us who are calculating reserve requirements know that the capacity requirement in generation has to go up significantly to retain the same reliability, but we do not have the ability to do that if the car load outraces our ability to create generation. Therefore, load control comes to the rescue.

The point I am making, as we are looking at the immediate future of this interconnection, Canada and the U.S., I think that if we were to rank the technologies that we have, I would advocate that we do identify that the load control and efficiency technologies do have a higher priority. They are far more immediate in its utilization because everything else requires a time of implementation and has specific location, but load control and efficiency is

available, could be available everywhere.

In fact, it would be the means, but we can integrate everything else the fastest way, in the most reliable fashion.

It is my job to worry about reliability. So I am sorry if that is an issue, but from the point of view of operations, load control and efficiency become the mechanisms by which I can integrate any load pocket, any kind of technology, in a way which I cannot control because we don't control the integration of those technologies. They come to us, and we have an obligation to connect them.

It is just a logic, Linda, that you may find useful, but my impression is that it would pay to rank some of these things and to highlight the importance of those load control and efficiency technologies in the interim, and frankly in the long term too.

I almost sound like Ralph Cavanagh, you know?

[Laughter.]

MS. STUNTZ: He is rubbing off on you. You

are sitting next to him.

All right. We are going to hear from the other Ralph, and then we are going to let the chairman of this drafting team have the last word on storage this morning.

Then we will have a small break and come back and do smart grid.

MR. MASIELLO: Okay. In deference to Ralph I -- I guess I am Ralph II --

MS. STUNTZ: Oh, no. You were here first.

[Laughter.]

MR. MASIELLO: Coming back to Donald Sadoway's presentation on the electrochemistry, perhaps we should play it more loudly in the report, the genome project.

Another consideration is right now the funding for storage research is mostly the transportation sector, which has got criteria on weight and size as a higher priority than cost and capacity.

The reason for DOE funding for storage could

well be that in the electric energy industry application, the size and the weight issues are secondary to the cost of getting lots of capacity.

Safety is perhaps grayer, but obviously, in the automotive application, the safety issues are very strong. In a substation, you can manage those.

MR. ROBERTS: I just wanted to follow up on some things that were said earlier about Chrysler selecting the Japanese battery.

The Japanese government is very involved in storage and the development for the power grid and for transportation. I don't know the specifics of the funding support for perfecting newer and better batteries for PHEVs and EVs.

I do know that on the power grid side, they will fund 30 percent of the cost of a storage system that is tied to renewables, and that is a huge number that really is stimulating a lot of that business.

The battery manufacturer that Yakout referred to is increasing its capacity to 150 megawatts a year

by June. The demand is already above that, but they have just been reluctant to make the commitment and go to 500 megawatts a year, but it is amazing what is going on around the world, and I appreciate all of the discussion that everybody had today.

It was very enlightening, very good, and I am glad to see that the involvement is there. So I think we will move forward to try to make it a meaningful report and something that we can all be proud that we participated in.

MS. STUNTZ: Terrific. Thank you.

We will take a 10-minute break and be cause at 10:00. We will be back at 10:00 to start smart grid.

[Break.]

MS. STUNTZ: All right, everyone. If you would please take your seats, we can get underway.

[Pause.]

MS. STUNTZ: Everyone, I believe the chairman of the smart grid Subcommittee is prepared to commence. So, if you could take your seats, that

would be great.

Guido, I am going to turn it over to you.

Discussion of Draft smart grid White Paper

MR. BARTELS: Thank you, Linda.

I don't know whether I mentioned it already yesterday, but some of you had the opportunity to join Grid Week this week where Secretary Bodman spoke. I think there was a little bit of excitement there in the area of smart grids.

Also, what we did there and I think as part of some introductory comments, we had an international summit on Monday of GridWeek where we had examples of smart grid implementations from around the world, which I felt was very important to help increase the sense of urgency when it comes to smart grid investment.

We had large examples from Italy, NL, EDF, and France. We had examples out of India and China and Australia, which all adds to that. We received best practices from around the world.

It only reconfirmed for myself how important this area is, and also it is not only about answering the question how smart grid can help here. It addressed some of the issues we have in the energy space, but also there is an enormous opportunity in terms of economic growth.

So, if we are not careful in the U.S., then this could also mean that we are missing out on the growth engine for the U.S. economy, and perhaps the next big growth engine in general for economies around the world.

In our conference, we ended and the end topic there was be bold. So bridging to the Smart Grid Subcommittee work, Linda, this is clearly for us a work in process.

I asked also yesterday the question when we talked about adequacy group, are there also items where there was no consensus, because often those are bolder items, and they are very definitional from the items where you don't agree. So most of the focus

here today in the discussion isn't what we have agreed on, but there is clearly some further discussion to do, and that is similar to what I mentioned earlier. We are going to have a deep look at that, at a better place, a topic around electric car, which also has implications for smart grid. So we are also going to look at that.

Let me leave it to that for now. Another thing we wanted to do is, as you know, as part of the EISA bill, there is a requirement biannually to report back to Congress on the status of smart grid implementation, so what is out there. That work is currently going on. It was in Eric Lightner's team.

We will introduce him in a second, but Steve Widergren, his team was going to report back to us where that work stands. That needs to be brought back or is due by the end of the year, and clearly, a smart grid team but perhaps even the broader EAC, Linda, should be reviewing that piece of work, which I think is important.

The other thing, which Eric just very suddenly put next to me, Eric Lightner, it is always interesting to see the difference between the sales person -- I don't know, Eric. I am now going to perhaps put a tag on you, which is not fair, but I look at myself as a sales person, and I think you are now. You can kick me later.

[Laughter.]

MR. BARTELS: Okay. The DOE has done a terrific piece of work regarding smart grids, an introductory document about that, and I think it is really good. We handed it out at GridWeek to all the attendants.

So I asked Eric just before we started here, did you give everybody at the EAC a document, and Eric said, "Should we?" I said, "Yes, of course, should we." So that is out here. It is next. We will put it somewhere on the table to make sure everybody gets that document, but I would urge you to read it. It is very readable and really increases the understanding

in a very easy way.

Having said that, Steve, I think you have some slides, and you are going to briefly take us through. Eric is going to. We get the salesman.

MR. LIGHTNER: Okay. If you will excuse me, I am hot from running down to get those books. They are very heavy books, Guido. So I hope you appreciate that.

[Laughter.]

MR. LIGHTNER: Like Guido said, my name is Eric Lightner. I work for the Department of Energy. I think I know most of you. However, I think I need to reintroduce myself to David Meyer during the lunch break. So, David, how are you doing? My name is Eric Lightner. Appreciate that.

[Laughter.]

MR. LIGHTNER: I just want to take this opportunity to update you on where we are with one of our required deliverables for one of the provisions in the legislation that passed last December.

So this is what we are going to talk about, a little bit about what that legislation is, what the requirement is that I am discussing here today, the scope of that effort, what approach we took to develop it, the workshop that we had back in June, just touch on that briefly, that we utilized a lot of that input from that workshop to develop the report, the status of the report, where we stand, and what the review schedule and coordination is.

So what I am going to be talking to you about today is -- or I guess more appropriately, Steve Widergren from PNNL is going to be talking to you about today is a report that is due this December, Section 1302 of the Energy Independence and Security Act, required DOE to on an every-other-year basis put out a document, a report that is the status of implementing this market, where are we as a nation on implementing this market.

So this is our first attempt at that. It is due again in December and every other year thereafter.

Again, one of the responsibilities in the legislation was that DOE work with many stakeholder groups to get input, advice, and comment on that report. That is really why I am here today. One of the requirements was to make sure we got the input and the advice from the EAC.

So, again, we are going to talk about the current status of the deployment in the United States. We are going to look at it from a regional perspective. We are going to take some time in the document, I believe, to talk about really what it is we are looking at and what those metrics are we are using to measure the deployments that are ongoing throughout the U.S.

Again, the coordination role. So we have been coordinating with the group that I am the director of, the Smart Grid Task Force, which is a multi-agency Federal career employee task force to coordinate smart grid activities amongst the different agencies, obviously the advisory committee here. I guess our

main touch point is going to be through the Smart Grid Subcommittee and other stakeholder groups. We will be reaching out to multiple stakeholder groups to get their input on this report, obviously.

So I wanted to introduce Steve Widergren from PNNL who is going to give you more of the details on what the approach was, what the schedule is, how we would like to engage this group in the review process, and he is the main principal investigator on putting this report together at PNNL, and I will let him take it from here.

Steve.

MR. WIDERGREN: Thank you, Eric, and good morning, everyone.

It is my privilege to get the assignment to put this report together. So I will give you a little update on where we are and then basically ask for your coordination and input on the report and try to coordinate dates for that.

I just want to talk a little bit about the

scope of the report. This is a use of digital technology to improve reliability, security, and efficiency of the electric system. That is what the smart grid is about.

Certainly, there are a number of things that technology is already being put to use in. It is not like we have the dumb grid today, but we can do things better. That includes in our transmission distribution system, in the generation area, and in our control system operations, both at local, regional levels, reliability control center-type levels, getting wide-area views of things.

We also have some new things that are coming on that has already been discussed that I was listening to this morning here, renewables integration or these variable output loads coming at large farms on transmission and also at the distribution level.

I think one of the most exciting things that I have been involved with in the laboratory works since I joined PNNL is really in this integration of

distributed resources. So that includes energy efficiency and work that is being done in commercial buildings area, with distributed generation and storage, and then in residential-type areas in integration of electric vehicles and the loads and appliances down the very edges of the system.

Overlaying all of this is we have some very significant issues that we need to address as well. Cyber security, as we go this route and we get these things more connected, the implications or the vulnerabilities that we have for the system are incredibly important to watch out for. We have regulatory policy in terms of the paths forward and how the environment for economic and business environment for moving forward is set up, and principals operation and interaction.

Now we have many more things on the system. So our control strategies need to do things to scale up. Obviously, if we are going to be exchanging all information with everybody else, I think we will have

a more brittle, a more difficult time of actually operating the system. So those types of things need to be reviewed as well.

The final thing, which is something pretty close to my heart for another assignment I have with Department of Energy is in this area of interoperability or how do we connect all these automation systems together, how do they collaborate to give us a more resilient system in the future.

So, in developing the report, we are identifying and deploying attributes and a set of metrics for how we can measure progress on the implementation of the smart grid.

The smart grid is not, by the way, a point in any nirvana that we reach. It will be something that we are continually evolving towards, and so in that regard, in my mind, I interpret it as a vision basically for going forward, and now we need to take practical steps to move in those directions.

Eric mentioned the Department of Energy

sponsored a workshop specifically on implementation of the smart grid and on metrics, and from that workshop, there were over 50 metrics that were identified. That is a bit daunting to go after those. They were not all easy things to be able to measure, but we have been incorporating that.

Actually, as a part of writing the report, reducing that down to about 20 things that we are trying to measure, even there being as quantitative as we can, but certainly, initially, here we also will end up being a bit quantitative in our discussion of these things.

We need to collect the measurements to evaluate those metrics, and we are doing investigations, actually wrapping up a fair amount of the work. I have a status I will go over quickly here.

We are doing some surveys and interviews with about 15, 20 organizations to try to get a sampling of what is going on within particularly electric

utilities, and we are trying to look at not just this particular State, but what has happened in the past and do we have some near-term, future-type projections.

So we are trying to, as I say, attempt to characterize that present state and not just being a point in time, but see how quickly things are moving from the recent past and projections to the future.

We will note challenges and obstacles. I think we will not be making -- unless it is something so obvious, I don't think at this time we are going to have direct recommendations or call out this barrier that a regulatory agency can take care of, but we will certainly note some challenges and obstacles.

We will be presenting gaps in terms of this all had to come together in a relatively quick period of time. So we know that we can do better in future years, and we will be looking at areas where we can make recommendations for improvement.

As a first report, one of the primary

objectives is to create this baseline with which we can then make measurements and see how we are doing two years down the road and into the future.

So our status, we have synthesized those results from the Smart Grid Implementation Workshop into 20 metrics, and we are looking at incorporating area, regional, national sort of coordination.

These measures, even though you try to project them nationally, they are different. The Pacific Northwest is different than Mid-Atlantic and things like that. So we are trying to point out some of these distinctive areas.

We are looking at metrics in distributed energy resource technology, those things kind of at that bottom area of that scoping slide that I presented, as well as the T&D delivery infrastructure.

We substantially completed those investigations. We have refinements to make there, but we have done a pass on pretty much all those 20 metrics, and we are also working with a company, APQC,

who has gone out and interviewed.

I think we have gotten back about 15 organizations now through an interview process that is actually touching on most of these 20 metrics, and some of the organizations here actually may be providing us input through that mechanism.

The preliminary draft of the document is now in progress, and the idea is that we will have an annex basically of the interviewing results from the survey, as well as background on these 20 metrics. Those will be used to tell the story of what the status of the smart grid is through a series of the six or seven attributes that have been provided to us through some other work and workshops within the smart grid effort of Department of Energy.

So here is the part for coordinating with you. We intend to have in the beginning part of October, our preliminary draft out. We will be working with Eric and the Department, the Office of Electricity, to go over that document and basically turn that into our

draft that we would then like to go out and go to the greater stakeholder base and to the EAC here to get your feedback.

In particular, I understand that there is a Smart Grid Subcommittee within the EAC, and our recommendation there is that they would be the most appropriate group, that we would certainly like to have -- although it would be open to everyone, we want to actively pursue getting feedback from that group. So that draft would be out towards the end of October here, and then we would take that input and create the final document and work with the Department of Energy to create that report from the Secretary to Congress.

