

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE
STATE OF CALIFORNIA



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ADMINISTRATIVE LAW JUDGES RAFAEL L. LIRAG and
ELAINE LAU, co-presiding

Application of Pacific Gas and
Electric Company for Authority,
Among Other Things, to Increase
Rates and Charges for Electric and
Gas Service Effective on January 1,
2020. (U39M)

) EVIDENTIARY
) HEARING
)
)
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) Application
) 18-12-009
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)

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NICK PETRAKIS

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1 SAN FRANCISCO, CALIFORNIA

2 OCTOBER 2, 2019 - 9:35 A.M.

3 * * * * *

4 ADMINISTRATIVE LAW JUDGE LIRAG: Let's
5 go on the record. Good morning, everyone.

6 This is the continuance of the
7 evidentiary hearings in A.18-12-009, which is
8 PG&E's 20 -- Test Year 2020 General Rate
9 Case.

10 Today we have the IGP panel of
11 Mr. Nakayama, Mr. Petrakis and
12 Mr. Strasburger. I may have pronounced one
13 or more of those names wrong, but, all right.
14 Good enough.

15 So today it looks like we have close
16 to a full day, so we'll try to do things a
17 little more quickly. So I may move
18 cross-examination and other things along.
19 But we'll see how today goes. We'll also try
20 and time the lunch break at an appropriate
21 time.

22 Anyway, let's go ahead with the
23 three witnesses.

24 All three of you please raise your
25 right hand.

26 MARTIN STRASBURGER, called as a
27 witness by Pacific Gas and Electric
28 Company, having been sworn, testified
as follows:

1 QUINN NAKAYAMA, called as a witness
2 by Pacific Gas and Electric Company,
3 having been sworn, testified as
4 follows:

5 NICK PETRAKIS, called as a witness
6 by Pacific Gas and Electric Company,
7 having been sworn, testified as
8 follows:

9 ALJ LIRAG: One at a time.

10 WITNESS STRASBURGER: I do.

11 WITNESS NAKAYAMA: I do.

12 WITNESS PETRAKIS: I do.

13 ALJ LIRAG: Starting from

14 Mr. Strasburger, please state your name,
15 spell your last name and provide a business
16 address.

17 WITNESS STRASBURGER: Martin
18 Strasburger, S-t-r-a-s-b-u-r-g-e-r, 77 Beale
19 Street, San Francisco, California 945 --
20 94105.

21 ALJ LIRAG: Thank you.

22 WITNESS NAKAYAMA: Quinn Nakayama,
23 N-a-k-a-y-a-m-a, 77 Beale Street,
24 San Francisco California, 94105.

25 WITNESS PETRAKIS: Nick Petrakis,
26 P-e-t-r-a-k-i-s. Also 77 Beale Street,
27 San Francisco.

28 ALJ LIRAG: Thank you.

 Mr. Gallo, I have two exhibits that
are being purported as confidential. First
what are these -- I guess these correspond --

1 I will let Ms. Kim handle it. Then I guess
2 these correspond to exhibits that were
3 already submitted or identified; is that
4 right?

5 MR. KIM: That is correct. My name is
6 Ann Kim, Counsel for PG&E.

7 We have provided a document called
8 Prepared Testimony, Shared Services and
9 Information Technology Confidential Version.
10 That is the confidential version of what was
11 previously marked as Exhibit 66.

12 ALJ LIRAG: All right. So we'll
13 identify this right now as Exhibit 66-C.
14 This will be the document as you had
15 described and we'll go into whether this will
16 be treated confidential in a little bit.

17 Let's take care of the other
18 exhibits first.

19 (Exhibit No. 66-C was marked for
20 identification.)

21 MR. KIM: So, the other exhibit is
22 Workpapers of Shared Services and Information
23 Technology Chapters 5 to 9, Confidential
24 Version, which had previously -- the public
25 version had been marked as Exhibit 74.

26 ALJ LIRAG: So, I will identify this as
27 Exhibit 74-C and it is the document that
28 Ms. Kim had just described.

1 (Exhibit No. 74-C was marked for
2 identification.)

3 ALJ LIRAG: Can you briefly describe
4 why these documents -- these two documents,
5 two exhibits rather, Exhibit 66-C and 74-C,
6 why are they confidential or at least the
7 confidential portion?

8 MR. KIM: Yes. So both of those
9 documents contain cybersecurity-sensitive
10 information that our witness Martin
11 Strasburger is sponsoring.

12 ALJ LIRAG: Cybersecurity information
13 such as? Can you be a little bit more
14 specific?

15 MR. KIM: Such as programs and projects
16 that we are planning to protect our
17 infrastructure from cyber attack.

18 ALJ LIRAG: All right. So both
19 documents contained this information.

20 MR. KIM: That is correct.

21 ALJ LIRAG: Any objection from any of
22 the parties to having these treated as
23 confidential?

24 MS. SHEK: Your Honor, the Public
25 Advocates Office just has a question on this.

26 ALJ LIRAG: Yes.

27 MR. ROBERTS: Are those supplemental
28 original Exhibits 66 and 74 or just portions

1 of them are confidential?

2 ALJ LIRAG: I believe portions of them
3 are confidential. They're the information
4 pertaining to cybersecurity information
5 described by Ms. Kim. So the public version
6 would probably contain redacted versions.

7 MR. ROBERTS: So it's the actual
8 confidential portions that were redacted in
9 the public version?

10 ALJ LIRAG: Correct.

11 MR. ROBERTS: Thank you.

12 ALJ LIRAG: All right. So no
13 objections. Off the record.

14 (Off the record.)

15 ALJ LIRAG: All right. Let's go back
16 on the record.

17 So having heard the explanation from
18 Ms. Kim, and the clarification from
19 Mr. Roberts, the Commission has no issues
20 treating these two exhibits as confidential.
21 So these are Exhibits 66-C and 74-C at least
22 the confidential portions.

23 All right. Let's identify more
24 exhibits.

25 So, first, and these exhibits
26 pertain to the panel that we have. First is
27 Exhibit 113. These are materials supporting
28 Cal PA's Cross-Examination Grid Modernization

1 Panel, Part 1.

2 (Exhibit No. 113 was marked for
3 identification.)

4 ALJ LIRAG: Exhibit 114 is the same
5 document, the same heading except it's for
6 Part 2.

7 (Exhibit No. 114 was marked for
8 identification.)

9 ALJ LIRAG: Exhibit 115, same heading,
10 Part 3.

11 (Exhibit No. 115 was marked for
12 identification.)

13 ALJ LIRAG: Exhibit 116, again, the
14 same heading, Part 4 this time.

15 (Exhibit No. 116 was marked for
16 identification.)

17 ALJ LIRAG: And then Exhibit 117, same
18 heading, Part 5.

19 (Exhibit No. 117 was marked for
20 identification.)

21 ALJ LIRAG: Next is Exhibit 118. This
22 is the PG&E Data Responses to TURN Data
23 Request 23, 53 and 85. So that's
24 Exhibit 118.

25 (Exhibit No. 118 was marked for
26 identification.)

27 ALJ LIRAG: Next is Exhibit 119. This
28 is an, I believe it's either a portion or a

1 copy of advice letter 5640-E. The subject
2 matter is Information Only Submittal
3 Regarding Net Energy Metering Costs.

4 (Exhibit No. 119 was marked for
5 identification.)

6 ALJ LIRAG: Exhibit 120, or one, two
7 zero, again, it looks like an excerpt from
8 Advice Letter 5642-E. The subject is
9 Information Only Voltage Complaint Reports
10 for May 2019 through August 2019. So that's
11 Exhibit one, two, zero.

12 (Exhibit No. 120 was marked for
13 identification.)

14 ALJ LIRAG: Yes, Mr. Hawiger.

15 MR. HAWIGER: Your Honor, may I just
16 add for the clarity of the record, both of
17 these exhibits 119 and 120 contain just the
18 first cover page of the advice letter and
19 then also the first page of the attachment
20 included in each advice letter.

21 ALJ LIRAG: All right. So they are
22 excerpts from the advice letters.

23 MR. HAWIGER: Yes, your Honor.

24 ALJ LIRAG: Describing the document,
25 including one attachment each.

26 MS. GALLO: And excuse me, your Honor.
27 When they were passing out copies, I received
28 two copies of 119 and not one copy of 120.

1 So if you have an additional copy, I would
2 appreciate it.

3 ALJ LIRAG: Let's go off the record.
4 (Off the record.)

5 ALJ LIRAG: All right. Let's go back
6 on the record.

7 Exhibit 121 is the PG&E Response to
8 the Joint CCAs' Data Request 15, Question 17.
9 (Exhibit No. 121 was marked for
10 identification.)

11 ALJ LIRAG: Exhibit 122 is PG&E's Data
12 Response to the Joint CCAs' Data Request 17,
13 Question 7.

14 (Exhibit No. 122 was marked for
15 identification.)

16 ALJ LIRAG: And then finally,
17 Exhibit 123 is a document entitled MIT Energy
18 Initiative, Utility of the Future.

19 (Exhibit No. 123 was marked for
20 identification.)

21 ALJ LIRAG: Mr. Schlesinger, could you
22 describe this document a little bit more so
23 we know what it is?

24 MR. SCHLESINGER: Yes, your Honor.

25 This is a document that Mr. Nakayama
26 referenced in several responses to discovery
27 to JCCA responses, the two that you just
28 marked, 121 and 122.

1 ALJ LIRAG: All right. Thank you for
2 that information. And then we also have
3 several reference exhibits which we shall
4 use.

5 Also, Mr. Hawiger informed us that
6 he will be using or he will be referring to a
7 document that has not yet been identified and
8 this is one of TURN's exhibits for one of its
9 witnesses. So just refer to it as however
10 you call it, whether it's the testimony of
11 "Mr. X" and as long as the witnesses can
12 follow, that should be fine.

13 All right. Let's turn it over. I
14 think it's Mr. Gallo.

15 MS. GALLO: I will be reading in
16 Mr. Nakayama and Ms. Kim will be reading in
17 Mr. Strasburger and Mr. Petrakis.

18 ALJ LIRAG: All right. Just let me
19 know. If I point to someone, if I address
20 someone and it is the wrong person, the other
21 person can just go. All right. Thank you.

22 MS. GALLO: Thank you. I'll start,
23 Your Honor. Thank you.

24 DIRECT EXAMINATION

25 BY MR. GALLO:

26 Q Good morning, Mr. Nakayama.

27 A Good morning.

28 Q I would like you to confirm

1 testimony that you're sponsoring in this
2 proceeding in what has been marked -- or
3 sorry. In Hearing Exhibit 17, which was
4 formerly PG&E 4 Volume 2, are you sponsoring
5 all of Chapter 19 and Attachments A, A-1,
6 A-2, A-3 and A-4, the Integrated Grid
7 Platform Program and Grid Modernization Plan?

8 A Yes, I am.

9 Q And in Hearing Exhibit 19, formerly
10 Exhibit PG&E 4 Workpapers for Chapters 11
11 through 19, are you sponsoring the workpapers
12 for chapter 19?

13 A Yes, I am.

14 Q And in what have been marked as
15 Hearing Exhibit 20 and Hearing Exhibit 21,
16 which formerly were Volumes 1 and 2 of PG&E's
17 Exhibit 18 and Hearing Exhibit 39-B, which
18 was formerly Exhibit PG&E-28, are you
19 sponsoring a portion of Hearing Exhibit 20,
20 Chapter 19 called Rebuttal Testimony on
21 Integrated Grid Platform Program and Grid
22 Modernization Plan?

23 A Yes, I am.

24 Q And in Hearing Exhibit 21, are you
25 sponsoring the documents in Appendix A that
26 relate to your sponsored exhibit PG&E-18
27 Rebuttal Testimony?

28 A Yes, I am.

1 Q And in Hearing Exhibit 22, are you
2 sponsoring a portion of the workpapers for
3 PG&E Exhibit 18, Volume 1?

4 A Yes, I am.

5 Q In Hearing Exhibit 39-C, are you
6 sponsoring a portion of the documents in PG&E
7 Exhibit 28-Confidential entitled Confidential
8 Documents Discovery?

9 A Yes, I am.

10 Q And in that same Hearing
11 Exhibit 39-C, are you also sponsoring a
12 portion of the confidential workpapers
13 presented in Exhibit PG&E-28?

14 A Yes, I am.

15 Q And in what have been marked as
16 Hearing Exhibit 26 and Hearing Exhibit 27,
17 which is two volumes of PG&E's errata, are
18 you sponsoring pages 14-214 to 14-215 and
19 pages 29-93 to 29-29 (sic)?

20 A Yes, I am.

21 Q I'm sorry. 99. Excuse me. 29-93
22 to 29-99?]

23 A Yes, I am.

24 Q And finally, in Hearing Exhibit 52,
25 are you sponsoring your statement of
26 qualifications?

27 A Yes, I am.

28 Q And were these materials prepared

1 by you or under your supervision?

2 A I was not the witness at the time
3 of the application, so the opening testimony
4 and some workpapers for Chapter 19 were not
5 prepared by me or under my supervision.
6 However, I reviewed and support that
7 testimony and those workpapers. The rebuttal
8 testimony and workpapers were prepared by me
9 or under my supervision.

10 Q Do you have any changes or
11 corrections or additions to make at this
12 time?

13 A No, there are not.

14 Q Are the facts contained in these
15 exhibits true and correct to the best of your
16 knowledge?

17 A Yes, they are.

18 Q Do the opinions expressed therein
19 represent your best professional judgment?

20 A Yes, they do.

21 MR. GALLO: Thank you.

22 Your Honor, Mr. Nakayama is
23 available for cross-examination.

24 ALJ LIRAG: Okay. A couple of
25 guidelines for the panel. Since all three
26 are males, at some point in time one of the
27 reporters will have her back turned to the
28 witnesses. And so if the counsel doing the

1 cross mentions a specific name, and that
2 person is the one -- that witness is the one
3 that answers, there is no need to state your
4 name. But if the question is directed
5 towards the panel and you decide to speak,
6 just say who you are or just say your last
7 name, just so the reporter can take note of
8 who is talking without having to see the
9 witness. All right? Let's try it that way.

10 Let's turn over to Ms. Kim.

11 MS. KIM: Thank you, your Honor.

12 DIRECT EXAMINATION

13 BY MS. KIM:

14 Q Mr. Martin Strasburger, I would
15 like to confirm the testimony you are
16 sponsoring in this proceeding. First, with
17 respect to the costs forecasts for the Cyber
18 and Corporate Security Organization, in
19 Exhibit PG&E-7 previously marked as
20 Exhibit 66, Prepared Testimony, Shared
21 Services and Information Technology, Public
22 Version, are you sponsoring Chapter 9, Cyber
23 and Corporate Security?

24 A Yes, I am.

25 Q In Exhibit PG&E-7, now marked as
26 Exhibit 66-C, Prepared Testimony, Shared
27 Services and Information Technology,
28 Confidential Version, are you sponsoring

1 Chapter 9, Cyber and Corporate Security?

2 A Yes, I am.

3 Q In Workpapers to Exhibit PG&E-7,
4 previously marked as Exhibit 74, Workpapers
5 of Shared Services and Information Technology
6 Chapters 5 through 9, are you sponsoring
7 Chapter 9, Cyber and Corporate Security?

8 A Yes, I am.

9 Q In Workpapers to Exhibit PG&E-7,
10 now marked as Exhibit 74-C, Workpapers of
11 Shared Services and Information Technology
12 Chapters 5 through 9, Confidential Version,
13 are you sponsoring Chapter 9, Cyber and
14 Corporate Security?

15 A Yes, I am.

16 Q In Exhibit PG&E-21, previously
17 marked as Exhibit 68, Rebuttal Testimony,
18 Shared Services and Information Technology,
19 are you sponsoring Chapter 9, Cyber and
20 Corporate Security?

21 A Yes, I am.

22 Q In Exhibit PG&E-14, previously
23 marked as Exhibit 26 PG&E Errata, are you
24 sponsoring pages 14-296 to 14-300?

25 A Yes, I am.

26 Q In Exhibit PG&E-27, previously
27 marked as Exhibit 52, Rebuttal Testimony,
28 Statement of Qualifications, are you

1 sponsoring your statement of qualifications?

2 A Yes, I am.

3 Q Second, with respect to the topic
4 of today's hearing, the Integrated Grid
5 Platform Program in Exhibit PG&E-18,
6 previously marked as Exhibit 20, Electric
7 Distribution Chapter 1 through Chapter 19
8 Volume 1 of 2, are you sponsoring the portion
9 of Chapter 19 Rebuttal Testimony on
10 Integrated Grid Platform Program and Grid
11 Modernization Plan related to cybersecurity?

12 A Yes, I am.

13 Q In Exhibit PG&E-18, previously
14 marked as Exhibit 21, Electric Distribution
15 Appendix A, Volume 2 of 2, are you sponsoring
16 the documents that relate to your sponsored
17 Exhibit PG&E-18 Rebuttal Testimony?

18 A Yes, I am.

19 Q In Workpapers to Exhibit PG&E-18,
20 previously marked as Exhibit 22, Electric
21 Distribution Workpapers Supporting Rebuttal
22 Testimony Chapters 7, 16 and 19, are you
23 sponsoring a portion of the workpapers that
24 relate to your sponsored Exhibit PG&E-18
25 Rebuttal Testimony?

26 A Yes, I am.

27 Q And in Exhibit PG&E-28, previously
28 marked as Exhibit 39-C, confidential

1 documents from various exhibits, are you
2 sponsoring the documents that relate to your
3 sponsored Exhibit PG&E-18 Rebuttal Testimony?

4 A Yes, I am.

5 Q Recognizing that you were brought
6 in as a witness during the rebuttal phase,
7 and not with the initial testimony, were
8 these materials prepared by you or under your
9 supervision?

10 A Yes, they were.

11 Q Do you have any changes,
12 corrections or additions to make at this
13 time?

14 A No, I do not.

15 Q Are the facts contained therein
16 true and correct to the best of your
17 knowledge?

18 A Yes, they are.

19 Q And do the opinions expressed
20 therein represent your best professional
21 judgment?

22 A Yes, they do.

23 Q Thank you. Mr. Strasburger is now
24 available for cross-examination.

25 Mr. Petrakis, I would like to
26 confirm the testimony that you are sponsoring
27 in this proceeding. First, with respect to
28 the costs forecast for the Information

1 Technology Organization in Exhibit PG&E-7,
2 previously marked as Exhibit 66, Prepared
3 Testimony, Shared Services and Information
4 Technology, Public Version, are you
5 sponsoring Chapter 8, Information Technology?

6 WITNESS PETRAKIS: Yes, I am.

7 Q In workpapers to Exhibit PG&E-7,
8 previously marked as Exhibit 74, Workpapers
9 of Shared Services and Information Technology
10 Chapters 5 through 9, are you sponsoring
11 Chapter 8, Information Technology?

12 A Yes, I am.

13 Q In Exhibit PG&E-21, previously
14 marked as Exhibit 68, Rebuttal Testimony,
15 Shared Services and Information Technology,
16 are you sponsoring Chapter 8, Information
17 Technology?

18 A Yes, I am.

19 Q In Exhibit PG&E-27 previously
20 marked as Exhibit 52, Rebuttal Testimony,
21 Statement of Qualifications, are you
22 sponsoring your statement of qualifications?

23 A Yes, I am.

24 Q In Exhibit PG&E-14, previously
25 marked as Exhibit 26 Errata, are you
26 sponsoring the errata related to your
27 testimony?

28 A Yes.

1 Q Second, with respect to the topic
2 of today's hearing, the Integrated Grid
3 Platform Program in Exhibit PG&E-18,
4 previously marked as Exhibit 20, Electric
5 Distribution Chapters 1 through Chapter 19
6 Volume 1 of 2, are you sponsoring the portion
7 of Chapter 19 Rebuttal Testimony on
8 Integrated Grid Platform Program and Grade
9 Modernization Plan relating to information
10 technology costs?

11 A Yes, I am.

12 Q In Exhibit PG&E-18, previously
13 marked as Exhibit 21, Electric Distribution
14 Appendix A Volume 2 of 2, are you sponsoring
15 the documents that relate to your sponsored
16 PG&E-18 rebuttal testimony?

17 A Yes, I am.

18 Q In workpapers to Exhibit PG&E-18,
19 previously marked as Exhibit 22, Electric
20 Distribution Workpapers Supporting Rebuttal
21 Testimony Chapter 7, 16 and 19, are you
22 sponsoring a portion of the workpapers that
23 relate to your sponsored Exhibit PG&E-18
24 Rebuttal Testimony?

25 A Yes, I am.

26 Q In Exhibit PG&E-28, previously
27 marked as Exhibit 39-C, confidential
28 documents from various exhibits, are you

1 sponsoring the documents that relate to your
2 sponsored Exhibit PG&E-24 Rebuttal Testimony?

3 A Yes, I am.

4 MS. KIM: Your Honor, may we go off the
5 record for a moment?

6 ALJ LIRAG: All right. Off the record.
7 (Off the record.)

8 ALJ LIRAG: Back on the record.

9 BY MS. KIM:

10 Q Understanding that you were brought
11 in during the rebuttal phase, and not during
12 the preparation of the original testimony,
13 were these materials prepared by you or under
14 your supervision?

15 A Yes.

16 Q Do you have any changes,
17 corrections or additions to make at this
18 time?

19 A No, I don't.

20 Q Are you facts contained therein
21 true and correct to the best of your
22 knowledge?

23 A Yes, they are.

24 Q Do the opinions expressed therein
25 represent your best professional judgment?

26 A Yes, they are.

27 MS. KIM: Your Honor, Mr. Petrakis is
28 now available for cross-examination.

1 ALJ LIRAG: Let's go off the record for
2 a while.

3 (Off the record.)

4 ALJ LIRAG: Let's go back on the
5 record.

6 Let's start the cross-examination.
7 We will begin with Ms. Liotta.

8 CROSS-EXAMINATION

9 BY MS. LIOTTA:

10 Q Good morning, gentlemen. Actually,
11 my questions are only for Mr. Nakayama.

12 Mr. Nakayama, if I could refer you
13 to page 68 of your rebuttal, beginning at
14 line 16.

15 WITNESS NAKAYAMA: Can you repeat the
16 page, please?

17 Q Yes, page 68 of your rebuttal.

18 A Line number?

19 Q Beginning at line 16.

20 You state: Therefore, the entirety
21 of PG&E's expense forecast is composed of
22 nonrecurring costs; is that correct?

23 A That is correct.

24 Q And if I could have you turn to
25 page 69 of your rebuttal. Beginning at
26 line 24, you state: Expenses, forecasts for
27 2020 are for costlier implementation stage
28 project activities. Then you go on to list

1 those project activities.

2 Do you know if costs for these
3 project activities would decrease after the
4 implementation stage?

5 A For the actual statement, in lines
6 25 through 27 for detailed process design,
7 data conversion and change management, there
8 will be -- I'm sorry. Can you repeat your
9 question again?

10 Q Sure. Do you know if the cost for
11 these project activities would decrease after
12 the implementation stage?

13 A Yes, they will.

14 Q Thank you.

15 And then on page 70 of your
16 rebuttal on line 16, beginning on line 16,
17 you state that: Although the implementation
18 will be nonrecurring, PG&E will continue to
19 engage in similar activities.

20 Do you know if costs for continuing
21 these similar activities will be less than
22 the cost for the implementation phase?

23 A As it refers to costs that are
24 outside of the GRC period, I do not have
25 information on that at this time.

26 Q Okay. On -- in your direct
27 testimony, page 29, there is a chart. And I
28 just wanted to confirm what the 2020 forecast

1 expense is. It is 10.178 million, correct?

2 A Can you repeat the page number?

3 Q Page 29 of your direct testimony.

4 A Okay. Yes.

5 Q That is correct?

6 A That is correct.

7 Q Do you know the amount the company
8 has forecasted for the Integrated Grid
9 Platform Program for 2021?

10 A For expense?

11 Q Yes, for expense?

12 A I do not.

13 Q Do you know for 2022?

14 A I do not.

15 Q Last question I was going to ask:
16 So if PG&E were to obtain the amount it has
17 requested for the 2020 test year, do you know
18 if this amount will be collected from
19 ratepayers each subsequent year until rates
20 are reset in the next GRC?

21 A I'm not sure I understand that
22 question.

23 Q So if -- let me ask again.

24 Do you know if the amount, if the
25 amount is approved for the 2020 test year for
26 this program, do you know if this amount will
27 be collected from ratepayers each subsequent
28 year until the next GRC? Is it the same

1 amount that will be collected?

