



BEFORE THE U.S. DEPARTMENT OF ENERGY  
OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY

IN THE MATTER OF: )  
 )  
NATIONAL PETROLEUM COUNCIL )  
MEETING )

Astor Ballroom  
The Regis Hotel  
923 16th Street, N.W.  
Washington, D.C.

Friday,  
July 29, 2016

The parties met, pursuant to the notice, at  
9:03 a.m.

PARTICIPANTS:

CHARLES D. DAVIDSON, Chair,  
National Petroleum Council

HONORABLE ERNEST J. MONIZ,  
Secretary of Energy

REX W. TILLERSON, Vice Chair,  
National Petroleum Council

HONORABLE ELIZABETH SHERWOOD-RANDALL,  
Deputy Secretary of Energy

HONORABLE CHRISTOPHER A. SMITH,  
Assistant Secretary of Fossil Energy

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National Petroleum Council

W. BYRON DUNN,  
Chair of the Finance Committee

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P R O C E E D I N G S

(9:03 a.m.)

1  
2  
3 MR. DAVIDSON: Good morning, everyone, and  
4 it's great to see our excellent turnout. We've got a  
5 full room. We've got a great agenda, and so, first of  
6 all, I'd like to call the 126th meeting. Someone out  
7 there is keeping close count, but the 126th meeting of  
8 the National Petroleum Council will now come to order.

9 I want to welcome all of you, members of the  
10 Council, as well as honored guests, members of the  
11 press and the public as well. I think we have an  
12 excellent agenda today and it should be a productive  
13 meeting.

14 As we always do before we get started, just  
15 a safety announcement. We're not anticipating any  
16 fire alarms today, but in case there should be an  
17 alarm sound we'll want to evacuate this room. We're  
18 on the ground floor, of course, and our exits will be  
19 right back through the back of the room and you can go  
20 two ways. Once you go there you can go out into the  
21 courtyard or through the lobby and out the front, but  
22 we will want to evaluate the building, go across the  
23 street, muster point will be at the Capitol Hilton  
24 Hotel across K Street. Now hopefully we won't have to  
25 worry about that, but I just want to make sure

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1 everybody is prepared in case there's any event.

2 If there's no objection, I will dispense  
3 with calling the roll. For members of the Council,  
4 the sign-in, check-in there in the Chandelier Room  
5 will serve as our official attendance record. If you  
6 haven't signed in as you were coming in, please do  
7 when you leave so that we'll have a record of your  
8 attendance.

9 We also want to just remind everyone that,  
10 as become a custom, we have an internet audience that  
11 will be able to listen to streaming audio of our  
12 proceedings as well as download any presentations.

13 So, as we get started, I want to introduce  
14 the head table. Shortly joining us a little bit  
15 further into the agenda will, of course, be the  
16 Honorable Ernest Moniz, Secretary of Energy. Next is  
17 Rex Tillerson, who serves as the Vice Chair of the  
18 Council, and next to Rex is Deputy Secretary Elizabeth  
19 Sherwood-Randall. Liz, we're pleased that you've  
20 joined us today and look forward to your comments  
21 later in the agenda as well.

22 Next to Liz is Chris Smith. Welcome, Chris.  
23 Chris is Assistant Secretary for Fossil Energy. And  
24 then next to Chris is Marshal Nichols, our Executive  
25 Director of the Council.

1           So, as we get started, the first item of  
2 business is to receive an update on the NPC's report,  
3 "Enhancing Emergency Preparedness for Natural  
4 Disasters". As many of you recall, this was a report  
5 that was prepared at the Secretary's request and was  
6 approved back in December of 2014. It provided  
7 findings on our nation's emergency plans and  
8 recommendations for industry and government to improve  
9 preparedness, response, and recovery. It was, I  
10 thought, an excellent report and it was covering an  
11 issue that was vitally important, and that is the  
12 security of our systems and infrastructure during any  
13 kind of emergency events, and the members in approving  
14 that report made a commitment to follow through with  
15 the Department of Energy.

16           We recognize when that report was being made  
17 that the easiest part, and I wouldn't say it was easy,  
18 I know that Marvin Odum is here and led that effort.  
19 It took a lot of work, but we also realize that that  
20 was only a part of the effort that needs to be done,  
21 and that is preparing the report and recommendations  
22 is one thing, but as all of us know as operating  
23 companies is being able to execute plans in the event  
24 of an emergency is critical, and so we realize that  
25 implementing the plan will be just as difficult as it

1 was in preparing the plan.

2 So, in the Secretary's letter in May 23,  
3 2015, it expressed appreciation to the Council for the  
4 report and he noted there were several areas of  
5 implementation that were underway, and in that he also  
6 reiterated the Department's interest in working with  
7 industry partners to enhance the energy system's  
8 resilience.

9 The Department's 2016 Annual Emergency  
10 Preparedness Exercise provided an opportunity for the  
11 industry and government to continue to work and  
12 collaborate together as part of emergency  
13 preparations. Consistent with the commitment that was  
14 made in approving the report, the NPC and industry  
15 participants assisted the DOE with an exercise called  
16 Clear Path IV, and that took place this past April.  
17 This exercise provided an opportunity to observe and  
18 document progress towards the implementation of the  
19 NPC recommendations, and as we all know, as we go  
20 through and we exercise emergency plans, we learn a  
21 lot of things that needed to be addressed or that  
22 could be enhanced. So it was all about building on  
23 the recommendations and build on previous work by the  
24 Department of Energy and industry in advancing our  
25 preparation.



1           Key participants from the 2014 study, along  
2 with several additional members, were convened as a  
3 work group to assist and document the follow-on  
4 activities, and the results of these are contained in  
5 a summary presentation in a working paper which was  
6 sent to the members of the NPC Emergency Preparedness  
7 Committee about two weeks ago for review.

8           We have with us today Phil Smith from Shell,  
9 who led the study addendum work group, and he is going  
10 to present an overview of their observations this  
11 morning. A copy of Phil's presentation should be in  
12 your meeting folders, as well as those who are  
13 participating over the internet, that should be  
14 downloadable also from the NPC website. Also in your  
15 folders is a draft letter formally transmitting this  
16 material to Secretary Moniz.

17           And so, to take us through this study  
18 addendum, I'd like to invite Phil Smith to come up and  
19 go over that with us, and we'll have an opportunity to  
20 ask questions at the conclusion of that. Phil.

21           MR. P. SMITH: Thank you, Chuck. Appreciate  
22 that good lead-in, and good morning to all and thank  
23 you for the opportunity to come and report out on the  
24 body of work that was done following on this good  
25 report.

1                   I am Phil Smith. I'm the Emergency Manager  
2 for Shell in North and South America. I was not  
3 involved in the original report directly. I certainly  
4 was following it and appreciate all the tremendous  
5 work and efforts that went into that report, and also  
6 glad to be here as a representative of NPC, an  
7 industry who's been working closely with DOE over the  
8 past year or so to continue these preparedness  
9 efforts. So today I will kind of bring you up to  
10 speed on kind of how we got here, what we've kind of  
11 gone through, our approach. I'll give you a summary,  
12 a high summary of our findings, and then provide a bit  
13 of detail around the recommendations that are to be  
14 implemented from this report.

15                   So, as Chuck stated, this report was  
16 approved back in December of 2014. It did include  
17 seven key recommendations that were the focus of the  
18 implementation, and it included a commitment and that  
19 commitment was from not only DOE but NPC and industry  
20 towards working towards completing those  
21 recommendations and fulfilling those requirements.

22                   It involved participation of federal and  
23 state governments and industry, and that is what led  
24 to this addendum report that I will be reporting out  
25 to you on today. So the addendum materials is just

1 this, this slide deck, as well as a working paper that  
2 provides much more detail, and both of these are  
3 available on the NPC website.

4           These slides, there's a lot of detail here,  
5 so I apologize for that, and a lot of words. I'll run  
6 through it relatively quickly, though, and I know  
7 you've got copies in front of you, but this does serve  
8 as documentation for all the good work that was done  
9 following the report and also for future use and  
10 reference.

11           Also, there's a lot of acronyms in here. I  
12 apologize in advance for that, but I guess the main  
13 takeaway is not to focus on those, but understand that  
14 all these groups and acronyms that are represented are  
15 all working together towards a common goal, and those  
16 are also defined in the working paper.

17           First, just a quick run through of the high-  
18 level findings from the original report. Certainly,  
19 understanding the oil and gas supply chains and all  
20 their intricacies is critical. Improving our  
21 situational awareness, really understand what's going  
22 on in the field is absolutely essential to response,  
23 including having effective communications, being able  
24 to communicate during the chaos.

25           Maintenance of response organizations we see

1 as absolutely key. That leads to having an  
2 organization in place, making sure it's sustainable  
3 with the skills and competencies needed to carry  
4 forward a response through time, and then certainly  
5 leadership and commitment also for funding and  
6 continuous improvement absolutely required. So these  
7 findings are what served as the basis of the  
8 recommendations of the study.

9 I'll quickly remind you there were seven  
10 recommendations as stated. The first four we kind of  
11 organized around what we call operational framework.  
12 This is kind of how we set ourselves up, the  
13 structure, getting the people in place, getting them  
14 trained and competent with established procedures to  
15 support the effective response.

16 So you can see here there's a recommendation  
17 around harmonizing DOE's response team structure  
18 around the NIMS ICS, ICS being the standard protocol  
19 and process that we use for managing incidents and  
20 other agencies use as well across the United States.  
21 Also leveraging the EIA, Energy Information  
22 Administration, as subject matter experts. We saw  
23 them as a very key organization in working with DOE,  
24 particularly around improving the supply chain,  
25 situational awareness; establishing company liaisons,

1 obviously critical, being able to contact the  
2 companies involved in the event; and then streamlining  
3 and enhancing the processes for obtaining regulatory  
4 waivers that are often needed in times of significant  
5 destruction.

6           The final three are categorized around  
7 sustaining the process. This is really how we get to  
8 maintaining the system, the care and feeding, if you  
9 will, of the program. It's the plans and people  
10 necessary to maintain the institutional knowledge.  
11 There's a recommendation here around the states and  
12 their responsibility to increase engagement with the  
13 oil and natural gas industry around energy assurance  
14 plans, and industry certainly should assist in that  
15 endeavor.

16           Both DOE and states should establish routine  
17 education and training programs. That's key going  
18 forward. The ICS is a program that requires training,  
19 education, and, of course, exercises. So the seventh  
20 and final recommendation is around improving  
21 comprehensive drills and exercise programs and making  
22 them meaningful and collaborative, with agencies and  
23 industry involved.

24           So what have we done and what's occurred  
25 since the report came out? There's been quite a bit

1 of work done. I've highlighted a few of them here.  
2 Certainly, DOE has begun implementing elements of NIMS  
3 ICS, which is very good to see. We've also created a  
4 company contact liaison list. The NPC and the Oil and  
5 Natural Gas Sector Coordinating Council has  
6 established that list, and DOE has begun participating  
7 in industry exercises and increased their engagement  
8 in those, which is very good to see.

9 And, of course, the big event and the  
10 majority of the work went into the Department of  
11 Energy's Clear Path IV Exercise, which occurred back  
12 in April. This was a significant undertaking,  
13 involved a scenario involving a earthquake in the  
14 Pacific Northwest and a subsequent tsunami, quite a  
15 scary scenario, if you will, but it provided a great  
16 opportunity, great opportunity for observation,  
17 learning, and that served as the primary vehicle for  
18 us to establish how are we getting along with these  
19 recommendations and how are we working together to  
20 complete them and continue our improvement on  
21 preparedness and response.

22 So they were able to identify enhancements  
23 to the response plans in this exercise as well, and  
24 they tested the effectiveness of the implementation of  
25 these study recommendations through a functional

1 exercise.

