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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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DIGITAL I&C SUBCOMMITTEE

+ + + + +

FRIDAY

JUNE 25, 2021

+ + + + +

The Subcommittee met via Teleconference,
at 9:30 a.m. EDT, Charles H. Brown, Chair, presiding.

COMMITTEE MEMBERS:

CHARLES H. BROWN, JR., Chair

VICKI M. BIER, Member

VESNA B. DIMITRIJEVIC, Member

GREGORY H. HALNON, Member

WALTER L. KIRCHNER, Member

JOSE MARCH-LEUBA, Member

DAVID A. PETTI, Member

JOY L. REMPE, Member

MATTHEW W. SUNSERI, Member

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ACRS CONSULTANT:

MYRON HECHT

DESIGNATED FEDERAL OFFICIAL:

CHRISTINA ANTONESCU

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AGENDA

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P R O C E E D I N G S

9:33 a.m.

CHAIR BROWN: It's 9:33. I'm going to -- I'm just checking the list of members that are here right now so I make sure I get the names all correct.

MS. ANTONESCU: Awesome.

CHAIR BROWN: What I understand is -- Jose, you're here?

MEMBER MARCH-LEUBA: Yes, I'm muted.

CHAIR BROWN: Okay. Dave Petti?

MEMBER PETTI: Here.

CHAIR BROWN: Okay. Vicki?

MEMBER BIER: Yes, I'm here mainly just to listen.

CHAIR BROWN: That's fine. Walt?

MEMBER KIRCHNER: Here, Charlie. Thank you.

CHAIR BROWN: Okay. Thank you. If there's other members on here that I haven't been able to catch, let me know. I'm not trying to forget you intentionally.

MEMBER HALNON: Charlie, this is Greg Halnon. I'm on.

CHAIR BROWN: Yeah, oh, I missed you? Okay. I thought --

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1 (Simultaneous speaking.)

2 MEMBER REMPE: This is Joy. I'm here.

3 CHAIR BROWN: Oh, Joy, you're there? All
4 right.

5 MEMBER SUNSERI: Charlie, this is Matt.
6 I'm on.

7 CHAIR BROWN: Oh, all right. So we're in
8 good shape then. I couldn't see anything on the
9 participants list for some reason.

10 MEMBER DIMITRIJEVIC: I'm here, Charlie.
11 It seems like you have a full house. Vesna, hi, good
12 morning.

13 CHAIR BROWN: All right. Thank you, Vesna
14 and Matt. And Dennis, is he on? I don't think so.

15 All right. Sorry for the delay. I'm
16 Charles Brown. I'm the Chairman for the Digital I&C
17 Subcommittee. The meeting will now come to order.

18 ACRS members in attendance are Matt
19 Sunseri, Jose March-Leuba, Vesna Dimitrijevic, Joy
20 Rempe, Dave Petti, Vicki Bier, Greg Halnon, and Walt
21 Kirchner. And Myron is not on right now. So he may
22 or may not be here.

23 MS. ANTONESCU: Member Brown, Myron is
24 here, too.

25 CHAIR BROWN: Oh, he is? Okay. I missed

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1 him.

2 All right. Christina Antonescu of the
3 ACRS staff is the Designated Federal Official for this
4 meeting. I presume, Christina, that the court
5 reporter is here and it is now on?

6 MS. ANTONESCU: Yes, he is.

7 CHAIR BROWN: Thank you. The purpose of
8 this meeting is for the staff to brief the
9 subcommittee on Proposed Revision 5 of Regulatory
10 Guide 1.9, Application and Testing of Onsite Emergency
11 Alternating Current Power Sources in Nuclear Power
12 Plants.

13 It is being revised to endorse updated
14 IEEE Standard 387-2017 for EDGs and incorporates
15 combustion turbine generators and endorses 2520-2019
16 IEEE Standard, CTGs for use as standby power supplies
17 for nuclear power generating stations, and provides
18 guidance for alternating power sources other than EDGs
19 and CTGs, which is a whole new section from the past.

20 The ACRS was established by statute and is
21 governed by the Federal Advisory Committee Act, FACA.
22 That means that the committee can only speak through
23 its published letter reports.

24 We hold meetings to gather information to
25 support our deliberations. Interested parties who

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1 wish to provide comments can contact our office
2 requesting time.

3 That said, we set aside ten minutes for
4 comments from members of the public attending or
5 listening to our meetings. Written comments are also
6 welcome.

7 The meeting agenda for today was published
8 on the NRC's public meeting notice website, as well as
9 the ACRS meeting website.

10 On the agenda for this meeting and on the
11 ACRS meeting website are instructions as to how the
12 public may participate. No request for making a
13 statement to the subcommittee has been received from
14 the public.

15 Due to COVID-19, we are conducting today's
16 meeting virtually. A transcript of the meeting is
17 being kept and will be made available on our website.
18 Therefore, we request that participants in this
19 meeting first identify themselves and speak with
20 sufficient clarity and volume so that they can be
21 readily heard.

22 All presenters, please pause from time to
23 time to allow members to ask questions. Please also
24 indicate the slide number you are on when moving to
25 the next slide.

1 We have a bridge line established for the
2 public to listen to the meeting. The public line will
3 be kept in a listen-only mode until the time for
4 public comment.

5 To avoid audio interference, I request all
6 attendees to make sure they are muted while not
7 speaking.

8 Can you confirm that the public line is
9 open?

10 MS. ANTONESCU: Thomas already confirmed
11 --

12 CHAIR BROWN: Okay. All right. Thank
13 you, Christina.

14 Based on our experience with previous
15 virtual meetings, I would like to remind the speakers
16 and presenters to speak slowly.

17 We will take a short break after each
18 presentation to allow time for screen sharing, as well
19 as the Chairman's discretion during longer
20 presentations.

21 We do have a backup call-in number should
22 MS Team go down and has been provided to the ACRS
23 members. If we need to go to the backup number, the
24 public line will also be connected to the backup line.

25 Lastly, please do not use any virtual

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1 meeting feature to conduct sidebar technical
2 discussions. Rather, contact the DFO if you have
3 technical questions so we can bring those to the
4 floor.

5 We have scheduled a full committee meeting
6 in July 2021, which will be used to produce, generate
7 a report for this particular subcommittee meeting on
8 this Reg Guide.

9 We will now proceed with the meeting. I
10 believe Mr. Stanley Gardocki is doing the screen
11 sharing.

12 And Mr. Kenn Miller is the team leader for
13 the electrical engineering team, Division of
14 Engineering in the Office of Nuclear Regulatory
15 Research and will make introductory remarks before we
16 begin presentations by Ms. Liliana Ramadan. Kenn,
17 it's yours for your opening remarks.

18 MR. MILLER: Thank you, Member Brown, for
19 the introduction. Everybody hear me okay?

20 CHAIR BROWN: Yes.

21 MR. MILLER: Okay.

22 CHAIR BROWN: At least I can.

23 MR. MILLER: Okay. Good. So good morning
24 to the ACRS members and their staff, as well as other
25 participants in today's meeting.

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1 As was said, my name is Kenn Miller. I'm
2 a senior electrical engineer and team leader in the
3 Office of Research and as has been mentioned will be
4 presenting Version 5 of Reg Guide 1.9.

5 This revision was prepared by a team of
6 electrical engineers from both Research and NRR. We
7 found this to be an effective and efficient way, as
8 well as utilizing, you know, the broad technical
9 experience across our two offices to develop the best
10 technical product.

11 That effort was led by Research's Lili
12 Ramadan, worked very hard and diligently to get this
13 to this point, appreciate her efforts, in addition,
14 was supported by staff from NRR, Sheila Ray and Singh
15 Matharu. And the overall project manager also from
16 Research is Stan Gardocki, as has been mentioned.

17 And we also want to thank Christina for
18 her efforts in helping us set up this meeting with you
19 folks today at ACRS.

20 So this revision of 1.9 represents a
21 modification to its scope in that all previous
22 revisions addressed only the use of diesel engines as
23 the prime mover for emergency generators, while this
24 version takes a design-neutral approach in terms of
25 prime movers.

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1 It addresses diesels, combustion turbines,
2 and any other AC source potentially employed to supply
3 emergency electrical power.

4 This Reg Guide, as was mentioned also,
5 endorses the current version of IEEE 387 for emergency
6 diesel generators, as well as 2420 for combustion
7 turbines.

8 All other types the approach was to
9 identify and highlight all the necessary regulatory
10 requirements for onsite emergency AC power sources in
11 accordance with GDC 17.

12 In addition, this design-neutral
13 innovative and transformative approach allows for more
14 widely useful Reg Guide for newer plant designs of all
15 types, including small modulars and advanced reactors,
16 and supporting the plan to consolidate NRC's
17 regulatory guidance footprint.

18 This consolidation will reduce staff
19 effort needed to maintain regulatory guidance, also
20 should make it easier for industry to find and apply
21 necessary guidance in their activities.

22 So, again, we appreciate this opportunity
23 today to present this revision to you. And we can
24 move on with the agenda. Thank you very much.

25 CHAIR BROWN: Okay. Thank you, Kenn.

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1 Liliana, I guess you're on.

2 MS. RAMADAN: Thank you. Today's agenda,
3 we will be introducing this Regulatory Guide. We will
4 be discussing the existing guidance. We will be
5 pointing out the significant changes. We will be
6 discussing the proposed new guidance. And we will
7 summarize. Next slide, slide 3.

8 The current 2007 version, Reg Guide 1.9,
9 Revision 4 covers only the diesel generator --

10 CHAIR BROWN: Liliana?

11 MS. RAMADAN: -- technology.

12 CHAIR BROWN: Liliana?

13 MS. RAMADAN: Yes.

14 CHAIR BROWN: The screen sharing at least
15 is not showing up on my screen. There's the agenda --

16 MEMBER REMPE: It shows up on my screen,
17 Charlie. But --

18 CHAIR BROWN: The agenda just popped up.

19 MEMBER REMPE: Okay. There is a large
20 echo. So, if somebody has their mic on, please mute
21 it.

22 MS. RAMADAN: Okay.

23 CHAIR BROWN: I just lost the screen
24 sharing completely. The agenda is back up. You're on
25 slide 2 from what I understand right now as opposed to

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1 3 I think. Which one do you want, 3?

2 MS. RAMADAN: Slide 3.

3 CHAIR BROWN: Okay. There's slide 3. All
4 right. Thank you.

5 MS. RAMADAN: Okay. So the current 2007
6 version of Reg Guide 1.9, Revision 4 covers only
7 diesel generator technology and endorses with
8 exceptions the 1995 version standard of IEEE.

9 In this Revision 5, the NRC wanted to
10 implement a technology-neutral concept and include all
11 users of onsite emergency AC power sources.

12 In order to ensure a consistent regulation
13 in an innovative and transformative approach, the
14 staff is proposing this new revision to provide the
15 reasonable assurance on the evaluation criteria for
16 onsite emergency AC power sources to be applied
17 uniformly to the operating fleet, new, advanced, small
18 modular reactors, and nuclear facilities.

19 The benefits of converting Reg Guide 1.9
20 would be to reduce the number of Reg Guides that will
21 be required to cover each alternative.

22 It will also reduce the review process,
23 which includes public comments, and facilitate the
24 application processes by industry to use alternative
25 onsite emergency power supplies in the future. Next

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1 slide, slide 4.

2 MEMBER REMPE: Could I interrupt with a
3 couple of questions, please?

4 MS. RAMADAN: Yes.

5 MEMBER REMPE: Okay. So some of the
6 material we received indicated that your office asked
7 the Office of Research to do a Research Assistance
8 Request. And out of curiosity, I was wondering what
9 research they provided that helped you update this Reg
10 Guide? Could you give some examples?

11 MS. RAMADAN: Could you repeat the
12 question, please?

13 MEMBER REMPE: Okay. So we were given
14 some material to review in preparation for this
15 meeting. And one of the items indicated that your
16 office asked the Office of Research, using a Research
17 Assistance Request, to help support the revision of
18 this Reg Guide.

19 And so please confirm that that
20 information is correct, because it was actually in a
21 status report we were given. But it piqued my
22 curiosity. And if it is correct, could you give me
23 some examples of what Research did to help you revise
24 this Reg Guide?

25 MS. RAMADAN: I will turn that over to our

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1 team lead, Kenn Miller. Kenn?

2 MR. MILLER: Yes. Can you hear me there?

3 MEMBER REMPE: I can.

4 MR. MILLER: Okay. So, in reference to
5 your question, I guess one thing I would mention, RAR
6 is a product of our work request system. It's a way
7 to, you know, to identify a scope of work to do and
8 then complete it. And it's usually submitted from the
9 organization that's wanting to do the particular work.

10 In this case, there wasn't particular
11 research per se that was done in reference to
12 development of this Reg Guide. It was primarily,
13 again, as was said, based on endorsing the newest
14 version of 387, as well as the new version of 2420
15 and, again, the general goal of going to a design-
16 neutral approach.

17 So I guess specifically then there wasn't
18 actual research per se done to support this. And,
19 again, the terminology of the work request is I think
20 what gave you that question. So, okay, hopefully that
21 answers your --

22 MEMBER REMPE: I appreciate the
23 clarification. Thank you.

24 MR. MILLER: Okay. You're --

25 MEMBER REMPE: The other question I had is

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1 related to what happened at Fukushima.

2 At the beginning of the Reg Guide, they
3 talked about the general design criteria. And they
4 mentioned the need to protect from seismic events, as
5 well as flooding events.

6 And later in the document they do mention
7 seismic events. But they don't ever talk about the
8 need to have leaktight doors, which I know are
9 existing in our U.S. plants.

10 But is that just in a different Reg Guide,
11 or why didn't this Reg Guide or even the IEEE standard
12 mention the need to consider location to protect from
13 flooding? Did anyone here my question? Or there's
14 dead silence.

15 CHAIR BROWN: I did.

16 MS. RAY: Lili, do you mind if I take that
17 one?

18 MS. RAMADAN: Go ahead, Sheila.

19 MS. RAY: This is Sheila Ray, senior
20 electrical engineer in NRR. Thank you, Member Rempe,
21 for your question.

22 So this, the IEEE standards are really on
23 the power sources themselves, on the electrical
24 aspects. However, there is an IEEE standard on
25 flooding, internal flooding that we are looking at.

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1 It's actually in development currently. So that is
2 covered in a different IEEE standard. And I believe
3 that's 833.

4 MEMBER REMPE: And will there be a Reg
5 Guide endorsing this other standard then later? I'm
6 just surprised that this Reg Guide doesn't mention
7 that at all, since it does mention the general design
8 criteria.

9 MS. RAY: So, since we haven't developed
10 the Reg Guide for IEEE 833, we haven't mentioned it.
11 I anticipate that may come in a future revision. We
12 are planning on endorsing or reviewing IEEE 833 for
13 endorsement when it's published.