2 A I don't know the answer to that
3 question.

4 MS. LIOTTA: Okay. I have no further
5 questions for this witness. Thank you.

6 ALJ LIRAG: All right. Let's see if
7 there is any redirect of Ms. Liotta's cross,
8 that way Ms. Liotta is free.

9 MR. GALLO: No, your Honor. Thank you.

10 ALJ LIRAG: All right. Let's move on
11 to Cal PA. So I see a total of 2-1/2 hours
12 of cross. Is that still fairly accurate at
13 this point?

14 MS. SHEK: Right now, yes.

15 CROSS-EXAMINATION

16 BY MS. SHEK:

17 Q Good morning, Mr. Nakayama, Mr.
18 Strasburger, Mr. Petrakis. I am Selina Shek
19 with the Public Advocates Office. I will be
20 assisting Mr. Tom Roberts, who is next to me,
21 on his cross-examination and addressing
22 procedural issues. But he will be addressing
23 you with his cross-examination questions.]

24 MR. ROBERTS: Good morning, your Honor.

25 ALJ LIRAG: Good morning.

26 CROSS-EXAMINATION

27 BY MR. ROBERTS:

28 Q Good morning, Mr. Nakayama, Mr.

1 Petrakis and Mr. Strasburger. My name is Tom
2 Roberts, and I'm a senior utility engineer
3 with the Public Advocates Office. I'm going
4 to be asking questions about grid
5 modernization.

6 Do you have the five cross-exhibits
7 marked 113 through 117 that we distributed
8 this morning?

9 WITNESS NAKAYAMA: Yes, we do.

10 Q And also a reference exhibit that
11 includes both PG&E responses to data requests
12 and excerpts from CPUC decisions and
13 resolutions?

14 A Yes, we do.

15 Q Thank you. Have each of you
16 sponsored rebuttal testimony that related to
17 prepared testimony from other witnesses?
18 Correct?

19 A That is correct.

20 Q And each of you is now the sole
21 sponsor of the prepared testimony and
22 discovery responses of your predecessors,
23 correct?

24 A That is correct.

25 Q But taken together now, you all
26 sponsor the entirety of PG&E's integrated
27 grid platform, or IGP, proposal including the
28 information technology and cybersecurity

1 portions of that platform that were
2 originally in Exhibit PG&E-07; is that
3 correct?

4 A That is correct.

5 Q Okay. Thank you. You've had a
6 chance to see each of the six -- five
7 exhibits and one reference document that were
8 distributed yesterday?

9 A Yes.

10 Q Regarding the first exhibit, which
11 is 113, these are all PG&E responses to data
12 requests. Have you seen all these requests?

13 A Yes.

14 Q You're familiar with them?

15 A Yes.

16 Q If at any point you don't agree
17 with a response when we're asking questions
18 about them, please let us know at that time.

19 Now, Cal Advocates originally
20 requested that we have this discussion of
21 grid modernization as a panel to ensure that
22 if there was any cross-linkage between the
23 three of your subject areas that we wouldn't
24 get in a situation where we had to call back
25 a witness. So we appreciate that you are
26 able to accommodate that. As already
27 mentioned, our total time is for the panel as
28 a whole, but the questions that we're going

1 to ask have been structured to elicit "yes,"
2 "no" answers. And we're going to ask that
3 where possible you do that, first.

4 And then second, we expect that
5 most of our questions will -- Mr. Nakayama
6 would be the correct person to answer them.
7 And we understand that Mr. Strasburger and
8 Mr. Petrakis may be able to expand beyond Mr.
9 Nakayama's response due to their different
10 areas of expertise. We want to ask that if
11 it's a "yes" or "no" question that the person
12 who's asked answer that question and that the
13 other witnesses not layer on additional
14 responses unless the original answer was
15 incorrect.

16 Is that understood? Is that
17 acceptable?

18 ALJ LIRAG: Let's see how that goes.
19 So we'll go with that directive -- with that
20 recommendation.

21 MR. ROBERTS: Thank you.

22 Q Mr. Nakayama, parties in the
23 distribution resource plan or DRP proceeding
24 R.14-08-013 were very familiar with PG&E's
25 original witness for the IGP, which was Mr.
26 Esguerra, because he and his team were
27 present at multiple workshops, meetings and
28 conferences on distributed energy resources,

1 or DERs.

2 Can you please describe your
3 working relationship with the DRP proceeding
4 and Mr. Esguearra's team from 2014 until Mr.
5 Esguerra moved away from this program?

6 A I am familiar with the proceeding.
7 Mr. Esguerra and I have had multiple
8 conversations regarding the use of
9 distributed energy resources, such as solar
10 and battery storage and being able to
11 potentially defer or eliminate capital
12 investment projects for capacity and
13 reliability.

14 Q Were you a part of his team during
15 that time period?

16 A No, I was not.

17 Q Did you directly work on the DRP
18 proceeding?

19 A Not during those times.

20 Q Thank you. In your current role,
21 you'll be leading PG&E's efforts from --
22 based on reading your statement of
23 qualifications; is that correct?

24 A That is correct.

25 Q Will you be leading PG&E's efforts
26 related to the following DER proceedings, the
27 DRP proceeding?

28 A That's correct.

1 Q The Rule 21 proceeding,
2 R.17-07-007?

3 A That is correct.

4 Q Electric vehicles, there's one OIR
5 and multiple applications. Will that be
6 within your area of leadership?

7 A You would need to define exactly
8 which proceeding for the electrical vehicles
9 that you are referring to.

10 Q We'll just say the OIR R.18-12-006.

11 A I don't know the exact numbering
12 schemes, but I can tell you that the vehicle
13 grid integration section of electric vehicles
14 is under my purview.

15 Q So, for example, you might be
16 responsible for the infrastructure side of
17 electric vehicles but not the development of
18 rate tariffs.

19 A I will not be responsible for the
20 infrastructure side of electric vehicles.

21 Q You will not be?

22 A No.

23 Q How about energy storage
24 proceedings?

25 A Yes.

26 Q Energy efficiency?

27 A No.

28 Q Demand response?

1 A Yes.

2 Q Can you briefly summarize -- first
3 of all, when did you take on this new role?

4 A I believe it was May of this year.

5 Q And prior to that, did you directly
6 work on any of the DER programs we just
7 listed and discussed?

8 A Not the ones that you discussed,
9 no.

10 Q Thank you. Can you please turn to
11 the reference document exhibit. And page 1,
12 this is the decision which established the
13 CPUC requirements for grid modernization
14 plans; is that correct?

15 A I'm sorry. Which document are you
16 referring to?

17 Q The title says Cross-Examination
18 Reference Documents. It's the one of the six
19 that doesn't have a number on the cover.

20 A I see this.

21 Q So the first page of this package
22 is a CPUC decision, and I ask if this is the
23 decision that established the requirements
24 for grid modernization plans?

25 A Yes, it is.

26 Q Thank you. Going to page 3 of this
27 package, Appendix A is the grid modernization
28 submission requirements, correct?

1 A That is correct.

2 Q And you're familiar with those?

3 A Yes, I am.

4 Q Thank you. If you could please
5 turn to what is Exhibit 17, the direct
6 testimony, and page 19, Attachment A-1.

7 A Yes.

8 Q Sorry. I should have had it --
9 okay. Chapter 19, including its attachments
10 and two tables that are at the end of your
11 workpapers, which is Exhibit 19, constitute
12 the whole of the grid modernization plan; is
13 that correct?

14 A It does not.

15 Q Could you explain what other
16 portions of direct testimony describe the
17 grid modernization plan?

18 A If you take a look at the grid
19 modernization plan, I'll refer you to
20 19-Attachment A-14.

21 Q Exhibit 19 is the original
22 workpapers, correct?

23 A It is the original testimony
24 Attachment A, page 14. The 10-year grid
25 modernization vision, Attachment A that we
26 referred to, page 14.

27 Q That would be Exhibit 17 then,
28 correct? The workpapers are 19. The

1 testimony is 17.

2 MS. SHEK: Is it the workpapers you're
3 referring to or the original --

4 WITNESS NAKAYAMA: The testimony.

5 BY MR. ROBERTS:

6 Q The testimony. Okay. I'm sorry.
7 So Attachment A, page 14?

8 A Yes.

9 Q Right. So what I had asked is from
10 Exhibit 17, Chapter 19 and all four
11 attachments plus the two pages at the end of
12 the workpapers, which is Exhibit 19, that
13 constitutes the grid modernization plan,
14 correct?

15 A For the grid modernization, as it's
16 defined in what we are requesting in the
17 testimony, yes.

18 Q Thank you. Can you tell us where
19 in the grid modernization plan PG&E describes
20 its plans for adding or supplementing
21 automated devices on distribution circuits?

22 A I'd have to refer you to the
23 mapping exercise that was performed against
24 the grid modernization plan. For the grid
25 modernization classification table located in
26 workpapers 19-46 and -- I apologize -- 19-48.

27 ALJ LIRAG: Let's go off the record.

28 (Off the record.)

1 ALJ LIRAG: Let's go back on the
2 record.

3 Let's continue, Mr. Nakayama. You
4 had an answer?

5 WITNESS NAKAYAMA: So as an example,
6 you will have fault locations isolation
7 system restoration, which also includes
8 remote intelligent switches, automatic remote
9 control switches, automatic reclosers. Is
10 that what you're referring to?

11 Q That's a good example, yes. Thank
12 you. And if you look in that row, which is
13 on page 19-49, there's a reference to Chapter
14 9 of Exhibit 4, correct?

15 A That is correct.

16 Q So in this example, the description
17 of PG&E's plan is located in a chapter other
18 than 19, correct?

19 A That is correct.

20 Q And is that true for other elements
21 that are supportive of the IGP or part of the
22 grid modernization plan that -- the
23 description of PG&E's strategies is elsewhere
24 in -- is outside of Chapter 19?

25 A So within the actual grid
26 modernization -- the grid modernization
27 request by the CPUC, the grid modernization
28 classification table was designed to point to

1 all the locations that are classified
2 underneath grid modernization as defined by
3 the CPUC. And those are located in other
4 chapters outside of Chapter 19 for everything
5 that is defined as grid modernization.

6 Q Okay. I appreciate that
7 clarification, but the grid modernization
8 plan in Chapter 19 that describes your
9 strategy on multiple elements of the IGP,
10 that discussion doesn't cover issues such as
11 how you strategically plan to automate
12 devices on distribution circuits or
13 substations. I just want to clarify that
14 that discussion in that specific instance is
15 in Chapter 9 and that there are other
16 elements of the grid modernization plan which
17 are described in other chapters.

18 A That is correct. The integrated
19 grid platform is for a subset of the grid
20 modernization that is required under the grid
21 modernization table for the ADMS, OMS and
22 SCADA implementation upgrades that we are
23 looking to achieve.

24 Q Okay. Thank you.

25 The cost -- the -- PG&E's forecast
26 for the IGP, to my knowledge, isn't provided
27 in one table anywhere in the testimony. So
28 is it correct that to get the total cost for

1 IGP you need to combine costs from Exhibit
2 PG&E-04 and Exhibit PG&E-07?

3 A If you're referring to
4 cybersecurity portions of IGP as well as its
5 communication infrastructure, that would be
6 true.

7 Q Are those portions required to
8 perform the IGP program?]

9 A I believe so.

10 Q And is there any place in the
11 testimony where estimated costs between 2020
12 are provided?

13 A Beyond the rate case cycle?

14 Q Correct.

15 A No.

16 Q Does PG&E internally when they make
17 a decision to approve a project or not, do
18 they consider the full costs and benefits
19 over the lifetime of a project or do they
20 only look at those costs and benefits within
21 the GRC period?

22 MS. GALLO: Objection. Overbroad.

23 ALJ LIRAG: I will allow it.

24 WITNESS NAKAYAMA: Can you repeat the
25 question?

26 BY MR. ROBERTS:

27 Q Sure. Even if the CPUC approves
28 funding for a project, the project won't be

1 internally authorized until PG&E authorizes
2 funding, correct?

3 WITNESS NAKAYAMA: Until PG&E
4 authorizes funding.

5 Q Yes. For example, if you proposed
6 a program, senior management would have to
7 authorize the actual expenditure of funds on
8 that program?

9 A That is correct.

10 Q And when they make that decision,
11 do they look at the total costs and benefits
12 over the lifetime of a project or do they
13 only look at the cost and benefits for a
14 given GRC period?

15 A They look at the total costs.

16 Q Okay. Thank you. Okay.

17 Mr. Nakayama, would you agree that
18 the IGP is a central element of PG&E's Grid
19 Mode Plan?

20 A Yes, it is.

21 Q And within the IGP, there's a
22 request for an Advanced Distribution
23 Management System or ADMS; is that correct?

24 A That is correct.

25 Q And the program also includes a
26 Converged Compute Platform; is that correct?

27 A That is correct.

28 Q And also an IGP cybersecurity

1 project, correct?

2 A That is correct.

3 Q All right. I would like to go over
4 some terminology so that we -- and this is --
5 I'm going to focus on ADMS for a little while
6 so that we can understand some of the
7 components.

8 If you can go to reference exhibit
9 that you looked at once before, page 8, let
10 us know when you're there.

11 A I'm not sure which document you're
12 referring to but if it's this page.

13 Q Yes.

14 A Okay.

15 Q And I will refer to that as the
16 reference documents.

17 MS. GALLO: But, your Honor, I think it
18 would facilitate the cross and the briefing
19 if Mr. Roberts could actually refer to the
20 particular DR response that is on page 8 as
21 he's doing his questioning.

22 ALJ LIRAG: All right. Let's do that,
23 Mr. Roberts.

24 MR. ROBERTS: Okay. Thank you. Sorry.

25 Q On page 7 of this package, PG&E's
26 Response to Public Advocates' Data Request
27 93, Question 2 is provided, correct?

28 A Yes.

1 Q And that continues on to page 8 of
2 the handout?

3 A Yes.

4 Q The redacted portion, which is the
5 big black box on this page, did provide a
6 requested SCADA diagram, correct?

7 A Yes.

8 Q In response to discovery, PG&E
9 provided a number of informative diagrams of
10 IGP which is a complicated system involving
11 hardware and software, also specifically for
12 ADMS, but to my knowledge, each of those
13 diagrams was deemed confidential by PG&E; is
14 that correct, to your knowledge?

15 A To my knowledge, yes.

16 Q Is there anyplace in any of the
17 confidential documents that you've provided
18 so far that would provide parties with access
19 to that confidential information, a visual
20 representation of the IGP or the ADMS?

21 A I'm not sure how to answer that
22 question. Can you please clarify?

23 Q Yeah. The Public Advocates Office
24 hasn't put any confidential information into
25 the record and doesn't plan to, but this
26 morning we understood that there was some
27 confidential versions of documents read into
28 the record and there were previously

1 confidential documents.

2 So I'm just wondering if, and we
3 can -- you can come back to us later if there
4 is, but it would just be really helpful that
5 if we knew in the record somewhere there were
6 diagrams to help people understand what IGP
7 is and ADMS is; if you don't know at this
8 point, if you could possibly come back after
9 a break and let us know?

10 A Are you asking for a full network
11 diagram of all the components of the
12 interfaces between every system that we
13 interface with an ADMS protocol?

14 Q That would be one thing that would
15 be good to see. Also this diagram that was
16 blacked out that I referenced on page 8 was a
17 very simple diagram. So understanding that
18 there can be diagrams that are very high
19 level and simple and very complicated
20 drawings with hundreds of linkages, from that
21 scale, any type of a diagram.

22 MR. GALLO: Your Honor, I think we
23 should address that after the break.

24 ALJ LIRAG: All right. Let's have
25 Mr. Roberts and PG&E confer sometime during
26 one of the breaks and then let's see what
27 needs to get on the record.

28 MS. GALLO: Thank you, your Honor.

1 ALJ LIRAG: All right. Let's proceed.

2 BY MR. ROBERTS:

3 Q If you can please go to Exhibit 17
4 -- excuse me, Exhibit 19, page WP-19-16.

5 MR. HAWIGER: 1960 did you say?

6 MR. ROBERTS: 19-16.

7 WITNESS NAKAYAMA: I'm there.

8 Q Okay. This page and the pages that
9 follow provide a project summary for the ADMS
10 system, correct?

11 A That is correct.

12 Q And these describe the scope and
13 costs of a project or program to implement
14 ADMS; is that correct?

15 A That is correct.

16 Q I'm going to use the term "ADMS
17 project" to discuss what is in this section
18 of workpapers.

19 A I understand.

20 Q Okay. Thank you. And one function
21 of this project is to install new hardware
22 and software that will allow grid operators
23 to monitor and control supervisory control
24 and data acquisition or SCADA, S-C-A-D-A,
25 equipment in substations and on distribution
26 circuits; is that correct?

27 A That is correct.

28 Q And once implemented this system

1 will allow grid operators to open a computer
2 program or application that may be called
3 ADMS on their control stations in the
4 distribution control centers or DCCs; is that
5 correct?

6 A That is correct.

7 Q So, I will try to be clear, but
8 there's both ADMS as a project and I will try
9 to use ADMS application to refer more
10 narrowly to the software.

11 A I understand.

12 Q So the ADMS application is software
13 that PG&E seeks to purchase; is that correct?

14 A That is correct.

15 Q Is this an off-the-shelf software
16 package like Microsoft Excel?

17 A It is a software package that will
18 be procured by an ADMS vendor.

19 "Off-the-shelf" is a vague term
20 that I don't know how you would define
21 exactly what "off-the-shelf" means.

22 Q I would take it literally that I
23 could go -- I used to be able to go to many
24 different stores, but now I have to go to
25 Best Buy and pick up a box off-the-shelf that
26 has Microsoft Excel. I don't believe I can
27 go there to buy ADMS.

28 A That is true. You cannot go to

1 Best Buy to buy ADMS.

2 Q Okay. Thank you. So it's a
3 complicated piece of software that is being
4 developed to PG&E specifications; is that
5 correct?

6 A That is correct.

7 Q Now, if you can go to Exhibit 113,
8 page 1, we just discussed the ADMS
9 application, which is software, and that will
10 reside on computer hardware; is that correct?

11 A That is correct.

12 Q Where will this hardware be
13 located?

14 A For that information I may have to
15 turn that over to Mr. Petrakis, who can talk
16 a little bit more about potentially the
17 infrastructure and where it might be located.

18 Q Okay.

19 WITNESS PETRAKIS: This system is going
20 to be located at the DCCs.

21 Q And there are three DCCs, correct?

22 A That's correct.

23 Q Will the hardware be located
24 exclusively in those three DCCs or will there
25 be some portion of ADMS hardware that's
26 elsewhere?

27 A It's all planned at the DCCs.

28 Q Okay. And this is hardware that

1 PG&E seeks to purchase, correct?

2 A That's correct.

3 Q I'm going to use another analogy,
4 if I can, because I use MS Excel a lot.

5 To run that program well, you have
6 to have adequate computer hardware. It could
7 run on a slow computer, but to run best it
8 needs to be a computer that is
9 appropriately-sized and specified; is that
10 correct?

11 A That's correct.

12 Q And is ADMS hardware -- does that
13 analogy hold for ADMS hardware? That it's
14 relatively generic computing hardware that
15 has been specified by PG&E and the ADMS
16 vendor to adequately support that software?

17 A The software, yes, absolutely. It
18 has to have enough horsepower -- sorry. The
19 hardware has to have enough horsepower to run
20 all the functions of ADMS.

21 Q Okay. And does the ADMS hardware
22 at each of the three DCCs have the same
23 computing and storage capabilities?

24 A Yes, it would.

25 Q I'm sorry. "Would."

26 Maybe I should ask if I can, what
27 is the status of the procurement of ADMS
28 software? Start -- I've spent some time with

1 Mr. Petrakis. Let's start with hardware.

2 MR. GALLO: Your Honor, can I just
3 caution the witness and Mr. Roberts that the
4 vendor of ADMS we have redacted the name of
5 it in discovery, so I just want to make sure
6 that nobody mentions it casually. Thank you.

7 ALJ LIRAG: All right.

8 MR. ROBERTS: Just to clarify, is that
9 also true for the hardware?

10 MS. GALLO: I don't think so.

11 WITNESS PETRAKIS: I don't think so.

12 BY MR. ROBERTS:

13 Q Who is the vendor for the ADMS
14 hardware?

15 WITNESS PETRAKIS: That would be
16 specified by our -- once they go through the
17 design of the ADMS, they're going to look at
18 the performance required by the hardware and
19 it would -- potentially don't know yet, an
20 RFP or a quote to see who can provide us that
21 server hardware at that time.

22 Q Okay. So the specification of the
23 ADMS software would proceed the specification
24 of ADMS hardware?

25 A That is correct.

26 Q So let me go back to Mr. Nakayama
27 then and ask what's the status of ADMS
28 software procurement process?

1 WITNESS NAKAYAMA: I'm actually not on
2 the ADMS implementation team, so I'm not
3 aware of the status of where we are on the
4 implementation today.

5 Q Mr. Petrakis, do you know the
6 answer to that?

7 MR. PETRAKIS: No. I don't.

8 Q But you three are the panel that
9 was put up by PG&E to support this request;
10 is that correct?

11 A That is correct.

12 Q And I can't point to an exact data
13 response number at this time, but I know that
14 PG&E has provided the status of ADMS
15 procurement.

16 A For software and hardware. I
17 believe you have the -- I can't remember
18 exactly which data request it was, but one
19 was provided. I believe it's quotes.

20 Q So I think that given that you're
21 sponsoring the data requests supporting this
22 topic, that it's a reasonable question to ask
23 what the status of ADMS software procurement
24 is. And if you don't know the answer, then I
25 guess that is the answer.

26 MR. NAKAYAMA: There's a difference
27 between those who sponsor the testimony for
28 the business case and the reasonings behind

1 the case versus those who are actually
2 implementing the actual software program and
3 the hardware programs that have a
4 better-specialized function to be able to do
5 so.

6 Q Just to clarify, you can't tell us
7 if you issued an RFP, you got responses to
8 the RFP or how the development of -- how the
9 procurement of ADMS has progressed so we can
10 understand the status of the ADMS hardware
11 specification?

12 A I am familiar that a quote was
13 received that was then sent over as a part of
14 the data request over to you as requested,
15 but I am not currently knowledgeable about
16 where they are in the current design
17 implementation process of ADMS specifically.

18 Q So you have developed an ADMS
19 specification and gone out for bid and
20 received at least one quote?

21 A For the software, that is. We went
22 through an RFP process to identify the
23 best-fit solution to select out of the
24 various ADMS vendors and have selected a
25 vendor for ADMS software.

26 Q Okay. So you have selected a
27 vendor but not engaged in a contract with
28 them?

1 A I can't speak to where the status
2 of the actual contract is.

3 Q Okay. Thank you.

4 Then, Mr. Petrakis, given that
5 discussion of the ADMS software, has that yet
6 informed the ADMS hardware process to the
7 point where you have issued an RFQ, Request
8 for Quote?

9 WITNESS PETRAKIS: Not yet.

10 Q Thank you. Where are the SCADA
11 database servers located now?

12 A For that question, I will refer
13 over to Mr. Petrakis.

14 WITNESS PETRAKIS: The today's SCADA
15 system, the RT-SCADA system, is a distributed
16 application with head-ends in various
17 locations in the fields.

18 Q So I was specifically asking about
19 a SCADA database. Is that the same as a
20 head-end?

21 A That's correct.

22 Q Can you provide a full definition
23 of what a head-end is?

24 A So the head-end is a server that
25 has the RT-SCADA software running on it.
26 It's in various locations, as I mentioned, in
27 the fields. Its function is to collect the
28 data from the field and therefore process the

1 data for presentation to the operators.

2 Q And then it stores the data that is
3 incoming from field devices?

4 A That is part -- part of the
5 function is also to store the data, yes.

6 Q And it would also be -- have the
7 network communication to send commands to
8 SCADA operating systems and other equipment?

9 A That's exactly the interface, yes.

10 Q And I saw somewhere in your
11 testimony I believe that there might have
12 been 16 locations where these head-ends are
13 located; is that correct?

14 A That's correct.

15 Q And are those generally in
16 substations or some other place in PG&E's
17 system?

18 A Those are in the old distribution
19 control centers.

20 Q And if -- and also there's a
21 separate system currently that you have
22 called the Distribution Management System or
23 DMS. I suspect that similarly is a software
24 and hardware combination. Where does that
25 system reside physically?

26 A That system resides in the two PG&E
27 data centers, the IT data centers.

28 Q Okay. Thank you. And in PG&E's

1 proposal, these would be replaced by ADMS
2 hardware and software in just the three new
3 DCC locations; is that correct?

4 A That's correct.

5 Q Okay. If you can now turn to page
6 3 of Exhibit 113, just a couple of pages
7 away.

8 This is PG&E's response to Data
9 Request 100, Question 28.

10 The ADMS hardware forecast does not
11 include capital expenditures for any SCADA
12 devices or SCADA communication system in the
13 field; is that correct?