2 So what specifically did NPC and industry  
3 do? I want to frame that up for you.

4 Certainly, Clear Path IV was a great  
5 opportunity for us to collaborate with DOE, but it  
6 also served as a great opportunity to observe the  
7 progress on the report recommendations. Of course,  
8 the exercise was a two-day event. Day one was a  
9 tabletop exercise and involved sector-specific  
10 workshops around oil and gas and electric sectors.  
11 Day two was a functional exercise conducted in DOE's  
12 headquarters in Washington and supported by the  
13 Portland Forward Command.

14 We were organized as follows and as shown  
15 here on this chart really in three work groups.

16 Work Group 1 identified and recruited oil  
17 and natural gas companies from the Pacific Northwest  
18 Region to come together and participate in the  
19 exercise and also facilitated a fuels workshop in the  
20 afternoon of day one there in Portland.

21 Work Group 2 was focused on providing input  
22 to DOE for the exercise planning process, actually  
23 helping with the planning a bit on the process, and  
24 also developed an evaluation guide for the exercise,  
25 and created injects which added realism to the Clear

1 Path IV Exercise as well.

2 And then Work Group 3 finally was the group  
3 that observed the actual functional exercise at DOE  
4 headquarters, was able to give us a lot of insights on  
5 progress on the recommendations. They not only were  
6 involved in the exercise in observing but also  
7 interviewed folks after the interview, reviewed plans  
8 and processes, and were able to come up with a very  
9 good understanding of our progress in that regard.

10 So you can see the participants from  
11 industry listed there, a very good mix of oil and gas  
12 companies as well as trade organizations and, again, a  
13 tremendous opportunity to review progress through this  
14 exercise, and it was a very large undertaking and very  
15 well done.

16 So what did we see? What did we observe in  
17 the way of progress? Certainly, this exercise in  
18 itself was a significant step. It was a huge  
19 undertaking and it showed a commitment on the DOE and  
20 we applaud them very much for that, and it also  
21 provided a good avenue for training as well, which all  
22 exercises do. DOE's leadership commitment to  
23 advancing the preparedness and response program is  
24 evident through here, and we encourage them to  
25 continue to market that and it's critical that they



1 are developing and sustaining a preparedness and  
2 response program under their Emergency Support  
3 Function 12.

4 The EIA participated with ERO as well, the  
5 Emergency Response Organization in DOE, and that was  
6 very good progress in our view. We see, again, them  
7 as a key group and liaison to DOE, particularly for  
8 situational awareness where they have tremendous  
9 expertise.

10 And then finally the fuels workshop in the  
11 afternoon I think was an important area of progress  
12 with getting the States of Washington and Oregon  
13 together, understanding their fuels plans which they  
14 have in place, and really progressing those and  
15 understanding the interdependencies that are involved.

16 So quite a bit of good progress there observed.

17 With all exercises we like to see progress,  
18 but we mainly focus on areas that we can improve, and  
19 that's why we do them. It's actually the best way you  
20 can actually prepare other than a real incident, of  
21 course. So we really take this to heart and we look  
22 for areas that we can really improve our response  
23 capabilities overall. So I've summarized some of the  
24 opportunities here for you, starting with maybe some  
25 key actions that can be focused towards DOE.

1           Certainly, I mentioned the ICS as critical,  
2           and we see that as a continuing effort on DOE's part  
3           to fully embed the ICS structure not only in the roles  
4           but the responsibilities and some of the processes and  
5           things that are included with the ICS process.

6           We also see a very critical area to continue  
7           to work on around what we call continuity and  
8           management of change, and this is really around  
9           establishing those positions that are going to know  
10          how to work within the ICS program and maintaining  
11          those through time.

12          We understand there's a high level of  
13          turnover in government, particularly with  
14          administrative changes and senior-level officials  
15          particularly, and so that necessitates a disciplined  
16          program where you embed these roles and  
17          responsibilities, these positions, and keep them alive  
18          through training and a succession plan. This is hard  
19          for industry as well, we have high turnover as well,  
20          and so it's something we really have to work on.  
21          And then finally, you know, embed a process owner to  
22          really own that over time and sustain that into the  
23          future.

24          We also see some areas for improvement  
25          around engaging some experts, some practitioners.

1 This ICS way of working and responding to instances  
2 has been around since the early '70s and there's some  
3 real experts out there to use as coaches. We in  
4 industry use them as well.

5 And then finally expanding the training and  
6 exercises. The functional exercise up in the Pacific  
7 Northwest was fantastic in our view. It's a good  
8 start. These are the kind of things that help you  
9 develop and continue to grow and keep a good response  
10 program for the Agency. So very good things to think  
11 about there.

12 We also have some things identified for  
13 industry to work on. We do have a company contact  
14 system, but we've got to keep it alive now. We've got  
15 to come up with a process to sustain that, to test  
16 that, and keep that evergreen.

17 We also need to formalize a process to share  
18 our exercise schedules, and I believe we've almost  
19 finished that process through the Oil and Natural Gas  
20 Coordinating Subcommittee, and I think it's really  
21 just a posting of all the exercises the industry is  
22 undertaking throughout the nation. I think you can  
23 almost picture it as a menu perhaps of exercises in  
24 certain scenarios in certain roles that you may want  
25 to plug into to help develop some skills and

1 competencies. So I think that's something that's  
2 going to be very helpful going forward.

3 And then also for states really focused  
4 around their energy assurance plans, which is  
5 critical, of course, when we have a disruptive event  
6 from a natural disaster. Really reviewing and  
7 updating those plans. The supply chain is dynamic.  
8 They've got to keep that evergreen as well,  
9 understanding the interdependencies in the systems,  
10 and also improving the supply chain knowledge, as well  
11 as including regional and national implications of  
12 disruptions that could occur. Really we're looking to  
13 states to look beyond their borders and make sure they  
14 understand all the interdependencies.

15 So that's a quick summary. What I'd like to  
16 do for you now is just real quickly on each of the  
17 seven recommendations go into just a bit of detail  
18 around, you know, some of the progress observed and  
19 maybe some more detail on opportunities for  
20 improvement, and, again, these first four are around  
21 operational framework and getting things in place,  
22 getting the structure there, the people, the  
23 processes, et cetera.

24 So the first one here around harmonizing  
25 DOE's energy response team structure evolves around

1 the NIMS ICS, of course, and so we certainly saw  
2 progress there, that was evident clearly in the  
3 exercise, and we simply see that we can continue that  
4 journey, continue that effort in the way of  
5 improvement opportunities, and the way that they are  
6 designing their emergency preparedness and response is  
7 to keep embedding a little deeper into the ICS  
8 structure, and really avoid terminology that creates  
9 confusion.

10           It's very easy to get in your own world of  
11 management because that's what we're all used to, but  
12 when you're in an emergency and you're complying with  
13 a command system that has other agencies, other  
14 industry involved, it's important that you come  
15 together on that program and those structures. That  
16 includes clarifying roles and responsibilities aligned  
17 with the ICS positions and documenting those in the  
18 emergency response plans that DOE has.

19           Understanding the ICS work processes and  
20 tools. It's not just the positions and the structure.

21           There are tools with the ICS process that I think are  
22 very helpful in managing and planning and the cycle of  
23 dealing with an emergency as it occurs.

24           Expanding the pool of trained staff. If you  
25 can understand a scenario like the one we described

1 and used for Clear Path IV, this is going to go on for  
2 a significant duration. Do you have the staff and the  
3 bench strength really to cover that over time? It's a  
4 24-hour-a-day for months duration is what we would be  
5 expecting here.

6 And then finally enhancing the emergency  
7 operations center logistics, making sure that that  
8 space that you're working from can accommodate  
9 participants from external, security clearances and  
10 such, the communications are reliable in that center,  
11 you have redundant systems, really enough space to  
12 really do the things that you need to do to respond  
13 effectively.

14 We really see this first recommendation as  
15 the foundation for many of the other -- the  
16 cornerstone really for many of the other  
17 recommendations in the report.

18 Recommendation two is around the Energy  
19 Information Administration, and as noted, we did  
20 observe very good participation by EIA in the  
21 exercise, particularly around situational awareness  
22 and really being able to leverage the industry  
23 contacts and procedures that they have in place.  
24 EIA's role within the ERO enhanced its communication  
25 interface with industry to provide a nice situational

1 awareness for the exercise.

2 In the way of opportunities to improve, I  
3 would just say that, you know, just continue to build  
4 that capability through training and exercises.

5 Recommendation three speaks to company  
6 liaisons. We do have that company contact list in  
7 place, which is good I've noted. NPC, Oil and Natural  
8 Gas Subcommittee, and EIA have compiled that list.  
9 EIA is the owner of that list, primary holder, and a  
10 current list includes a very high percentage of the  
11 refining capacity companies, as well as the midstream  
12 pipeline companies, as you see.

13 Additionally, the oil and natural gas sector  
14 has updated their appendix on emergency management  
15 during supply chain disruptions to reflect these  
16 company liaisons.

17 So, as far as continuing this and improving,  
18 you know, as I've said earlier, we've simply got to  
19 make sure we have a process in place to keep this  
20 evergreen, to validate it, test it. We can imagine  
21 some tests going out in the future. Your companies'  
22 contacts getting contacted, them contacting you to say  
23 I've been contacted. Here's what we would do, and  
24 this is how we would start to engage. So that's what  
25 we'd like to see. You have to test these things and

1 make sure they work and keep them alive.

2 Uh-oh. There we go. Back on.

3 Recommendation four, and this is the final  
4 one around, you know, the operational framework and it  
5 has to do with regulatory relief, and, of course,  
6 these are time-sensitive. When you actually need some  
7 relief, it's probably too late, so you have to  
8 anticipate down the road when you're going to have to  
9 have some relief for a certain regulation during a  
10 response. And a lot of times we can see that coming.  
11 We can see down the road, and I think what this speaks  
12 to is just being ready for those and understanding the  
13 process to get those done effectively.

14 So I'll tell you that regulatory relief was  
15 not a major component of the exercise in itself,  
16 although the DOE did process a request that we  
17 observed in the exercise, so we saw that as a  
18 positive. They took that on, and I was glad to see  
19 that.

20 We did understand that there was a bit of  
21 difficulty in really following through on the process  
22 of completing that regulatory relief and this one in  
23 the exercise was for a Jones Act waiver, and so I  
24 think what comes out of that is just the complexities  
25 of getting something like that done. It's not easy.



1 It involves a lot of other agencies, DHS, Department  
2 of Transportation, et cetera, and these are things  
3 that I don't think the government should take lightly.  
4 It's a waiver from the regulation, so it has to be  
5 thought out in advance.

6 I see an area here to improve preparedness  
7 in that regard. I think the API handbook on emergency  
8 preparedness has a list of all the potential waivers  
9 we could see in a disruptive event, and so I think  
10 maybe an area for improvement here is to kind of take  
11 on that list and really think about the priorities of  
12 the ones that we think we can develop some procedures  
13 up front and kind of have those in the response plan  
14 that we can take out and then effectively try to  
15 execute in a timely fashion during an event.

16 Of course, fuel supply during an event is  
17 obviously critical, so this is something that we think  
18 is a key thing to focus on.

19 Okay, number five, and now we're into the  
20 third kind of the last three which is grouped around  
21 sustaining the process and keeping things alive and  
22 keeping them evergreen.

23 The states, this one's around energy  
24 assurance again for the states and engaging with  
25 industry. We did see progress in the Clear Path IV

1 Exercise. They States of Washington and Oregon had  
2 plans and they were working with those plans during  
3 the exercise and it was good to see, and that's how  
4 you test these things, in an exercise.

5 There was good collaboration between DOE and  
6 the National Association of State Energy Officials,  
7 NASEO, on improving coordination with states. We see  
8 that, so there's progress that's made and should be  
9 applauded.

