

Joint Meeting of the
Nuclear Regulatory Commission
And the
Federal Energy Regulatory Commission

Tuesday, April 8, 2008

10:04 a.m.

FERC Headquarters
888 First Street NE
Commissioner's Meeting Room
Washington, D.C. 20426

Agency Participants

Nuclear Regulatory Commission

Commissioners' Offices:

Chairman Dale E. Klein

William Orders, Assistant to Chairman

Jerome Murphy, Assistant to Chairman

Commissioner Gregory B. Jaczko

Josh Batkin, Assistant to Commissioner Jaczko

Thomas Hipschman, Assistant to Commissioner

Jaczko

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Commissioner Peter B. Lyons
Doug Doe, Assistant to Commissioner Lyons
Allen Howe, Assistant to Commissioner Lyons

Commissioner Kristine L. Svinicki
David Pelton, Assistant to Commissioner
Svinicki

NRC Speakers:

Michael Mayfield, Director, Division of
Engineering, Office of New Reactors
Patrick Hilland, Director, Division of
Engineering, Office of Nuclear Reactor
Regulation
Scott Morris, Deputy Director, Reactor Security,
Office of Nuclear Security and Incident
Response

Federal Energy Regulatory Commission

Commissioners' Offices:
Chairman Joseph T. Kelliher
Leonard Tao, Assistant to Chairman Kelliher

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Commissioner Suedeen Kelly
Elisabeth Blaug, Assistant to Commissioner
Kelly
Kevin Huyler, Assistant to Commissioner Kelly
Aileen Roder, Assistant to Commissioner Kelly

Commissioner Philip Moeller
Jignasa Gadani, Assistant to Commissioner
Moeller
Jason Stanek, Assistant to Commissioner Moeller
Robert Ivanauskas, Assistant to Commissioner
Moeller

Commissioner Jon Wellinghoff

FERC Speakers:

David E. Andrejcek, Acting Director, Division of
Bulk-Power System Analysis, Office of Electric
Reliability
L. Keith O'Neal, Acting Director, Division of
Reliability Standards, Office of Electric
Reliability
Regis F. Binder, Acting Director, Division of
Logistics and Security, Office of Electric
Reliability

1 P R O C E E D I N G S

2 (10:04 a.m.)

3 CHAIRMAN KELLIHER: Good morning. This meeting
4 is called to order. I don't know if both of us have to
5 gavel it, for it to officially begin, but let's cover our
6 bases.

7 (Laughter.)

8 CHAIRMAN KELLIHER: I want to welcome our
9 colleagues from the U.S. Nuclear Regulatory Commission, to
10 this joint meeting with the Federal Energy Regulatory
11 Commission.

12 This is the third joint meeting of the two
13 Agencies since the August 14, 2003 blackout, reflecting the
14 continuing commitment of the Agencies to work together to
15 address issues of common concern.

16 I want to offer a special welcome to
17 Commissioner Svinicki to this meeting, and congratulate you
18 on your confirmation. Now, you showed the necessary
19 patience that nominees have to show from time to time, but I
20 just want to reassure you that my nomination, my first
21 nomination, took 750 days, so you should feel comforted by
22 the contrast.

23 I also want to congratulate Commissioner Jaczko
24 for his successful renomination and reconfirmation, and I
25 think reconfirmation is a good thing. Jon and I experienced

1 that last December, so, congratulations to you.

2 Now, FERC and the NRC are different agencies with
3 different statutory responsibilities. The NRC's primary
4 task is protecting public health and safety, and FERC has a
5 number of different statutory missions, but the one that's
6 most relevant to the meeting today, is our regulatory role
7 over the reliability of the bulk power system, as provided
8 by the Energy Policy Act of 2005.

9 And that mission at FERC is discharged by the
10 Office of Electric Reliability, headed by Joe McClelland, on
11 the left. Joe is doing an excellent job. Let me take the
12 opportunity to say that.

13 And it's really been a major new mission for the
14 Commission. That and enforcement, are really the two
15 growth missions of the Commission, and we're spending a
16 great deal of our attention in those areas.

17 And we discharge our new duty by establishing
18 reliability standards proposed by the Electric Reliability
19 Organization, to govern the bulk power system; by directing
20 changes to approved standards, to improve them over time;
21 and by ensuring effective enforcement of approved
22 reliability standards.

23 Now, our reliability mission and the NRC mission
24 to protect public health and safety, are entwined. One
25 well-established risk to the reliable operation of bulk

1 power system, is the sudden shutdown of large nuclear power
2 plants.

3 By the same token, the loss of offsite power
4 caused by a grid failure, is a major concern to the safe
5 operation of commercial nuclear power plants, and that
6 relationship was demonstrated by the recent Florida
7 blackouts.

8 FERC also has infrastructure and economic
9 regulatory missions that are related to the work of the NRC.
10 If our country is going to build large numbers of nuclear
11 power plants, we will need a bulk power system that can move
12 that power to where it is most needed.

13 And it's also important for FERC to understand
14 the timing of nuclear power plant additions. Widespread
15 cancellations of coal plants have created a situation where
16 the United States may rely largely on natural gas generation
17 for incremental electricity supply, until additional
18 nuclear plants are operational.

19 Some have called natural gas a bridge fuel to
20 that point where we have large wind generation and large
21 nuclear generation coming online, but as Commissioner
22 Moeller has said, that could be a very long bridge.

23 So the timing of nuclear plant licensing and
24 construction, is of particular importance to FERC.

25 So I welcome our colleagues from the NRC, and

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1 look forward to this meeting. Commissioner Klein?

2 NRC CHAIRMAN KLEIN: Thank you, Chairman
3 Kelliher. It's a pleasure to be here. We hosted the last
4 meeting at our headquarters, so it's a pleasure for us to be
5 at your headquarters for this joint meeting.

6 Obviously, I'm joined by Commissioners Jaczko and
7 Lyons, and our newest Commissioner Svinicki. She has come
8 with a great amount of experience that she's had, both as a
9 member of the Wisconsin Public Utility Commission,
10 Department of Energy, and also at the Senate, where she's
11 worked for a number of years with energy policies, and
12 then, most recently, for the Armed Services Committee, where
13 I had spent a bit of time with my former position, before
14 coming over to the NRC.

15 So we're glad to have her with us. We still have
16 one position unfilled. As we all know, we're approaching a
17 particular time in our history, in November of years
18 divisible by four, and so we will wait to see what happens
19 with our fifth Commissioner.

20 It's a pleasure for us to be here. Obviously, as
21 Chairman Kelliher indicated, there is a lot of joint
22 interaction between our two Agencies. It's a busy time for
23 us at the NRC, with license renewals, with power-up rates,
24 and with the other radioactive materials that we regulate
25 for medical applications and industrial uses.

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1 It's certainly, on the power side, it's very busy
2 with the new applications that are coming in.

3 We currently have nine applications inhouse for
4 14 reactors, so we're very busy in that regard. However,
5 one of our most important activities, is for the safe
6 operation of the existing fleet, and so that's one issue
7 that we clearly focus on, and certainly impacts the
8 activities with FERC.

9 As Chairman Kelliher indicated, a lot of
10 activities started with the August 03 Blackout. That
11 obviously impacted several of our plants. We had a
12 Memorandum of Agreement that was signed in September of 04,
13 so we have a lot of common interactions.

14 And so we look forward to a very productive
15 meeting today, and I'd like to thank you again for your
16 hospitality.

17 CHAIRMAN KELLIHER: Thank you. With that -- yes?

18 COMMISSIONER MOELLER: I just want to point out
19 that one of the unknown successes of government regulation,
20 is the way these two Agencies dealt with the nuclear
21 industry over the last 15 years.

22 With FERC bringing on wholesale power
23 competition and the safety regulation of the NRC, we've gone
24 from capacity factors 15 years ago, of roughly 70 percent,
25 to capacity factors of over 90 percent now. That's the

1 equivalent of adding about 25 reactors to this country's
2 grid, and that's power we need.

3 So, in the face of competition, the nuclear
4 industry stepped up. It's now run better and safer than
5 ever, and, again, long before any of us arrived, these
6 Agencies worked at that, and it is, again, a success that's
7 largely unknown, and I hope our predecessors realize the
8 good job they did. Thank you.

9 CHAIRMAN KELLIHER: Thank you, very well said.
10 Any other comments from our colleagues on both sides?

11 (No response.)

12 CHAIRMAN KELLIHER: No? Why don't we turn to
13 Panel I. Panel I is already here, so we're going to start
14 from left to right, with Dave Nevius, Vice President of the
15 North American Electric Reliability Organization. Welcome.

16 MR. NEVIUS: Thank you, Mr. Chairman for the
17 invitation to address this joint meeting of the
18 Commissions. We've been involved in several of these
19 sessions, and I'm glad to be back.

20 I'm going to talk today about regional planning
21 processes for the new reactors that have been proposed.

22 Proposals to build new nuclear units in the 1100
23 megawatt to 1600 megawatt range, or even larger, in some
24 cases, for initial service in the next ten years or so,
25 means that coordinated, wide-area studies of the

1 transmission grid must be initiated and must be initiated
2 soon.

3 These are not plug-and-play sized units, so such
4 studies involving the generation developers, transmission
5 providers, and regional planning coordinators, are required
6 to ensure that adequate transmission outlet capacity and
7 reliable offsite power supply is available for all these
8 units.

9 One of NERC's concerns regarding transmission, is
10 that it has lagged behind both demand growth and the
11 addition of generating capacity, for a number of years. The
12 current grid in the United States, comprising over 160,000
13 miles of transmission operating at 230 KV and higher, saw
14 about 2,000 miles of new lines added between 2006 and 2007.

15 While plans have been announced for the addition
16 of another 15,000 miles over the next ten years, this is
17 still only at half the rate of growth in projected
18 electricity demand, so transmission still lags behind other
19 increases.

20 Not surprisingly, this lag in transmission
21 development, has led to grid congestion and reliability
22 concerns in several areas, including the Northeast and the
23 Southwest.

24 The transmission planning horizon is driven, in
25 large measure, by the current resource planning horizon,

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1 which is generally about three to five years. The problem
2 is that it often takes much longer to plan, site, and build
3 major new transmission, than it does generation.

4 In many cases, even after the need for new lines
5 is agreed upon, obstacles are encountered in the siting
6 process, that may take many years to resolve. For this
7 reason, planning for transmission needed for large new
8 nuclear units, must be initiated as soon as possible, to
9 avoid having transmission become an impediment to bringing
10 new units into service on schedule.

11 In addition to the siting issues, the question of
12 who pays for the required transmission expansion, can
13 sometimes also present issues that must be resolved.

14 As both Commissions know, over 30 units
15 totalling more than 40,000 megawatts, have been proposed or
16 announced for initial service in the 2015 to 2018 timeframe.

17 Significant investment in transmission, is vital
18 to support these units, including their larger safety loads
19 following reactor trips, to ensure that they are reliably
20 integrated into the bulk power system.

21 Because of long lead times for major
22 transmission development and siting, transmission planning
23 must be initiated sufficiently far enough in advance, to
24 ensure that transmission will be ready to accommodate these
25 units when they are licensed and ready for operation.

1 Many of the new plant designs have advanced
2 features that reduce somewhat, the offsite power
3 requirements for accident mitigation, and, subsequently, the
4 bulk power system support that's required.

5 However, a stable bulk power grid is still
6 required to prevent plant trips. Construction of required
7 transmission facilities and system improvements, will ensure
8 that these new generators are interconnected with the bulk
9 power system in a reliable manner, and that their offsite
10 power requirements are met.

11 In addition to new transmission lines, the
12 reliable integration of these units, may require new
13 switching stations, transformers, and even the upgrading or
14 replacement of existing circuit breakers to handle the
15 higher short-circuit currents imposed on the system by these
16 larger units.

17 In one case, 35 circuit breakers will have to be
18 replaced to accommodate the higher short-circuit currents,
19 with the plan to make these and other system reinforcements
20 spanning seven years.

21 Interconnection feasibility and system impact
22 studies, are currently underway for the integration of most
23 of the proposed units, so that's the good news.

24 In addition to these individual system studies,
25 the Eastern Interconnection Reliability Assessment Group,

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1 which covers the six regional Councils in the Eastern
2 Interconnection, are preparing a ten-plus-year system model,
3 including stability data, which will allow the entire
4 Eastern Interconnection to be studied for the combined
5 effects of all these units.

6 It's one thing to study it on an individual
7 system basis, but when you put them altogether, you need to
8 look at how the interactions take place.

9 And accurate modeling of the generator
10 characteristics, is a must for these studies, so there will
11 be some data needed on these new units, to do that properly.

12 Again, the issue of how costs of the needed
13 upgrades are allocated, can be a major issue, especially
14 when reinforcements may be required in one area or one
15 state, to mitigate a system limit in another state. This is
16 that interconnected nature of the grid that needs to be
17 appreciated.