With that, I will take any questions, or Guido, please.

MR. BARTELS: Excellent, Steve.

I have a few comments and questions. So I think, Eric, doing this a little bit in real time, I think that is a good schedule, that last chart, but I think it is probably good that we as a Smart Grid

Subcommittee continue and that Steve participates in our calls, as long as I am not violating any process rules there. I think that would be a good way to stay in sync, besides those steps which were mentioned there.

On the APQC, what you mentioned, Steve, I think it is good to note. Not everybody might be familiar with that. It is a company which, among others, is doing benchmarking, for example, what happens in the software world and software development, and they have developed a tool which basically, if I need to describe it in simple terms, it is a mirror. I call it the "smart grid mirror," and the company can look in that mirror and see where they are today.

Of course, it is much more complicated than I describe it, but I am really encouraged that you guys are -- or that the team is using that, so a comment there.

When you look at the status of the smart

grids, are you also doing a comparison with, for example, what happens in other parts of the world?

I see you nodding no already. That is what I expected.

MR. WIDERGREN: We are looking at information in terms of investigating things that are out there that includes work that is done internationally as well, but we will not be projecting the status of what the smart grid is internationally because we will be very much focused as to here in North America, particularly in the United States.

MR. BARTELS: That is perhaps an offline description, I think.

The reason why I asked the question, if you report back biannually to Congress on the status of the smart grid, I think why it might be a consideration to look at that is that one reason why you look at smart grid is to help sustainable energy future. At the same time, there is an economy, and there is an industry building around that topic, which

I feel will be a very important growth engine.

So, if you compare yourself with other parts of the world and you see that other parts of the world potentially are further along, I think that helps with the sense of urgency in the U.S.

MR. LIGHTNER: Yeah. Possibly, I think that is something we can look at and include in subsequent reports.

MR. BARTELS: Yeah.

MR. LIGHTNER: I doubt we have the time this year to include something like that.

There are two things going on here. Of course, we are going to try to learn about and coordinate with international efforts in the larger scheme of those market efforts, but the requirements of this report didn't specifically spell out that needed to include that.

So, at this point, we haven't included that, but again, if that is one of the feedback or comments that comes from this group, of course, we will take

that back and make sure that is accommodated and incorporated in most likely the next round.

MR. WIDERGREN: Like the 20 metrics or whatever metrics they evolve to are ones that could be used internationally, and it would be interesting to see if like the EU or other areas have come up with different metrics, or maybe they use what we have come up with here. That could be a valuable way of trying to see what things are going on, not only just what the picture is globally, but how we step back against other areas of the globe as well.

MS. STUNTZ: We have got some interest from other members of the committee. I recognize Sue, Irv, Enrique, and Dian.

MS. KELLY: I am just going to ask a procedural question, which may well reveal my ignorance, but I have decided what the heck.

Could you explain the interaction between this report that you are discussing here and the draft report that we have in our books, and are you going to

be asking us to bless this report as well as -- you know, how is this all fitting together is my question, and I apologize if that is an ignorant question, but I sense that some other people have this same confusion.

MR. MANSOUR: And were just embarrassed to ask.

MS. STUNTZ: I will make a stab at that if you want, and then I will stand to be corrected, but my understanding, based on the presentation, is that this report is required to be prepared by the -- this report is being prepared by the Department of Energy pursuant to congressional directive. It is not a product of the EAC.

However --

ATTENDEE [speaking off mic]: [Inaudible.]

MS. STUNTZ: Well, yes. One parameter or one directive you were given in preparing this report, the Department is supposed to seek stakeholder advice and input, and so they hope to use the Smart Grid Subcommittee and any of us for that input.

Obviously, my reaction looking at this, this is a very compressed time frame for us to be able to give you much feedback, given what I saw in that schedule, but we will do the best we can, and to the extent you can share earlier drafts -- and you are obviously trying to give us a preview now -- it will assist people in being able to give you any meaningful feedback at this point.

Is that sort of right?

MR. BARTELS: The other thing I would add to that -- and it is a completely logical question, by the way -- is that I think on the recommendation part, Eric, that is where I expect us to be much heavier.

I think around Steve's comment, you are taking a picture. Right? We are going to use that picture as part of input to our report, but we will be focusing much more heavily on the recommendation part.

MS. GRUENEICH: I am on the Smart Grid Subcommittee, and I am -- I mean, why are we doing a separate smart grid report as part of the EAC? I

thought we were doing the separate smart grid white paper here because we were doing a report that was required by Congress, and now I am understanding -- I probably was mixed up from the beginning -- the report required by Congress is the DOE report.

So have we thought through why we have picked out -- I mean I am perfectly happy we have a separate smart grid report, but was there a particular rationale out of all the issues, that is the one we decided to put as a stand-alone document?

I mean I understand the battery storage because that is required.

MR. MEYER: Two things here. The legislation that was passed, the Energy Security and Independence Act -- maybe I have got that reversed, but at any rate, it directed that DOE establish two advisory committees, one for storage and one for smart grid.

Because we had said, well, we had earlier, before the Act was even passed, we decided we wanted to establish a broader Electricity Advisory Committee,

so it wouldn't have been productive to have a proliferation of committees. So that led to subcommittees for smart grid and for storage.

But the law differed somewhat in how, in the assignments that it gave to those committees. The Energy Storage Committee is told to deliver a report to Congress, but on the smart grid side, it is DOE that delivers this biannual report to Congress. But it is supposed to consult the advisory group in the preparation of that report.

Then I guess the final element here is that certainly as the committee produces a comprehensive set of recommendations to DOE, it is understandable that there would be smart grid recommendations or there would be a smart grid component there.

Whether it is delivered as a separate document or whether it is delivered as part of the electricity supply adequacy, that is something for the group to decide and decide what is the most convenient or efficient way to deal with it.

MS. STUNTZ: Just one footnote would be I think an assessment of the status of smart grid is one thing by DOE. I think a report on what should be done to advance smart grid by an external independent advisory group really is different, and hopefully, there will be some congruence in some places, but not necessarily -- certainly, I don't expect they are going to be completely overlapping.

MR. KOWENSKI: Okay. I guess I am still confused.

The report from DOE to Congress on smart grid is the status, not a recommendation of what should be done or what it is going to cost or what the benefits are. I am asking about the status. Where are we?

MR. LIGHTNER: That is correct.

MR. KOWENSKI: Okay.

MR. LIGHTNER: This report that DOE will be doing is just a status. We put a lot of time and effort into defining what it was, first of all, to measure, what does it mean, what are smart grid

things, and that would be taking a snapshot and doing some trend analysis to say, hey, here is where we are, here is the status.

MS. GRUENEICH: I'm sorry, but I thought you started off -- and this is why I was confused because I thought that was our report, but the provision in the Federal law I thought specifically says "and include recommendations on identifying barriers that still exist," something like that.

So I have always read whoever had responsibility for that portion of the law, it had recommendations. It is more than just here is what exists. I thought it was also what are the barriers and what would need to be done to overcome those barriers.

MR. WIDERGREN: I could say I think the language does say that in the bill, in the Act, but that is not something that we are concentrating on because in terms of what we talk about, certainly for this first report, we may talk about what appear to be

some barriers or some challenges, but I just think there is so little time. This is more of the forum there if you are going to recommend something. That is an area that I personally see that we would have to tread very, very carefully, and it would have to come out of really the Department of Energy here, not through our laboratory or anything like that in terms of what those recommendations would be.

MS. HOFFMAN: If I may jump in real quick, anybody familiar with the Department of Energy's review process and trying to get a report out with recommendations, it has to go through our General Counsel, as well as OMB, and potentially the White House. So a lot of the recommendations will be simple recommendations. I will leave it as that.

MR. BARTELS: I am glad, by the way, we decided to put this on the agenda.

[Laughter.]

MR. BARTELS: It helps.

So let me try to summarize. So I think -- and

just clarifying this with the group -- that we should strongly leverage what Eric -- what you are doing here, and we will be much heavier, again, on the recommendation side. We will look at the group, what you are doing in terms of the diagnosis and add our own thinking to that, and then on the recommendation side, I think that is where we put most of our weight in. Hopefully, that report, in that sense, our document will become very complementary to your work. Is that a fair way to describe it?

MR. LIGHTNER: Yes. It sounds reasonable to me.

MR. SANTACANA: Two questions.

As you prepare this report as the status of the smart grid, is there an intention -- and maybe I missed it -- to establish a definition for what the smart grid means?

And if that is the case, then I think it is very important that we establish what kind of technologies are going to be relatively new or new as

opposed to the ones that have existed for 20 or 30 years. I think that is going to be very important when we come to the area of funding because we don't want to fund technologies that are 20, 30 years old. We don't want to dilute whatever funding we get. We want to put it all in whatever is new.

So the first question is, again, are we going to try to define smart grid. That is an issue that I think is still not very clear in many people's minds, and then when we do, then I think if we do, we need to get some kind of guidance on new technologies versus existing technologies, and then these are the ones that we are going to be searching for our seeking funds for.

MR. WIDERGREN: Very good questions.

To the defining of the smart grid, I think I have been in about three efforts that have tried to do that before, and I am really not looking forward to a fourth one.

I will say that is why the scoping slide was

on there. The way that I like to think about trying to define the smart grid is what are the applications and the things that we are going to be looking at and supporting within that. That to me kind of routes it down, versus trying to wordsmith this definition, so to speak, of what is smart grid or not. It is more like the types of things that we will try to cover within the metrics and the measurements to give that status of the report.

The second question again was?

MR. SANTACANA: I agree with what you just said. We should be looking at the applications rather than spend a lot of time trying to define. So, to me, that is a good answer.

But then if we are going to define the applications, then to implement the applications, there are a number of existing technologies that have been around for a long time, and then there are new ones that we believe we are going to have to have some funding to develop for early adopters, and I think we

should separate both, so that we don't dilute whatever funding we are going to get, one versus the other.

MR. WIDERGREN: Correct.

What we are trying to do is find things that we can actually measure that are out there. So there are some things that I would say are emerging, not terribly, highly deployed at this point in time, that we are trying to measure.

There are some things that are -- I mean in terms of a technology, like a storage technology or something like that, for example, those ideas and some of the early research done in that may have been around for decades or whatever, but it is not implemented now.

What is happening given the state of the nation, climate change and things like that, now some of those technologies are becoming more reasonable to deploy in a business sense or whatever. We will try to measure that type of application.

So there is some work, some things in there on

dynamic limits on transmission lines, for example. We have been able to do that really for quite a number of years, but now we are just sort of seeing more deploying of that type of technology because of the cost of communication and being able to do those measurements, bringing that back and actually deploying them, and what we can get, the fact that we are needing to push the efficiency or the capacity of the system as hard as we can, to get those efficiencies out of it.

Does that help answer your question? I mean it is hard for me to say. We are certainly not trying to emphasize more traditional ways of the way that we have managed the electric grid. We are trying to look at more of the transformational aspects.

MR. LIGHTNER: Let me just add something. This is going to be a living document, obviously, because we have to produce it every two years. So I think as we refine what it is we are talking about and as we get information on and some feeling for those

metrics that we have already come up with, are they going to work, do they work, are they realistic, and as we collect information on those, we will be able to refine what it is as we go along.

We are on our way to try to get at what your question is, and that is the technologies, what are those technologies that the government or any entity could invest in, in research to develop those.

In those smart grid activities, in the program areas, what we have been doing over the last few years now is we concentrated a lot of effort into trying to define what the definition of smart grid was, and what we ended up with was kind of a functionality definition. Here is a characteristic that we really want to try to enable and call that the "smart grid."

So we spent probably two years developing those, and we arrived at I think it is six characteristics or functions that we believe are really going to be the key ones.

So then we followed that up with, okay, let's

now have some national discussion on how we are going to measure those, what kinds of things, what are the decisions we can make now that are going to impact that in the future, that are going to lead to those functionalities. That was the workshop that we had in June.

We are going to follow that up now with a workshop that we are going to have in January or February, this coming year, that says okay, now that we sorted out the definition, we know what we are going to measure, where are the gaps, what is the research opportunities, and hopefully, we can take that information.

It is a very long process. We are not going to have that information available for December, but hopefully, for the report in two years, we will have that, and that is going to help us define. If DOE gets funding for research and development, that will help us. That will be input as to where is the real need that we can put those dollars.

MS. STUNTZ: Let me recognize Barry and Mike.

MR. LAWSON: This might actually lead into what you just said, but let me try this angle.

From an advisory committee standpoint and what we are here for today, we have four documents on smart grid. What is the purpose of these four documents, and are we going to talk about them?

MS. STUNTZ: Yes, we are.

MR. LAWSON: Okay.

MS. STUNTZ: Gerry.

MR. CAULEY: I had concerns I think similar to those expressed in terms of what are we trying to accomplish with the smart grid portion of this, and I think if it is to do a status of the technology and where we are and describe the possible applications, it is probably something I didn't sign on for. It is sort of an academic exercise, and we could have just assigned somebody to do that.

MS. STUNTZ: I think that is what DOE is doing.

MR. CAULEY: What I am struggling with really in terms of this and the storage and how the whole thing comes together is what is the framework that we are trying to go after, what is the driver for this, and I think we need to do a better job of spelling out that framework.

I don't know if it would be possible to agree on some goals, and I will give credit to Dave Nevius because we had some discussion with him last night on this as well, some goals of what is driving, what are the motivating factors for us in developing all of these reports.

