



0000104356

1 BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION
2 LINE SITING COMMITTEE

3 IN THE MATTER OF THE APPLICATION)
 4 OF STARWOOD SOLAR I, L.L.C., IN)
 5 CONFORMANCE WITH THE REQUIREMENTS) Docket No.
 6 OF ARIZONA REVISED STATUTES) L-00000MM-09-0446-00150
 7 §§ 40-360, et seq., FOR A)
 8 CERTIFICATE OF ENVIRONMENTAL) Case No. 150
 9 COMPATIBILITY AUTHORIZING)
 10 CONSTRUCTION OF A 290 TO 365)
 11 MEGAWATT SOLAR THERMAL POWER)
 12 PROJECT AND A 500kv TRANSMISSION)
 13 LINE ORIGINATING AT THE PLANNED)
 14 STARWOOD SOLAR I SUBSTATION TO THE)
 15 PLANNED AND PERMITTED DELANY)
 16 SUBSTATION AND INCLUDING A 500kv)
 17 TRANSMISSION LINE FROM THE)
 18 PROPOSED STARWOOD SOLAR I)
 19 SUBSTATION TO THE EXISTING)
 20 HARQUAHALA GENERATING STATION)
 21 SWITCHYARD IN MARICOPA COUNTY,) **EVIDENTIARY HEARING/**
 22 ARIZONA.) **PUBLIC COMMENT**

RECEIVED
 2009 OCT 29 P 2:44
 THE CORP. CLERK
 DOCKET OFFICE

23 At: Litchfield Park, Arizona
 24 Date: October 26, 2009
 25 Filed: October 29, 2009

REPORTER'S TRANSCRIPT OF PROCEEDINGS

VOLUME I
(Pages 1 through 236)

Arizona Corporation Commission
DOCKETED
 OCT 29 2009

DOCKETED BY

ARIZONA REPORTING SERVICE, INC.
 Court Reporting
 Suite 502
 2200 North Central Avenue
 Phoenix, Arizona 85004-1481

By: MICHELE E. BALMER
 Certified Reporter No. 50489

26 Prepared for:
 27 **SITING COMMITTEE**

ORIGINAL

**FOR
INTERNAL
&
INTERAGENCY
USE
ONLY**

Pursuant to the contract with Arizona Reporting Service all transcripts are available electronically for internal agency use only.

Do not copy, forward or transmit outside the Arizona Corporation Commission.

	Page
1	
2 PUBLIC COMMENT	25
3 EVENING PUBLIC COMMENT	230
4	
5	
6	INDEX TO EXAMINATIONS
7 WITNESSES	PAGE
8 BRAD NORDHOLM	
9 Direct Examination by Mr. Sundlof	43
Examination by Member Eberhart	48
10 Examination by Chairman Foreman	50
Examination by Member Youle	55
11 Further Examination by Chairman Foreman	57
Direct Examination Continued by Mr. Sundlof	59
12 Further Examination by Chairman Foreman	62
Further Examination by Member Eberhart	64
13 Examination by Member Wong	67
Further Examination by Chairman Foreman	76
14	
15 RICHARD WEISS	
16 Direct Examination by Mr. Sundlof	85
Examination by Chairman Foreman	88
17 Examination by Member Palmer	97
Further Examination by Chairman Foreman	101
18 Examination by Member Mundell	103
Examination by Member Rasmussen	106
19 Examination by Member Houtz	108
Cross-Examination by Mr. Johnson	113
20	
21 JENNIFER FROWNFELTER	
22 Direct Examination by Mr. Sundlof	115
Examination by Chairman Foreman	124
23 Examination by Member Eberhart	126
Examination by Member Mundell	135
24 Direct Examination Continued by Mr. Sundlof	138
Further Examination by Chairman Foreman	139
25 Further Examination by Member Mundell	147

1 INDEX TO EXAMINATIONS (Cont'd)

2 WITNESSES PAGE

3 RICHARD HENRY

4	Direct Examination by Mr. Sundlof	150
	Examination by Member Houtz	160
5	Examination by Member Eberhart	169
	Examination by Member Mundell	174
6	Examination by Member Wong	179

7

8 JERRY SMITH

8	Direct Examination by Mr. Sundlof	189
9	Examination by Chairman Foreman	192
	Examination by Member Eberhart	198
10	Examination by Member Palmer	202
	Further Examination by Member Eberhart	206
11	Examination by Member Wong	213
	Further Examination by Chairman Foreman	217
12	Further Examination by Member Palmer	223
	Further Examination by Member Eberhart	225

13

14

15 INDEX TO EXHIBITS

16	NO.	DESCRIPTION	IDENTIFIED	ADMITTED
17	STW-1	Starwood application for CEC	85	105
18	STW-2	Starwood amendment to application for CEC	85	105
19	STW-3	Placemat - project map	87	105
20	STW-4	Placemat - location overview	36	105
21	STW-6	Hearing notice signs (location map, photos)	117	138
22	STW-7	Hearing notice affidavit of publication	117	138
23	STW-8	Brad Nordholm testimony	43	62
24				
25				

1 INDEX TO EXHIBITS (Cont'd)

2	NO.	DESCRIPTION	IDENTIFIED	ADMITTED
3	STW-9	Brad Nordholm resumé	43	62
4	STW-10	Richard Weiss testimony	85	105
5	STW-11	Richard Weiss resumé	85	105
6	STW-12	Flow diagram of 290mW configuration	--	105
7	STW-13	Placemat - duplicate of STW-3	--	105
8	STW-14	Rendering of appearance of facility	14	105
9				
10	STW-15	Photograph and dimensions of parabolic mirror	--	105
11				
12	STW-16	Photograph of APS Saguaro power plant depicting mirror appearance and scale	--	105
13				
14	STW-17	Photograph of tubes in parabolic mirror	--	105
15				
16	STW-19	Typical transmission structure	--	105
17	STW-20	Placemat - project map (zoomed in view)	--	105
18	STW-21	Transmission line routes and requested corridors	--	105
19				
20	STW-22	Jennifer Frownfelter testimony	115	138
21	STW-23	Jennifer Frownfelter resumé	115	138
22	STW-24	October 2009 newsletter	--	138
23	STW-25	Placemat - duplicate of STW-4	--	138
24	STW-26	Placemat - duplicate of STW-3	--	138
25	STW-27	Existing land use	121	138

1 INDEX TO EXHIBITS (Cont'd)

2	NO.	DESCRIPTION	IDENTIFIED	ADMITTED
3	STW-28	Aerial photograph with three house locations	122	138
4	STW-29	Photograph of House 1	--	138
5	STW-30	Photograph of House 2	--	138
6	STW-31	Photograph of House 3	--	138
7	STW-32	Future land use	--	138
8	STW-33	Supplemental letters	131	138
9	STW-34	Viewpoint location map	131	138
10	STW-35	Simulation from nearest residence	132	138
11	STW-36	Simulation from 0.5 mile away	132	138
12	STW-37	Simulation from 1.0 mile away	132	138
13	STW-38	Richard Henry testimony	151	159
14	STW-39	Richard Henry resumé	150	159
15	STW-40	Groundwater report	152	159
16	STW-41	Historical groundwater use	152	159
17	STW-42	Historical groundwater use and depth to water	152	159
18	STW-43	Total annual water use at property	152	159
19	STW-44	Predicted groundwater impacts (Model 1 and Model 2)	152	159
20	STW-45	Predicted groundwater impacts (Model 3 and Model 4)	152	159
21	STW-46	Jerry Smith testimony	189	--
22	STW-47	Jerry Smith resumé	189	--

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

INDEX TO EXHIBITS (Cont'd)

NO.	DESCRIPTION	IDENTIFIED	ADMITTED
STW-49	APS interconnection map	191	--
STW-50	Economic study	104	105
STW-51	Additional CEC conditions	159	--

1 BE REMEMBERED that the above-entitled matter came
2 on regularly to be heard before the Arizona Power Plant
3 and Transmission Line Siting Committee, at the Wigwam Golf
4 Resort & Spa, 300 Wigwam Boulevard, Litchfield Park,
5 Arizona, commencing at 9:35 a.m. on the 26th day of
6 October, 2009.

7

8 BEFORE: JOHN FOREMAN, Committee Chairman

9 DAVID L. EBERHART, Arizona Corporation
 Commission

10 PAUL W. RASMUSSEN, Department of Environmental
 Quality

11 JESSICA YOULE, Department of Commerce
12 GREGG HOUTZ, Arizona Department of Water
 Resources

13 JEFF McGUIRE, Appointed Member

14 MIKE WHALEN, Appointed Member

15 BILL MUNDELL, Appointed Member

16 MIKE PALMER, Appointed Member

17 BARRY WONG, Appointed Member

18 APPEARANCES:

19 For Starwood Solar I, LLC:

20 JENNINGS, STROUSS & SALMON, P.L.C.

21 By Mr. Kenneth C. Sundlof, Jr.

22 The Collier Center, 11th Floor

23 201 East Washington Street

24 Phoenix, Arizona 85004

25 For W Harquahala, LLC:

 Mr. Lee Allen Johnson, Attorney at Law

 1121 West Warner Road, Suite 109

 Tempe, Arizona 85284

26

MICHELE E. BALMER

Certified Reporter No. 50489

1 CHMN. FOREMAN: We have some of our members here
2 now, so let's go on the record.

3 My name is John Foreman. I'm Chairman of the
4 Arizona Power Plant and Transmission Line Siting
5 Committee. This is a meeting of the Committee and a
6 hearing on the application of Starwood Solar I for a
7 Certificate of Environmental Compatibility to construct a
8 solar generator in western Maricopa County.