18 The good news is that two-thirds of the proposed
19 plant additions, are at existing sites, and that generally
20 means that required transmission additions, will not be as
21 extensive as they would be at a green field site.

22 I should say a word about the National Interest
23 Electricity Transmission Corridors. The designations
24 announced by DOE on October 5th, became effective with DOE's
25 denial in February, of several requests for rehearing. The

1 FERC has issued a rule, I understand, on how it plans to
2 proceed, upon receiving requests for it to exercise its
3 backstop siting authority for transmission.

4 So far, we've not heard of any transmission
5 additions needed for the integration of nuclear plants that
6 are running into siting problems in either of these two
7 NIETC areas.

8 Finally, for our part, NERC will continue to
9 monitor the integration of new generation into the grid and
10 encourage coordinated efforts by plant developers,
11 transmission planners, and planning coordinators, and report
12 on the status of these efforts in our 2008 long-term
13 reliability assessment that will be coming out this Fall.

14 NERC will also continue to emphasize the
15 interconnected nature of the grid and the importance of
16 having a robust and flexible system that will provide
17 economic, environmental, and reliability benefits for all.
18 Thank you. I look forward to your questions at the end of
19 the panel.

20 CHAIRMAN KELLIHER: Great, thank you very much.
21 I'd like to now recognize Michael Mayfield, the Director of
22 the Division of Engineering of the Office of New Reactors at
23 the NRC.

24 MR. MAYFIELD: The last time we were with the
25 Joint Commissions, we presented a slide that showed parallel

1 regulatory paths. I should be -- I guess it's in your book,
2 and it's my first slide. Thank you.

3 It shows the parallel regulatory paths. Our goal
4 in presenting that chart, was to raise awareness, both with
5 the Joint Commissions, as well as with the industry, to the
6 awareness of the parallel review processes and the need for
7 early and frequent communication and coordination.

8 Coming out of that meeting, the NRC Staff was
9 directed to hold a public meeting to facilitate discussion
10 on that subject. The meeting was held on May 30th. FERC,
11 NERC, NEI, the vendors, the Independent System Operators and
12 a number of new reactor applicants, attended. We had 50
13 people in the meeting, representing 30 organizations.

14 There were seven actions identified. NEI took
15 the lead on three of them. My colleague, Dave, took the
16 lead on one, and NRC took the lead on one. The other two
17 rested with the applicants and the current power plant
18 operators.

19 As we followed up on this with our colleagues in
20 preparation for this meeting, we can report to you that all
21 actions have been taken, and that the dialogue is
22 continuing. We anticipate continuing our positive
23 interactions in this area.

24 The next slide is the map that we've shown you,
25 pretty much each time we've briefed you. We've added a few

1 new sites, mostly in Texas and in the far West.

2 These are some new additions and new
3 announcements since the last time we briefed you. To date,
4 the industry has proposed 33 new nuclear power plants at 22
5 sites.

6 There is one site, the Watts Barre site, that's
7 shown as the yellow circle. That's being licensed under
8 Part 50 of the regulations, as opposed to a new reactor
9 licensing under Part 52.

10 When you go through this, you find most of the
11 proposed new units, continue to be in the South and
12 Southeastern United States. When you look at the declared
13 plant types and make some assumptions about the undeclared
14 plant types, you get to something on the order of 44,000
15 megawatts of electricity that would be added, and, as Dave
16 noted, perhaps as early as 2016, some of those units would
17 start coming online.

18 Chairman Kelliher, on the next slide, you had
19 indicated interest in the timing for this. This chart
20 illustrates the licensing review schedules for the plants
21 that have been proposed and accepted.

22 And you will see that we are actively working on
23 this. As the Chairman noted, we have nine applications
24 inhouse for 14 units. We are also, in parallel with that,
25 doing the design certification reviews on the remaining

1 reactor types.

2 So, we are quite busy with this at this point in
3 time.

4 One of the other major changes since the last
5 time we briefed you, is that we now have paper in hand, as
6 opposed to proposals, so we are actively engaged in
7 executing our reviews against these schedules.

8 And the last slide in the package, is simply a
9 chart, a table to make things a little easier to figure out,
10 what plants are where. There is one addition that's not on
11 this chart, and that is the plant in Idaho.

12 And since the time this chart was printed and
13 added to the package, the website has been updated. All of
14 this information is available on NRC's public website. That
15 concludes my remarks. I'll pass it on to David.

16 CHAIRMAN KELLIHER: Thank you very much. I'd
17 like to now recognize David Andrejcek, the Acting Director
18 of the Division of Public Power System Analysis, the Office
19 of Electric Reliability, FERC.

20 MR. ANDREJCAK: Thank you. Good morning. My
21 name is David Andrejcek. I am the Acting Director of the
22 Division of Bulk Power System Analysis in the Office of
23 Electric Reliability.

24 My presentation today will cover the generator
25 interconnection procedures for larger generators in the

1 regional planning process, including FERC's role as a
2 backstop siting authority.

3 FERC Order Number 2003 requires jurisdictional
4 public utilities to amend their open access transmission
5 tariff to include standard interconnection procedures and
6 agreements for all generators greater than 20 megawatts.

7 The scope of this Order is to facilitate
8 nondiscriminatory interconnection to the grid and lay out
9 the process that ultimately leads to the development of
10 needed infrastructure for the nation's bulk power system and
11 to help preserve reliability, increase power supply, and
12 lower wholesale prices to the nation's customers.

13 There are two types of interconnection services
14 available under Order 2003. At the time the interconnection
15 request is submitted, the customer must request either an
16 energy resource interconnection service or a network
17 resource interconnection service.

18 During the generator interconnection process,
19 three interconnection studies must be performed: A
20 feasibility study, a system impact study, and a facilities
21 study.

22 These studies are performed in sequential manner
23 and provide increasingly detailed analysis of the system,
24 costs, and timing needed for construction.

25 The final step in the process is the execution of

1 the interconnection agreement that specifies terms and
2 conditions of the interconnection.

3 Order 2003 states that the transmission
4 providers will receive, process, and analyze
5 interconnection requests in a timely manner. The
6 transmission provider will use reasonable efforts and
7 processing and analyzing interconnection requests from all
8 interconnection customers, whether the generation facilities
9 are owned by the transmission provider, its subsidiaries, or
10 others.

11 The transmission provider will assign a queue
12 position, based upon the date and time of receipt of the
13 valid interconnection request, and the position in the queue
14 is not differentiated among types; it is strictly first-
15 come/first-served.

16 Surges in the volume of new generation
17 development, are raising concerns in the current queue
18 approach in some regions.

19 These delays have been observed in areas of the
20 country that operate Regional Transmission Organization and
21 Independent System Operators for organized markets.

22 In response to this, FERC held a technical
23 conference in December 2007, on interconnection queuing
24 practices. In the Order that followed the technical
25 conference, the Commission states that there are reforms

1 that can be implemented to expedite the queue management
2 system.

3 These reforms may include: An increase in staff;
4 perform interconnection studies for clusters of new
5 generation; increase the requirements for getting and
6 keeping a queue position; combine the feasibility and system
7 impact studies; and consider other approaches to prioritize
8 queue processing that provide protection against
9 discrimination comparable to the first-come/first-served
10 approach, that are more efficient.

11 Along with the generation interconnection
12 process, FERC monitors and participates in the regional
13 planning processes. In Order Number 888, the Commission
14 encouraged utilities to engage in joint planning with other
15 utilities and customers, to allow affected customers to
16 participate in the facilities studies, to the extent
17 practicable.

18 However, in the past decade, industry trends
19 indicated a decline in transmission investment, relative to
20 load growth. Transmission capacity per megawatt of peak
21 demand, has declined across the country.

22 This is reflected in the amount of transmission
23 service interruptions or curtailments and rising congestion
24 costs in organized markets.

25 In order to address FERC's and the industry's

1 concerns, the Commission issued Order 890 in February of
2 2007. Order 890 states that each public utility
3 transmission provider, would be required to amend their
4 existing tariffs for coordinated and regional planning
5 process that complies with the nine planning principles as
6 defined in Order 890.

7 To address the needs of long-term transmission
8 and generation projects, industry trends are indicating
9 longer planning horizons. Planning horizons are usually for
10 a ten-year outlook, but some entities have begun to look as
11 far as 15 years to accommodate the interconnection studies
12 of the nuclear units and other long-term projects.

13 FERC's role in backstop siting authority, will be
14 an important addition to the process. This provides for
15 federal siting of electric transmission facilities, under
16 certain circumstances, and authorizes the Commission to
17 issue permits to construct or modify electric transmission
18 facilities in a Department of Energy-designated national
19 interest electric transmission corridor.

20 In addition, FERC Order Number 689, determined
21 that the proposed facilities, must meet the following five
22 specific statutory criteria: First, it is in the public
23 interest; second, it is used for interstate commerce; third,
24 it significantly reduces congestion; fourth, it enhances
25 energy independence; and, fifth, it maximizes the use of

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1 existing facilities.

2 The more transparent and coordinated regional
3 planning process, will further these priorities, as well as
4 support the DOE's and FERC's responsibilities under the
5 Energy Policy Act of 2005.

6 In conclusion, I would like to summarize by
7 stating that the Office of Electric Reliability is actively
8 monitoring new generation connection of new nuclear and
9 other fuel types; also, Staff is monitoring and
10 participating in the regional planning processes and closely
11 working with the Office of Energy Projects, to provide
12 technical assistance where backstop siting may be requested.

13 At this time, our panel would be happy to answer
14 any of your questions.

15 CHAIRMAN KELLIHER: Great, thank you very much.
16 Now, are numbers are large and our time is somewhat short,
17 so I think, if we go with three minutes -- I'll defer to my
18 colleagues at the NRC, who are more expert in numbers -- but
19 if we go at three-minute rounds, I think that should keep us
20 pretty much on time. So, Joe, can you be the bad cop on
21 timing? Cut me off viciously, if I extend, so that I'll
22 live by the same limits.

23 Let me just ask -- and Dave, I just want to say
24 that I'm not going to ask you questions, and that's because
25 you're ours and we can ask you questions whenever we like.

1 (Laughter.)

2 CHAIRMAN KELLIHER: So, don't have your feelings
3 hurt. But I really had a question on the length of
4 construction. What is a rule of thumb on how long it takes
5 to construct a nuclear power plant? On your chart -- I
6 assume construction starts at the end of the hearing?

7 MR. MAYFIELD: There is a possibility that within
8 the regulations, they can begin to do some work early.

9 CHAIRMAN KELLIHER: Okay.

10 MR. MAYFIELD: But there is a definition of the
11 beginning of construction, and that comes a bit later. But
12 the timeframe is obviously dependent on the specific design
13 and the vendors doing the construction.

14 There have been plants built in Asia in five
15 years or less.

16 CHAIRMAN KELLIHER: Okay.

17 MR. MAYFIELD: So that's probably the short end
18 of the spectrum.

19 CHAIRMAN KELLIHER: But a lot of the hearings
20 seem to be ending in 2011, and if you add five years to that
21 --

22 MR. MAYFIELD: But there would presumably be some
23 work done early.

24 CHAIRMAN KELLIHER: All right, okay, well, that's
25 helpful. Now, there have been some projections that the

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1 U.S. might add 125 more nuclear plants, at least I've read
2 that in the trade press.

3 Is that -- that is hard to believe, given the
4 lack of construction for a such a long period of time. It
5 seems almost like a sedentary person just running a
6 marathon, and --

7 MR. MAYFIELD: We're starting --

8 CHAIRMAN KELLIHER: -- doesn't run enough.

9 MR. MAYFIELD: We're starting to feel that way,
10 with just what's on the table today.

11 CHAIRMAN KELLIHER: Okay, and we're talking about
12 30 units that are on the table, not 125.

13 MR. MAYFIELD: Yes.

14 CHAIRMAN KELLIHER: Okay. And then just another
15 question about the grid: Is the grid robust enough? If you
16 were to assume that every proposed plant is built, is the
17 grid robust enough to accommodate those increases?

18 MR. MAYFIELD: I'd have to turn that one over to
19 my grid colleagues.

20 MR. NEVIUS: With the additions that will be
21 needed, yes, it will be, but the key is, can those additions
22 be defined and made in sufficient time to reliably integrate
23 the plants into the system.

24 So I think it's important -- and we're starting
25 to see signs that it's taking hold, that this message of

1 getting started with these studies, the interconnect
2 studies, the feasibility studies, and the more detailed
3 studies that Mr. Andrejcek spoke of as part of this
4 generation interconnection process, do move ahead smartly,
5 because you never know when you might run into a siting
6 issue with a line on a new right-of-way.

7 CHAIRMAN KELLIHER: Okay. And my last question
8 goes to the nature of the applicants. Most of them seem to
9 be vertically-integrated utilities, and these would be rate-
10 based facilities, but are some affiliates of vertically-
11 integrated companies?