10 The Energy Emergency Assurance Coordinators  
11 Memorandum of Understanding, in fact, has been signed  
12 by Secretary Moniz just in February this year, so this  
13 is all good progress and great to see.

14 Regarding opportunities in this space, I  
15 would say it's just around expanding the education and  
16 outreach really under steady state or peacetime  
17 conditions and making sure that we have good  
18 understanding, good liaisons, a good feel for  
19 interdependencies of the supply chain across state  
20 lines, that those preparedness plans for state, local,  
21 and federal are in place to allocate resources in that  
22 case, and then establish a routine review and updates  
23 of those state energy assurance plans.

24 Recommendation six speaks to education and  
25 training. Certainly, when you're instituting a new

1 system of management like ICS, it involves a lot of  
2 understanding and training on how that all works  
3 together. We've seen a lot of good work done with  
4 regard to training in the past year or so. EIA has  
5 completed some of their reports which in a way is  
6 training on the Petroleum Administration for Defense  
7 Districts, and those serve as good tools for  
8 situational awareness in an event.

9           The Oil and Natural Gas Subcommittee  
10 continues to outreach and share industry expertise and  
11 experience through the Energy Coordinating Council,  
12 and then API has updated their handbook on oil and  
13 natural gas industry preparedness. All these things  
14 good and speaks to continuing education.

15           We do see obviously some continued work that  
16 certainly should be done in this space regarding  
17 particularly, you know, as I spoke to earlier, the  
18 high turnover, how do we embed a training program,  
19 certain key positions for ICS, keep that alive and  
20 keep the education going; continuing to reinforce  
21 DOE's role under ESF-12, as I mentioned, and provide  
22 education on that role and interaction with the states  
23 as a result of that support function; and then  
24 continuing to educate on the supply chains, of course,  
25 which are complex. A lot of players involved, a lot

1 of dynamics involved with the supply chain, and, you  
2 know, that includes, you know, certainly the networks  
3 that are involved, industry capabilities, antitrust  
4 considerations, et cetera, as well as training on all  
5 the ICS institutional response framework that's  
6 associated.

7 The final recommendation is seven and it's  
8 around drills and exercises, and, you know, obviously  
9 the progress observed and noted is that Clear Path IV,  
10 just a tremendous amount of effort went into planning  
11 and executing that event in Portland, as well as in  
12 D.C., and that was a very good venue for us training,  
13 understanding, collaborating together, and that's  
14 really what's at heart here.

15 At the Energy Government Coordinating  
16 Council, industry shared information on upcoming  
17 exercises, so this is ongoing now and in place and  
18 will continue to make that exercise slate, if you  
19 will, visible to all so that there's a good sharing of  
20 information on exercises and joint collaboration  
21 there. And I know that DOE has started observing some  
22 company exercises, and I know they've observed a Exxon  
23 and Marathon Petroleum Exercise as of late.

24 As far as opportunities to improve, just to  
25 continue the outreach and collaboration. When we have

1 a disruptive event like a earthquake, a hurricane, we  
2 can't do it alone. We have to collaborate. We need  
3 government and I think government needs industry. We  
4 need to understand each other's capabilities, what we  
5 can bring to the table. So it's just vital that we  
6 have, and the best way to prepare for that, of course,  
7 is through an exercise, an integrated exercise.

8 So, you know, that would also include  
9 embracing the use of ICS coaches. You know, we  
10 utilize the Coast Guard a lot for our offshore assets.  
11 They have these strike teams. We have subject matter  
12 expertise consulting out there now and within our own  
13 companies that can be leveraged for this.

14 Formalizing a process to share industry  
15 exercise schedules, I've talked about that. I think  
16 that's low-hanging fruit actually. I think we can get  
17 those exercises out there. It's open invitations.  
18 Let's get folks involved.

19 And then finally having government not only  
20 observe but actually participate in our exercises,  
21 take roles. That's what we want, and I think that's  
22 the best way for us to learn and improve together.

23 With that, I'll conclude with the fact that,  
24 you know, this emergency preparedness is actually a  
25 journey. It's a long-term endeavor, and I think the

1 Clear Path Exercise went a tremendous way in providing  
2 an opportunity for government, both federal and state,  
3 working with industry to advance our emergency  
4 preparedness in this regard.

5 Responses to supply chain emergencies are  
6 best managed through planning. You have to plan up  
7 front and be prepared, along with the private and  
8 public sector collaboration.

9 You know, government and industry share a  
10 commitment in this space. I truly believe that, and  
11 that's to prepare for and respond to emergency supply  
12 disruptions, and this isn't easy. This is not easy,  
13 particularly in times of long durations of no  
14 incidents. We tend to get focused on other things,  
15 and so it takes a commitment. We know disasters will  
16 occur, and the ability of our collective government  
17 and industry being able to respond effectively to  
18 minimize the impacts are vitally important.

19 So I want to applaud the work that DOE has  
20 done to build this readiness, and while the NPC  
21 project work is concluded industry certainly looks  
22 forward to continuing to work jointly with DOE and  
23 other agencies to continue to improve and sustain the  
24 program in the future.

25 So thank you very much and I'll take some

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1 questions if you have any, and I've also noted here  
2 the website for NPC where these materials will be  
3 housed, as well as the detailed working paper that can  
4 provide you a lot more information in this regard.

5 MR. C. SMITH: So do we have any questions?  
6 Yes, sir.

7 MR. P. SMITH: Do we have a mike? Down  
8 front here.

9 MR. BROWNSTEIN: So excellent report and  
10 thank you for the work that you've been doing. My  
11 question is this. The tabletop exercise that you did,  
12 what was the time frame over which the exercise  
13 occurred? My question is this. There is a lot  
14 obviously that goes into immediate event response, but  
15 then there's a whole series of aftermath --

16 MR. P. SMITH: Right.

17 MR. BROWNSTEIN: -- events, right, in order  
18 to get the situation back to, you know, post-trauma  
19 normal.

20 MR. P. SMITH: Yeah.

21 MR. BROWNSTEIN: And I'm wondering how deep  
22 you got into those aftermath events.

23 MR. P. SMITH: Yeah.

24 MR. BROWNSTEIN: You know, I'm thinking  
25 things like, you know, you could easily imagine

1 situations where there are certainly dislocation of  
2 people and resources, environmental spills --

3 MR. P. SMITH: Mm-hmm.

4 MR. BROWNSTEIN: -- and the like. And how  
5 did the exercise anticipate them and address them?

6 MR. P. SMITH: Yeah. It's a good question  
7 and it's tremendously complex, and you can design  
8 these things to address any and all of that. The  
9 exercise started as an initial kind of response and  
10 how we're going to act in the early hours, and that  
11 occurred on day one of a tabletop discussion that we  
12 had in Portland. So it was a four-hour kind of  
13 tabletop just focusing on the immediate kind of what's  
14 happened, let's come together, what do we know, how  
15 are we going to understand, how are we going to begin  
16 to assemble ourselves and start thinking about how we  
17 move forward together. The afternoon were the  
18 workshops on fuels and energy and electricity that we  
19 focused that I referenced.

20 The second day, and most of the day, I'd say  
21 four to six hours perhaps was dedicated to what we  
22 call a functional exercise, and that's where there's  
23 players, there's controllers simulating play, and we  
24 extended that realism -- was it 72 hours? Seventy-two  
25 hours down the road.



1 I mean, so this is a challenge with  
2 exercising and we've done some in our country.  
3 Certainly, you've got to be ready to go initially and  
4 come together, and then you have to kind of script  
5 where could you be down the road because that's really  
6 when a lot of the hard things start to happen, right,  
7 and so you can take various approaches, but that was  
8 the approach taken for Clear Path IV.

9 Over here, first row, please. Thanks.

10 MR. BORDOFF: Jason Bordoff with the  
11 Columbia University Center on Global Energy Policy. A  
12 quick FYI and then a related question.

13 So many of us were closely involved in the  
14 response to Superstorm Sandy, and then Mayor  
15 Bloomberg's administration had asked us at Columbia  
16 University to convene a series of high-level  
17 workshops. Several of you in the room participated in  
18 that, state and local officials as well; developed a  
19 series of recommendations for how to improve  
20 situational awareness in the tri-state area for fuel  
21 system resilience. A very lengthy report came out  
22 yesterday that summarized all the results of that  
23 three-year process, and that's available on our  
24 website for anyone who wants to look at it.

25 The question relates to one of the things we

1 talked a lot about in there. It's a question for you,  
2 Phil, maybe for the Deputy Secretary too, which is:  
3 So you mentioned management of change process.

4 MR. P. SMITH: Mm-hmm.

5 MR. BORDOFF: And I think that's incredibly  
6 important given not only change in industry but in six  
7 months the senior-level leadership in the federal  
8 government will change. The memory that those of us  
9 have who worked on this, the importance of personal  
10 relationships for how to improve information and just  
11 know who to get on the phone with in those kind of fog  
12 of war situations that dissipates over time, and I was  
13 wondering if you could say more about what that looks  
14 like and how to actually implement that; what it looks  
15 like in the private sector and what it looks like in  
16 the public sector to make sure that the importance of  
17 this issue and the knowledge that we've spent all this  
18 time building over the last three or four years gets  
19 passed along.

20 MR. P. SMITH: Yeah. Thank you. Good  
21 question. I guess the core of it for me is, you know,  
22 when you think about a large event like that, imagine  
23 this Category, you know, 8, 8.0 earthquake and a  
24 tsunami that basically liquified the west coast of the  
25 northwest there, you simply can't go into that ad hoc

1 and you can't go into it in your own industry and  
2 government regimes and expect it to work together.  
3 So, you know, you have to envelop a program that is  
4 going to have the key roles within the ICS system that  
5 is embedded and that folks retain that institutional  
6 knowledge over time.

7           So what it means really a lot of times is  
8 folks are double-hatted. You know, they'll have their  
9 own role in industry and in government, but they'll  
10 also be the planning section chief or the operations  
11 section chief or the public information officer. In  
12 that way, when the public information officer comes  
13 from the government and from the industry, they're  
14 speaking the same language. They're working together,  
15 and so you have to somehow build that sustained  
16 process of really positions and roles within the  
17 organization. It's very hard, very hard to do,  
18 especially in peacetime when there's been no  
19 incidents. Why do you want me to do this? I've got  
20 my other job to do.

21           So it may not be a dedicated role. We have  
22 some dedicated roles in Shell, speaking for our  
23 company, but a lot of our roles particularly are those  
24 double-hatted roles where we have to continually get  
25 folks to come to exercises, continually give them some

1 training refreshers so that they can come in and fill  
2 those roles when needed. It takes a lot of  
3 commitment. It's not easy, but that's how I see it.

4 MS. SHERWOOD-RANDALL: Thanks, Jason.

5 MR. C. SMITH: Can we turn on the table  
6 mike, please?

7 MS. SHERWOOD-RANDALL: Is it working? Yes,  
8 it's now working.

9 Good morning, everybody. Jason, thank you.

10 I would just like to first note that you  
11 have put your finger on a very important question,  
12 which is the sustainability over time of these efforts  
13 and the follow-on effects of a disaster and how we  
14 deal with them. And in the exercising that we are  
15 doing inside the government, for example, we certainly  
16 see that our capabilities are stressed, and when we  
17 don't have sufficient human resources to sustain the  
18 level of effort required in those first 72 hours, it's  
19 an enormous challenge, and we have a mission in the  
20 Department of Energy that is currently not matched by  
21 resources in terms of emergency response.

22 So I think this will be work for the next  
23 team to address because you're right that after the  
24 first days, if we get into weeks and months -- we saw  
25 this in the grid three exercise, for example, that we

1 did. We're in a very different world.