9 I think I would like to start by asking the
10 Applicant to identify himself for the record, or counsel
11 identify himself for the record.

12 MR. SUNDLOF: Thank you, Your Honor, Committee
13 members. I'm Kenneth Sundlof with Jennings, Strouss &
14 Salmon, and I am representing the Applicant, Starwood
15 Solar I.

16 CHMN. FOREMAN: Now, we had no more parties in
17 this matter until quite late in the proceedings. We
18 received last week a submission dated October 16, 2009,
19 requesting intervention. And I understand counsel is
20 here, and I would like for counsel to identify himself and
21 the party whom he represents.

22 MR. JOHNSON: Thank you, Your Honor. My name is
23 Lee Allen Johnson. I'm general counsel to W Harquahala,
24 LLC, and that is who I am representing here today. With
25 me is Jerry Witt, the manager of W Harquahala.

1 CHMN. FOREMAN: All right. You had filed a
2 request to intervene. As I indicated to you before the
3 hearing, that's a decision -- the decision as to whether a
4 party may intervene, for private parties who are not
5 granted the right of intervention, the decision is made by
6 the Committee. So if you could, please, I would
7 appreciate it if you would just sketch your party's
8 interest in the proceeding.

9 MR. JOHNSON: Thank you. W Harquahala owns over
10 17,000 acres of agricultural land located in Harquahala
11 Valley. The land is all situated within the Harquahala
12 Valley Irrigation District. We are the largest private
13 landowner in the district.

14 The Harquahala Valley, as I imagine most of you
15 are aware, is a unique area of the state of Arizona. It's
16 been designated as an irrigation nonexpansion area by the
17 Arizona Department of Water Resources. And it is one of
18 the few areas of the State of Arizona in which groundwater
19 is eligible, under certain circumstances, to be
20 transported from the basin where it's located into active
21 management areas of the state. So this is a very unique
22 resource to the state of Arizona. It's of concern not
23 just to the farmers in the area, but also to the water
24 community as a whole.

25 We have over \$100 million invested in the

1 acquisition of the real estate. We have spent upwards of
2 a million dollars on top of that to investigate and
3 quantify and define the groundwater resource of the basin
4 for future uses, as well as continued agricultural use and
5 future development of the valley.

6 And as an investor with this kind of a position,
7 it's obviously of great concern to us that this resource
8 be protected and be properly managed. And it's for those
9 interests, given the quantity of groundwater that will be
10 devoted to the power plant here, it was our interest in
11 seeing that that resource gets handled properly,
12 appropriately protected, and so we filed our motion to
13 intervene.

14 We have been in conversation with the Applicant
15 since then, actually before and since then, about our
16 interest and what we would like to see as part of the
17 conditions for the granting of the CEC.

18 We have worked out an agreed upon set of
19 conditions that the Applicant has filed as Exhibit 51 this
20 morning, and we would support the application with the
21 inclusion of these conditions that the Applicant has now
22 agreed to.

23 CHMN. FOREMAN: Do you then plan to take an
24 active part in the hearing if the conditions agreed to are
25 accepted by the Committee?

1 MR. JOHNSON: No, we do not.

2 CHMN. FOREMAN: How close is your land to the
3 land that is designated for the power generator in this
4 case?

5 MR. JOHNSON: It's within a mile.

6 CHMN. FOREMAN: Is it within the same aquifer?

7 MR. JOHNSON: Yes, it is.

8 CHMN. FOREMAN: Any Committee member have any
9 question about the appropriateness of intervention in this
10 matter? I have no recommendation one way or the other,
11 but we will need a motion.

12 Member Whalen.

13 MEMBER WHALEN: Move for approval.

14 CHMN. FOREMAN: Okay.

15 MEMBER YOULE: Second.

16 CHMN. FOREMAN: Okay. We've had a motion to
17 approve the intervention. It's been seconded. Is there
18 any discussion?

19 (No response.)

20 CHMN. FOREMAN: All in favor signify by saying
21 aye.

22 (A chorus of ayes.)

23 CHMN. FOREMAN: Opposed, no.

24 (No response.)

25 CHMN. FOREMAN: The ayes have it unanimously.

1 The motion to intervene is granted.

2 I assume that you're aware of the procedural
3 order that I had previously filed in this matter.

4 MR. JOHNSON: Yes.

5 CHMN. FOREMAN: And it requires certain notice to
6 be given in advance for the calling of witnesses and the
7 offering of exhibits. You're aware of that?

8 MR. JOHNSON: Yes.

9 CHMN. FOREMAN: I have not received any witness
10 summaries or proffered exhibits from you, so may I infer
11 from that that you do not plan to call witnesses or
12 present exhibits?

13 MR. JOHNSON: That is correct. We do not plan to
14 put on any testimony or offer any exhibits.

15 CHMN. FOREMAN: All right. Very good.

16 And I guess I have asked earlier whether the
17 Applicant had a position on the intervention. I'm
18 assuming or inferring from the agreement that the
19 Applicant did not. Would that be fair?

20 MR. SUNDLOF: That is correct, Your Honor.

21 CHMN. FOREMAN: All right. Very good. We have
22 that matter dealt with.

23 I think what I would like to do at this point is
24 ask the Applicant to make an opening statement. We have
25 several people who have indicated an interest in making

1 public comment. Do we have a location where those folks
2 can go, or just have them come up here where the witnesses
3 are at? All right.

4 MR. SUNDLOF: I think the plan is to have them go
5 to the witness table, yes.

6 CHMN. FOREMAN: All right. So I would like to
7 have the public comment after the opening statements so
8 that everybody can be clear as to what the application is
9 about.

10 And if -- let's see. Mr. Johnson, how should I
11 refer to your party? W Harquahala?

12 MR. JOHNSON: That's correct.

13 CHMN. FOREMAN: All right. If W Harquahala has
14 any opening statement or anything to add after the opening
15 statement of the Applicant, I'll ask you to make your
16 brief comment then.

17 MEMBER HOUTZ: Mr. Chairman?

18 CHMN. FOREMAN: Member Houtz.

19 MEMBER HOUTZ: Just a quick question. You said
20 you had no motions to intervene. Mr. Hogan is listed on
21 the service list. Did Mr. Hogan intervene?

22 CHMN. FOREMAN: Mr. Hogan indicated that he might
23 intervene at the pre-application --

24 MEMBER HOUTZ: But he did not at that time?

25 CHMN. FOREMAN: But he did not file a motion to

1 intervene. And he would have done so on behalf of the
2 Sierra Club, and I believe Ms. Bahr is here for the Sierra
3 Club and will comment.

4 MEMBER HOUTZ: Thank you for the clarification.

5 CHMN. FOREMAN: Okay. It's good to have that on
6 the record.

7 All right. Counsel, would you sketch for us the
8 project.

9 MR. SUNDLOF: Good morning, members of the
10 Committee, parties, members of the public. I'm Kenneth
11 Sundlof with Jennings, Strouss & Salmon, and I represent
12 the Applicant.

13 And I am excited to present to you the Starwood
14 Solar I project. Exhibit STW-14 is an artist's simulation
15 of what this project would look like. If it were existing
16 today, it would be the largest solar project in the world.
17 It consists of 3,500 structures containing multiple
18 mirrors that track the sun's energy to drive two power
19 steam turbines or to heat molten salt so that we have a
20 facility and a resource that is reliable and produces
21 clean energy.

22 This project will be located 75 miles west of
23 Phoenix, actually quite a bit west of where we are today.
24 It will be at the theoretical intersection of Indian
25 School Road and 491st Avenue, although those are just

1 simply section lines. They are not actual roads.

2 The project is located in an area of agriculture
3 and undeveloped area. There is no city. It's an
4 unincorporated area of Maricopa County, and it has very
5 little development other than agriculture in the area.

6 It will sit on three sections of land, which is
7 approximately 1,900 acres, and the output of the plant
8 will be 290 megawatts.

9 I have a theme for this case, and the theme is
10 reality. And you will see this theme repeated throughout
11 the presentations. As I mentioned, on the screen,
12 Exhibit STW-14, is a simulation of what this plant would
13 look like, and you have seen other plants like this.
14 Actually, several of them have been presented to you.
15 These are thermal solar projects.