14 MR. NAKAYAMA: That is correct.

15 Q And that applies to both the
16 capital expenditures on page 3 and expenses
17 on page 4, correct?

18 A That is correct.

19 Q That equipment is requested
20 elsewhere in testimony; is that correct?

21 A The equipment is requested
22 elsewhere. There are currently SCADA field
23 equipment already in existence out in the
24 field. Anything that is in excess of that
25 will be an additional testimony outside of
26 this chapter for new devices.

27 Q Right. So, for example, we
28 discussed once before Chapter 9 has some

1 SCADA devices that are being requested?

2 A For new devices not currently in
3 the system, yes.

4 Q And, similarly, new communications
5 systems are part of I believe Mr. Petrakis'
6 testimony.

7 A Yes.

8 Q Okay. I'm going to continue just a
9 little bit further on the technology and use
10 this analogy of a personal computer again.

11 Any laptop or desktop computer
12 includes communication hardware to allow it
13 to send information to things like printers
14 and the internet; is that correct?

15 A My personal laptop has a WiFi.

16 Q That's a communication mechanism,
17 correct?

18 A Yes.

19 Q And so your laptop has a device
20 within it that in the past would have been
21 referred to as a network interface card, but
22 how things are changing, does that term still
23 make sense, network interface card that's
24 inside a computer that allows it to
25 communicate with other devices?

26 A I'm going to refer the more
27 technical discussions on network
28 infrastructure to Mr. Petrakis.

1 MR. PETRAKIS: Mr. Roberts, yes. It's
2 an old term. Interface was related to more
3 of a physical cable connecting to a laptop,
4 but today you have air cards or some other
5 means by communicating other than just the
6 wired connection.

7 Q When we talk about a communication
8 system, that's a generic term that could
9 include WiFi, Bluetooth, satellite, fiber
10 optic, copper. There's multiple physical
11 layers of communication system, but they all
12 require something to format a signal to go to
13 that communication medium, correct?

14 A That's correct.

15 Q And so there's got to be a device
16 in this case, and my question is for ADMS,
17 there has to be some device that allows it to
18 send and receive signals from SCADA field
19 devices and to other databases and IT systems
20 within the PG&E enterprise; is that correct?

21 A That's correct.

22 Q Are those equivalent of a network
23 interface card part of the ADMS hardware?

24 A Not labeled that way. The vendors
25 label them as gateways.

26 Q So when we look at the cost
27 estimate for ADMS hardware, and I'm picturing
28 a server room with all these racks of

1 computing resources, does that ADMS hardware
2 allow those storage devices and computing
3 devices to receive and send information other
4 places than the DCCs?

5 A That's correct.

6 WITNESS NAKAYAMA: Excuse me. I want
7 to understand. Again, you were talking about
8 -- again, we were talking about the ADMS
9 platform versus the ADMS software. The ADMS
10 software itself and the hardware associated
11 with the ADMS software is utilized for the
12 distribution management system side of the
13 ADMS platform. What you're referring to in
14 communications between field devices and to
15 the backhaul network where we can receive
16 those systems is not ADMS. That is from an
17 ADMS application perspective that is D-SCADA.

18 Q I wasn't referring to the
19 communication path outside of the DCC. What
20 I'm asking is: Does the ADMS hardware, the
21 servers as I think Mr. Petrakis referred to
22 them as, does that -- does the cost request
23 for that component include interfaces that
24 allow signals to be put on to a communication
25 network, whether that communication network
26 allows it to speak to the data centers or the
27 SCADA head-ends?

28 WITNESS PETRAKIS: That is correct,

1 Mr. Roberts. It does.

2 Q Okay. Thank you.

3 ALJ LIRAG: Let's take a 10-minute
4 break.

5 Let's go off the record.

6 (Recess taken.)

7 ALJ LIRAG: All right. Let's go back
8 on the record.

9 Let's continue with the cross-exam
10 by Mr. Roberts.

11 MR. ROBERTS: Thank you, your Honor.

12 Q We had been talking about
13 communications between the ADMS hardware and
14 other devices. What communication protocol
15 does the current RT-SCADA system use to
16 communicate with field devices?

17 WITNESS NAKAYAMA: I will refer that
18 question over to Mr. Petrakis.

19 WITNESS PETRAKIS: There's a couple of
20 protocols it supports. One is the DNP3
21 protocol and predominantly is the old 2179
22 protocol.

23 Q And DMP3 (sic) is the same as IEEE
24 1850?

25 A There's a lot of variations of the
26 DNP protocol. I'm not familiar with all of
27 them, but that's one reference, yes.

28 Q The common term in PG&E is DMP3

1 (sic)?

2 A Yes.

3 Q And would the new ADMS hardware
4 also use the DMP3 (sic) as a communication
5 protocol?

6 A It would support DNP3; there's no
7 DMP3, as in "Nick," and will support also
8 more modern protocols as well.

9 Q And will it be able to support IEEE
10 2030.5?

11 A Yes, it will.

12 Q And the ADMS software is also being
13 specified to be able to speak, so-to-speak,
14 IEEE 2030.5; is that correct?

15 A That's correct.

16 Q Okay. Thank you. I think this is
17 Exhibit 17, page 19-62. Nope. That is not
18 correct.

19 I think it is Exhibit 20, the
20 rebuttal, page 1962 -- 19-62. And when
21 you're there, can you please read the lines
22 starting at line 20 and that starts with
23 "they do not invalidate."

24 WITNESS NAKAYAMA: This is regarding
25 the communication infrastructure. I will
26 refer that over to Mr. Petrakis.

27 WITNESS PETRAKIS: What's the question,
28 Mr. Roberts, please?

1 Q If you could just read that last
2 sentence starting with "they do not
3 invalidate."

4 A They will not invalidate
5 PG&E's prior investments in the
6 DCCs.

7 ALJ LIRAG: Please use the mic a little
8 bit more.

9 WITNESS PETRAKIS: Thank you. They
10 will not -- oh, it wasn't on.

11 They will not invalidate PG&E's
12 prior investments in the DCCs which
13 would largely continue to operate as
14 originally installed.

15 BY MR. ROBERTS:

16 Q What are these prior investments
17 that you are referring to here?

18 A So pertaining to the design of the
19 DCCs when they were built over five years
20 ago, these are the investments that are
21 referred to here.

22 A lot of the ground work in the
23 networks already went into support the DCC
24 functionality as it was back then.

25 Q And I guess now I understand that
26 the SCADA servers are not in the DCCs
27 currently. So that isn't part of the prior
28 investment?

1 A That is correct.

2 Q But it would include communication
3 systems within those DCCs. Is that part of
4 the prior investments?

5 A For the operators to work and
6 interface to the data centers and to the
7 field servers, that was back then what was
8 made in the designs of the DCC's network
9 compliance, but going forward it's not
10 enough.]

11 Q Okay. Now, a little change of
12 topic away from ADMS. PG&E's requesting
13 funding for a program called the Distribution
14 GIS Asset Data Improvement Program, correct?

15 WITNESS NAKAYAMA: That is correct.

16 Q Is that to improve data in the
17 EDGIS system?

18 A That is correct.

19 Q And this is a database for
20 information about your distribution
21 equipment, correct?

22 A Contains information about our
23 distribution specifications on --

24 THE REPORTER: On?

25 WITNESS NAKAYAMA: Distribution
26 specifications of each equipment.

27 THE REPORTER: Thank you.

28 WITNESS NAKAYAMA: Apologies.

1 BY MR. ROBERTS:

2 Q Where are the servers for the EDGIS
3 database located?

4 A That I will refer back to Nick
5 Petrakis.

6 WITNESS PETRAKIS: Those are located in
7 the IT data centers.

8 Q There is two data centers, correct?

9 A That is correct.

10 Q Still in Exhibit 20, if you can go
11 to page 19-59. I think this line of
12 questioning will be for Mr. Petrakis. Let us
13 know when you are there.

14 A I'm there.

15 Q This is a discussion of a different
16 request that is called the "Converged Compute
17 Platform," correct?

18 A My apologies. I'm on the wrong
19 page. One moment, please.

20 ALJ LIRAG: Let's go off the record.

21 (Off the record.)

22 ALJ LIRAG: Back on the record.

23 BY MR. ROBERTS:

24 Q Once again, this section of the
25 rebuttal is addressing a program called the
26 "Converged Compute Platform," correct?

27 A That is correct.

28 Q And your answer to -- your answer

1 to Question 95 provides a description of the
2 scope of this program; is that correct?

3 A That is correct.

4 Q What equipment would be replaced by
5 this new platform, if it was successfully
6 piloted?

7 A So today substations have a lot of
8 functionality that requires compute. It
9 could be SCADA, it could be maintenance type
10 servers for maintaining the equipment, it
11 could be security-related equipment. So each
12 application, or each use case at the
13 substation, previously was bringing its own
14 servers; a server to do this function,
15 another server to do other functions.

16 So the converged compute is
17 providing a common platform for a lot of
18 functions on common hardware. That is the
19 intent of this piece. That is why they call
20 it "converged compute."

21 Q I need to try to break this down, I
22 guess. I've been on a number of tours of
23 substations now, and have been inside the
24 blockhouse where the relays are located. My
25 understanding was the computing power was
26 within the relays. And I don't recall there
27 being servers providing computing in any
28 substation I visited.

1 Is it typical that all PG&E
2 substations have computing power at the
3 substation?

4 A So to perform the computing power
5 at the substation, those computers are
6 servers.

7 Q I guess what I'm asking is: My
8 understanding of substations is there is
9 computing that is done to support protection,
10 and that computing is done in the relays; is
11 that correct?

12 A For protection, I'm not sure what
13 they have. I don't know the architecture
14 there. But the software for RT-SCADA, for
15 example, at a substation, is running on a
16 server.

17 Q So that would be the client
18 relating to the server that would be in the
19 back office?

20 A Yes.

21 Q Okay. And is there generally a
22 server in PG&E's substations?

23 A If it has -- it depends on the
24 function. It depends on the use case. You
25 have servers for cameras, you have servers
26 for access cards for entry, you have servers
27 for condition-based maintenance protection.

28 Q It sounds like certainly any

1 substation that has SCADA devices currently
2 would have a server to have the RT-SCADA
3 software?

4 A That is correct.

5 Q Okay. If it is proven, will the
6 converged platform mostly replace existing
7 functionality or will it be adding
8 functionality?

9 A I would say both, Mr. Roberts. The
10 existing functionality is to lower the cost
11 of replacing all that hardware that I
12 described, the disparate servers. But since
13 it is a converged compute platform, it is
14 very scalable. You can always add power, as
15 needed, for future applications as they may
16 come.

17 Q But in doing this pilot, are you --
18 is your goal to simply provide the same level
19 of functionality at a lower price, or are you
20 trying to develop a system with more
21 capabilities that can support future use
22 cases or use cases you know will be
23 happening?

24 A It will be both again. And the new
25 use cases are going to have to come, as we
26 engage with the business, as we look at
27 future needs, we would then architect it or
28 size it appropriately for what the business

1 thinks they need.

2 Q Can you give an example of one new
3 functionality that system might provide or
4 support?

5 A A lot of our substations don't
6 have, for example, cameras today. That is
7 probably something that will be as part of
8 cybersecurity. And I'm going to stop there,
9 just in case it is confidential.

10 Q Okay. If you can turn the page to
11 19-60 lines 3 to 5. There is a reference
12 to -- first of all, the term "POC" is used.
13 Is that proof of concept?

14 A That is correct.

15 Q In the same line there is a
16 reference to PG&E guidance. What is the PG&E
17 guidance that is referenced here?

18 A So the PG&E guidance mentioned
19 here, I believe that any such investment that
20 is put in production will become part of the
21 asset base.

22 Q But is that -- when you say
23 "guidance," I think of a standard, a
24 controlled standard document. Is this an
25 established and standardized PG&E policy, to
26 your knowledge?

27 A It is our practice, yes.

28 Q But do you have a document number

1 you refer to that you can show us what this
2 guidance is in the same way we can refer to a
3 CPUC decision number?

4 A I don't have that with me,
5 Mr. Roberts.

6 Q To your knowledge is there a
7 standard, a standardized document that
8 defines these policy?

9 A If it does, it probably is going --
10 the finance department. And I have to, you
11 know, refer you to those folks, please.

12 Q Okay. Now if I can ask you to turn
13 to one of your cross exhibits, it is No. 3,
14 and it is Exhibit 115. Let me know when you
15 have that.

16 A Part 3, right?

17 Q Yes.

18 A Yup.

19 Q If you start on page 4, this is the
20 beginning of PG&E's Triennial Electric
21 Program Investment Charge, or EPIC plan. Do
22 you see that?

23 WITNESS NAKAYAMA: That is correct.

24 Q If you now turn to page 6. Can you
25 please read the last line of the second
26 paragraph which begins "therefore"?

27 A Therefore, utility-specific
28 demonstrations, such as a proof of

1 concept prototype, laboratory or
2 other testing of a particular
3 strategy and/or technology is --

4 ALJ LIRAG: Please slow down.

5 WITNESS PETRAKIS: I apologize. Let me
6 start over.

7 Therefore, utility-specific
8 demonstrations, such as a proof of
9 concept prototype, laboratory or
10 other testing of a particular
11 strategy and/or technology is
12 essential to inform real costs,
13 benefits and feasibility at full
14 deployment.

15 BY MR. ROBERTS:

16 Q Thank you.

17 If you can now turn to page 9,
18 actually, maybe start at 7, just to provide
19 context. This is PG&E's 2018 Energy Storage
20 Procurement and Investment Plan, an excerpt
21 of that. And now if you could go to page 9
22 of the handout, which is page 2-2 of the
23 storage plan.

24 Let me know when you are there.

25 A I'm there.

26 Q Okay. The last bullet mentions a
27 Browns Valley Project as part of the EPIC
28 program document. Do you see that?

1 A I do.

2 Q Does this application seek to
3 utilize the Browns Valley Project as an
4 operational asset?

5 A I am not aware of the Browns Valley
6 Project, in particular.

7 Q So is this -- is the Energy Storage
8 Procurement and Investment Plan -- I asked
9 before if storage was part of your area of
10 responsibility. Is this particular plan in
11 the area of your responsibility?

12 A It may be. But this particular
13 project I am not familiar with, as it was
14 prior to my taking over of the organization.

15 Q Okay. If we can return to
16 Exhibit 20 page 19-60 lines 17 to 19,
17 discusses the computing availability of the
18 Converged Computer Platform. I just wanted
19 to ask, since a comparison is made to
20 computing power in the data centers, what is
21 the relationship? Are you moving computing
22 power away from the data centers or away from
23 the substations, or are you supplementing the
24 computing power for PG&E distribution as a
25 whole?

26 WITNESS PETRAKIS: This references its
27 similar architecture. What is used at the
28 data center would be applied at the

1 substation.

2 Q Do the data centers utilize cloud
3 computing?

4 A Yes, they do.

5 Q If we could now go to Exhibit 19.
6 Those are the workpapers of the original
7 testimony. And we are looking for page WP
8 19-13. And Mr. Nakayama, let me know when
9 you are there.

10 WITNESS NAKAYAMA: I am there.

11 Q This Table 19-13 provides the cost
12 for the ADMS project, which we discussed
13 before, is larger than the ADMS application?

14 A That is correct.

15 Q Okay. And this table has the total
16 cost for the ADMS project in this rate case?

17 A That is correct.

18 Q Looking at line 12, it appears that
19 point-to-point testing is the largest cost
20 for the ADMS project for this time period; is
21 that correct?

22 A That is correct.

23 Q Could you please go to page 19-18.

24 A I am there.

25 MR. GALLO: Excuse me, your Honor. WP
26 19-18, or 19-18 in the rebuttal or 19-18 in
27 the original testimony?

28 MR. ROBERTS: Sorry. It is still

1 Exhibit 19 page WP 19-18.

2 MR. GALLO: Thank you.

3 WITNESS PETRAKIS: Thank you. I'm
4 there.

5 BY MR. ROBERTS:

6 Q The second paragraph under Item 2
7 describes point-to-point testing as having
8 two components. Do you see that? I'm sorry.
9 That was a statement, not a question.

10 The first part is described as, for
11 example, point-to-point testing ensures that
12 amps measured as a circuit breaker are
13 correctly populating the field in the SCADA
14 database that corresponds to amps.

15 WITNESS NAKAYAMA: Yes.

16 Q And one point in this example is
17 the circuit breaker, correct, which is --
18 correct?

19 A Yes.

20 Q And that is a SCADA-enabled device
21 in a substation?

22 A It can be.

23 Q If it weren't a SCADA-enabled
24 device, would it be part of the
25 point-to-point testing?

26 A No, because it would not be
27 SCADA-enabled.

28 Q Thank you.

1 The other point appears to be a
2 SCADA database, correct?

3 A Yes.

4 Q And as we previously discussed, the
5 SCADA databases are currently in the 16 DCCs,
6 and they will move, if planned, to the three
7 new DCCs?

8 A I believe there is a difference
9 between SCADA databases and ADMS. In terms
10 of network architecture, I am going to have
11 to refer you over to Mr. Petrakis.

12 WITNESS PETRAKIS: Can you please
13 repeat the question, Mr. Roberts?

14 Q Certainly. The other point in this
15 point-to-point test is the SCADA database.
16 And then I guess I was asking where that
17 SCADA database or SCADA data -- SCADA
18 databases were located?

19 A So the centralized SCADA databases
20 are going to be at the DCCs.

21 Q So they are currently at the old
22 DCC locations of which there were 16. And if
23 ADMS is approved, they would be in the three
24 DCCs?

25 A That is correct.

26 Q Okay. And then the last sentence
27 in this paragraph refers to an additional
28 verification is needed to ensure that the new

1 SCADA screen for the circuit breaker properly
2 shows the correct database point?

3 WITNESS NAKAYAMA: That is correct.

4 Q And so it wasn't clear to me,
5 within that paragraph there seemed to be two
6 parts of point-to-point testing that are
7 described, the one between the circuit
8 breaker and the database and the second one
9 from the database to the SCADA screen?

10 A That is correct.

11 Q Okay. And so that -- both elements
12 are included in the point-to-point testing
13 cost forecast, because they are described as
14 within the scope of the point-to-point
15 testing?

16 A That is correct.

17 Q If we can go back to Exhibit 20,
18 your rebuttal page 19-46.

19 A I am there.

20 Q Okay. Question 7 asks if you agree
21 with Cal Advocates' position that sampling
22 should be done. Is that an accurate
23 paraphrase?

24 A I imagine you are referring
25 Question 70 and not Question 7?

26 Q That is correct.

27 A Can you repeat the question,
28 please?

1 Q Yes. I just want to para --
2 paraphrase that you disagree with Cal
3 Advocates' position that a sampling plan be
4 used. That is the question. And then the
5 answer indicates that it is because you
6 already have a sampling plan; is that
7 correct?

8 MR. GALLO: Your Honor, misstates the
9 question as written in the rebuttal.

10 ALJ LIRAG: All right. Sustained.

11 MR. ROBERTS: Okay.

12 ALJ LIRAG: You will have to go over it
13 more carefully, Mr. Roberts. Although, I
14 appreciate the paraphrasing.

15 MR. ROBERTS: Okay.

16 Q Mr. Nakayama, you are aware that
17 Cal Advocates recommended that the
18 point-to-point testing utilizes sampling
19 point, correct?

20 WITNESS NAKAYAMA: That is correct.

21 Q Your answer to this Question 70
22 says you disagree with Cal Advocates'
23 recommendation, because you already
24 incorporate a sampling plan; is that correct?

25 A There are two different types of
26 tests, types of tests that are being
27 designated for the SCADA point-to-point
28 testing. One of them is what we would

1 consider the back office test. The back
2 office test is something that we are
3 recommending 100 percent of all SCADA points
4 be tested. However, the sampling plan you
5 are referring to is actually a field test to
6 inject simulated data at a field device to
7 determine if it is accurately received back
8 into SCADA database and populates correctly
9 onto the SCADA screen. That is the sampling
10 plan we are referring to that is echoed here
11 on 10 percent or 15 percent of SCADA
12 databases -- SCADA devices, as identified on
13 line 4.

14 Q Okay. Are you aware that in PG&E's
15 opening testimony and workpapers there is no
16 reference to a PG&E sampling plan or back
17 office testing as part of point-to-point
18 testing?

19 A Can you please refer to the actual
20 document that you are referencing to?

21 Q That would be Exhibit 17 and 19. I
22 was not able to find any place in those
23 documents where PG&E references a sampling
24 plan or back office-based testing relative to
25 point-to-point testing. If it is there, I
26 missed it. I'm hoping you can point it out.

27 A I would have to go through in
28 detail and research the exhibits if you

1 cannot point me to the actual location that
2 you are referring to. To do a cross on
3 determining whether it is there or not, I
4 can't do at this time without some additional
5 time.

6 Q Could we say that "subject to
7 check" PG&E's opening testimony and
8 workpapers do not reference a sampling plan
9 for back office base testing?

10 MR. GALLO: Your Honor, I think if we
11 have another break during Mr. Roberts'
12 testimony, we can probably --

13 ALJ LIRAG: All right. Let's handle
14 that in redirect.

15 MR. GALLO: Thank you.

16 BY MR. ROBERTS:

17 Q If you can now go to Part 5 of our
18 cross exhibits. This is Exhibit 117.

19 WITNESS NAKAYAMA: I have it.

20 Q And if you can go to page 5.

21 A You refer to California Rule 21
22 Phase 3?

23 MR. ROBERTS: No. I've taken you to
24 the wrong place.

25 Can I have a moment off the record?

26 ALJ LIRAG: Off the record.

27 (Off the record.)

28 ALJ LIRAG: Let's go back on the

1 record.

2 BY MR. ROBERTS:

3 Q I'm sorry. That was an incorrect
4 reference. It should be Exhibit 113, which
5 is Part 1 of our cross exhibits.

6 WITNESS NAKAYAMA: Thank you.

7 Q Page 5 is PG&E's response to Data
8 Request, Public Advocates 22-5 Question 4.

9 A That is correct.

10 Q Okay. This response is cited in
11 Cal Advocates-08 testimony, but was
12 accidentally omitted from the workpapers. So
13 we want to make sure it was discussed here.

14 If you would please read the answer
15 to that.

16 A Refer to PG&E's response to
17 Public Advocates, Pub Ad 225-204;
18 all points on all devices will
19 undergo point-to-point testing.

20 Q Thank you.

21 Now if you can turn to the
22 reference document's package. Page No. 7
23 starts --

24 A Can you hold on for one second?

25 ALJ LIRAG: Let's go off the record.
26 (Off the record.)

27 ALJ LIRAG: Back on the record, please.

28 BY MR. ROBERTS:

1 Q This is PG&E's response to Public
2 Advocates Data Request 93-Question 2. And
3 this asks if point-to-point testing requires
4 PG&E to input a signal at each SCADA device
5 in the field to be validated.

6 Do you see that?

7 A I do see that.

8 Q Does your response to this question
9 mention that only 10 to 15 percent of testing
10 will be input -- will involve inputting a
11 signal in the field?

12 A It does not.

13 Q Thank you.

14 If you can please turn to page 9 of
15 the reference documents. This is PG&E's
16 response to Data Request 225 Question 1. You
17 see this response was dated June 19th, excuse
18 me, June 18th, 2019?

19 A I see that.

20 Q You are the witness?

21 A Yes, I am.

22 Q To my knowledge, this is the first
23 time in this case that the two different
24 flavors of point-to-point testing, one of
25 which is listening and the other is described
26 as simulation below, are discussed.

27 Are you aware of any other
28 references in this case prior to this

1 response where the difference between field
2 and back office point-to-point testing was
3 discussed?

4 A I cannot confirm that without
5 having to review all the documents of all
6 responses that were given, as well as
7 crossing against the actual testimony and
8 workpapers provided, to see if there is any
9 reference to the differentiations between a
10 back office point-to-point testing versus a
11 field point-to-point testing.

12 Q Okay. So maybe that question that
13 was going to be addressed in redirect could
14 be expanded to incorporate this?

15 ALJ LIRAG: All right. I think that is
16 fine.

17 MR. ROBERTS: Thank you.

18 ALJ LIRAG: If not in redirect, we can
19 also attempt to -- I think we are going to go
20 into our break soon. And if the answer is
21 ready by then, we can also discuss it while
22 your cross is still going on. We will check
23 with Mr. Gallo and yourself once we come back
24 from break.

25 MR. ROBERTS: Thank you.

26 Q This response further describes two
27 types of back office testing, the first of
28 which is in bold below, as listen mode.

1 Do you see that?

2 WITNESS NAKAYAMA: I do see that.

3 Q This response states this technique
4 is used to validate analogue signals?

5 A That is correct.

6 Q Where are the analogue test signals
7 input to ADMS to report this type of test?

8 A Into the ADMS? These are
9 distribution SCADA values. So I'm confused
10 as to how -- are you talking about ADMS the
11 platform, ADMS the application or are you
12 referring to distribution SCADA?