14 MEMBER REMPE: Okay. Thank you.

15 MS. RAY: You're welcome.

16 MS. RAMADAN: Okay. Moving on to slide 4,
17 as stated before, Reg Guide 1.9, Revision 4 endorse
18 IEEE standard 387-1995 as an acceptable method for
19 satisfying the Commission's regulation with respect to
20 the design, qualification, and periodic testing of
21 diesel generators typically used as onsite electric
22 power systems for nuclear power plants. Next slide.

23 This revision endorses the two IEEE
24 standards, IEEE Standard 387-2017 and IEEE Standard
25 2420-2019, in full with supplements and

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1 clarifications.

2 The first IEEE standard, 387-2017, is a
3 standard where emergency diesel generators are widely
4 used as standby emergency power sources for onsite
5 alternating AC power system. Next slide, slide 6.

6 The second standard, IEEE Standard 2420,
7 is a standard where new reactor designs incorporate
8 gas turbines to supply the standby emergency AC power
9 system.

10 The IEEE Standard 2420 also incorporates
11 the interim staff guidance and other technical and
12 regulatory documents needed to implement the
13 technology-neutral concept approach into this new
14 revision. Next slide, slide 7.

15 Can I be heard? Slide 7. Does that sound
16 better? Can someone confirm?

17 MR. MILLER: Yeah, you're coming through
18 fine, Lili. This is Kenn.

19 MS. RAMADAN: Thank you. Some of the, in
20 slide 7, some of the significant changes that occurred
21 in this revision can be found under the design and
22 application considerations section.

23 Specifically, the testability and
24 synchronization capabilities were supplemented to
25 address testing EDGs in the event of offsite power

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1 source that ensures that the diesel is protected and
2 can withstand any perturbations.

3 Also, in the design and testing
4 considerations section, we clarify the simulation of
5 parameters of operation by modifying how the EDGs
6 envelop the parameters of operation.

7 We also clarify the allowance of using EDG
8 owner group recommendations for accelerative
9 maintenance as appropriate for obtaining a valid
10 review of rating basis if it was not possible due to
11 the absence of EDG manufacturers. Slide 8.

12 We also supplemented both IEEE standards
13 to include clarification --

14 CHAIR BROWN: Liliana, would you go back
15 --

16 MS. RAMADAN: Yes.

17 CHAIR BROWN: -- to the previous slide?

18 MS. RAMADAN: Yes.

19 CHAIR BROWN: The -- you said in the
20 absence of who for the EDGs? I didn't understand the,
21 this manufacturer recommended accelerated maintenance.

22 MS. RAMADAN: In the absence of the EDG
23 manufacturers, if for whatever reason they're no
24 longer in existence, we are allowing --

25 CHAIR BROWN: Oh, okay.

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1 MS. RAMADAN: -- the use for EDG owner
2 group, the recommendations --

3 CHAIR BROWN: Okay.

4 MS. RAMADAN: -- from the EDG owner
5 groups.

6 CHAIR BROWN: All right. I remember that
7 now. Okay. Thank you.

8 MS. RAMADAN: It's no problem. Slide 8.
9 We also supplemented both IEEE standards to include
10 verification of all subsystems such as fuel oil, lube
11 oil, cooling, starting, and piping systems credited
12 for operation.

13 Other important changes that need to be
14 noted, many of the testing and design requirements
15 from Revision 4 were removed since they were already
16 incorporated in the updated IEEE 387-2017.

17 Also, the title of Reg Guide 1.9 changed
18 to be reflective of the technology-neutral approach.
19 Next slide.

20 The thought of this new proposed guidance,
21 as stated before, was to make this Reg Guide
22 technology-neutral to cover diesel engine driven,
23 combustion gas turbine, and other alternatives for
24 onsite standby emergency power supplies that meet the
25 intent of 10 CFR 50 and 10 CFR Part 52 requirements,

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1 as well as consider small modular reactors, advanced
2 reactors, and nuclear facilities.

3 The criteria that was used to evaluate
4 power sources other than the EDGs and CTGs was derived
5 from GDCs 17 and 18.

6 The type of power sources that could be
7 used as AC sources are typically that of generators,
8 alternators, and inverters. This could include
9 biodiesel generators, hydro plants, and/or wind farms
10 for the rotating turbines converting mechanical power
11 to electrical power.

12 This guidance allows for new --

13 CHAIR BROWN: Liliana?

14 MS. RAMADAN: Yes.

15 CHAIR BROWN: Would you run through that
16 again?

17 MS. RAMADAN: So the type of power sources
18 that could be used as AC sources are typically that of
19 generators, alternators, and inverters.

20 CHAIR BROWN: Liliana, aren't generators
21 the same as we have on diesels and CTGs?

22 MS. RAMADAN: Yes.

23 CHAIR BROWN: I mean, a generator is a
24 generator regardless. So that's not necessarily new,
25 is it? That's not an alternate source.

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1 MS. RAMADAN: It's --

2 CHAIR BROWN: It's the same as we have
3 today.

4 MS. RAMADAN: Yes. But I'm just trying to
5 demonstrate what type of sources we're referring to.

6 CHAIR BROWN: Okay. But the alternate --
7 you're talking about, this is the other sources, AC
8 sources other than EDGs and CTGs section, right?

9 MS. RAMADAN: Yes, correct.

10 CHAIR BROWN: Okay. So, I mean, a
11 generator is a generator. And you've already really
12 covered those in the EDG regardless of what the
13 generator -- the only two things you've covered are
14 combustion turbines and diesels. Generators can be
15 applied to anything else, but yet generator, an AC
16 generator is an AC -- it's mechanical.

17 MS. RAMADAN: Yes.

18 CHAIR BROWN: So put those aside for a
19 minute. What other AC power sources did you all put
20 on your, think about? I mean, I thought of some.
21 Wind turbines was obviously one. Solar panels would
22 be another. Fuel cells would be another.

23 MS. RAMADAN: Biodiesel.

24 CHAIR BROWN: Hydroelectric, that's
25 interesting --

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1 MS. RAMADAN: Yes.

2 CHAIR BROWN: -- if you have a big
3 reservoir to deal with. But if you back off to wind
4 turbines and solar cells and fuel cells, what was the
5 other one you listed?

6 MS. RAMADAN: Biodiesel generator.

7 CHAIR BROWN: Well, biodiesels, that's
8 still a diesel generator.

9 MS. RAMADAN: Yeah.

10 CHAIR BROWN: I mean, whether you run it
11 with the germs running through it or you use oil --

12 MS. RAMADAN: Right.

13 CHAIR BROWN: -- it doesn't really make a
14 whole lot of difference. Whether it's a vegetable oil
15 or diesel fuel, it's still the same.

16 MS. RAMADAN: Right.

17 CHAIR BROWN: So the real only other
18 emergency sources you could deal with would be wind
19 turbines, solar power, fuel cells, and then you
20 mentioned hydroelectric, but not a whole lot of
21 plants. You know, that's a difficult draw on the
22 hydroelectric. But that's fine. But they're still
23 generators.

24 MS. RAMADAN: Yes.

25 CHAIR BROWN: So the really only unique

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1 items are, that would be, haven't been used would be
2 solar, wind, and fuel cells --

3 MS. RAMADAN: Correct.

4 CHAIR BROWN: -- which are -- two of those
5 are weather dependent.

6 I'm trying to think of -- I didn't see
7 any, you know, requirements or anything else in there
8 that would, I don't know, emphasize the fact that
9 weather -- how in the world can you depend on the
10 weather to make sure you have emergency power?

11 And there was nothing in the criteria you
12 provided in Section C1 that would allow you to come to
13 that conclusion that it was satisfactory.

14 MR. MILLER: Hey, Lili. This is Kenn.
15 Would you like me to weigh in here a little bit?

16 MS. RAMADAN: Sure, sure.

17 MR. MILLER: Okay. Yes, I think the
18 intent of this part of the presentation was just to
19 illustrate the fact that there could be lots of other
20 types of sources for emergency power or albeit prime
21 movers for a generator like is used in a diesel. I
22 don't think it was meant to be an exhaustive list.

23 And, again, with the approach on the Reg
24 Guide in dealing with sources other than diesels and
25 combustion turbines, the idea was to present the

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1 requirements that would have to be met in terms of the
2 regulation for any other source that a licensee might
3 choose to apply.

4 So, again, I don't think the intent was to
5 have an exhaustive list or that we had a particular
6 type of source in mind. The goal was to have the
7 generic requirements that apply to all types of onsite
8 sources as described in GDC to help the applicant or
9 the licensee answer the regulatory requirements for
10 whatever source they choose.

11 CHAIR BROWN: Well, that's interesting.
12 But Section C1 does not really provide. It's just a
13 bunch of, it's largely a -- you list capability and
14 testability and that type of stuff. Then you just say
15 they should review, assess, and discuss. It doesn't
16 even come close to the layout or the architecture of
17 the guidance that is provided in C2 and C3.

18 MS. RAMADAN: I understand that.

19 CHAIR BROWN: I mean, I had a little bit
20 of difficulty -- let me finish, please.

21 I went back through all of the IEEE
22 standards, as well as the previous Reg Guides. And
23 there are principal design criteria that are specified
24 in each of those areas. And if you look at those
25 principal design criteria, they are fundamentally

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1 performance-based and technology-neutral. You have to
2 start and stop, for instance.

3 There's a whole section in the original
4 Reg Guide covering paralleling, for instance. And
5 that's not even mentioned in C1.

6 There's a whole section covering start
7 demand, start failures, run, load demand, load
8 failures, how you assess those. You copied that from
9 the EDG stuff and put it into the CDG area, CTG thing
10 because it wasn't covered in that IEEE standard.

11 I mean, it's just a, there's just --
12 there's nothing there. I mean, it's largely discuss
13 and review these various types of technical items and
14 discuss them, and then we'll figure out what's good or
15 not good on the fly. That's what it looked like.

16 I had a hard time understanding that and
17 why that was -- and it doesn't even parallel with the
18 layout of design criteria and laid out in terms of a
19 bulletized format. It's very difficult to understand
20 Section C1, very difficult.

21 MR. MILLER: So --

22 CHAIR BROWN: But if you look at the
23 principal -- Sections 1, 2, 5, 6, and 7 of the IEEE
24 standard plus the annexes are also, for the most part,
25 technology-neutral, I mean, other than a cooling

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1 system or a particular lube oil requirements or
2 something like that, which may not apply.

3 They could have been tailored to apply to
4 any other type of source of which would be solar,
5 wind, and/or fuel cells, as well as biodiesels or
6 anything else. But the biodiesel would be covered
7 under, fundamentally all the requirements under C2.

8 So, I mean, it seems that there was just
9 very, very little technical information or guidance.
10 The lead-in on C1 literally said, hey, these are
11 considerations. Whereas, the lead-in for C2 and C3
12 used a different set of words interestingly enough.

13 I'm going to find it so I don't get it
14 wrong. For C1 you said, the following considerations
15 should be addressed to meet the regulations in Part A.
16 In C2 you talked about the following regulatory
17 positions supplement the guidelines as related to the
18 design and testing considerations.

19 There's a big difference between
20 regulatory positions and considerations in terms of
21 things you should, you know, evaluate in terms of
22 their, what I would call a regulatory type impact.
23 Same thing for C3, that's the way that one reads.

24 So it just -- I was kind of taken back a
25 little bit that we didn't parallel the layout and

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1 architecture of C2 and C3 and develop that.

2 And then since we don't have any IEEE
3 standards or any other standards to cover alternate
4 sources, it looks like Reg Guide 1.9 by default
5 becomes the equivalent of IEEE standards for the other
6 two considerations.

7 And that does not come across as being
8 very definitive in terms of what an applicant would
9 have to consider. There's very little guidance given
10 to the applicant other than to think about stuff
11 without any of the clarifications or positions you've
12 referenced in either for the CTGs or the EDGs.

13 I'm just wondering what went into that
14 thought process that got you to such a generalized
15 listing in each of those long paragraphs with multiple
16 sentences saying look at this, look at that, assess
17 and discuss.

18 MR. MILLER: This is Kenn Miller. I'll
19 add a few more comments, and then the rest of the
20 team, feel free to weigh in on this.

21 And I think you summed it up pretty well
22 at the end there. The reality is that in the case of
23 C1 and C2 we have IEEE standards which go into a lot
24 of detail about those particular applications
25 utilizing diesels and combustion turbines. Whereas,

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1 Section C was meant to be very broad, because of the
2 range of different technologies that could be applied
3 to an onsite source.

4 CHAIR BROWN: You're talking about C1.

5 MR. MILLER: Yeah, I'm sorry.

6 CHAIR BROWN: That's okay.

7 MR. MILLER: The other section --

8 CHAIR BROWN: For the others, I was just
9 trying to clarify.

10 MR. MILLER: Yeah, the other section
11 dealing with other than diesels and combustion
12 turbines, again, the approach was more to look at what
13 are the regulatory, the regulation requirements that
14 any source would have to have.

15 It's recognized that there would be a lot
16 of additional work that a licensee would have to do to
17 apply some other technology to an onsite source. And
18 given that we don't have standards, other standards to
19 look at in that case, the idea was to at least
20 acknowledge that in a section and at least highlight
21 all the regulatory requirements.

22 I think that's really kind of the
23 overarching premise of how we chose to put this Reg
24 Guide together and why there's not as much detail in
25 terms of the other sources than diesels and combustion

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1 turbines. But again, that's because we have
2 standards, industry standards that have been developed
3 to address those.

4 So, again, I would allow any of the other,
5 Lili or any other team members to weigh in as well on
6 that.

7 CHAIR BROWN: Let me just springboard off
8 of your comments. If you literally look at -- and
9 I've got the Reg Guide in front of me now. I'm
10 shuffling papers, so don't panic.

11 You've got a number of categories, safety
12 classifications, then safety function, capacity,
13 capability, physical and electrical independence. I
14 mean, when you talk about safety systems, if you look
15 at some of the Reg Guides you reference, there are
16 like 45 years old, 1975 and, or 35 or 25, 1995 Reg
17 Guides on sharing.

18 If you look at the IEEE standard and you
19 talk about, you know, they are specific. But under
20 the principal design criteria, it says forget the
21 words mechanical and electrical. It's not just design
22 conditions. The unit shall be capable of operating
23 during any design-basis event without support. That's
24 not in C1.

25 And then it goes on and talks about you

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1 should have a minimum of operating cycles, 4,000
2 starts over a period of 4 years. There's a series of
3 testing requirements. And they've got seismic
4 response factor you have to deal with.

5 All those, you know, a large number of all
6 those principal design criteria apply to any source in
7 C1, and yet they're not even talked about. In C1,
8 seismic is not even listed.