16 But what is interesting is that no project like
17 this is yet to be built, and that is because it is very
18 difficult to build these projects. There is a high risk
19 profile. The project will cost up close to \$2 billion to
20 build. It is difficult to finance. There are
21 construction risks. A project of this scope has never
22 been built. And we are realistic about the difficulties,
23 and we will talk about that through the testimony.

24 The key is that we want to be able to bring in
25 people that can make these kinds of projects a reality.

1 The Applicant is Starwood Solar I, which is owned by
2 Starwood Energy, which is in turn affiliated with Starwood
3 Capital, a large organization. Starwood Energy is very
4 excited about Arizona. It has built other utility
5 projects, other projects on this scale, both transmission
6 and generation, and is very much interested in becoming a
7 part of the Arizona energy landscape and is very realistic
8 about this project. I will introduce to you the different
9 partners to be able to demonstrate to you that we have a
10 very solid organization that's serious about building the
11 project.

12 There will be bumps in the road, and there has
13 been a bump in the road. You probably all heard that
14 there was a PPA with Arizona Public Service Corporation,
15 and that is not existing at the moment. That doesn't mean
16 that Arizona Public Service Corporation, or company, or
17 other utilities are not interested. They're very
18 interested.

19 This project will meet a need. There is a
20 tremendous unmet need for renewable energy, both through
21 the renewable portfolio standards and generally, because
22 utilities want to move away from fossil fuel and toward
23 clean solar energy. This project, with its strong
24 participants, will meet that need.

25 We will present our case through five witnesses,

1 and each of those witnesses has filed a prefiled
2 testimony, and we've provided all of the exhibits to the
3 Committee members.

4 The first witness will be Brad Nordholm. Brad is
5 the chief executive officer of Starwood Energy. Brad
6 specifically asked for the opportunity to be able to come
7 and testify and address this Committee, because he wants
8 to personally tell you how excited Starwood Energy is
9 about the opportunity in Arizona and how serious Starwood
10 Energy is in making this a reality.

11 Mr. Nordholm will talk a little bit about some of
12 the risks that are inherent in this project, and he will
13 talk to you a little bit about the experience and the
14 dedication and the project team that Starwood Energy is
15 presenting to you with this project.

16 The second witness will be Rich Weiss. Rich
17 Weiss is the project manager. Rich Weiss is the
18 make-it-happen guy, make it happen on time and on budget.
19 You see his resumé marked as an exhibit, and he has
20 significant experience in large-scale construction
21 projects and utility-scale energy projects.

22 Mr. Weiss will tell you that he's as excited as
23 all of us, excited about the opportunity to build this
24 project. Mr. Weiss will go through the nuts and bolts of
25 how this works. He will talk about the configuration of

1 the facilities. He'll talk about the solar collection
2 facilities. He'll talk about the molten salt. He'll talk
3 about the steam turbines and the cooling facilities. And
4 he'll talk about the transmission that will interconnect
5 this project to the grid through the APS Delany
6 substation.

7 The third witness will be Jennifer Frownfelter
8 from URS, and you all know Jennifer. She's testified
9 before you before. The scope of the URS engagement is
10 three things. The public process, the environmental work,
11 and, of course, preparing the application for this
12 Committee.

13 Interesting that this project -- and you can see
14 it from your placemats that give you a locational view of
15 the project and also a closer aerial view of the
16 topography and the land uses. You can see that this is
17 located in an area with -- as I mentioned, unincorporated,
18 not a lot of development, yet URS conducted a very robust
19 public process. It's interesting that at the open house
20 there were 80 participants, which is high for even urban
21 areas and it's a tremendous turnout. Most of the people
22 were interested in the development opportunities and,
23 frankly, jobs or construction work, but there is great
24 interest in the project.

25 You will hear from Ms. Frownfelter, and you see

1 in her testimony, that Starwood and URS has gone out of
2 its way to contact every conceivable agency or interest
3 that might have an interest in this project, and there
4 have been no indications of opposition at all. This goes
5 from the county, to SHPO, Game & Fish, the tribes, the
6 local irrigation districts, local landowners, local
7 homeowners. It's very remarkable that nobody has at all
8 objected and everybody is very supportive, or at least
9 doesn't object to the construction of this project.

10 Ms. Frownfelter will also talk about the
11 environmental aspects. And as you can see from your
12 placemats, this is disturbed agricultural land. The
13 transmission lines that are proposed are only four miles
14 long, and they go along undeveloped land. There really
15 isn't a lot of issues out there with either cultural or
16 environmental, yet URS conducted a complete review, as is
17 its practice, and will be able to report to you that this
18 project is fully compatible with the environment.

19 Our next witness will be Richard Henry. And
20 Richard Henry is a hydrologist and he is with URS, and he
21 will explain the water use in this project. The project
22 sits on land that is right now being used for farming.
23 It's being used for melon production and has been used
24 historically for farming. It uses a combination of
25 groundwater and Central Arizona Project water.

1 Mr. Henry will explain to you -- and explains in
2 his direct testimony -- how the water use in this plant
3 will be significantly less than the historic use. The
4 water use is projected to be 2,300 acre-feet a year, yet
5 historic use is two, three times that amount, depending on
6 the year. And so while this project uses water, the
7 overall effect will be to save water.

8 Mr. Henry will talk about the fact that this is
9 in the irrigation nonexpansion area, and that was already
10 mentioned by Mr. Johnson. He will talk about what that
11 means. He will talk about industrial uses. And he will
12 talk about his studies and other studies with respect to
13 the effect of this use on the aquifer and on groundwater
14 quality. Mr. Henry will conclude that this reduced use
15 will have no appreciable effect on the aquifer and will
16 have no effect on groundwater quality.

17 Finally, our last witness is Mr. Jerry Smith, and
18 you all remember Jerry Smith. He's testified 40 times
19 before this Committee. He is now with the transmission
20 consulting firm K.R. Saline, and Mr. Smith and K.R. Saline
21 have two scopes of work here. One is to do an exact
22 analysis of interconnecting this plant to the transmission
23 system, and the other is to assist Starwood Solar I in
24 walking through the process for interconnection. And
25 Mr. Smith will talk about both of those.

1 He will conclude that if you look at this plant
2 on a stand-alone basis, it can safely interconnect with
3 the grid. It proposes to connect at the Delany
4 substation. Again, you may remember that you sited that
5 in one of the APS siting cases. It is not yet built, but
6 APS has agreed to at least build the line from Delany to
7 Palo Verde so that this project will be able to
8 interconnect to the grid, and perhaps Delany will be built
9 or perhaps it will be built later. It's not really
10 relevant to interconnecting this one project. Mr. Smith
11 will testify that this project may be interconnected
12 safely.

13 Mr. Smith will, though, tell you that there are a
14 lot of interconnection requests out there, thousands of
15 megawatts, and at some point the Palo Verde system will
16 not be able to handle all of those with its current
17 configuration and there will be a need for new planned
18 transmission. That is a future issue. It won't affect
19 this project if we look at it on a stand-alone basis, but
20 it could be -- depending on other interconnectors, there
21 could be some need for additional transmission. Mr. Smith
22 will explain to you that this project will not be able to
23 interconnect until the needed transmission is in place,
24 and so that the interconnection should not be an issue to
25 this Committee.

1 Finally, we have one intervenor, and you have
2 just heard from Mr. Johnson. It's W Harquahala, who is a
3 large landowner in the area. We have worked with
4 Mr. Johnson in trying to understand his circumstances and
5 trying to resolve them, and I am pleased to tell you that
6 we will jointly propose to you one replacement condition
7 and one new condition in our proposed CEC, and they both
8 relate to water use. And basically they relate to
9 notification, and they relate to a limit on overall water
10 use for the project, which will be 3,000 acre-feet per
11 year. With those, with us jointly proposing those two
12 conditions to you, Mr. Johnson and his client,
13 W Harquahala, have indicated that they support this
14 project.

15 In conclusion, we are excited to present this
16 case to you. It is a very cool project for Arizona.
17 We've got some really strong participants. This is a
18 project that will happen. And the good news is that since
19 we have prefiled our testimony and we have one intervenor
20 whose issues have been resolved, I don't expect this case
21 to go eight days. Thank you very much.

22 CHMN. FOREMAN: Counsel, a couple of questions.

23 MR. SUNDLOF: Yes.

24 CHMN. FOREMAN: You mentioned the fact that the
25 power purchase agreement, I think you said, doesn't exist

1 at the moment. Are you going to address the status of
2 power purchase agreements for the generator during the
3 testimony?

4 MR. SUNDLOF: Yes, Your Honor. The APS power
5 purchase agreement was cancelled, and there is no power
6 purchase agreement at the moment. But Mr. Nordholm will
7 talk about the fact, and Mr. Weiss, that there is a
8 tremendous demand for this facility, and that there's
9 still discussions going on with APS.

10 CHMN. FOREMAN: And was the agreement cancelled
11 with APS at -- and I notice counsel for APS is here -- at
12 APS's request or at Starwood's request? Will we learn
13 that?