12 MR. MAYFIELD: I don't know the answer to that,
13 sir.

14 CHAIRMAN KELLIHER: Okay, but to the extent --
15 David, to the extent that some of these projects are
16 vertically-integrated utilities or their affiliates, are
17 they building in their service territory where they are also
18 the transmission provider?

19 MR. NEVIUS: In most cases, yes, but because of
20 the interconnected nature of the grid, you could have
21 situations where a reinforcement may be needed outside of
22 that utility's service territory, in order to strengthen the
23 grid sufficiently to be able to accommodate the new plant.

24 CHAIRMAN KELLIHER: Okay, thank you very much.
25 Chairman Klein?

1 NRC CHAIRMAN KLEIN: Well, thank you, Joe. In a
2 similar way, we have access to Mike a lot, so I will not ask
3 him questions.

4 (Laughter.)

5 NRC CHAIRMAN KLEIN: But I did have a question
6 for David at NERC. It's related to the question that you
7 asked about the grid.

8 It's my understanding that there are certain
9 sectors of the grid already that are pretty well taxed, and
10 at some times plants seem to have to compete to get onto
11 that grid system.

12 Clearly, we have a map of where these plants are
13 going to be located, but on your Slide 2, you talked about
14 transmission lags, demand and capacity growth at some times,
15 so I guess, for our question, for the plants that we have
16 already underway, have you looked at that transmission
17 system to ensure that there will be the capacity available?

18 MR. NEVIUS: That's what the impact studies, the
19 initial impact studies, are designed to do, to look at, is
20 the grid adequate, as is, or are there reinforcements
21 needed?

22 For example, in Texas, the five or six units that
23 are proposed to be added in Texas, four of them are at
24 existing sites; one, I believe, at a green field -- or two
25 at a green field site.

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1 They found that they have had to not only
2 reinforce an existing right-of-way, add additional circuits
3 or upgrade those circuits, but add a few miles on new
4 rights-of-way. So there are additions that are going to be
5 needed to reliably integrated these size plants into the
6 system.

7 So those studies are taking place now. My
8 reference to the interconnection-wide study, is to look at
9 the entire grid. Texas is looking at -- or ERCOT is looking
10 at Texas.

11 We need to look at all six regions and all the
12 plants in the Southwest and Northeast, that are being added,
13 and there are 20-some that are in that interconnection, to
14 see how they might interact and what additional transmission
15 is needed to make sure the grid is robust enough to handle
16 all of them at the same time.

17 So those studies are underway and there are more
18 to come.

19 NRC CHAIRMAN KLEIN: If you have to have a new
20 transmission line, how long does it take to do that?

21 MR. NEVIUS: It's not as predictable as
22 constructing a nuclear power plant, although you can run
23 into delays, as well.

24 There have been projects that have taken 20
25 years. The 500 KV loop around Washington, D.C., was planned

1 to be added in 1974. I remember that I was doing planning
2 studies at the time, and it took 20 years before the final
3 section of that -- yes, I'm old -- the final section of that
4 --

5 (Laughter.)

6 MR. NEVIUS: -- was finally added 20 years
7 later.

8 There are proposals now on the table to bring new
9 lines into the Northeast, and already opposition is lined up
10 against some of those major projects, some 765 and some 500
11 KV projects, so it can take a long time.

12 That's why it's important to get started, to
13 define the need early, and to address any siting issues
14 early on, so they can be resolved.

15 NRC CHAIRMAN KLEIN: Thank you.

16 CHAIRMAN KELLIHER: Commissioner Kelly?

17 COMMISSIONER KELLY: Thank you and thanks to the
18 Staff from the NRC for coming today and joining us.

19 David and Michael, I had some questions about
20 FERC's policies in light of your testimony. You have
21 focused us on the importance of ensuring that the process
22 for approving, constructing, and interconnecting nuclear
23 power plants, proceeds without any undue barriers.

24 And it makes me think about our own regulatory
25 processes, and whether we should look at our current

1 processes to see whether they should be updated, improved,
2 to achieve this objective.

3 Some of the things that you mentioned in your
4 testimony, were the difficulty of getting transmission
5 sited. Mr. Nevius, you talked about the concern about who
6 pays for transmission upgrades.

7 None of you mentioned our queue process, but I
8 was wondering if that has become an issue in the siting of
9 nuclear power plants, or, Mr. Mayfield, in connection with
10 your timelines for processing the applications. We have a
11 new planning provision in place to mandate regional
12 planning among all utilities under our jurisdiction.

13 Do we appropriately take reliability into account
14 in that planning process? Any thoughts that either of you
15 have on areas that we should focus on under our
16 jurisdiction, and ask ourselves whether we should be doing
17 anything to improve our processes?

18 MR. MAYFIELD: Commissioner, the reason we showed
19 the parallel process chart, was to try and focus some
20 attention, not so much with the two Commissions or even with
21 NERC, but with the industry, the applicants that are
22 proposing new nuclear power plants, to try to heighten some
23 consideration with them, of the outreach they needed to do
24 with the transmission system operators.

25 We weren't hearing a lot of dialogue. It's not a

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1 regulatory responsibility for us, but you hear things in
2 many discussions, and we weren't hearing as much dialogue
3 about that as we thought we should be hearing. So we have
4 started pushing on this, and have -- I think we've been
5 reasonably well satisfied that the industry is paying
6 attention, from what we hear, but, again, we don't have
7 specific regulatory responsibilities, so it's hard for us to
8 judge whether it's really going to be effective or not, or
9 if there are issues with FERC's regulatory process.

10 And that's something that I'd have to turn to
11 David for.

12 COMMISSIONER KELLY: Thank you for using your
13 bully pulpit, and for pointing it out to us, so that we can
14 use ours. Thanks.

15 MR. NEVIUS: As far as I can see, there are no
16 issues with the processes themselves. FERC has a well-
17 defined process for generation interconnection, and going
18 through the various stages, the impact study, the more
19 detailed interconnection feasibility and then, finally, the
20 facilities determination, and as Mr. Mayfield said, I think
21 the industry, both on the nuclear developer side and the
22 transmission planning side, has taken heed of the need to
23 move ahead.

24 These are long-lead-time plants, and some of the
25 transmission will be long-lead-time transmission, so I think

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1 we're seeing a real increase in attention, and using the
2 processes, so I don't think it's a problem with the process;
3 I think it's just getting into the process and using it.

4 COMMISSIONER KELLY: And do you see, then, enough
5 attention being paid to reliability?

6 CHAIRMAN KELLIHER: Short answer.

7 MR. NEVIUS: Yes.

8 (Laughter.)

9 COMMISSIONER KELLY: That was the right short
10 answer.

11 CHAIRMAN KELLIHER: Thank you. Let me now
12 recognize Commissioner Jaczko. You can't see the clock, so,
13 Joe, can you give Greg a 30-second and zero-second warning?
14 Thank you.

15 NRC COMMISSIONER JACZKO: Hopefully I won't use
16 all of my minutes.

17 I guess my question is, we had recently an event
18 that Chairman Kelliher referenced, in Florida, with the
19 blackout, and I'm wondering, to what extent there have been
20 lessons from that, that can be applied to how we develop and
21 plan transmission for the future.

22 In particular, my focus there is the reaction
23 that we had two nuclear units properly respond in that
24 event, and shut down, which, of course, then took away
25 several thousand megawatts to the grid.

1 So, I'm looking at Dave, but is there anybody
2 else who might want to comment on that?

3 MR. NEVIUS: We're into the analysis of that
4 event now, and just yesterday, I sent a letter to the NRC,
5 inviting their staff to participate in that analysis and to
6 share with us, any observations or findings that they have,
7 from the perspective of the plant.

8 This is under the terms of our Memorandum of
9 Agreement between NERC and the NRC. I was going to mention
10 that in the next presentation, but we will develop lessons
11 learned, the root causes for this event, share those
12 throughout the industry.

13 In some cases, it may lead to additional
14 standards or revisions or clarifications of existing
15 standards. In other cases, it may simply be raising the
16 awareness of the industry to those issues that resulted in
17 the particular event.

18 So we've done that. We do that with all major
19 events, working with our regional organizations.

20 NRC COMMISSIONER JACZKO: Thank you. I
21 appreciate that.

22 MR. HILAND: If I could add, we plan to accept
23 that invitation.

24 NRC COMMISSIONER JACZKO: Okay, good. I'm glad
25 we could facilitate that here. And, again, Mr. Nevius, this

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1 is probably a question for you.

2 You raise a lot of -- your first slide, I think,
3 talked about transmission issues. I guess this is a
4 question Commissioner Wellinghoff and I were discussing even
5 before we started.

6 In the end, who is ultimately responsible for
7 addressing these issues, in your mind? Is this a variety of
8 different agencies? Is there someone who has this ultimate
9 role, or is it ultimately the private sector that should be
10 responsible for dealing with them?

11 MR. NEVIUS: I think it's a combination,
12 Commissioner, of the transmission planning authorities and
13 the regulatory agencies, in this case, the FERC, especially
14 with your new Order on regional planning, to address these
15 issues.

16 There have been obstacles and impediments that
17 have made it difficult to develop transmission. There was a
18 report done for the Secretary of Energy, several years ago,
19 on this issue.

20 Former Commissioner Moeller, Betsy Moeller,
21 chaired that Subcommittee on Transmission Grid Solutions.
22 There are a number of very, very excellent recommendations
23 that were in that report, which haven't really come to
24 fruition.

25 So I think we need to continue to work on that.

1 I think the FERC is in an excellent position to push on some
2 of those recommendations.

3 NRC COMMISSIONER JACZKO: Thank you.

4 CHAIRMAN KELLIHER: Thank you, excellent timing.
5 Commissioner Moeller, our Commissioner Moeller.

6 COMMISSIONER MOELLER: Thank you, Mr. Chairman.
7 I also want to send greetings to our newest joint colleague,
8 Commissioner Svinicki, along with Pete and Senate colleagues
9 together. It's good to have you here.

10 I occasionally hear people talk about how France
11 does nuclear, and why can't we do it? And they don't
12 realize that France does it their way, which is one reactor
13 design, very definitive decisions on waste, and we have more
14 of a system where we allow reactor designs to compete.

15 And a question for Mr. Mayfield, and, if you're
16 not the appropriate person, please guide me to who is, but
17 can you give me the two minute and 15-second version of the
18 different technologies that are on your chart, the AP-1000,
19 I think. What are kind of the very quick differences
20 between the various different reactor designs that have been
21 proposed?

22 MR. MAYFIELD: Two minutes and 15 seconds?

23 (Laughter.)

24 MR. MAYFIELD: Okay, the AP-1000 and the ESPWR,
25 are basically passive safety system designs. The ABWR is an

1 advanced version of the boiling water reactor. That plant
2 has been built in Asia in a couple of places.

3 The EPR and the USAPWR look very similar to the
4 pressurized water reactors that are in operation in this
5 country and around the world today.

6 The emphasis in the United States today, is on
7 standardization within a particular design type. So the
8 people that are going to build AP-1000s, all of those AP-
9 1000s are going to look and operate very similarly.

10 So, the standardization that the French, in your
11 example, have, they have three or four versions of their
12 plants, but within a particular type, they are very similar.
13 So, for the AP-1000, the AP-1000s that are built, they will
14 be very similar, and similarly with the EPRs and so on.

15 So, there's a strong push towards
16 standardization within a particular design type, but, to go
17 a lot further than that, I think we're going to use up a lot
18 more than your 52 seconds and my knowledge.

19 (Laughter.)

20 COMMISSIONER MOELLER: Thank you.

21 CHAIRMAN KELLIHER: Great, thank you. I'd like
22 to now recognize Commissioner Lyons.

23 NRC COMMISSIONER LYONS: Thank you, Joe. David,
24 I appreciated your invitation to the NRC to participate in
25 the Lessons Learned review in Florida. I think that's very

1 positive, and I'm very glad we have already accepted, and
2 we'll look forward to that.

3 I did also have a question for you. On the
4 National Interest Corridors, I'm curious whether that
5 legislation has really been exercised yet, whether you can
6 comment on if it is likely to assist some of the siting
7 issues that the country is going to be facing?

8 MR. NEVIUS: I guess the answer to the first
9 question is, no, it hasn't been exercised yet, and the FERC
10 has just issued a rule describing the process it will
11 follow, if and when it gets a request. But it has to get an
12 application from an entity that has been unsuccessful in
13 getting a transmission line sited in one of these corridors
14 or zones -- the Northeast and the Southwest -- before
15 anything begins to happen.

16 I think it has to have a year in which the party
17 has tried to get the line sited through state siting
18 processes, before they can come to the FERC, so, no, it
19 hasn't been exercised yet.