9 So it just comes down to, there's the --
10 all the principal design criteria and all the other
11 sections on testability, manufacturing, operations,
12 all that stuff and both of those, two IEEE standards
13 are easily applicable. For instance, fuel type and
14 quality, all of the other AC sources you would go for
15 has to have some type of fuel supply.

16 Fuel cells need hydrogen. Solar powers
17 need sun. Wind needs wind. So biodiesels need -- you
18 know, is the vegetable oil suitable or not suitable?
19 How do we get it in?

20 There's discussions in the other
21 standards, including the Reg Guides, on how long you
22 have to be able to operate these systems, for 30 days
23 or so counted independent other than running some, you
24 know, checks on them. It's based on fuel supply.

25 That's not in, that's not even present in

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1 C1, yet they do exist in both of the IEEE standards as
2 well as some parts of the Reg Guide, the old Reg
3 Guide, Rev. 4, and have been carried over into Rev. 5
4 for those two items.

5 I compared Rev. 4 to Rev. 5 line by line.
6 And the incorporation of the later revisions, the IEEE
7 standards, were incorporated as you all stated
8 properly. But you didn't add a whole lot else after
9 that.

10 It's -- I mean, I'm all in favor. I think
11 it's a great idea to start trying to put, you know,
12 some information out there in terms what other sources
13 may be available other than just diesels, I mean,
14 diesel generators or combustion turbines.

15 But the information you put in C1 in my,
16 this is my personal opinion, I can't speak for the
17 committee in any way, shape, or form, is that they are
18 just generalizations and don't really think. It just
19 says address EMI and radio frequency interference.

20 Another example of that would be if you
21 have to go to solar power, solar panels and fuel
22 cells, you'd have to have electric power converters.
23 That's a solid state power conversion. And when you
24 do that, you end up generating harmonics. There's not
25 even a mention of harmonics, which you don't have to

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1 deal with as much on bio-iron (phonetic) type
2 generators.

3 So, I mean, it's, the thought process to
4 me is, if I had been in your shoes, okay, I would have
5 spring, used the other two IEEE standards in the Reg
6 Guide as a springboard for the architecture and
7 layout, you know, section by section and effectively
8 incorporated IEEE formats into C1, and then
9 incorporate those items that were general performance
10 only and technology-neutral type issues that are
11 discussed throughout the design criteria, testing,
12 manufacturing, qualification, et cetera, because those
13 are largely the same regardless.

14 So that's the point I was trying to make
15 when I made that earlier request.

16 I think NEI also made the comment about C1
17 was awkward and difficult to read. I've forgotten
18 which NEI comment it was, 17 or 18 or someplace back
19 there. And they suggested it be bulletized or
20 alphabetized or something like that.

21 And I would, I agreed with that. I didn't
22 see it in the review copy that we received for that.
23 And you said you were going to do something with that
24 NEI comment, but it did not get reflected in the copy
25 of the Reg Guide as we got it.

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1 So that's kind of where I'm coming down
2 from that standpoint. I haven't heard anything from
3 anybody else, any other members.

4 MS. RAMADAN: Can I make a comment here?
5 I think this Reg Guide provides the reasonable
6 assurance on the evaluation of the criteria. But it
7 cannot provide the specific acceptance criteria,
8 because it depends on the technology that is used.

9 You know, there's unique considerations
10 with each technology. And that will be evaluated at
11 the time of application.

12 But with this current guidance, it
13 basically ensures -- and I'm only referring to C1. It
14 ensures that the applicant and the staff are aligned
15 regarding the review criteria. And that's the reason
16 why it does not model the same architecture that C2
17 and C3, as is currently laid out.

18 CHAIR BROWN: I would disagree with you.
19 The principal design criteria as laid out in the IEEE
20 standards, very few of them tell you exactly how to or
21 anything else.

22 For instance, under these, you've got to
23 be able to start and load any power source. And
24 you've got to be able to do it from various
25 conditions. It doesn't tell you anything else other

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1 than that.

2 You've got to be able to restart. What if
3 you have repetitive on and offs? How should that --
4 that's not -- that's a criteria. That's not a how-to
5 or a specific detailed design item. It just says
6 you've got to be able to beat that type of
7 performance.

8 And that's what, the IEEE standards
9 fundamentally reflect that. They do not contain
10 specific boundary conditions. They just say you need
11 to operate over the voltage and frequencies necessary
12 and seismic response spectra need to be -- I mean, in
13 other words, they just, it's all the way through.
14 It's very, very nonspecific.

15 For dynamic loads, you have certain
16 criteria that the power band cannot go out of. That's
17 not stated necessarily in C1. And that applies. You
18 don't have to have the same numbers that the EDGs and
19 the CTGs use. But you need to have it known that you
20 have to meet certain criteria for those types of
21 operations.

22 Start demands, how you assess failures,
23 and how you don't, that's not -- that's how you
24 analyze that you're going to meet the requirements.

25 So I would disagree that the IEEE

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1 standards are not technology-neutral. And, obviously,
2 there's some pieces of them that, for the EDG, that
3 are focused on EDG support systems. You don't have to
4 incorporate those in C1. So --

5 MR. MILLER: Lili, Sheila Ray has got her
6 hand up.

7 MS. RAMADAN: Go ahead, Sheila.

8 MS. RAY: Hi, this is Sheila Ray, a senior
9 electrical engineer.

10 I did want to point out one of the reasons
11 we constructed or formatted C2 the way it is is to
12 align with GDC 17. And GDC 17 is very clear on
13 providing sufficient capacity, capability. It
14 discusses having sufficient independence, redundancy,
15 testability.

16 And those are attributes we align to C1 to
17 indicate these are items that are related to a
18 particular attribute in GDC 17. So there is a
19 rationale for formatting it the way we did.

20 And I would indicate that we did point to
21 the seismic. In the qualification, we indicated Reg
22 Guide 1.100 provides additional information. We
23 didn't provide specific information on seismic because
24 we find that that would be more particular to a
25 technology and we were more general.

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1 In the reliability section, we address,
2 you know, fail to start, fail to run. And we're
3 expecting the applicant to provide data and
4 demonstration that they can have 95/95 reliability.

5 And in the capability, we did address,
6 asked for the applicant to address fuel storage and
7 supply requirements. So that could be, you know,
8 hydrogen, solar. That's where we think that would fit
9 in.

10 So we're asking them to address
11 capability. We weren't particularly prescriptive. We
12 did want to leave it open for the applicant to provide
13 the information to us.

14 A lot of this section is based on our US-
15 APWR review in that when we were looking at that
16 review, that was the first time we were looking at or
17 evaluating a combustion gas turbine as an onsite --

18 CHAIR BROWN: You're talking about --

19 MS. RAY: -- emergency source.

20 CHAIR BROWN: Which plant --

21 MS. RAY: A US-APWR design.

22 CHAIR BROWN: Yeah, oh, yeah, that's
23 correct. They use CTGs.

24 MS. RAY: Correct. And so, when we
25 started that review, we didn't have any guidance.

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1 There was no IEEE standard at the time. There's was
2 no guidance for combustion gas turbines. So our
3 thought process for C1 is to allow flexibility for new
4 reactors, advanced reactors to use other technologies.

5 As you mentioned, you know, there are some
6 sources that are available now. We wanted to leave
7 this open for innovation. If there's other sources,
8 what criteria would we look at to evaluate the source?

9 That is coming from GDC 17. And that's
10 why we laid out C1 as it is. It directly ties to the
11 criteria and the regulations.

12 CHAIR BROWN: I guess I just considered it
13 too vague when I went through those, all those
14 sections.

15 When I looked at, just look at the
16 combustion turbine section, you actually translated or
17 moved or incorporated I should say issues like load
18 run demands, load run failure evaluations, start
19 demands, start failures. And you didn't -- you
20 defined what they were so that people knew what they
21 were dealing with.

22 Those same criteria apply for any other
23 types of power source you come up with. They
24 specified how, you know, they gave you some
25 indications of how long did it have to be in service

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1 to qualify as a valid demand that didn't fail. And
2 that's stuff that you need.

3 And then they listed a bunch of exceptions
4 that showed relative to, I mean, loss of offsite
5 power, accident, or other type operations, which are
6 related to plant conditions, again not specific to a
7 particular technology.

8 So it's that type of stuff that is
9 incorporated that you did move, took out of the EDG
10 and incorporated it into the Reg Guide, plus the CTG
11 Reg Guide, the IEEE standard for the CTG did not
12 incorporate some stuff that the EDG had.

13 So, I mean, when you go read that list, it
14 just provides, you know, what is the applicant
15 supposed to deal with, how is he supposed to address.
16 And it doesn't care about the technology telling him
17 how to at least make sure you get the information you
18 need.

19 I just think you're going to be full of
20 RAIs on any other power source other than the CTGs.
21 I have no problem with the EDG, CTG sections by the
22 way. Those came out just fine. The one I had
23 difficulty with is the C1.

24 MS. RAY: I do -- oh, I apologize.

25 CHAIR BROWN: No, go ahead.

1 MS. RAY: So, in the US-APWR review, we
2 had a lot of RAIs to begin with because we didn't even
3 have the information we needed to do the full review.

4 And my opinion is this Reg Guide will at
5 least put applicants and staff in alignment to have
6 the right discussions to begin with to start the
7 review. These are the items we would like to see to
8 begin the review to ensure that onsite AC emergency
9 power source will meet the regulations.

10 And we have some criteria. They're a bit
11 vague. Sometimes they just point to other Reg Guides.
12 For example, in the qualification, we pointed to Reg
13 Guide 1.89 and 1.100. And that will give some
14 criteria and methodology on how to perform a
15 qualification.

16 So I do think there is some criteria
17 there. But it starts the conversation on what we're
18 looking for to meet the regulation.

19 CHAIR BROWN: Okay. Any comments from any
20 of the other committee members?

21 MEMBER KIRCHNER: Yes, Charlie. This is
22 Walt.

23 CHAIR BROWN: Yes.

24 MEMBER KIRCHNER: I can envision,
25 especially with smaller reactors and perhaps more

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1 passive the design concepts, that the emergency power
2 requirements may be quite a bit less, perhaps
3 proportionately, than they are for a large PWR.

4 One could see using battery systems,
5 whether you use an inverter or you use a DC/AC rig
6 like is often used for protection system power. It
7 would seem to me C1 would apply in that case.

8 I'm having a little trouble, though,
9 sorting out what the requirements would be should the
10 source of power be intermittent --

11 CHAIR BROWN: Well --

12 MEMBER KIRCHNER: -- and if you would
13 demonstrate the same performance requirements that you
14 get from a diesel or a gas turbine systems, both of
15 which can be started and loaded relatively quickly.

16 Again, depending on the actual reactor
17 design, you may have more time before absolutely
18 needing that emergency power. But, you know, 17 talks
19 about seconds for -- so the presumption for me would
20 be if you've got an intermittent source that you
21 somehow also have a battery bank to back up its
22 unavailability.

23 CHAIR BROWN: Well, the battery has to be
24 able to be charged.

25 MEMBER KIRCHNER: Yeah.

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1 CHAIR BROWN: And right now --

2 MEMBER KIRCHNER: So I'm wondering how,
3 I'm just wondering --

4 CHAIR BROWN: And it has to maintain its
5 charge.

6 MEMBER KIRCHNER: Right.

7 CHAIR BROWN: And it's simpler when it's
8 not used.

9 MEMBER KIRCHNER: Right.

10 CHAIR BROWN: So you, and you can't,
11 batteries, you can't just let them sit there. You
12 have to --

13 MEMBER KIRCHNER: No, no, I fully agree
14 with you --

15 CHAIR BROWN: I mean, you just can't
16 charge them up and let them sit. That does not work.

17 (Simultaneous speaking.)

18 CHAIR BROWN: I've got more experience
19 with submarine batteries than I care to shake a stick
20 at. Those are lead acid. But even more modern
21 batteries lose their power.

22 MEMBER KIRCHNER: Yeah.

23 CHAIR BROWN: And you just can't charge
24 them up and let them sit there for two months and then
25 expect them to be there. And then you have to have

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1 the power converters. And they won't last that long.

2 MEMBER KIRCHNER: I'm just trying to think
3 through how the Reg Guide, the Reg Guide points to the
4 option. Biodiesel to me is really just, that just
5 means your support systems have to be maintained
6 differently so the, that it doesn't turn to sludge on
7 cold weather, et cetera, et cetera --

8 CHAIR BROWN: Biodiesels, the EDG section
9 would work for biodiesels --

10 MEMBER KIRCHNER: Yes, exactly. So I
11 don't see a problem there in terms of alternate fuel
12 sources. And it could be a natural gas system with
13 storage or hydrogen or whatever.

14 I'm just curious how the, what the Reg
15 Guide would point to in dealing with an intermittent
16 source and how that meets 17 and 18, GDCs 17 and 18.

17 CHAIR BROWN: You're talking about sun or
18 wind.

19 MEMBER KIRCHNER: Yes.

20 MS. RAY: This is Sheila Ray. I would
21 consider that to, that should be addressed under
22 availability and also reliability. And if they have
23 battery backup systems, we do have other standards and
24 Reg Guides on battery, on DC systems.

25 CHAIR BROWN: Well, the problem with

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1 battery systems is you'd need a huge battery to
2 provide emergency power even in a small modular
3 reactor for more than short times to supply systems.

4 MS. RAY: I fully agree with you. I am
5 just commenting on where the guidance is. I'm not
6 saying that that's what they would do or that, you
7 know, we will expect to see that in the future. I'm
8 just pointing out there's other guidance on the DC
9 side.

10 CHAIR BROWN: But the nice thing about the
11 existing standards is they list time of operation and
12 availability. And it's largely limited by the ability
13 to replenish fuel, whether it's diesel fuel.

14 And I don't know how long right now in a
15 commercial plant today you can run your emergency
16 diesel, probably Matt or Greg could tell me, without
17 having a tank truck pull up and replenish the fuel
18 tanks. How often does it have to be refilled? Can
19 you run an emergency diesel at rating for a month
20 without replenishing fuel? I don't think so.

21 MEMBER HALNON: No, the answer is no. You
22 can run them up to seven days probably.

23 CHAIR BROWN: That's -- well, you can't do
24 that with batteries, okay, unless you've got something
25 continually charging them. And that -- you have to

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1 have a generator doing that. And if you've lost
2 offsite power, the only source you have is your
3 emergency generator.

4 And there's -- the ability to assess that
5 or to evaluate, you know, throwing those items in in
6 terms of period of operation relative to what you get
7 with diesels and CTGs, it's not triggered at all in C1
8 as I could envision.