2 To Jason's question, I'd make a couple of  
3 comments. First of all, each of us, we, the federal  
4 leadership that we'll hand over to our successors in  
5 January, and the industry leadership that will meet  
6 with our successors have a responsibility to educate  
7 them as to the priority of this work we have done  
8 together and how far we've come and, again, what more  
9 work we need to do because this responsibility will  
10 never go away and indeed the threat environment is  
11 such that we're only going to, I think, face  
12 increasing need to prepare and coordinate closely and,  
13 to your point, know who to call in a crisis.

14 We will have a very deliberate transition  
15 effort across the Obama Administration that's actually  
16 already begun, and after Election Day we will have  
17 counterparts with whom we will work from the elected  
18 President's team, and this will certainly be a part of  
19 what I brief is the work we have done thus far and  
20 what lies ahead.

21 We also importantly have career civilian  
22 leadership similar to the way the career military  
23 carries work forward on the national security front at  
24 the Pentagon. Our career civilians who lead this  
25 effort, such as demonstrate who's sitting in the

1 audience here and others who will be responsible for  
2 carrying this work forward and who know what has been  
3 done, who know how things work, who know who to work  
4 with in industry. So I am also confident that we will  
5 not have a huge gap. And, in fact, we can't as a  
6 nation afford to have a gap because we never know what  
7 will happen. Indeed, we know that up until the day of  
8 the inauguration we have the responsibility for this  
9 work, and as we hand the baton over we have to be  
10 ready on day one for what might happen.

11 MR. P. SMITH: Thank you.

12 MR. S. SMITH: Any other questions?

13 (No response.)

14 MR. P. SMITH: Okay. Thank you.

15 MR. DAVIDSON: Thank you, Phil. Your team  
16 has really done an extremely valuable service in  
17 providing this addendum. I reflect back when the  
18 Council originally considered taking on the emergency  
19 preparedness study and one of the things that we all  
20 recognize, and it was referenced in one of the  
21 questions that came out of Superstorm Sandy, is that  
22 while as individual companies we have our own  
23 emergency preparations, we're prepared to respond to  
24 situations that involve our operations, our assets,  
25 our people, but in many instances it's natural

1       disasters, broader disasters that affect multiple  
2       companies, communities, governments, people, and that  
3       takes a special type of plan to be pulled together  
4       that involves all these things that are being tested,  
5       the collaboration, the ability to get in some  
6       instances waivers from existing policies and rules,  
7       and that was really the core and really the essence of  
8       preparing this original report.

9                 We all know that in the event of a disaster  
10       that involves energy and energy supplies that the  
11       public will hold us, industry, as well as the  
12       government accountable for addressing that and  
13       responding to it, and so it was critical that we work  
14       together to prepare a plan that was truly an  
15       integrated collaborative plan that would allow us to  
16       be better prepared to respond to emergencies in the  
17       future. We don't know when that will happen, but in  
18       the case of natural disasters, we know that sooner or  
19       later something will happen and that we need to be  
20       prepared for it.

21                 So, again, I certainly want to thank not  
22       only the original team that developed this report but  
23       also, Phil, and your team for what you have done to  
24       carry through with these additional recommendations,  
25       and I think certainly embedded in those

1 recommendations is that this continue to be an ongoing  
2 process, that while NPC has now gone through a couple  
3 of work processes to develop the original report and  
4 to enhance it is that industry and government needs to  
5 continue to work together to test this and enhance it  
6 going forward because we don't know whether it's going  
7 to be next month or a year from now or two years from  
8 now, but we know that something will occur that we  
9 need to be prepared and it will be critical that we  
10 are not scrambling around at the last minute to dust  
11 things off.

12 So I think a lot of these questions about  
13 continuity are critical because we have continuity, we  
14 have changes in our own companies, in our industry,  
15 our industry structure, we have changes in regulations  
16 that affect how we work together, and we have changes  
17 in government.

18 So, again, thank you for your efforts on  
19 this. I believe that the Council should submit the  
20 results of this follow-up activity to the Secretary as  
21 an appropriate response to his March 23 letter and as  
22 also part of our Council's commitment that we  
23 reflected and iterated back when we approved the  
24 emergency responses original report and  
25 recommendations.



1 I want to point out that this addendum is  
2 about the 2014 report's recommendations, and it does  
3 not propose new recommendations, just on how to  
4 enhance it. So, for this reason, Council approval is  
5 not required of the text, but we are asking for  
6 Council approval to go ahead and transmit this to the  
7 Secretary, as well as posting it on the National  
8 Petroleum Council's website.

9 So I think we've had an opportunity for  
10 questions on the report, so I would like at this time  
11 to entertain a motion to approve sending this  
12 transmittal letter along with the complete slide deck  
13 that Phil just went through, to transmit that to  
14 Secretary Moniz and posting these addendum materials  
15 on the NPC website. So could I have a motion on that,  
16 please?

17 I have a motion here. Is there a second? I  
18 have a second. Thank you. Any other discussion?

19 (No response.)

20 MR. DAVIDSON: All those in favor say aye.

21 (Chorus of ayes.)

22 MR. DAVIDSON: Any opposed?

23 (No response.)

24 MR. DAVIDSON: Well, again, thank you very  
25 much. The addendum is approved for transmission to

1 the Secretary and posting on the website.

2 We've had certainly throughout this process  
3 strong leadership from both Department of Energy as  
4 well as the NPC, and from the DOE standpoint, the  
5 Deputy Secretary, who's here today, has served as the  
6 study committee coach here on this. This first  
7 started out with Dan Poneman. I don't believe he's  
8 here with us today. I saw him yesterday evening and  
9 we certainly appreciate his efforts, and then, of  
10 course, Liz Sherwood-Randall has continued on. Once  
11 again, I want to thank Marvin Odum for chairing this  
12 study and helping to launch the addendum as we get  
13 started. So thank you again, Marvin, for your  
14 efforts, and thank you to everyone who's been involved  
15 in this study.

16 So, with that, perhaps -- I know you've  
17 already gotten started on the Q&A already, but if I  
18 could maybe just, Madam Deputy Secretary, is to ask  
19 you to perhaps provide some remarks on not only this  
20 and other topics that you'd like to cover.

21 MS. SHERWOOD-RANDALL: Good morning,  
22 everybody. It's such a pleasure to be here and thank  
23 you, Chuck, and to Rex, and to Marshal, and to Phil,  
24 my partner in this endeavor.

25 Initially, my earliest experience at DOE in

1       October of 2014 was actually shaped by my engagement  
2       with the NPC because this study, as you noted, was  
3       underway, and in the first month I recall having the  
4       opportunity to be briefed by Marshal and his team on  
5       what was being generated for completion within a very  
6       short time frame, so really I began to learn about  
7       what had been done on this front as it was entering  
8       into the final drafting process. We had the  
9       opportunity to comment on it and, of course, it was  
10      published in December. But it was an initiation to  
11      the critical partnership that we share, and it fit  
12      into a template that I brought to the role of deputy  
13      secretary because I did come out of the national  
14      security space, and so you were certainly knocking on  
15      an open door with me in terms of my interest in  
16      prioritizing this work across the energy sector.

17                 This effort on emergency preparedness and  
18      response has been one of my highest priorities during  
19      the time I've had the privilege of serving in this  
20      role, and I certainly, as I just noted in response to  
21      Jason's question, intend to make sure that my  
22      successor understands the imperative of sustaining and  
23      indeed increasing the level of effort on this front,  
24      working closely with industry partners. So I'll make  
25      a few remarks here broadly and then more specifically

1 on this work we're doing together.

2 As you know, there is growing  
3 interdependence in our energy infrastructure, and this  
4 presents vulnerabilities and is part of the reason  
5 that we've placed such a strong emphasis on the  
6 importance of cross-sectoral exercises, and I'm going  
7 to come back to that in a moment. I've been asked to  
8 talk with you today on this topic and how DOE is  
9 responding to the 2014 report and the addendum that we  
10 were briefed on by Phil, but I want to put this work  
11 into a broader context of what we are seeing in terms  
12 of the nation's energy security.

13 We are working on investing in the nation's  
14 energy security far into the future, and that's  
15 something, of course, that the oil and gas sector does  
16 as well. You have long-time horizons. I want to talk  
17 about how we're thinking about that security because  
18 our thinking has changed as the world has changed, and  
19 also discuss our efforts to ensure that our supplies  
20 and infrastructure are safe from a wide range of  
21 emerging threats, both physical and natural, manmade  
22 and the result of natural developments, although some  
23 of the natural developments may also be manmade.  
24 Finally, I'll give an overview of what we're doing to  
25 prepare for the threats of the future, whether they

1       come from people or from nature or from our aging  
2       infrastructure.

3               For me formatively, when I thought about  
4       energy security, it was about oil supply, and I think  
5       that's probably true for many of you as well. Way  
6       back when I was working on my Oxford doctoral thesis  
7       my topic was stimulated by the fact that there were  
8       threats to access to the oil that we depended on that  
9       came through the Strait of Hormuz in the Persian Gulf,  
10      and so when I think about what has happened to our  
11      definition of energy security over the intervening  
12      decades, we can consider several major transformations  
13      that have broadened our definition considerably.

14             Recent events, especially in Europe, have  
15      highlighted the need for an expanded view of energy  
16      security, one that more broadly encompasses the  
17      healthy operation of our energy systems and those of  
18      our allies and important trading partners. So, of  
19      course, access to secure supplies is as central as  
20      ever, but we're also thinking about new ways to  
21      address the challenges and opportunities that we face  
22      in strengthening our nation's energy security.

23             In 2014, in Rome, Secretary Moniz joined  
24      with G-7 energy ministers and the EU and endorsed a  
25      set of principles for a modern and collective

1 definition of energy security, and I'll just run  
2 through those briefly.

3           They lay out a definition of energy security  
4 that meets 21st Century challenges, including a shared  
5 interest in transparent competitive markets, a  
6 diversity of fuels, routes, and supplies critically,  
7 and in reducing global greenhouse gas emissions. They  
8 also highlight the need to invest in research,  
9 development, and especially in the deployment of clean  
10 energy technologies, in energy efficiency, in energy  
11 systems resilience and emergency management systems,  
12 and in modernized infrastructure. All of that is how  
13 we define energy security today.

14           Our close relationship with industry is  
15 vital to our efforts with our partners to protect the  
16 security of our energy infrastructure, and this  
17 relationship has grown up through our work with the  
18 sector coordinating councils, the expertise at DOE's  
19 national laboratories, and the emergency authorities  
20 that we have been given, including most recently the  
21 FAST Act.

22           What ties all of this together is what  
23 Secretary Moniz has focused intensively on, and that  
24 is our capacity for innovation, and he's going to join  
25 us shortly to speak to you further on that front.

1           The rise in natural and manmade threats in  
2 recent years has highlighted vulnerabilities to our  
3 infrastructure. We've already spoken about some of  
4 that this morning. Because of these threats, we have  
5 been looking at ways to strengthen and improve our  
6 emergency management program at DOE, and, of course,  
7 you have contributed significantly to that endeavor.  
8 We've made important changes in the Department.

9           Phil has actually described a lot of this to  
10 you, and I just want to note it's very unusual for a  
11 federal department to be complimented by external  
12 partners, so I appreciate that you've acknowledged the  
13 work we've done inside the Department to improve how  
14 our team works to respond to disasters and how our  
15 team coordinates with federal, state, and local  
16 governments, and, most importantly, with industry  
17 during emergencies.

18           Now you can look at the glass half full or  
19 half empty. I, of course, see all the things we still  
20 need to do, but I will say that we have come a long  
21 way just in my short time at the Department. We have  
22 taken significant steps to improve our program by  
23 creating this unified command structure within the  
24 Department. The new structure has increased  
25 cooperation and coordination across the Department of

1 Energy, and that's no mean feat, from our energy  
2 infrastructure team to our National Nuclear Security  
3 Administration, which has unique responsibilities for  
4 nuclear and radiological events. This ensures that  
5 the capabilities of our entire Department can be  
6 brought to bear in the face of any threat.