13 Q The point-to-point testing is to
14 validate the entire ADMS project performance.
15 Would that be a correct statement?

16 A It is to validate the SCADA
17 replacement portion of the ADMS platform.

18 Q Okay. So in testing that path,
19 your response says that there are analogue
20 signals involved, correct?

21 A That is correct.

22 Q I'm asking generally when you
23 are -- if you are testing to validate
24 something can accurately pass an analogue
25 signal, you need to put an analogue signal in
26 to perform a test. I'm asking: Where would
27 that analogue testing be input?

28 A SCADA devices from the field

1 provide analogue data on a regular basis. It
2 transmits it in amps and -- amps and other
3 value forms to our distribution SCADA systems
4 on a regular basis.

5 So what you are referring to as
6 listening mode is to see if the values
7 provided by the field data field devices that
8 are currently in production are going to both
9 databases, the old SCADA database and the new
10 SCADA database, and they are identical.

11 Q Right. So you are testing that
12 data from the field is correctly read into
13 the databases?

14 A Is correctly written into the
15 database; that is correct.

16 Q So there is an input source that
17 you are testing. Where is that signal input?

18 A From field devices like SCADA line
19 reclosures, for example, that are monitoring
20 telemetry data on the line.

21 Q In doing a listening mode test you
22 are inserting a test signal at a device
23 recloser?

24 MR. GALLO: Objection.
25 Mischaracterizes the testimony.

26 ALJ LIRAG: In what way?

27 MR. GALLO: In that injecting a signal
28 is not what Mr. Nakayama has been describing.

1 ALJ LIRAG: All right. You can
2 rephrase or be more specific, Mr. Roberts.

3 BY MR. ROBERTS:

4 Q Okay. When we discussed previously
5 the overall discussion of point-to-point
6 testing, point-to-point testing always
7 involves doing something at one end and
8 testing a result at the other.

9 Is that a correct statement?

10 A It is an overly broad statement in
11 terms of doing something on one end. There
12 are multiple ways to do something on one end
13 to ensure that they are received on the
14 other.

15 Q So in this mode the receiving end
16 is the RT-SCADA database; is that correct?

17 A It will be two databases. One of
18 them, which is the old RT-SCADA database, and
19 new one that is being developed for the new
20 vendor. It will be two databases. The
21 listen mode is to publish that value on both
22 databases and ensure they are the same.]

23 Q You said "publish the value"?

24 A In other words, when the field
25 device, such as a line recloser -- let's give
26 an example here. It might be easier to
27 identify with. A line recloser out there is
28 currently monitoring amps on the line. It

1 sends those values through the net
2 communications network of which then we will
3 then be able to take that value and populate
4 it into two databases, one of which is the
5 old RT-SCADA database, and the other one is
6 the new one that we had purchased for the new
7 SCADA system that we are looking to acquire.

8 The listening mode test is to take
9 a look at those values that are actually
10 coming from a physical field device in
11 production and see if those values match
12 across the two databases, the old and the
13 new.

14 Q So in this case, given that
15 example, it sounds like you have -- you're
16 reading an analog amp signal, which is
17 digitized by the field SCADA device and sent
18 via communication back to these two
19 databases?

20 A That is correct.

21 Q And then you're looking -- so how
22 do you know what the amp signal is in the
23 field to know that's the correct value in the
24 database?

25 A For this particular back-office
26 test, what we are testing here is to make
27 sure that a signal is sent from the line
28 recloser and would typically record within

1 the RT-SCADA database is that same value
2 being populated within the new SCADA base
3 architecture that we're creating for the new
4 SCADA platform.

5 Q I see. So you're not verifying
6 that the amp number is correct. You're
7 just -- you're verifying that whatever number
8 that is, that same number goes into both
9 databases?

10 A For the listen-mode test only.

11 Q But for the listen-mode test only,
12 that is what's being done?

13 A That is correct.

14 Q Okay. Your response says that a
15 validation is performed by a PG&E data
16 specialist, correct?

17 A That is correct.

18 Q In essence, they are comparing data
19 within two databases?

20 A Yes.

21 Q And so the listen-mode testing
22 could be performed by one person for one data
23 point, correct?

24 A Could be performed by one person
25 for one data point, for that particular SCADA
26 device, for -- that's what they are testing,
27 yes.

28 Q The SCADA database is not the same

1 as the display screen at the DCC, correct?

2 A That is correct.

3 Q So the listen-mode test does not
4 test from the database to the DCC SCADA
5 screen?

6 A I believe it does, but I am not
7 entirely sure.

8 Q Mr. Petrakis, do you know the
9 answer to that question?

10 WITNESS PETRAKIS: No, I don't.

11 Q Then at the bottom of this page
12 continues to discuss the second back-office
13 test mode, which is called the simulation
14 mode. Can you briefly summarize how that
15 differs from the listen-mode test?

16 WITNESS NAKAYAMA: So in the
17 listen-mode test, actual field data coming
18 straight from various SCADA device points out
19 in the field are being streamed and recorded
20 as is. A simulation is to inject random
21 changes into that stream to make sure that
22 they are being captured appropriately in the
23 database. And if you read correctly, it
24 says, "Through forcing random changes in the
25 database, the mode of testing is particularly
26 useful for validation of status or position
27 points which exhibit less frequent rate of
28 change than analog points under typical

1 circumstances."

2 Examples of these are like a
3 simulated open or a simulated close command
4 of a line recloser, for example, that you may
5 not be able to see as you're monitoring SCADA
6 points out there in listen mode. So there
7 are like two types of data values: Analog as
8 well as command.

9 Q So that random -- that random
10 change, as you just described it, it's a
11 change made in the database, not a change in
12 either the analog signal that's being read by
13 the recloser in the digital signal that's
14 sent back from the SCADA device on that
15 recloser?

16 A I'm not sure of the technical
17 specifications on exactly how they enter in
18 the random signal and exactly at what point
19 it gets entered in and how that gets then
20 recorded in the database.

21 Q Mr. Petrakis, do you know the
22 answer to that?

23 WITNESS PETRAKIS: No, I don't.

24 Q Okay.

25 ALJ LIRAG: Just a little guidance on
26 your line of questioning, Mr. Roberts. Let's
27 try to focus on the technical aspects that
28 would support ORA's contention or

1 recommendation or that would detract from
2 PG&E's proposal. We appreciate knowing every
3 little thing that goes on, but I believe the
4 focus is on doing sample testing --
5 point-to-point testing versus testing every
6 single piece of equipment, as you would call
7 it.

8 But if the technical aspect does not
9 further that line of argument, then please
10 consider focusing instead on those aspects
11 that relate more to ORA's position.

12 MR. ROBERTS: I appreciate that, your
13 Honor. And I can promise that the nuances
14 that we're getting into are important. And
15 because point-to-point testing is such a big
16 part of -- a big part of the IGP cost, I
17 think it's worth going to this --

18 ALJ LIRAG: All right. I assume that
19 you know what you're asking. This is just on
20 my end.

21 MR. ROBERTS: Okay.

22 ALJ LIRAG: So it will become apparent.

23 MR. ROBERTS: I hope so.

24 ALJ LIRAG: All right. Let's proceed.

25 BY MR. ROBERTS:

26 Q Just about done. The
27 simulation-mode description also mentions
28 that this is being done by a SCADA

1 specialist.

2 WITNESS NAKAYAMA: That is correct.

3 Q And that's singular, not plural.

4 So I'm assuming that one person can do this
5 back-office type of test as well?

6 A One person will do one activity and
7 notice the change of that activity for a
8 single test. There are multiple tests that
9 we are doing for multiple SCADA devices. So
10 there will be multiple SCADA specialists
11 working on something like this
12 simultaneously. You don't want to just do
13 one at a time.

14 Q Right. But it's very much
15 different than a field-test where you need
16 somebody at the SCADA device in the field to
17 provide an input and then somebody somewhere
18 else to read a signal?

19 A Yes, that's correct.

20 Q The simulation mode also appears
21 only to test to the database and not to the
22 SCADA screens on the DCCs?

23 A I believe it does, but again, like
24 I said, I'm not sure one hundred percent if
25 that is a fact.

26 Q Okay. Can you please go back to
27 Exhibit 19.

28 A The reference document?

1 Q No. This is the workpapers for
2 PG&E-04. And if you can go to page WP 19-14.
3 This is PG&E's initial forecast for
4 point-to-point testing for the -- sorry --
5 for SCADA point-to-point testing; is that
6 correct?

7 A That is correct.

8 Q Note 7 at the very bottom says that
9 PG&E forecasts that 90 percent of devices and
10 RTUs will finish with testing by the end of
11 2022. Do you see that?

12 A That is correct.

13 Q So the implication -- and I believe
14 a response to a data request clarifies that
15 over the course of the IGP program only 90
16 percent would be tested during the current
17 ratecase, and the remaining 10 percent will
18 be tested subsequently; is that correct?

19 A That is correct.

20 Q Thank you. If you can please go to
21 Exhibit 113. This is part one of the
22 cross-exhibits. Go to page 10, please. Let
23 us know when you are there.

24 A I am here.

25 Q This is PG&E's response to Public
26 Advocates' Data Request 100, Question 34. In
27 the table, item 3, it appears that you're
28 stating that you'll be able to perform

1 system-wise power-flow analysis once every 5
2 to 15 minutes; is that correct?

3 A In the new ADMS software, yes.

4 Q What's the relationship between
5 power-flow analysis via ADMS and power flow
6 using your current power-flow software, which
7 is CYME, C-Y-M-E?

8 A CYME is used to analyze. It is not
9 a realtime software that could be run every 5
10 to 15 minutes. You have to actually direct
11 it to analyze a particular feeder instance
12 and a particular simulation to understand
13 what the outputs would be, and a distribution
14 operations engineer located at the control
15 center utilizes that for complex searching.

16 Q So is the difference the frequency
17 of results?

18 A The difference is what we would
19 consider realtime update frequency where it
20 would be able to perform some of those
21 analyses in almost realtime.

22 Q And in general, providing realtime
23 calculations is more difficult than doing a
24 calculation on command. There's a lot more
25 computational horsepower, to use Mr.
26 Petrakis's terminology before, required?

27 Is that your understanding?

28 A Can you clarify that question

1 again.

2 Q I'm going to go somewhere else.

3 A Okay.

4 Q Are you familiar with the
5 integrated capacity analysis, or ICA
6 analysis, that's done as a part of the DRP
7 proceeding?

8 A I am.

9 Q Can you please turn to page 11 of
10 this same exhibit. This is PG&E's response
11 to Public Advocates' 100, Question 35.

12 A I'm there.

13 Q The first line of the second
14 paragraph refers to state estimation.

15 A That is correct.

16 Q Isn't state estimation the process
17 of calculating electrical parameters, such as
18 current and voltage at specific points on the
19 grid?

20 A That is correct.

21 Q Isn't state estimation the output
22 of a power-flow analysis versus an input, as
23 stated here?

24 MR. HAWIGER: Excuse me. Can you
25 repeat the page number where you are.

26 MR. ROBERTS: Page 11 of Exhibit 113.

27 MR. HAWIGER: Thank you.

28 WITNESS NAKAYAMA: Where do you see the

1 word "input"?

2 BY MR. ROBERTS:

3 Q I don't see the word "input." The
4 line says, "The ADMS will utilize power flow
5 with state estimation." So I guess I'm
6 interpreting "with" as being combined or an
7 input.

8 A For a better definition of state
9 estimation, there is a different document
10 that I would refer to that has the definition
11 of what state estimation is and is located in
12 the 10-year business case of the -- of grid
13 modernization.

14 Do you mind if I turn to that?

15 Q I would prefer not to, but that was
16 a response to discovery that that was
17 provided?

18 A It was a part of the our original
19 testimony.

20 Q Your -- if it's part of the
21 testimony, then yes, we can go there.

22 ALJ LIRAG: Why don't we take our lunch
23 break right now. Let's come back at 1:15 on
24 that clock. But before you head out, please
25 clarify, Mr. Roberts, with PG&E the
26 information that they were supposed to look
27 for. And -- just so when they head out to
28 lunch they can come back with the

1 information.

2 MR. ROBERTS: Okay.

3 ALJ LIRAG: All right?

4 MR. GALLO: Your Honor, I just want to
5 be mindful of everybody else's time and
6 making sure that we get the panel off the
7 stand today without them having to be
8 recalled.

9 ALJ LIRAG: I think Mr. Roberts is 70
10 percent done with that document --

11 MR. ROBERTS: I'd have to check.

12 ALJ LIRAG: -- from the thickness of
13 the pages.

14 MR. ROBERTS: It's definitely getting
15 smaller, and when we review the time that
16 we've spent versus our allocation, we'll
17 adjust accordingly.

18 ALJ LIRAG: Let's review the time once
19 when get back from break, and we are counting
20 on Mr. Schlesinger's 30-minute estimate.

21 All right. Let's go off the record.
22 (Whereupon, at the hour of 11:52
23 a.m., a recess was taken until 1:18
24 p.m.)

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AFTERNOON SESSION - 1:18 P.M.

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ALJ LIRAG: Let's go on the record.

We're back from our lunch break.
Welcome back, Mr. Nakayama, Mr. Petrakis and
Mr. Strasburger. All right. Let's continue
with the cross-exam by Mr. Roberts, unless
there is some issues you want to address to
the record, either PG&E or Ms. Shek or later.

MS. SHEK: We could do it now, if that
works. Just about accepting Cross-Exhibits
113 and 114, PG&E has agreed to not object to
those cross-exhibits in exchange for us
lessening or whittling down our questions for
the afternoon. So we are very happy to say
they have agreed to do so.

ALJ LIRAG: All right. I think that's
a good exchange, and that benefits all of us,
especially Mr. Hawiger and Mr. Schlesinger.
It adds a little bit more time to their
cross -- or we'll see. Anyway, let's take
care of that right now.

So is there a move to admit Exhibits
113 and 11 into the record?

MS. SHEK: Yes, your Honor.

ALJ LIRAG: No objection from Mr.
Gallo?

1 MR. GALLO: No, your Honor.

2 ALJ LIRAG: Exhibits 113 and 114 are
3 received into the record.

4 (Exhibit Nos. 113 and 114 were
5 received into evidence.)

6 ALJ LIRAG: Please proceed, Mr.
7 Roberts.

8 MR. ROBERTS: We also had an open
9 question before the break about a couple of
10 items that I think PG&E was going to get back
11 to us on. Would now be an appropriate time
12 to do that?

13 ALJ LIRAG: Yes, let's do that.

14 MR. GALLO: Okay. And that question
15 was specifically with regard to PA-225,
16 Question 1 and whether that was the first
17 time there had been a mention of the back
18 office testing. Is that what you're
19 referring to, Mr. Roberts?

20 MR. ROBERTS: Correct.

21 MR. GALLO: Could I do this as
22 redirect, your Honor?

23 ALJ LIRAG: All right. Let's do it as
24 redirect.

25 REDIRECT EXAMINATION

26 BY MR. GALLO:

27 Q So Mr. Nakayama, can I direct your
28 attention to Public Advocates'

1 cross-examination reference documents packet
2 and specifically to page 9 of that packet,
3 which is PG&E's response to Public Advocates'
4 225, Question 1.

5 Do you see that?

6 A Yes, I do.

7 Q And as Mr. Roberts noted earlier,
8 the date sent on that response is June 18,
9 2019; is that correct?

10 A That is correct.

11 Q Okay. So Mr. Roberts asked you
12 earlier if this response was the first time
13 that PG&E had mentioned back-office testing
14 or sampling plan for field testing for the
15 point-to-point testing program for ADMS; is
16 that correct?

17 A That is correct.

18 Q And is it correct that this was the
19 first time that it was mentioned?

20 A Yes, it was.

21 Q But was the sampling plan for field
22 testing and the back-office testing
23 incorporated into PG&E's forecast for
24 point-to-point testing submitted as part of
25 the original application?

26 A Yes, it was.

27 ALJ LIRAG: Any questions off that, Mr.
28 Roberts?

1 MR. ROBERTS: No, your Honor.

2 ALJ LIRAG: All right. Let's proceed
3 with the rest of the cross-examination.

4 MR. ROBERTS: Great. Thank you.

5 CROSS-EXAMINATION (resumed)

6 BY MR. ROBERTS:

7 Q I'd like to start with a question
8 to Mr. Petrakis. During that discussion
9 about point-to-point testing, there was a
10 talk of analog versus digital signals. Can
11 you tell us do any of PG&E's current
12 communication systems related to SCADA send
13 an analog signal between the field device and
14 the back office?

15 WITNESS PETRAKIS: The communication
16 system passes any protocol so that the analog
17 and digital signals are processed by, let's
18 say, the remote terminal unit, the RTU, that
19 has a communication interface to the back-end
20 application. So the communication does not
21 care what the data is on it. That's a
22 communication between the back end and the
23 RTU.

24 Q Okay. I understand that the input
25 could be digital or analog. For example, you
26 and I are having a conversation and the
27 signal between us is an analog pressure
28 variation, my understanding is that most

1 modern communication systems, whether they
2 are IEEE 1815 or 2030.5, are digital. They
3 are sending a digital signal over the media;
4 is that correct?

5 A That's correct.

6 Q You are not currently using a
7 communication system that would send an
8 analog signal through the media?

9 A No. No.

10 Q If you could turn to Exhibit 117,
11 which is part 5 of our cross-exhibits.

12 Mr. Nakayama, are you familiar with
13 the process in Rule 21 to develop and
14 implement Smart Inverter functions?

15 A I am somewhat familiar.

16 Q Now, this exhibit that starts at
17 page 1 is a Power Point presentation from a
18 secure communications for DER presentation.
19 I'm not asking you to vet the source at all.
20 I am going to be asking you questions about
21 specific items on specific pages.

22 A Okay.

23 Q On page 2, is it correct that there
24 are three phases to the Smart Inverter
25 functions that were developed through the
26 Rule 21 proceeding?

27 A I do not know the answer to that
28 question.

1 Q So you're not familiar with what
2 the phase functions are, Phase 1?

3 A I am generally familiar about what
4 is occurring in Rule 21 but not in the
5 specifics.

6 Q Okay. So you don't know the timing
7 or phasing when specific Smart Inverter
8 functionality needs to be included in DERs
9 that are interconnecting with PG&E's grid; is
10 that correct?

11 A I'm familiar with the subject but
12 not the timing.

13 Q If you could please turn to page 6
14 of the package. This part of the exhibit
15 includes an excerpt from something called the
16 Common Smart Inverter Profile, which, as it
17 says on this page, it implements IEEE 2030.5.

18 You see that title, correct?

19 A I do.

20 Q Are you familiar with this document
21 at all?

22 A I have briefed over it from what
23 you have submitted last night.

24 Q Can you turn to page 10 of this
25 exhibit -- I'm sorry -- page 13, which is
26 page 10 of the document itself.

27 A Okay.

28 Q At about the middle of the page,

1 there are two bullets, the second of which
2 says, "Posting monitoring information every
3 five minutes." Do you see that?

4 A I do.

5 Q Based on your review, do you
6 understand that that means that DERs need to
7 be able to post certain information every
8 five minutes according to this requirement?

9 A According to this requirement, yes.

10 Q Then down at the bottom of this
11 page, there's a section that says "monitoring
12 data."

13 Do you understand that the data
14 listed in the table at the bottom is the
15 monitoring information to be posted every
16 five minutes?

17 A I see that table.

18 Q And do you agree with that
19 conclusion that that is the data that would
20 be posted every five minutes?

21 A According to this report, yes.

22 Q The term "posting," do you -- I
23 interpret that as being the same thing as
24 reporting, in other words, that the DER would
25 post or report data every five minutes.

26 Do you agree with that?

27 A If you take a look at lines 332 and
28 333 of this report on page 13, they define

1 poling versus posting. So if the DER has to
2 post its data in five-minute increments, what
3 I read about this is that we may not need to
4 have to pull the information for 10-minute
5 increments, but they must be in 5-minute
6 increment data allocations.

7 Q Is your understanding the post is a
8 process where the DER sends the information
9 to a communication system as opposed to the
10 utility pulling that device from the DER?

11 A It means -- and from my
12 understanding of what I am looking at here,
13 that the resolution of said data must be in
14 five-minute increments regardless of how
15 often the utilities pull the data to pull in
16 back into the systems.

17 Q Okay. Do you have any idea of when
18 PG&E anticipates being able to read the data
19 that would be posted by DER every five
20 minutes and integrate that data -- I'm sorry.
21 Do you know when I might be able to read that
22 data?

23 A Currently PG&E has an EPIC-related
24 project 3.03 to be able to create a DER
25 head-end solution that would be able to
26 connect via 2030.5 to DER just directly or
27 through DER aggregators to gather this data.

28 Q So you're saying that that specific

1 head-end would be required to read those
2 reports?

3 A That is correct.

4 Q Earlier today we had a discussion
5 about a head-end, and I believe it was Mr.
6 Petrakis who stated that a head-end was
7 included with the ADMS hardware. Did I
8 understand correctly?

9 A That is for SCADA.

10 Q For SCADA?

11 A That is correct.

12 Q So if we go back to the network
13 interface card analogy, the ADMS hardware
14 that's being requested has a network
15 interface that works with SCADA but not with
16 2030.5?

17 A I'm sorry. The ADMS platform will
18 be compatible with 2030.5. The Smart
19 Inverter Profile Working Group that you're
20 referring to here is to create a different
21 pathway to get data from DERs and DER
22 aggregators that is -- does not require a
23 direct SCADA input and RTU system for every
24 single DER out there that will be monitored
25 and pulled in this fashion. So it is a
26 different architecture than the traditional
27 SCADA architecture that is being defined
28 here.

1 Q Okay. And so I understand that
2 SCADA is one system and the IEEE 2030.5
3 protocol that's being discussed in the Smart
4 Inverter Working Group is a different means
5 of communication; is that correct?

6 A The IEEE 2030.5 protocol, from a
7 DER perspective, is to enable the secure
8 communication pathway between the utility and
9 the DERs. The DER head-end is a specific
10 EPIC application to look for low-cost
11 telemetry options such that a SCADA-based
12 2030.5 is not required to each individual
13 unit through an RTU at that location. So it
14 is a part of the low telemetry -- low-cost
15 telemetry procedure from the CPUC.

16 Q If you can please go to the
17 reference package, page 20. And this is
18 PG&E's response to Public Advocates' 100,
19 Question 5. Actually, on page 21, item 5
20 says that ADMS shall be able to issue limit
21 active -- limit maximum active power mode.

22 Do you see that?

23 A I do.

24 Q That is a Smart Inverter Working
25 Group Phase 3 function. Do you agree?

26 A Yes.

27 Q And so this is saying that the ADMS
28 will be able to send one of these commands?

1 A Yes.

2 Q Will it also be able to send the
3 full suite of Phase 3 functions?

4 A It will be fully compatible with
5 2030.5 requirements.

6 Q On the 2030.5 requirements that
7 refer to the communication path, the Phase 3
8 refers to specific functions?

9 A Yes, it will.

10 Q And also the Phase 1 functions?

11 A Yes, it will.

12 Q Okay.

13 MR. GALLO: Your Honor, can I interject
14 for a moment? I note that if everybody else
15 uses up their allotted time there won't be
16 time left for me to do any redirect, and I'm
17 not sure that given this last line of
18 questioning how it actually relates to our
19 forecast.

20 ALJ LIRAG: All right. Let me check on
21 progress, Mr. Roberts. In terms of
22 percentage or time estimate, how much do you
23 have left?

24 MR. ROBERTS: I have one major topic
25 and some other topics, but we've worked it
26 into having the hour that we had remaining.

27 ALJ LIRAG: All right. I'm not sure we
28 had an hour, but let's proceed. And I may

1 have to do more frequent time checks.

2 MR. ROBERTS: Okay.

3 ALJ LIRAG: And the goal is to not have
4 to require the witnesses to be back tomorrow
5 or another day.

6 MR. GALLO: Yes. It might be very
7 difficult to re-coordinate everyone's
8 schedules to make that possible, your Honor.

9 ALJ LIRAG: All right. So let's move
10 on. And then -- yes.

11 MR. ROBERTS: I was going to say I
12 think I can cut one big chunk if PG&E would
13 agree to let another exhibit in.

14 ALJ LIRAG: Let's go off the record to
15 discuss that.

16 (Off the record.)]

17 ALJ LIRAG: With this discussion in
18 mind, let's go back on the record.

19 MR. ROBERTS: Thanks.

20 ALJ LIRAG: Why don't you ask questions
21 that pertain directly to those two points and
22 forego questions that pertain to the EPIC
23 report.