I have identified a few. I think in the time horizon we are looking at, we want to ensure an adequate supply of electricity. We want to assure that it is reliable electricity. We want to make sure that it is affordable to consumers. We want to deal with the energy independence and oil independence, improve the environment, and address environmental factors, and I think also provide enablers to improve

quality of life. So through electronics and electricity, it is always a way to improve quality of life and the economy, and I think the seventh goal I would have is protecting the national infrastructure for security areas.

So we can conjecture some high-level goals that are driving that, and then you look at, well, how do you do that in the electricity food chain, if you will. We look at it from a supply and generation aspect, and that touches storage and different fuel mixes and things like that, but it also affects transmission. That includes smart grid technologies, the question of the national overlay or not, and so on, distribution, and I think part of the answer is also on the consume side as a framework.

So I think we have got to develop this framework for thinking of all these things, and I would like to see the smart grid and these other things we are talking about discussed in that sort of a framework in terms of the potential benefits, the

barriers to achieving those benefits, and what our recommendations are going to be to get through those, to cut through those barriers and realize some of these potential benefits.

I think then if we want to extract from that, subsets of that information that can be spun off to become a required report on storage or required report on smart grid, I think it will be easier to do from that bigger global piece than to try to tackle this in a sort of piecemeal approach.

MS. STUNTZ: Let's get through -- we are pretty well down a path now where we developed the storage report that is required by statute, which at this point, you know, would be my proposal that it go separately with whatever is useful, drawn, and cross-referenced into the Adequacy report that we talked about yesterday.

Adequacy itself is something, as my colleague, Yakout, has been saying, that we need to define more fully, I think in all of its dimensions, many of which

you discussed, and whether that is a preface or a summary or, as he put it, the connecting of the dots. We definitely need to do that.

I think we should go ahead and consider the smart grid report as it has been developed and then have a discussion after he has a chance to discuss it as to whether it should be incorporated in the report or, again, whether it stands separately and gets cross-referenced in the report.

We have time on the agenda, I hope, following the discussion of the smart grid report, either before or after lunch, whichever you all prefer, to then having heard now over the last two days, everything that the committee has been working on, how you want to go forward, how we stitch it all together, as Yakout has said.

I think your points are very well taken, and if we can hold those good thoughts, let's get through smart grid and then circle back. Is that okay?

All right. Guido.

MR. BARTELS: So we opted for drafting, Dian Grueneich, Bruce Walker, Tom Sloan, Tom Standish -- unfortunately, he is not here -- and Ralph Masiello. Tom is very busy attending to other things in Texas.

So some authors had their own sections, and some shared a section. Earlier this month, we discussed the recommendation at the face-to-face meeting here in D.C.

We have recently had to draft and slightly edit it, and indeed, you have the document in your packet.

More clearly, as I said, it is a work in process. More edits are required. Of course, there is a little bit of overlap amongst the chapters which we had expected. We will publish the second draft before our next committee call on October 10, and we are looking forward to incorporating the suggestions of the full committee after this meeting.

I will ensure that we do some further link-up with said work Eric and Steve are doing, as we just

heard.

The report is comprised of five sections. There is a section on opportunities, an introduction to the forces that are making smart grid important and necessary today. Section 2 definition -- let me also say there is excite tension here. Our design point was not to make a 100-page or perhaps even 50-page report. We wanted to ensure that we leverage as much as possible, things which are already out there, very much in light of the comments Steve made earlier on, that he had the pleasure of being in three smart grid definition sessions. So we are going to leverage as much as possible, things we think have been done and which are good pieces of work.

So, on the definition side, we use the DOE definition and points to milestones that allow industry to better understand the paths to a nationwide smart grid, very much according to the maturity and all of which was mentioned earlier. That is the section I was on, the first section,

Opportunities, Tom Standish.

Section 3, value descriptions. So value discusses all the benefits that we will derive from a smart grid. That is Ralph who has that section.

Section 4, impediments, which discusses the many barriers in achieving a smart grid, clearly an important part, and Section 5 on recommendations. I'm sorry. Section 3, values, Dian and Ralph are owning that section.

So I will now give a few comments on each of the sections, as you have it. Tom Standish was the author, but as I said, he is not here.

Then the main point is that the convergence of force is similar on that first section. The Internet experience has created transformational opportunity for the energy sector. Tom then further goes onto outline how the transformation will manifest itself in terms of energy efficiency and cost savings, customer convenience and safety, environmental opportunities, and reliability improvements. So that is the first

section.

So Section 2, is the definition set, I understand we had some technical difficulties on that chapter. It defines a smart grid as an intelligent network from the point of generation to the customer premise and back, so quite a broad definition which we think is appropriate. There are very narrow definitions of smart grid out there in terms of just TND, smart metering, et cetera, but we have a very broad view there of what a smart grid is.

It offers, goes further on the definition. It offers possible progress points, like pilots moving to regional demonstrations, pilots not being implemented at all, but full implementations are occurring, statewide projects, public/private partnerships where collaboration and innovation are pushing the implementations forward, and ultimately where all 50 States are installing a smarter grid. So that is on Section 2.

On the next section, the value section,

Section 3, I would ask Dian and Ralph to briefly describe that piece of work.

So, Ralph or Dian?

MS. GRUENEICH: Okay. I think you all have it in front of you, Section 3, and given that it is only six pages, I am not going to spend a lot of time because in the time I would spend describing it, you can probably read it.

We looked at the value of the smart grid from the perspective of consumers, environmental, utility, and grid operators, market efficiency, community, and regulatory, and based upon the examples that we know where there have been approvals of components of the smart grid or starting to put it in place, we tried to go through and summarize what had been defined or identified as the values in those areas, so basically looking at the smart grid from the perspective of the different beneficiaries from it and what had been identified as value to those various beneficiaries. So that is really what this section of the report

does.

Ralph?

MR. MASIELLO: I don't know in the interest of time what to add or emphasize.

There is quite a bit in it on the benefits of AMI, which touch on the demand response and price response of the load.

Maybe I would like to call out the asset management potential benefits where smart grid technologies in the substation especially can add benefits to life extension of equipment and help mitigate the very large capital investment staring the industry in the face over the next decade as the existing infrastructure ages.

MR. BARTELS: Thank you, Ralph.

Tom and Bruce, if you can give some short comments, a summary on the impediments section.

MR. WALKER: Thanks, Guido.

We have worked this out through a number of different sections, and there's a couple of

impediments that we have highlighted but not really fleshed out, and I think there were a number that were discussed here as well, today and yesterday.

The utility business model, to offset what was said with regard to the benefits, there is also -- and perhaps we forget it sometimes. There is some very, very significant initial capital costs that go along with this, once you get beyond some of the R&D projects and try to implement this. From a very basic perspective, obviously trying to get the capital is something we obviously can stress in here going forward, but more fundamental than that, I am not sure -- and we have debated this back and forth on this committee.

You know, we talk about investing a billion dollars for AMI. Unless it is all linked up, I am not so sure you are going to see the benefit that has been portrayed.

So I think from a utility perspective and a customer perspective, we need to understand the

business models, and we need to make sure that the business models are prudent. So that is an area that clearly can be debated by reasonable people, and I expect that it will probably get more.

The regulatory environment, as we go forward and look toward introducing a number of smart grid technologies -- and I guess one of the things, taking a step back, everything that we talked about in the last two days and all of the things that we are discussing here really fall under the guise of we are integrating a system that we are calling "smart grid."

So it is something that I think we have got to consider, but when we consider that and we consider the regulatory environment, things or historical models, responsibility models, may be issues that we have to contend with, how we measure things. Metrics may have to be altered or changed as a result of some of the introductions to these smart grid technologies.

Planning costs and installation costs are really -- they go hand in hand, and a lot of this is

really very, very capital intensive. It needs to be coordinated really well. Are there opportunities? Absolutely, but they need to be really well thought out, and integrated solutions need to be derived.

In some cases, you can't do one thing if you haven't done the other, and I liken it when I speak with regard to smart grid, I often talk about building a house. You don't worry about putting your windows in until you have got a foundation down.

In many cases, a lot of the smart grid technology or discussions really need to focus on building that foundation, so that all the other pieces can come together.

We have talked about an area where we can prioritize some of the recommendations that we have, and this may be an area where with some degree of certainty, we can lay foundational recommendations for how this market needs to go forward, and as a consequence, how all the pieces that comprise that, whether it is storage, energy efficiency, wind,

renewables, all of those things really comprise how do you maximize the utilization of equipment, how do you maximize efficiency. These really all start coming together under the guise of smart grid, and this may be an area and how it gets incorporated into the report going forward.

And then customer environment is another area. We talk about smart grid. It has really gained a life of its own as a marketing tool, and now part of this really -- part of what we need to do is make sure that customers understand what the concept of a smart grid is, particularly as we get into things like real-time pricing for customers.

Basically, it is an American model. If you want to use electricity during peak time, then you can pay for it. There is a lot of education that goes along with the embodiment of smart grid technologies, particularly as they start getting further down the line, as Eric was speaking to and Steve, with regard to appliances and things of that nature. People need

to know how they integrate into the full picture and what that means overall.

So these are some of the impediments that we had identified, and then there are also a number of other items that we had identified as part of like infrastructure issues, but there are some impediments, and part of it has to do with standardization, communication medium. Again, the disparity between the different communication protocols and mechanisms are something that really need to be overcome.

Stranded cost for existing equipment. Unless these become things that we just plan out over time -- and that is okay. It becomes a time issue, and it depends on how fast we want to implement things. If you are going to implement it quickly, then you are talking about potentially taking usable equipment out of service, and again, you need the business model, what is the gain, what is the value to the customer or the end user or to anybody else in the process.

Cost. I mean you can't emphasize this enough.

We are talking lots and lots of money, and again, the business cases need to support this.

A lot of change in philosophy going forward and making sure that people understand that, and part of that really can get wrapped around the educational process to utilities, to the regulators that are involved, to the consumers at the end of the day.

The interoperability is something that is an absolute must if we are really going to talk about this on a national level, and it goes back to a point yesterday when we were talking about the overlay.

Utilities basically evolve from what they were as vertically integrated entities, and as we get involved with things like smart grid technology, it gives us an opportunity -- and really, I think it is our obligation -- to really start breaking down those barriers that were artificially set up or physically set up by service territories, but the interoperability is something that is going to be important if we really want to maximize the

utilization of equipment efficiency and things of that nature.

Those are a number of things I picked in this area.

MR. BARTELS: So, before I go to Barry and Ralph I, Tom, anything to add to Bruce?

MR. SLOAN: Bruce did a really find job of summarizing.

I would point out that we also as a subcommittee of the subcommittee recommended that the DOE facilitate the identification of best practices, first adopter strategies, things that can be done at State RTO, ISO, or whatever levels, to expedite the adoption of the larger strategies.

I noted that one of the things we recommended was that DOE have a policy recommending group that we did recognize, that the Federal agencies are talking with each other in the formal manner.

We did recognize this group's existence and role. What we are suggesting is that somewhere within

this context, we should be looking at helping the local policy-makers, who either set the decision-making parameters for the public utility commissions or the commissions themselves and, as I said, the regional transmission and other organizations identify the best practices, the best ways to get cost recovery, the best ways to move forward.

MR. BARTELS: So we will get to the recommendations, which would be more of a description, in a second.

So, Barry, did you want to comment on this part or any other part?

MR. SMITHERMAN: Just quickly. I really appreciate all the hard work that you guys have put in on this.

This past week, our commission approved a report to our legislature on smart grid and AMI, and it is really a high-quality product. So I am going to ask the staff to send it forward to you all. They really put together a treatise on this issue, but

condensed it into about 50 pages, which we thought was an accomplishment in itself.

Since we are moving forward in an aggressive manner with the deployment of AMI smart meters, we are obligated to provide this document to the legislature. I think it is final. As soon as we can, we will get it to your committee, and maybe there might be some stuff in it, you might want to use.

MR. BARTELS: Great. Thanks, Barry. I know there is great work going on there.

Ralph?

MR. CAVANAGH: I think this is the right moment to just make a couple of observations about the way we make the case here, and I speak as someone who is a convert to this cause.

I accept and support all of the recommendations towards which we are heading. I don't think we make the case very well, and I will give you three examples.

Our lead example for why a smart grid is a

good thing, there is a section called "Efficiency and Cost Savings" -- I like that, but to lead off with smart grids facilitate residential retail competition is crazy.

There are a few people probably who are motivated by that. Almost all of them work for Paul Allen, but it is really not I think the way to build a base of support.

It is also crazy to say they will facilitate prepaid service and eliminate the need for deposits for low-income customers. Most advocates for low-income customers don't regard prepaid service as a glorious alternative to deposits, and if you think about it for a moment, I think you will instantly see why. That just doesn't belong here.

And when you are making the environmental case, be careful. I think the general admonition is not to seem uncritically boosterish because it diminishes the credibility of the effort. You shouldn't imply that raising on-peak prices and

lowering off-peak prices is an automatic environmental dividend because, of course, if you just shift load from on-peak gas to off-peak coal, you emphatically will not deliver an automatic environmental benefit. You obviously need to, and I think you will, I am sure when we finish it, make the point that the efficiency and the load shifting has to work together, and to the extent that the smart grid is facilitating both, it will help.

The final place where we are far too uncritical is we talk about -- and I think we are right to do it -- a smart grid will make it easier to effectively integrate distributed resources, but to say that most, as everyone around this table knows, most of the distributed resources in the United States are uncontrolled diesel engines sitting in the basements of buildings.