7 We've also made a number of changes to the  
8 team that is responsible for responding to the  
9 disasters and emergencies that impact infrastructure.

10 With regard to the maintenance of an  
11 effective response organization that Phil noted, we  
12 did follow your recommendation and changed the  
13 structure of our team so that it more closely aligns  
14 with the National Incident Management System or NIMS,  
15 which is used by many of our partners in government  
16 and industry, and so we know that by using NIMS we can  
17 more easily coordinate with our partners and in turn  
18 be more effective in our response mission.

19 We've exercised this new structure twice,  
20 first during Clear Path in April and then again during  
21 Cascadia Rising in June, in which you participated.  
22 Well, in both of those exercises. Those exercises  
23 provided valuable information about how we can improve  
24 performance, and here I would just echo what Phil  
25 said. The reason we exercise is because we learn



1 where the gaps are, where the failures are, where the  
2 things are that we didn't think about, and, of course,  
3 we want to know those things in an exercise, not in a  
4 real-world event.

5 For example, during Clear Path, we noted the  
6 DOE team at headquarters would face significant  
7 technology and staffing challenges in the event of a  
8 prolonged response to a catastrophic event, just what  
9 you questioned us about. Our Emergency Operations  
10 Center is relatively small and it's in need of  
11 significant infrastructure and technology updates.  
12 We've been working with Congress to address these  
13 issues and improve our ability to coordinate and plan,  
14 including through the construction of a consolidated  
15 emergency operations center that will allow the UCS to  
16 operate out of a single location.

17 We've also integrated EIA into our response  
18 team, as Phil noted, so we can have the benefit of  
19 their expertise on issues facing the oil and natural  
20 gas industry. This one change, which was recommended  
21 in the 2014 report, has significantly improved our  
22 effectiveness. EIA experts have been particularly  
23 useful in reaching out to oil companies providing fuel  
24 stock information and providing us analyses in real  
25 time.

1                   We just saw how valuable their expertise was  
2                   in our response to Typhoon Souderlor, which caused  
3                   widespread damage in the Northern Mariana Islands.  
4                   The Island of Saipan, which was significantly  
5                   impacted, depends heavily on fuel oil for power  
6                   generation.

7                   (Buzzing sound.)

8                   MS. SHERWOOD-RANDALL: This is lovely.

9                   (Laughter.)

10                  MS. SHERWOOD-RANDALL: Our EIA experts  
11                  helped us coordinate directly with industry so we had  
12                  visibility on efforts to rebuild key infrastructure on  
13                  the island and critical information about fuel  
14                  shipments to the island. In addition to these  
15                  structural changes, we also have been strengthening  
16                  our partnerships on emergency response with states,  
17                  and that is a critical piece of our national response  
18                  effort.

19                  In February, Secretary Moniz signed an  
20                  agreement, the Energy Emergency Assurance Coordinators  
21                  Agreement, with a number of national associations.  
22                  These included the National Association of State  
23                  Energy Officials, the National Association of  
24                  Regulatory Utility Commissioners, the National  
25                  Governors Association, and the National Emergency

1 Management Association. This agreement, which is an  
2 update of an agreement that was 20 years old, will  
3 improve energy emergency coordination and capabilities  
4 across the country. It also reflects the significant  
5 improvements in technology and changes in the roles  
6 and responsibilities of partners that have occurred  
7 over the past 20 years.

8 We use this and other joint agreements to  
9 improve state and local emergency preparedness by  
10 funding workshops, providing technical assistance, and  
11 conducting exercises.

12 We recently used this network to provide  
13 daily updates on bulk power system reliability in  
14 response to the forecasted record high temperatures  
15 that the country has experienced this month. These  
16 updates enabled states to better plan support for  
17 citizens who might face distress given extreme heat  
18 conditions. All of these changes have improved our  
19 emergency management program.

20 What really matters, of course, is that in  
21 practice that they work, and so, as we've discussed,  
22 what's most important is that we exercise together. I  
23 want to thank everybody for their participation in  
24 these exercises and for the resources that are  
25 committed to doing so. Exercises are not cheap in

1 terms of human resources, nor in this report that's  
2 necessary financially to make them real, and so we  
3 want to say how pleased we are that we've been able to  
4 strengthen the Clear Path exercise to make it a more  
5 meaningful experience for those who participate in it  
6 and to ensure that the Department, our federal  
7 partners, and industry can work more effectively  
8 together in a crisis.

9 Phil, thanks to you for your hard work on  
10 this and to the members of the NPC's whole emergency  
11 preparedness working group for your work with our  
12 Office of Electricity Delivery and Energy Reliability  
13 in the planning of the 2016 Clear Path Exercise.  
14 We've heard from many people that this was the most  
15 valuable exercise that we've done to date, and that is  
16 a great example of what we need to sustain far out  
17 into the future.

18 I want to take note of what you commented on  
19 with regard to the need to do more preparatory work  
20 for regulatory relief. I heard this at one of our  
21 initial meetings in Houston. I remember Bill White,  
22 the former Houston mayor, raising this issue in the  
23 context of the experience he had in Hurricane Katrina,  
24 and there I would say I don't think we have gotten far  
25 enough. We also are having a similar dialogue with

1 the electricity sector on these challenges, and so I  
2 think we should leave in place a plan to get stuff  
3 done on this front rather than just admire the problem  
4 because it is work that is hard to do. We have to  
5 work with Congress on it, and to have a list, as  
6 you've indicated, that API has provided should give us  
7 the content that we can begin that dialogue around  
8 with Congressional partners.

9 We will continue to test and refine our  
10 systems, and in December I think you know that we and  
11 the National Association of State Energy Officials are  
12 planning to host a regional exercise with partners  
13 from the Northeast and Mid-Atlantic that will test  
14 state-level procedures and responses. It will include  
15 not only state energy officials but emergency  
16 managers, regulators, and industry at the state level.

17 It will also include importantly a  
18 cybersecurity component, and you know that testing  
19 this element of our preparedness, our resilience  
20 first, and then our preparedness is becoming  
21 increasingly important. In December's exercise, we  
22 plan to test state and regional responses to a cyber  
23 event that quickly cascades and that therefore creates  
24 consequences in the physical world.

25 In addition to the work we're doing

1 internally, Congress and the administration are also  
2 working together to improve DOE's ability to ensure  
3 our nation's energy security and respond to  
4 emergencies, and there I mention the FAST Act, which  
5 will, in part, improve the resilience of our supply by  
6 granting the Secretary of Energy broad authority to  
7 issue emergency orders to protect or restore critical  
8 electric infrastructure when the President identifies  
9 a grid security emergency.

10 Coupled with the new Presidential Policy  
11 Directive 41 that was rolled out this week, United  
12 States Cyber Incident Coordination, it will help us  
13 make significant strides in organizing the federal  
14 government's response to significant cyber incidents.

15 This PPD reflects the reality that no single agency  
16 possesses all of the authorities, capabilities, and  
17 expertise to unilaterally deal with a significant  
18 cyber incident.

19 I'd also note we recently announced  
20 \$15 million, subject to Congressional appropriations,  
21 in new funding to support efforts by the American  
22 Public Power Association and the National Rural  
23 Electric Cooperative Association to enhance the  
24 culture of cybersecurity among its members. Now that  
25 may not sound like a lot of money, but these

1 organizations have limited resources at their disposal  
2 to enhance their resiliency in the face of cyber  
3 threats, and so we know that we can help them with  
4 that funding to put toward developing security tools  
5 and educational resources, updating guidelines and  
6 training on common strategies for improving cyber and  
7 physical security.

8 Now we can't rest on these accomplishments,  
9 and those of you who have worked closely with DOE know  
10 that we have this extraordinary network of 17 national  
11 laboratories, and we need to find more ways to work to  
12 include new threat areas, such as cyberspace, and do  
13 research and development across the range of  
14 challenges that we will face in the future.

15 So, in the support that we have available to  
16 us in the Department to the innovation required to  
17 prepare us for the future, we are working on a number  
18 of initiatives to strengthen our energy resilience far  
19 out into that future.

20 For example, following the massive gas leak  
21 several months ago at the Aliso Canyon underground gas  
22 storage facility in my native California, DOE  
23 commissioned some of the national labs to examine  
24 safety issues associated with existing oil and gas  
25 wells in related underground storage facilities. We

1 will continue to support industry in the development  
2 of solutions using the resources of our national labs.

3 Since 2010, we've actually invested more  
4 than \$210 million in collaborative cybersecurity  
5 research and development projects among industry,  
6 universities, and our national labs. These  
7 investments have already produced important results.

8 For example, the Honeywell-led roll-based  
9 access control project. This project created roll-  
10 based access control technology for a Honeywell  
11 product suite. This is an energy delivery -- sorry.  
12 It's an energy delivery control system that is used  
13 extensively within the oil and gas industry today.  
14 The new technology limits access.

15 Good morning, Secretary Moniz. No, we have  
16 a place for you up here, of course.

17 (Pause.)

18 MS. SHERWOOD-RANDALL: This new technology  
19 limits access to the least to allow us to perform a  
20 given task, helping to reduce the risk of unauthorized  
21 access, including by an insider.

22 And Sandia National Laboratory has a  
23 cybersecurity research partnership with Chevron to  
24 develop a technology that will change the control  
25 system configuration moment by moment. This is



1 especially exciting because it will make it very  
2 difficult for an adversary to map the network or stage  
3 an attack. It also makes it easier for responders to  
4 isolate malicious actors if they do gain access.

5 I know that you have focused on  
6 cybersecurity in the Oil and Natural Gas Subsector  
7 Coordinating Council through your cybersecurity  
8 working group where you're working with the government  
9 across the industry to develop effective cybersecurity  
10 strategies and enhance communication.

11 At the top of my remarks I spoke a little  
12 bit about the interdependencies of our energy systems,  
13 and so I'd like to take a moment here to say a few  
14 words about that because it has significant  
15 implications for the energy sector writ large.

16 Part of energy security includes building  
17 resilience in our energy infrastructure. Our  
18 Department's grid modernization initiative represents  
19 a comprehensive effort to help shape the future of the  
20 nation's grid and solve the challenges of integrating  
21 conventional and renewable resources while ensuring  
22 that the grid is resilient and secure and can  
23 withstand growing cybersecurity and climate  
24 challenges.

25 This public/private partnership among our

1 national laboratories, industry, academia, and state  
2 and local government agencies will help strengthen our  
3 ongoing efforts to improve our electrical  
4 infrastructure. Secretary Moniz announced in January  
5 that DOE will spend \$220 million over three years on  
6 GMI projects with our labs, including projects to  
7 improve security of distribution systems and assess  
8 energy and critical infrastructure vulnerabilities, to  
9 identify cost-effective options to improve the  
10 resiliency of both the electrical grid infrastructure  
11 and the communities that support it.

12 In addition, the administration is working  
13 on a second installment of the Quadrennial Energy  
14 Review which focuses on the electricity system, and I  
15 think I just saw Melony Kenderdine, who leads this  
16 effort, join us. One theme will be the growing  
17 electrification of our economy and the increasing  
18 interdependencies among energy sectors. As you know,  
19 the electricity sector is increasingly reliant on  
20 natural gas as a fuel for power generation, but the  
21 natural gas and liquid fuels infrastructure is  
22 increasingly being electrified. For example, the use  
23 of compressors in cities with air quality issues, and  
24 threats to the electricity system, both natural and as  
25 a result of human activity, are evolving.

1           So QER 1.2 will examine how these threats to  
2 one sector may lead to vulnerabilities in our overall  
3 national security and how we can make the electricity  
4 system more resilient to changing conditions in order  
5 to maintain reliable service to the American people.