24 MR. ROBERTS: Yes. Okay.

25 Q So I'll skip the questions about
26 the EPIC report, and go right to page 26 of
27 Exhibit 116. So this was a recent meeting in
28 the DRP proceeding. And, Mr. Nakayama, you

1 gave the introduction to that workshop;
2 correct?

3 WITNESS NAKAYAMA: I actually don't
4 think I was here at that workshop.

5 Q This was held at 77 Beale Street?

6 A I was -- I remember you being at
7 DPAG meeting that was held a couple weeks
8 ago, but I do not remember actually being
9 present for the ICA meeting that was
10 presented by Mr. Michael Cardi.

11 Q That is possible.

12 Let me ask this: Understanding
13 that you are new to this position, and
14 Integration Capacity Analysis is another
15 rather complicated piece of this whole DER
16 process, are you familiar with PG&E's ICA
17 work they've been doing?

18 A At a high level, yes.

19 Q Are you aware that ICA was
20 initially intended to go live for the PG&E
21 system July 6, 2018?

22 A I'm aware.

23 Q And that was delayed because of IOU
24 concerns about confidentiality?

25 A I am.

26 Q And the live date was moved to
27 December 28, 2018?

28 A That is correct.

1 Q And if I can have you go to page
2 26 -- excuse me -- 25 of this package --
3 actually 23. These are comments from the
4 Interstate Renewable Energy Council or IREC
5 regarding ICA; do you see that?

6 A I do.

7 Q And then page 25, the first line
8 under part A says: "The most concerning
9 issue identified by IREC is that PG&E's ICA
10 does not display accurate results;" do you
11 see that?

12 A I see that.

13 Q And the workshop that was held at
14 which PG&E gave the presentation starting on
15 page 26, was a direct response to that issue
16 identified by IREC; do you understand that?

17 A Okay.

18 Q And if you go to page 27, you can
19 see that the agenda included discussion about
20 data validation efforts; do you see that?

21 A That is correct.

22 Q And that was to correct the data
23 that IREC had identified as inaccurate; is
24 that correct?

25 A You'll notice that this
26 presentation has nothing regarding inaccurate
27 data.

28 (Reporter clarification.)

1 WITNESS NAKAYAMA: This presentation
2 talks about data validation, not inaccuracies
3 within the data.

4 BY MR. ROBERTS:

5 Q Okay. If I could ask you to please
6 turn to page 34. Let me know when you're
7 there.

8 A Yes.

9 Q This is showing a chart of ICA
10 values that changed as a result of
11 validation; is that correct?

12 A I believe so.

13 Q And so, I understand that this
14 presentation doesn't specifically mention
15 inaccuracies, but it does show that after you
16 validated the data, your values changed?

17 A In this instance for the 64 feeders
18 that I am looking at, that is true.

19 Q Okay. And then if you continue on
20 in the presentation to page 40, this is
21 talking about improvements that resulted from
22 this validation, and it discusses CYME; do
23 you see that?

24 A Yes.

25 Q And CYME is the power flow software
26 that was used in the ICA analysis; is that
27 your understanding?

28 A That's correct.

1 Q And in ADMS, you'll be performing a
2 similar type of analysis if your ADMS
3 software is approved?

4 A It performs load-flow analysis and
5 state estimation; that is correct.

6 Q Then turning to page 41, it talks
7 about opportunities were identified within
8 the EDGIS system?

9 A That is correct.

10 Q So there were problems with the
11 asset data in EDGIS that were resolved
12 through these data validation efforts; is
13 that correct?

14 A I wouldn't qualify these as
15 problems, but improvements have been made to
16 the EDGIS data that better informed some of
17 the load-flow analysis.

18 Q If they are not errors, then can
19 you explain what those differences might be?

20 A I'm actually not entirely familiar
21 with all the validations that took place in
22 the ICA as I've only been with this
23 organization for a few months.

24 Q Okay.

25 ALJ LIRAG: Let's do another time
26 check.

27 MR. ROBERTS: I'm about to wrap-up this
28 topic.

1 ALJ LIRAG: But then you have other
2 topics.

3 MR. ROBERTS: I have one short one.

4 ALJ LIRAG: Let's try to wrap up.

5 BY MR. ROBERTS:

6 Q I'm not going to get into it in
7 detail, but starting at page 1 is a EPIC 2.14
8 report excerpt. Do you see that, page 1?

9 A Yes. I see that.

10 Q And the point of this EPIC project
11 was to identify algorithms that could be used
12 to identify phasing; is that correct?

13 A That is correct.

14 Q Now that that project is complete,
15 what's the status of developing an algorithm
16 for phase ID process at PG&E?

17 A My understanding is that it is in
18 process.

19 Q And do you have any idea of the
20 algorithm that has been selected for
21 deployment?

22 A The algorithm builds upon the EPIC
23 2.14 algorithm and improves on that algorithm
24 in a more production environment.

25 Q If in this package, you go to page
26 12, it mentions that in one place eight
27 methods, and then below five methods, and
28 below again five more methods. There are

1 more than one algorithm that were tested in
2 this EPIC project?

3 A That is correct.

4 Q Was one identified that you're now
5 developing?

6 A I don't have that level of detail
7 regarding the algorithm -- the exact
8 algorithm or algorithms that are being
9 utilized to enhance what was done in 2.14,
10 but I'm aware they are enhancing the
11 algorithms to make them better.

12 Q Do you know if any of those
13 algorithms were a vendor-specific product or
14 algorithm that they were going to sell to
15 PG&E?

16 A I'm not aware of any type of sales
17 of any sort.

18 Q Okay. I'll move on to the final
19 point, and this question is for
20 Mr. Strasburger. I'm sorry for not
21 addressing you for so long, but if you
22 could turn to Exhibit 20.

23 ALJ LIRAG: Same document?

24 MR. ROBERTS: Exhibit 20, page 1965.
25 That is the rebuttal testimony.

26 ALJ LIRAG: And, please, use the mic.

27 WITNESS STRASBURGER: Rebuttal
28 testimony on Integrated Group Platform. Got

1 it.

2 BY MR. ROBERTS:

3 Q Page 1965.

4 A Yes. I'm there.

5 Q Okay. Starting at line 18, it
6 says: "The only reason PG&E tracks
7 cybersecurity funding and scope separately
8 from the rest of the project scope is to
9 ensure more effective management and
10 oversight of security implementations;" is
11 that correct?

12 A That is what that says.

13 Q Okay. Are you able to track the
14 cybersecurity costs for IGP using PG&E's
15 accounting system?

16 A Yes. We track all costs that we
17 incur on a project; so the answer is yes.

18 Q So you can differentiate the
19 cybersecurity costs from, say, the other IT
20 costs that Mr. Petrakis' scope might involve?

21 A With regard to cost tracking
22 regarding -- during early phases of the
23 project, high-level estimates need to be made
24 that aren't able to granularly break out
25 individual components, but as we get into a
26 project and do detailed planning and budget
27 forecasting, then we are better able to break
28 out cost; for example, if we need to spend \$3

1 million to purchase firewalls for a
2 particular environment, those costs can be
3 tracked at that level, and those particular
4 contracts can be allocated to the right cost
5 center. Yes.

6 Q And so then in hind- -- on an
7 ex post basis, after you've incurred these
8 costs, would the CPUC be able to see how much
9 cybersecurity cost for the IGP program based
10 on an MAT code or an order number?

11 A That should be possible. If I'm
12 thinking about how we execute projects,
13 charge particular cost-to-order numbers, yes,
14 you could identify the order numbers that
15 were used for the cybersecurity-related
16 costs, yes.

17 Q PG&E would be able to?

18 A Yeah.

19 Q And that would be at the order
20 level?

21 A I'm not an expert on our
22 financials, but from a leader in the IT
23 department, leader in the cybersecurity
24 department, who sponsors projects and
25 oversees projects, yes, we would typically
26 call that an order, an order number, yes.

27 ALJ LIRAG: Are you almost done,
28 Mr. Roberts?

1 MR. ROBERTS: Yes.

2 Q Could you please turn to Exhibit
3 117, page 17. This, once again, is a
4 document that I'm not asking you to vet. I'm
5 just going to ask if you're familiar with the
6 IEEE cyber suite that's shown.

7 A I'm not.

8 Q Okay. If you go to page 23,
9 there's a conclusion there. Do you agree
10 with that conclusion?

11 A Page 23, you say?

12 Q Yes.

13 A Here we go. I do not have enough
14 technical knowledge about this particular
15 conclusion to make a comment one way or the
16 another.

17 Q Okay. So you wouldn't be able to
18 comment on if in your professional opinion as
19 a cybersecurity expert, the IEEE 2030.5
20 communication protocol is secure in your mind
21 or not?

22 A That's correct.

23 That would be my architects that I
24 have assigned to this project would have
25 studied these types of aspects in depth and
26 would be able to make an assertion on that.

27 MR. ROBERTS: That completes my
28 questions.

1 ALJ LIRAG: All right. Let's move on
2 to Mr. Hawiger and Mr. Schlesinger.

3 MR. GALLO: Your Honor, I have two
4 redirect questions. Should I do them all in
5 one?

6 ALJ LIRAG: Is it two?

7 MR. GALLO: It is literally two.

8 MR. HAWIGER: I will be covering the
9 same topic of ADMS. I don't know if that
10 changes your --

11 MR. GALLO: This is purely about things
12 that were a little unclear in the opening
13 testimony.

14 ALJ LIRAG: All right. Let's have it.

15 REDIRECT EXAMINATION

16 BY MR. GALLO:

17 Q Mr. Nakayama, earlier today
18 Mr. Roberts asked you a question about the
19 status of ADMS hardware and software
20 procurement, and you said you were not sure
21 what stage those efforts were; is that
22 correct?

23 A That is correct.

24 Q Can I direct your attention to page
25 1943 of your rebuttal testimony.

26 A I'm there.

27 Q And specifically to Answer 62.

28 A Yes.

1 Q And can you review that and let me
2 know if that refreshes your recollection
3 about the status of those efforts.

4 A Yes, it does. Thank you.

5 Q Could you tell me what those
6 procurement -- where the procurement efforts
7 are right now?

8 A Yes. As noted on line 18 through
9 21: "The final negotiated contract value for
10 software licensing and maintenance from
11 PG&E's chosen ADMS software vendor, and, two,
12 a preliminary hardware price estimate from
13 PG&E's preferred hardware vendor."

14 Q So there's been a final negotiated
15 contract with the software vendor?

16 A That is correct.

17 Q Thank you, Mr. Nakayama.

18 The second question: Back to the
19 Public Advocates supporting cross-exam
20 exhibit. It's not labeled. It's
21 cross-examination reference documents and in
22 particular starting on page 9, the Response
23 to Public Advocates 225, Question 1. Are you
24 there?

25 A Yes.

26 Q Now, this response discusses
27 testing modes for point-to-point testing, and
28 Mr. Roberts earlier on asked you whether the

1 listen mode and simulation back-office test,
2 tested all the way to the display screen.
3 You said you thought so, but weren't sure
4 earlier today; is that correct?

5 A That is correct.

6 Q And would you like to clarify your
7 comments.

8 A Yes. It does go back to the actual
9 screen. If we go to my rebuttal testimony,
10 19-45, lines 20 through 23, of the Rebuttal
11 Testimony, PG&E states the following: "PG&E
12 also notes that Cal Advocates' recommendation
13 erroneously assumes that PG&E's SCADA
14 point-to-point testing plan does not already
15 provide for complete end-to-end,
16 point-to-point testing from the field end
17 point to the SCADA display screen. This
18 evidences that our point-to-point testing
19 plan goes all the way to the SCADA display
20 screen."

21 MR. GALLO: Thank you, Mr. Nakayama.
22 That's all the questions I have.

23 ALJ LIRAG: Any questions, Mr. Roberts?

24 MR. ROBERTS: Yes.

25 RECROSS-EXAMINATION

26 BY MR. ROBERTS:

27 Q The first response on page 43,
28 you've clarified that you have a contract for

1 software.

2 So, now, I think this is a question
3 to Mr. Petrakis. Does that mean that the
4 hardware estimate you've provided is based on
5 that vendor's cost quote?

6 WITNESS PETRAKIS: Preliminary
7 estimate. Until we completely size up what
8 is needed to the design phase of the
9 application, there's going to be adjustments
10 to the quote.

11 Q So the hardware quote we have to
12 date --

13 A Is preliminary.

14 Q Thank you.

15 And then on page 1945, you're
16 saying that Cal Advocates erroneously assumed
17 that point-to-point testing doesn't provide
18 complete end-to-end and then point-to-point
19 testing. Your back office testing is not
20 doing an end-to-end test from the field to
21 the screen - correct - except in the 10 to 15
22 percent of cases where you're field testing?

23 WITNESS NAKAYAMA: I'm sorry. Say that
24 one more time.

25 Q Maybe I can ask it -- to clarify,
26 when you do the 10 to 15 percent of true
27 end-to-end testing, you're testing from the
28 field to the SCADA display screen; correct?

1 A I would argue that the listen mode
2 also tests from the field in terms of those
3 are actual data points that are coming from
4 field devices to our back office.

5 The field testing that you are
6 talking about on the point-to-point with the
7 10 to 15 percent is where a technician will
8 actually go out, create a value at the actual
9 location of the field device, by which it
10 will flow through the communication network
11 back to the SCADA databases for recording.

12 Q Well, I understand what the
13 end-to-end point test does. I'm still
14 unclear on the simulation mode because you
15 couldn't say where the signal was input, but
16 I wanted to clarify a different point.

17 It's very clear that an end-to-end
18 test tests from the field to the display
19 screen. And I just wanted to clarify that
20 what I heard in your redirect is that both
21 the listen mode and the simulation-mode,
22 back-office testing, the end point is the
23 SCADA display screen in the DCC?

24 A That's correct.

25 ALJ LIRAG: I think -- let's move on to
26 Mr. Hawiger, please.

27 Mr. Hawiger: Thank you, your Honor.

28

1 CROSS-EXAMINATION

2 BY MR. HAWIGER:

3 Q Good afternoon, gentlemen. I'm
4 Marcel Hawiger with the Utility Reform
5 Network, and I'll be using some of the same
6 acronyms that Mr. Roberts used. Before we
7 start, may I have a moment off the record?

8 ALJ LIRAG: Off the record.

9 (Off the record.)

10 ALJ LIRAG: Back on the record.

11 Please proceed.

12 Mr. Hawiger: Thank you.

13 Q And for the record the attachments
14 for the prepared testimony of Paul Alvarez
15 and Dennis Stephens have not been identified
16 for the record. So I will refer to this
17 document as the Stephens Attachment for
18 clarity; is that okay?

19 WITNESS NAKAYAMA: Yes.

20 Q And these attachments all have a
21 Bates page stamped page number on the bottom,
22 and I'll refer to those pages, not to the
23 pages of any individual document; okay?

24 A Okay.

25 Q So let me ask you to turn to page 2
26 of the Stephens Attachment, and there is a
27 document called: "The Major Project Business
28 Case;" do you see that?

1 A Yes.

2 Q Is this an internal business case
3 for the ADMS component of the integrated grid
4 platform?

5 A It covers both the ADMS project and
6 the communications portion, communications
7 infrastructure portion, of the ADMS, the IDP
8 Chapter we were discussing today.

9 Q When was this business case
10 document created?

11 A When?

12 Q Let me be more specific. On the
13 next page, page 3, there's a date March 28,
14 2019. Is that the date when this business
15 case was produced?

16 A I believe so. I was not actually
17 present when this was produced.

18 Q So this document, this business
19 case document, was prepared after the
20 submission of PG&E's testimony; is that
21 right?

22 A That's correct.

23 Q And let me ask you to turn to page
24 4, which is the first page of the business
25 case. It's -- there's no line numbers. I'll
26 try to point to a specific section if I need
27 you to refer to a particular section of the
28 document.

1 A Okay.

2 Q Looking at the first paragraph in
3 Section A, am I correct that this document
4 was presented to the Executive Project
5 Committee in February of 2019?

6 A As it's stated in the second
7 paragraph.

8 Q Okay. And in the very bottom part
9 of the document, it states that it will be
10 provided to the board of directors for
11 approval in May 2019. Do you see that?

12 A That is correct.

13 Q Did that happen?

14 A I do not know.

15 Q Do you know whether the board of
16 directors approved this ADMS, this business
17 case?

18 A As I was not a part of the business
19 case or the team during that period of time,
20 I do not have the answer to that question.]

21 Q Do you know whether there's been
22 any approval, internal approval for the IGP
23 Program?

24 WITNESS NAKAYAMA: I believe there has.

25 Q Okay. Is it correct that the --
26 and I'll just IGP for Integrated Grid
27 Platform -- is it correct that IGP consists
28 two major work streams?

1 A Three.

2 Q Three. Okay. What are those three
3 work streams?

4 A It is the ADMS from a software and
5 hardware implementation, the communications
6 network infrastructure as described by Nick
7 Petrakis, as well as the cyber security
8 aspects as described by Martin Strasburger.

9 Q And let me ask you to turn to
10 page 5, the next page of the business case?

11 A Okay.

12 Q And is it correct that that table
13 on top shows the costs forecasts for the ADMS
14 and communications infrastructure portions of
15 the IGP?

16 A That is correct.

17 Q And am I correct that the total
18 forecast for the ADMS in the expected case is
19 \$291.3 million?

20 A That is correct.

21 Q What is the amount requested --
22 PG&E is requesting toward the ADMS in this
23 rate case?

24 ALJ LIRAG: Let's go off the record.
25 (Off the record.)

26 ALJ LIRAG: Let's go back on the
27 record.

28 WITNESS NAKAYAMA: Thank you. Okay. I

1 am there.

2 BY MR. HAWIGER:

3 Q What is the approximate total -- is
4 the total being requested for the ADMS in
5 this rate case showing from that Table 19-5
6 on page 19-19 of Exhibit-17?

7 A For the ADMS portion, yes.

8 Q Okay. What is the approximate
9 total for all of those years shown in the
10 table?

11 A I'd have to do the calculation in
12 terms of the total cost for all of the years.

13 Q I've added the numbers. Would you
14 agree, subject to check, that the total shown
15 in row 3 for those years is approximately
16 \$160 million?

17 A Subject to check.

18 Q So approximately \$130 million of
19 the expected case to complete ADMS would be
20 spent after the rate case; correct?

21 A Would be spent after the rate case?

22 Q Okay. Am I -- do I assume
23 correctly given the business case forecast of
24 \$291 million and the request in the rate case
25 of \$160 million that the remainder is money
26 that would be spent after this rate case
27 period?

28 A It could be spent within as well.

1 Q Okay. Does PG&E expect to include
2 the remaining costs in future rate cases?

3 A We discussed that, I believe, in
4 testimony approximately 96 percent of the
5 costs will be covered within this rate case
6 of what is expected to be spent, and the
7 remaining will be covered in future rate
8 cases.

9 Q For the ADMS portion specifically?

10 A That is correct.

11 Q So can you explain to me then what
12 -- when you say -- are you saying that
13 96 percent of that -- 96 percent of the \$291
14 million shown in this business case on page 5
15 or of some other number?

16 A It was around the GRC request.

17 Q So you're saying 96 percent of the
18 those -- the \$160 million shown in Table
19 19-5; correct?

20 A That is correct.

21 Q Would you agree that that portion
22 in the rate case does not cover the full work
23 required to complete the ADMS?

24 A It is covered.

25 Q The entire ADMS?

26 A The entire ADMS.

27 Q Okay. Let me ask you to then turn
28 to -- so I am sorry. What is your

1 interpretation of that \$291.3 million shown
2 in the table on page 5 of the business case?

3 A In preparation for a business case,
4 when we prepare the GRC at the time of the
5 request, this business case had not been yet
6 developed. This -- what you are looking at
7 is after the actual GRC presentation had been
8 put together. And also follows the
9 methodologies for how to put together a more
10 detailed estimate of the cost including
11 contingencies and risk.

12 Q So which number is a more accurate
13 forecast of the total cost to actually
14 complete the ADMS so it is used and useful?
15 Is it the 209 -- \$291 million in this
16 business case? Or the amounts shown in your
17 Table 19-5?

18 A The expected case is based upon a
19 certain percentage and is a calculated value
20 based upon risk as well that's also added
21 into this. So the number of dollars that
22 could be spent on this project could be below
23 291, it could be at 291, it could be above.

24 Q Let me ask you to turn -- one
25 moment. We'll come back to that.

26 Let me ask you to turn to page 6 of
27 the business case.

28 A Okay.

1 Q And look at towards the -- one
2 moment -- towards the bottom of the document
3 just below the blackouts in the last blackout
4 section?

5 A Okay.

6 Q The second bullet point discusses
7 replacing the FLISR, F-L-I-S-R, System. Do
8 you see that?

9 A Yes, I see that.

10 Q How old is the FLISR System?

11 A I believe we state the FLISR age in
12 a different data response. But I do not know
13 the exact age of the FLISR Yukon system, the
14 wire phase system.

15 Q Okay. Going back for a moment to
16 the table again to page 5 of the business
17 case, what does the communications
18 infrastructure work stream consist of just
19 very generally?

20 A For that I'll turn that over to
21 Nick Petrakis.

22 WITNESS PETRAKIS: So the communication
23 infrastructure has roughly four components.
24 One is going to be enabling the ADMS
25 application in the DCCs from a networking
26 perspective. That's one component in making
27 sure that it can -- all that application can
28 integrate with the remaining parts in the

1 data centers. That's Number 1.

2 Number 2, it will install and
3 continue the installation on our field area
4 network as a migration from old SCADA
5 networks to this new field area network.

6 Number 3, it will also go through
7 the entire system and look at a very old --
8 20-year old architecture of the old SCADA
9 network and beef up its reliability. There's
10 a lot of points of failure, single points of
11 failure, and more devices are going to be
12 added on. So it's crucial that we improve
13 its reliability.

14 And the last element looks at the
15 substation as was discussed earlier this
16 morning about a converged infrastructure in
17 the substation which has to do with all of
18 the various applications that come into the
19 substation are not in separate servers. So
20 this will bring in a one common platform to
21 house as many applications as possible on to
22 that platform. These are the four major
23 components of the communication
24 infrastructure.

25 Q Does one of those components
26 include installation of the Field Area
27 Network, or "FAN," communication system?

28 A That's correct. That's one of

1 them.

2 Q Which part -- which of those four
3 elements consists -- excuse me -- includes
4 installing the FAN network?

5 A I believe I mentioned it in the
6 first order of the Field Area Network.

7 Q Okay. Thank you. Is the
8 communications infrastructure required in
9 order for the ADMS to work?

10 A It is not a direct requirement. It
11 is a reliability dependency. But it does
12 offer the capacity required for future
13 integration of field equipment in it.

14 Q Can you achieve the benefits of the
15 ADMS without installing the communications
16 infrastructure?

17 A The benefits of the case are many.
18 I'm not sure which portion of the ADMS you
19 are referring to.

20 Q Let me ask you to look at
21 specifically page 9 of the business case.
22 And look at the very first sentence at the
23 top of the page that states:

24 The full benefits of ADMS are not
25 achievable without the foundational
26 IGP communications infrastructure
27 investments.

28 A Okay. So what this refers to as I

1 mentioned in one of the parts of the
2 infracture is the enablement of the ADMS
3 within the DCC, the Distribution Control
4 Center. So that's one aspect.

5 Other benefits that are required
6 for the system reliability to become better,
7 we have a lot of points of failure out there.
8 It is very advantageous that we start with a
9 clean slate with a reliable network when we
10 upgrade also the back end application.

11 Q Can you achieve the operational
12 benefit of having automated switching
13 recommendations with the ADMS without the
14 communications infrastructure?

15 A I'm not sure.

16 WITNESS NAKAYAMA: The automated
17 switching systems require both the reliable
18 SCADA data and my data, full calculations to
19 be able to automatically create a switching
20 instruction.

21 Having a stable and reliable SCADA
22 backhaul to bring that information into the
23 ADMS platform is necessary in order for us to
24 achieve the automated switching capabilities,
25 power flow capabilities, data estimation
26 capabilities of the ADMS software.

27 Q So in that answer, does that mean
28 -- when you say the required backhaul

1 capabilities are required, does that mean
2 that the communications infrastructure
3 investment as described in this document is
4 required for these capabilities?

5 A It is needed, yes, to grab the full
6 IGP benefit as designated in this business
7 case.

8 Q Okay. Let me ask you to turn to
9 page 10 of the business case.

10 I'm sorry. Before I go there, the
11 business case uses the term "gate." Can you
12 explain what a gate is from a project
13 management perspective?

14 A So, Nick, maybe you can talk a
15 little bit about the gating process itself
16 from a information technology perspective,
17 and I can talk about it from a business
18 perspective.