There is, unfortunately, a discreditable history of at least in some regions actually trying to integrate those things as grid support resources, not

just when the grid is crashing, which is what they are designed for, but at times when it would make sense for economic reasons. The last time you want those emergency diesels being more effectively integrated into systems is on hot summer days when air quality is at its lowest level.

I think it is terribly important there and where you are talking about load shifting versus load reduction to at least acknowledge the possibility of an adverse outcome and to caution people on the need to make sure and avoid it.

On the issue of integration of distributed generation, it seems to me that is particularly critical because we know that has been a problem, and we are not, I take it, meaning to suggest that we want to unleash the entrepreneurial creativity of the owners of all those uncontrolled diesel engines, so that they can run more frequently on hot summer afternoons. That is the last thing we want to be for, but we could be read to be suggesting that all of that

is a glorious and altogether to be hoped for an outcome.

So my plea is this is a case I want us to make, but these are illustrations of ways in which I think we are not making it as well as we could.

MR. BARTELS: A comment, Paul?

MR. ALLEN: Yes. In the discussions that we had a few weeks ago when we got together to review some priorities about recommendations, the one thing that I do think that there was a lot of agreement about was that it will be helpful to have a better understanding of the impact and potential value of dynamic pricing, and that these technologies and policies that we are talking about may enable that, but it is a bit of a grand experiment.

MR. CAVANAGH: No problem, but to leave --

MR. ALLEN: I don't actually --

MR. CAVANAGH: Retail competition products. I can compare my monthly bill with those competing utilities. Plus, I can do that right now with my

analog meter.

MR. ALLEN: Don't disagree. Don't disagree.

MR. CAVANAGH: All right.

MR. BARTELS: I'm sorry. I didn't keep track of the sequence.

MS. STUNTZ: Steve.

MR. BARTELS: You did? Okay, good.

MR. NADEL: Yeah. I wanted to build on what Ralph said. I agree that there is a lot of opportunity here, but this came across as a little boosterish and short on data.

I think you need to talk about the benefits, include some citations, avoid extreme things.

Like there is one statement about helping customers reduce their consumption by 25 percent during peak periods. I am sure some people can. That sounds a bit high for an average. You need to use reasonable figures and back them up.

I also think it would benefit by some type of benefit cost analysis. I assume there's a number of

studies that have been done, and hopefully, it can cite one and give a table, you know, gee, for whatever the numbers are, for $80 billion, this is how the benefits will in the long run be great. We don't need exact, but to help make the case, yes, this is a cost-effective investment.

Of course, as people note, the price tag is significant, and we need to help show that those benefits are going to be even greater.

MR. BARTELS: Thank you, Steve.

Barry? I didn't keep track of the order. So should if I do this wrong. Go ahead, Barry.

MR. LAWSON: All right. I want to echo something that Steve said.

Section 1 here sounded a little too much like a marketing piece or a marketing brochure to me. I would like to know if others feel that way, but it was quite strong on that angle. I don't think that is the kind of document we want to be putting out from the advisory committee.

It also was very, very short on support or basis for a lot of the points, conclusions, and statements that were made, especially in Section 1 and Section 3. So I think there is a good bit more work that needs to be done there.

There is no mention, at least that I could find, of cyber security issues that are going to be related to smart grid initiatives. I know there was in the DOE report that was talked about earlier, but there should be in our report as well some coverage of that issue.

Also, the cost or impact to consumers, we are making a lot of presumptions about services and benefits here, but at what cost? I think there needs to be more attention on that angle as well.

Thanks.

MR. BARTELS: Thanks, Barry.

First of all, I will pass on to Tom that he is too high on his marketing, and the other comment is you are a part of the team. Right? So you are going

to help us to address those points.

[Laughter.]

MR. BARTELS: I think security, I couldn't agree more on that topic and also on your other comments. Good input.

We just follow the sequence there. Irv?

MR. KOWENSKI: I want to echo some of the comments that were made. I think it is extremely important to look at the cost and maybe even break it down between transmission distributions and the final meters and take a look at the benefits. Maybe there is a way to look at this and say you can get 80 percent of your benefits by doing smart grid on the transmission side. Maybe there is on need to go all the way down to the smart meters, take a look at are there real benefits for smart meters for consumers.

I know I am getting one in my house. I am not sure it is going to be great, but I have to pay for it.

MR. BARTELS: Right. I need to mention Irv,

by the way, because I came up to Irv at the start of the meeting, and I said, "You never show up on our calls," and then we found out together that his name shouldn't be on our list. So you are now officially -- I don't know the English word, but --

MS. KELLY: Thank you.

I will echo some of the sentiments that other people have made, but I also have some specific language of things that kind of just hit me, and so I wanted to point them out.

The first one was in the very first paragraph. When someone calls me and offers me a unique opportunity to leverage transformational possibilities, I usually hang up.

[Laughter.]

MS. KELLY: I think that is an example of the kind of market-ese that I think we need to try and purge. So I would just share that with you.

I also just thought there was a lack of citation. Page 3 talks about based on nationwide

pilots. My immediate reaction is, well, what are they. So I think we need to better support the case.

Then there is also I think some expectations that may be unduly optimistic. On page 4, it talks about as consumers begin to manage their energy use more efficiently, less electricity will need to be generated -- well, I agree with that -- and fewer power plants will need to be built. I am not so sure that is true.

You think about what Jose said earlier about creating the space. What we may be doing is slowing the need for additional ones, but when you say you don't need to build anything, I just think we need to be a little bit more measured in our thinking there.

Similarly, page 5, the body of America's electric transmission distribution infrastructure has changed little for more than a century, I regard that as somewhat of an overstatement.

[Laughter.]

MS. KELLY: There is a later comment in

another chapter, the same effect. It makes it all sound like it is -- page 6 of Section 3, today's grid has reached the end of its useful life, both physically and functionally -- it sounds like it is all going to fall down tomorrow.

So these are just examples of where I think we need to be more measured in our language.

Also, again, promising too much.

Did I miss Section 2? I never got it. Am I right that that was never received?

[No response.]

MS. KELLY: Okay. But anyway, in Section 3, a successful smart grid system will reduce usage during peak hours, so that additional resources are not built.

Again, I understand we can reduce, but there may be offsetting -- you know, Yakout talks about the list of appliances that every college student thinks he needs, and that list seems to get longer every year, and I have a college student, so I know exactly

what he is talking about.

Then page 3 to 4 of that same chapter, that this will keep our environment cleaner and our neighborhoods safer from additional transmission lines and power plants, well, I have utility members, that that word "safer," you know, that's an issue. I think we need to be careful in the language that we use.

These are just some examples, but you get the picture.

The other thing I would note is that there is one thing that is a barrier that has come up, as far as I know, recently, and that is the issue of patent. I know there is an effort out there by, I think it is, Southern California Edison to obtain a patent on the business process of the smart grid and to do an open licensing for that, but that is an issue.

I have members who implemented Internet billing and payment and then got hit by what I will politely call a "patent troll," for, you know, we wanted a license fee for the business process of

Internet billing and payment. I had members who were sued in Federal District Court and had to settle on terms undisclosed even to me.

So it is very important that this new technology and this new effort, which I fully support, by the way -- please don't take my comments negatively. I am kind of with Ralph. We need to make the case. We need to not overstate it because we undercut it when we do that, but this patent issue is important, and I am quite concerned that if we don't resolve it and make sure that these business processes can be widely used by anybody who wants to implement it, then we will get tied up in knots.

So thank you. I probably went on too long already.

MR. BARTELS: I was at the border of getting depressed there for a second, but no, Sue, those are very good comments.

At one point about the citation and pilots, one of the things -- I think, first of all, we need to

look at some of the wording. I agree with you, but also what we didn't want to do is to repeat a lot of topics. So we are going to do a lot of cross-references in the index for the citations, and feel free, by the way, we will go through it with your comments and mine, but if there are other things, then please drop me an e-mail. That will be helpful.

Hunter?

MR. HUNTER: Yeah. Not to pile on too much on the over-hyping, but one thing that I do find a little concerning is just the whole concept.

If this is smart grid and you aren't for it, then you must be for a dumb grid.

[Laughter.]

MR. HUNTER: I think it is just something we need to carefully weigh as we talk through it.

Our utility is small. We started from scratch in 2000. We have actually put interval data recorders at every one of our customer sites. They all have free access to the Internet to look at their usage on

a 15-minute basis.

We have put in demand-only at the residential level, and we are in a very poor community in Hidalgo County, Texas. The industrials and commercials might like it. Our residentials could really care less, and I think we need to remember, going back to Bruce's point on cost, that I think there is a case to make that this could be beneficial to end consumers, but we need to be very careful.

Over the weekend, I was at the RMI, the Rocky Mountain Institute. They have an office in Boulder, and they were showing Xcel Smart City, that they are kind of piloting there, which is great if you live in Boulder, Colorado, but I am telling you, people on the border in Texas aren't going to pay for what I saw.

I really worry about -- I think the worst thing that this group could do is over-hype something and it then gets rejected because I think it sets the whole cause back a lot further than what any of us can imagine.

The one recommendation I really wanted to focus on was on the clearinghouse idea, which I think is a brilliant idea. Frankly, I think it is the best thing for the DOE to be focused on because out of all the things we are talking about, if there is anything that lent itself to 50 different experimental jurisdictions, it is smart grid. Every State in my opinion -- you know, the States are already tinkering this around the edges. People are approaching it in different manners.

I think if the Federal Government can collect the collective wisdom of the different States doing this in different communities at different pricing points and share those best practices and knowledge across the board, I think that is a huge step forward for this initiative.

I will be quiet after this final point, but it flows back into the incentives versus regulatory certainty. I think there is a real danger of incentivizing people to do things that they are

already going to do.

Spending most of my time in the oil and gas world, you don't get popular taking incentives for things that you are already going to do.

So, rather than dangle out incentives when we really don't know what the impediments are to an effective smart grid, I would argue let's really focus on creating the regulatory certainty and rules by which people know they can either make money or put it in a rate base, and then figure out where are the pinch points to effectively deploying smart technology, and then we determine that that fails from a public policy perspective, let's put the incentives in there.

I would much rather target it than have blanket incentives coming out of Washington based off of things that we think would work on a national level.

MR. BARTELS: Great comments.

Your comment about if you are not for an

intelligent grid, you are for a dumb grid, I think there is so much granularity out there. I think that is where we all need to take, Eric, some of your input.

Do you want to comment?

MR. LIGHTNER: A lot of people have commented on this idea of a clearing house. I just wanted to inform everyone that we have kind of heard that from a number of groups now, and actually, we started a process, we started in place to actually develop that clearinghouse.

So we are working with EPRI and NARUC and FERC and a number of groups to figure out how we can put that clearinghouse in place, what it is going to look like, who is going to host it, all those kinds of things.

So we have started down that path because we think that is key. Just getting information out that people can utilize when they make decisions is key.

MR. HUNT: Great. Actually, just a point on

that, I attended the Smart Grid Workshop that you hosted back in, I think, June or whenever it was.

MR. LIGHTNER: Yes.

MR. HUNT: I would caution how the clearinghouse is set up.

The subgroup I was in actually was dealing with standards, and after about a day, frankly, I was looking for a razor or a bottle of pills or something to put me out of misery because there was so much debate going on, on standards that could be rolled out across the entirety of the nation on step one, and at the same time, we have Texas and California and Colorado and numerous States that are already out there tinkering with this.

My hope is that the clearing house focuses on gathering the information of people that are actually out doing this, as opposed to gathering thoughts of people focused on a national prescriptive program.

MR. BARTELS: It is, by the way. It is focused on the first topic, absolutely.

MR. WALKER: If I could jump in on that one issue with the clearinghouse.

In our subcommittee, this was an issue I took a lot of effort to really at least see and identify where there is opportunity. I think the issue really comes down to you look at all of the R&D efforts, all of the discussion. It gets back down to this foundational basis.

If you had a clearinghouse that allowed somebody to control where we are spending our R&D money, what worked, what didn't work, get the feedback out, almost towards -- and we talked about this -- almost the way the cooperative extensions concept was set up with the land grant universities back in the 1860s for dissemination of information and standardization for processes, that concept worked. It is somewhat outdated today by virtue of communication opportunities, but that concept would really I think help us as we try to really -- particularly from a utility perspective, try to figure

out what is the right way to do this, and then move in that direction, particularly given the dollars that are associated with this, just tremendous, tremendous money that we really need to make sure that the customers at the end of the day, are they going to benefit.

MR. HEYECK: Thank you. I have been listening to commentary as we go along.

If we are trying to develop the perfect model for smart grid, we are going to be long down the road, and just like my comments on energy storage, experimentation and demonstration pilots and things like that do help, and actually learning from others.

I think Italy has made smart meters implementation, and they do have some first mover issues and lessons learned that we can learn from.

France is about ready to move on this subject very big.

I mentioned yesterday South Korea. Their distribution automation is phenomenal. I mean they

have automated switches almost every kilometer with looping possibilities. Also, South Korea has probably the highest load factor in the world.

So there are things that other people are doing that we could learn from, but inside our own footprint, experimentation and demonstration is okay, and I think we ought to encourage it.

Regarding the components versus the whole, I think we need to talk about the whole as well as the components. Particularly, I am interested in control centers, what do we need to do in control centers to manage this process, both from the market end and from the reliability end. I think it is very important that we try to figure out as we automate things and as we bring things together, how do we do that.

I think there needs to be also a delineating of that which the utility does versus that which entrepreneurs will do.

I noticed you mentioned home automation networks. I think there's huge possibilities there,

but we need to delineate that which is done.

I can't overemphasize the comments Hunter has made today and yesterday. Regulatory certainty trumps incentives any day.