14 MR. SUNDLOF: Yes, you will. Your Honor, it was
15 at Starwood's request.

16 CHMN. FOREMAN: I know that from reading
17 transcripts of deliberations by the Commission that
18 they're interested in these issues. And in order to give
19 them a record from which they may consider these issues, I
20 think it would be appropriate to address as much of the
21 background there is, as appropriate, under the
22 circumstances. And I realize that there are reasons why
23 going into all of the details may not be appropriate.

24 I would like for you to share with the Committee
25 what you advised me at our prehearing conference, which I

1 believe is that Starwood is now anticipating that it will
2 build a project in stages; is that correct?

3 MR. SUNDLOF: Yes, Your Honor. I meant to add
4 that into my opening. The risk is very difficult to build
5 these plants, and Mr. Nordholm will talk about that.

6 In order to mitigate the risk, Starwood asks for
7 the opportunity to build this plant in two stages, each of
8 them would be 145 megawatts, to produce a total output of
9 290. Just simply by breaking the project in half, it
10 would considerably change the risk profile of the project.
11 And so Starwood would like that for an option, and,
12 because of that option, Starwood asks for a seven-year
13 term on the CEC.

14 CHMN. FOREMAN: That was the next question I
15 wanted to ask you. That will be addressed by testimony as
16 we go?

17 MR. SUNDLOF: Yes. And Mr. Nordholm is here, and
18 I'm glad that he's here, because he can answer your
19 questions about what happened with the APS PPA, and that's
20 one of the main reasons he's here.

21 CHMN. FOREMAN: Good. Thank you. I just wanted
22 to make sure that we got that on the record.

23 MEMBER HOUTZ: Mr. Chairman, could I inquire?

24 CHMN. FOREMAN: Member Houtz.

25 MEMBER HOUTZ: Mr. Sundlof, will one of the

1 witnesses address the varying -- how do I want to say
2 this -- Mr. Martori's various plans for this same land?
3 There is a master-planned community for this exact same
4 land on file with the department, and I would like to have
5 someone address the competing uses of this land.

6 MR. SUNDLOF: Thank you, Mr. Houtz. I will make
7 sure that somebody touches on that subject.

8 CHMN. FOREMAN: Very good. Thank you, Counsel.

9 Mr. Johnson, did you have anything that you
10 wanted to add?

11 MR. JOHNSON: I would just simply join
12 Mr. Sundlof's remarks about we have worked out an agreed
13 upon set of conditions that address the issues that
14 prompted our intervention. And I think it speaks very
15 well of Starwood in its application here that they were
16 willing to meet with us, to hear our concerns, and to
17 address them in a thoughtful manner. And so we do join in
18 supporting this application.

19 CHMN. FOREMAN: All right. Very good.

20 Now, at this point I think it might be
21 appropriate for us to hear from some of the folks who have
22 asked to make public comment. Again, we will have a
23 public comment session this evening at 6:00 p.m. for those
24 who have a conflict, but I thought that we would go ahead
25 and have some public comment today. And it looks like

1 this morning would be the preferable time for some of our
2 folks.

3 What I would like, for those of you who have
4 filled out one of the public comment forms, when I call
5 your name, if you could just come over here to this desk
6 and chair over here on the other side, and then give us
7 your name and who you represent, if you represent someone,
8 and tell us what your position is.

9 The first person that had contacted us about
10 public comment was the Sierra Club. And Sandy Bahr is
11 here, as I understand it. So Ms. Bahr, if you could step
12 over there.

13 Now, pull the microphone in, and you have to
14 touch the little bar there to make the light go on. Tell
15 us your name and whom you represent, and what it is you
16 would like for the Committee to do.

17 MS. BAHR: Okay. Yes, good morning. My name is
18 Sandy Bahr. I'm the chapter director for the Sierra
19 Club's Grand Canyon chapter. That's the Arizona chapter.

20 And this morning we are supporting the
21 Certificate of Environmental Compatibility for Starwood
22 Solar I. The Sierra Club's mission is to explore, enjoy,
23 and protect the wild places of the earth, to practice and
24 promote the responsible use of the earth's ecosystems and
25 resources, and to educate and enlist humanity to protect

1 and restore the quality of the natural and human
2 environments.

3 The Grand Canyon chapter is one of more than 60
4 Sierra Club chapters throughout the country. Our chapter
5 was formed in 1966, and we have approximately 12,000
6 members in Arizona. The Sierra Club has a significant
7 interest in this proposed project. One of our key
8 conservation priorities is promoting smart energy
9 solutions to global warming.

10 We strongly support investing in renewable energy
11 resources such as solar and believe that it's a key
12 component of a balanced energy plan that will help us to
13 reduce greenhouse gas emissions in order to address global
14 warming.

15 As I said, we're supportive of granting the
16 Certificate of Environmental Compatibility. The reason we
17 are is we think, again, the generation of renewable energy
18 is essential to addressing the key issue, the key
19 environmental issue we all face as a state, as a country
20 and throughout the world, and, again, that is global
21 warming.

22 Never before have we faced such a significant or
23 worldwide environmental issue. It's clear that to protect
24 our communities, our wild lands and wildlife, we must
25 quickly transition away from fossil fuels to clean

1 renewable energy and energy efficiency programs. We must
2 eliminate energy waste, moderate demand through energy
3 efficiency, conservation, and demand-side management
4 practices, and then rapidly develop and deploy clean
5 renewable energy technologies, including at the utility
6 scale.

7 I think this is something you have heard before,
8 but I think it bears repeating. Arizona's greenhouse gas
9 emissions are forecast to increase 140 percent from 1990
10 to 2020, and that's according to the Climate Change Action
11 Plan, dated August 2006. The best scientists tell us we
12 must reduce global warming pollution 80 percent by 2050 to
13 avoid the worst impacts of global climate change.

14 Here in Arizona, the greenhouse gas emissions
15 from electricity are about 30 percent -- 38 percent,
16 rather, of our overall greenhouse gas emissions. So it's
17 imperative that we seek ways to both stop the growth,
18 manage emissions, as well as reducing overall emissions.
19 We can't do that effectively without really investing and
20 promoting renewable energy resources.

21 Arizona is an ideal place for solar generated
22 electricity. All we have to do is look around and see the
23 sunshine. But if you look at the maps, the west part of
24 Maricopa County has definitely high solar insolation. We
25 strongly support doing things on rooftops, distributed

1 solar energy, but we also think that concentrating solar
2 power on a utility scale must be a component of Arizona's
3 clean energy future.

4 There are no significant greenhouse gas emissions
5 associated with it, which is really the key factor, again,
6 for our support. There are also limited emissions of
7 criteria pollutants, as well as limited emissions of
8 hazardous air pollutants. There are some emissions
9 associated with this proposed facility, including the
10 natural gas furnaces for heating the salt for the thermal
11 energy storage, as well as some hazardous air pollutants
12 from the heat transfer fluid. And I think there's also a
13 diesel generator that will emit some pollutants.

14 One question that we did have from reviewing the
15 application is it indicates that benzene emissions will be
16 removed by using activated carbon absorption. I didn't
17 see any indication of how much, and I suppose that the
18 details of that will be addressed in the air quality
19 permit, but that might be something the Applicant could
20 address in their presentation. But overall, compared to
21 any of the conventional coal or natural gas generation,
22 the emissions here are nominal.

23 Another key factor for us supporting this
24 facility, this CEC application, is we believe the site for
25 the facility is appropriate. It's on private land rather

1 than looking to public lands. It's on land that has been
2 disturbed significantly by agriculture, and land that has
3 limited habitat value for wildlife.

4 It's also on land that with the current
5 agricultural production uses a lot of water. It's not
6 close to any wilderness areas, wildlife refuges, proposed
7 wilderness areas, areas of critical environmental concern,
8 or other specially designated areas.

9 The nearest special area is the Saddle Mountain
10 special recreation management area, which is about a mile
11 away from the proposed project. We think that is an
12 adequate buffer from that area. As I mentioned earlier --
13 oh, and the nearest wilderness is about four miles away.
14 So again, a good buffer from the wilderness area.

15 This area, as I mentioned earlier, has high solar
16 insolation, and because of its current use is relatively
17 flat. So it's an ideal location for this type of solar
18 facility.

19 One of the key issues with the facility is the
20 use of water. And we are hearing increasing concerns
21 about water use relative to the concentrated solar power
22 facilities such as this in our state. The application
23 indicates about 2,313 acre-feet per year. It's not
24 something we should take lightly, and overall we should
25 continue to seek ways to reduce water use, including

1 through examining options for dry cooling or hybrid
2 cooling systems. There should be some consideration of
3 retiring irrigation rights so as to result in a long-term
4 net reduction in groundwater pumping.

5 These issues are much more significant issues
6 when you're talking about undisturbed desert lands where
7 there isn't current water use. And overall, this project,
8 again, will use much less water than the current
9 agricultural use. It's just, you know, we think that it's
10 something that needs to be looked at and considered in
11 this application.