6           As an industry that's likely to be affected  
7 by threats to the grid we will welcome your insights  
8 in this area, and there I want to note we'd be very  
9 happy to set up a briefing for interested members of  
10 the NPC on the QER so that we might engage with you in  
11 a dialogue that will inform our recommendations.

12           So, in closing, I want to note again how  
13 important our cooperation is. Many of the changes  
14 that I mentioned this morning have one common thread,  
15 our partnership with the NPC and with the oil and  
16 natural gas sector. We thank you for your ongoing  
17 advice and support in our work, and there I want to  
18 note one concrete outcome in closing of our joint  
19 efforts.

20           In the course of the Cascadia Rising and  
21 Clear Path exercises, we heard from many of our  
22 partners in industry that they have a critical need  
23 for assistance with damage assessments, particularly  
24 for roads, bridges, ports, and rail lines. These  
25 assessments are a crucial part of any response mission

1 and allow us to confirm which transportation corridors  
2 are open and safe for use for response and recovery  
3 efforts.

4           During Clear Path, several utility CEOs and  
5 I discussed whether drones would help with these  
6 efforts. Based on that conversation, we have begun a  
7 dialogue with the Federal Aviation Administration on  
8 the role that drones can play in damage assessments in  
9 the energy sector, and last week the President signed  
10 the FAA authorization bill which contained a provision  
11 to expedite the authorization of safe, unmanned  
12 aircraft system operations in support of service  
13 restoration efforts of utilities.

14           So thank you again for your partnership and  
15 for all that you've done and will continue to do to  
16 make our great nation more energy secure. Thanks.

17           (Applause.)

18           MR. DAVIDSON: Well, Liz, thank you very  
19 much. We're honored to have you with us this morning,  
20 but I think more importantly, in working with you and  
21 your team throughout both the emergency preparedness  
22 as well as the Arctic studies, that you've really  
23 shown an incredible commitment, and I know that with  
24 the work especially as we've been working on emergency  
25 preparedness you've been extremely committed to make

1 sure that this is something that continues on and that  
2 it just doesn't become something that we worked on  
3 together back in 2014, '15 and '16, and then it goes  
4 away, that this is really something that's going to be  
5 resilient and grow and build on. So thank you. I  
6 think, you know, it's making an important contribution  
7 to this country and our industry and government in  
8 being able to respond to emergencies. So I really  
9 appreciate your commitment to that.

10 We're going to -- I'm always flexible on the  
11 agenda, and Marshal doesn't know I'm going to change  
12 it, but we're going to move back to what was probably  
13 close to our original agenda, and that is we'd like to  
14 now have the privilege of hearing from the Secretary,  
15 so you don't have to go through the Nomination  
16 Committee and the finance reports and all that  
17 lovely --

18 SECRETARY MONIZ: I was looking forward to  
19 the vote.

20 MR. DAVIDSON: Yes, I'm looking forward to  
21 the vote too.

22 (Laughter.)

23 SECRETARY MONIZ: This is an election year.

24 MR. DAVIDSON: Yeah, this is an election  
25 year.

1                   But, no, in just reflecting back over the  
2 past three years, Secretary Moniz has really served  
3 tirelessly as our thirteenth Secretary of Energy and  
4 as all of us know is uniquely qualified for the job.

5                   So I've certainly appreciated the  
6 opportunity of working with the Secretary as well  
7 these past few years as we work not only emergency  
8 preparedness, Arctic studies, but on the other things  
9 that the Council considered. So I think, with that,  
10 why don't we just please join me in welcoming  
11 Secretary Moniz.

12                   (Applause.)

13                   SECRETARY MONIZ: Well, thank you, Chuck,  
14 and I apologize if the uncertainties of Amtrak caused  
15 a little uncertainty here in the schedule, but  
16 eventually it arrived at Union Station. Obviously, I  
17 also want to thank Chuck so much for his service in  
18 leading the Council. We do have a history before  
19 that, including service on the Gas Technology  
20 Institute Board where Chuck was, as usual, a very  
21 thoughtful contributor and not to mention a shared  
22 interest over the years in Eastern Mediterranean  
23 natural gas which may be expanding sometime in the  
24 near future, but again, it's always been a real  
25 pleasure to work with Chuck.

1                   Also, of course, recognize Rex Tillerson,  
2 who I believe has been campaigning heavily for the  
3 opportunity to help pick up the flag from Chuck.

4                   (Laughter.)

5                   SECRETARY MONIZ: You have a speech you'd  
6 like to make?

7                   (Laughter.)

8                   SECRETARY MONIZ: Anyway. Of course, our  
9 Deputy Secretary, Liz, who's been very active very  
10 broadly on emergency response issues, including, of  
11 course, the interaction with the NPC and their -- at  
12 the risk of -- since my train was late I didn't hear  
13 exactly what was said, but I think, as you probably  
14 know, in the Congress starting with the FAST Act last  
15 December really has begun to define more clearly our  
16 responsibilities in a whole variety of emergency  
17 response areas and certainly, as was discussed, your  
18 report was very helpful and the recent exercises.

19                   I would just note that soon we hope that  
20 Congress will also resource those responsibilities  
21 that it has defined but that sometimes things get out  
22 of sync a little bit. You know how that goes. And  
23 Chris Smith, who's headed fossil energy now for quite  
24 some time.

25                   The Council, again, I think has really been

1 a great partner, but I think what I want to really do  
2 is note that not just the Council but the industry  
3 obviously deserves thanks, if you like, in the sense  
4 of over this last decade in the oil and gas sectors.  
5 Obviously, the industry has played a major role in the  
6 development of our economy. You all know the story.  
7 I'm not going to go through all of that.

8 But it's also the case that some variability  
9 in oil prices have also brought certain stresses,  
10 shall we say, to the industry, although having said  
11 that, I think it's also important certainly from the  
12 public policy point of view to not lose sight of the  
13 bigger picture. I know it's easier for me to say than  
14 for you or some of you at least to say, but a  
15 tremendous amount has happened, you know, various  
16 milestones, more oil produced than imported for the  
17 first time in a very long time last year.

18 This year EIA projecting, and I think it's a  
19 pretty solid projection, that natural gas will for the  
20 first time exceed coal in its market share of  
21 electricity production in this country, and it looks  
22 like coal will be down around 30 percent this year,  
23 gas around 33, maybe 34 percent, and that's an  
24 enormous shift on a decadal time scale to gas and to  
25 renewables.



1                   Of course, the lifting of the oil export  
2 ban, although ban seems like an overly harsh word for  
3 describing the reality, but whatever the case, the  
4 lifting of the oil export ban, and I think I was with  
5 many of you at SIRA week this year when the first LNG  
6 tanker was seen sailing away from the Gulf. It's just  
7 a lot of stuff happening and it's been obviously very,  
8 very important.

9                   Now today, however, I want to focus in a  
10 different direction because obviously another very big  
11 thing that's happened in the last year was the COP 21  
12 meetings in Paris and the results, the climate  
13 agreement. I want to talk about that.

14                   I want to say something about innovation,  
15 particularly technology innovation, which at COP 21 I  
16 think a message that has not been, you know,  
17 completely in the neon lights but in my view should  
18 be, is that last year and in some sense culminating in  
19 Paris at the very beginning of the Paris meeting, not  
20 the end of the Paris meeting, the critical role of  
21 innovation as central to any solution to the climate  
22 change challenge I think was elevated in a way that  
23 had not been the case before, so I'll talk a little  
24 bit about that.

25                   And then we'll get into some discussions and

1 questions to the NPC, particularly around natural gas  
2 developments in the context of the climate change  
3 challenges. So those are the themes that I'd like to  
4 just touch on today.

5 The COP 21 outcome and the potential for  
6 meeting the criteria for its going into force this  
7 year potentially is obviously a very, very big deal.  
8 The going into force I think you know requires 55  
9 countries to join, representing 55 percent of the  
10 emissions, and as we speak, I believe, it's always  
11 changing a little bit, but I think today, in terms of  
12 countries that have joined or have announced,  
13 including the United States, the intent to join this  
14 calendar year, we are up to 51 countries, representing  
15 52 percent of emissions, so we're obviously very close  
16 now. Those countries all have to carry through and  
17 get their articles in appropriately, but I think, you  
18 know, Tom Fanning a couple of times in various places  
19 has talked about, you know, you can't keep the waves  
20 off the beach, and I think that's a statement that,  
21 you know, has obvious implications here.

22 I mean, we are heading towards a lower  
23 carbon economy, and I've now begun to call Tom "King  
24 Canute," who, you know, commanded the tides to stay  
25 off the beach, although, by the way, I do want to

1 emphasize there's often a misunderstanding. He said  
2 it in order to make the point that he could not keep  
3 the waves off the beach, and actually it's that  
4 humility and wisdom that I think we need to adopt in  
5 recognizing that this is the direction we're going in.

6 There are obviously going to be questions of pace and  
7 scale and global performance, if you like, but  
8 fundamentally this is the way we're going and that's,  
9 again, kind of the backdrop for what I really want to  
10 talk about a little bit today.

11 I'd also like to emphasize in framing that  
12 that I think we also need to keep in mind temporal  
13 scales. The Paris commitments are typically, you  
14 know, in the range of 25, 30 percent reductions in the  
15 time period of say 10, 15 years. That's kind of the  
16 general spot where the nationally determined  
17 contributions fall, and we have a lot of tools at our  
18 disposal to meet those goals. Certainly, the United  
19 States, the Climate Action Plan, the President's  
20 Climate Action Plan remains operative with many, many  
21 different pieces in that plan, from, you know,  
22 equipment appliance standards that we set at DOE to  
23 the clean power plan from EPA and many other steps,  
24 and, you know, no one is claiming that those goals are  
25 easy to meet, but certainly they are achievable, and

1 right now we are on a good track, in no small part  
2 because of that substitution we mentioned earlier,  
3 that shift of market share from coal to natural gas in  
4 the power sector.

5 But I think we also have to keep in mind  
6 that given our understanding, and again we all  
7 understand in terms of the climate science that given  
8 greenhouse gas concentrations, you know, there's a  
9 probabilistic distribution of what let's say average  
10 temperature rise will be. Given some average  
11 temperature rise, there are clearly regional  
12 uncertainties, but the patterns are pretty -- that  
13 have been emerging look very clear, and I think in  
14 your businesses, I think what this suggests is  
15 something, again, that I think that you have to do,  
16 which is what I would call enterprise risk management,  
17 and we have got to really get on the trajectory for  
18 the kinds of deep decarbonization that I believe are  
19 likely needed by mid-century and, of course, to  
20 develop the tools that we will need to succeed in  
21 that.

22 So that's kind of the background as I see  
23 it, that we have, again, a lot of tools to meet the  
24 what I'm calling near-term requirements, 10, 15 years.

25 And, however, as we look at the issue of the

1 decarbonization not just in the power sector but also  
2 in the transportation sector, in the industrial  
3 sector, I still think we're going to need a bunch of  
4 new tools going forward, and that's part of the  
5 innovation agenda.

6           So let me say a few more specifics about the  
7 innovation agenda. Again, in Paris, although this was  
8 building up over the entire calendar year of 2015, but  
9 in Paris, again, on the first day, the leaders of 20  
10 countries, United States, frankly, was a major force  
11 in developing what is called Mission Innovation with a  
12 capital M and a capital I. Now I suspect some in the  
13 audience are not quite fully familiar with the  
14 specifics, so let me just outline them.

15           The key is that these 20 countries,  
16 subsequently now adding in the EU, have pledged to  
17 seek a doubling of energy R&D, public energy R&D over  
18 the next five years. The aggregate amount currently  
19 invested by that collection of countries, plus the EU,  
20 is nearly \$15 billion. So we're talking about  
21 doubling to roughly \$30 billion in the next five  
22 years.