Broadband over power line, nearly a mention, I think we need to at least mention the communication mechanisms that we are going to look at.

A question, as we build out the transmission in Texas and the rest of the nation, should we put fiber in the shield wire as a proactive mechanism, or put it up and find out two years from now, we need to put fiber in the shield wire? So that we got to get ahead of ourselves, and maybe broadband over power line is the option.

Two more comments. One is if we hope for the consumer being on a laptop dispatching their house, we are not going to really make it. I mean the geek might do that, but not everybody. So there has got to be a home automation process or possibility that is sited.

There is really no rhyme or reason why we should have on or off switches in our homes anymore. We should automate our homes.

Last comment is as we talk about all this smart stuff, in reading the comments about the workforce of the future, I will just give you the example of batteries. Batteries are complicated things, and if you put a battery in South Texas, you better have high-tech people ready to go there if the battery issues fail.

The same with smart grid, if we do these things, whether substations, control centers, or at distribution points, we need to make sure that we have the workforce.

If you take a look at even the general recommendations in the report, we really don't have any. It is one of those "urge and encourage," and I would encourage actually that the DOE look at funding laboratories at universities, as well as encouraging our national labs to do more than they are today.

I know as a utility, we are funding part of Ohio State University's high-voltage lab and also a professor along with Duke Energy. So, as we do all these smart things, we are obviously going to need smart people to do it.

I should mention that Steve and I go way, way, way back. Talk about aging infrastructure.

[Laughter.]

MR. BARTELS: Great comments, Michael. I think also the comment you made, you talked about EDF and NL, Korea -- we didn't have -- for example, in Grid Week on Monday in the international summit, we had NL and EDF talking about their plans, and I couldn't agree more. That is why I asked early on, Eric and Steve the question, when they talked about their report.

Dian?

MS. GRUENEICH: I am going to have to leave in a few minutes. So I just wanted to give a few thoughts based upon what I have heard today.

I mean thank you. This has been very good. I personally think that we should consider collapsing sections one and three together into just one statement, much less of the boosterism and much more of these are potential benefits, here are some of the issues raised, to the extent that we have actual demonstration projects, or in California, you know, we are doing the metering, what was the rationale for it, looking at Texas, but sort of what is really out there, some specific examples, and maybe we can pull in at least a paragraph on the international scope.

But I think the context then looking at the recommendations are -- or let me back -- looking at the recommendations, I think the context of whether it is this report or this chapter should be more of this is a really complicated area. It has a lot of opportunities, but at the same time, you are going to have to figure out some fundamental changes in how we are thinking about potentially the roles of the utility versus the private sector.

There is tremendous uncertainty still as to what will be the regulatory treatment. There is a lot of fast-changing technologies, and there are risks, as well as opportunities, and then to set the context for what are I think came out of the Smart Grid Subcommittee, what we really, really need is to get funding for DOE to have a serious smart grid program to start to fund some demonstration projects, start to get information out there, start to collect best practices, so everybody can figure out what is going to make sense to move ahead.

So that is sort of what I am thinking I am hearing about, that toning down this is the best thing since sliced bread and anybody who is not on the train is on the bad train, and more into lots of opportunities but some serious risks, a lot of changing in potential structure and technology, so what we all need is a serious program at DOE that is helping get information out to folks.

So that would be my suggestion.

MR. BARTELS: Thanks, Dian.

Barry, do you want to go?

MR. SMITHERMAN: I am not on this committee, but let me say, first off, I drank the Kool-Aid. I am absolutely on board with this technology.

I guess I can understand some of the concerns, but at least I can tell you from our experience, Ralph, you know, coal and nuke is running 24/7 in ERCOT, and it is absolutely gas that is going to be displaced in the afternoon, if we can get people to shift off peak.

If you have wind which blows late in the afternoon and in the evening and at night, it makes the calculation even better.

Number two is I know that you all recommend K through 12 education on the benefits of electricity. I would add to that, that we need to educate folks on the cost of electricity.

No one understands that when you are turning on gas units at $7 or $8 gas, at $10, $12 heat rates,

what that means to the cost of electricity, and that is what happens in the middle of the afternoon.

With regard to whether the average consumer is going to use this device or not, we can address that. In the settlement that Encore has reached on their deployment of meters, 3 million meters in the metroplex, they are going to charge $2.21 per customer per month, and I guarantee you, the average bill up there is over $100.

As part of that, low-income customers are going to get an LED readout that you put above your kitchen sink. You don't have to get online. You don't have to have a computer. It is going to tell you instantaneously the price point, how much your bill is going to be at the end of the month based on your present pace of consumption, and any kind of information you want about what it is going to cost.

We are also going to fund for low income, just like we do right now, a system benefit fund that has an educational component and a dollar component.

So we can take care of low-income folk that may not use this or that may not be able to afford it, but if the pilots are anywhere close to being accurate -- and you can say between 10 and 15 percent, and it cost you $2.22 -- to me, it is a no-brainer.

ATTENDEE [speaking off mic]: [Inaudible.]

MR. SMITHERMAN: Pardon me?

ATTENDEE [speaking off mic]: [Inaudible.]

MR. SMITHERMAN: No. This is completely different.

ATTENDEE [speaking off mic]: [Inaudible.]

MR. SMITHERMAN: But it has that optionality, if you want to, and I understand some of the concerns about that.

We have testimony from folks that come in to say, "I am a single mom. The kids come home in the afternoon, and we have run these pilots." They can take a look at the meter in the house, and they can see how much they have spent already for that month, what they are likely to spend for the remainder of the

month.

They ask mom, "Can we turn the TV on?" and she says, "What does it say? How much have we spent?" You can't do that right now. Right? With a conventional meter, you cannot do that.

MR. BARTELS: Barry, and Ralph, you have a loud enough voice not to need to use the microphone.

[Laughter.]

MS. STUNTZ: Vickie has been very patient.

MS. VANZANDT: Thank you.

I wanted to underscore the feeling that I had when I read this in the first part. It is very boosterish, and it indicates that if only we were full adopters, we would be able to prevent the need for the construction of infrastructure, and I think you can possibly slow the pace of increase, but it is going to go up.

That seemed kind of inconsistent from chapter to chapter. Load growth and electrification of other sectors are mentioned, but that didn't translate to we

are going to need to build some more.

The start of chapter three, the first sentence says, "Implementing a smart grid is the effort to move the electric grid from a static to a dynamic state." It is not static. It is not. It is very dynamic. Maybe this makes it more so, but I don't think that is an accurate statement.

The other thing I thought is that everything that is happening is going to increase the rates that people pay.

By way of example -- and this is a little bit of a technical net here, but as we are anticipating two-way metering and sometimes you consume, sometimes you sell back to the grid, the grid on the low end is -- was built, anticipating radial feeds, and so when that was built, it was done at the lowest cost possible, and on our system, I don't know to what extent this is widespread, but we used delta-grounded Y transformers, and we fused them because we anticipated direction going only one way.

When it is anticipated that it is going to be two-way, then that system isn't safe any longer.

We don't have relay houses. We don't have station batteries. We don't have switchable devices. We just have fuses. So there is a whole lot of infrastructure that needs to take place at the distribution substation, to include all of those things, and instrument transformers as well.

So I know the reaction to the integration, make it co-generation or sell back to the grid, includes those costs as well, which some proponents have felt as though the utility has erected a pretty good-sized barrier to their ability to sell back to the grid, but that is absolutely necessary for this to be done widespread, and it needs to be accounted for.

MR. BARTELS: Thank you, Vickie.

Yakout?

MR. MANSOUR: Guido, actually, the booklet that was distributed in the GridWeek on smart grid has a number of good things. I don't know who wrote it,

but actually, portions of it actually would be very good to include in this.

First of all, let us just, again, in reference to that and even to the definition of the report of the DOE -- let us be clear on what we are defining as a smart grid.

First of all, should I underline "grid" as grid? So automate like a smart building or an efficient home or any of that stuff, that is good on its own, but it is not what we call smart grid. It should be integrated in the whole supply chain to create a smart grid, but it is not a smart grid.

Actually, that booklet that I am referring to that you have saying what is a smart grid and it has another section saying what is not smart grid, so it is not clear on it.

An interesting thing, which I share the same view, it says, by the way, smart meters are not smart grid because a lot of people, once you say smart meters -- smart grid, let's buy smart meters first,

and that is the wrong start, again.

So the definition of smart grid that is at least in Europe or even the DOE report referring here, what we are talking about is extensive use or good use of telecommunication network and digital technology to improve security, reliability, and efficiency of the entire supply change end to end, although from a grid operator all the way down to distribution level.

There are certain things that have been around for a long time and have been smarter, like smart equipment and fax devices and SVC and all of that stuff. We don't want to put them back in and say, oh, by the way, let's invest in smart transformers or something because that is a smart grid. These things are on their own, but that is not what we are talking about when we talk about smart grid.

What I would also suggest is what is the platform for smart grid. Again, it is not just the meters. In fact, meters is the wrong concept or the wrong terminology because what we are looking for is

smarter devices, and those smarter devices have the ability to measure and control.

Control is a very important piece because all of those issue, whether you are going to put something for the mother to read or the -- it is going to be difficult. What we are talking about is automation.

So the vision should be that really the customer end or the consumer subscribe to programs based on their tolerance level. So, instead of telling people look at this meter and you find the price list and let's do such and such, I would say do you accept, for example, temperature in your house between 75 and 80, is that your tolerance level, or 75 and 78, can you accept that when you push the dryer or the washer button. It will come on, but not at the instant you push the button on, and I can go through a full list.

Depending on what their tolerance level and what they pick, at the cost saving of such and such, then the rest of it is automated because now I am

fitting their tolerance level, their comfort level.

All of that information is linking to the entire grid, whether it is price at the wholesale level, whether it is the availability of wind energy or not, or whether it is there is congestion or not. All of that is linked to controlling those devices through aggregators, not between the operator and the household, but there is some aggregation points that go in steps.

So, to me, when I define, again, what is in my mind what is important as a platform for smart grid, it is automated devices, what you call automated meters, but let's say automated devices at the customer end, remote control, communication network, standardized communication network beyond a utility and even when the entire grid -- hopefully, it would be even beyond the State. That is why we are standardized. I am going to talk about that in a minute -- network control and actually an accounting system, a new accounting system that does not exist

today.

Now, when it comes to standardization, I was actually surprised two days ago to know that as we speak today, NIST, the National Institute of Standards and Technology, is holding a session as we speak today on standardizing communication network for smart grid.

Actually, I didn't know that, and I asked the ISO's. They didn't know about that either, and I don't know how many of you knew that this is actually going on now as we speak in this city as we speak now. I didn't know.

ATTENDEE: I knew.

MR. MANSOUR: Did you know? Yeah.

So, anyway, I had to scramble and get someone from my end to change their flights and go there and other ISOs. Here is the grid operators that is supposed to be a grid. I'm not aware of it.

So there is a standardization effort, and we better be linking to it to know exactly where this is going and have the right things before it goes too

far, and that would be the foundation before we start even talking about what automation, what meters because everyone buying their own meters, they communicate only through their network to just their utility, even at that level, is not really the smart grid.

So, if we can just emphasize these things, if we agree, of course -- and this is just a personal opinion of mine, but if we can agree on defining what we are looking for, so when we say DOE invest in smart grid, at least to know what they invest in, define the platform and the steps they should go through to actually achieve the smart grid without wasting the billions of dollars that are being spent right now on smart meters that do not have the right foundation, we should all be on the same wavelength.

That is what I would look for in the report, whether our report or the DOE report, to start on the right path.

MR. BARTELS: Thank you, Yakout.

Also, let me just briefly comment. We need to go to lunch. Right? I think.

MS. STUNTZ: We have some flexibility. Ralph is there, and I actually would like to say one thing.

MR. BARTELS: Okay. Yakout, great comments.

I think most of the time when I see a smart grid definition, it is too narrow, and there is a lot of confusion. I have a pretty broad definition personally, as you say, your personal opinion about smart grid, but I agree that it is important that we know where we come from when we talk about smart grid.

Ralph?

MR. MASIELLO: Yakout said 90 percent of what I might have wanted to say.

Two other things. Paul Allen brought up a really important point that didn't get picked up on at length.

We heard a lot yesterday about demand response, the value of demand response, the importance of it, and in the context of the AMI part of smart

grid, demand response always plays a big piece in the smart grid as an enabler for demand response.

But what Paul was talking about was what I would label price response, which is very different. Yesterday, I think it was Gerry who said people want information, not instructions. I think that was Gerry who said that, but it was a great phrase, whoever said it.

What isn't well understood at all yet is how will both the customers and ultimately the suppliers react when the demand side of the equation becomes elastic, as customer see prices and react to, which they don't today, and that isn't demand response. That is a different dynamic, and it is one where there is a little bit of research in California, little pieces in other places, New York, but it is not well understood, and there is a need to understand that simplifications, both on the instantaneous market but also long term on the supply investments.

I would also like to support what Barry said.

In the UK, there are a lot of these LED devices deployed that show customers what they are currently spending. The public feedback is very positive. The public loves it, and there are cases of, oh, let's go turn off the lights; oh, we forgot to turn off the tea kettle. So there's a lot of behaviors that used to exist in the United States in the '50s.

I can remember my parents were obsessed with turning off the lights and the small savings that add up, but customers like that. So Barry is right on with that one.

MR. BARTELS: Enrique.

Is it time for one more point, Linda, or do you want to go to lunch?

MS. STUNTZ: Let me just make one point on this subject, and that is that I -- Hunter put this in my head. I recently had the opportunity to be briefed on the City of Boulder thing, and I really would encourage the drafters of this to get briefed on it.