12 Just one other comment on the facility was, in
13 reviewing it, they indicated that the processed water
14 ponds would be kept off limits to wildlife, but I didn't
15 see an indication of how that was going to be done. I was
16 hoping that they might address that in their presentation.

17 I just wanted to quickly mention the transmission
18 associated with the facility. The Sierra Club focuses on
19 several issues relative to transmission. The first
20 question relates to whether or not the transmission lines
21 are needed, and in this case I think it's clear they are.
22 If they're going to connect to something, they need some
23 transmission lines.

24 Other things that we look at are what is the
25 damage or loss of habitat for plants and wildlife,

1 including any sensitive, threatened, or endangered
2 species, both relative to construction and maintenance of
3 towers and roads. We look at things like soil erosion.
4 Are there indirect impacts for increasing access to lands
5 near power lines when they construct the roads? Will
6 there be more illegal off-road vehicle use? And,
7 obviously, cultural resource issues as well. One other
8 thing that can happen is it can promote the spread of
9 noxious weeds. So those are some things that we look at
10 relative to transmission lines.

11 Looking at those issues, we think the preferred
12 route for the transmission line from Starwood Solar I to
13 Delany substation appears to have the least impact and
14 generally is not going through sensitive wildlife habitat.
15 Although there is some desert tortoise habitat, obviously
16 care should be taken with any sensitive species such as
17 the tortoise, burrowing owls and other wildlife, and
18 likewise with cultural resources.

19 And then the connection from Starwood I to the
20 Harquahala generating station would run entirely through
21 agricultural lands, and therefore is unlikely to cross
22 sensitive wildlife habitat or cultural sites. But again,
23 consideration of the spread of noxious weeds from any kind
24 of land disturbance or off-road -- promoting off-road
25 vehicle activities should be considered.

1 I wanted to thank you for the opportunity to
2 address you this morning. We might provide some follow-up
3 comments after hearing and learning more about the
4 application through today's presentations, but overall we
5 wanted to again say that we are supportive of granting of
6 this Certificate of Environmental Compatibility. We think
7 it can help Arizona meet the Renewable Energy Standard and
8 Tariff requirements, avoid significant greenhouse gas
9 emissions, if sited appropriately has limited emissions
10 from criteria pollutants, and does use a lot less water
11 than the current land use. Thank you.

12 CHMN. FOREMAN: Thank you for coming and
13 commenting.

14 Next, Donald Begalke.

15 And again, if you would make sure that the green
16 light is on up there. And give us your full name, and
17 tell us what it is that you think we should do.

18 MR. BEGALKE: My name is Donald Gene Begalke, and
19 I'm from Phoenix area.

20 CHMN. FOREMAN: And just for the court reporter's
21 assistance, would you spell your last name, please.

22 MR. BEGALKE: B-e-g-a-l-k-e.

23 CHMN. FOREMAN: Please proceed.

24 MR. BEGALKE: This application for Starwood Solar
25 was filed in September, and yet in The Arizona Republic,

1 October 6 news article, those were reported to be
2 cancelled. Well, there are internal Commission
3 circumstances which possibly allowed the application to
4 continue. And being that Starwood's counsel and also
5 members of the Committee have already asked some questions
6 related to some of the items that I was going to talk
7 about, I'll let the Committee pursue those.

8 The PPA with APS to me is very important. A few
9 years ago, the Corporation Commission held a hearing on
10 renewable energy options, and the Arizona public turned
11 out to a standing room only hearing that probably lasted
12 longer than the Commission expected. And as a result, the
13 Commission decided on the standard that the Arizona
14 utilities would need to meet in that respect regarding any
15 type of renewable energy project filed with the
16 Commission. And I think it's very important that an
17 Arizona utility be attached, so to speak, with the
18 application. And having heard the Committee's question
19 regarding Starwood's comment, I believe the Committee will
20 pursue that effectively.

21 The concerns regarding water are always important
22 in Arizona, and I thought the amount of water for this
23 project would be great. How can Starwood decrease some of
24 that? They plan to use water to clean their solar units,
25 and there are other options like dusters and even I

1 understand there's a vacuum system available.

2 But if the Committee decides for Starwood's water
3 to include cleaning their solar units, is there a water
4 catching system once the water comes off the solar panels?
5 If so, that might be beneficial. Because if the water
6 just drops underneath the panels, then in a desert where
7 some seeds can be dormant for 25 years, you know, they may
8 sprout and cause a problem in some ways in relationship to
9 the agriculture that is still ongoing in Harquahala
10 Valley. Because growth produces more seeds, and winds,
11 you know, do spread those.

12 I do like this application's location with
13 respect to the Palo Verde Hub. Whether it will truly be
14 determined part of it, I think it can be. And I think
15 when a nuclear unit is down for reworking, having the
16 Starwood project there would be very beneficial.

17 Other than that, I would like to thank this
18 Commission for -- or Siting Committee for allowing me a
19 few minutes to comment, as I know this is very extensive.
20 It's just like in 1978 when I was a spokesperson for
21 Harquahala Valley agricultural and residential
22 intervention into the Devers/Palo Verde 1. We learned a
23 little bit of how the Siting Committee acted. And it was
24 very important to Harquahalans at that time, because for
25 the second day of the hearing our people had to come

1 through a flood at the Centennial Wash.

2 And during the hearing, being that the Siting
3 Committee members had learned that, they took, after our
4 presentation, immediate action to make a decision on our
5 request, and they did delete the four Devers/Palo Verde 1
6 routes that could possibly harm agriculture in Harquahala
7 Valley, and we were very grateful to them.

8 It's just like today. Here we have the Siting
9 Committee again. You folks don't receive the publicity
10 that you should, and you certainly don't receive the
11 thanks from The Arizona Republic, because they don't hear
12 enough about the good work that you do. Thank you very
13 much.

14 CHMN. FOREMAN: Thank you. Let me ask you a
15 couple of questions, Mr. Begalke. Do you live in the
16 vicinity where this plant will be, or have you lived in
17 that area?

18 MR. BEGALKE: I lived in Harquahala Valley from
19 1976 to '78, and I owned property in Harquahala Valley
20 until 1981.

21 CHMN. FOREMAN: In front of you you should have a
22 placemat. If you would flip it to the side that says
23 Exhibit STW-004, and I think that's the big map.

24 MR. BEGALKE: Yes.

25 CHMN. FOREMAN: Can you locate your property on

1 that map?

2 MR. BEGALKE: Well, I'm not immediately seeing
3 Baseline Road, but our property -- my brother was also --
4 we were located in the southwest part of the valley --

5 CHMN. FOREMAN: Okay.

6 MR. BEGALKE: -- south of Baseline Road. And it
7 was like 500th and -- I forget what the avenue was, but we
8 were very close to the south end of the Eagletail
9 Mountains as far as the private lands were concerned in
10 Harquahala Valley. But this Starwood project, I would
11 guess, would be like 12 to 15 miles away from where we
12 were in Harquahala Valley.

13 CHMN. FOREMAN: Okay. My understanding is that
14 the section line roughly approximates Indian School Road.
15 So Baseline Road is, what, maybe 10 miles south of Indian
16 School Road?

17 MR. BEGALKE: Possibly.

18 CHMN. FOREMAN: Okay. And you say that the
19 east/west location was 500th?

20 MR. BEGALKE: It would be close to 500th Avenue.

21 CHMN. FOREMAN: And this, I think, was 491st; is
22 that correct, Counsel?

23 MR. SUNDLOF: That's correct.

24 MR. BEGALKE: We were west of Harquahala Valley
25 road by about 8 or 10 miles.

1 CHMN. FOREMAN: Okay. And may I infer from what
2 you have said that you support the project?

3 MR. BEGALKE: I support the project with the
4 requirement that an Arizona utility be a party that is
5 involved in the PPA. Because I think all of these
6 projects as a result of the Commission's decision on
7 deciding standards for the utilities at this time need an
8 Arizona utility involved to help them meet their standard,
9 but also to educate and make Arizonans understand that we
10 need to go this route.

11 CHMN. FOREMAN: If the Committee is not legally
12 able to force the power to be sold to an Arizona utility,
13 do you still support the project?

14 MR. BEGALKE: Well, one objection that comes up,
15 and even at the Commission itself, is Arizona water being
16 used for power that goes out of state. And that's been a
17 big concern by the Commissioners so --

18 CHMN. FOREMAN: It is a concern, but let me ask
19 you to come back. Do you support the project if we cannot
20 force an Arizona utility to purchase the power, or force
21 the power to be sold to an Arizona utility?

22 MR. BEGALKE: Well, I'm hopeful that agreements
23 between Starwood and APS will reconvene or will resolve in
24 something. But no, I don't support the project without an
25 Arizona utility being involved.

1 CHMN. FOREMAN: Okay. I just wanted to clarify
2 your position. Thank you very much for coming. Thank you
3 very much for sharing with us.