20 NRC COMMISSIONER LYONS: Okay, thank you. Well,
21 I certainly hope it will prove to be successful, and also
22 help with some of the issues associated with siting the
23 nuclear plants.

24 The only other thing that I was going to
25 mention, was more in the nature of a comment, but, again, to

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1 David. I had the opportunity recently to visit the Midwest
2 ISO, and certainly came away extremely impressed with that
3 organization.

4 And I don't know, in detail, how that fits within
5 the overall NERC structure, but I gather it's at least one
6 key part of it.

7 And certainly I was very favorably impressed with
8 the operation, the coordination, and the backup capabilities
9 that they had, were of particular interest. And it even
10 struck me that there may be some benefits from having some
11 of our staff talk with some of the staff in the different
12 ISOs, from the standpoint of software reliability and
13 maintaining operations, in spite of whatever crises may
14 occur, but I'm certainly very, very complimentary of what I
15 saw at that site.

16 MR. NEVIUS: There is an organization of all of
17 these RTOs and ISOs, called the ISO/RTO Council, that
18 includes all of the operating RTOs and ISOs. It would
19 probably be appropriate to ask that organization. I think
20 Gordon Van Wylie from ISO New England, is the current Chair
21 of that Council, and you may want to ask for an opportunity
22 to visit with all of them.

23 NRC COMMISSIONER LYONS: I think there at least
24 is the potential for benefits, because we certainly maintain
25 regional offices, from the perspective of maintaining

1 continuity of operations. It was clear that at least MISO,
2 and, I assume, all of them, have given great attention to
3 continuity of operations, and there may be some
4 commonalities there.

5 CHAIRMAN KELLIHER: Thank you very much.
6 Commissioner Spitzer?

7 COMMISSIONER SPITZER: Thank you, Mr. Chairman.
8 We had similar circumstances in some respects, 35 or 40
9 years ago, with the construction of nuclear facilities.
10 There have been some elements of law that have changed;
11 other circumstances are similar.

12 Some of the utilities report to me, difficulties
13 in negotiating with vendors, and I've been told and surmise
14 that some of this is a consequence of some of the cost
15 overruns in the '70s, that created issues with state
16 regulators in terms of passing through those costs.

17 I was wondering if you had a reaction to what
18 lessons could have been learned from the last construction
19 cycle, and whether that had any extrapolation to the
20 relationship between the utilities and the vendors?

21 MR. MAYFIELD: I wouldn't venture off on the part
22 about the relationship between the utilities and the
23 vendors. That's just not something where -- I hear stories,
24 as much as you do, Commissioner.

25 I think that the NRC, our Commission, went back

1 and looked at the Part 50 licensing process, and when we
2 created Part 52, when the Commission created Part 52, they
3 looked at what were the obstacles in the licensing process
4 and how could those be addressed to assure that the public
5 had an adequate opportunity to participate in the licensing
6 process, and yet keep the process manageable for both the
7 staff, as well as the applicants.

8 I think that in Part 52 that's on the books
9 today, we've done a very good job of that. I suppose it
10 remains to be seen, once we have plants up and running, how
11 effective it truly was, but I believe we've made giant
12 strides forward, compared to the Part 50 licensing process,
13 from the first wave of plants.

14 How that translates into business cases and
15 interactions with state regulatory authorities and rate-
16 setting authorities, I can't really venture down that path.

17 COMMISSIONER SPITZER: And Commissioner Moeller
18 alluded to the process in France. They obviously have the
19 unitary form of government and we have the additional
20 complexity of the states.

21 Maybe if they could describe their competing
22 state interests, how do you handle informing the states
23 about the progress of the various applications, particularly
24 since an application in one jurisdiction, may have an impact
25 on an application in another?

1 MR. MAYFIELD: There is continual outreach with
2 all of the interested stakeholders, which includes the
3 states. Our process is very open and public, and there is
4 regular outreach.

5 My colleague that's the Director of the Division
6 of New Reactor Licensing, has recently been in Kansas,
7 dealing with testifying to state regulators there.

8 So we have a fairly active outreach program to
9 make sure that all stakeholders are informed of where we
10 are, what's going on, and how it's moving forward.

11 CHAIRMAN KELLIHER: Thank you. Commissioner
12 Svinicki?

13 COMMISSIONER SVINICKI: Thank you, Chairman
14 Kelliher, and, Commissioner Moeller, thank you so much, and
15 my fellow Commissioners, as well, for a warm welcome.

16 It's always so encouraging, in a new position, to
17 encounter familiar faces, so thank you very much for that.

18 I don't have any questions. I would like to
19 thank the panelists for their presentations, and as someone
20 who is just immersing myself more completely in these
21 issues, I'd like to commend both staffs for the obvious work
22 that's gone on.

23 The 2003 blackout was an unfortunate catalyst for
24 these interactions, but I can't help but think that a closer
25 coordination between the two Commissions and between the two

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1 staffs, and an early look at all of these issues, I think
2 augers well for electricity consumers in America, and I'm
3 just encouraged by this activity and hope that we can
4 continue this interaction. Thank you.

5 CHAIRMAN KELLIHER: Thank you very much.
6 Commi ssi oner Well inghoff?

7 COMMI SSIONER WELLINGHOFF: Thank you, Mr.
8 Chairman. I am looking forward to this opportunity to have
9 some time to ask questions of our NRC colleagues, and
10 appreciate them being here today.

11 Mr. Mayfield, I have a question with respect to
12 your licensing process and with respect to something that
13 the Commission has recently been going through with respect
14 to other energy infrastructure projects.

15 And the question is, do you look at the issue of
16 need with respect to these projects?

17 MR. MAYFIELD: There is a regulatory guide that
18 deals with -- one aspect of it deals with the need for
19 power, and it's actually part of the environmental review.

20 COMMI SSIONER WELLINGHOFF: And do you in any way
21 look at competing projects in a region and how they may
22 interact?

23 MR. MAYFIELD: That's part of the economic
24 analysis that goes to the need for power, and to tell you
25 more, sir, goes beyond the area that I know much about,

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1 other than I know that that's in there, because we've had
2 some dialogue on how you assess the need for power, as well
3 as, you know, is there an interaction with the grid?

4 COMMISSIONER WELLINGHOFF: Drilling down into the
5 technology questions a little further, Mr. Nevius and
6 perhaps Mr. Mayfield, you may have a comment on this, but,
7 Mr. Nevius, in your presentation, you indicated that
8 advanced features in the newer plants, may reduce the need
9 for offsite power.

10 I'd like to understand a little better, the
11 current need for offsite power by existing plants, and how
12 that may change with these advanced features and what those
13 advanced features may be?

14 MR. NEVIUS: I think I would probably defer to
15 Mr. Mayfield about some of the design features, and he
16 already talked about some of the five or so different
17 standardized designs.

18 But my understanding is that there are some
19 different characteristics.

20 MR. MAYFIELD: In the passive designs, the safety
21 systems don't require electric-driven pumps, for example, so
22 there is a lessened emphasis on the need for a reliable
23 source of offsite power.

24 The current units and for the non-passive
25 designs, they derive their source of energy for safety

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1 systems, from the grid. So, once there's an interruption,
2 then the turbine trips and they disconnect the output
3 breakers, but the feed back into the station, comes from the
4 grid.

5 So there is a need for a reliable source of
6 offsite power. In general, for the passive systems, the
7 need is less and the reliability is lessened, but we still
8 insist on their being a source of reliable offsite power.

9 COMMISSIONER WELLINGHOFF: And the passive
10 systems, are the new? In other words, there's no passive
11 systems in existence, currently?

12 MR. NEVIUS: That is correct.

13 COMMISSIONER WELLINGHOFF: Thank you, Mr.
14 Chairman.

15 CHAIRMAN KELLIHER: Great, thanks, Jon. Why
16 don't we now turn to Panel II, and why don't we start with
17 Dave Nevius, who is still the Vice President of the North
18 American Electric Reliability Council, and then we'll
19 continue from that point on.

20 MR. NEVIUS: Thank you for that confirmation.

21 (Laughter.)

22 MR. NEVIUS: I turn my phone off, so I'm never
23 really sure, but I hope I still am. Thank you.

24 (Laughter.)

25 MR. NEVIUS: In October of 2004, at the request

1 of the Nuclear Energy Institute's Grid Reliability Task
2 Force, NERC began developing a standard to ensure that the
3 transmission system has the capacity and capability to
4 support the safe operation of nuclear power plant safety
5 systems and that the necessary agreements would be developed
6 and put into place.

7 The need for this standard stems from several
8 incidents that led to degraded grid conditions that caused
9 nuclear power plants to exceed their tech spec limits.

10 In most cases, this was the result of grid
11 operators simply not fully understanding the plant's
12 requirements for offsite power quality and reliability,
13 mainly, voltage support for critical safety systems.

14 The new NERC standard requires plant/grid
15 interface agreements to be developed and implemented, that
16 specify requirements for communications and coordination
17 between the plant operators and the grid operators.

18 These agreements are to reflect the nuclear plant
19 interface requirements specified in the licenses for the
20 plants.

21 The NERC board approved the new standard in May
22 of 2007. We subsequently submitted it to the FERC in
23 November, and just last month, the FERC issued a NOPR, with
24 comments due by April 28th.

25 The standard is intended to take effect in the

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1 United States, approximately 15 months following the FERC
2 approval.

3 In the meantime, NERC will continue to address
4 this important coordination issue through its three-year
5 cycle of readiness evaluations of transmission operators.

6 Let me also mention something about some other
7 key standards that are of interest and importance to nuclear
8 power plants. These include: Grid frequency and voltage
9 performance and control standards; transmission planning
10 requirements, which we've already spoken of; reporting on
11 system operating limits, so that we know that the system
12 remains within its safe reliability limits; emergency system
13 restoration, which is a critical element from the
14 perspective of the nuclear plants; and then accurate
15 modeling and monitoring of internal plant loads and
16 requirements, so that the system operator knows what the
17 loads are that are being placed on the system by the nuclear
18 power plant, especially by the safety systems.

19 One final point that's not covered in the slides
20 that I submitted, relates to the Memorandum of Agreement
21 that I referred to earlier, between the NRC and NERC. I
22 signed that on behalf of NERC a couple of years ago, as did
23 Louis Rayes, the Executive Director of Operations for the
24 NERC.

25 Under the terms of that MOA and its appendices,

1 as I mentioned, I've invited the NRC Staff to participate
2 with us and with the Florida Reliability Coordinating
3 Council, in the analysis of the February 26th system
4 disturbance in Florida that led to the tripping of the two
5 Turkey Point nuclear units.

6 The product of this analysis, will be the
7 findings on root causes of the disturbance and lessons
8 learned that will be shared throughout the industry. There
9 may be some lessons that would be shared throughout the
10 nuclear industry, as well as among transmission operators.

11 I'll stop there, and I anxiously await further
12 questions. Thank you.

13 CHAIRMAN KELLIHER: Thank you very much. I'd
14 like to now turn to Mr. Patrick Hiland, the Director of the
15 Division of Engineering, Office of Nuclear Reactor
16 Regulation at the NRC.

17 MR. HILAND: Good morning, Chairman Kelliher and
18 Chairman Klein and Commissioners. I, too, have provided
19 some slides in your reference book. I do have some graphics
20 at the end of my discussion, that I will articulate so
21 everyone could understand the descriptions.

22 I'm going to talk about the progress since we
23 last met in January of 2007, the reliability standards
24 activities that we have participated in, as well as the
25 nuclear power plant uprate, the progress that the NRC has

1 made over the past several decades, and just give you a
2 brief description of our license renewal program and its
3 status.

4 When I spoke last year to this combined
5 Commission, I talked about a tool that we use, which is a
6 Generic Letter. Based on feedback that we had received from
7 our inspection program, we had submitted this Generic
8 Letter, and, at the time, we had not yet received all the
9 responses and had not drawn conclusions.

10 What the Generic Letter was intended to address,
11 was our perception that there was some lack of detailed
12 training from the operators in the plants and transmission
13 network operators.

14 That Generic Letter was sent out with a list of
15 about ten questions. Each licensee was responsible to
16 respond to those questions, and in August of this past year,
17 we've completed our evaluation.

18 We've concluded that no safety or compliance
19 issues were identified. We did identify the need to
20 validate the grid contingency analysis that our licensees
21 have in place.

22 We have been working with NERC to identify a
23 method that we could actually get real live data, that is,
24 when a nuclear plant were to trip offline and the offsite
25 power grid stabilizes, what is that value and is that what

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1 they actually calculated and is that what they actually
2 planned on?

3 We continue to monitor the grid reliability on a
4 daily basis. Each morning, we have a 7:45 meeting that our
5 staff goes to and briefs our senior management on the status
6 of the grid across the country, based on accessing the
7 individual transmission safety operators or ISOs to draw
8 that data in.