It is the City of Boulder. It is likely not

applicable many places, but I think going to Ralph's point about selling this vision, it is a $120-million effort with six or more partners, including Xcel, current power line technology, communications technology, data over power line, and it includes vehicle to grid.

Now, they only have the chancellor's house wired at this point, but they literally tell me that they can pull form the chancellor's plug-in hybrid if they want to, and he will know when they have done that. So he will know that it is probably not a good idea to leave at that moment, or he will tell them that it is okay.

It is one car, but I think in terms of capturing the vision of what is possible -- and obviously, I am sure it is very expensive, but they have not one dollar, I gather, of Federal money. I think there may be some State incentives, I'm sure that are behind this, but that may be getting a little more about that, may be a way to sort of sell this as

the possibilities, not that it would work everywhere or be a standard, but I think it is a way to capture people's imagination. I know it certainly captured mine.

MR. BARTELS: So, largely -- it was, by the way, presented at Grid Week, Linda, and it is largely funded through the suppliers.

MS. STUNTZ: Yes.

MR. BARTELS: I think it is one of many examples. I think we need to look at what is out --

MS. STUNTZ: And there are others. That was just the best one I had --

MR. BARTELS: Absolutely. I think we need to look at what is out there. I think a lot of projects which are more scaled. So I think we need to consider those also.

So, logistic-wise, we want to go more to the recommendation part also. Lunch, Linda? Do you want to continue and then lunch?

MS. STUNTZ: I don't know where you are.

MR. BARTELS: Next, we summarize and go through the recommendations which are the slides.

MS. STUNTZ: I think we should do that very quickly at this point. Go ahead and do that because I am trying not to fragment your committee's presentation too much, unless you want to talk and come back. Otherwise, we will wait on lunch and let you go through the recommendations, but I would ask you to be brief.

MR. BARTELS: Okay, good.

So, recommendations. As we said, I think there are some recommendations that have not on the chart yet or at least topics we discussed because we didn't reach consensus there, but I think we need to reconsider those and to try to be as bold as we can. I think it is better to come forward with recommendations and then the broader team says, well, no, it goes too far, but I think at least we need to have looked at those.

Recommendation one is to execute what we have

agreed to in the Energy and Independent Sector 2007. So I think we talk about bold actions, people often think about what are the new things out of the box, but I think it is often as bold to follow through and implement on what you have agreed already.

I think there was one strong thought here, and there were three provisions under Title 13 that required appropriations, namely the regional demonstration projects, the investment managing grant program, and funds to NIST to coordination, development of a standards framework. We believe that these all be fully funded. So that is recommendation one.

I would like to invite anybody on the team to add to that, any comments. Dian, I know you need to leave. Any comments there?

MS. GRUENEICH: I am actually just going to give a moment. My apologies. I have to leave.

We passed out some copies of a document that California adopted last week on our long-term energy

efficiency strategic plan. It was a year in the making. It is also available electronically, CaliforniaEnergyEfficiency.com, and I just wanted to let everyone know that that is a big step we have now taken.

So sorry for the interruption.

MR. BARTELS: Okay.

MS. GRUENEICH: I am perfectly comfortable with these recommendations.

MR. BARTELS: Okay. Thank you, Dian.

Any other comments from the team on that one, the recommendation, or anybody else?

[No response.]

MR. BARTELS: Okay. Recommendation two. So that is about providing incentives because of the nature of technology trial and error in some cases, additional incentives for the acceleration of a smart grid are necessary to encourage investments.

There was a lot of discussion on our team around what the investment should be, and we took a

high-level approach in calling out some specific incentives, but did not go as far as to make it definite incentive recommendations.

MR. WALKER: That may be an area we want to really kind of take a step back, and I think Hunter and a number of people highlighted this incentive and regulatory certainty. I think we need to kind of take another look at that, that recommendation specifically, and come up with a much more focused opportunity.

I am part of your subteam. So I will work with you on that.

MS. KELLY: I think this is the area where cost benefit and effectiveness of the dollar comes in.

MR. BARTELS: Dian, did you want to chime in?

MS. GRUENEICH: No.

MR. BARTELS: Okay. Ralph? You don't have your thingie up.

MR. MASIELLO: I did and waved it back down.

You can abstract the whole discussion around

incentives I think. There is a fundamental disconnect. Smart grid is wholesale introduction of high tech with rapid development cycles, rapid rate of change, into a low risk, low reward, low rate of change industry, and the regulatory models that exist aren't consistent with the high risk, high reward models of, say, Silicon Valley.

If we say smart grid is an enabler, a lot of third parties will benefit, demand side aggregators, rooftop solar people, yadda, yadda, but there is no way for those third-party benefits to accrue back to the people, meaning the PUCs and the utilities that have to take the risk. So there is a business model disconnect.

MR. BARTELS: Okay. Thanks, Ralph.

MR. CAVANAGH: There are huge roll-outs going on of regulated utilities, making multi-billion-dollar investments. So are you guys basically saying that won't work?

MR. MASIELLO: I think you can notice that the

authorship of the sections of the report and the positive statements are coming from the States that have endorsed those roll-outs, and where the regulatory recovery is already approved. Right? And everyone else is hesitant over the true benefits to the consumer, but it is a different model.

MR. BARTELS: If I can just add to Ralph, take California, for example. You have three utilities. Each one of them is investing a lot of money in smart meters. Each one of them has a different suppliers of meters, and each utility has just their customers with their utility. That is not a grid. That might be a smart utility for the benefit of the utility and their customers, but that is not a smart grid. That is the point I am trying to make.

MR. CAVANAGH: That is a palpable tension between about half of this group that is pushing for some kind of greater uniformity and a national model, which I think is what Yakout is saying. If you don't have that, you don't have a grid. Then others are

saying let's experiment, we have got multiple systems, let's not jump to a standard. I would love to see that tension --

MR. MANSOUR: See, when someone says I am going to experiment with $10 million, $20 million, say be my guest.

MR. CAVANAGH: Right.

MR. MANSOUR: Someone says I am going to experiment with $6 billion, just a second, that is not an experiment. That is a major commitment.

MR. SLOAN: On what Yakout was starting to say, I think that the PUCs and the other State interests recognize that utilities benefit by investing in their system. The question is whether consumers benefit by linking their homes to the company in a more strategic manner.

So the cost recovery models work on the utility side. They may not work on the other, and that is where I think the tension comes from.

MR. HUNT: If I can just pile on to both Ralph

and Tom's comment from that perspective, you are seeing major roll-outs. You are absolutely correct, and you are seeing them, as Ralph said, in the jurisdictions where the dialogue between the regulator and the utilities resulted in an agreement that these programs can be rolled out and there is some certainty of cost recovery associated with it. There can be some risk in some instances. There can be no risk in some instances, but you have had a clear dialogue and a clear direction.

Actually, as Mike just pointed out, regulatory certainty is an incentive, and that is absolutely true.

So it is always a balancing act. The interesting thing about Xcel, which I agree, if folks can go out and see that, it is phenomenal what is going on out in Boulder, and there is clear functionality that is driven towards the consumer. There is clear functionality that is driven towards the utility.

It is hard to define I think in the overall package, what goes where. Encore turned off a lot of the functionality for the consumer, but they kept some, and obviously, they have got a very good regulatory compact with the regulators to roll this out.

But the point is just simply that is going to be a different dialogue by definition in all 50 States. That is why, back to Ralph I or II's point -- that is why I favor an experimental approach because, frankly, I think we are going to run into the exact same issues on smart grid that we are running into on transmission if we say here is the issue, here is how you have to approach it, and it seems like by definition, if you are touching in consumers, it is better to experiment and then the States that lag, frankly, they will lose from a competitive perspective.

I think that is a more effective model to rolling out a smart grid than to try to come up with a

centralized plan that we roll out to everybody else.

MS. STUNTZ: Guido, let me suggest we hear from Paul, and then I think I am going to tell you where lunch is, so that we get at least on track. We can continue this a little bit over lunch. We can come back, but some of you, we are going to start losing some of you catching planes. So I would like to have an opportunity for you to get to lunch, but let's let Paul.

Let me just say too that I do believe the remaining three recommendations, at least that I had on my list that I printed out in advance, we have been discussing them. So we are sort of around it.

Okay.

MR. ALLEN: Okay. If I can be permitted to try to address two things. One, to follow up on what was just being said about the smart grid topic, I guess this is blazingly obvious, but I think the conversation had kind of begun to gravitate towards the impact on residential consumers, and we all

understand that there is -- of course, that is a huge concern.

We also I think probably understand that there is just big barriers, behavioral barriers and other kinds of barriers to really seeing that be accomplished, and I would try to maybe suggest that we ought really to remember that -- and here, I am really aligning my thoughts with a lot of what Yakout was saying.

Insofar as we are talking about a grid, large network systems and devices that enable real response to changes in energy abundance and there energy price, that is about fleet operators and energy-intensive institutions and businesses and commercial establishments and large buildings.

I mean, yes, households will be affected and have a role to play, but what will matter dimensionally is the industrial and commercial sector, and especially the commercial sector, buildings like this, and that is what we have to be focused on.

We can't ignore the consumer, but you know, let's kind of try to get at the low hanging fruit.

Then here at the risk of introducing a dreadful topic right before lunch -- and I know I was not here right at the beginning this morning, and I gather that there was some mention made of this, but I think we have to have a little bit of debate about the entire of our undertaking here, not smart grid, the whole thing, so that whatever we produce for the next Secretary of Energy is relevant in the context of an entirely new world for capital formation.

We have used price and funding and price and funding, and we have talked about it all day and all of yesterday, and it is not just who is going to pay for it. I mean that is an obvious concern, but this is the most capital-intensive industry that there is, and the credit demands are enormous.

We are now in an entirely new world, not just about commodity pricing environment, but about how any of this gets supported. The pressures on the new

Secretary of Energy for loan guarantees and credit support and other kinds of instruments is just going to be -- it will be both the elephant and the gorilla in the room, and I think if we don't have something to be said about that, then we will run the risk of having this report feel very obsolete, like it has been delivered from a bygone era.

I don't have a ready-made solution for this. I am just saying that I think we have to take it up and talk about it, hopefully in some measured way.

If we think back to the first meeting that we had, which was so productive, and we had a lot of talk about affordability and kind of a widely -- I think not shared in the specifics, but sort of a general view then that there was going to have to be some new affordability paradigm, and we were going to have to address it forthrightly and that we also had to be sure that whatever we did in smart grid or storage or anywhere else, that we were really articulating a value proposition that made sense, but took into

account the likelihood that prices were going to go up and consumers were going to feel a lot of pain as a result, but that maybe there was ultimately some benefit and some way to get down the other side of the curve, I think we need to come back a little bit to that, but we need to do it in the context of the fact of the matter that we have changed the capital formation structure of this country, or doing it today, one hopes.

Well, if we don't get it, I think we are all holding our breath about what the markets do Monday morning if we don't have something done by 4:00 this afternoon.

I will stop, but I think we need to make sure that we as a group reflect this reality in some version because the audience for it is going to be hypersensitive to it.

MS. KELLY: Can I just say that it is not very often that I agree with Constellation. So it is like another record-setting event. There's two Ralphs. I

think Paul is absolutely right. We will be seen as quaint if we don't address this issue.

The last thing I will say before lunch is that there is this line on Section 3, page 2, that says consumers must change.

As a consumer-owned system, when we go to our customers and say you must change, that is career limiting. We have to offer choices. We have to offer information. I am really with the whole concept of information choices. I really like what Yakout says about tell us your tolerances and we will help you with the rate. We have got to approach it from that. We cannot dictate.

MR. BARTELS: I will add that to your lies, Susan. I fully agree, and I think, by the way, Yakout, what you described in terms of how the consume sets the levels, et cetera, that is I think very well demonstrated in the Olympia Peninsula project, and I fully agree.

MS. STUNTZ: Okay. Two things. One, you do

have at your places -- and I would ask you not to ignore them because I think DOE -- this is a summary of DOE's new rule that was published Friday implementing 216(a) to the Federal Power Act which deals with DOE's lead agency authority to coordinate permitting of transmission on Federal lands. We talked about that yesterday. So thank you for this.

Now finally the moment you have all been waiting for, lunch for EAC members will be in the Monte Carlo Room, which is turn left out the door and go around the corner, and there it will be, and we will readjourn here no later that 12:45. 12:45, please.

[Luncheon break.]

MS. STUNTZ: All right, everyone. Thank you for coming back. We are going to spend the remainder of our time until 1:30, when we open for any public comments, talking about how we tie together everything that we discussed in the last day, as well as going forward steps to complete this report in time for us

to approve at our meeting in December, which is December 11th, I believe, or the 10th.

All right. We need to go back. We will confirm the details of that, but I was just talking to Yakout. I think this issue of connecting all the dots, which I think Gerry teed off, defining adequacy in a way that reflects the new world is probably something that we might need to -- we are going to have to spend some time to do that. It is going to take more than five minutes.

It may be something that Yakout and the chapter leaders pull together on once we have a more concrete idea of what the recommendations are going to be, and then maybe charge them to do this either as an addition, sort of an executives summary up front or as a summary at the end. I don't know if that is sort of the way you are thinking.

MR. MANSOUR: Yes, I think that gets back to what we were discussing yesterday when we started the effort of the adequacy report was coming from the

point that really the definition of adequacy should be more global and more inclusive than it has been in the past, which is just generation capacity, is total capacity on demand. That is the traditional definition.