19 WITNESS PETRAKIS: In general you're
20 right. It's a project management, you know,
21 guideline and process that we have. For this
22 -- such a large project, complex project.
23 The gated funding for the gated processes
24 assured that various stages are achieving the
25 result financially, the desired outcome of
26 the project. And once achieved, they can get
27 back to submitting the next gate, if you
28 will, to be reviewed to proceed with the rest

1 of the parts of the project.

2 WITNESS NAKAYAMA: From a business
3 perspective, if you'll take a look at the
4 various aspects of the ADMS business case,
5 they actually describe in each section what
6 the gate that is required to accomplish
7 within that particular area to move on to the
8 next gate to get all the way through Gate 4
9 for a project of this size to be successful.

10 Q Okay. So let me ask you to look at
11 page 12 of the business case. And there's a
12 table at the bottom with the heading "Project
13 Schedule." Do you see that?

14 A Yes.

15 Q Is this the most current schedule
16 for the ADMS project?

17 A There may be a more up to date
18 schedule carried by the project management
19 office for the ADMS implementation team that
20 is more up to date than what we show here.

21 Q And is it correct that this
22 business case covers only Gate 1 of the
23 approval and implementation process?

24 A It approves up to the Gate 1
25 funding levels for the ADMS business case.

26 Q Has PG&E completed or sought
27 approval for the Gates 2 through 4?

28 A If you take a look at the actual

1 schedule listed in here, Gate 2 is June 2020;
2 Gate 3 is October 21st. Without having
3 looked at the actual project management
4 office schedule that is contained by the
5 project management team, I cannot confirm
6 whether these dates are still holding true or
7 not. But that is what is listed in the
8 business case.

9 Q Is it correct that much of the work
10 on the ADMS will be done in Gates 2, 3, and
11 4?

12 A If you take a look at the funding
13 in terms of the dollar amounts, you'll notice
14 that the majority of the funding for the ADMS
15 business case is represented in Gate 3 for
16 this multiyear project.

17 Q Okay. And Gate 3 is scheduled for
18 completion -- according to table on the next
19 page 13 -- by March of 2023; correct?

20 A That is correct.

21 Q And Gate 4 is scheduled for
22 completion by December 2024; correct?

23 A That is correct.

24 Q You know, I don't want to belabor
25 this too much. But I do need to ask you.
26 I'm a little confused about your answer about
27 the costs?

28 A Absolutely.

1 Q Are you saying -- is your testimony
2 that the costs for the ADMS Gates 1 through 4
3 are contained in the forecast in your direct
4 testimony for this rate case?

5 A Can you say that question again?

6 Q Is it your testimony that the costs
7 for the full ADMS project Gates 1 through 4
8 is contained in the -- in its entirety in
9 those costs shown in your table in your
10 direct testimony for the cost forecasted
11 during this rate case?

12 A Much of that depends on the
13 expected risks on whether they actually occur
14 or not during this -- the actual
15 implementation of the ADMS implementation.

16 There is also a -- if you take a
17 look at how they're calculated, you'll see
18 that there is also an Ace cost estimate on
19 certainty that's also embedded in those
20 numbers as well.

21 Q Does the expected costs of \$291
22 million in this document include risk
23 allowances?

24 A The expected risk allowance.

25 Q And what does the contingency cover
26 then?

27 A The contingency covers -- if you
28 take a look at the high case, you will look

1 at pages Number 16 and beyond, which talks
2 about the risks and the impacts on costs that
3 are therefore contained in the high case.
4 Which also contains a case mechanism to place
5 additional uncertainty of 50 percent on top
6 of the cost.

7 Q So just to cut to the chase if I
8 ask you to turn to page 23, that table shows
9 total expected risk of \$96 million for all
10 the risks identified for various gates in the
11 project; right?

12 A That is what is shown here, yes.

13 Q So are you saying that that \$96
14 million does that represent the difference
15 between the costs in your rate case forecast
16 versus the cost in this business case
17 document?

18 A If you take a look, what this
19 represents best case plus the gate expected
20 risk plus the expected case cost estimate
21 uncertainty. That gets you to the \$96
22 million as documented here in the business
23 case.

24 Q Let me try a different way. Is it
25 your testimony that the \$291 million shown on
26 page 5 of this document that that covers all
27 of the same work that's in your business --
28 in your testimony, but it includes additional

1 risk allowances, and that's the only
2 difference?

3 A As to whether it is only the risk
4 allowances that are bumping up the cost, I
5 cannot speak to. But in terms of the actual
6 scope of the project, the scope of the
7 project contained in the business case is
8 also reflected in the GRC.

9 Q Through Gates 4 through completion
10 of the project so that it is complete through
11 used and useful?

12 A Again, the actual business case
13 covers years that are also outside of the
14 actual rate case. Since the rate case only
15 covers up until 2023, this project closeout
16 is not until 2024 expected.

17 Q Well, that's exactly my question,
18 Mr. Nakayama. Are there costs that are --
19 will be necessary to complete the project
20 until closeout beyond this rate case?

21 A We believe that there will be costs
22 associated with the ADMS project into 2024,
23 yes.

24 Q Okay. And what is the -- so what
25 is the amount of expected costs -- this rate
26 case covers through 2022; is that right?
27 Which rate case am I in now?

28 A Yes. 2022.

1 Q What is the expected portion of the
2 costs for 2023 and 2024?

3 A If you take a look at the
4 difference in Gate 3 for 2021 and Gate 4 on
5 page 4, you will see a total amount on the
6 authorized amount for \$107.1 million.

7 Q Yes.

8 A So if I read from this business
9 case, that is the authorized amount that will
10 be allowed to spend -- authorized, authorized
11 to spend which is included of the expected
12 case plus the contingency.

13 Q For Gate 4. So you're saying it's
14 the Gate 4 costs as shown on that table that
15 will be costs in addition to the cost in the
16 rate case?

17 A Again, it does factor in the
18 \$42 million contingency, which PG&E does not
19 believe it will -- which we'll actually have
20 to accumulate every single one of the risk
21 allowances on the risk table to actually hit
22 every single one of the \$42.7 million.

23 Q What is your -- why would not some
24 of the Gate 3 costs be incurred after the
25 rate case since Gate 3 does not complete
26 until March of 2023?

27 A It is possible that some of those
28 costs will land in 2023.

1 Q Okay. And if I look at page --
2 excuse me. If I ask you to turn to -- back
3 to page 23 with the total expected risk
4 costs, I gather that the very bottom of the
5 page there's a sentence that does indicate
6 that as of the date of this document, there
7 was an expectation that there would be
8 additional costs to complete the ADMS into
9 future GRCs. Would you agree with that?

10 A I see that.

11 Q Okay. So I think based on what you
12 just testified about the schedule of the
13 project, you would agree with that; is that
14 right?

15 A We have always stated that the
16 costs of the ADMS project will go past the
17 current GRC forecast.

18 Q Okay. And I don't want to take too
19 long on this, but just so we understand this
20 risk allowance table, let me ask you just for
21 example to look -- go to the very beginning
22 of this risk allowance table, which is at
23 page 16 and just below the heading of the
24 table it states, "Probability of occurrence,
25 difficulty of time of the detection, impact
26 to scope or schedule." Do you see that?

27 A I see that.

28 Q And are those the three metrics by

1 which each risk is evaluated in the tables?

2 A That is how we identify the risks
3 that are going to be placed into the table
4 should they have a probability occurrence and
5 impact to scope and schedule. Yes, that is
6 correct.

7 Q But then under each gate, there is
8 -- there are blocks with numbers. So for
9 example the first one under Gate 1 is people
10 availability during ADMS design. Is it
11 correct that each of those numbers is a risk
12 in that gate?

13 A Each of those numbers is a risk in
14 the gate that you can actually see how it is
15 calculated based on a cost-impact assumption
16 within each of those risk categories. For
17 example you will see the \$5.1 million is
18 calculated based upon a cost impact
19 assumptions that are appointed in each one of
20 those areas.

21 Q And just to be clear. If I go to
22 the end of the next page in the bottom of
23 that block for their first risk --

24 A Yes.

25 Q -- there are three letters "HLH."
26 What is the meaning of those?

27 A I am sorry. Where are you?

28 Q Page 17. The very bottom of

1 that --

2 A I see.

3 Q -- first risk. Just above the
4 blackout there are the letters HLH.

5 A That is correct.

6 Q What do those indicate?

7 A Those are based upon the three
8 probability -- the three risks -- underneath
9 the risk allowance table will define the
10 probability of occurrence, the difficulty of
11 timely detection, and the impact to scope and
12 schedule. What type of impacts it will have.

13 Q They correspond in order to the
14 three risks that are identified at the top of
15 the table?

16 A That is correct.

17 Q Okay. Then I believe if you turn
18 to -- forward to page 22, there you explain
19 how -- the probability that is assigned to
20 each of those H, L, or M is the other
21 probability identifier; correct?

22 A Are you talking about what we have
23 on the 60 percent confidence level?

24 Q I'm talking about the base case
25 scenario plus the -- just above -- excuse me.
26 Just below the row that says "Total Risk
27 Allowance \$289 million." Do you see that?

28 A Yes. Right here.

1 Q The \$289 million represents the
2 full forecast cost of all the risks for all
3 the gates; correct?

4 A That is correct.

5 Q That's not included in your -- any
6 of your cost forecasts in this rate case is
7 it?

8 A This risk allowance calculation was
9 not a part of the GRC forecast in that it was
10 created specifically for the business case
11 document itself.

12 Q Okay. So -- and then the business
13 case takes that total \$289 million and
14 assigns some probabilities to each risk. And
15 just below that, it explains that there are
16 likelihood factors of 2 -- .2, .5, and .8
17 used for the low, medium, and high scenarios.
18 Do you see that?

19 A That is correct.

20 Q And that's what's done on -- if you
21 go to the next page, page 23, am I correct
22 that in that page it summarizes all of those
23 numbers, the risk numbers, but then discounts
24 them by those likelihoods?

25 A That is correct.

26 Q And by the way, what are the bases
27 for these -- the risk numbers themselves?
28 How did you forecast the risk numbers?

1 A As I wasn't a part of the actual
2 development of the business case, I do not
3 know how the actual risk numbers were
4 associated.

5 Q Okay.]

6 Let me ask you -- I'm not going to go
7 through -- I'll stop on that for sake of
8 time. Let me ask you to turn back to page 18
9 of the business case.

10 And if you could look at the paragraph
11 just below the heading Gate 3, and the first
12 risk fact in Gate 3 additional cost for SCADA
13 point-to-point testing.

14 A Yes.

15 Q Am I correct that that paragraph
16 indicates that the forecast -- base case
17 forecast assumes 12.5 percent of devices will
18 be tested?

19 A From a field perspective.

20 Q Is that the basic -- does the 12.5
21 percent represent the sample plan that you
22 and Mr. Roberts discussed at length?

23 A It's in line with the 10 to 15
24 percent cut down the middle.

25 Q And there is, however, a risk that
26 the date migration in going from RT-SCADA to
27 the new SCADA will introduce more errors and
28 will require greater point-to-point testing,

1 correct?

2 A That is a risk identified, yes.

3 Q In fact, that's kind of the largest
4 risk in terms -- single risk of terms of
5 dollar value; is it not?

6 A I'd have to subject to confirm.
7 Gate 1 total risk value is at 48.6, but in
8 terms of each individual item, I believe that
9 is true.

10 Q I'm sorry. Yeah, that table --
11 I'll withdraw that question anyway.

12 ALJ LIRAG: Why don't we take a
13 10-minute break right now, and let's be back
14 at 2:50.

15 So off the record.

16 (Off the record.)

17 ALJ LIRAG: Let's go back on the
18 record.

19 We were discussing the remaining
20 time, and I think, for our convenience, maybe
21 not Mr. Hawiger's convenience, what -- we've
22 decided that Mr. Schlesinger will do cross
23 now, and then let's check again in the next
24 30 minutes. And then the idea is to have Mr.
25 Hawiger consume the remaining time for the
26 day.

27 All right. Let's go, Mr.
28 Schlesinger.

1 MR. SCHLESINGER: Thank you, your
2 Honor.

3 CROSS-EXAMINATION

4 BY MR. SCHLESINGER:

5 Q Good afternoon, Panel. All of my
6 questions today are for Mr. Nakayama and his
7 rebuttal testimony. So if you could please
8 have that in front of you.

9 A Okay.

10 Q In addition, Joint CCAs have marked
11 for admission Hearing Exhibits 121, 122 and
12 123. So if you could also please have that
13 in front of you.

14 A If you can refer, again, to 121,
15 122 and 123 as the data request numbers, that
16 would be helpful for me.

17 Q Absolutely. 121 is Data Request
18 JCCA 15-17.

19 A That is 121. Thank you.

20 Q 122 is 17-17.

21 A 17 question which number?

22 Q Joint CCA 17-17 -- or 17-7. Sorry.

23 A Oh, okay. And that is which
24 number?

25 Q 122.

26 A Thank you.

27 Q And 123 is the MIT report.

28 A Thank you. That's helpful.

1 Q Great. So let's just take a minute
2 to ground ourselves here and make sure we all
3 know what we're talking about. We're
4 specifically talking about the cost recovery
5 that the company has requested for
6 investments in advanced distribution
7 management system, or ADMS, which you've been
8 talking about all morning, yes?

9 A Yes.

10 Q The Joint CCAs, via the testimony
11 of Mr. Ghidossi, raised ownership issues
12 regarding realtime data that will be
13 available as a result of these ADMS and some
14 of the other IGP investments, right?

15 A Okay.

16 Q The Joint CCA proposal, again, just
17 to make sure we're on the same page, is that
18 Mr. Ghidossi suggests that the realtime data
19 should be shared with CCAs and other entities
20 with load serving obligations, right?

21 A Yes.

22 Q Mr. Ghidossi essentially suggests
23 two basic reasons to do this: One is to help
24 better cite distributed energy resources,
25 correct?

26 A Correct.

27 Q And by that we just mean making
28 sure that there's available capacity on the

1 distribution system, right?

2 A Okay.

3 Q So we're basically talking about
4 hosting capacity analyses?

5 A That is what the ICA represents.

6 Q Great. The second reason is to
7 enable more efficient deployment of DERs to
8 meet grid constraints in realtime, right?

9 A Can you refer to the portion of his
10 testimony that refers to that.

11 Q Can I refer -- well, how about I do
12 one better. Can you -- well, I'll need to
13 introduce an impeachment exhibit. Do you
14 have Mr. Ghidossi's testimony in front of
15 you?

16 A I do.

17 Q Well, then I can't -- that would be
18 at page 6 of Mr. Ghidossi's testimony. Oh,
19 I'm sorry. Page 8. So his Section B is
20 about addressing DER operational constraints
21 of realtime grid modernization data, yes?

22 A I see that.

23 Q Okay. That's, again, about
24 enabling DERs to meet grid constraints,
25 right? That's how you refer to a similar
26 concept in your testimony, meaning grid
27 constraints?

28 A Mr. Ghidossi has four bullet points

1 as how he defines examples of operational
2 grid constraints. If those are the four
3 bullet points that you are referring to, I
4 read that here.

5 Q Can you refer me now?

6 A That is on the same page 8. "What
7 are some examples of DER operational
8 constraints?" Mr. Ghidossi talks about
9 curtailment of DER production for future
10 outages. Do you see what I'm referring to?

11 Q Yes. And yes. The answer to your
12 question is yes that is what I'm referring
13 to.

14 A Okay.

15 Q So you agree with me that is one of
16 the benefits here of ADMS, and in fact, one
17 that you testified to, I believe, on page
18 19-16 of your testimony generally that
19 investments in the ADMS will lead to benefits
20 and improvements in capabilities on the
21 distribution system including this idea of
22 realtime DER dispatch, right?

23 A That is correct.

24 Q So, again, just to be really clear
25 about what we're talking about, we're saying
26 that -- or you're saying that ADMS enables
27 DERs to be dispatched exactly when they are
28 needed, correct?

1 A In terms of exactly when they are
2 needed, the current process that we have in
3 the distribution resource plan is to create a
4 schedule for the DERs to perform a certain
5 function at a certain time according to a
6 contract that they have that they would then
7 be enabled to reduce the amount of load on a
8 peak feeder to be able to defer a capacity.
9 If that's what you're talking to, that is
10 true.

11 Q So I think what you're talking
12 about is the way that PG&E envisionings (sic)
13 this market to happen. I'm not asking about
14 contracts or anything like that. I'm just
15 saying that the ADMS system will enable --
16 and I don't think I asked this quite
17 precisely enough. So let me try again.

18 The ADMS system will provide the
19 realtime data that is necessary to identify
20 grid constraints like the bullets we just
21 identified so that DERs can respond?

22 A Grid constraints currently are
23 identified through the capacity planning
24 process in terms of being able to see what
25 type of upgrades are required on the system.
26 That is done on an annual basis.

27 Q Let me refer you to your testimony
28 at page 19-16.

1 A Yes.

2 Q The last bullet point that you have
3 on that page beginning at line 20 -- well,
4 taking one step back. These bullets -- in
5 these bullets, you identify present and
6 future benefits associated with realtime grid
7 modelling capabilities of ADMS. And then the
8 last bullet is realization of value streams
9 associated with the proactive dispatch of DER
10 to mitigate realtime and forecasted grid
11 constraints identified via the ADMS, correct?

12 A That is correct.

13 Q So, again, the question I'm asking
14 you is really just to confirm that what this
15 means is that the ADMS will enable the
16 identification in realtime of forecasted --
17 or of grid constraints?

18 A That is correct.

19 Q Okay. And in response to that,
20 somebody could deploy a DER to try to address
21 that grid constraint, right?

22 A That is currently within the DER
23 proceeding to do so.

24 Q Again, just asking about what's
25 possible, what's technical -- technically
26 possible. Okay. So in terms of this
27 realization of value streams that you talk
28 about, value streams could be monetary,

1 right?

2 A Yes, they can.

3 Q So there's potentially money to be
4 made out of deploying DERs to address grid
5 constraints, right?

6 A If they are cost-effective.

7 Q Okay. And you would agree that
8 that's largely a future benefit, right?

9 A The current non-wires alternative
10 proceeding within the DRP shows there may be
11 cost-effective solutions on utilizing DERs
12 non-constrained feeders to be able to
13 eliminate or defer capacity projects today.

14 Q Okay. But wouldn't you agree that
15 a market would need to be established for
16 distribution grid services, one that doesn't
17 currently exist, in order to fully monetize
18 the benefits?

19 A To fully monetize the benefits. So
20 I want to see if I can gain a little clarity.
21 Distribution grid services through the DRP
22 proceeding is actually possible today. Now,
23 to realize the full IGP 10-year vision, as
24 described in my testimony, future investments
25 will need to be made as well as policy
26 decisions will need to be made at the
27 Commission levels as well as with the entire
28 state, with Joint IOUs to determine what that

1 marketplace may look like in the future.

2 Q Okay. So wouldn't you agree with
3 me that the ability to monetize these value
4 streams would be greatly enhanced by the
5 establishment of a market?

6 A I believe it will be enhanced by
7 the -- by an establishment of a marketplace,
8 yes.

9 Q Greatly enhanced?

10 A I don't know what the value of
11 "greatly" means.

12 MR. SCHLESINGER: Your Honor, may I
13 approach?

14 ALJ LIRAG: Any objections?

15 MR. SCHLESINGER: I have an impeachment
16 exhibit.

17 ALJ LIRAG: All right.

18 Off the record.

19 (Off the record.)

20 ALJ LIRAG: Let's go back on the
21 record.

22 Mr. Schlesinger handed us an
23 exhibit. I will identify it as Exhibit 124,
24 and this is PG&E's response to the Joint CCAs
25 Data Request 17, Question 1.

26 (Exhibit No. 124 was marked for
27 identification.)

28 ALJ LIRAG: And this is being used as

1 an impeachment document. So it's only being
2 distributed -- you're seeing this for the
3 first time? Is that correct, Mr. Nakayama --
4 or Mr. Gallo.

5 MR. GALLO: (Nodding head.)

6 ALJ LIRAG: Please proceed, Mr.
7 Schlesinger.

8 BY MR. SCHLESINGER:

9 Q Mr. Nakayama, what I've handed you
10 is PG&E's response to Joint CCA-17-1. You're
11 the sponsor of this response, correct?

12 A Yes.

13 Q So you have seen this before?

14 A Yes, I have seen this before.

15 Q Can you please read -- well,
16 Question C asked you to admit or deny that
17 the value streams identified in the section
18 of testimony you and I were just describing
19 can be monetized and if denied to please
20 fully explain why they cannot.

21 Can you please read your answer
22 into the record.

23 A Yes. "These value streams can be
24 monetized today through mechanisms such as
25 bilateral contracts between the utility and
26 the DER provider. However, the future
27 ability to monetize these value streams will
28 be greatly enhanced by the establishment of

1 the market for distribution grid services
2 described in PG&E's 10-year grid
3 modernization vision."

4 Q Okay. Just before I handed you
5 this exhibit, you said you didn't know what
6 "greatly" meant. What did you mean by
7 greatly?

8 A I can't put a dollar amount to the
9 word "greatly."

10 Q Okay.

11 ALJ LIRAG: All right. Proceed.

12 BY MR. SCHLESINGER:

13 Q Moving on. So on -- PG&E's
14 position in response to the Joint CCAs'
15 position about making this data available is
16 that the Commission should not require PG&E
17 to share its realtime data without first
18 considering the benefits and costs and
19 security risks of such a proposal.

20 A That is correct.

21 Q And so essentially you're saying
22 that the PUC needs to weigh the costs and
23 benefits of sharing this data?

24 A I believe that the PUC as well as
25 all California IOUs need to determine exactly
26 what markets they are establishing in the
27 general framework of DERs providing services
28 for both the transmission and the

1 distribution interfaces of the grid.

2 Q Mr. Nakayama, most of my questions
3 are "yes" or "no." This will go a lot faster
4 if we just stick to that format. And if
5 there's something that you need to clarify,
6 I'm sure your counsel will be happy to ask
7 you on redirect. So, again, "yes" or "no,"
8 you're suggesting --

9 MR. GALLO: Your Honor, I object to
10 this line of badgering. That question
11 clearly called for clarification, and he gave
12 it. So he's going to answer how he wants to
13 answer.

14 ALJ LIRAG: I think he's referring to
15 the next set of questions that are answerable
16 by mostly "yes" or "no." So let's see how it
17 goes.

18 BY MR. SCHLESINGER:

19 Q It's your position that the
20 Commission should not weigh the costs and
21 benefits of data sharing in this proceeding,
22 right?

23 A Can you make that question a little
24 more clearer.

25 Q Do you think the Commission should
26 weigh the costs and benefits in this
27 proceeding?

28 A No.

1 Q You stated in discovery that they
2 should wait a few years, right?

3 A They should wait until it is
4 appropriate.

5 Q Okay. And -- okay.

6 ALJ LIRAG: Also, Mr. Nakayama, don't
7 be obligated to answer simply by "yes" or
8 "no" if you feel that the answer is not just
9 a "yes" or "no."

10 WITNESS NAKAYAMA: Thank you.

11 ALJ LIRAG: Let's proceed, Mr.
12 Schlesinger.

13 BY MR. SCHLESINGER:

14 Q But it is true that the company is
15 seeking a significant amount of cost recovery
16 in this proceeding before making those
17 cost-benefit analyses on data sharing, right?

18 A This is to create a platform for
19 those future marketplaces that are not yet
20 defined.

21 Q Okay. Okay. Despite your position
22 that we consider these costs and benefits
23 later, you nevertheless, in your testimony,
24 provide several reasons why you think the
25 benefits of sharing realtime data are
26 questionable, right?

27 A We do have that in the responses
28 that you gave us questions for, yes.

1 Q Actually, I'm, again, talking about
2 your rebuttal testimony starting at page
3 19-20.

4 A Yes. It was in both.

5 Q Okay. At line 11, you say, "The
6 benefits of realtime data sharing are
7 questionable." Then you give a list of
8 reasons, and I want to explore some of those
9 with you right now.

10 A Okay. Can you repeat the page
11 number again so I can refer back.

12 Q Sure. It's page 19-20.

13 A Thank you.

14 Q So the first reason you provide is
15 you say, PG&E already publically shares
16 locational net benefits analysis, integration
17 capacity analysis, or ICA, and grid needs
18 assessments?

19 A That is correct.

20 Q You would agree with me that each
21 of those reports or projects relate to the
22 sighting of DERs primarily, right?

23 A That is correct.

24 Q Okay. Just so we're all on the
25 same page, the ICA map is a map that is
26 accessible to registered entities and
27 illustrates hosting capacity by feeder,
28 right?

1 A That is -- not just by feeder but
2 by line location, yes, that's --

3 Q By line location as well. Okay.
4 And you would agree that the CCA
5 recommendation on this point is that PG&E
6 update these maps on a weekly basis, right?