9 If there is a stressed grid condition, we utilize
10 our stakeholders and the regional offices and our resident
11 inspectors at each individual site, to alert them to those
12 stress conditions, so they can monitor the plant operations
13 that day and see what maintenance activities they're doing,
14 and if there's any added risk that the plant might be taking
15 and aren't aware of the grid conditions.

16 Our involvement with the reliability standards
17 activities: We continue to work with both FERC and NERC in
18 review of those standards. We provided comments on the
19 standards revision process, as well as, we looked at the
20 numbers.

21 There's about 200 reliability standards, and we
22 selected ten, and I would call those the critical ten to our
23 industry, to the nuclear power plants.

24 We went through those standards and provided
25 comments. Those were in the generation and load balancing,

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1 the emergency preparedness and operations, modeling data and
2 analysis, transmission operation, transmission planning, and
3 voltage and reactive loads.

4 More recently, the new standard on nuclear plant
5 interface coordination, which assures reliable offsite
6 power, is open for public comment, as you are aware, but we
7 have met with both FERC and NERC staffs to provide our
8 comments.

9 Regarding the uprated nuclear plants, the NRC has
10 had in place, a process whereby for the past three decades,
11 since 1977, where a plant can apply to increase its power
12 output. Those increases typically would run from two to
13 three percent, up to as much as 20 percent.

14 Over the past -- since 1977, 5,200 megawatts have
15 been added to the grid, and, looking forward to what could
16 possibly be added over the next several years, would be an
17 additional 2900 megawatts.

18 The power uprate applications must include a grid
19 impact study from our licensees.

20 Now I'll go to some of the graphical displays and
21 try to articulate them. The first graph that I have -- and
22 it should follow Slide No. 5 -- is a picture of the United
23 States that is color-coded with the FERC or the NERC
24 regions, and it shows a couple of clouded areas.

25 This is provided by the Department of Energy, to

1 show the high congestion areas. Obviously, you know, the
2 Northeast, right through the Washington, D.C. area, is
3 clouded yellow, as well as on the West Coast and the State
4 of California, are areas that currently are critical
5 congestion areas.

6 If you'd turn to the next page, this is, again,
7 the same map of the United States, but in this one, the red
8 dots depict the power plants that have had an uprate. As
9 you see, the plants are in the Southeast, some in the
10 Midwest, but, again, that power increase, you would look at
11 that as that would add to the congestion.

12 The following slide is just a graphical
13 depiction of what I stated as far as the power uprates. The
14 red is depicting the 5200 megawatts that were added by this
15 process, and then the yellow was what we projected out, to a
16 total of about 8,000 megawatts added in this process.

17 And then the last slide -- and this is one that I
18 like to show when I get the opportunity -- this slide
19 depicts the NRC's license renewal process and the impact
20 that it's had on the nation's energy from the nuclear cycle.

21 The blue areas are about half of the graph and is
22 what the nuclear generating capacity is, in gigawatts, for
23 the total life of those plants. The added areas that are
24 shaded in white, are what we've already licensed for renewal
25 beyond the 40 years. A nuclear plant gets a 40-year

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1 license to begin with.

2 The white area depicts the energy received from
3 those plants that have applied for and received a 20-year
4 life extension, and then the red part of that graph, are our
5 projections, if the plants that are available to apply for a
6 life extension, all receive that.

7 So the total area under that curve, is the total
8 energy provided by the nuclear cycle. I just like to show
9 that one. It shows something really good.

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1 And that is all I have.

2 CHAIRMAN KELLIHER: I would now like to turn to
3 Keith O'Neal, the Acting Director of the Division of
4 Reliability Standards in the Office of Electric Reliability.

5 MR. O'NEAL: Thank you, Mr. Chairman.

6 It is my pleasure to be here today to offer some
7 insights on FERC's role in the Reliability Standard
8 development process. My name is Keith O'Neal. I am the
9 Acting Director of the Division of Reliability Standards
10 within the Office of Electric Reliability.

11 My Division is charged with the responsibility of
12 monitoring the development of new or modified reliability
13 standards that apply to the Continental United States.

14 We are also charged with reviewing Reliability
15 Standards, interpretations of Reliability Standards, and
16 filings proposed for Commission approval by the Electric
17 Reliability Organization, or the ERO.

18 Upon receipt of the proposed standards, the
19 Commission can either approve the standards or remand them
20 back to the ERO. If the standards are approved by the
21 Commission, they become mandatory and enforceable for the
22 users, owners, and operators of the bulk power system.

23 In many cases the Commission has approved
24 proposed standards and, at the same time, directed further
25 improvements.

1 A review of the proposed Reliability Standards
2 must consider the Commission's criteria for good reliability
3 standards and ensure that approved standards are just,
4 reasonable, not unduly discriminatory, and in the public
5 interest.

6 We recognize that nuclear power plants represent
7 a large source of electrical power generation and are
8 important to the reliable operation of the bulk power
9 system.

10 Accordingly, the ERO has filed with FERC for its
11 approval nuclear plant interface coordination reliability
12 standard NUC-001. For simplicity I will simply call this
13 the Nuclear Standard.

14 In response to this filing, the Commission
15 established Docket RM08-3 and issued a Notice of Proposed
16 Rulemaking, or NOPR, on March 20th, 2008, to seek public
17 comment on the Commission's proposed approval of the
18 standard.

19 I will provide an update on the status of this
20 docket and a quick overview of some of the areas for which
21 the Commission is requesting comments.

22 Before I do so, a brief word about how
23 reliability standards are processed at FERC. Commission
24 review of reliability standards has typically been processed
25 through the rulemaking or NOPR process to allow for

1 stakeholder and international input.

2 In this type of process the Commission can ask
3 for comments on specific issues and actions that it proposes
4 to take, assuring a thorough record upon which to base a
5 reasoned decision.

6 After due consideration of all comments, the
7 Commission issues a final rule. Stakeholders are allowed 30
8 days from the issuance of the final rule to request a
9 rehearing.

10 Barring major rehearing requests, the final rule
11 becomes effective, mandatory, and enforceable after the
12 rehearing period has expired.

13 For the Nuclear Standard, the public will have 30
14 days from the issuance of the NOPR--that is, until April
15 28th--to respond to the Commission's proposals. A final
16 rule will be issued after consideration of all comments and
17 any rehearing requests.

18 The Nuclear Standard, as Mr. Nevius mentioned
19 earlier, primarily concerns the agreements made for
20 communication and coordination between the nuclear power
21 plant and the transmission entities that provide
22 interconnection and backup power supply services to the
23 plant.

24 The issues the Commission requests comment on in
25 the NOPR focus on three primary areas associated with these

1 agreements. Namely, applicability, scope of the agreements,
2 and coordination.

3 The nuclear plant requires--excuse me, the
4 Nuclear Standard requires the nuclear power plant operator
5 to identify the entities responsible for providing services
6 necessary for the plant to meet its NRC requirements, such
7 as maintaining adequate offsite power supplies, and
8 planning and operating an electric grid to respect
9 transmission operating limits.

10 This may include entities that provide off-site
11 power supplies to nuclear power plants at voltages below 100
12 kv who are not normally considered large enough to be part
13 of the bulk power system and thus would not be required to
14 be registered with NERC and subject to mandatory reliability
15 standards.

16 The nuclear plant and the entity are required to
17 execute a nuclear power interface requirement agreement,
18 NPIR, specifically listing the requirements of the nuclear
19 power plant and the offsite power provider.

20 It is the Commission's understanding that
21 disputes regarding the terms of the agreements, including
22 whether an entity should even have to execute such an
23 agreement, would be addressed through the NERC registration
24 process.

25 The second area that the NOPR seeks comment on is

1 the scope of the agreements. While a Nuclear Standard
2 requires a three-year review process, the Commission would
3 like to know how the standard addresses interim changes.

4 Is it feasible or necessary, for instance, for
5 the agreements to incorporate a provision for amendments to
6 accommodate electric system changes, or review nuclear plant
7 licensing requirements as needed?

8 The third area is coordination. The Standard
9 makes it clear that coordination between a nuclear power
10 plant and the transmission entities supplying the offsite
11 power to the plant is required, but it is not clear when the
12 required coordination among transmission entities is
13 providing services to a nuclear power plant.

14 Since the transmission grid is interconnected,
15 the actions of all transmission entities providing services
16 to a nuclear power plant effect one another, highlighting
17 the need for coordination among these transmission entities.

18 In the NUPR, the Commission proposes to accept
19 the operation and maintenance coordination provisions
20 proposed in the Nuclear Standard as applicable to all
21 transmission entities that provide interconnection or
22 offsite power supply services to a nuclear power plant.

23 The Commission seeks comments on these and other
24 areas in the NUPR in order to make a reasoned final ruling.

25 Thank you again for allowing me to participate in

1 this forum, and we would be happy to accept and answer any
2 questions that the Commissioners may have.

3 CHAIRMAN KELLIHER: Thank you very much.

4 Now we have hardly any time on this panel, so I
5 am just going to make a comment. I think there are nine of
6 us, and I think we have 11 minutes. So I guess give me one
7 minute then--

8 (Laughter.)

9 CHAIRMAN KELLIHER: --so I am just going to make
10 a comment. That is really just to emphasize to our
11 colleagues how different FERC's role is in reliability than
12 when it comes to economic regulation.

13 In our role with economic regulation we are
14 charged with regulating wholesale power sales transmission,
15 but we actually do not really have authority over generation
16 facilities. We regulate wholesale power sales, but not
17 really the generation facility itself.

18 But reliability is different. We are regulating
19 users, owners, and operators. It is a different legal
20 universe and is much broader. So we actually, even if
21 hypothetically nuclear plants were not owned by companies
22 that also owned transmission, we would be setting
23 reliability standards for nuclear plants because they fall
24 within that much broader universe.

25 But we also want to be very careful that we do

1 not interfere with your nuclear safety operation. So that
2 is one reason why, when we adopt reliability standards we do
3 it by rulemaking, because rulemaking isn't subject to ex
4 parte. We can have informal discussions all day long and,
5 not in 10 or 11 minutes, but we can really have informal
6 discussions so that nothing we do impairs your regulation.

7 Just one other comment. I really want to
8 reiterate what Phil said, that we have seen very significant
9 improvements in nuclear plant performance. I think it is a
10 combination of things.

11 I think it is improvements in NRC safety
12 regulation, but I think it is the incentive that was
13 established by our forebears 40 years ago, 25 years ago:
14 wholesale competition gives nuclear plant owners a great
15 incentive to improve operation.

16 So I think it is a combination of that incentive,
17 the profit incentive to operate the nuclear plants better,
18 as well as improvements in nuclear safety operation, but I
19 think it has had a good outcome for consumers.

20 So I am sorry, that might have been more than a
21 minute, but--I am sorry we are so short on time. It is just
22 the way the panels are operating, and our mutual time
23 commitments.

24 So why don't I turn to Chairman Klein.

25 NRC CHAIRMAN KLEIN: Thanks, Chairman.

1 I just have a real quick question. This may be a
2 David answer, but I will direct it to Pat. On your slide 5
3 you talked about power upgrade must include a grid impact
4 study. So the question is: Who does that grid impact
5 study? Who is responsible for evaluating that?

6 MR. HILAND: The applicant, or the licensee, in
7 my experience they have to ask their Independent Operator,
8 the ISO, to validate the grid impact study. Typically the
9 ones that we have seen the ISOs will subcontract that work
10 out, but they fall into a queue.

11 And as we have heard before, it does not matter
12 what type of plant you have there is a queue that you must
13 sit in before the ISO goes back and validates that. And
14 what we are looking for is not only the capacity of the grid
15 to carry that additional power, but also the capability to
16 continue to provide off-site power if that nuclear unit were
17 to trip.

18 There are two answers that we are looking for.
19 And the ISO is the only one that can produce that answer.

20 NRC CHAIRMAN KLEIN: Thanks.

21 CHAIRMAN KELLIHER: Thank you.

22 Commissioner Kelly.

23 COMMISSIONER KELLY: I had a question for any of
24 the panelists about advanced technology and how it is
25 deployed in the nuclear industry.

1 As advanced technology moves from the labs to the
2 possibility of commercialization, do you find that the
3 nuclear industry implements that? And if you do find that,
4 is it through the utilities perhaps wishing to achieve
5 efficiency measures? Is it through the vendors who look to
6 see their technology employed? Or do you find that NERC and
7 NRC standards are forcing the acquisition of advanced
8 technology?

9 MR. HILAND: I think the answer is "all the
10 above." All the above. Currently, and you may have read in
11 the press, and certainly the public in this room are aware,
12 there's Digital I&C. The Digital Instrumentation and
13 Control, and the transition of that technology into the
14 nuclear industry is coming forward, but it is 20 years
15 behind the times in some cases, in that the micro processors
16 or the computers that people use to operate a lot of other
17 industries are being introduced now, and we do have a major
18 application that we just received a couple of months ago
19 from the Duke Energy Company to convert their analogue
20 systems over to a digital instrumentation and control.