23           The idea -- and by the way, I do want to  
24 emphasize that this is not some kind of a, you know,  
25 R&D pool. Each country manages its own portfolio and

1       there will be some cooperation and there will be a lot  
2       of competition, frankly, in terms of that innovation  
3       agenda. But the idea is that this will lead to  
4       significantly more investable opportunities and indeed  
5       the complementary announcement made at the same time,  
6       it was made by Bill Gates, heading a 28-person  
7       international 10-country coalition of investors who  
8       said they were prepared -- they will not be unique,  
9       but they will be prepared to be looking to take  
10      advantage of those investable opportunities with  
11      significant capital that is very patient.

12                This audience doesn't need to know the time  
13      scale that it takes to get technology scaled up in  
14      this business. It will be very forward-leaning in  
15      terms of risk/reward calculation. And they would be  
16      prepared as some presumably small number of these  
17      technologies look very, very promising to also put in  
18      the large capital needed to get the scaling in the  
19      energy business.

20                So that's kind of the picture. So,  
21      following advice, frankly, that started already in  
22      2010 from the American Energy Innovation Council, a  
23      collection of American CEOs, who argued for --  
24      actually, they argued for a tripling of energy R&D,  
25      kind of carrying out that agenda, and then having --

1 and Bill Gates, for example, who's a member of that,  
2 was one of the prime drivers of that AEIC, and now  
3 roughly speaking preparing to put their money where  
4 their mouth is in terms of having the public and  
5 private parts work together.

6 In our own case here, we are committed to  
7 expanding that portfolio in ways that really are a  
8 term that we've used now for three and a half years  
9 "all of the above". We want to look at all of the  
10 options, and I do want to emphasize options. It's not  
11 our job to determine what's actually going to be in  
12 the marketplace in different regions of our country,  
13 in different countries. That's something that will be  
14 decided in those different markets. But our job at  
15 DOE and the government is to help sometimes ourselves,  
16 often in partnership with industry, including many in  
17 this room, to really provide the options to the  
18 marketplace for those choices to be made, so we will  
19 be doing that.

20 Certainly, one area of clear interest in  
21 this domain, in the NPC world, is carbon capture  
22 utilization and sequestration as one element of a  
23 strengthened portfolio.

24 Let me mention two things that we are doing  
25 right now. One is, and we're pointing towards maybe

1 some kind of September workshop as we are pulling  
2 together various threads, we are trying to map out  
3 what in fact a -- in broad terms, what this kind of  
4 increased portfolio might look like in terms of the  
5 doubling, and that's, I think, quite important.

6 Secondly, our perspective is very much in  
7 line with what I talked about earlier in terms of the  
8 temporal scales of the kind of lower carbon economy  
9 that we need. Certainly, some of that portfolio is  
10 going to be continuing to drive down costs, for  
11 example, in some of the key technologies that we and  
12 many others are working on very hard. Energy storage  
13 would be an obvious example, whether it's grid scale  
14 or for vehicles, and so we have to do that.

15 But what I want to emphasize and I think  
16 it's really important for all of you is we also need  
17 to go after something that in my view is not  
18 adequately represented in our portfolio, and it is  
19 some of the really game-changing ideas that are beyond  
20 let's get solar cheaper, let's get carbon capture  
21 cheaper, let's get storage cheaper; things like what  
22 are new opportunities for really large-scale  
23 utilization of CO<sub>2</sub>. What are negative carbon  
24 technologies? Something that would be in the context  
25 of enterprise risk management. What are the pathways



1 of what would require significant scientific  
2 breakthroughs for really going to alternative drop in  
3 fuels, for example?

4 So these are big questions that can be  
5 really big game-changers for the kind of really  
6 changed scenario that I think are quite probable in my  
7 view on a half-century time scale. So those are the  
8 kinds of questions that we are asking. We are not  
9 oblivious to the idea that-- not to the idea -- to  
10 the fact that this administration has got about five  
11 months left, but we think this is a very important  
12 part of kind of structuring the set of options for  
13 moving forward in the next administration and with  
14 Congress.

15 And mentioning Congress, I want to say that  
16 in terms of this doubling trajectory that we've talked  
17 about in the innovation agenda we all know that this  
18 year, frankly, to be honest, from the fiscal year 2016  
19 budget for energy R&D had a substantial increase with  
20 respect to 2015, but we also know that the budget deal  
21 has a flat budget from 2016 to 2017. So even though  
22 the President in his request to Congress did request a  
23 \$1 billion increase for energy R&D at DOE, which is a  
24 20 percent increase, 20 percent times five is 100  
25 percent -- there you go, simple arithmetic, and that

1 was proposed within the flat budget by doing a  
2 reprioritization. In Congress, such reprioritizations  
3 can be a little bit more difficult. So clearly, you  
4 know, the current marks in the House and the Senate  
5 are not going to accommodate a 20 percent increase in  
6 2017, but I do want to say that I'm rather optimistic  
7 for two reasons.

8           One, there has been very strong bipartisan  
9 commitment to endorsement of this idea of a strong  
10 innovation agenda. That is certainly reflected  
11 directly in language in the bills on a -- you know, in  
12 the end, language doesn't buy the groceries, you know,  
13 but there's very strong language. We all know that  
14 that big new things in Congress often take, you know,  
15 several bites at the apple.

16           But, third, if you look at the marks in  
17 terms of what we call the innovation agenda, which is  
18 not the entire portfolio of energy activities, there  
19 was a reprioritization let's say on the scale of  
20 \$200 million, plus or minus, in the House and Senate  
21 marks.

22           So I think, you know, that this is something  
23 that over these next years is going to require  
24 persistence, but I think this innovation agenda is  
25 something that we can really advance, and I might say

1 that it has really got the enthusiasm of the  
2 international community that is part of this  
3 initiative. So that's some of what is happening, and  
4 again I think it's going to be a major focus in these  
5 next years.

6 Let me just say a few words about natural  
7 gas. Obviously, again, we all know about the story.  
8 You know, I'm not going to go over that again in terms  
9 of where we've come in natural gas production. But I  
10 think, you know, I think the -- we may, but I want to  
11 emphasize we may lose sight of, I want to emphasize,  
12 and it's something that I think we probably have not  
13 articulated well enough and consistently enough, and  
14 that is how the natural gas revolution in this country  
15 has addressed what arguably you could say are the  
16 three highest level objectives of what we're doing:  
17 economy, environment, and security. And the natural  
18 gas revolution has really hit the trifecta on that.

19 The economy, again, it's pretty obvious in  
20 terms of what has happened in terms of jobs and that  
21 just yesterday I was with someone saying, you know, a  
22 place like southeastern Ohio, there are hotels where  
23 there never used to be hotels, and this kind of, you  
24 know, signature of what it means locally, but, of  
25 course, also what it means for the country in terms of

1 abundant low-cost natural gas.

2 In terms of environment, we already said  
3 that actually over half of the reductions in CO<sub>2</sub>  
4 emissions that we have had, putting us on the  
5 trajectory for the President's commitment to a  
6 17 percent reduction by 2020, over half of that is,  
7 again, that shift of market share from coal to gas.

8 We have other challenges and we know that  
9 there are interesting discussions going on. Things  
10 like the controlling the methane emissions remains  
11 something that we have to get our arms around, but  
12 fundamentally I would say that -- and there are still  
13 clearly a bunch of issues where we have to keep  
14 reducing the footprint, the environmental footprint in  
15 production, but net certainly in terms of CO<sub>2</sub>  
16 emissions, I think, a big advance.

17 And then third on security, in particular, I  
18 would highlight the movement, the clear, I think the  
19 clear movement towards what you would call a global  
20 gas market, and obviously LNG a big part of that.

21 By 2020 the projections are that more gas  
22 will be traded internationally by LNG than by pipe,  
23 which is, you know, quite a step; development of more  
24 short-term spot activity in the market; and I think  
25 the impact, and I think you probably agree that the

1 impact of the United States already in the development  
2 of that international kind of market has been way  
3 outsized compared to the amount of LNG we've actually  
4 exported so far. I think probably in a few years  
5 we'll be number three, but we're just getting ramped  
6 up, as you know, and yet -- well, first of all, the  
7 fact that we are not importing a lot of LNG is  
8 important, but I think -- and the fact that we will be  
9 exporting, as you know -- well, I think facilities  
10 under construction are getting pretty close to 10 bcf  
11 per day. We have licenses. We have given non-FTA  
12 approvals to more than that.

13 But, in addition, I think not so often  
14 recognized is the importance of the contract  
15 structures that are evolving in terms of tolling  
16 arrangements and not having at least not rigid  
17 destination clauses, et cetera. These are all going  
18 in the direction of developing this global market.  
19 It'll never reach probably the liquidity of the oil  
20 market, but enormous change, and that is very  
21 important for the collective security of the United  
22 States because of the implications particularly in  
23 Europe but also in the Far East.

24 So I think, you know, this has been a -- I  
25 think it's a bigger success story than is actually

1 often talked about.

2           Having said that, we still have challenges  
3 now going back to the original theme, the Paris theme,  
4 and the deep decarbonization theme, certainly  
5 preparing for that deep decarbonization probability.  
6 And so even as gas has had this major impact in CO<sub>2</sub>  
7 reductions now and I think that will probably continue  
8 for some time, but eventually, if we are faced with  
9 essentially full decarbonization let's say of the  
10 power sector, for example, then we've got to do  
11 something: carbon capture, utilization,  
12 sequestration. Those are the kinds of challenges that  
13 we need to face and to innovate to manage.

14           With that, I would just lead up to  
15 discussions that we have been having with the NPC  
16 leadership in terms of what this organization might  
17 do. I said earlier obviously we have in this  
18 administration less than half a year to go, but I  
19 think looking at this issue, frankly articulating the  
20 case of what has happened, and looking at the  
21 challenges of the trajectory of natural gas in a low-  
22 carbon world is something that I think the industry  
23 and others should come together to really look at.

24           Now we're not going to propose a 2,000-page  
25 National Petroleum Council piece of work in the next

1 three months, but we're going to be discussing this  
2 and, you know, nothing is settled, but we're going to  
3 be discussing the possibility of getting into kind of  
4 a phased approach whereby perhaps this year there  
5 could be something like a scoping document that lays  
6 out the case, lays out the challenges, and then in the  
7 next administration, if the NPC and the administration  
8 are of the same mind, then that perhaps could become  
9 the basis for some longer piece of work.

10 So those are the kinds of questions that are  
11 certainly on my mind and I think are very, very  
12 important, and I can see a strong role of the NPC in  
13 addressing that.

14 So, with that, I want to thank all of you  
15 for being here. Again, thank the leadership of the  
16 NPC for their work, thank our people at DOE working  
17 with the NPC, and I think the energy sector will  
18 continue to be a great ride going forward. Thank you.

19 (Applause.)

20 MR. DAVIDSON: Thank you. The Secretary has  
21 agreed to take a few questions from the Council  
22 membership, so this is your perfect time to get that  
23 question you've always wanted to ask the Secretary.  
24 Right there. The mike's coming around to you.

25 MR. SUTTLES: Thank you, Mr. Secretary. I

1 appreciate your comments. I think through history, as  
2 man's use of energy has evolved, it seems like three  
3 trends have been there. One is energy's gotten more  
4 available, it's gotten more reliable, and it's gotten  
5 more affordable. How do you see that playing out  
6 through a low-carbon future?

7 SECRETARY MONIZ: Oh, is this working?  
8 Yeah. In the same way. Those are, I think,  
9 essentially in the DNA of the energy sector. So  
10 that's why I emphasized that several times even in my  
11 innovation discussion. Cost reduction is an enormous  
12 part of that innovation agenda. We have seen that  
13 now, of course, in the last decade in a number of  
14 technologies, certainly solar, batteries actually have  
15 come way down in cost just -- it's still another  
16 factor, three maybe to go.