7 A I have seen that.

8 Q Okay. And so we're not requesting
9 that these be updated in realtime, right?

10 A You are not.

11 Q When Mr. Ghidossi filed his
12 testimony, the last update to that ICA map
13 had been made on December of 2018?

14 A That is correct.

15 Q And has the company updated the ICA
16 map since direct testimony was filed?

17 A Not yet.

18 Q Not yet. Okay. So the second
19 reason -- getting back to why the Commission
20 should -- or why the benefits of realtime
21 data sharing are questionable, the second
22 reason you provide is that Joint CCAs' vision
23 for a distribution services market wherein
24 realtime data is shared with numerous
25 entities jointly managing realtime dispatch
26 of DER in response to grid constraints is
27 both impractical and offers no advantages
28 relative to a centrally managed market

1 featuring DER dispatch governed by
2 optimization algorithms.

3 A I see that.

4 Q So that's a bit to unpack here, but
5 let's give it a try. I think what you're
6 saying is that PG&E favors a centrally
7 managed market managed by a single entity for
8 any future distribution services market,
9 right?

10 A I believe that the California IOUs
11 as well as the CPUC would need to make that
12 determination on what is best for the state.

13 Q So it is not your -- it's not
14 PG&E's position today that a centrally
15 managed marked is best way to go?

16 A I believe there needs to be a
17 discussion further between the IOUs, the
18 CPUC, the California ISO and other entities
19 to determine exactly what is the right way to
20 go about whether it is a centralized or a
21 decentralized marketplace.

22 Q So you would agree with me that the
23 jury is still out on what kind of a market
24 structure California is going to have moving
25 forward?

26 A I believe that there are research
27 papers out there that dictate that a
28 centralized distribution marketplace is a

1 preferred method for a marketplace of this
2 nature. I believe that we have had a
3 response to one of your questions that stated
4 many citings externally that spoke to that
5 preference of a centralized distribution
6 marketplace in one single entity as it being
7 advantageous.

8 Q But you would agree that that is a
9 significant policy question that still has a
10 question mark at the end?

11 A That is outside of this GRC
12 proceeding.

13 Q So, yes, that is outside of this
14 GRC proceeding?

15 A That is correct.

16 Q And you did just reference some
17 reports, and we, in fact, asked you in
18 discovery whether you had any reports or
19 studies that discussed the relative
20 advantages and disadvantages of centrally
21 managed distribution services markets versus
22 those that are not. And in response, you
23 provided 15-7 -- JCC 15-7 marked as Hearing
24 Exhibit 121.

25 A Yes, we did.

26 Q And the first report that you cited
27 to here is this MIT Utility of the Future
28 Report?

1 A Yes.

2 Q And that has been premarked as
3 Exhibit 123, and you have that in front of
4 you?

5 A I do.

6 Q Great. It's about two-and-a-half
7 inches thick. Pretty long report. Did you
8 read the whole thing?

9 A I did not read the whole thing.

10 Q Did you read a lot of it?

11 A I read portions of it, yes, but I
12 cannot say that I memorized this entire
13 two-and-a-half-inch document.

14 Q You would agree with me that it
15 addresses many, many topics, right?

16 A It does.

17 Q And it doesn't necessarily come
18 down on a recommendation for one particular
19 market model over another?

20 A It says that further discussion is
21 required, but it also talks through various
22 models of which a centralized market platform
23 is one of them.

24 Q It talks through various models of
25 markets. I think we'll address in briefs
26 whether they are all centrally managed or
27 not. But do you know whether the report
28 addresses rules that may be necessary to

1 prevent undue market dominance and
2 exploitation of market power?

3 A Undue dominance and exploitation of
4 market power. Can you point me to the
5 location where that is explicitly stated.

6 Q Absolutely. Page 46. Oh. Look at
7 that. It's actually highlighted. That is my
8 highlighting, for the record. I apologize
9 for the version control.

10 A I see this.

11 Q So you would you agree with me that
12 the report addresses rules that may be
13 necessary to prevent undue market dominance
14 and exploitation of market power?

15 A Similar to how their transmission
16 system works, it says here, in specific,
17 "Only if adequate rules are in place to
18 prevent undue market dominance." It does
19 talk about adequate rules to be put into
20 place for that to occur.

21 Q Okay. And do you know whether the
22 report addresses the need for aggregators of
23 DER resources to compete efficiently with
24 conventional resources?

25 A I believe it does talk through
26 that. I can't remember exactly which page
27 that's on.

28 Q For the record, it's page 57, but

1 we don't need to go there. I'm happy to move
2 on and address it in briefing.

3 Okay. Let's talk about the
4 competitive advantage concerns that Mr.
5 Ghidossi raised. Would you agree with me
6 that realtime data is necessary to address
7 realtime grid constraints?

8 A Yes.

9 Q Would you agree with me that
10 parties in possession of that realtime data
11 would be in the best position to respond to
12 any such grid constraints?

13 A Define "respond."

14 Q Deploy a DER.

15 A We would deploy a request. That
16 doesn't necessarily meaning deploying a
17 specific DER.

18 Q I'm not asking all about what PG&E
19 would do. I'm specifically asking whether
20 having that realtime data would make it -- is
21 necessary for somebody to deploy a DER?

22 A Let me see if I can clarify. In my
23 experience as a distribution operator, I
24 would say that we would -- distribution
25 operator would be in the best position to
26 identify grid constraints that would need to
27 be mitigated in realtime. Whether that's
28 done by DERs or whether it's done by

1 something else, they would identify the need.

2 Q So I believe you're saying that you
3 think a grid operator would be a great person
4 to do that, and that's fine. But would you
5 agree with me that in order to respond a grid
6 operator or anyone else would need to have
7 the realtime data?

8 A Yes.

9 Q And we just talked about the fact
10 that there's a future market and potentially
11 a lot of money to be made on that?

12 A We talked about a future market.
13 Whether it was cost-effective is still yet to
14 be determined.

15 Q Well, let me ask you this: If PG&E
16 were the only party in possession of that
17 realtime data, do you think it would have a
18 competitive advantage in some future market?

19 A No.

20 Q Okay. And I believe the reason
21 that you're saying no was provided to Joint
22 CCAs in their -- in your response to Question
23 1707(b), right? Do you recall that?

24 MR. SCHLESINGER: That's an impeachment
25 exhibit. So may I approach, your Honor?

26 ALJ LIRAG: All right.

27 Off the record.

28 (Off the record.)

1 ALJ LIRAG: On the record.

2 So Mr. Schlesinger, how much longer
3 do you think you'll need?

4 MR. SCHLESINGER: Five, ten minutes, at
5 the most. Ten, at the most.

6 ALJ LIRAG: All right. Let's proceed.

7 MR. SCHLESINGER: Am I close to my half
8 hour?

9 ALJ LIRAG: Close. Eight minutes to
10 that half hour.

11 MR. SCHLESINGER: Okay. I should be
12 really close to that.

13 ALJ LIRAG: All right. Let's go.

14 BY MR. SCHLESINGER:

15 Q So we are at Exhibit 123, which is
16 PG&E's response to Joint CCA --

17 ALJ LIRAG: It should be Exhibit 122.

18 MR. SCHLESINGER: 122. Thank you.

19 ALJ LIRAG: 123 is the report. All
20 right. Let's proceed.

21 BY MR. SCHLESINGER:

22 Q That's response to Joint CCA 17-17,
23 yes?

24 A 17-07.

25 Q Mm-hmm. And I had just asked you
26 whether PG&E would have a competitive
27 advantage, which is very similar to the
28 question that you were asked in part B of

1 this discovery response. Do you agree?

2 A That -- I agree.

3 Q And so the answer that you provided
4 is that you don't think, as you just said,
5 that they would have a competitive advantage
6 because market design mechanisms exist to
7 prevent PG&E from being advantaged based upon
8 a possible role in administering a future
9 market. And then you go on to provide an
10 example of a FERC order that requires some
11 procedures to ensure that there's no market
12 manipulation, right?

13 A That is correct. That exists
14 within PG&E today for the transmission
15 system.

16 Q So FERC imposed this mechanism via
17 an order through some proceeding?

18 A FERC has Order No. 17 -- 717 to
19 ensure that that occurs.

20 Q Do you know whether the CPUC has
21 put in place any market mechanisms that are
22 designed to ensure that PG&E does not
23 manipulate future distribution service
24 markets?

25 A The market hasn't been designed
26 yet. We haven't had any discussions on these
27 matters at this time.

28 Q Right. Nevertheless, PG&E is

1 seeking a significant amount of rate recovery
2 in this proceeding to build out this system?

3 A The platform by which a market
4 could be created requires an ADMS system to
5 be able to actually facilitate.

6 Q Mm-hmm. So would you agree with me
7 that essentially the Joint CCAs proposed a
8 market mechanism to address this issue by
9 suggesting that the data be made available to
10 CCAs and other load serving entities?

11 A You requested realtime data -- I
12 would say that you requested realtime data.

13 Q Okay. Would you agree with me that
14 CCAs might have an interest in aggregating
15 and deploying DER resources in the future?

16 A I cannot assume what the CCAs may
17 or may not be interested in.

18 Q Okay. Would you agree with me,
19 though, that if the CCAs were able to
20 monetize the dispatch of DERs in a
21 distribution service market that that is
22 something that could create revenue streams
23 for CCA customers?

24 A It is possible.

25 Q Okay.]

26 Do you know whether CCAs offer
27 incentive programs today?

28 A If you are, I'm not familiar.

1 Q Do you know whether or not CCAs
2 offer DSM, or Demand Response Programs,
3 today?

4 A I believe they can, but I believe
5 there are rules in place where if you do --
6 you know what? I'm going to be speaking out
7 of my lane.

8 Q That's okay.

9 A There are rules on Demand Response
10 Programs for CCAs.

11 Q We can address rules and statutes
12 in the briefs for sure.

13 You would agree with me CCAs are
14 aggregators of generation; right?

15 A Yes.

16 Q Do you know whether a CCA today
17 could own a battery and sell ancillary
18 services into the Cal-ISO market?

19 A They are on the tariff. Yes, they
20 can.

21 Q One of the last responses that you
22 gave here or rationales here that you gave
23 for denying the Joint CCAs' proposal is that
24 sharing realtime grid data with CCAs and LSCs
25 would raise complex new security and customer
26 privacy issues and would require costly IT
27 integrations with each new entity using
28 realtime data.

1 So would you say that those are
2 costs that would need to be weighed against
3 any potential benefits of sharing realtime
4 data?

5 A I believe that that is an accurate
6 depiction.

7 Q Okay. Would you agree with me that
8 there are generally ways to mitigate any
9 security or cybersecurity issues?

10 A There are always ways to mitigate
11 cybersecurity issues.

12 Q And that is, in fact, what
13 Mr. Strasburger does for a living?

14 A That is what he does for a living.

15 Q I'm sure he's very busy over at
16 PG&E. Utilities have a lot of data security
17 and cybersecurity issues that they deal with;
18 right?

19 A I can't speak to how busy or not
20 busy Mr. Strasburger is. I haven't really
21 had a chance to talk to him about that.

22 WITNESS STRASBURGER: Extremely busy.

23 MR. SCHLESINGER: Okay. Okay.

24 Q Would you also agree with me that
25 any costs of integration or cybersecurity
26 costs could potentially be allocated in a way
27 in the future that would keep those costs off
28 of PG&E books?

1 A I can't speak to cost allocation
2 mechanisms for future proceedings that do not
3 exist today.

4 Q Do you know whether it's possible
5 to create allocation mechanisms?

6 A I do not.

7 MR. SCHLESINGER: You know what?
8 That's all I have for you.

9 WITNESS NAKAYAMA: Thank you.

10 ALJ LIRAG: Mr. Gallo, do you have any
11 redirect?

12 MR. GALLO: I do not, your Honor;
13 however, Mr. Schlesinger introduced two PG&E
14 Data Request Responses to JCCA-17. That
15 question was posed post-rebuttal. There's
16 three additional responses that cover similar
17 questions about policy and the relationship
18 between what JCCA wants and PG&E's responses
19 to their arguments, which I'm hoping to
20 introduce. We can do it another day to save
21 time, but I'd like Mr. Schlesinger to say
22 it's okay, and the three specific responses
23 are JCCA-17-Q3, Q4 and Q5.

24 MR. SCHLESINGER: Can I take a moment?

25 ALJ LIRAG: We'll go off the record.

26 (Off the record.)

27 ALJ LIRAG: Let's go back on the
28 record. While we were off the record, there

1 was some discussion about what exhibits will
2 be offered. Let's identify and offer that
3 into evidence during tomorrow's hearing so
4 that we can move on. Let's quickly wrap-up a
5 couple more items. This will take about two
6 minutes.

7 Mr. Hawiger?

8 Mr. Hawiger: No problem.

9 ALJ LIRAG: First, let's have
10 Mr. Schlesinger move the exhibits identified.

11 So 121 through 124; correct? Unless
12 you don't want 124 because Mr. Nakayama
13 clarified what he means by "greatly
14 enhanced."

15 MR. SCHLESINGER: At your pleasure,
16 your Honor. I agree. I don't need that.

17 ALJ LIRAG: So Exhibit 124 is
18 withdrawn.

19 Any objections to 121, 122 and 123,
20 Mr. Gallo or Ms. Kim, with the caveat that we
21 will identify the three additional exhibits
22 tomorrow.

23 MR. GALLO: No objections. However,
24 your Honor, I would actually -- no. Never
25 mind. Withdrawn.

26 ALJ LIRAG: So Exhibits 121, 122 and
27 123 are received into the record. Let's have
28 Ms. Shek move 115, 116, and 117 into the

1 record. Is that fine, Ms. Shek?

2 MS. SHEK: I think we still have an
3 objection to 116.

4 ALJ LIRAG: Right. We are just moving
5 to have it admitted, and then I'll ask if
6 there are any objections and we'll take that
7 up tomorrow.

8 MS. SHEK: So 115?

9 ALJ LIRAG: 115, 116 and 117.

10 MS. SHEK: Your Honor, may we move
11 those into the record?

12 ALJ LIRAG: Any objections from PG&E on
13 any of the --

14 MR. GALLO: I have no objection, after
15 the questioning, on 116; however on 117 --

16 ALJ LIRAG: Let's not explain.

17 MR. GALLO: Lacks foundation.

18 ALJ LIRAG: What about 115?

19 MR. GALLO: 115 is fine. Thank you.

20 ALJ LIRAG: Exhibit 115 is received
21 into the record as well as 116.

22 117 we'll set aside for discussion
23 tomorrow.

24 What about Exhibit 110, where
25 Mr. Schlesinger had a formula; is there a
26 quick resolution regarding that?

27 MR. SCHLESINGER: We served that file
28 earlier today and made an Excel format with

1 all formula intact. So it is now out there.
2 I will bring a CD. We have had a little bit
3 of a hard time tracking down somebody to
4 create that, but I will bring that in in the
5 next few days.

6 ALJ LIRAG: You'll be back at some
7 other date. So let's take that up during
8 that time. We'll set that aside for now.

9 MR. SCHLESINGER: Okay. Yeah.

10 (Exhibit No. 115 was received into
11 evidence.)

12 (Exhibit No. 116 was received into
13 evidence.)

14 (Exhibit No. 121 was received into
15 evidence.)

16 (Exhibit No. 122 was received into
17 evidence.)

18 (Exhibit No. 123 was received into
19 evidence.)

20 ALJ LIRAG: Let's go back to
21 Mr. Hawiger. Thank you for accommodating
22 this schedule change.

23 MR. HAWIGER: No problem.

24 ALJ LIRAG: We have the remainder of
25 your cross, Mr. Hawiger, and we have until
26 4:15.

27 CROSS-EXAMINATION (resumed)

28 BY MR. HAWIGER:

Q Mr. Nakayama, let me ask you to
turn in your rebuttal testimony to

1 Exhibit 20, page 19-30.

2 A Okay.

3 Q Now, in Answer 43, at the bottom of
4 that page, you discuss the issue of the
5 benefits of the ADMS.

6 A Yes.

7 Q And there's a dispute. PG&E
8 calculated present value of 717 million for
9 the benefits and TURN calculated the value of
10 304 million.

11 A Yes.

12 Q Before I turn to the benefits, just
13 to close on the costs, if one did a benefit
14 cost analysis, would it be appropriate to
15 look at the present value of the revenue
16 requirements associated with the costs?

17 A We would look at the present value
18 of the actual cost, not the revenue
19 requirement.

20 Q And if one looks from a customer
21 perspective, isn't it more appropriate to
22 look at the present value of customer
23 benefits versus present value of revenue
24 requirements?

25 A Did we not calculate the present
26 value of the customer benefit as a part of
27 question -- the dispute on Question 43?

28 Q Well, is that 717 million, that's

1 the net present value?

2 A That is the present value for the
3 benefit.

4 Q For the benefits.

5 And then if you are to compare to
6 the costs, what would you use to compare it
7 to the cost? What cost figure would you use
8 to compare that to?

9 A Probably the present value of the
10 actual cost of the project itself.

11 Q And my question is: Why not
12 compare it to the present value of the
13 revenue requirements that customer paid over
14 time?

15 A I don't have enough understanding
16 of revenue requirements and the costs that
17 are added in for a revenue requirement
18 perspective to be able to answer that
19 sufficiently for your question.

20 Q So, in terms of the benefits, is it
21 correct that this present value is based on
22 the reliability improvement benefit due to
23 the ADMS?

24 A That is correct.

25 Q And if we could go back to the
26 business case in the Stephens Attachments and
27 turn to page 9.

28 A Okay.

1 Q I'm sorry. That's at page 10.

2 A Okay.

3 Q And so in the box, towards the
4 middle, where it says "IGP Lifetime Financial
5 Benefits," and there's a bullet point labeled
6 "customer," right?

7 A Yes, I see that.

8 Q And that's where PG&E explains that
9 it used the SAIDI benefits to calculate the
10 customer benefits; do you see that?

11 A Per year. Yes.

12 Q Now, is it correct that PG&E
13 calculated the present value of 717 million
14 by using a term of 20 years for the assets?

15 A 20 years is how we calculated the
16 financial benefit from 2019 to year 2038.

17 Q What is the useful life of ADMS
18 software?

19 A I believe it's 18 years.

20 Q How old is the DMS software?

21 A Oh, I don't know. I believe we had
22 a particular data response that talked about
23 when the DMS software was actually installed.

24 Q Okay.

25 A But I don't have that year off the
26 top of my head.

27 Q Is it correct that in order
28 monetize the reliability benefit, PG&E had to

1 use the results of its Value of Service
2 Study?

3 A That is correct.

4 Q And does the Value of Service Study
5 show that the marginal value of lost electric
6 service declines as the outage length
7 increases?

8 A That is correct.

9 Q And that's true for all customer
10 classes?

11 A That is correct.

12 Q So in order to use the data from
13 the Value of Service Study, PG&E had to
14 quantify their reduction in time for some
15 outages due to the ADMS in some way that
16 corresponds to the numbers in the Value of
17 Service Study?

18 A That is correct.

19 Q Okay. This is correct. If you
20 turn to the Stephens Attachments, to page 72.

21 A Yes. I'm here.

22 Q Is it correct that this Power Point
23 labeled, "ADMS Customer Reliability Benefits
24 Estimate" explains how PG&E did that --
25 quantified the reliability benefit in terms
26 of outage reduction?

27 A In part, I will say that you have
28 to do additional calculations above and

1 beyond what is presented in here to get to
2 the values that we input into the VOS
3 calculator.

4 Q Okay. But you take some of the
5 data from here and you input it into the VOS
6 calculator; is that right?

7 A Additional calculations were made.

8 Q Okay. Let's come back to that.
9 Let me first understand what you used from
10 this document.

11 A Okay.

12 Q This is a very interesting
13 document, but given the time, I won't go
14 through all of it. Let me just ask you to
15 turn to page 76, which is, I think, page 5 of
16 the document.

17 A Yes.

18 Q Is it correct that each of those
19 rows shows a step in the process that would
20 result in potential savings due to ADMS; is
21 that right?

22 A That is correct.

23 Q And PG&E has two columns: A
24 conservative and a best case savings
25 estimate; correct?

26 A That is correct.

27 Q You used the conservative number in
28 your calculations; is that right?

1 A That is correct.

2 Q What is the basis for these savings
3 estimates?

4 A Subject matter expertise from
5 distribution operators as well as
6 distribution operational engineers as well as
7 restoration processes during an outage
8 condition.

9 Q Did PG&E -- did you -- do you know
10 whether PG&E consulted verbally with subject
11 matter experts? Did they conduct some study
12 and analysis and survey operators? Any idea
13 how it --

14 A I didn't actually put together this
15 particular analysis; so, therefore, I'm not
16 exactly sure of the exact mechanisms that
17 they went about to create the estimates of
18 each one, whether that was done verbally or
19 through other means.

20 Q Now, the first step has the
21 highest -- and these numbers -- let me
22 just -- so that we're clear, these numbers in
23 the column of "Savings Estimate," what do the
24 numbers mean?

25 A "What do the numbers mean,"
26 meaning -- I'll give you an example: When
27 we, as operators, create a restoration switch
28 log, the ADMS has the capability to do all

1 that automatically whereby an operator
2 doesn't have to go into three or four
3 different systems to be able to manually type
4 up a switch log or handwrite a switch log in
5 determining which switching pathways they
6 would take to be able to effectively and
7 quickly restore customers on a distribution
8 outage.

9 ALJ LIRAG: You got that, Shannon?

10 WITNESS NAKAYAMA: Sorry. I'll go
11 slower. I apologize.

12 ALJ LIRAG: No worries. We're trying
13 to hurry you here.

14 BY MR. HAWIGER:

15 Q Let me step back. I was asking a
16 more simpler question. Is it correct that
17 each of these minutes represents the
18 potential reduction in the time of an outage
19 due to --

20 A Yes.

21 Q And the first row that you just
22 discussed, is it correct that that row
23 actually represents the benefits of the
24 automated switching procedures that would
25 replace the current manual switch logs?

26 A That one step is true.

27 Q By the way, regarding the second
28 step, the second step is a reduction in the

1 time to find a fault; is that correct?

2 A That is correct.

3 Q Does PG&E use remote fault
4 indicators?

5 A In certain instances it does. The
6 remote indicators have to be observed
7 manually by field personnel.

8 Q Perhaps, we have it. How do you
9 define a "remote fault indicator"?

10 A A fault indicator is something that
11 is attached to a particular distribution
12 pole, or underground, that actually blinks as
13 far as telling the troubleman which way to
14 go.

15 Q Is there also an asset called a
16 "remote fault indicator" that actually
17 transmits data of its location using SCADA?

18 A I believe we have some of those.
19 I'm not entirely familiar with the remote
20 fault indicators. I believe we do have some
21 remote fault indicators in the system.

22 Q Which chapter would it be where
23 PG&E would discuss the installation of any
24 remote fault indicator assets?

25 A I'm going to make an assumption
26 here, but it would probably be in the
27 reliability chapter.

28 Q Okay. So let me ask you now to

1 turn to page 6, the next page. It's Bates
2 page 77.

3 A Okay.

4 Q Is it correct that on the very top
5 row, PG&E used historical data to determine
6 the average unplanned outage duration over
7 the two-year period, 2017 to 2018?

8 A When you talk the column that says
9 "average duration," that would be the average
10 duration of the total outage, not a
11 calculation of key (phonetic), for example.
12 I just wanted to make sure that's clear. Not
13 all customers experience that long of an
14 outage.

15 Q Okay. And that's about six hours;
16 correct?

17 A The average duration of the total
18 outage is about six hours.

19 Q But PG&E did not use that in its
20 calculation of the ADMS benefits because ADMS
21 provides benefits only for certain types of
22 outages; is that right?

23 A The benefits that we describe try
24 to exclude ones where ADMS wouldn't provide
25 the benefit because there's no switching
26 operations involved.

27 Q Right. Thank you.

28 And so there are, for example,

1 outages on some feeder off a main line where
2 the troubleman just has to go and fix the
3 outage, but you don't do any switching
4 operations as part of it; correct?

5 A Yes. As an example, if there's a
6 fuse line that goes nowhere with any ability
7 to pick up anybody on a back tie from the
8 opposite side of that end of line, there
9 would be nothing for the operator to do.
10 That is why those are excluded.

11 Q And that's why -- so you looked --
12 you did these filtering, as described on this
13 page, to try to figure out what kind of
14 outages required the type of switching
15 operations that ADMS would actually help
16 with?

17 A Also, do not overstate the benefit.
18 That is correct.

19 Q Thank you.

20 And you found out that ADMS
21 provides benefits into the longer-term
22 outages that, approximately, average 618
23 minutes or 10 hours?