9 Obviously, I did not -- I read, I
10 downloaded three or four of the Reg Guides and a
11 couple of the other. I couldn't get IEEE standards
12 other than the ones we've been using, which I compared
13 to the old ones. But, and there was not one for the
14 CTGs. So --

15 MEMBER HALNON: Charlie, this is Greg.
16 Can I ask a question?

17 CHAIR BROWN: Yeah, go ahead.

18 MEMBER HALNON: And I apologize. I had to
19 step out during the first portion of this. But the
20 CTGs, the fuel source is natural gas, right? Is that
21 --

22 CHAIR BROWN: I don't remember from US-
23 APWR. I presume it was. I mean --

24 MEMBER HALNON: Yeah.

25 CHAIR BROWN: -- there's a lot of

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1 experience with that in the Navy because, you know,
2 most of the surface warships are gas turbine now --

3 MEMBER HALNON: Yeah. I --

4 CHAIR BROWN: -- aircraft carriers.

5 MEMBER HALNON: I guess I'd ask the staff,
6 is there any other fuel source for combustion gas
7 other than the gas portion of this?

8 MR. MATHARU: Yeah, this is Singh Matharu.
9 I'm in the electrical branch for the NRR. The gas
10 turbines can use flexible types of fuel from kerosene
11 all the way to natural gas. So there is a flexibility
12 in the fuel pipes.

13 MEMBER HALNON: Okay. Kerosene, I didn't
14 even think of that. But --

15 MEMBER KIRCHNER: They use jet fuel, Greg.

16 MEMBER HALNON: Okay. The 3.13 --

17 (Simultaneous speaking.)

18 MEMBER KIRCHNER: Then they can address
19 the storage issue --

20 MEMBER HALNON: Yeah, and that's, that was
21 where I was going. I didn't see a good description or
22 a good understanding of the storage of the fuel.

23 I see that under C3 there's 3.13. It
24 talks about fuel stability should be considered. And
25 it talked about low sulfur diesel fuel and biodiesel

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1 front.

2 I just didn't see that matching up with
3 the CTG discussion relative to natural gas and some of
4 the other more exotic, I say exotic, but less known
5 fuel sources to the nuclear industry.

6 I didn't know if that should be expanded
7 and discussed a little bit more, or maybe that Reg
8 Guide 1.137, which I did not review, maybe that has it
9 in there.

10 MR. MATHARU: So the Reg Guide -- sorry,
11 this is Singh Matharu again. I apologize. The Reg
12 Guide 1.137 does not address the fuel types for gas
13 turbines.

14 MEMBER HALNON: Okay. You know, back in
15 the polar vortex timeframe, and I can't remember the
16 date, 2009 or something like that, whenever we had
17 that really bad polar vortex up in the Northeast, the
18 natural gas fuel supply was very, very minimally
19 available. Matter of fact, they were telling people
20 to conserve based on it. And we were one 400-megawatt
21 plant away from a complete blackout in the Northeast
22 during that timeframe.

23 And my question would be is, how does a
24 nuclear plant preserve a natural gas supply to be
25 assured enough to be able to credit it for an

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1 emergency situation given the fact that it's
2 completely out of their control? And I don't think
3 you can store enough natural gas onsite to run a
4 diesel for seven days, or, I mean, a CTG for seven
5 days.

6 MR. MATHARU: Yeah, this is Singh Matharu
7 again. You're absolutely right. If you were relying
8 on a pipeline to supply your fuel, your observation is
9 absolutely correct.

10 But the intent is to have adequate fuel
11 stored based on the type of fuel you are using. And
12 typically, you would expect like we pointed out here
13 earlier on, one of the other flexible fuels that you
14 can save and store just like diesels and electric fuel
15 oil.

16 MEMBER HALNON: Okay. So, while that
17 would be in the review of the staff's discussion or
18 the discussion in the SAR-type discussion where you
19 would review that and make a judgment on whether or
20 not there's adequate fuel supply and reliability,
21 given operating experience that we've seen in the
22 Northeast.

23 MR. MATHARU: That's absolutely correct.
24 So the intent would be that the, if the existing
25 plants wanted to replace their diesel generators with

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1 gas turbines, then the fuel requirements would remain
2 the same as such for enough supply to demonstrate that
3 you can replenish given the duration.

4 For the DGs, we are currently saying seven
5 days seems reasonable for the licensees and applicants
6 to demonstrate that within seven days they have other
7 sources available to replenish their onsite fuel
8 capability.

9 Similarly, if the existing licensee has
10 decided to switch to gas turbines, they would be
11 required to have enough onsite storage plus
12 demonstrate capability to replenish.

13 MEMBER HALNON: Okay. And from a diesel
14 fuel, that was adequately demonstrated during the
15 hurricane down in Miami or Homestead many, many years.
16 I think it was Hurricane Frederic that took out Turkey
17 Point's power systems. And they were able to get
18 diesel fuel in. That seems easier than natural gas or
19 even kerosene, other things that may not be quite as
20 easy to get.

21 But, again, as long as the staff is aware
22 and you're going to review that as part of the thing,
23 I think, you know, asking the questions.

24 But that goes back to Charlie's point that
25 it's going to be a lot of RAIs to say how are you

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1 going to prevent running out of fuel and how are you
2 going to replenish during a period of time, if it's
3 some fuel other than, you know, diesel fuel.

4 MR. MATHARU: Yes, you're absolutely
5 correct on that. Even diesel fuel, like you said,
6 during severe weather conditions, it may be a
7 challenge to get it onsite.

8 But typically what you'd find is the
9 licensees and we hope the applicants who are looking
10 at areas where there's potential for severe weather,
11 they'll make arrangements somehow to get fuel from
12 different sources in the event that the loss of
13 offsite power is in an extreme condition and would be
14 more than seven days to restore.

15 MEMBER HALNON: So would you all see
16 yourselves getting into looking at commercial
17 contracts with, to make sure that there are reliable
18 sources of -- in other words, an officer of a company
19 signs a license amendment, says don't worry about it,
20 we've got enough commercial contracts in place to get
21 the fuel in.

22 I mean, clearly we can't just take that
23 as, at face value. We'll have to go verify that. So
24 do you see yourselves actually getting into the
25 ability of vendors to be able to reliably do what they

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1 say they're going to do?

2 MR. MATHARU: I mean, we haven't gone that
3 far for a case up to now that I know of. But your
4 observation is correct. All licensees typically have
5 commercial agreements with suppliers.

6 And there is, in general, there is
7 guidance and understanding between licensees and
8 suppliers that nuclear power plants are a higher
9 priority for their consumables.

10 MEMBER HALNON: Okay. All right. Well,
11 thanks for the discussion. I appreciate it.

12 CHAIR BROWN: Is there any other comments
13 from the committee? Hearing none, I kind of gave you
14 my opinions --

15 MR. HECHT: Charlie, this is Myron Hecht.
16 I'm sorry to interrupt. I did have a question.

17 CHAIR BROWN: Yeah.

18 MR. HECHT: In Section, in all of the
19 sections of the, I shouldn't say all of the sections,
20 in particularly Section C2 and C3 with respect to the
21 CTGs and the EDGs, it seemed that the standards were
22 rather light on instrumentation and control. Why is
23 that?

24 MR. MATHARU: This is Singh Matharu again.
25 So the question on the table is the IEEE standard that

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1 we are trying to endorse has got limitations as far as
2 the level of detail for instrumentation and control
3 associated with the diesel generator and gas turbines?

4 MR. HECHT: Yes.

5 MR. MATHARU: Yes, that is kind of a
6 deliberative effort from the standards perspective.
7 And I am also -- this is Singh Matharu again.

8 I also participate in the working group
9 that's developing or has developed IEEE 387. And we
10 had to put some boundaries as to the extent of what
11 this standard will cover. And there's a figure in the
12 standard that draws those boundaries.

13 And you can go into other sources, other
14 support systems such as cooling water or HVAC, even
15 switch gear. So, in order to contain the warning of
16 the standard and the level of detail, we put a
17 boundary.

18 And you're right. So the instrumentation
19 and control is part of another standard, another
20 design effort. But you will not endorse that in the
21 standard or cover it as part of the Reg Guide.

22 MR. HECHT: Did I understand you to say
23 that the instrumentation and control of support
24 systems is covered in another standard or Reg Guide?

25 MR. MATHARU: The instrumentation and

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1 control systems would be part of a different standard
2 altogether. And they will not be diesel generator
3 specific. But they would give you guidance on what
4 kind of instrumentation and controls you would need
5 for specific systems --

6 (Simultaneous speaking.)

7 MR. MATHARU: -- different organization.

8 MR. HECHT: Can you be --

9 CHAIR BROWN: One --

10 MR. HECHT: -- specific as to --

11 CHAIR BROWN: Myron?

12 MR. HECHT: Yeah.

13 CHAIR BROWN: Just one observation, I went
14 back and compared 387-1995 to the 2017 version. And
15 they are roughly the same relative to instrumentation.
16 So, I mean, it's kind of been that way for a long,
17 long time. That's the only point of my comment.

18 MR. HECHT: Okay. Well, I think I heard
19 Matharu, Mr. Matharu answer the question that there
20 was another source from which, of guidance from which
21 that would be covered for all support systems.

22 And I was going to ask what specifically
23 is that guidance. Is it a Reg Guide? Is it an
24 industry standard, something else?

25 MR. MATHARU: I'm sorry. Yeah, sorry, I

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1 apologize. This is Singh Matharu again.

2 No, I'm not familiar with the specific
3 standard that says instrumentation and control for
4 diesel generators. But all I'm saying is there are
5 standards for general instrumentation and controls for
6 nuclear power plants.

7 MR. HECHT: Well, for nuclear power
8 plants, yes. But now we're talking specifically about
9 the support systems and more specifically about the
10 emergency AC power. And what's true for controlling
11 the positions of the fuel, the control rods is
12 different than what you would be using to measure and
13 control the output of a diesel generator.

14 MR. MATHARU: Yes, that is an accurate
15 statement and observation. Again, we did not indulge
16 into defining what level of instrumentation,
17 redundancy requirements, and type of instrumentation
18 that needs to be associated or installed as part of
19 the package that you will get and requirements in
20 terms of a diesel generator. We take care of that
21 boundary.

22 And it's been like that all the time. But
23 if there's a comment here, we can take that to our
24 IEEE working group and ask them to address it.

25 MR. HECHT: Well, I'm not strictly a

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1 member of the committee. So I'm not in a position to
2 make that comment at least in this forum. But --

3 (Simultaneous speaking.)

4 MR. HECHT: -- irrespective of the
5 boundary of what those standards are considering,
6 doesn't the regulatory guidance need to provide
7 additional information to the, to both the applicant
8 and the staff?

9 MR. MATHARU: On the -- this is Singh
10 Matharu. I'll ask Kenn, because the scope of the Reg
11 Guide was established by our research department. So
12 he can -- I'll point you to Kenn. Let's put it this
13 way.

14 MR. MILLER: Hi, this is Kenn. I
15 apologize. Could you ask your question again? I'm
16 not sure I followed it.

17 MR. HECHT: Okay. Well, the question is,
18 why is there not more information in the Reg Guide
19 about the instrumentation and control systems --

20 MR. MILLER: Oh.

21 MR. HECHT: -- for in particular the CTGs
22 and the EDGs where you do know specifically what
23 you're talking about, as opposed to the abstract
24 nature of C1?

25 MR. MILLER: So this is Kenn Miller again.

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1 I would go back to what Mr. Matharu said, that in this
2 case, you know, this Reg Guide is intended to be
3 providing guidance on onsite power supplies for
4 nuclear power plants. And, specifically, Reg Guide
5 typically get into utilizing industry consensus
6 standards in terms of addressing those requirements.

7 And in this case, going to Rev. 4, which
8 is the current version, it's endorsing IEEE 387, which
9 deals with diesels.

10 And as Singh also mentioned, the IEEE
11 approach with standards is to kind of draw boundaries
12 between them. And in the case of 387, it's dealing
13 with diesels themselves. Whereas the instrumentation
14 and control aspects of it are more generally covered
15 in other standards.

16 So, you know, in the case of our Reg Guide
17 here, we're just dealing with the scope in terms of
18 what's described in the standard. And in general, its
19 requirements do well to address the regulatory
20 requirements that are highlighted also in this Reg
21 Guide that this is intended to provide guidance to,
22 for the licensees to meet.

23 It's probably a little haphazard --

24 MR. HECHT: All right.

25 MR. MILLER: -- with that wording there.

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1 But I think that's the answer to your answer, that to
2 see guidance on those kinds of issues, there would be
3 other standards and other regulatory guidance which
4 deals with those aspects of those standards in terms
5 of in this case instrumentation and control, which
6 could apply, like as has been said, broadly to lots of
7 systems within the plant, not just onsite power
8 supplies, but all the other instrumentation and
9 control utilizing the plant.

10 MR. HECHT: Okay. So I understand the
11 argument about scope. I understand the argument about
12 past practice in these Reg Guides.

13 But the question is, is there a gap in
14 that case, because outside of general instrumentation
15 and control principles, which we know about on this
16 committee, what standards would apply to support
17 systems as opposed to the plant itself, or more
18 specifically, what standards would apply to emergency
19 AC power with respect to instrumentation and control,
20 not with respect to the power sources, or is there a
21 gap?

22 MR. MILLER: This is Kenn Miller. I'd say
23 that, you know, that's certainly a valid question,
24 that, you know, are there gaps in all aspects of
25 nuclear power plant design that aren't addressed, you

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1 know, in terms of guidance and/or industry standards
2 addressing, you know, design requirements of various
3 systems.

4 You know, we -- and, of course, we have
5 the regulations which have requirements of the designs
6 of these plants to ensure, you know, the safety of the
7 public. So, yeah, I think that's a valid question.

8 Whether there is a gap, I don't, I
9 couldn't speak to that here.

10 I think that the Reg Guide does do a good
11 job of, both Revision 4 and the Revision 5, dealing
12 with the design requirements so the regulatory
13 requirements necessary of onsite power supplies as
14 described in the GDC and, you know, how, you know, to
15 what level -- I mean, there's always a discussion
16 about to what level of detail do you go, you know, go
17 to to get adequate assurance that a particular design
18 meets that.

19 And going back to the comments about
20 coming up with, you know, licensees coming in with
21 other potential onsite sources, I think by definition,
22 you know, there's going to be more back and forth
23 between the regulator and the licensee dealing with,
24 you know, questions about that design versus those
25 that are covered in the existing standards like we've

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1 been used to with EDGs in this case for onsite power
2 supplies.

3 MR. HECHT: The one point on this --
4 (Simultaneous speaking.)

5 MEMBER KIRCHNER: Myron, this is Walt
6 Kirchner. I would point out that in the -- I think
7 it's the ISG that Christina shared with us. There is
8 a section on there that points to the review
9 procedures and goes partway, I think, to answering
10 your question. I'll just quickly read a little of it.