4 MR. BEGALKE: Thank you.

5 CHMN. FOREMAN: Mark Turley.

6 MR. TURLEY: Good morning. My name is Mark
7 Turley, T-u-r-l-e-y.

8 I would like to offer my support for this project
9 from two viewpoints. First, I live about a mile and a
10 half from this resort. And I would like to offer my
11 support as a resident of Arizona to continue to process
12 projects like this and engage in renewable energy.

13 Arizona clearly can be a leader in renewable
14 energy. And I think we're behind some of the other states
15 in the southwest, and I would love to see projects like
16 this launch and deploy in order to get us on the map of
17 renewable energy.

18 Secondly, I would like to support this project
19 from a professional standpoint. I was involved heavily in
20 the Nevada Solar I project, the 64 megawatt at Boulder
21 City. The company that I worked for supplied the
22 infrastructure for the mirrors and created a tremendous
23 amount of opportunities, economic opportunities for not
24 only my company, but for companies that are involved in
25 putting these facilities in the ground and deploying.

1 I think that aspect can't be overlooked by any
2 stretch of the imagination, because the economic impact of
3 facilities like this is fantastic. A company that's
4 involved in supporting this project can keep its
5 facilities supported and can do new hiring and things like
6 that. For instance, if I was fortunate enough to be
7 involved in this project, we would commit to somewhere
8 between 45 and 100 new jobs right here in Arizona, along
9 with drawing materials from a few other states in order to
10 support this, which would keep our facilities, then, also
11 supported.

12 And I think that goes for saying all of the
13 infrastructure that goes into these facilities is a huge
14 economic boost for Arizona and for the local community
15 just in job creation alone. I'm not exactly sure how the
16 project will lay out, but the opening comments by
17 Starwood, there certainly are challenges to projects like
18 this because they are very, very extensive. There's only
19 been a few of them actually built and deployed, Nevada
20 Solar I being the most recent one in Boulder City.

21 And it did have challenges, but I will tell you
22 that there are teams of people who are committed to
23 organizations like Starwood to support projects like this.
24 And the commitment is at a professional level, but it's
25 also at the personal level. So there are people who will

1 want to make projects like this easier to deploy. Once we
2 deploy a major project in Arizona like this, naturally,
3 the next one will be a little easier, and the next one
4 will be a little easier, and so on and so forth.

5 I think it's a great undertaking that Starwood is
6 doing this project. I'm very proud, hopefully, to be
7 associated with it at some point in time, and will tell
8 the Committee that there are, again, companies both local
9 and slightly not local who support these types of
10 deployments of renewable energy into the state of Arizona.
11 I think that we can be a leader in renewable energy very,
12 very quickly with just a few projects like this. And the
13 public will then see that these projects are a great
14 benefit to not only Arizona, but also the country and the
15 southwest in general.

16 So I'm offering my full support as a resident of
17 Arizona, and my full support as a professional in an
18 industry that could possibly support this project.

19 CHMN. FOREMAN: Very good. Thank you for coming
20 and commenting.

21 MR. TURLEY: Thank you.

22 CHMN. FOREMAN: All right. Let's take a
23 15-minute break. We'll start at 10:45 with the first
24 witness.

25 (A recess was taken from 10:33 a.m. to 10:46 a.m.)

1 CHMN. FOREMAN: Let's go back on the record.

2 We're ready to begin testimony presented by the
3 Applicant. Counselor, you may proceed.

4 MR. SUNDLOF: Thank you very much, Your Honor.
5 Starwood Solar I would call as its first witness Mr. Brad
6 Nordholm.

7 CHMN. FOREMAN: All right. Sir, would you like
8 an oath or affirmation?

9 MR. NORDHOLM: An oath is fine, thank you.
10 (Brad Nordholm was duly sworn.)

11 CHMN. FOREMAN: Tell us your name and spell your
12 last name for the court reporter, please.

13 THE WITNESS: My name is is Brad Nordholm. That
14 is spelled N-o-r-d-h-o-l-m.

15 CHMN. FOREMAN: Counsel, you may proceed.

16 MR. SUNDLOF: Thank you very much, Your Honor.

17

18 BRAD NORDHOLM,
19 called as a witness on behalf of the Applicant, having
20 been previously duly sworn by the Chairman to speak the
21 truth and nothing but the truth, was examined and
22 testified as follows:

23

24

25

1 DIRECT EXAMINATION

2

3 Q. (BY MR. SUNDLOF) Mr. Nordholm, can you tell
4 us -- restate your name and tell us your affiliation?

5 A. Certainly. My name is Brad Nordholm. I'm the
6 CEO of Starwood Energy Group Global, LLC, based in
7 Connecticut. We're a sister organization of Starwood
8 Capital Group Global, LLC, also based in Greenwich.
9 Starwood Energy Group Global is the sponsor of Starwood
10 Solar I.

11 Q. Thank you. And Mr. Nordholm, your resumé is
12 attached as STW-009 for identification?

13 A. Yes.

14 Q. Mr. Nordholm, marked for identification as
15 STW-008 is your prefiled direct testimony. Was this
16 prepared under your direction?

17 A. Yes, it was.

18 Q. Do you have any changes at this time to that
19 testimony?

20 A. Yes. I did notice in reviewing it just this
21 morning that on Page 7, Line 21, it states an announcement
22 of this project in June of 2009, and that should have been
23 in May of 2009. So that is a correction.

24 Q. Mr. Nordholm, with that correction, if I were to
25 ask you the questions set forth in STW-10 would your

1 answers be the same?

2 A. Yes, they would.

3 Q. Mr. Nordholm, would you please give the Committee
4 a summary of your testimony.

5 A. I would be pleased to. First of all, Chairman
6 Foreman and Committee members, thank you very much for
7 having this hearing.

8 CHMN. FOREMAN: Before you go further, Counsel,
9 did you mean STW-8 rather than STW-10?

10 MR. SUNDLOF: I meant STW-8. I'm sorry.

11 CHMN. FOREMAN: Okay. Now I'm not so confused.
12 Please go ahead.

13 THE WITNESS: Thank you. Chairman Foreman and
14 Committee members, thank you very much for having this
15 open hearing. This is a project, Starwood Solar I, that
16 we believe passionately in. And we understand that this
17 kind of public process is a very important part of having
18 a complete airing of the issues associated with the
19 project that is as ambitious as this is.

20 As I mentioned, I'm the CEO of Starwood Energy
21 Group Global. We are active developers, acquirers, and
22 fixer-uppers of energy assets. To date, our investments
23 have totaled approximately \$1 billion of equity value,
24 about \$3 billion of project value, and they've been in
25 three broad areas: High voltage power transmission,

1 natural gas-fired peaking power generation plants, and
2 solar power generation plants, including both photovoltaic
3 and concentrator solar thermal projects.

4 The reason that we're focused on these three
5 areas is that with the evolving energy economy in the
6 United States, we believe very strongly that renewables
7 are going to play an important part of our energy future,
8 and we believe after a lot of research that solar is a
9 rapidly improving and increasingly competitive source of
10 power generation.

11 So we've chosen to focus on solar, and with that
12 power transmission and natural gas-fired peaking power
13 generation. And the reason that those really go hand in
14 hand is that as we build large concentrator solar power
15 plants such as this, and even photovoltaic power plants
16 that are utility scale, the need for new high voltage
17 transmission to bring that energy to urban markets
18 increases.

19 And furthermore, as some renewable energy sources
20 such as photovoltaic solar and wind become the larger
21 portion of the generation base existing in each state and
22 for each utility, the need for standby natural gas-fired
23 peaking power generation plants increases. Because there
24 are moments when the sun doesn't shine, when the wind
25 doesn't blow, and in order to preserve the stability of

1 the grid and the reliability of energy going to homeowners
2 and businesses, you have to have very quick response power
3 generation sources, and one of those is natural gas-fired
4 peaking. So that's a description of the strategy and the
5 context with which we approach the development of large
6 scale concentrator solar power plants.

7 It has come up already twice during this hearing
8 the question of why Starwood is proceeding with this plant
9 and what happened with APS, and I just want to address
10 that right up front. Starwood Solar I, we are proceeding
11 with this plant because we believe passionately in it. We
12 think it's one of the best located, most environmentally
13 sound utility-scale plants that can or will be built in
14 the state of Arizona.

15 We entered into a power purchase agreement with
16 Arizona Public Service and announced that in May of this
17 year. And as has been noted twice already, we did
18 terminate that contract on September 30.

19 Now, let me be crystal clear. We did not
20 terminate that contract because we wanted to or because we
21 have alternative plans for the project. We terminated
22 that contract because we had a very material step-up in
23 security deposits due under the contract, well into the
24 eight figures, and I'm not at liberty to disclose more
25 details of it than that. And we had not yet concluded to

1 our satisfaction an engineering procurement construction
2 contract, an EPC contract -- excuse me -- with Lockheed
3 Martin, our teaming partner for this initiative.