So, we have all the pieces now that form elements of adequacy now, so what is the end. Also, if you look at the report now or at the chapter, the draft chapters now, each one of them has a good number of recommendations, but if you add them all up, all of them probably have something like 40 or 50 recommendations or something.

We have to get down to conclude with a better inclusive definition of adequacy in the new world, and a more crisp, concise set of recommendations that come out of that at the end. That is really the idea.

MS. STUNTZ: Kevin has rejoined us. I do think it is important, if he has any impressions either from his own reading or from what he is hearing from staff that we are getting off course from what

the Secretary originally had in mind when he asked us, and you asked us to take up the subject of adequacy, we would appreciate any guardrails you could offer.

MR. KOLEVAR: Thanks, Linda, and I do understand when we kicked this off earlier in the year, the issue of resource adequacy was one of the ones that got a lot of attention at that meeting, and it was certainly one of the issues that we were thinking about.

To the extent that it is not getting as much play in the Committee's time, that really will be what will be to a great extent we are going to look toward you to take this in the direction you want to go.

But that said, one of the questions that we still have at the Department, and I think is going to be relevant for the next Administration, and maybe if I phrase it differently than to say resource adequacy, I will explain it the way I think about it and talk about it, and the way Secretary Bodman does the same.

It is simply to say are we making the right

decisions today and taking the steps we need to take today to ensure that in 2020 and 2030, electric power, electricity delivery is as reliable as it is today. That is how we kind of do those bumper stickers.

I personally will give great deference to the Committee and where you want to take this, but I do think it is one of the things that is worth keeping in mind. I think it is going to be the question for the next Secretary of Energy, as well.

MS. STUNTZ: Thanks, Kevin.

Ralph and Gerry.

MR. CAULEY: I just want to suggest for the Committee's consideration in the next round, first, one provocative idea, which is that we consider not including in our recommendations, any new Federal subsidies at all for anything, because I am not sure.

As I think about the charter and as I also think about the condition of the Federal finances, and about Paul's admonition to be somewhat at least cognizant of the current circumstances, I am sure that

is a useful thing to do at the moment.

I hasten to say also there are some extraordinarily worthy Federal subsidies that I strongly support, which I think will probably get resolved before we put our report out anyway.

But I simply, for all of your consideration, and recognizing that I am giving something substantial away, at the moment this thing is threaded with lots of interesting ideas for Federal subsidies, from coal to all of my favorite stuff, to a lot of stuff in between.

I think we have a lot to say that doesn't require the Federal Government to take more money out of accounts that don't seem to me to have any money in them.

MS. STUNTZ: Just to clarify, I think that is very interesting. Does that include funding on existing authorizations?

MR. CAULEY: I hadn't considered the question, Madam Chair, I am trying to think through the

ramifications requested.

I want to just suggest at the outset that while there might always be a compelling case to be made, that what we were talking about wasn't really a new Federal subsidy at all since it was already embedded in the current system, there would be something refreshing about a group as diverse as this one that simply said we are not going there, and we don't need to, because there is a tremendously important contribution that the Department of Energy and FERC can make without heading any further in that direction.

But since I have no idea what is lurking behind the question, I am sure I will be educated.

MS. STUNTZ: No, no, it's just I have been thinking about the smart grid, for example, one of their recommendations was to bond, to appropriate bonds for some of the authorizations that Congress made for that program in 2007.

MR. CAULEY: I guess, Linda, if we start down

that road that Congress has made to appropriate --

MS. STUNTZ: Well, that's true.

MR. CAULEY: -- that Congress has authorized were the expenditures in every single category.

MS. STUNTZ: Right. Okay. Jon.

MR. WEISGALL: I have been wanting to compliment you, Linda, but I think the highest compliment I can pay you is that when you can ask, when you can cause Ralph Cavanagh to pause five seconds before answering a question, you -- well, it speaks a lot to your talents.

A number of diverse points, I don't have a direct comment on. I guess my gut reaction to Ralph is as long as we are throwing $25 billion to the automobile industry, and $700 billion to try to keep us going next week, I think we should put our priorities down.

We are not putting dollar figures on new recommended spending. We are saying we should fund this or we should look at that, so I think there is a

role for DOE.

Linda, I really want to raise a couple of other points generally.

MS. STUNTZ: Okay.

MR. WEISGALL: Number one, in terms of where are going, I should have raised this at the end of the storage discussion. We have an educational role, I don't want to lose sight of that, and reading over the storage report, it reads like a battery report, and it is largely a battery report on where we are on plug-in hybrids.

I, for example, Dave, you asked the question about compressed air, you raised that as an issue. Pump storage is there, it is there in the introduction, there is mention of it at the beginning of Section 2.

I would urge Brad just to maybe broaden the report just to make clear that the storage involves more than batteries. Maybe that's the point, so that is one point.

The second point, Paul and I had discussed these issues. Paul, you made most of the points I would have made on the capital issue. We obviously are in a capital crisis and we are looking at a lot of new capital costs, and the question is who pays.

You asked the rhetorical question where do we put this into the report, I don't know either, but maybe one way to focus on this is impact on consumers or impact or rate payers, because ultimately some of what we are talking about certainly on transmission will have an impact on rate payers.

Rob, you raised it in a context, as well, both yesterday and today. We have raised it in smart grid, but maybe we need more emphasis on what the impact of our thinking will have on rate payers or --

PARTICIPANT: Don't call it rate payers.

MR. WEISGALL: Customers, consumers, whatever.

The third point, and this plays off Paul's earlier point, we need a greater sense of urgency here. I think that goes to the relevance point that

others have made.

You know, energy is a higher issue in this election than it has been in probably 30 years. It is going to stay that way. This is a national priority. We talked earlier yesterday that we don't have a comprehensive energy plan, but certainly the report we are looking at putting out is going to be identifying some nationwide issues that we can address.

Just like we don't have a comprehensive energy plan for this country, we are not energy independent either, but a lot of what we are talking about does tie into energy security, and that is real.

So, I want to put out the idea of a heightened sense of urgency to some of our findings. That could be in an introduction. We have all read reports about the need for streamlining and getting rid of red tape. We have read a lot of these recommendations before. We are running out of time to act.

My last point, Diane did raise yesterday the question of the title of “Keeping The Lights On.” You

know, depending on where we go this weekend, maybe we call the title, "Marching to the Abyss," I am not sure, but one idea I had had was whether the alliterative nature helps or not, but we are talking about growing when we are talking about greening, so I don't know.

I had just put together growing and greening, meeting the challenges of a changing electricity world, something that does move us away from a report that sounds like this is about blackouts, to one that is talking about how we handle the increasing load for the next 25 years and where we should be for reliability, but also recognizing that we are headed to a greener type of electricity world.

So, those are my points.

MS. STUNTZ: Gerry, I am sorry I skipped over you.

MR. CAULEY: That's okay. I think my comment loops back to one I made this morning about what are we trying to accomplish at the high level, and I

appreciate Jonathan's comment now, it just really fits my point exactly, because the response I sensed earlier was yeah, we need to look at these broader issues of reliability and environmental impact, and so on, but we will loop that back into the adequacy report, but I think that is too limiting a focus.

I think we have got some really good subjects and topics we are working on in terms of adequacy, looking at transmission and generation. We are looking at storage, we are looking at smart grid technologies.

But it is just a pile of things we are looking at without looking into some kind of broader context, and I would hope that we can steer the report to not being the issue de jour
which was adequacy when we started but now is a number of other things and frame a report that looks at where do we think the energy needs will be in 20 to 30 years, looking at both the supply equation.

You know, we need to have generation. Demand

is going to keep going. We need to look at the reliability issue, affordability issues, and environmental impacts, security of the grid, cyber and physical security, quality of life impacts, energy independence and all those things, and take that perspective.

I think the public would expect nothing less than that. I think if we can get this much brain power in a room to think about the whole solution or not, not even piece-wise.

I think the work we have done can fit in that kind of framework, what issues do we need to address on the supply or adequacy side in terms of new technologies or making existing types of fuels more viable, you know, the viability of coal and nuclear for one in terms of, well, now there is an increasing pressure on environment and so on, how do we make those fit into the new environment.

I don't know if the constraints on us are such that we can't move in that direction or we are sort of

prescribed, we have a homework assignment, and we are going to live with that, or if we can turn to something that I think would be more broadly meaningful.

We can look at the generation supply side, the transmission side, try to answer the question of the transmission overlay or not. Is that going to be beneficial?

I think Vickie raised some points about distribution and how that is going to be impacted by the technologies, and I don't think we can ignore the consumer side of it.

So here is a set of issues and strategic goals. Here is the electricity supply chain from production to delivery to consumption, and now here is a set of technologies. So it is sort of like a three-dimensional discussion, and I think we could paint a picture of that, that makes sense to people and would give people an opportunity to make some policy decisions from that, even if we just laid out the

framework and what is possible and what is likely, what is not likely, and those kinds of things.

MS. STUNTZ: Dave?

MR. NEVIUS: As Gerry said earlier, he and I were talking about this last night, and I have done some more thinking about it this morning. I like this idea of sort of establishing some overall goals that we think are worthy.

We have got a lot of initiatives that have been brought forward as recommendations in the various chapters.

We need to look at how each of these recommended initiatives helps move us towards those goals, whether they be environmental goals, energy independence goals, national security goals, and whatnot.

And then the third dimension, because I am thinking in terms of the cube here, a third dimension is what are the required enablers, or looking at the negative side, what are the obstacles to successfully

implementing each of these recommendations, and if we think of that as the framework, I think it can result in an effective document that won't give a menu of things that the Secretary could do, but at least it gives him a context to make policy decision. That was the one thought.

And then to just sort of piggyback on what Gerry said, the other one was that the policies that would be enacted to promote or adopted to promote an adequate electricity supply, however that is define, and the initiatives to implement those policies are a long-term, not a short-term proposition, and I think we need to emphasize that.

Very often, the benefits of these initiatives are realized over the long term, while the costs come up in the short term, and it is very difficult to get the necessary approvals, whether it be from regulators or from others when we are thinking in the short term only.

So maybe, Yakout, in Chapter 1, I think there

is a place towards the end of Chapter 1 where we could put a paragraph in that emphasizes the importance that energy policy is a long-term proposition, and the decisions that we make today are going to influence things over the next 30 years, and we need to look at the benefits, the long-term benefits, not just the short-term costs.

MS. STUNTZ: Mike. Then we are going to go to sort of next steps.

MR. HEYECK: I just wanted to add to Dave's thoughts and go back to yesterday where a statement was made there really isn't an energy policy at the Federal level.

There actually is, but we may look at it as Post-It notes and a compendium of things along the way, but if the first chapter can make the statement of a consistent coherent policy and then rationalize the initiatives that the States are doing -- we have a lot of States that are very forward-looking, actually ahead of the paradigm of Federal policy, and just

rationalize that.

And then I am not going to deal with that issue in the transmission chapter, that there is no Federal policy. I think that is where it came up when we were discussing it yesterday.

Was I coherent enough in that statement?

MS. STUNTZ: I think. I think what I have heard and what I am going to suggest to my friend, Yakout, is what we had talked about was either having the drafting leaders of the chapters plus Yakout work on this, providing the framework, now that we know sort of where the committee is coming out, providing the framework which helps people understand those, so they make sense.

I mean we have known from the beginning. I think it is all implicit, even though we maybe have an explicit is -- you know, we have to look at things that are affordable, that are reliable, that are environmentally sustainable. I mean that is part of all of our talking points.

So I think saying that doesn't necessarily contribute something, but I think saying that in the context, there is already a very good start in the introduction. I think it is an excellent piece of work, and I know Dave contributed to that, and Gerry and others did too, but maybe if going beyond that then, sort of building off of that based on where the recommendations are that are coming out of these chapters, adding I would say Gerry and Dave -- to Dave, to the chapter leaders then to be working simultaneously as we polish the other chapters on an enhanced executive summary, if you will, that sort of puts this together is the best thing I know to suggest because I think you have good ideas, and I think it is a little bit hard in the abstract now to make it more concrete, but I don't think we are in disagreement about where we need to go.

MR. MANSOUR: And it would be a combination of Chapter on, beefing up Chapter 1, and also maybe at the end, put something that is conclusive that

includes the full view in one place.

So, if that is agreed, then we will call it the nearest convenient time for all of us for the chapter leaders to start the call, and then we take it from there?

MS. STUNTZ: Plus Gerry and Dave.

MR. MANSOUR: Plus Gerry and Dave. Is that okay?

MS. STUNTZ: Yeah.

Okay. Peggy, do you want to make this presentation, or do you want me to?

Sorry. Yes, Vickie.

MS. VANZANDT: I was just recalling something David Meyer had said at our first meeting that would be helpful to those who will receive the report, DOE and FERC, is that it would be good if we could come up with some templates for cost allocation, and we have not addressed that.

So maybe that just fell by the wayside. I don't know if that is still something worth pursuing

or not.

MS. STUNTZ: I don't know if Mike wants to -- you mean transmission cost allocation. I don't know if Mike wants to respond to that, but with the last version of your chapter that I read did address it in broad terms, which was generally endorsing a broad, you know -- a broad allocation.

Now, do you want to be more specific than that?

MS. VANZANDT: I didn't think it rose to the level of a template or a variety of templates that could be picked up and utilized.

If a group this diverse could come to a conclusion about that, I think that would be really good value for those who have to --

MR. HEYECK: You are talking more than transmission then. Yeah. In transmission, I think we have addressed it in the chapter at broad allocation for broad benefits or broad benefits yields broad allocation.