11 It says, the reviewer reviews the purpose
12 and operation of each auxiliary supporting system and
13 teacher, including its components arrangement as
14 depicted in functional piping and instrumentation
15 diagrams. Subsequently, the design criteria analysis,
16 description, and implementation of the
17 instrumentation, control, and electrical equipment as
18 depicted on electrical drawings are reviewed to verify
19 consistency with acceptance criteria for Class 1E
20 systems. It verifies that supporting system redundant
21 instrumentation, controls, and loads, et cetera, et
22 cetera. So although it may not be in a standard, it
23 appears at least to be in the NRC's review procedures.

24 MR. HECHT: Okay. Thanks, Walt. Was that
25 document included in the package that --

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1 (Simultaneous speaking.)

2 MEMBER KIRCHNER: This was -- it took me
3 a few minutes to dig it up. This -- Christina has
4 sent us all, I think, about two weeks ago.

5 MR. HECHT: Okay.

6 MEMBER KIRCHNER: Okay. And it's ISG --
7 DC/COL-ISG-021.

8 MR. HECHT: Okay, thanks.

9 CHAIR BROWN: Kenn, this is Charlie.
10 Walt, did you have anything else?

11 MEMBER KIRCHNER: No, sir.

12 CHAIR BROWN: Okay. Put aside the details
13 on instrumentation, Kenn. Okay? But alternate
14 sources could be a lot of different technologies. And
15 if you look at -- that could require some different
16 form of instrumentation than what we're conventionally
17 thinking of.

18 I mean, I hadn't thought about that in the
19 more esoteric broad thought process, particularly if
20 you had solar plus batteries plus power converters.
21 That would be one thing if somebody proposed this or
22 even if that applies even to fuel cells or some of the
23 other more esoteric type fuel sources that require
24 power electronics and batteries. And I would think
25 that that would be one of the items in the list, not

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1 -- if you're going to have a list the way you all done
2 it which you sound like that's what you're going to
3 do.

4 If unique -- if some -- not unique but --
5 not even non-conventional. If there were unique
6 instrumentation considerations relative to current
7 plants, that's all. I don't know how you would phrase
8 that, if that ought to be thrown into that mix if
9 you're going to do this generalized review and
10 discuss.

11 MS. RAY: May I add that in the capability
12 section of C1, we included --

13 CHAIR BROWN: Is that in there?

14 MS. RAY: Yes, it says, discuss
15 instrumentation of the variables necessary for
16 successful operation and to generate the abnormal pre-
17 trip and trip signals required for alarm. So we do
18 feel it's addressed, and --

19 CHAIR BROWN: Okay. I see it.

20 MS. RAY: -- I --

21 CHAIR BROWN: I forgot that.

22 MS. RAY: If I may add, in the chat, one
23 of the electrical engineers has pointed out the
24 support systems for emergency power supplies are
25 typically reviewed by mechanical folks. And one of

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1 those support systems is instrumentation and control.
2 And we would expect instrumentation and control staff
3 to review those systems.

4 CHAIR BROWN: Okay, yeah. I went back and
5 looked. I forgot that.

6 MS. RAY: No problem.

7 CHAIR BROWN: Okay. Are there any other
8 comments from the Committee?

9 Hearing none, Kenn, I think we would -- we
10 have a meeting scheduled for the full committee
11 meeting during the first week after July the 4th. And
12 I guess we will be expecting you all to provide that.
13 I think it's about an hour and a half long.

14 So it should be based on the discussion
15 today. That should be more than enough time. We've
16 got almost -- we're only missing a couple of the
17 committee members. So we should be able to do that
18 within that time period. So that's the expectation
19 going forward. Do you have any comments?

20 MR. MILLER: When you said Kenn, I assume
21 you're talking to Kenn Miller, myself, right?

22 CHAIR BROWN: Yes, yeah, I sorry.

23 MR. MILLER: Okay. And yeah, so -- and
24 again, you're referring to the full committee review
25 of this same package?

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1 CHAIR BROWN: Yes, it's on the schedule
2 for the full committee week in July.

3 MR. MILLER: So my answer to that is,
4 yeah, I obviously will be there for that and ready to
5 deal with questions as they come there.

6 CHAIR BROWN: Okay. If there any
7 additional ones, with the intention to evaluate the
8 report. Okay?

9 MR. MILLER: Understand.

10 CHAIR BROWN: Which I will prepare,
11 hopefully. One last round before I go to public
12 comments, anybody want to make an additional comment?

13 Okay. Can we open the public line for
14 comment? Let me know when it's open.

15 MS. ANTONESCU: Thomas?

16 CHAIR BROWN: Thomas?

17 Should we be asking somebody else? I see
18 Thomas is here.

19 MS. ANTONESCU: Just a moment, Member
20 Brown. We'll contact Thomas. He wasn't ready
21 probably yet to close the meeting or to open the
22 public comment period. Just a moment.

23 CHAIR BROWN: Okay.

24 MS. RAMADAN: Member Brown, I have a
25 couple of other slides. Should I discuss them?

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1 CHAIR BROWN: Oh, we hadn't finished?

2 MS. RAMADAN: No, we were on --

3 CHAIR BROWN: I forgot all about that.

4 MS. RAMADAN: -- Slide 9.

5 CHAIR BROWN: Pardon?

6 MS. RAMADAN: We were just on Slide 9. We
7 were going on to Slide 10. There's just a few more.

8 CHAIR BROWN: Okay. Go ahead.

9 MS. RAMADAN: Slide 10, there were 39 NEI
10 comments. There was 12 IEEE comments and 3 from the
11 members of the public. The one significant change was
12 made to the background section which we combined two
13 sections on the EDGs and CTGs into one.

14 The rest of the comments were minor and
15 incorporated by editorial changes. Other comments did
16 not require changes because they were determined to be
17 beyond the scope of this regulatory guide. Next,
18 Slide 11.

19 MEMBER REMPE: Excuse me. This is Joy
20 again. NEI seemed to be very concerned about the 30-
21 day mission time. Were there any additional
22 interactions between the staff and NEI and they
23 concurred with your response?

24 MS. RAMADAN: In response to that,
25 yesterday we were informed that NEI has comments on

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1 back fit and forward fit and had requested CRGR to
2 review this Reg Guide 1.9. We did our best to provide
3 our response in the public comment table. And we will
4 have the CRGR review to, in fact, discuss their
5 concerns.

6 MEMBER REMPE: I'm sorry, but what is the
7 CRGR?

8 MS. RAMADAN: The review for generic --
9 generic review requirements.

10 MEMBER REMPE: Okay. Thank you.

11 CHAIR BROWN: The 30-day requirement,
12 Liliana, that's consistent with the EDG, isn't it?
13 That's my memory.

14 MS. RAMADAN: I'm sorry. Can you repeat
15 that, Member Brown?

16 CHAIR BROWN: Yeah, the 30-day, I remember
17 something on the 30-day thing. And I remember reading
18 your response to their comment.

19 MS. RAMADAN: Correct.

20 CHAIR BROWN: But I think the 30-day thing
21 was pretty consistent with the EDG 30-day.

22 MS. RAMADAN: Correct. And the EDG is
23 also included in Revision 4. So our Revision 5 was
24 actually softened -- we softened the language. And we
25 disposition our comment as stated in the public

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1 comment. So I believe since we were informed
2 yesterday, they do have further comments. I'm not
3 sure what their comments are but concerns on back fit
4 and forward fit.

5 CHAIR BROWN: Okay. Yeah, I read your
6 all's response on the 30-day thing. But one other
7 issue or point, I brought up you all had originally in
8 the December version which I reviewed for our
9 evaluation to review it or not had a continuous rating
10 item, Item 3.1. And the -- somebody is doing
11 something. It's gone. Can you hear me still,
12 Liliana?

13 MS. RAMADAN: Yes.

14 CHAIR BROWN: Okay. Yeah, you -- and that
15 version, you had a Section 3.1 for the CTG that
16 duplicated the 8,760 hours for -- from the EDG into
17 the CTG for consistency for the most part. And then
18 you deleted it when they asked you to delete it
19 because it was covered other places. And I didn't
20 particularly see that. But there was still the 6,000
21 and 4,000 hours.

22 MR. BASSO: Hi, this is Tom Basso from
23 NEI. Are we unmuted?

24 CHAIR BROWN: Yeah, yeah.

25 PARTICIPANT: This is Bill --

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1 (Simultaneous speaking.)

2 CHAIR BROWN: Are you there?

3 PARTICIPANT: -- Wah (phonetic) from
4 NextEra. I can hear you.

5 CHAIR BROWN: Yeah, I haven't gone to
6 public comments yet. Can you hold on?

7 MR. BASSO: Yeah, I don't know if the ACRS
8 can hear me or not.

9 CHAIR BROWN: Yeah, yes, I can hear you.
10 This is Charlie Brown, the chairman. Can you hear me?

11 MR. MILLER: I'm not sure he's hearing
12 you, Chairman Brown.

13 CHAIR BROWN: Yeah, that's what I
14 gathered. We seem to have a problem with a two-way --

15 MR. BASSO: I think they still have this
16 line from the public muted for the ACRS.

17 MEMBER HALNON: Charlie, this is --

18 PARTICIPANT: The public meeting line is
19 not muted.

20 (Simultaneous speaking.)

21 PARTICIPANT: -- public comment that way.

22 PARTICIPANT: This is Ted. I'm on too,
23 Tom.

24 MR. BASSO: Okay.

25 CHAIR BROWN: Can anybody hear me?

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1 PARTICIPANT: Can you hear me?

2 MR. BASSO: Oh, yeah. I can hear you
3 guys.

4 PARTICIPANT: Okay, good.

5 MR. BASSO: I just think they can't hear
6 us.

7 CHAIR BROWN: Yes, we can.

8 MR. BASSO: They were calling -- I thought
9 they were calling for me. But it's a different
10 Thomas.

11 MEMBER HALNON: Charlie, I hear you.
12 You're fine.

13 PARTICIPANT: No, I think they were
14 calling for you, Tom.

15 CHAIR BROWN: Yeah, it's whoever is on the
16 phone now.

17 (Whereupon, the above-entitled matter went
18 off the record at 11:04 a.m. and resumed at 11:30
19 a.m.)

20 CHAIR BROWN: Okay. This is Charles
21 Brown. I've been informed that we're back in service
22 now relative to our phone lines. Kenn, are you there,
23 and Liliana?

24 MS. RAMADAN: Yes.

25 MR. MILLER: Yes, this is Kenn. I'm here.

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1 CHAIR BROWN: Okay. And I see you have
2 your last slide up. Is that correct?

3 MS. RAMADAN: Yes.

4 CHAIR BROWN: Is that -- you wanted this
5 one, Slide 11. Which one do you want, 12 or 11?

6 MS. RAMADAN: Twelve is fine.

7 CHAIR BROWN: Okay. That works for me.
8 You want to go ahead and proceed?

9 MS. RAMADAN: Sure, just a couple of
10 statements regarding this and conclusion. In summary,
11 we're expecting publication in a month. But given
12 today's discussion, that's probably not going to
13 occur.

14 Revision 5 removes the details of design
15 and testing consideration for EDGs since they were
16 already incorporated in IEEE Standard 387-2017. And
17 lastly, this Reg Guide includes provisions for
18 alternative emergency power sources for supplying
19 onsite AC electrical power systems. And thank you.

20 MEMBER REMPE: Could you elaborate about
21 your plans to delay, because it affects our plans.
22 Should we be waiting until you make some changes
23 before we have this discussed at full committee
24 meeting?

25 MS. RAMADAN: Given our -- yesterday where

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1 we were informed NEI had some back fit and forward fit
2 concerns and having to go through CRGR, that's the
3 time frame we have to account for. Also given Member
4 Brown's comment regarding full committee review, that
5 adds to it. So the way the discussion occurred, our
6 expectation was to have publication in a month. But
7 given this discussion, that may change.

8 MEMBER REMPE: Okay. So I guess you're
9 not planning to make any changes before the full
10 committee meeting. You still want to keep the package
11 as it is, although maybe we should wait till it goes
12 through this review committee. But you're not
13 planning to make any changes based on the discussion
14 today. Is that true?

15 MS. RAMADAN: True.

16 MEMBER REMPE: Thank you.

17 CHAIR BROWN: Okay. Liliana, relative to
18 -- right now, you're all on the schedule for July.

19 MS. RAMADAN: July -- Member Brown, July
20 when? I'm sorry.

21 CHAIR BROWN: That first week, right after
22 July the 4th, Independence Day. I think it is July --

23 MR. MILLER: July 7th.

24 CHAIR BROWN: Yeah, it's July 7th, 8th,
25 and 9th. Our discussion is scheduled for July the

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1 7th, if I remember. Is that correct, Christina?

2 MS. ANTONESCU: Yes, I will let them know
3 later to make sure that I have the correct date and
4 time.

5 CHAIR BROWN: Okay. Well, I was just
6 looking at the agenda. And I think we were first at
7 9:30.

8 MS. ANTONESCU: Yes.

9 CHAIR BROWN: Okay. So the present
10 schedule, Liliana and Kenn, is this presentation will
11 be done between 9:30 and about 11:00 o'clock on July
12 the 7th. And it could shift a few hours if we changed
13 it to the later session, but -- I mean, a later time
14 segment. But right now, we're scheduled for July the
15 7th at full committee meeting. And if you're making
16 no changes, then we can proceed with that.

17 MS. ANTONESCU: Member Brown, I will
18 follow up with the staff to let them know the exact
19 time as I'm not sure what the latest final agenda is,
20 yes.

21 CHAIR BROWN: Okay. That works. Now does
22 that -- is that okay with you, Kenn?

23 MR. MILLER: Yes. This is Kenn Miller.
24 I understand we're scheduled for July the 7th from
25 9:30 till 11:00 at this point. And assuming there

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1 were no changes to the Reg Guide or the package that
2 that could go forward as far as you're concerned -- as
3 far as ACRS is concerned?

4 CHAIR BROWN: Yes.

5 MR. MILLER: The charger committee
6 presentation, it's unclear to me at this point, as
7 Lily alluded to, that there may be -- I'm not sure how
8 that affects things here. So we'll need to ascertain
9 that and get back to Christina on that for sure.

10 CHAIR BROWN: Absolutely.

11 MS. ANTONESCU: Okay. Thank you.

12 CHAIR BROWN: We'll schedule it as it is
13 scheduled. And if these other things that have come
14 into play and want you all to delay it, you will have
15 to tell us.

16 MR. MILLER: Correct. Understand that.
17 That's the way I would see it too at this point,
18 Charles.

19 CHAIR BROWN: Okay. And a follow-up full
20 committee would not be in August. We don't have full
21 committee in August. It would be in September, first
22 week --

23 MR. MILLER: So again, just to repeat
24 back, our next option after the currently scheduled
25 July 7th week would be in September.