4 The reason that we had not completed that is
5 because when we actually got into the finalization of the
6 contract, it was determined that the overall risks of the
7 290 megawatt project were actually too great. And those
8 risks came from a couple of sources. The financial risks
9 associated with an inability to complete the project or
10 for it to perform to specification; and secondly, the
11 risks associated with procuring some of the very long lead
12 time components that go into the project, specifically
13 molten salt, which is only available in two places in the
14 world currently and where the amount of salt consumed by
15 this plant would be a couple of years' supply, and
16 receivers, the receivers that go inside the parabolic
17 troughs where there are two suppliers in the world, and,
18 again, where this plant would consume a very large portion
19 of the worldwide supply.

20 Put together, the project we concluded had an
21 inappropriate risk profile, and so it was only with
22 enormous reluctance that we terminated the PPA with
23 Arizona Public Service. Because the PPA provided for a
24 290 megawatt project, we really felt that there was no
25 alternative.

1 But having said that, we stand before you today
2 asking you to consider the approval of this project to be
3 done in two phases, 145 megawatts followed by 145
4 megawatts. Because by doing it in phases, we believe that
5 we can address the financial overall risk and supply risk
6 issues that I just summarized for you, and that we can
7 allow this project to go ahead. And should we be
8 successful in securing your approval, we believe that we
9 will move ahead with that.

10 And to address concerns previously expressed, our
11 very first presentations then will be to the utilities of
12 Arizona, beginning with Arizona Public Service, who has
13 told us that they would invite us back for discussions.
14 No commitments, but for discussions.

15 CHMN. FOREMAN: Member Eberhart.

16 MEMBER EBERHART: Thank you, Mr. Chairman.

17

18

EXAMINATION

19

20 Q. (BY MEMBER EBERHART) I don't really care to get
21 into any of the details, but suffice it to say my
22 understanding is that your considerations were financial
23 and risk associated, not necessarily unable to negotiate a
24 on basis with APS. Would you agree with that?

25 A. Yes, I would agree with that, yes, sir.

1 Q. The second question that comes to mind, one of
2 the risk factors that you mentioned was the molten salt
3 issue. A recent case that we had earlier this year was a
4 solar site that hadn't made up their mind whether they
5 wanted to be PV or thermal.

6 Have your engineers analyzed the situation, and
7 is that an option that you have considered, or possibly
8 would consider in the future, is instead of the thermal
9 being strictly a PV plant?

10 A. We're active developers of photovoltaic plants.
11 We hope to do a financial close and break ground, for
12 example, on a 60 megawatt project in Ontario in a few
13 months. I can assure you the insolation there is not
14 nearly as good as Arizona. And that will make it be one
15 of the largest photovoltaic plants in the world, so we
16 understand that technology.

17 We believe that here in Arizona the utilities
18 have a great need, a great demand for thermal energy,
19 particularly with storage. And the reason for that is
20 that as they look to the day when they need to have a
21 large portion of their power generation coming from
22 renewable sources, they need to be concerned about the
23 reliability of the delivery of energy from these
24 facilities.

25 And it's my assessment and our engineers'

1 assessment, and I believe the utilities' assessment, that
2 thermal solar power generation, particularly thermal solar
3 power generation with molten salt storage, provides the
4 kind of assurances of delivery of energy that is necessary
5 to keep the lights on, so to speak.

6 MEMBER EBERHART: Thank you.

7 CHMN. FOREMAN: I would like to follow up on
8 that.

9

10 EXAMINATION

11

12 Q. (BY CHMN. FOREMAN) I'm relatively unsophisticated
13 when it comes to financial matters. Well, we don't need
14 to go into my problems there, but let me talk a little bit
15 about the problem that you have talked about.

16 Now, you said that there was a problem with an
17 eight-figure payment that was to be made, and then you
18 indicated, and I believe in your prefiled testimony you
19 referred to the fact that Lockheed Martin was originally
20 an equity partner and was now only going to be a part of
21 the operating, constructing, and operating staff. Is my
22 understanding of your testimony correct?

23 A. Lockheed Martin's role as it relates to the
24 Arizona Public Service PPA has always been contemplated to
25 be the EPC provider, the engineering procurement and

1 construction provider. They would build the plant under a
2 contract that had the kinds of assurances of performance
3 and delivery that would enable us to finance the project.

4 Q. Did Starwood make the determination that the risk
5 profile, I think you said, was too high to continue with
6 the APS PPA?

7 A. We made the determination based on our evaluation
8 of where we were with the engineering procurement
9 construction contract with Lockheed Martin, and we
10 provided the notice to APS, yes, sir.

11 Q. So had Lockheed Martin continued its original
12 equity as well as EPC involvement -- I don't want to trip
13 up over my TLAs here, my three-letter acronyms -- the
14 project would have proceeded?

15 A. Had Lockheed Martin and we executed a binding
16 engineering procurement construction contract prior to
17 September 30, the project would have proceeded as
18 originally contemplated.

19 Having said that, there are numerous hurdles that
20 still would need to be crossed before we get to financial
21 close and ground breaking next July.

22 Q. So is someone in a position to do what you had
23 contemplated Lockheed Martin would do before September 30?

24 A. Lockheed Martin is still very actively working to
25 develop a mutually acceptable EPC, engineering procurement

1 construction contract, that would support the project
2 precisely as we presented it to you today, and that is in
3 two phases of 145 megawatts each.

4 Q. So you have some concern, and their backing out
5 of the project made it too risky for you to enter into the
6 agreement with APS, because APS would have wanted
7 assurances that you would have X amount of power beginning
8 on X date and continuing, and you weren't able to make
9 those assurances to APS? Am I getting close to
10 understanding what your situation was?

11 A. Chairman Foreman, I think that is a reasonable
12 summary. Under the power purchase agreement with APS, we
13 had very, very specific performance obligations for when
14 the plant will begin operation and how much energy it will
15 produce. And those performance obligations are supported
16 by the engineering procurement construction contract which
17 provides when the plant will be built and how it will
18 perform.

19 Q. All right. What is the status, then, of your
20 renegotiation or your continuing negotiation with Lockheed
21 Martin now?

22 A. I would characterize it as not a renegotiation
23 but an ongoing negotiation, and they're very, very active.

24 Q. Is there an alternative to Lockheed Martin
25 available?

1 A. The reason that we originally entered into an
2 agreement with Lockheed Martin two years ago is because
3 projects of this size -- and the 290 megawatt request for
4 proposal was really driven by the utilities' need for a
5 project of that size, and we see similar requests in
6 California today.

7 But when we evaluated how it is that a project of
8 this size, or even 145 megawatts, can be built, when
9 projects of this size have not been built in the United
10 States, much less in Europe before, it's very clear that
11 you need -- we need a very strong engineering procurement
12 construction contract that provides assurances to the bank
13 that it will be done and that it will operate. Otherwise,
14 a bank doesn't want to lend, and we as equity owners and
15 sponsor don't want to invest.

16 We want to know that it will work. And for that
17 engineering procurement construction company to be able to
18 put a large balance sheet and put financial strength
19 behind those obligations so that if they're called upon to
20 pay under those obligations, they have the financial
21 strength to do so. So companies like Lockheed Martin
22 are -- it's very important to motivate them to come in to
23 these types of projects so that they can get done so that
24 they are financeable.

25 Q. So are there alternatives to Lockheed Martin who

1 would have the balance sheet to be able to deal with a
2 \$2 billion project and the time constraints and production
3 constraints that would be imposed on a contract on a
4 project like this?

5 A. And I'm sorry I did not answer your question
6 directly before the first time you asked it, and I also --
7 the \$2 billion number, I'm not sure where the estimate
8 came from, but I'm not necessarily endorsing that precise
9 number.

10 But the answer to your question -- I'm not trying
11 to be evasive -- is that it remains to be seen. There are
12 currently no projects that have been built of this size.
13 And there are, in my understanding, no other of the major
14 engineering procurement construction firms that have
15 provided a commitment to the level of performance
16 assurance that we have been contemplating for this project
17 so that it could be financed in the capital markets and
18 get done.

19 There is continuing interest on the part of major
20 construction companies. The Bechtels, for example, the
21 Black & Veatchs, Shaw, Fluor. Those are, you know, very
22 major firms, but we have not yet seen any commitments from
23 them to do what we have contemplated here, which is why
24 making this a smaller project is critical, in our opinion.

25 CHMN. FOREMAN: Member Youle.

1

EXAMINATION

2

3 Q. (BY MEMBER YOULE) Mr. Nordholm, a couple of
4 questions. With regard to this PPA and your negotiations,
5 you mentioned you will be negotiating with Arizona
6 utilities. Are you also planning to go out to California
7 utilities?

8 A. We have no immediate plans to go to California
9 utilities. I would never say never, but I will tell you
10 that our absolute first interest is in signing a PPA for
11 this project with an Arizona utility.