21 So I think the answer is: All the above.

22 COMMISSIONER KELLY: Thank you.

23 MR. MAYFIELD: Commissioner, I think I would echo
24 that. What we are seeing with the new plants is all of the
25 Digital I&C systems make use of modern digital technology.

1 What is interesting is that it is not cutting-
2 edge in the sense of the latest and greatest coming out of
3 California. It is, rather, tried-and-true technology. So
4 we have a pretty good feel for the reliability of it. We
5 are not putting in the next widget that you six months down
6 the road find out just is not quite right.

7 So it is pretty well developed and mature
8 technology, and yet it is significantly ahead of where the
9 current operating fleet and their analogue technology
10 resides.

11 COMMISSIONER KELLY: Thank you.

12 CHAIRMAN KELLIHER: Thank you. Commissioner
13 Jaczko.

14 NRC COMMISSIONER JACZKO: I would just follow up
15 on the point that the Chairman made about the Grid Impact
16 Study and comment about a situation we had recently I think
17 with one of the plants that we received an application for
18 for a power upgrade. They came in wanting a much larger
19 power upgrade, but I think because of their lack of planning
20 on what they would need to do to get the grid impact study
21 they were actually reduced--actually had to reduce the size
22 of that power upgrade because that lower power increase was
23 able to get in the queue faster, I guess I should say.

24 So they wound up requesting about a 5 percent
25 power upgrade rather than something on the order of a 16 or

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1 17 percent power upgrade, I believe was the ultimate number,
2 because that upgrade would have taken them I guess right now
3 about 10 years or so to get through the queue to get that
4 information.

5 So I think we still have some work to do,
6 probably if nothing else than to communicate with our
7 licensees our expectations, and that they need to begin
8 interfacing with these organizations in a different way.

9 It is very reminiscent to me of the situation
10 we had with Seabrook where Seabrook came in with a power
11 upgrade and hadn't received that, hadn't properly
12 communicated I think with their system operator and as a
13 result were often asked to reduce power to comply with some
14 reliability requirements.

15 So I think these meetings are a very good
16 opportunity for us to communicate these issues, and I think
17 it just continues to reinforce them. I think that our
18 licensees still have a little ways to go to understand that
19 they need to be more involved I think in some of these
20 broader issues of reliability and understand the
21 requirements that are out there that they need to comply
22 with as well as our approval process.

23 So there wasn't really a question in there.

24 CHAIRMAN KELLIHER: Thank you, very much.

25 Commissioner Spitzer.

1 COMMISSIONER SPITZER: Thank you, Mr. Chairman.
2 This is really more of a comment--

3 CHAIRMAN KELLIHER: What I out of order?
4 Commissioner Moeller, I'm sorry. I'm sorry, Commissioner
5 Moeller, I'm sorry. There are so many Commissioners here
6 I've lost track.

7 (Laughter.)

8 CHAIRMAN KELLIHER: Let's go with Commissioner
9 Moeller. Sorry, Marc.

10 COMMISSIONER SPITZER: I'm Pavlovian when I am
11 recognized.

12 (Laughter.)

13 CHAIRMAN KELLIHER: I apologize.

14 COMMISSIONER SPITZER: Really--and this is more
15 of a comment--the traditional safety regime of U.S. NRC
16 dovetails in with the reliability function that is new. I
17 had the opportunity to interface with NRC as an Arizona
18 Commissioner. There were some episodes with the Hassayampa
19 Switchyard, one particular event, and then there were
20 ongoing issues, and I wanted to really notably compliment
21 you all.

22 There was a fairly strong contingent that came.
23 There was a public hearing in Phoenix. This was the type
24 of--these events, and series of events could have,
25 unchecked, undermined the public's faith and confidence in

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1 the regulatory system, as well as the operation of the
2 facility. It is really a compliment to the U.S. NRC, the
3 Commissioners and the staff that the public hearing in fact
4 reinforced the public's confidence through the vigilance of
5 the U.S. NRC.

6 Maybe just very briefly, if you could describe in
7 general how you respond to episodes such as that, and how
8 you handle them from a process point of view.

9 MR. HILAND: We have an Event Assessment Program
10 ongoing where we look at, on a daily basis--any time an
11 event gets called into our Operations Center, licensees are
12 required to call in events that occur at their plant based
13 on significance.

14 There is a hierarchy there. When we look at
15 those we have to make a determination how do we respond. Do
16 we respond with just our resident inspector? I mentioned to
17 you earlier at each of our nuclear plants we have at least
18 one, and in most cases two on-site resident inspectors to
19 give us that first-hand information.

20 Those evaluations determine whether or not we
21 conduct a special inspection, or an augmented inspection
22 team. And then the worst case would be what we call an IIT,
23 or Integrated Inspection Team.

24 Each one of those has a higher level of
25 participation from the Washington corporate office of the

1 Nuclear Regulatory Commission down to the regional office,
2 and then at the site.

3 In the case--and I believe you are referring to
4 the--I have a former regional administration, I have to be
5 careful about regional administrator here. I'm not as
6 familiar with that case. That was before I moved into the
7 corporate office. But that is how we do it.

8 On an event by itself, we look at it. As it goes
9 up in significance, it will get higher level senior
10 management involvement in the decision making. Then once we
11 make a decision to go out to a site, we go out and do that
12 at a regional basis.

13 MR. MAYFIELD: I guess the only thing I would add
14 is, typically when we have to field those teams they do not
15 rely solely on the regional inspectors and their level of
16 expertise. They will reach to headquarters for specifics.
17 And for the event in Arizona, there were specific experts
18 out of headquarters that supported the region in that
19 activity.

20 So we can bring a fair bit of technical weight to
21 bear quickly when we need to.

22 CHAIRMAN KELLIHER: Thank you very much.
23 Commissioner Lyons.

24 NRC COMMISSIONER LYONS: Thank you, Chairman
25 Kelliher. I don't really have a question. I just wanted to

1 perhaps make the comment that I think the folks of this last
2 panel on reliability standards really is an outstanding
3 example of the cooperation between the staff of the two
4 agencies.

5 I would like to think that that cooperation is
6 facilitated perhaps by the meeting of the Commissions as
7 well. The progress that has been made on the new NERC
8 Standard, its impact on the safety of the nuclear power
9 plants, the efforts that Pat described from the standpoint
10 of grid monitoring that has gone on, all those I think are
11 outstanding examples of the staffs working together very,
12 very well.

13 So just my compliments, and thank you.

14 CHAIRMAN KELLIHER: Thank you. Commissioner
15 Moeller--and I abjectly and publicly apologize.

16 (Laughter.)

17 COMMISSIONER MOELLER: Accepted. Thank you.

18 A brief comments, which is that I think most of
19 you know that in the 2005 Energy Act Congress gave this
20 agency new enforcement powers, very broadened, and so we are
21 implementing those now in a way where we have a limited body
22 of evidence.

23 However, you as Commissioners and staff at the
24 NRC have really had a major enforcement program I think from
25 your inception. So we would like to learn more about your

1 enforcement. I think you have four categories. How you
2 undertake it. What the pros and the cons are of it. Not
3 for today's discussion, but in general we want--at least I
4 want to know a lot more, and look forward to that
5 discussion.

6 CHAIRMAN KELLIHER: Thank you.

7 Commissioner Svinicki.

8 NRC COMMISSIONER SVINICKI: I thank the
9 panelists, and I have no questions.

10 CHAIRMAN KELLIHER: Thank you.

11 Commissioner Wellinghoff.

12 COMMISSIONER WELLINGHOFF: Thank you, Mr.
13 Chairman. I would like to put in a paid plug for the FERC
14 Reliability Monitoring Center, and I have to, by way of
15 disclosure, say it was paid because I heard the Senator
16 yesterday, and Joe, and the brownies he and his son had
17 made, and it was more than ample payment, but Mr. Hiland
18 talked about the continued monitoring that NRC must do with
19 respect to the grid, and I want to encourage them and hope
20 that there will be continued cooperation between NRC and the
21 FERC especially with respect to a Reliability Monitoring
22 Center which is really going to become state of the art.

23 It will be the place in the United States to
24 determine what is going on in the grid in real time. So I
25 understand they are going to tour it today. I think it is a

1 real credit to Joe and his team and what they have done
2 there, and I was so impressed with it yesterday that it will
3 be a resource for everybody.

4 CHAIRMAN KELLIHER: Thank you very much.

5 Well why don't we turn to the third panel. I
6 would like to now recognize Scott Morris, the Deputy
7 Director, Division of Security Policy, Office of Nuclear
8 Security and Incident Response at the NRC.

9 MR. MORRIS: Thank you, Mr. Chairman. Regis and
10 I sort of choreographed it so that he would go first, so I
11 want to defer to Regis. Not that I want to have the last
12 word, I just--

13 (Laughter.)

14 MR. BINDER: Alphabetical order.

15 CHAIRMAN KELLIHER: Let me introduce Regis, then.
16 Regis Binder is the Acting Director of the Division of
17 Logistics and Security, Office of Electric Reliability.

18 MR. BINDER: Thank you, Chairmen Kelliher and
19 Klein, and Commissioners.

20 On January 18th, 2008, the Federal Energy
21 Regulatory Commission issued Order No. 706. That approved
22 eight proposed critical infrastructure protection, or CIP,
23 reliability standards.

24 These eight standards address the cyber security
25 of the Nation's bulk power system, and include approximately

1 160 requirements and subrequirements.

2 The CIP Reliability Standards represent a
3 significant effort by the electric industry that culminated
4 in their filing by the North American Electric Reliability
5 Corporation in its role as the electric reliability
6 organization for Commission approval under Section 2.15 of
7 the Federal Power Act.

8 Order No. 706 established the first mandatory and
9 enforceable reliability standards for the cyber security of
10 the electric industry. The Order also directed the ERO to
11 develop modifications to the eight standards, to develop
12 guidance to industry on several topics, and to develop
13 mechanisms that provide additional oversight of how
14 responsible entities are complying with the CIP reliability
15 standards.

16 I should point out that several requests for
17 clarification or rehearing of certain aspects of the Order
18 have been filed with the Commission. And those are under
19 consideration.

20 The main areas addressed by the CIP Standards
21 are:

22 Identification of critical cyber assets to be
23 protected, management involvement. This is primarily
24 required through a cyber security policy.

25 Security of sensitive information. This includes

1 such information as floor plans of computing centers and
2 security configuration.

3 Personnel risk.

4 Physical security of cyber assets.

5 Change control. This includes testing of
6 significant changes to software and hardware.

7 Access control. This includes both electronic
8 and physical access to critical cyber assets and revoking
9 authorized access when no longer needed.

10 Establishing an electronic security perimeter.
11 This involves controlling and monitoring all access points
12 crossing the electronic security perimeter, as well as
13 performing annual vulnerability assessments.

14 Incident response plans and recovery plans.
15 Recovery plans include procedures to use stored information
16 to successfully restore critical cyber assets as well as
17 annual exercises.

18 Order No. 706 directed multiple technical
19 modifications such as shortening the time period for
20 reviewing access logs. It also directed several structural
21 changes.

22 These include additional oversight in two areas.
23 First, the list of critical assets developed by a
24 responsible entity must be reviewed by another entity with a
25 wide-area perspective to be sure that no critical assets

1 have been missed.

2 Second, any exceptions to the CIP standards such
3 as for safety reasons claimed by a responsible entity must
4 be reviewed and approved by a regional oversight.

5 The second structural change is additional
6 reporting to the Commission required on two topics. The
7 ERO must report annually on exceptions to the CIP standards
8 that are claimed by responsible entities, including their
9 effect on bulk power system reliability.

10 This is important for the Commission's monitoring of
11 compliance activities and for determining if additional
12 modifications to the reliability standards are necessary.

13 In addition, the Commission directed the ERO to
14 consult with the federal entities that are subject to both
15 the CIP standards and the Cyber Security Standards developed
16 by the National Institute of Standards and Technology, or
17 NIST, and we required the ERO to report to the Commission on
18 the effectiveness and implementation issues of the NIST
19 standards.

20 The third structural change is a framework for
21 controlling exceptions to the CIP standards that is based on
22 the principle that no responsible entity can exempt itself
23 from a CIP standards requirements. Also, the recognition
24 that operating and safety considerations may necessitate an
25 exception. Also, up-front reporting of claimed exceptions

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1 to regional entities. Detailed regional review and approval
2 of exceptions during an audit process. And annual reports
3 of claimed exceptions to the Commission.

4 This concludes my comments, and I will be glad to
5 answer questions after the panel is over.

6 CHAIRMAN KELLIHER: Thank you. Mr. Morris?

7 MR. MORRIS: Yes. Good morning, Chairman
8 Kelliher, Chairman Klein, and Commissioners. I appreciate
9 the opportunity to discuss in a very broad sense where the
10 NRC is with respect to cyber security at nuclear power
11 plants, and to provide some perspective on how what Regis
12 referred to in the implementation of the CIP standards, and
13 what we are doing at the NRC and how they relate.