24 A Again, that's the total outage
25 time. Again, not all customers experience
26 that total outage time.

27 Q Now, when you said before that you
28 had to do some other stuff in order to input

1 this data into the Value of Service
2 calculator, what did you have in mind?

3 A The reason we do that is because
4 you if take a look at 618 minutes, as an
5 example, many customers are actually restored
6 prior to the 618-minute mark. That just
7 tells you on average those outages from this
8 time that it starts to the time that the, for
9 example, the pole is replaced, wires
10 restrung, circuit breaker or line closure is
11 closed back in and energized, that entire
12 time, the 618 minutes, the customers
13 experiencing that outage tends to be a very
14 small amount that actually exhibits the
15 618-minute mark when they close out the
16 outage.

17 That's why we use, more
18 practically, the CMI, or the Customer Minutes
19 Interruption value, which is a part of
20 this -- I mean, the 618 minute is a
21 calculated value for all outages, but the CMI
22 is better representative of the customer
23 impact of those 618 minutes.

24 Q Okay. And so let me ask you this,
25 doesn't the Value of Service calculator you
26 use to calculate the benefits use financial
27 monetary value that customers place on an
28 outage of a certain duration?

1 A Yes. That's why the customer
2 minute, CMI, was used to determine the
3 four-and-a-half hour calculation that was
4 used in the VOS tool. I believe it was
5 Scenario 1.

6 Q So you used outage length of
7 four-and-a-half hours in the Value of Service
8 calculator to determine the benefits of the
9 717 million?

10 A Yes. Based upon a CMI of 370
11 million minutes in totality, yes.

12 Q Okay. And would you agree that
13 when you discussed the slightly different
14 assumptions, that's because TURN used the
15 Value of Service for a 10-hour outage in the
16 same -- PG&E's Value of Service calculator?

17 A Yes. It assumes that all customers
18 experience a 10-hour outage of the 29 percent
19 that is calculated with the VOS calculator,
20 which is not quite accurate.

21 Q Let me ask you to turn back to page
22 9 of that business case. So it's the
23 Stephens Attachments, page 9. It's back to
24 the business case.

25 A Okay.

26 Q Oh, by the way, just to be clear,
27 this page 9, if you turn back one page, page
28 8, at the very bottom of the page it states:

1 "Project Benefits." So they're all contained
2 on this table, page 9 through 10; correct?

3 A Sorry. I'm losing you a little
4 bit.

5 Q I was just trying to be clear. If
6 you go back to page 8.

7 A I'm sorry. I'm in the wrong
8 document. Yes. I'm here back with you
9 again. "Project Benefits" section.

10 Q It starts really at the top of page
11 9; correct?

12 A Yes.

13 Q Let me ask you, there's a section
14 called "Safety Benefits;" do you see that?

15 A "Safety Benefits." Yes, I see
16 that.

17 Q Is it correct that there it's
18 discussing their reduction in outages or
19 customer interpretation as a safety benefit?

20 A Yes.

21 Q And that's part of the reliability
22 benefit also; correct?

23 A Well, reliability is more -- I'm
24 not entirely sure of how VOS and all the
25 intrinsic calculators calculate value, but
26 safety is identified as something, if
27 somebody is out of power, for example, a
28 medical baseline customer is out of power,

1 there are safety benefits for those customers
2 on being back in power that may not be
3 captured within the VOS calculator.

4 Q Fine. But the underlying benefit
5 is a reduction in customer minutes of
6 interruption, and some of it can be
7 quantified as a reliability benefit, but
8 you're also saying it has safety benefits,
9 that same reduction; correct?

10 A Any type of reduction in CAIDI
11 performance would stipulate that there is a
12 safety benefit for those customers,
13 especially those who are impacted and need
14 power for medical issues.

15 Q Now, there's no discussion of any
16 benefit with respect to wildfires here; is
17 there?

18 A Not on -- we discuss wildfire
19 benefits as a part ADMS business case on the
20 public safety impacts - thank you - on page 8
21 that talks about some wildfire risk
22 mitigation that the ADMS can provide. I
23 believe it's also in our testimony as well.

24 Q Isn't that discussion on --

25 A Yes. Project Benefits. I
26 apologize. There is in the testimony, we do
27 state that there will be some wildfire safety
28 benefits attributed to ADMS. That is true.

1 Q Okay. But in this document, it
2 does not discuss wildfire benefits aside
3 from, as you said, on page 8, it discusses
4 the fact that there will be no public safety
5 impact because the work being done on ADMS
6 will be performed indoors?

7 A It does not talk about any wildfire
8 benefits in this particular business case.
9 It does not, but it does in the testimony we
10 provided.

11 Q Okay. And then in the same page 9,
12 just below "safety," it is discussing
13 distribution operation's benefits.

14 A Yes.

15 Q And it discusses the benefit in
16 being able to perform switching operations,
17 right?

18 A That is correct.

19 Q And that's a primary benefit of the
20 ADMS, the ability to eliminate manual switch
21 logs and move to automated switching; is that
22 right?

23 A There are many benefits for the
24 ADMS platform itself. This is just one of
25 many benefits that we have identified for the
26 ADMS platform.

27 Q So you wouldn't agree that the
28 ability to recommend switching plans is the

1 primary operational benefit of the ADMS?

2 A You clarified as "operational
3 benefit." An operational benefit is just a
4 very small subset of the benefits associated
5 with the ADMS platform. So when you talk
6 about operational benefits in that category,
7 then, yes. This does quantify the
8 operational benefit of that category.

9 Q Okay. I'll come back to switching
10 if we have time.

11 Let me ask you to turn in your
12 rebuttal to the next page, page 19-31. At
13 the bottom of the page you start Answer 45
14 regarding TURN's proposal to do only --
15 replace only the RT-SCADA system, and that
16 goes onto the next page.

17 Let me ask you first, is replacing
18 all of RT-SCADA part of the ADMS?

19 A Replacing RT-SCADA is part of ADMS.

20 Q Is it possible to do only --
21 replace only the RT-SCADA without doing any
22 of the other parts of the ADMS?

23 A You can do only an RT-SCADA
24 replacement.

25 Q Is full point-to-point testing
26 required for the ADMS?

27 A Are you talking about the
28 application or the platform?

1 Q I'm talking about the ADMS entire
2 project as described in this business case.

3 A Yes. Point-to-point testing is
4 required to ensure that the SCADA operates as
5 designed.

6 Q Okay. And is full point-to-point
7 testing required?

8 A When you talk about full
9 point-to-point testing, are you talking about
10 both the field testing as well as what we
11 describe as the simulation and listening mode
12 testing as a full point-to-point testing?

13 Q Well, let me ask you this: When
14 you -- what do you mean in your Answer 45 on
15 page 19-32, where you say that TURN's
16 SCADA-only proposal would require full
17 point-to-point testing and those costs are
18 not included. What do you mean "full
19 point-to-point testing"?

20 A We mean the entire cost associated
21 with a full point-to-point testing that we
22 identified in the workpapers for the SCADA
23 replacement piece of this ADMS platform IGP
24 project.

25 Q So does that include doing the 12.5
26 percent sampling or does that include doing
27 the 100-percent device?

28 A It is -- okay. We are going to be

1 testing 100 percent of our devices of which
2 we will do 10 to 15 percent by field testing.

3 Q And so when you say "full
4 point-to-point testing," does that include 10
5 to 15 percent of field testing or more?

6 A 10 to 15 percent. It's the same
7 assumptions that we used in the RT-SCADA
8 portion of our paper.

9 Q Okay. And so that -- it's the same
10 amount that you say is included in your
11 forecast for ADMS in your testimony?

12 A That's correct.

13 Q And, similarly, when you say
14 "requires full SCADA display migration," is
15 that a cost that's also included in your ADMS
16 cost forecast?

17 A It is.]

18 Q So you're saying that \$75 million
19 of your \$160 million ADMS forecast is just
20 for RT-SCADA replacement?

21 A I would have to go back to the
22 reference of workpaper 19-13, Table 19-13,
23 lines 12 and 15.

24 Q Hold on one moment, please. Let me
25 get there.

26 A Let me know when you're there.

27 Q You said page 19-13?

28 A Workpaper 19-13.

1 Q All right. Thank you. Please go
2 on.

3 A So if you take a look at the cost
4 associated with distribution SCADA
5 point-to-point testing migration as well as
6 the distribution SCADA migrations to total
7 \$72 million.

8 Q Okay. Thank you.

9 A You're welcome.

10 Q Let me ask you to turn in the
11 Stevens attachments in the business case to
12 page 24. And there you have a discussion at
13 the bottom of the page of doing the -- only
14 invest in SCADA to address presently known
15 limitations?

16 A That is correct.

17 Q And that's the replace RT-SCADA
18 option; correct?

19 A That is correct.

20 Q Okay. Now, am I -- if I read those
21 paragraphs at the bottom there, am I correct
22 that the primary concern is that replacing
23 RT-SCADA only would not allow PG&E efficient
24 operation in a high DER-penetration
25 environment?

26 A It also would not allow the build
27 out of the full distribution marketplace for
28 the future of distribution energy resources

1 to create the value that was talked about by
2 Mr. Schlesinger.

3 Q Thank you. If PG&E did only the
4 SCADA replacement, would that preclude moving
5 to an ADMS system in the future?

6 A It would not.

7 Q If you replaced RT-SCADA, could you
8 integrate the SCADA with the DMS System?

9 A Yes, you could.

10 Q Would that address the
11 cybersecurity concerns in the existing
12 RT-SCADA system?

13 A I would have to defer to
14 Mr. Strasburger to answer that question.

15 WITNESS STRASBURGER: If I understand
16 the question correctly, if you replace
17 RT-SCADA but that's the only component you
18 replace, would that address cybersecurity
19 concerns?

20 It would with the particular
21 RT-SCADA System. But I think you also
22 mentioned the Distribution Management System.
23 So it would not eliminate
24 cybersecurity-related challenges with that
25 system as that would still be an older-legacy
26 system. It wouldn't have the new generation
27 security features that a new system would
28 have.

1 Q Thank you. Let me ask you some
2 questions about mask load. I'm going to try
3 to speed through this.

4 WITNESS NAKAYAMA: Certainly.

5 Q Am I correct that mask load is
6 relevant during switching operations?

7 A It is relevant during unplanned
8 outage conditions.

9 Q So it's relevant both during
10 unplanned outages irrespective of whether you
11 do switching or not and also during -- let me
12 break it down. So is it relevant during
13 unplanned outages irrespective of whether
14 PG&E does any switching?

15 A It is very relevant in unplanned
16 outages. I don't know how to described
17 switching or non-switching since switching is
18 required.

19 Q And how is it relevant during an
20 unplanned outage?

21 A What happens is the actual
22 generation that is occurring either through
23 battery, storage, or solar does not
24 immediately come back online to offset some
25 of the load that the customers are using
26 immediately when you close in and reenergize
27 the customers.

28 What that means is that the

1 operator is unaware that there may be some
2 load out there that is quote-unquote being
3 masked or invisible to the operator. And
4 when he closes in the breaker for example, it
5 may instantaneously pick up a load that
6 exceeds the relay settings of a protected
7 device and would then, for example in this
8 situation, open up the breaker again because
9 the load exceeds the protective settings of
10 that relay.

11 Q Let me cut to the chase. Is this a
12 problem if the generation -- distributed
13 generation is only a Net Energy Metering
14 System that offsets or is placed on -- behind
15 the meter?

16 A It wouldn't matter.

17 Q Okay. If you only have NEM, Net
18 Energy Metering Systems, isn't the circuit
19 designed to accommodate the full load of the
20 customers?

21 A This phenomenon doesn't care about
22 the billing impacts of the mechanisms by
23 which a customer's bill is netted out. What
24 it really is about is that because the
25 generation doesn't kick online
26 instantaneously, there's no -- the load --
27 the full load of that customer is then felt
28 by the distribution circuit until a time of

1 which the generation can then offset that
2 load and bring the load of the circuit down.
3 That is the irregardless of what type of
4 billing mechanism you may have.

5 Q And I'm not talking about billing.
6 I'm talking about the actual capacity of the
7 distribution circuit when PG&E does all of
8 its circuit capacity analyses. Doesn't it
9 then take into account the customer load and
10 design the circuit to accommodate the full
11 peek load?

12 A It also accommodates the generation
13 as well.

14 Q So you're saying that in the
15 distribution capacity of the -- based on the
16 peek -- circuit peek has been built in it a
17 reduction due to the distributed generation?

18 A It takes into account both load and
19 generation.

20 Q Has PG&E experienced any problems
21 due to this issue during unplanned outages?

22 A I've spoken to operators before in
23 both the southern distribution control center
24 and the central distribution control center
25 personally, and they have told me about
26 experiences where cold load pickup has been a
27 problem on high loaded DER circuits.

28 Q And when you say high loaded --

1 well, let me ask you first. Is it correct
2 that PG&E has no records of any outages or
3 voltage problems or thermal problems due to
4 this issue?

5 A Our integrated logging information
6 system called "ILIS" is where we record all
7 that data. It does not currently have a drop
8 down to identify outage conditions that may
9 be caused by masked load issues. It's not
10 currently a functionality we have to record.

11 Q But you're saying in your
12 conversations with operators, they've
13 indicated they've had problems due to this?

14 A They've had problems picking up
15 load on circuits due to distributing energy
16 resources.

17 Q And what do you mean by "picking up
18 load"? What does that mean?

19 A So when they're restoring -- let's
20 get back to this. I'm going to give you an
21 example of what this is to try to make this
22 clear.

23 If we anticipate the peak load of
24 that circuit to be 500 amps because of the
25 fact that when we take a look at our SCADA
26 values for what this circuit normally is, it
27 is at 500 LAMs at peak. That is below the
28 600 amp overcurrent setting of the circuit

1 breaker as an example to protect the line.

2 When the circuit breaker is closed
3 in, it will instantaneously pick up all the
4 load. And there could be 100 plus amps worth
5 of generation that is being masked on that
6 500 amps. So it's actually exceeding
7 600 amps on the initial pickup.

8 And so what ends up happening is
9 the operator will close the breaker, and it
10 will immediately pop back open on overcurrent
11 even though there's no damage on the line.

12 Q And has that -- what would happen
13 next?

14 A Next is then we'll need to send a
15 troubleman to try to figure out if there's
16 any damage on the line. That will be the
17 initial assumption from the operator to try
18 to figure out whether there was actually a
19 piece of damage that may have been missed as
20 an example. Or a particular piece of damage
21 may have occurred during the course of a
22 restoration of a separate outage.

23 Then they will have to go out. And
24 if finding no damage, will then have to do
25 what's called a "sectionalized restoration
26 process" to pick out -- pick up small
27 sections of the circuit at a time. What that
28 will enable you to do is pick up a small

1 chunk of load, allow the generators to come
2 back online, pick up an additional piece of
3 load, and allow those generators to come back
4 online. Until you can pick up the entire
5 circuit with all of the generators to come
6 back online and reduce the loading of that
7 circuit so that it can carry it.

8 Q In your discussion, have you
9 explored whether when the operators say this
10 has been a problem on circuits with high
11 penetrations, are they talking specifically
12 about circuits that happen to have wholesale
13 distributed generators connected to the
14 distribution circuits?

15 A I don't know exactly which circuits
16 they're talking about. They just talk about
17 highly-loaded DERs. Typically in discussions
18 with them is usually due to for example
19 significant amount of PV generation on that
20 particular theater.

21 But in terms of the actual instance
22 that they're talking about, I have no -- we
23 did not talk about whether it was a wholesale
24 distribution tariff customer or just PV.

25 Q Has PG&E done any analysis to look
26 at how many theaters -- I am sorry. What do
27 you mean by high loaded?

28 A I don't necessarily have a -- when

1 talking to the operators and having that
2 conversation, we didn't necessarily talk
3 about, "Well, how many amps on that circuit
4 is PV?"

5 They typically see it as we know
6 that there's a lot of interconnected
7 photovoltaic -- as an example -- on this
8 particular theater. And they're aware of it.
9 So that is what they call a highly-loaded PV
10 or DER circuit. Without running a
11 calculation in the mind of what that might
12 quantify or defined as.

13 Q And do you have any sense of how
14 many such circuits there are that you would
15 say are highly loaded that operators might
16 experience problems?

17 A I don't.

18 Q Okay. Would it be relevant to know
19 whether those are circuits with significant
20 wholesale generations rather than just NEM
21 generation?

22 A I'm trying to understand your line
23 of reasoning. Maybe you can clarify the
24 distinction that you're trying to make here?

25 Q You know, I'm curious. My
26 distinction is that wholesale generators tend
27 to be 5 to 20 megawatts versus small systems
28 and can cause a much bigger change. And I

1 don't want to start testifying. I mean, I've
2 seen evidence that problems are associated
3 with potential wholesale generation. So I'm
4 curious.

5 A Generation is generation. There's
6 plenty of instances where we have megawatts
7 of generation attributed to photovoltaic by
8 itself on a particular theater. We would
9 probably need to do a further analysis to
10 tell you exactly how many megawatts per
11 theater photovoltaic is on a particular line
12 versus wholesale distribution tariff-type of
13 distributed generation resources.

14 Q And PG&E already has all that data
15 as part of distributed resources planning for
16 the proceeding, doesn't it? Of how much NEM
17 versus wholesale generations is on every
18 circuit?

19 A We do. I just don't have that
20 information off the top of my head.

21 Q But have you done any analysis to
22 look at what circuits potentially have had
23 any problems with service restoration because
24 of it?

25 A I personally have not.

26 Q And has PG&E -- I'm really curious
27 as to why PG&E hasn't done any analysis to
28 figure out is this a large-scale problem? Or

1 this just a problem that's very localized?

2 A Well, so here's how I would answer
3 that question is that irregardless of whether
4 -- regardless of whether it's localized or
5 not today, if you take a look at the PV
6 generation forecasts that are currently in
7 the forecasts that are produced by all of the
8 IOUs, if you take a look at Assembly Bill 100
9 that is looking to get 100 percent PV -- I'm
10 sorry -- 100 percent renewables for all
11 generation, if you take a look at the total
12 net zero bill that was passed that enforces
13 that all new construction requires that they
14 offset all of their load with PV, it doesn't
15 require a major study to see how this is
16 going to be a problem both now and into the
17 future.

18 Q In your example you gave of the
19 problem of mask loading and unplanned
20 outages, how would ADMS help in that
21 situation?

22 A ADMS has the capability by using
23 the nameplate capabilities of the DER to
24 automatically calculate what type of net load
25 -- I am sorry gross load there will be based
26 upon the perceived amount of generation that
27 forecasts all of those nameplate values to be
28 on -- I'll use PV generating as an example --

1 into the system.

2 It can then calculate what is the
3 gross load for line sections behind a line
4 closure, behind the circuit breaker, and will
5 inform the operator whether they have
6 potential cold-load pickup issues prior to
7 performing any restoration that will allow
8 them to make better decisions on how to
9 restore that circuit.

10 ALJ LIRAG: Can you wrap up the
11 questioning on this issue, Mr. Hawiger?

12 MR. HAWIGER: Yes, sir.

13 Q So the issue is that you need to
14 know how much generation is located behind
15 each meter, the gross generation, to be able
16 to know what to do for restoration?

17 A In realtime.

18 Q And why realtime? Why can't PG&E
19 -- assume you can calculate the amount of
20 loads that would be generated in about 10
21 minutes?

22 A In about 10 minutes?

23 Q Five to ten minutes let's say. Why
24 would that not be sufficient?

25 A That's what the ADMS System does.
26 It actually calculates the -- that's what it
27 does. It calculates the gross load and
28 the -- I'm confused.

1 Q Okay. Let me put it this way. I
2 am sorry to speak over you.

3 PG&E already has a database of all
4 the interconnected generation systems;
5 correct?

6 A They do.

7 Q With the nameplate capacity of the
8 system?

9 A They do.

10 Q Theoretically let's assume that the
11 distribution operator had access -- well, did
12 the distribution operators have access to
13 that database?

14 A I'm sorry. Was that a question to
15 me?

16 Q Yes, sir.

17 A Okay. The distribution operators
18 do not have access to -- they might. I don't
19 know. We don't necessarily use that.

20 Q Would it not be possible since --
21 that database contains information about the
22 location and nameplate capacity of each
23 interconnected system; correct?

24 A It does.

25 Q Wouldn't it be possible from the
26 database to quickly calculate at least what
27 would be the maximum generation on whatever
28 feeder is out given the locations of those

1 systems?

2 A You could calculate it probably to
3 the circuit breaker level for that entire
4 theater. But to be able to do that by line
5 section or by protected device, the mask load
6 issue isn't only for the entire theater at
7 the circuit breaker level where you would
8 take a look at Silverado 1102 and calculate
9 all of the masked load for that potential for
10 all the way back to the breaker. You would
11 need to take a look at it by line section
12 and, aggregate it up to a particular line
13 closure.

14 To be able to run that analysis
15 within 5 to 10 minutes would be -- you would
16 need a system to do that. That's exactly why
17 we're asking the ADMS system to do that for
18 us.

19 ALJ LIRAG: Mr. Gallo. Start thinking
20 of redirect questions.

21 Maybe a couple more questions,
22 Mr. Hawiger.

23 BY MR. HAWIGER:

24 Q Let me ask you to turn in your
25 rebuttal to answer 38. I am sorry. That's
26 not the right answer. Scratch that.

27 In answer 48 in your testimony, you
28 state that, "ADMS is an industry standard."

1 Is that correct?

2 A That is correct.

3 Q And PG&E has benchmarked ADMS with
4 26 other utilities; correct?

5 A Those utilities have been provided
6 in the data request, yeah.

7 Q What does that mean that it's
8 benchmarked against those other utilities?

9 A Those utilities were probably
10 discussed with in terms of their ADMS
11 implementation plans. I haven't been a part
12 of the actual benchmarking exercise. I'm not
13 exactly sure what activities were performed
14 when they benchmarked across those 26
15 utilities to ask them about their ADMS
16 implementation.

17 Q Do you know how many of those 26
18 utilities have actually implemented ADMS?

19 A I don't have that information on
20 the top of my head.

21 Q You don't know if any of those have
22 actually realized the benefits forecast of
23 ADMS?

24 A I don't have any of that
25 information.

26 ALJ LIRAG: I'm going to switch to Mr.
27 Gallo first to let him get off any redirect
28 questions.

1 REDIRECT EXAMINATION

2 BY MR. GALLO:

3 Q I just have a single question, your
4 Honor. Mr. Nakayama, could you turn to
5 page 19-32 of your rebuttal?

6 WITNESS NAKAYAMA: Okay.

7 Q Mr. Hawiger was asking you about
8 the cost to replace RT-SCADA and the two
9 things you mentioned in your prior testimony
10 were the SCADA point-to-point testing and
11 SCADA display migration subcomponents of the
12 ADMS project forecast; is that correct?

13 A That is correct.

14 Q Could you look at line 9 of your
15 testimony?

16 A Yes.

17 Q Do you see where it says that in
18 addition to those two things, you would have
19 to consider part of the SCADA OMS DMS line of
20 the ADMS forecast?

21 A That's correct.

22 Q Is that accurate?

23 A That is accurate.

24 MR. GALLO: Thank you.

25 ALJ LIRAG: Mr. Hawiger, a couple more
26 questions. Maybe two more questions.
27 Whether it's re-cross or cross.

28 MR. HAWIGER: I think there's nothing I

1 think I could do in two questions, your
2 Honor.

3 ALJ LIRAG: Is there a move to admit
4 Exhibits 118 through 120 into the record from
5 Mr. Hawiger?

6 MR. HAWIGER: So moved, your Honor.

7 ALJ LIRAG: Any objections?

8 MR. GALLO: No, Your Honor.

9 ALJ LIRAG: Exhibit 118, 119, and 120
10 are received into the record.

11 (Exhibit No. 118 was received into
12 evidence.)

13 (Exhibit No. 119 was received into
14 evidence.)

15 (Exhibit No. 120 was received into
16 evidence.)

17 ALJ LIRAG: Thank you, Mr. Nakayama,
18 Mr. Petrakis, and Mr. Strasburger.

19 It was probably easier than your
20 very busy cybersecurity job seeing as
21 Mr. Nakayama handled most of the questions.

22 All right. So tomorrow we'll
23 continue with the witnesses that are listed
24 on board. I won't name them. We'll take a
25 recess and reconvene tomorrow at 9:30. We'll
26 also address some of the pending issues that
27 we have.

28 Off the record.

(Off the record.)]

1 (Whereupon, at the hour of 4:13 p.m.
2 this matter having been continued to
3 9:30 a.m. October 3, 2019 at
4 San Francisco, California, the
5 Commission then adjourned.)

6 * * * * *


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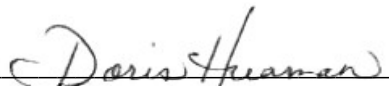
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