MR. CAVANAGH: Broad benefits yields broad allocation, Michael, is not an enormous advance on the quagmire in which we find ourselves, and the two of you, I would be fascinated to see what the two of you came up with as a more specific suggestion along those lines, and I will bet Rob would be happy to thread in the California precedent on renewable energy integration, and there is some value to be had there.

I encourage, Madam Chair, particularly those two people. I would love to see what they came up with.

MS. STUNTZ: I think that is an excellent suggestion if they could do that, but I don't know if Vickie's point was broader than transmission.

MS. VANZANDT: Well, it was mostly that, and it was -- it was to be more specific, I guess.

MS. STUNTZ: Okay. We may have some issues with some State commissioners because maybe that implies a Federal role, but maybe there is a way to set that out that threads that needle and doesn't -- I

will leave that up to you.

Okay. Hunter?

MR. HUNT: Just a quick comment, but actually, it falls on Paul's comment right before lunch, and it is a stylistic one.

I am just wondering if it wouldn't make sense to try to have some sort of thematic thread that runs through this entirety of the report and perhaps built around confidence because, at the end of the day, that is really what we are focused on right now is there is a crisis of confidence that is going on, but it is the capital markets.

It is a confidence that you can do a smart grid in a manner that is affordable and yet still delivers the benefits that are promised, and it is a confidence that you can put in a transmission system that reliably -- that keeps the reliability where it is today and yet provides the generation portfolio that the country wants to move to.

Again, it is not radical, but I just throw it

out there just as an idea. If you are looking for a theme to run through this whole thing, I would postulate it makes sense to focus on how do we create a greater sense of confidence because, frankly, you will end up with the capital, we will end up with smart grid technologies, and we will end up with a grid that is worthy of us if we can get the buy-in.

I second Ralph's point. I am a big fan of confidence first, and let's figure out what we need to incent that is falling behind.

Next Steps--Drafting, Editing, and Process

MS. STUNTZ: Okay. Let's talk about next steps.

You should -- I am informed each of you have at your places a draft tentative timeline which starts with today. We have discussed draft recommendations.

Essentially, a week from today, subcommittee chairs and drafting team leaders will have -- I guess will have reviewed their draft documents to reflect the agreements made at the EAC meetings, and they will

be sent to other EAC members for comment. So, basically, you have a week to come up with new drafts, which is tight.

Yes, Mike.

MR. HEYECK: I will try my best.

Let me tell you from a process standpoint. Dian and I have agreed to actually reconcile the drafts and then try to come up with -- you know, have one draft that is sent to committees, but if we get too far ahead of ourselves -- I want to come up with a process that actually yields one product and not two, recognizing that we may have some disagreement that we may have alternative statements in the draft with respect to Federal siting, for example, but if Dian and I can come up with a draft, I think we could try to achieve that next week, but I am going to send it out to the entire EAC, not just the subcommittee of transmission.

MS. STUNTZ: That is what I would ask all the leaders to do at this point, since I think we are

getting near the edge.

We can go through the details, but fundamentally, this is structured in a way to try to give all of us two more cracks, and the longer it takes to turn around a new draft for everyone to look at, the more difficult it will be for people to have one more crack before December. So that is why this is structured the way that it is.

I don't know that I need to go down through it in any details unless any of you have questions, but that was sort of the animating principle, and the design is to try and get us to the December meeting without very much to discuss with respect to these reports. If there is, we won't make delivery of a report in December, which maybe isn't the end of the world, but it would be awkward, I suspect.

MR. MANSOUR: Certainly, the effort that we just talked about initiating, which is the chapter leaders and the conclusions, that is going to take more than a week.

MS. STUNTZ: Absolutely.

Go ahead.

MS. WELSH: Linda asked me to put this timeline together, and I am sensitive to how tight the time frame is.

DOE has requested that we deliver our final products to the Department and to the new transition team as quickly after our December meeting as possible.

So, if you look this contemplates a delivery of a week after our meeting. I don't think that from my instructions from the Department that that date is movable.

There are other dates within here that could make us flexible, and we don't have to have two different drafts if it makes sense for drafters to stay behind closed doors and negotiate, but I think the final dates are pretty set in stone in that the Department does want to have the EAC's materials by the 18th of December.

MS. STUNTZ: Peggy, you might describe the editing process that we envision a little bit and the role.

I know I had a question earlier from Steve before he left, which was a good one, in terms of are you going to give us guidance on how we have to do formatting and footnotes and things of that nature.

MS. WELSH: Sure. As I understand Energetics' role as a contractor and consultant to the Department of Energy for the EAC, we are supporting the EAC, and we have put together an editing team of three editors who work full time at Energetics as editors.

What editors do is they don't write text. They edit. They look for consistency. They look for redundancy. They look for factual errors, that kind of thing. So the concept is that you will give drafts that are as complete as possible to the editing team, without worrying about formatting. We will format the document. We will make it look pretty, but we need all of your citations, all of your footnotes.

I am happy to put together a style guide, if that would help, on what style footnotes, if you want to use Chicago style or some other style, and we can turn that around in the next couple of days, but the editing team will make sure that there isn't those kinds of things in the documents, consistency, errors, redundancies, those kinds of things.

MS. STUNTZ: They will help on cross-references and so forth.

MS. WELSH: They will help on cross-references and that kind of thing, and we will, of course, add, you know, the front and the back part, the list of the committee members and, you know, a set of acronyms and those kinds of things that you see in any report.

MR. HEYECK: Linda, could you go over -- I was just assuming if we do have some disagreement in any of the chapters, how would you like us to handle it?

MS. STUNTZ: That is a good question. I don't know that I have fully thought through the answer. I would appreciate your suggestions on it.

I like the way you described it a bit ago, which was rather than sort of dissenting views, you talked about alternative views. I would like to avoid that.

I think this is of most value to the Department, to the extent we can minimize those. On the other hand, being mindful of Kevin's direction yesterday, I think if the only way to avoid that is to make something that is so general to make it meaningless, then I think it would be better to say members of the committee felt this way, other members of the committee felt this way, there are reasonable pros and cons for each position, DOE may want to consider these.

So I think probably alternative views would be a better construct than dissenting views. Whether it should be sort of in the back of a chapter signed by names, I don't know. I don't know what you all think.

I do not want to take votes. I believe we are -- I would like to think we can avoid that and sort of

express disagreements without getting into six versus two or majority/minority, but I am open to suggestions on that.

MR. HEYECK: I think we are on the same page. I don't like to use minority to dissent because it does sound condescending. I would like it to be within the context and not in the back, but I am welcoming any other views.

Again, we are going to work to see what we can do in the chapter to get consensus on everything, but I think the issue is going to be siting, and we may have a road map rather than an absolute. But I would rather have it in context of the section we are talking about, rather than on page 49.

MR. MANSOUR: Of course, as much as possible, what was suggested is going to work, but if there are two views that are totally opposing, I think it is unfair to give to the DOE and say some of us think it should be white, and the other one says black.

I don't have a model to say to do what, but if

there are things that are views that are still kind of close enough or kind of they are not too far apart, that can work, but if they are totally opposing views, then what would you expect the recipient to do?

MR. CAVANAGH: If that really does happen and the effort is to not let it happen, it ought to be possible for us to work through to a common work product. But in the rare case where there genuinely are strong disagreements and they are not reconcilable, you either present them to DOE and hope you have helped at least clarify and frame the issues more effectively or you are stuck with what I view as the ghastly model of a dissenting opinion in which people are invited to count one group of us against another group of us, when the whole purpose of the exercise is to demonstrate that people of goodwill with widely differing views can come together on something.

I am betting, given the skills of the chair, that this will not be a large problem for us.

[Laughter.]

MS. STUNTZ: Thank you, but I happen to think the one issue he cited is one where many have tried and failed, and I don't know that I will succeed, but I appreciate the efforts of Commissioner Grueneich and Mike to try and come together as much as possible and think that that will be a contribution, and whatever remaining disagreements there are, we will try to present them in the way that is most useful to you guys and maybe work with David on that.

Dave Nevius has been very patient.

MR. NEVIUS: I had a request and a comment.

The request is when we exchange these drafts, do it in Word, so when we comment, we can comment using track changes and not send it around in PDF format, if that is possible, Peggy.

MS. WELSH: Yes. I wanted to bring up a tool that the Department of Energy has that we have not utilized to date. It is a software document control system called Revcom.

The Department of Energy uses it in its rulemakings and directives, and it is user friendly after you spend a few minutes learning how to use it. So there is a bit of a learning curve, and we only discovered this, this past week.

I was not aware that this existed. So I think it would be a little bit difficult to institute this. You put your document up on the Web, and you are able as a group to comment, both line edit and comment within the text in real time. I think that is a tool we will use starting in 2009 when we can do it from the get-go.

[Laughter.]

MS. WELSH: And we can all spend time learning because we are all old and don't know how to do that, but --

MS. STUNTZ: So let's send around drafts in Word.

MS. WELSH: Send around drafts in Word, but send them around to -- let's not hit Reply All every

time, so we are not swimming in --

MR. NEVIUS: Oh, no, no. It is just easier to comment, rather than writing up a separate set of comments, you know, line 3, paragraph 2, and so on.

The other was a suggestion on if we do get into issues where there are different opinions, one thing that we found successful as a way of dealing with that is to list the options and list a series of pros and cons for each option and provide the material that way, with the background material listed, and then Option 1, Option 2, Option 3, pros and cons of each.

Someone else then, this group perhaps or whatever, or if you can't even resolve it within this group, then at least it gives the option and the pros and cons. So the one making a final decision on what to implement as a policy choice will have the benefit of that.

We have used it very successful in looking at options for forming the ERO, and we are using it now

in some other context, and it has proven to be very effective.

Comments from the Audience

MS. STUNTZ: Okay. With that, according to our agenda, it is time to invite any public comment. I don't know if there are nay folks in the room who would like to address the committee.

Okay, never mind. Let me -- Jon.

MR. WEISGALL: Just one last process. As we navigate through the smart grid, just listening to the discussion today, one possible suggestion -- and I am also concerned about the public reaction. We may have a report on smart grid together with recommendations that might get confused or conflated with a DOE report.

MS. STUNTZ: Right.

MR. WEISGALL: One possible idea would be to make our smart grid report just recommendations and go with what DOE does on the state of smart grid. Just an idea.

MS. STUNTZ: I thought it was a good suggestion. In fact, I talked to Guido about it, and I will let him respond, but at least it was my sense of notwithstanding the good and lively discussion that we had, that there was pretty strong agreement with most of the recommendations, albeit there was some discussion about fine-tuning the incentives recommendation, and that the recommendations I think were good.

I think most of the comments were on the preamble to the recommendations.

We were already thinking about that. I will leave it to Guido and the committee to figure out what they want to do with that, but I think that is a good construct.

MR. BARTELS: I think I already said that in my earlier comments that we are tending towards that. I don't think it will only be recommendations, but that is where the lion's share of the document will be, the report will be, at the same time the DOE

report will not have its point on the recommendations. So we will rely on the first part and heavier on the recommendation part.

MS. STUNTZ: Brad, you had a comment.

MR. ROBERTS: I have got one comment on your agenda.

The first item of having everything revised by next Friday is very aggressive. I haven't conferred with my fellow subcommittee members, but --

MS. STUNTZ: How about Monday, the Monday after?

[Laughter.]

MR. ROBERTS: It will be before the 10th. It will be before the 10th. Okay?

MS. STUNTZ: All right. I understand, and we will do the best we can.

MR. ROBERTS: Right.

MS. STUNTZ: Folks, be mindful that to the extent these dates start slipping, there will be less opportunity for review at the tail end.

Just one reminder to everyone, this is, of course, a draft document. All the documents are draft. Nothing has been approved by the committee or any subcommittee for that matter. So, to the extent they are expressed in the room or that you are asked about your work or the work of the committee at this point, nothing is final, nothing is approved, and in fact, no one is really authorized to speak for the committee or any subcommittee at this point. So let me just get that housekeeping matter out of the way.

MR. HEYECK: I just want to add to Brad's comment.

If it is unrealistic, I just want to get the committee, what is the window that the committee needs to set aside to review these drafts, and I think we need to back up from the 17th to figure that out because Brad is right. For us to come together on the 3rd, particularly I guess speaking for myself, the group has to come to some conclusion, and then I have got to have at least a back-and-forth with Dian to see

where I am at and then perhaps -- but from my perspective, if we get to isolate, these are the three days the committee is going to have, to at least take a look at the second draft or the best first draft, it will be helpful.

MS. STUNTZ: What we could do, this is a little bit on the fly, but if drafts were to go to Energetics and EAC members on the 17th, it would mean that Energetics is going to start doing the fine-editing on something before it has been widely reviewed, which may mean for more changes later in the process, but I don't know how else to expedite it, and I think that is probably more realistic.

MR. CAULEY: I think that would be helpful if we could parallel the process on the two pieces.

Just out of curiosity, it looks like the schedule was designed by a contractor because all the consensus processes are allocated one week, and then the contractor portions are allocated two weeks every time.

[Laughter.]

MR. CAULEY: But if we could maybe overlap some of the periods, it would be beneficial to do, just what you just said.

MS. STUNTZ: I think that is an extremely perceptive observation.

[Laughter.]

MS. WELSH: That is what my editing team asked me to do.

MS. STUNTZ: All right. Is there anyone from the public in the room that would wish to address the committee at this point?

[No response.]

MS. STUNTZ: If not, we will stand adjourned and let you all proceed to your drafting task.

Thank you all very much.

[Whereupon, at 1:35 p.m., the meeting was adjourned.]

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