14 On the first slide I just want to briefly cover
15 the essence of our mission. This is no surprise, but I
16 think the reason for mentioning it here will become clear in
17 a moment.

18 Fundamentally our mission is to license and
19 regulate the Nation's civilian use of special materials, and
20 to ensure the adequate protection of public health and
21 safety, and also to promote the common defense and security
22 and protect the environment.

23 I highlight nuclear safety and security because
24 those are the two principal things upon which we focus.

25 Obviously electric--or power continuity and electric

1 reliability are important, but it is not clearly part of our
2 mission, and that is why our interaction with FERC is
3 important.

4 With respect to our instrumentation and control
5 systems at the nuclear power facilities, the way that our
6 mission translates to these INC systems is that our focus is
7 on safety systems, security systems--and what I mean by that
8 are any systems that are employed to ensure that the site
9 itself is protected from threats; and also any systems that
10 are required for effective emergency response or
11 preparedness.

12 On the next slide I highlight how that manifests
13 itself, how our nuclear safety mission is manifested with
14 respect to those three categories of INC.

15 Then specifically with safety systems, our design
16 requirements are very well established and understood. They
17 are based in large part on IEEE standards and others. They
18 are basically designed on three--the three measures you see
19 there: redundancy, diversity, and independence, to ensure a
20 high degree of reliability.

21 We do not--while our requirements are very strict
22 in that regard, our review of those systems at the site is
23 limited to a reasonable assurance standard. That means we
24 do not do independent design verifications, but rather we do
25 enough of a review to give ourselves and the public

1 reasonable assurance that they will do what they are
2 intended to do.

3 We verify the implementation of those
4 requirements in the field through inspections and
5 enforcement, in addition to our licensing work back in
6 headquarters.

7 From a nuclear security perspective, on the next
8 slide, we operate in a slightly different paradigm. In the
9 case of nuclear security we have prescribed what we refer to
10 as a design-basis threat, which is simply a set of adversary
11 characteristics that we require our licensees to be able to
12 defend against with high assurance.

13 We are concerned about radiological sabotage
14 clearly. The design-basis threat characteristics themselves
15 are not publicly available information, but generally
16 speaking and in our regulatory requirements we do offer a
17 general sense of what it is comprised of.

18 I want to point out that we are applying nuclear
19 security not to just safety systems but also, as I mentioned
20 earlier, the security systems and the emergency response
21 systems.

22 If you look at risk, security risk is the product
23 of threat versus vulnerability, I think we would all agree
24 that the threat is fairly high. The vulnerability, on the
25 other hand, at least before 9/11 and even today in large

1 measure is fairly low principally because of the existing
2 design requirements for safety reasons that I mentioned
3 earlier, but also because, as has also been mentioned, the
4 technology and use at many of these facilities for safety
5 and safety systems is generally not susceptible. In other
6 words, it is analogue, or it is solid-state logic modules,
7 things that do not have software applications running on
8 them.

9 That is changing. And if you will go to the next
10 slide where I speak about post-9/11 requirements, the agency
11 did quite a bit in security post-9/11. And with respect to
12 digital I&C, we recognize that the retrofits of some of
13 these older analogue and solid-state logic systems are
14 increasing. They are being used more and more in non-safety
15 systems, but even--but now, as Mr. Hilland pointed out, we
16 are receiving applications for safety-related systems that
17 are moving toward digital technology.

18 In addition, all of the new reactors are going to
19 employ digital systems. And so the need to have more robust
20 security requirements to address cyber attacks is evident.
21 And, as such, in 2002 we issued an order to all the power
22 reactor licensees mandating an initial action to at least
23 identify what things that they had on their sites that were
24 potentially subject to cyber attack. That was followed up
25 with another order in 2003 in which we supplemented the

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1 existing design-basis threat to include cyber attacks. And
2 we have codified that in our regulations early last year in
3 the design-basis threat through a notice and comment public
4 rulemaking, and it explicitly included external cyber attack
5 in the list of adversary characteristics for which power
6 plants have to be able to defend against with high
7 assurance.

8 Finally, we have in 2006 proposed a new set of
9 programmatic cyber security requirements or standards in 10
10 CFR 73.54. That is an ongoing rulemaking. We have received
11 thousands of comments on that rulemaking, of which the cyber
12 piece was just a small part of. We anticipate that rule to
13 go final in the early 2009 timeframe.

14 But it is important to point out that there is
15 fairly good alignment between what we are proposing in that
16 set of rules and with what Regis just referred to in the CIP
17 standards.

18 Quickly onto the next slide, since I am almost
19 out of time, the Nuclear Energy Institute did not sit idly
20 by--or the Nuclear Energy Power Generation facilities in the
21 industry as represented by NEI, did not sit idly by. They
22 were very aggressive to develop their own set of standards,
23 in part based on work that we had already done; in part
24 based upon looking at what NERC had done, and in trying to
25 be compatible with the CIPs, and they developed what is

1 referred to as an NEI-404 document, which is a comprehensive
2 cyber security program guideline.

3 Internally, all of the industry generator power
4 reactor facilities have committed to implement an NEI-404
5 program by May of this year.

6 On to the last slide, as part of our ongoing
7 review and dialogue between the staffs and between the
8 industry and us and others, one potential regulatory issue
9 did surface in this arena. And this goes back to my initial
10 slide.

11 The NRC's cyber security requirements are not
12 going to extend to power continuity systems. They do not
13 extend directly to what is not directly associated with
14 reactor safety security or emergency response.

15 The NEI-404 document does go beyond what our
16 existing and planned requirements will be, and does include
17 all systems and digital assets on their site, which would
18 include power or continuity systems, but it is important to
19 point out that the NEI document is not a compulsory
20 document. It is not something that we require them to
21 implement for things that are beyond our regulatory and
22 statutory purview.

23 As a result, and when you look at the CIP
24 standards that were issued, there is a discrete statement in
25 each of the seven or eight standards where it specifically

1 exempts facilities regulated by the United States Nuclear
2 Regulatory Commission from compliance with those CIP
3 Standards.

4 So there is an issue there in the sense that our
5 regulations for cyber security go up to a certain point, and
6 end. Then there is this power continuity piece, which is
7 covered by NEI-404 but not mandated by us, and is exempted
8 currently by the FERC CIPs. So we are interacting to try to
9 figure out what is the optimal way to bridge that. If in
10 fact we determine that there needs to be enforceable
11 regulatory standards in place how best to pursue that.

12 That ends my comments, and we would be happy to
13 answer any questions.

14 CHAIRMAN KELLIHER: Great. Thank you, very much.

15 MR. MORRIS: I'm sorry I ran two minutes over.

16 CHAIRMAN KELLIHER: I think we could have two- or
17 three-minute rounds, if that is the will of the group,
18 because I do not think I need 10 minutes for concluding
19 remarks.

20 So why don't we say three-minute rounds, and if
21 we can come in a little under so much the better. I just
22 really had a couple of comments--I am not sure I have
23 questions in this area--but this is an area where it is very
24 important for the two agencies to work together, because we
25 understand the relationship of reliable grid operations with

1 nuclear plant safety, and the nature of the threat is very
2 different than what FERC is accustomed to.

3 I think the cyber threat is different. It
4 used to be perception of the cyber threat was some
5 brilliant teenage boy who likes to wear a black trench
6 coat in the basement of his home, but the cyber threat
7 really is quite different and more organized, perhaps, than
8 that.

9 A cyber threat to the grid is an indirect
10 attack, at least at nuclear plants, and the reverse is
11 true. In your agency you are much more of a national
12 security agency.

13 We were talking briefly that agencies have
14 personalities, and you were established in 1946 and
15 entrusted with the secret of the atom bomb. So you have a
16 bit of a security personality that you have had ever since.

17 You used to have the death penalty. People
18 thought FERC was given strong penalty authority two years
19 ago, but--

20 (Laughter.)

21 CHAIRMAN KELLIHER: --you used to have the death
22 penalty for violating the Atomic Energy Act. So our \$500 a
23 day really did not compare too well with that.

24 (Laughter.)

25 CHAIRMAN KELLIHER: So I think it is important

1 for us to--we have studied how you have approached security,
2 and particularly physical security, and how you have set a
3 design-basis threat, and how do you get licensees to comply
4 with that. And does that translate to us?

5 It does not translate perfectly because of the
6 universe that are subject to reliability standards is much
7 less homogeneous than the universe of commercial nuclear
8 plant licensees, but we have studied how you have done
9 things because we recognize you are a security agency more
10 so than we are and we want to see what best practices you
11 have that we can adopt.

12 I think this is an area where we do have a common
13 threat, and so some kind of common defense is important. So
14 I am glad our staffs are working in concert.

15 So that is a statement, and not even a statement
16 in the form of a question. It is just an out-and-out
17 statement.

18 So with that, let me turn to Chairman Klein.

19 NRC CHAIRMAN KLEIN: Thanks. I should point out
20 that the current Commission has been very limited in its use
21 of the death penalty.

22 (Laughter.)

23 NRC CHAIRMAN KLEIN: So we use it only rarely,
24 although sometimes we would like to use it more often.

25 (Laughter.)

1 NRC CHAIRMAN KLEIN: I guess I have a question in
2 that area for Regis. In terms of a lot of the issues that
3 we deal with on security we have to handle on obviously a
4 secure way. We don't want to pass information so the bad
5 people get ahold of it.

6 How do you handle that information within FERC?
7 Do you have special categorizations to safeguard
8 information? Is it Secret? How do you handle that
9 internally?

10 MR. BINDER: We do work with a variety of levels
11 of sensitivity. We do work with classified information,
12 although I do not believe FERC has actually classified
13 information itself, or declared information to be
14 classified, but we do work with information that has been
15 classified by other agencies.

16 FERC has tools for handling sensitive and
17 confidential information. We use a tool called "Critical"--
18 CEI, Critical Energy Information, Infrastructure
19 Information. It is a means by which we can control the
20 dissemination of information but still share it with
21 entities that need it, and we can interact with them.

22 That involves disclosure agreements--
23 nondisclosure agreements, and it is used quite a bit at the
24 Commission, especially for commercially sensitive
25 information, and we are starting to use it more so for

1 sensitive security information now.

2 NRC CHAIRMAN KLEIN: Thanks.

3 CHAIRMAN KELLIHER: Commissioner Kelly?

4 COMMISSIONER KELLY: Thank you, Joe.

5 David Nevius, you are not a speaker on this third
6 panel but certainly you are qualified to speak, and so I
7 would like to ask you in your work to date on developing
8 Cyber Security Standards if you have any comments that you
9 would like to pass on to us here at FERC or at the NRC about
10 issues you see arising, things we should be considering, or
11 actions we might want to contemplate?

12 MR. NEVIUS: I don't have anything to add to what
13 has already been mentioned by Regis Binder and Scott Morris.

14 COMMISSIONER KELLY: Well thank you for your
15 cooperation with our staff in developing these standards.

16 CHAIRMAN KELLIHER: I just want to pick up on
17 Commissioner Kelly's comments. We should feel free to ask
18 any of the panelists, not just the last two, their views.

19 Commissioner Jaczko.

20 NRC COMMISSIONER JACZKO: I guess I do not have a
21 question at this point, but I would certainly echo I think
22 the importance of, and reinforce I think the good
23 communication that has gone on so far in particular in this
24 area with our staffs to try and address this potential issue
25 with the power continuity systems. And I do think it is

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1 certainly important to resolve that and ensure that we do
2 have good coverage in this area.

3 So I certainly encourage the continued
4 cooperation, and if there is anything that we can do to help
5 facilitate that please let us know.

6 I would also just briefly comment that I
7 appreciate the comments about enforcement that Commissioner
8 Moeller had made. Enforcement is probably the most
9 challenging aspect of the things that we do. We focus a lot
10 of our time on the regulations, and the regulations that we
11 write, but ultimately they are only as good as our ability
12 to enforce them.

13 So I certainly, if there is anything else that we
14 can do to help and share our experiences on enforcement, we
15 would be happy to do that. And I certainly would extend the
16 staff to you, as well.

17 So those are the comments I had. Thank you.

18 CHAIRMAN KELLIHER: Thank you. Commissioner
19 Moeller.

20 COMMISSIONER MOELLER: Thank you, Mr. Chairman.

21 A brief question for Mr. Morris. I brought this
22 up once before I think in our reliability discussions, but
23 in one of your slides you talk about kind of the digital
24 retrofits. Does the increased digitalization at all make
25 you a little nervous?

1 To me, I have been in plenty of nuclear plant
2 control rooms and the on/off switch is kind of reassuring,
3 and the dials. You know, because you can see it. So I
4 guess I would like your comments.