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1 CHAIR BROWN: Yeah, I don't know what the
2 schedule is. Right now, looks like --

3 MR. MILLER: Yeah.

4 CHAIR BROWN: -- we have a fairly full
5 schedule in. But you've got to let us know, and then
6 we'll see what we can do. Is that --

7 MR. MILLER: Got you.

8 CHAIR BROWN: -- okay, Matt? Matt and
9 Joy?

10 MEMBER SUNSERI: That's -- yeah, that's
11 correct. And by the way, I looked at the July
12 schedule, and it looks like it's scheduled for 3:00 --
13 this session is scheduled for 3:00 p.m. on --

14 (Simultaneous speaking.)

15 CHAIR BROWN: Oh, it is? Oh, okay.

16 MS. ANTONESCU: Yes, it does. So I was
17 going to follow up and make sure of the date of the
18 time.

19 CHAIR BROWN: Okay, sorry. I had the
20 wrong time.

21 MR. BROWN: And Member Brown, this is
22 Scott. The September meeting is in the week following
23 Labor Day.

24 CHAIR BROWN: Yeah, okay. We've got four
25 days scheduled. So that looks like it's going to be

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1 a full meeting.

2 MR. BROWN: It's going to be less than
3 what is scheduled now. And I'll go over that during
4 our next full committee meeting.

5 CHAIR BROWN: Oh, okay. All right. Well,
6 the point -- all I was trying to get the point across
7 to Kenn was if -- due to your all's dealing with these
8 other issues you feel the meeting in July needs to be
9 deferred, you need to let us know in as timely a
10 manner as you can. And I just wanted to make sure you
11 knew that the next available time for a full committee
12 meeting would be the week after Labor Day in
13 September.

14 MR. BROWN: Right.

15 CHAIR BROWN: So --

16 MR. MILLER: Yeah, this is Kenn Miller.
17 I understand that. Again, currently, we're scheduled
18 for July the 7th. Otherwise, it'll be the week
19 following Labor Day. And we need to ascertain whether
20 or not our July 7th presentation is affected by a CRGR
21 review.

22 CHAIR BROWN: Okay.

23 MR. MILLER: And let you know -- and let
24 Christina know as soon as possible.

25 CHAIR BROWN: Exactly. All right.

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1 MR. MILLER: Yeah.

2 CHAIR BROWN: Okay. With that in play --
3 excuse me, please. Excuse me for a minute. I think
4 we are now -- Thomas?

5 MR. DASHIELL: The bridgeline is open for
6 public comment.

7 CHAIR BROWN: Okay. This is Charles
8 Brown, the chairman of the subcommittee meeting. The
9 public line is now open. Would somebody -- I know
10 there are people that want to make comments.

11 So if we will be -- somebody speak up and
12 we'll start since I don't know who they are. We'll
13 just start and take you all in series. NEI, do you
14 want to go first? Uh-oh.

15 MR. BASSO: Hi, this is Tom Basso from
16 NEI.

17 CHAIR BROWN: Okay.

18 (Simultaneous speaking.)

19 MR. BASSO: -- go first?

20 CHAIR BROWN: Yeah, go ahead. Just start
21 there.

22 MR. BASSO: Okay. Thank you. Again, my
23 name is Tom Basso. I'm the senior director of
24 engineering and risk at the Nuclear Energy Institute.
25 Mr. Brown, you and I will be talking on several

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1 things.

2 I did replace Steve Guyer who retired at
3 NEI. So we appreciate the opportunity, and we do
4 appreciate that NEI's comments have been considered
5 and were incorporated in what we submitted. However,
6 it appears that three of our top priority one concerns
7 were not addressed, one that relates to introducing
8 and defining the term, mission time, as it applies to
9 emergency diesel generators, and then two other
10 comments related to supplements to IEEE Standard 387
11 regarding testing environment and design
12 considerations for testability and synchronizing
13 capabilities.

14 Those you can find as NEI Comments No. 1,
15 2, 3, and 5 that we previously submitted. And so if
16 I could go through them quickly. Regarding the
17 comments on the emergency diesel generator mission
18 time, NEI does appreciate the original language
19 alluding to mission time minimum requirement being
20 removed from the draft.

21 However, we disagree with the language
22 that was inserted in its place. And so document our
23 concerns that this constitutes a back fit and a
24 forward fit and to ensure that it is reviewed, NEI
25 will be submitting a letter to CRGR requesting the

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1 review. To eliminate these concerns, we again
2 recommend that all references to the EDG mission time
3 be deleted in this Reg Guide, and we base that on the
4 following.

5 First, the proposed language provides
6 first ever specific definition of emergency diesel
7 generator mission time by the NRC. And it conflicts
8 with the definitions supported by the NRC and NEI
9 Document 9902, Rev. 7, the regulatory assessment
10 performance indicated guideline to all SSEs. And that
11 document states that mission time -- the mission time
12 modeled in PRA to satisfy the function of reaching a
13 stable plant condition where normal shutdown cooling
14 is sufficient.

15 Note that the PRA models typically use a
16 mission time of 24 hours. However, shorter intervals
17 as justified by analysis and modeling PRA may be used.
18 The proposed new language in this Reg Guide conflicts
19 with this established definition and is in direct
20 contrast to industry's move towards a more risk
21 informed regulatory process.

22 Additionally, this concept should not be
23 introduced in this Reg Guide particularly as a
24 background discussion. The more appropriate place for
25 the NRC to engage in this issue may be with the PWR

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1 Owners Group which has thoroughly researched and
2 addressed this issue as evidence in the PWR Owners
3 Group Document 20014MP, EDG mission time. And we've
4 referenced that in our comments.

5 And past experience dictates the addition
6 of the emergency diesel generator mission time to this
7 Reg Guide will result in inspectors asking licensees
8 questions regarding the mission time which has proven
9 to result in long, costly, and resource intensive
10 processes but no net gain in safety. The proposed new
11 language states that a 30-day mission time is typical.
12 This, in fact, is technically not correct.

13 As referenced in the PWR Document 20014,
14 no Westinghouse, BNW, or CE plants are licensed to
15 these Reg Guides. And no plant UFSAR discuss an EDG
16 mission time. In addition, the safety analysis
17 performed by Westinghouse do not assume a diesel
18 generator mission time. Therefore, to concept as
19 identified in this Reg Guide discussed above is not
20 applicable to any PWR Owners Group plant current
21 licensing basis.

22 So with that, some licensees have
23 researched and developed their own position on mission
24 time. For example, the NRC did engage Callaway where
25 the NRC ultimately concurred with a seven-day mission

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1 time, and others are proactively researching. And
2 some sites have developed similar mission times less
3 than 30 days based, in part, on a number of items that
4 I won't go through in sake of time.

5 So that's our number one concern. Our
6 second concern has to do with specifically mentioning
7 environment, temperature, humidity. That would be
8 expected. An actual demand were placed on the system
9 as a requirement for testing appears to me that the
10 licensees' facilities need to be capable of altering
11 the emergency diesel generators installed environment
12 during periodical testing to include worst case
13 conditions.

14 We don't believe the NRC intends to
15 require the installation of equipment equivalent to an
16 environmental test chamber to be used periodically
17 during testing. In fact, that would not be practical.
18 Instead, we believe that the intent is to assume that
19 the diesel generator includes enough design margin to
20 envelope all expected environmental conditions and
21 will not inhibit the design function capability. So
22 as stated in our previous comments, IEEE Standard 387
23 provides adequate guidance to assure diesel generator
24 safety function is not lost due to environmental
25 conditions.

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1 And again, this guidance covers mechanical
2 and electrical capabilities. That includes
3 temperature and equipment locations, min and a max and
4 average ambient temperatures, humidity, absolute
5 barometric pressure. Also regarding to ratings and
6 application, that standard identifies a diesel
7 generator shall have continuous and short-term ratings
8 with the output capabilities.

9 And then regarding design and application
10 considerations, it does include ambient air
11 temperatures, temperature quality, combustion air,
12 service environment, tornado, depressurization. So
13 basically, our position is that the reference to
14 temperature and humidity be removed from C-2.1 because
15 it presents potential for misinterpretation. It is a
16 design criteria rather than a surveillance testing
17 consideration.

18 It's redundant to the standard. And as
19 stated in the NEI comments, the NRC has already agreed
20 to incorporate corrections based on our position as
21 documented in an NRC response to our previous comments
22 on Reg Guide 1.9, Rev. 4. That's in a letter dated
23 August 22nd, 2007 that the staff agrees that the use
24 of the words, simulated environment, in Regulatory
25 Position 1.5 is subject to different interpretations,

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1 and that the NRC staff also stated the staff agrees to
2 include this clarification in the next revision which
3 will be this revision to Reg Guide 1.9 regarding this
4 issue.

5 So that's our second item of concern. And
6 then our last item of concern is Position C-2.3. NEI
7 disagrees with the proposed addition of Position C-2.3
8 to supplement IEEE Standard 387, Clause 4.4, Table 1
9 because proposed items are in reference to the
10 preferred power source, otherwise known as offsite
11 power. And it's really outside the scope of IEEE
12 Standard 387.

13 So with respect to Item A in 2.3, there's
14 a reference that's made to power quality of the
15 preferred power supply. When diesel is parallel to
16 the grid, the NRC proposes that the consequences of
17 transient degraded conditions should be considered for
18 loading impact on the generator and what consequences
19 and how to respond. So any design associated with
20 preferred offsite power should be considered part of
21 the remote protection system per IEEE Standard 387.

22 And as such, it's outside the scope of the
23 Standard 387. It is more appropriate or implied more
24 appropriate that the scope should be an IEEE Standard
25 308 or 741 or possible IEEE Standard 765. Similarly

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1 with Position 2.3-B that responding to an accident and
2 loss of offsite power or both while the diesel
3 generator is in test mode and parallel to the grid,
4 there's again an example of a protection signal that
5 originates outside the scope -- or the EDG scope
6 remote protection systems.

7 Again, IEEE Standard 387 is a principle
8 design to ensure the design of the diesel respond to
9 the valid signal but is not within the scope of IEEE
10 standard to design these remote protection systems.
11 So again, this would be more related to IEEE Standard
12 308 and Standard 741. So that concludes my comments.

13 I do have a couple of folks online from
14 the various diesel generator owners group to respond
15 to any technical questions you may have on these
16 comments. And I appreciate the time for making these
17 comments. Thank you.

18 CHAIR BROWN: Okay. Thank you very much.
19 We do not get into discussions relative to public
20 comments during our subcommittee or full committee
21 meetings. So we are not going to be going through
22 this.

23 You are providing these comments, and I
24 presume you will be resolving those or addressing
25 those through the process that you mentioned a few

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1 minutes ago. You're resubmitting those for
2 reconsideration. Is that correct?

3 MR. BASSO: Yes, we will resubmit these.
4 And again, we're also going to send a letter to CRGR
5 from the --

6 CHAIR BROWN: Okay.

7 MR. BASSO: -- to take a look at this from
8 a back fit and forward fit perspective.

9 CHAIR BROWN: All right. But that --

10 MR. BASSO: Thank you, Charles.

11 CHAIR BROWN: -- concludes -- okay. That
12 concludes your comments then?

13 MR. BASSO: It does. Thank you very much.

14 CHAIR BROWN: Okay. Thank you. Is there
15 anybody else on the public line that would like to
16 make a comment?

17 Hearing none --

18 (Simultaneous speaking.)

19 MEMBER MARCH-LEUBA: Charlie, this is --

20 CHAIR BROWN: Go ahead. I'm sorry.

21 MEMBER MARCH-LEUBA: Yeah, since we don't
22 have -- with regard to comments, can we request from
23 the staff that they address the technical content on
24 these comments and tell us what their position is so
25 we can be more informed about our decision to support

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1 or not support this request?

2 CHAIR BROWN: You mean right now?

3 MEMBER MARCH-LEUBA: Tell them for -- no,
4 no, no, for the full committee.

5 CHAIR BROWN: Oh, I would expect if they
6 -- Kenn, are you there?

7 MR. MILLER: I'm still here. I'm sorry.
8 What was the question?

9 CHAIR BROWN: Jose, ask your question
10 again.

11 MEMBER MARCH-LEUBA: Yes. Can we -- since
12 we're going to have a presentation in the July full
13 committee meeting, can you have a slide or two
14 addressing the public comments and what the position
15 of the staff is with respect to them?

16 (Simultaneous speaking.)

17 MR. MILLER: I'm sorry.

18 MEMBER MARCH-LEUBA: Yeah. Sorry. Go
19 ahead.

20 MR. MILLER: And I'm sorry. You're an
21 ACRS member you were saying?

22 CHAIR BROWN: Yes, Jose --

23 MEMBER MARCH-LEUBA: Yes, I am.

24 CHAIR BROWN: Yes.

25 MR. MILLER: Okay. I'm sorry.

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1 MEMBER MARCH-LEUBA: Jose March-Leuba,
2 ACRS member.

3 MR. MILLER: Right.

4 MEMBER MARCH-LEUBA: So --

5 MR. MILLER: I guess --

6 CHAIR BROWN: Go ahead, Kenn.

7 MR. MILLER: -- two things. One is it was
8 the -- I'm assuming that the comment resolution
9 document was forwarded to ACRS for this presentation.
10 Was that true?

11 CHAIR BROWN: Yes.

12 MR. MILLER: Okay. So the answer to the
13 question about what our positions were, you have that.
14 And I would assume that maybe there might be something
15 in the presentation to facilitate that discussion at
16 the full committee.

17 MEMBER MARCH-LEUBA: Yeah. What I'm
18 asking is one slide or two during the full committee
19 presentation that discusses the topic.

20 MR. MILLER: Well, we're -- yeah, we're
21 going to meet and discuss the outcome of today's
22 meeting. And we'll certainly -- that's a topic we'll
23 be talking about.

24 MEMBER MARCH-LEUBA: Okay. Thank you.

25 CHAIR BROWN: I presume, Kenn, if this

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1 subject and the letter to CRGR -- if we're going to
2 continue with July, you will be able to address these
3 public comments with us like as Jose requested in the
4 discussion. That's what I got out of your answer. Is
5 that correct? Presuming there's no other hold ups.

6 MR. MILLER: Yeah, I would say that's a
7 fair characterization. But like you said, we'll
8 definitely meet about this and we'll get back with
9 Christina concerning the ability to support the July
10 presentation.

11 CHAIR BROWN: Okay. That's fine. And
12 yes, we did --

13 (Simultaneous speaking.)