17 But to me there are two key elements of the  
18 innovation agenda. One is the cost reduction, and the  
19 second one, again, especially for the longer term,  
20 looking at some of these game-changers that could have  
21 enormous consequences like negative carbon  
22 technologies, which gives you some room in some other  
23 activities in terms of transmissions. So that's  
24 important.

25 But I think what you've mentioned I think



1 will always be a key characteristic of the system  
2 because of the nature of what energy does. I mean,  
3 you know, it affects everything we do obviously, it  
4 underpins it. It's hard to see how energy is going  
5 to -- I don't want to use the word "escape", it's  
6 going to -- let's say it is likely to remain an  
7 activity that is relatively more regulated than other  
8 activities precisely because of the essential services  
9 it provides to everyone, and for the same reason  
10 reliability will be critical.

11 I mean, frankly, I think, you know, in the  
12 system, for obvious reasons, if you are a utility  
13 executive, you know, reliability has, let's say, been  
14 higher on the priority list than innovation to be  
15 perfectly honest, and I'm not saying that in any  
16 negative way. I'm just saying that's the nature of  
17 the business. You better keep the lights on, roughly  
18 speaking.

19 So, you know, it's also in the end energy  
20 has the characteristics of a commodity which makes it  
21 typically very cost-sensitive. Now, obviously, policy  
22 conditions the playing field, but I think those  
23 characteristics are just part and parcel of the energy  
24 business, so you better remain available, reliable,  
25 and affordable if those were your three words. It's

1 just with different technologies, that's all, although  
2 actually maybe one last thing I will say in terms of  
3 the innovation agenda.

4 Part of the agenda is providing the  
5 essential services -- mobility, light, heat --  
6 possibly with different technologies, but I think  
7 also, and this is certainly true in the power sector  
8 but probably more broadly, we still really, I think,  
9 are at the very early stages of understanding the full  
10 integration of and power of that integration of IT,  
11 and as we do that, I think that's going to open up the  
12 possibility of looking beyond just providing the  
13 commodity services, if you like, and to providing new  
14 services that consumers want. So I think this is  
15 going to be a pretty exciting agenda.

16 MR. DAVIDSON: Anything else?

17 (No response.)

18 MR. DAVIDSON: Well, thank you, Mr.  
19 Secretary. Thank you so much for not only sharing  
20 your thoughts and remarks and plans but also your  
21 leadership over the past three years.

22 I think at this point we will be ending the  
23 internet portion of the meeting, and so those who have  
24 joined us, that part will end because we're going to  
25 move into our administrative matters at this point, so

1 the streaming audio should be discontinued.

2 Our first item of business is a report of  
3 the Finance Committee, and Byron Dunn has recently  
4 agreed to assume the chair of the Finance Committee,  
5 and he will present the report.

6 MR. DUNN: First, I want to thank Greg  
7 Armstrong for leaving it in such good shape. He  
8 served as Chair for many years and did a great job.

9 Thank you, Mr. Chairman. The Finance  
10 Committee met this morning to review the financial  
11 conditions of this Council. Representatives from  
12 Johnson & Lambert, our independent outside auditor,  
13 were at the meeting to present their draft audit  
14 report for the calendar year 2015.

15 I'm pleased to report to the Council that  
16 the financial statements and accompanying notes were  
17 all received with unqualified and clear opinions.

18 The Committee also reviewed the Council's  
19 year-to-date 2016 financials. Controls on  
20 expenditures remained tight because of market  
21 conditions, obviously, to assure that this Council  
22 operates within its revenue stream.

23 You may recall, or I hope you recall because  
24 it was a significant decision, that for 2016  
25 contributions, the Finance Committee recommended and

1 this Council agreed to an across-the-board 15 percent  
2 reduction from the previous year's contributions.  
3 Despite continuing economic challenges across the  
4 entire industry, the National Petroleum Council  
5 members have responded with strong financial support  
6 of this Council. We also have several new members who  
7 are also responding quickly and favorably to the  
8 contributions request. The Finance Committee thanks  
9 each of you for that quick response.

10 However, the Finance Committee has still a  
11 few laggards for the 2016 contributions. The process  
12 is simple. We send you the request. We wait an  
13 appropriate amount of time. We send you a reminder.  
14 You know who you are. So do we.

15 (Laughter.)

16 MR. DUNN: We encourage you to get those  
17 attended to.

18 So thank you, Mr. Chairman. This completes  
19 my report.

20 (Laughter.)

21 MR. DUNN: And I move that it be adopted by  
22 the Council.

23 (Applause.)

24 MR. DAVIDSON: Okay. We have a motion for  
25 approval of the Finance Committee's report. Do I have

1 a second? Second. I've got several seconds. All in  
2 favor say aye.

3 (Chorus of ayes.)

4 MR. DAVIDSON: Opposed?

5 (No response.)

6 MR. DAVIDSON: Well, thank you. Thank you,  
7 Byron. Also thanks to Greg Armstrong, who's chaired  
8 the Finance Committee for a number of years and is  
9 going to be taking on a new role with the NPC based on  
10 the next item of business, and that is the report of  
11 the Nominating Committee. Ray Hunt chairs the  
12 Nominating Committee, but unfortunately Ray was not  
13 able to be with us this morning, and in his absence, I  
14 will present the Committee report because I want to  
15 make sure this report gets voted on.

16 So the Nominating Committee has agreed on  
17 the following recommendations for NPC officers,  
18 chairs, members, the agenda, and the appointment  
19 committees of the Council, as well as five at-large  
20 members of the NPC Co-Chairs Coordinating Committee.  
21 So let me read these and then we will act on them as a  
22 group.

23 For NPC Chair, Rex Tillerson. For NPC Vice-  
24 Chair, Greg Armstrong.

25 For the Agenda Committee, the following are

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1 recommended and proposed as members: Alan Armstrong,  
2 Bob Catell, Ray Hunt, Paul Kibsgaard, G.G. Lazenby,  
3 Andrew Liveris, John Minge, John Watson, Bill White,  
4 and Dan Yerygin, with Larry Nichols serving as the  
5 Chair of the Agenda Committee.

6 For the Appointment Committee, the following  
7 are proposed as members: Nick Akins, George Alcorn,  
8 Larry Downes, Bill Fisher, Greg Garland, John Hess,  
9 Ryan Lance, Mike Linn, David Seaton, John Walker, with  
10 Bob Palmer serving as the Chair of the Appointment  
11 Committee.

12 And finally, the Nominating Committee  
13 recommends the following as the at-large members of  
14 the Co-Chairs Coordinating Committee, these being:  
15 Lisa Davis, Joe Gorder, Richard Newell, Frank  
16 Verrastro, Verrastro, excuse me, Bill Way.

17 This completes the report of the Nominating  
18 Committee. Do I have a motion to adopt the report of  
19 the NPC Nominating Committee?

20 I got a motion. A second. Thank you. Any  
21 other nominations from the floor?

22 (No response.)

23 MR. DAVIDSON: All those in favor say aye.

24 (Chorus of ayes.)

25 MR. DAVIDSON: Opposed.

1 (No response.)

2 MR. DAVIDSON: All right.

3 (Laughter.)

4 MR. DAVIDSON: The report is adopted. Thank  
5 you. Thank you very much.

6 I'm going to ask Rex if he would like to  
7 make some comments. First of all, I really have  
8 greatly enjoyed and appreciated these last few years  
9 working as your chair, but most importantly, I  
10 appreciate all the work that our members have done to  
11 produce the great studies and reports that are so  
12 important and so unique. I think this is a unique  
13 organization that really is positioned to develop some  
14 things that there's perhaps no other organization in  
15 our industry is quite positioned to do.

16 So, with that, Rex, I appreciate you taking  
17 on this among a few other tasks that he has, but  
18 certainly as you know Rex and Exxon were part of the,  
19 and led the Arctic studies, and he's been a strong  
20 part of the leadership of NPC for many years. So,  
21 Rex.

22 MR. TILLERSON: Thank you, Chuck.

23 (Applause.)

24 MR. TILLERSON: Thank you, Chuck. In the  
25 spirit of the season, I have a 60-to-70-minute

1 acceptance speech here.

2 (Laughter.)

3 MR. TILLERSON: Depending on the number and  
4 length of your applause interruptions.

5 (Laughter.)

6 MR. TILLERSON: However, I did note,  
7 Marshal, the absence of the balloon drop.

8 (Laughter.)

9 MR. TILLERSON: And I was told that the  
10 acoustics in here could not accommodate my background  
11 song, so that will remain a secret.

12 (Laughter.)

13 MR. TILLERSON: But in all seriousness, I  
14 want to first thank Chuck for his past two years of  
15 leadership of the Council under which significant and  
16 important work was undertaken and completed and  
17 delivered to the Secretary, and so we thank you for  
18 that leadership.

19 I also want to thank Greg Armstrong for his  
20 willingness to step in as the Vice-Chair. And I want  
21 to thank Byron Dunn for his willingness to step in as  
22 Chair of the Finance Committee. These are just added  
23 responsibilities. Of course, the pay is great and the  
24 benefits are enormous, so it's easy to find people to  
25 do these things.



1           I do also, though, want to acknowledge the  
2 members of the Council, and I think as all of you  
3 understand the nature of this Council, which is one of  
4 advice only. It rests entirely upon your experience,  
5 your expertise, the knowledge that you bring to the  
6 important questions that are posed to the Council, and  
7 your willingness to engage, and so I appreciate those  
8 of you that are here. I appreciate those that were  
9 unable to be here. You will be called upon, and when  
10 you're called upon, we appreciate it when you step  
11 forward and accept that.

12           . Again, we know there are really no added  
13 compensation other than the opportunity to inform,  
14 advise, and be supportive of the continued important  
15 and vital role that oil and natural gas play in our  
16 national energy security and in our economic  
17 prosperity not just today but for as far as the eye  
18 can see, and that's the important role we have to  
19 play. So thank all of you for that support that I  
20 know you will be giving us.

21           (Applause.)

22           MR. DAVIDSON: Thank you, Rex, and thank you  
23 for your continued and future leadership of the  
24 National Petroleum Council.

25           One final item of business before we move

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1 on. I would ask if there is any other council members  
2 who have a matter to raise at this time.

3 (No response.)

4 MR. DAVIDSON: And then secondly, is there  
5 any non-member who wishes to be recognized? If there  
6 is a request from a non-member, please state your name  
7 and organizational affiliation. This is comments  
8 only. Anything from a non-member?

9 (No response.)

10 MR. DAVIDSON: Okay. Before we adjourn I've  
11 got a -- this is a little bit of a sad piece of  
12 business. It's rare that one of our active members  
13 passes away, but unfortunately that was the case of  
14 the death of Aubrey McClendon on March 2 of this year.  
15 Aubrey had been a member of the Council since 2002.  
16 Of course, many of us knew him. He served as the  
17 Vice-Chair of the Committee on North American Resource  
18 Development that prepared the 2011 prudent development  
19 report. Aubrey was a leader in our industry and  
20 certainly will be greatly missed.

21 So, as we prepare to close this 126th  
22 meeting of the National Petroleum Council, please join  
23 me in a moment of silence in memory of Aubrey K.  
24 McClendon.

25 (Moment of silence.)

1                   MR. DAVIDSON: Thank you very much. For  
2 those who are traveling, please travel safely. With  
3 that, the 126th meeting of the National Petroleum  
4 Council is hereby adjourned. Thank you, everyone.

5                   (Whereupon, at 11:09 a.m., the meeting in  
6 the above-entitled matter concluded.)

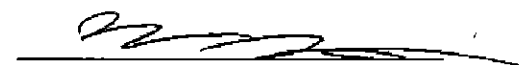
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REPORTER'S CERTIFICATE

DOCKET NO.: None  
CASE TITLE: National Petroleum Council Meeting  
HEARING DATE: July 29, 2016  
LOCATION: Washington, D.C.

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy.

Date: July 29, 2016



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