5 MR. MORRIS: Does it make me nervous? Yes, it
6 makes me very nervous. That being said, however, I think we
7 have got a structure in place.

8 I think Pat mentioned our work with the digital
9 I&C steering committee that we have commissioner internal to
10 our agency, and have interacted closely with industry and
11 vendors, and that has helped force a very important
12 dialogue between--to register our concerns, and the
13 industry's concerns about impeding the operation of these--
14 you know, the security of course is always in competition--
15 excellent security is always in good competition with good
16 operations.

17 It is very challenging to find the balance.
18 Perfect security means you can't operate. You know, the
19 most efficient operations often mean very little security.
20 So struggling to find that balance is a challenge. And I
21 think we have internally got a structure to address our
22 concerns, which are very real.

23 I mean, you mentioned the on/off switch, but the
24 newer plants are going to have a lot of human/machine
25 interface issues, and touch screens, and digital procedures,

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1 and, yes, lots and lots of concerns. But we have done I
2 think a pretty good job of getting all those concerns aired
3 and have a path of resolution on them.

4 COMMISSIONER MOELLER: Thank you.

5 CHAIRMAN KELLIHER: Thank you. Commissioner
6 Lyons.

7 NRC COMMISSIONER LYONS: Thank you, Joe.

8 I guess first I just would like to add emphasis
9 to the point that, Scott, you made on the need to continue
10 staff interaction on the continuity of power requirements.

11 To the extent there are any holes between where
12 our jurisdiction ends and where FERC is now exercising
13 jurisdiction, we need to be very sure that those are filled.
14 So I very much appreciate that point and certainly look
15 forward to the staffs working together.

16 I did have one question. I don't honestly know,
17 Mr. Binder, if you are the correct person to ask or not, but
18 the title of your remarks was "Critical Infrastructure
19 Protection." From the NRC's perspective, in the area of
20 critical infrastructure we have had an extensive degree of
21 cooperation and collaboration with the Department of
22 Homeland Security, to the extent that they have been
23 conducting so-called comprehensive reviews of--they have now
24 completed a comprehensive review of every one of our nuclear
25 power plants in the country.

1 I am curious if a similar process--I know that
2 DHS has categorized a number of different elements of
3 critical infrastructure. I believe there are 17 different
4 elements. We are--and somebody can tell me I'm wrong on 17;
5 I'm close--

6 MR. MORRIS: Yes, there are 17 and 1 sector of
7 course that we are interested in, and you probably have it,
8 too, with energy--but energy being the other one.

9 NRC COMMISSIONER LYONS: What I was leading up to
10 was: To what extent is the grid considered part of that
11 critical infrastructure? And are you part--to what extent
12 is FERC part of a process like a comprehensive review? And
13 I am leading up to wondering if there is anything to be
14 shared here between our experience with the comprehensive
15 reviews at all of our sites with whatever may be going on
16 with our own Homeland Security from the perspective of
17 security of the grid?

18 And again, I am not sure if I should be
19 directing it to you, or maybe even to some of the
20 Commissioners.

21 CHAIRMAN KELLIHER: Well, why don't we turn to
22 Joe, or Regis. I'll defer to Joe on who can answer, and
23 what we can and should say.

24 MR. McCLELLAND: We do participate in the
25 Government Coordinating Council. DOE is the sector head for

1 energy, and we are one of the agencies that participate in
2 the GCC effort.

3 Within the GCC effort, DHS has identified DOE as
4 the lead for the energy sector. And so activities that are
5 coordinated, identify DHS are vetted first through the
6 sector head, and then brought to the entire group for
7 dissemination and discussion.

8 Reg, do you have anything more specific to add in
9 this forum?

10 MR. BINDER: The only thing I was going to add
11 was to put the Cyber Security Standards in that framework of
12 the Government Coordinating Council, which incidentally Joe
13 didn't mention but I don't know if you're aware, every
14 sector has a Government Coordinating Council and a
15 Sector Coordinating Council that has industry members on
16 it.

17 The thing that is--it is a little premature to
18 say exactly how the cyber security efforts fit into the DHS
19 efforts that you're familiar with because these standards
20 were just put in place, but the industry is not really
21 compliant with them yet. And in fact, as I mentioned in my
22 comments, we have asked industry to actually modify the
23 standards so that what ultimately gets implemented will be
24 somewhat different than what we know today.

25 But certainly once the standards are in place,

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1 compliance monitoring and enforcement will be a huge effort,
2 just as was mentioned today with other reliability
3 standards. That will become the focus. And that is
4 probably the point at which DHS will have the most interest,
5 once we are actually enforcing the standards.

6 MR. McCLELLAND: If I might just add one other
7 thing, Commissioner, the identification of the assets is a
8 requirement under the Cyber Security Standards. And the
9 entities themselves have to identify the critical assets on
10 their system.

11 This has been part of the Commission's NOPR, or
12 the Commission's concern, that since it is a self-
13 identification process it is a little different in that
14 DHS does not come in and identify the assets, the entity
15 does.

16 And what the Commission has proposed is to make
17 this more of a regional view. In other words, the regions
18 themselves would control the assets itself. Maybe I
19 shouldn't say "proposed," it's the final rule.

20 The regions would have the responsibility to
21 coordinate that identification as critical assets, and have
22 a review process in place to validate those assets, so they
23 don't vary from region to region and company to company.
24 And there can be many, many, many critical assets per
25 entity.

1 NRC COMMISSIONER LYONS: I meant my question to
2 be much broader than cyber security, to cover the full range
3 of extremely critical assets for which FERC has some
4 responsibility.

5 CHAIRMAN KELLIHER: You mean natural gas
6 pipelines and such?

7 NRC COMMISSIONER LYONS: Yes, things like that.

8 CHAIRMAN KELLIHER: Yes.

9 NRC COMMISSIONER LYONS: And I was simply
10 wondering out loud whether there is anything to be gained in
11 perhaps sharing lessons with what we've gone through with
12 DHS on the comprehensive reviews with areas--I mean, I was
13 thinking of the electrical grid, but certainly your
14 responsibility in natural gas is, I don't know if it's large
15 or not, but it is certainly another area that deserves that
16 attention.

17 CHAIRMAN KELLIHER: Right. There probably are
18 some things we can learn from that.

19 MR. McCLELLAND: Absolutely. I look forward to
20 having our staffs coordinate on that with your staff to pick
21 up the lessons learned and see how you folks have proceeded
22 and how there might be parallels in our industry. I think
23 that is a great suggestion.

24 CHAIRMAN KELLIHER: Thank you. Commissioner
25 Spitzer.

1 COMMISSIONER SPITZER: Thank you, Mr. Chairman.
2 Expanding on Commissioner Moeller's observation with regard
3 to digitalization of the control rooms of nuclear plants,
4 and this is a broad question maybe calling for some
5 observations, if any of you on the panel have one.

6 The Smart Grid is an opportunity for efficiency
7 and for the ratepayers, but obviously there are challenges
8 in this balancing between security and efficiency.

9 Is the Cyber Security fix with regard to the
10 Smart Grid of the future a technological fix, or a legal
11 fix, or both?

12 (Pause.)

13 MR. BINDER: I'll take a shot.

14 (Laughter.)

15 MR. BINDER: I guess I didn't step backwards. It
16 is very challenging from a security perspective. Obviously
17 the more nodes that you have to protect, the more difficult
18 it is to accomplish that protection and the more
19 vulnerabilities there are.

20 I personally think that technology needs to play
21 a very significant role, if that is going to be a secure
22 endeavor. Perhaps there might be some legal issues
23 involved, there usually are, but I think in my mind at
24 least--but I'm an engineer--in my mind technology has to
25 lead that.

1 CHAIRMAN KELLIHER: Any other takes?

2 (No response.)

3 CHAIRMAN KELLIHER: Commissioner Svinicki?

4 NRC COMMISSIONER SVINICKI: Thank you. To
5 follow on that theme on technology, I think the panelists
6 would agree that as we reflect on the threat environment,
7 physical or cyber, the threat environment is not static.
8 Within the NRC we have an Office of Research, and to stay on
9 top of technologies and emerging threats.

10 I candidly do not know if FERC has any sort of
11 research arm, or if you draw upon Department of Energy
12 Office of Electricity Reliability. I know that former
13 Chairman of FERC, Pat Wood, reached out to the Department of
14 Energy, National Laboratories, years ago to begin to
15 understand the vulnerabilities and the ease of exploit of
16 those.

17 But the programs that we are putting in place, in
18 your view do they have the kind of agility and nimbleness
19 that we will need to stay on top of a changing threat
20 environment in cyber, specifically?

21 MR. BINDER: I can comment on the first part. I
22 I'll defer to Scott on the second part.

23 We do very much contact and rely on the expertise
24 that is available in the Department of Energy, especially in
25 the National Laboratories. We also work quite a bit with

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1 the National Institute of Standards and Technology, NIST,
2 and their expertise.

3 Actually, I talk about them like they are
4 discrete entities, and they are in a way, but the efforts on
5 the cyber security front at least actually have a lot of
6 overlap in them.

7 Both NIST and the Department of Energy uses
8 industry experts as resources and sounding boards, and the
9 most successful efforts have been sort of interactive
10 efforts, and we try to participate and interact in those and
11 get the benefits of the knowledge it has gained as much as
12 we can.

13 MR. MORRIS: I will take a shot at the second
14 part of that question.

15 I think the way we have structured our existing
16 requirement in the design-basis threat rulemaking and where
17 we are headed in the proposed rulemaking for cyber security,
18 it is structured in a very performance-based high-level
19 programmatic way such that it is not prescriptive about what
20 type of technology gets used, or what strategies are
21 employed.

22 Rather, we set a standard that this bad guy
23 cannot create this problem and propose a way to address
24 that. And here are some programmatic elements that we need
25 to have assurance along the way, and you need to have along

1 the way, so that we can all, excuse my comment, but to get
2 that warm fuzzy feeling about it.

3 Again, we are not going to be doing design
4 verifications. It is going to be how much information do we
5 need to get? What we are saying is, they need to have
6 certain programmatic elements that do not tie their hands on
7 what kind of technology gets ultimately used, so that
8 technology have evolve, strategies can change, and yet our
9 requirements can still be satisfied to keep the bad actor
10 away from the critical equipment.

11 NRC COMMISSIONER SVINICKI: Thank you.

12 CHAIRMAN KELLIHER: Thank you. Commissioner
13 Wellinghoff.

14 COMMISSIONER WELLINGHOFF: Thank you,
15 Mr. Chairman.

16 I just want to follow up on the comment of
17 Commissioner Lyons that I think there is a lot that FERC can
18 learn from the NRC's Comprehensive Assessments of Security.
19 We have done some on the cyber security side.

20 I am not necessarily completely clear that our
21 reliability authority subsumes physical asset security as
22 well.

23 There may be some more authority that we need
24 there, as well, because I think that is certainly an issue
25 that we need to look at and address, and I think we have a

1 lot to learn from the NRC on that.

2 CHAIRMAN KELLIHER: Thank you. Colleagues, any
3 more comments?

4 (No response.)

5 CHAIRMAN KELLIHER: If not, I am just going to
6 make some very brief concluding remarks that I think it has
7 been a very productive meeting, just like the other two. I
8 want to thank the staffs for their hard work. And I think
9 the meeting shows that we both recognize that to really
10 effectively discharge our different statutory missions that
11 we improve our chance of success by working together,
12 because it is undeniable that the grid and large nuclear
13 plants are entwined.

14 And if our missions are entwined and we accept
15 that is the reality, then I think this kind of level of
16 cooperation is necessary.

17 So I am glad we did it, and thanks for coming to
18 our home team this time, our court this time. I just
19 want to turn to Chairman Klein for any comments he might
20 have.

21 NRC CHAIRMAN KLEIN: Well I would like to thank
22 FERC for their hospitality. So on behalf of my fellow
23 Commissioners and our staff, I would like to thank you for
24 having us down here.

25 These meetings are very helpful I think to not

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only lay out areas of mutual interest, but also to look ahead of where could we work better together in other areas. And we do have a lot of areas that mutually overlap.

We have our distinct roles, obviously, but we also have areas of mutual interest, and I think these meetings are helpful just to branch out.

As Commissioner Lyons pointed out, we have information we can share, and you have information that you can share and help us be a better agency as well.

So I thank you and your staff and your fellow Commissioners for your hospitality, and we will keep the interchanges going.

CHAIRMAN KELLIHER: Great. Thank you. Well, with that, why don't we both gavel this to a close. Then I think we are going to have a group photo of all the Commissioners.

So, thank you very much.

(Whereupon, at 12:02 p.m., Tuesday, April 8, 2008, the joint meeting of the Federal Energy Regulatory Commission and the Nuclear Regulatory Commission Commissioners was adjourned.)