14 CHAIR BROWN: -- we did get your NEI
15 comments with your resolution --

16 MR. MILLER: Okay.

17 CHAIR BROWN: -- as part of the package
18 that Christina sent to us. So we have that.

19 MR. MILLER: Okay, very good. Thank you,
20 Charles.

21 CHAIR BROWN: Okay. Thank you, Kenn. Is
22 there any --

23 (Simultaneous speaking.)

24 MEMBER REMPE: Charlie, this is Joy.
25 Could I ask a question about how long it -- I mean, I

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1 guess NEI has not yet sent the letter to the CRGR.
2 And then they have some sort of meeting and make
3 decision. How long does that process usually take?

4 MR. MILLER: This is Kenn Miller. I
5 couldn't speak to that for sure at this point.

6 MEMBER REMPE: Because, I mean, it's a
7 couple of weeks now till the 4th of July week when we
8 have our full committee meeting. Is it -- since the
9 letter is not yet received, it just seems a little --

10 (Simultaneous speaking.)

11 MR. MILLER: Yeah.

12 MEMBER REMPE: -- to have it happen in
13 July right now.

14 MR. MILLER: I guess to make a statement,
15 I guess certainly the possibility for having to wait
16 till September for this is there. I'm just reluctant
17 to say for sure at this point.

18 MEMBER REMPE: Okay. Thank you.

19 MR. BROWN: Vice Chairman Rempe, this is
20 Scott Moore. Having been a former member of the CRGR,
21 if the CRGR has a meeting scheduled and if they aren't
22 going to take any written action on the letter, then
23 they can make a decision in the CRGR meeting. But if
24 they don't have a meeting scheduled yet and if they
25 aren't -- if they -- excuse me. If they are going to

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1 issue some kind of written document, then it can take
2 weeks to a couple months to resolve whatever comes to
3 them.

4 MEMBER REMPE: Okay. Thank you.

5 MR. BROWN: Chairman Brown, can we close
6 the public line?

7 CHAIR BROWN: Yeah, sorry. My phone was
8 still off. Yeah, I was going to say -- let me just
9 make one other query since we've had some
10 interruptions there. Is there anybody else on the
11 public line that would like to make a comment?

12 Okay. Hearing none, we will close the
13 public line.

14 MR. DASHIELL: Public bridgeline is
15 closing.

16 CHAIR BROWN: Okay. Thank you, Thomas.
17 I'll make one more round. Does anybody -- any of the
18 members have any comment that they would like to make?

19 MEMBER KIRCHNER: Charlie, this is Walt.
20 Just supporting Jose's position that if Kenn and his
21 staff could address this mission time because it comes
22 -- it's related to the idea of entertaining the use of
23 intermittent sources for this particular emergency
24 power application. So I would second Jose's request.

25 CHAIR BROWN: Yeah, there is -- you did

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1 get a copy of the resolution that they provided to
2 NEI, didn't you?

3 MEMBER KIRCHNER: Yes, and I'm going to go
4 back and take a closer look.

5 CHAIR BROWN: Okay. That'll give you a
6 summary. I mean, I went through those. Like you, I
7 went through those because the mission time issue is
8 -- I mean, I kind of -- I didn't take any issue with
9 it or disagreeing with the request to delete it.

10 I thought a 30-day mission time was pretty
11 reasonable to have it available. And Greg supported
12 that based on his thought process of what his plant
13 experience is. But that's -- we'll have to wait and
14 see what happens, so -- okay. Hearing nobody else
15 from the --

16 (Simultaneous speaking.)

17 MEMBER REMPE: Charlie?

18 CHAIR BROWN: Yes.

19 MEMBER REMPE: I actually would like to
20 make a comment too.

21 CHAIR BROWN: Yes, go ahead. Go ahead.

22 MEMBER REMPE: As they -- if again they --
23 the CRGR comes back with some suggested changes, I
24 think there's been a lot of good comments made today
25 that -- of course, they're just from individual

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1 members. But I think the staff might consider some
2 other changes before this comes back to us. But if --
3 again, if they're going to go full force with it, then
4 we'll have our letter in July and it will be what it
5 is. But I just would like to entertain that thought.

6 CHAIR BROWN: Well, if you have -- if your
7 notes give you a few -- some of those items that you
8 think fall into that realm of possibility, if you can
9 send me an email and a copy to Christina so we can
10 make sure that we get a response on them.

11 MEMBER REMPE: Okay.

12 CHAIR BROWN: Is that okay?

13 MEMBER REMPE: Uh-huh. Thanks.

14 CHAIR BROWN: That'd be great. Thank you
15 very much, Joy.

16 MEMBER REMPE: And in return, it would be
17 nice if Christina would send us an update when she
18 hears something about what's going to happen with this
19 whole situation.

20 CHAIR BROWN: The schedule?

21 MEMBER REMPE: Right.

22 CHAIR BROWN: Yeah. Christina, you'll do
23 that, right?

24 MS. ANTONESCU: Yes. Member Brown, also,
25 there is a comment from the public that the

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1 disposition of the staff's comments in the document
2 was not provided to them.

3 CHAIR BROWN: That -- I don't know how
4 that's done, so --

5 MS. ANTONESCU: If the staff can comment,
6 please.

7 CHAIR BROWN: Kenn?

8 MR. MILLER: If I could, I'd like to --
9 Stan Gardocki, are you on the line? I think the
10 public comment resolution document is probably not
11 published yet. I'm not certain yet. But perhaps Stan
12 could address that. He's our project manager for
13 this.

14 CHAIR BROWN: Stan?

15 MR. MILLER: Or Lily.

16 CHAIR BROWN: Liliana?

17 MS. RAMADAN: Correct. It is not
18 published right now.

19 CHAIR BROWN: So NEI is not aware of your
20 all's resolution?

21 MS. RAMADAN: Correct. It's not publicly
22 available. They can see the Reg Guide, but the public
23 comments are not yet publicly available.

24 CHAIR BROWN: The resolution to the public
25 comments?

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1 MS. RAMADAN: Correct, the resolution,
2 correct.

3 CHAIR BROWN: Well, that's kind of
4 interesting. I thought they were -- I thought people
5 were aware when you all made resolutions.

6 MR. MILLER: This is Kenn Miller. Stan,
7 I don't know if you're not hearing us or what. Your
8 mic is mute. But I would really like for him to weigh
9 in on that at this point.

10 My understanding is that we're still
11 within normal process in terms of when the comment
12 resolution document would be going public as far as
13 where we are in the revision process for this Reg
14 Guide.

15 MR. RAHIMI: Kenn, this is Meraj.

16 MR. MILLER: Oh, hi, Meraj.

17 MR. RAHIMI: Yeah, this is Meraj Rahimi.
18 I'm the branch chief of regulatory guide. Yes, the
19 comment resolution, I guess we provided the comment
20 resolution table to the members for this meeting,
21 right?

22 (Simultaneous speaking.)

23 CHAIR BROWN: Yes, we have it.

24 MR. RAHIMI: Okay, right. So it is still
25 pre-decisional. So we can -- I mean, we have the

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1 draft. It's pre-decisional response. So since this
2 is a public meeting, it should be this pre-decisional
3 comment resolution table available.

4 And of course, now we have the CRGR that
5 then we have to go to CRGR. So it still remains pre-
6 decisional. But in terms of the NEI and members of
7 the public being able to see these pre-decisional
8 responses since we have provided to the ACRS member
9 for this meeting and this meeting is public, it should
10 be available to them.

11 CHAIR BROWN: It should be available to
12 who?

13 MR. RAHIMI: To members --

14 (Simultaneous speaking.)

15 MR. RAHIMI: -- because I think we made
16 the Reg Guide, this final draft Reg Guide available.
17 So the package should be available.

18 CHAIR BROWN: So --

19 (Simultaneous speaking.)

20 MR. GARDOCKI: No, this is Stan Gardocki.
21 The ACRS requests the Reg Guide. So we give them the
22 Reg Guide in draft form with watermarks (audio
23 interference). That's the only document requested at
24 the public meeting. The responses to public comment
25 (audio interference) have not been released to the

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1 public.

2 MR. RAHIMI: Stan, you're breaking up. I
3 guess that that's the question that you are saying
4 that the -- I thought that the ACRS member, they do
5 have the comment and response draft.

6 MR. GARDOCKI: I did not give them the
7 response to public comment --

8 MR. RAHIMI: You did not?

9 MR. GARDOCKI: -- at least the members of
10 ACRS, no.

11 MR. RAHIMI: Okay.

12 MR. GARDOCKI: And a draft that's marked
13 pre-decisional is made public and actually used in
14 public meetings. They confer upon themselves the Reg
15 Guide as a draft to see if the comments have been
16 incorporated.

17 (Simultaneous speaking.)

18 CHAIR BROWN: Stan, this is Charlie Brown.
19 I had a -- and it's a good question for us. I'm
20 sitting here looking at the NEI comments plus your
21 all's NRC resolution paper. And I --

22 (Simultaneous speaking.)

23 CHAIR BROWN: Pardon?

24 MR. GARDOCKI: Then that was given to you
25 by Christina. That wasn't given --

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1 (Simultaneous speaking.)

2 CHAIR BROWN: That was passed on to us --
3 yeah, from the staff to our staff to us, and that's
4 all.

5 MR. RAHIMI: Okay.

6 CHAIR BROWN: So that's the only place it
7 went. It didn't go anyplace else other than to the
8 members of the committee.

9 MEMBER REMPE: It does have an ML number
10 on it.

11 CHAIR BROWN: Yes.

12 MR. RAHIMI: That's right. I mean, all
13 the documents do have ML number. But normally, they
14 are not publicly available. But when we meet with
15 ACRS after we have received OGC NLO, we do make it
16 publicly available just for the sake of the meeting
17 because this meeting is public meeting. So it should
18 be technically available because we receive -- I
19 believe we received OGC's NLO on the package, both the
20 Reg Guide, the final draft, and the comment response.

21 So I think definitely that we will speak
22 -- I guess I don't want to make a commitment on behalf
23 of our technical lead colleagues, Kenn Miller. But I
24 think for the full committee meeting, we need to speak
25 to the responses, to the comments. But now what's

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1 added now which we just started the process because
2 NEI has requested to go to CRGR. So as the result of
3 CRGR, the response might change.

4 MS. ANTONESCU: This is Christina
5 Antonescu. Also all the documents that are
6 transmitted to ACRS need to be clearly marked as pre-
7 decisional so we're all aware of it.

8 MR. RAHIMI: That's right.

9 (Simultaneous speaking.)

10 MR. RAHIMI: -- pre-decisional and we have
11 received the OGC NLO, I think it should be okay --

12 MS. ANTONESCU: Yeah, but this one was
13 not.

14 MR. RAHIMI: -- to be made. I'm sorry.
15 This one --

16 MS. ANTONESCU: The one on the --

17 MR. RAHIMI: -- was not what?

18 MS. ANTONESCU: -- public comments -- the
19 one on the public comments resolution was not marked
20 as pre-decisional. We have not shared it with
21 anybody. But it was not marked as pre-decisional.

22 MR. RAHIMI: Oh, okay. If it is not,
23 yeah, it shouldn't be shared because we need to make
24 sure that the OGC has reviewed and has provided
25 (indiscernible). Then we need to watermark it with

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1 pre-decisional. But I think the thing now in the full
2 committee meeting which is in July, we'll try to do
3 that.

4 CHAIR BROWN: To do what? Get it to the
5 NEI or just to watermark it?

6 MR. RAHIMI: No, to watermark. I need to
7 make sure that the OGC has looked at this comment
8 response. That's -- I think I need to talk with Stan
9 and with the team because we definitely -- we want --
10 every document, we -- so make it available, it's
11 cleared by our Office of General Counsel.

12 MS. ANTONESCU: Yes, but this has to be
13 done prior to this meeting so we're all clear on
14 what's available for us and the public as this is a
15 public meeting.

16 MR. RAHIMI: Right. If we can do it,
17 we'll share it. If not, we'll state that the -- we
18 might not be able to share the document. But in terms
19 of the slide presentation, we can speak to it. Of
20 course, a slide also have to be looking -- needs to be
21 looked at by OGC. So yes, we do have some work to do
22 between now and the full committee meeting.

23 CHAIR BROWN: The full committee meeting
24 is a public meeting also. So be aware of that.

25 MR. RAHIMI: Yeah, that's right. That's

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1 right.

2 CHAIR BROWN: Did I miss anything, Matt
3 and Joy, relative to the meeting?

4 MEMBER MARCH-LEUBA: This is Jose.

5 CHAIR BROWN: Yeah, go ahead.

6 MEMBER MARCH-LEUBA: And you didn't ask
7 me, but let me interrupt. What I was asking is not
8 what your final conclusion is. What I was asking is
9 to educate me on the reasons that what is the issue,
10 what are the pros, what are the cons, and why -- not
11 what but why you reached the decision the way you did.

12 Do you understand? I mean, it is an
13 education value so we can make a decision because I'm
14 not an expert on this area. You are. So what I'm
15 asking on the slides for the full committee meeting
16 and the presentation is to educate me on the problem
17 or the issue. Thank you.

18 MR. RAHIMI: Yes, yes, Jose, yeah. I
19 certainly understand what you are asking in terms of
20 the -- yes, the comments that the NEI has made. And
21 right, what is the issue? So I'm sure my colleagues,
22 Kenn Miller and team, that they do understand what
23 you're asking.

24 MR. MILLER: This is Kenn Miller. Yes,
25 the why behind the resolution to the specific comment

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1 in question on the comment document.

2 MEMBER SUNSERI: Hey, Charlie. This is
3 Matt. You asked me if there was anything else we
4 needed to discuss. I think we've covered everything.
5 I think these technical details of administrative
6 processing of information is internal ACRS business.
7 And I think you can adjourn the meeting at your
8 discretion.

9 CHAIR BROWN: I just want to make sure that
10 passed on the all rigmarole we've gone through. Right
11 now, we're going to remain scheduled for July. And we
12 will depend on staff, Kenn, for you all to inform us
13 whether all these other gyrations require us to
14 reschedule it to September or whenever you think it's
15 appropriate for the full committee meeting. Is that
16 a reasonable summation of where we stand?

17 MR. MILLER: Yes. This is Kenn Miller.
18 That's the way I understand it as well.

19 CHAIR BROWN: Okay. And based on what
20 you've heard, you will provide some additional slides
21 to discuss at least a couple of the issues as Jose
22 pointed out and as have been discussed in the meeting?

23 MR. MILLER: Correct. That's correct.
24 This is Kenn Miller. That's correct.

25 CHAIR BROWN: All right. Okay. With that

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1 in mind, it's now 12:10. I think we've completed our
2 business, and --

3 MR. MILLER: Member Brown, could I ask one
4 more question? This is Kenn Miller.

5 CHAIR BROWN: Sure. Yeah, go ahead.

6 MR. MILLER: So as far as this meeting is
7 concerned, what will we be getting from ACRS in terms
8 of the outcome of this meeting from your all's
9 perspective?

10 CHAIR BROWN: It would be result. It would
11 be the -- we have the meeting in July. I will be
12 preparing a report, and it could take multiple forms.

13 I'm not so sure what the form would take
14 right now because it's -- we have -- that can only be
15 determined via the full committee meeting when we can
16 all vote on how we want to address it. But I will
17 have a report ready for something. I can't tell you
18 what that is yet because I haven't written it.

19 Now Joy did have some questions, and she
20 said she would try to provide those to Christina and
21 I. And when we get them, we will forward them to you.
22 Is that okay, Joy?

23 MEMBER REMPE: No. Okay.

24 CHAIR BROWN: Okay.

25 MEMBER REMPE: If you delay and do not

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1 have the meeting in July, then I would suggest you go
2 through the transcript and look at individual member
3 comments and think about them for incorporation into
4 your updated Reg Guide. That was kind of where I was
5 going because I'm kind of thinking this is premature
6 to us having a full committee meeting unless this CR
7 -- the review committee puts a stamp of approval
8 because usually we wait till public comments are
9 addressed, even if you have a disagreement with the
10 public on some of them. But they understand.

11 They've seen the response, and everything
12 is good. Now if things move forward and we have that
13 meeting in July, I'm going to send Charlie a quick
14 note saying, you might want to consider these things
15 in your letter. This is not meant for you to --

16 CHAIR BROWN: I got it.

17 MEMBER REMPE: -- address. Okay?

18 CHAIR BROWN: I got it. Yeah, that's
19 fine. That's fine for me, Joy.

20 MEMBER REMPE: Okay. Does that sound okay
21 to you, Kenn? You understand what we're doing here?

22 MR. MILLER: I think so. So let me just
23 circle back to my original question. So this meeting
24 today was a -- this was an ACRS subcommittee review of
25 the Reg Guide 1.9 revision?

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1 MEMBER REMPE: Right.

2 MR. MILLER: And Member Brown was talking
3 about a document that's going to be prepared in
4 preparation for the full committee that we would get
5 to see also. And I'm asking when that would be?

6 MEMBER REMPE: At the full committee
7 meeting after you give your presentation and we've had
8 our discussion, he'll read a letter in the public
9 meetings saying his proposed thoughts for our letter.
10 And then we'll make comments and we'll iterate. And
11 you'll get a letter. Historically, if there is a lot
12 of comments from members that are saying, you need
13 more detail in the Reg Guide, we think you need to at
14 least acknowledge some other things that aren't there,
15 you're going to get a letter with a lot of changes.

16 Historically, the staff doesn't want those
17 kind of letters. They'd rather update the Reg Guide
18 and then bring it to us and have a nice clean
19 supportive letter or have us say, we don't need to
20 write a letter on it. But that's why I kind of keep
21 saying, are you sure you don't want to make any
22 changes, in my questions today. But no, you won't get
23 anything from us other than the transcript.

24 MR. MILLER: Right, okay. That was going
25 to be my next point then. So the only thing we're

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1 getting coming out of today's meeting is the
2 transcript?

3 MEMBER REMPE: And you probably won't have
4 it before July unless we pay a lot of money to have it
5 expedited.

6 MR. MILLER: Oh, okay.

7 (Simultaneous speaking.)

8 MEMBER REMPE: So I hope you took good
9 notes.

10 MR. BROWN: Mr. Miller, this is Scott
11 Brown, the executive director. The subcommittee
12 doesn't make any final decisions. It only advises the
13 full committee.

14 And so you can take any of the comments
15 you heard here from any of the members as their own
16 comments. And they will provide a draft of the letter
17 to the full committee. And that's the first time that
18 you will see it.

19 MR. MILLER: At the full committee?

20 MR. BROWN: That's correct. It'll be read
21 in at the full committee, and that's the first time
22 that you'll see it.

23 MR. MILLER: Yeah. So in terms of our
24 preps for that, assuming it happens in July, we just
25 have what we've heard today --

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1 MS. ANTONESCU: Kenn --

2 MR. MILLER: -- take it back to our --

3 MS. ANTONESCU: Kenn, this is Christina
4 Antonescu. I will follow up with a phone call with
5 you and explain everything in details.

6 MR. MILLER: Okay, yeah.

7 MR. GARDOCKI: This is Stan Gardocki. I'm
8 listening on the public line. You know this is still
9 open to the public.

10 CHAIR BROWN: Yes.

11 MR. GARDOCKI: Okay.

12 CHAIR BROWN: They're just muted.

13 MR. MILLER: That's all the comments I
14 have, Member Brown.

15 CHAIR BROWN: Okay. Thank you. And thank
16 you for -- it was a lively discussion. I appreciate
17 the back and forth. It's kind of a new area that you
18 all had to address. And there were -- the transcript
19 will show a number of different comments on it. But
20 I thought it was a valuable exchange. So I appreciate
21 the time and the thought process that you all put into
22 it. So with that, I will adjourn the meeting, and
23 have a good weekend.

24 (Whereupon, the above-entitled matter went
25 off the record at 12:16 p.m.)

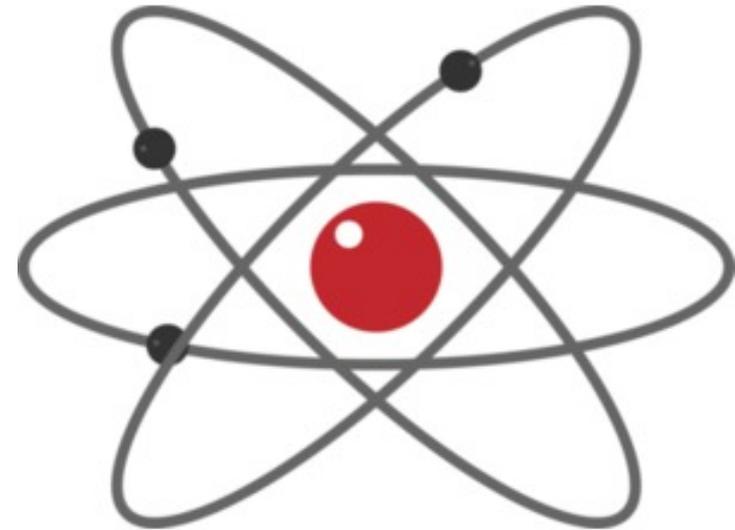
Revision 5 to Regulatory Guide 1.9, “Application and Testing of Onsite Emergency Alternating Current Power Sources in Nuclear Power Plants”

NRC Staff Presentation to the Advisory
Committee on Reactor Safety

June 25, 2021

Agenda

1. Introduction
2. Existing Guidance
3. Significant Changes
4. Proposed New Guidance
5. Conclusion



Introduction

Current NRC guidance in Regulatory Guide 1.9 has not been updated since 2007. It does not reflect all the possible types of different onsite emergency power sources that are available today.

The NRC is issuing Revision 5 of Regulatory Guide 1.9 as technology-neutral to include diesels, combustion turbine generators (CTGs), and other types of the emergency power sources for the onsite alternative alternating current (AC) electric power system.

Technology-neutral benefits:

- Facilitate application processes allowing use of alternative onsite emergency power supplies in the future for advanced reactors and nuclear facilities.
- Reduce the number of regulatory guides that will be required to cover other alternatives.
- Reduce the overall regulatory review process.

Existing NRC Guidance

Regulatory Guide 1.9, “Application and Testing of Safety-Related Diesel Generators in Nuclear Power Plants” was last updated in 2007 to Revision 4.

Regulatory Guide 1.9 provides guidance that the NRC staff considers as an acceptable method for satisfying NRC regulations (mainly GDC 17 and 18) with respect to the design, qualification, and testing of emergency power sources used in onsite AC electric power systems for nuclear power plants.

Significant Changes

This revision (Rev 5) endorses the following two IEEE standards in full, with supplements and clarifications:

- IEEE Standard 387-2017, “IEEE Standard for Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations”
 - Includes specific details based on lessons learned from comprehensive reviews of operating reactors, new reactor applications, and other nuclear facilities.

Significant Changes (cont.)

- IEEE Standard 2420-2019, “IEEE Standard Criteria for Combustion Turbine-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations”
 - Specifically includes additional guidance on CTG’s principal design criteria, design features, qualification considerations, and testing requirements, based on the reviews performed for the US-Advanced Pressurized-Water Reactor and other Interim Staff Guidance.

Significant Changes (cont.)

Clarifications:

- “Design and Application Considerations” in 387-2017 for testability and synchronization capabilities was supplemented:
 - to address testing EDGs in the event the offsite power source has transients resulting in voltage and frequency perturbations.
- “Design and Testing Considerations” in 387-2017 was clarified:
 - to include how the EDGs envelop parameters of operation.
- “Operations” in 387-2017 was clarified:
 - to include that licensees should monitor EDGs cumulative operating time above the nominal rating for additional restrictions as specified in manufacturer-recommended accelerated maintenance requirements and industry consensus group recommendations.

Significant Changes (cont.)

Supplements:

- Both IEEE standards were supplemented to include verification of all subsystems such as fuel oil, lube oil, cooling, starting, and piping systems credited for operation.

Other important changes:

- Removal of testing and design requirements from Rev 4 because they have been incorporated in the updated IEEE 387-2017.
- Title of Regulatory Guide 1.9 changed to be more technology neutral, “Application and Testing of Onsite Emergency Alternating Current Power Sources in Nuclear Power Plants.”

Proposed New Guidance

- Includes provisions for alternatives for onsite standby emergency power supplies that meet the intent of 10 CFR 50 and 10 CFR Part 52 requirements in consideration for small modular reactors, advanced reactors, and other nuclear facilities.
- Includes criteria derived from General Design Criteria (GDC) 17 and GDC 18 (e.g., information on capacity, capability, independence, redundancy, testability, inspection, qualification, etc.).
- Includes additional design and testing considerations for EDGs, CTGs, and other emergency AC power sources.

Public Comments

- Received 51 comments from NEI, IEEE, and members of public.
- One significant change made to the background section was to combine the two sections on EDGs and CTGs into one.
- The rest of the comments were minor and incorporated by editorial changes.
- Several other comments did not require changes because they were determined to be beyond the scope of this regulatory guide.

Steps Towards Issuance

- OGC has provided NLO.
- Brief ACRS on changes and receive feedback.
- Issuance of new guide is expected in late June or early July.

Conclusion

- The staff expects publication of Revision 5 of Regulatory Guide 1.9 endorsing existing two industry standards within the next month.
- Revision 5 removes details of design and testing considerations of EDGs because these details were included in IEEE 387-2017.
- Revision 5 includes provisions for alternative emergency power sources (technology-neutral) for supplying onsite AC electric power systems.

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- "Vicki Bier (Guest) Guest
- CA Antonescu, Christina Organizer
- Benner, Eric
- CB Brown, Charles

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Revision 5 to Regulatory Guide 1.9,
"Application and Testing of Onsite
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NRC Staff Presentation to the Advisory
Committee on Reactor Safety

June 25, 2021

Gardocki, Stanley

9:40 AM
06/25/2021

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- Cook, Christopher
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- DP Dave Petti (Guest) Guest
- Foli, Adakou
- Gardocki, Stanley
- Goel, Vijay

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June 25, 2021

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Jim Cordes (Court Reporter) (...)

Guest

Jose March-Leuba (ACRS) (Gu...)

Guest

Khan, Nadim

Kirchner, Walter

See more

Others from chat (9)

Bley, Dennis

March-Leuba, Jose

9:41 AM
06/25/2021

Gardocki, Stanley

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June 25, 2021

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Dimitrijevic, Vesna

Ballinger, Ronald

Petti, David

Riccardella, Peter

Bier, Vicki

Hecht, Myron

Johnston, Jeanne

9:43 AM
06/25/2021

Gardocki, Stanley

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June 25, 2021

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Full Name User Action Timestamp

Antonescu Joined 6/25/2021, 7:34:06 AM
Dashiell, T Joined 6/25/2021, 8:43:38 AM
Burkhart, I Joined 6/25/2021, 8:49:06 AM
Wang, We Joined 6/25/2021, 8:50:01 AM
Matharu, C Joined 6/25/2021, 8:57:16 AM
Brown, Ch Joined 6/25/2021, 8:59:01 AM
Kodali, Ha Joined 6/25/2021, 9:01:50 AM
+1 410-76 Joined 6/25/2021, 9:03:54 AM
Myron J H Joined 6/25/2021, 9:08:11 AM
Jim Corde Joined 6/25/2021, 9:09:34 AM
+1 310-34 Joined 6/25/2021, 9:09:43 AM
Miller, Ken Joined 6/25/2021, 9:13:06 AM
Ray, Sheil Joined 6/25/2021, 9:15:20 AM
Montgome Joined 6/25/2021, 9:17:21 AM
Jose Marc Joined 6/25/2021, 9:18:41 AM
Jose Marc Left 6/25/2021, 9:57:30 AM
Jose Marc Joined 6/25/2021, 9:57:38 AM
Dave Petti Joined 6/25/2021, 9:18:50 AM
Kirchner, V Joined 6/25/2021, 9:19:42 AM
Widmayer Joined 6/25/2021, 9:20:11 AM
Halnon, G Joined 6/25/2021, 9:21:02 AM
Ramadan, Joined 6/25/2021, 9:22:18 AM
Vesna Dirr Joined 6/25/2021, 9:22:40 AM
Vesna Dirr Left 6/25/2021, 9:22:52 AM
Vesna Dirr Joined 6/25/2021, 9:22:59 AM
Gardocki, Joined 6/25/2021, 9:25:09 AM
Sunseri, M Joined 6/25/2021, 9:26:28 AM
Foli, Adak Joined 6/25/2021, 9:26:36 AM
Moore, Sc Joined 6/25/2021, 9:28:14 AM
Cook, Chri Joined 6/25/2021, 9:28:43 AM
Rempe, Jc Joined 6/25/2021, 9:28:56 AM
Rempe, Jc Left 6/25/2021, 9:29:36 AM
Rempe, Jc Joined 6/25/2021, 9:29:48 AM
Benner, El Joined 6/25/2021, 9:29:21 AM
Johnston, Joined 6/25/2021, 9:29:28 AM
Johnston, Left 6/25/2021, 9:39:44 AM
Johnston, Joined 6/25/2021, 9:45:01 AM
Goel, Vijay Joined 6/25/2021, 9:29:45 AM
Compton, Joined 6/25/2021, 9:30:11 AM
Khan, Nac Joined 6/25/2021, 9:31:21 AM
Khan, Nac Left 6/25/2021, 9:52:03 AM
Khan, Nac Joined 6/25/2021, 9:52:04 AM
Vicki Bier