12 There are examples of these types of projects
13 being done without PPAs. You have a couple of material
14 ones here in Arizona, for example. And there are many
15 situations, most notably in California, where utilities
16 are demanding a certain amount of the permitting and
17 approval work be done as a precondition to entering into a
18 PPA.

19 Here in Arizona we've had a different experience,
20 one which we think has been very constructive in working
21 with APS. And so our very first stop will be, as I said
22 earlier, to the Arizona utilities and APS.

23 Q. My other question is you have been talking about
24 Lockheed Martin and some of the other big construction
25 firms, and we heard a gentleman earlier this morning talk

1 about the possibility of jobs within Arizona connected
2 with the plant.

3 Are there jobs that will be created within
4 Arizona for this plant?

5 A. Yes, there are. I believe that Rich Weiss will
6 be elaborating on the economic development studies that
7 have been done around this project, but I can provide a
8 couple of high level summaries.

9 With someone like Lockheed Martin or any major
10 contractor, there will be a lot of subcontracting done.
11 And much of that subcontracting will be done with
12 Arizona-based companies, much of the employment during
13 construction will be with Arizona-based companies.

14 And Rich will elaborate on the numbers, but I
15 recall that during construction for a 290 megawatt
16 project -- it would be lower for 145 -- that the peak
17 construction number would be about 1,000 jobs. And
18 because of the multiplier effect in the economy, the
19 overall impact would be a multiple of between six and
20 eight times that.

21 Q. Okay, thank you. My final question is in terms
22 of -- even though you don't have a PPA with APS at this
23 point, who will be providing control area services for the
24 plant?

25 A. This plant would actually be dispatched by the

1 utility with a PPA. So what we are expecting here would
2 be that we would interconnect with the Delany substation.
3 And in the case of the APS PPA, they would actually be
4 dispatching the plant.

5 Q. So in the rare, I hope, event that you were to
6 sign a PPA with a California utility, are you saying that
7 it would be in the California ISO?

8 A. I am not saying that, no. In fact, we watched
9 with great interest the Devers 2 discussion and debate
10 within the state of Arizona and what rights and what
11 controls and what jurisdiction would be present with that
12 site. And so no, that is not determined. And there's no
13 conclusion today that I can or I believe anyone else could
14 reach that there would be any dispatch authority ceded to
15 California for a project built today in Arizona that
16 connects to the grid in Arizona.

17 MEMBER YOULE: Thank you.

18

19 FURTHER EXAMINATION

20

21 Q. (BY CHMN. FOREMAN) You mentioned a couple of
22 other limiting factors or risks. One was availability of
23 the special type of molten salt that's used in this
24 technology.

25 A. Yes.

1 Q. And another was, I think, the concentrating
2 pipes, the pipes that go down the middle of the parabolic
3 mirrors?

4 A. Yes, sir, the receivers.

5 Q. Now, this is the third project of this scale that
6 contains concentrating or potential concentrating solar
7 energy generation that this Committee has seen, and we've
8 approved two others in the past year.

9 I understood you to say that this project would
10 soak up a substantial portion of the world's market for
11 both of those?

12 A. Yes, sir.

13 Q. So if the other two projects that we have
14 certificated are competing with you for salt and for
15 concentrating pipes, and they're using the same salt and
16 the same concentrating pipes, does that create a problem
17 for you and is that a risk that you are concerned about?

18 A. These are among risks that we're concerned about.
19 And yes, I can tell you that there essentially is a race
20 to the queue position among developers such as us today to
21 be there first and willing to put up multimillion dollar
22 deposits and advances to secure production slots in
23 receiver lines, for example, for molten salt storage, for
24 example. There are other components as well that are
25 limited.

1 I think realistically what will happen is that as
2 some of these projects become real -- because they are not
3 today -- as they become real, that worldwide production
4 will be expanded.

5 CHMN. FOREMAN: Thank you.

6 Counsel, I think some time ago you were in the
7 process of examining your witness. You want to try again?

8

9 DIRECT EXAMINATION (Cont'd)

10

11 Q. (BY MR. SUNDLOF) Mr. Nordholm, would you
12 continue with your summary, please.

13 A. Thank you very much.

14 Q. We may have covered some of the other areas
15 already.

16 A. Yes, thank you very much, Counselor. I think the
17 one that I would like to comment on is the water
18 utilization. It's another factor that came up twice or
19 three times in the comments from Mr. Johnson, from
20 Ms. Bahr, from Mr. Begalke -- I hope I pronounced that
21 correctly -- and also from Mr. Turley.

22 When we chose this site for this project, we were
23 quite deliberate in seeking out cultivated land with a
24 significant reservoir water supply. I don't know that
25 it's been mentioned, but this project also -- this site

1 also has the attribute of having the Central Arizona
2 Project coming across one corner of the site, which
3 provides a water alternative and backup, which we see as a
4 real advantage of the site.

5 We wanted to be on cultivated land where our
6 utilization of water would be but a fraction of the
7 historic utilization of the water, and that's what we have
8 at this site.

9 Most of the water consumption is not with
10 cleaning but rather with the steam turbine. It is one of
11 kind of the laws of physics that a thermal solar power
12 plant with a steam turbine is going to consume water just
13 as other plants with steam turbines, nuclear, for example,
14 do.

15 And the trade-off, of course, is that with a
16 thermal technology, we have the performance attributes
17 that are very attractive. They build it to store and
18 dispatch because of cloud cover or because of nighttime,
19 which enabled this project to help keep the lights on.

20 In thinking about the water issues, we were
21 pleased to work out the agreement with Mr. Johnson that
22 was discussed earlier today. The origins of that
23 discussion go back fully six months, I think, when
24 Mr. Conley Wolfswinkel invited us to meet with him to
25 discuss water usage in Harquahala Valley.

1 While we're not using this forum for commercial
2 negotiation, we do understand very much the very real
3 economic and public policy aspects of water, and felt that
4 this is a very prudent and precedent agreement to enter
5 into. So we're very pleased to have done so.

6 I guess since I have touched on many of the other
7 aspects of the development of this project, I would like
8 to close my prepared summary by saying that this is
9 something -- Starwood Solar I is something that Starwood
10 Energy remains very committed to develop.

11 I hope I have explained to you the circumstances
12 concerning the APS contract and the very, very strong
13 reasons why we believe this project should move ahead and
14 become part of the energy and renewable power inventory
15 for the State of Arizona. Thank you, Mr. Chairman.

16 Q. Thank you, Mr. Nordholm. Does that complete your
17 summary?

18 A. Yes, sir.

19 MR. SUNDLOF: At this time, Your Honor, I would
20 like to offer into evidence STW-8, which is the prefiled
21 testimony, and STW-9, which is Mr. Nordholm's resumé.

22 CHMN. FOREMAN: Is there any objection?

23 (No response.)

24 CHMN. FOREMAN: No objection and good cause
25 appearing, it's ordered admitting STW-8 and STW-9.

1 (Exhibits STW-8 and STW-9 were admitted into
2 evidence.)

3 MR. SUNDLOF: Thank you, Your Honor. We tender
4 this witness for cross-examination and questions.

5 CHMN. FOREMAN: Mr. Johnson, do you have any
6 questions?

7 MR. JOHNSON: We have no questions.

8 CHMN. FOREMAN: Very good. Are there other
9 questions from the members of the Committee?

10 (No response.)

11

12

FURTHER EXAMINATION

13

14 Q. (BY CHMN. FOREMAN) I have one question that
15 occurred to me based on what you had testified to,
16 Mr. Nordholm.

17 What is your present best estimate, should we
18 grant the Certificate of Environmental Compatibility, of
19 whether your project would be able to get started and
20 actually put some shovels in the ground and move?

21 A. There are a number of different things that need
22 to come together, the permitting, the transmission, the
23 financing, and the PPA. And the path that we're currently
24 on points us to a June/July 2010 financial close as a
25 precursor to ground breaking, which would occur shortly

1 thereafter. That has not changed. We hope to complete
2 and receive our final permits mid-May to mid-June, and we
3 hope that those are the last requirements in order to get
4 to a financial close.

5 We're continuing to pursue our senior secured
6 construction financing in the capital markets. We are
7 continuing our transmission interconnection work and
8 believe that that schedule remains unchanged as of today.

9 And as I previously mentioned, as soon as we have
10 clarity on our EPC, which should be within the next few
11 weeks, we will resume discussions with Arizona utilities.
12 And as I previously mentioned, our first stop will be
13 Arizona Public Service.

14 So a lot has to happen; a lot has to go right.
15 But if we look at all of the sequencing of the technical
16 requirements, we believe that it is still possible that
17 this project would actually break ground next summer,
18 which we believe would be before the other two projects
19 that you mentioned.

20 Q. So from your perspective you feel that you can
21 meet the time sequence or timeline that was articulated by
22 Mr. Weiss in his prefiled testimony?

23 A. Yes. There's nothing new that disrupts that
24 sequence. I just want to offer the caveat that these are
25 large, complex projects, and a lot has to go right. But

1 we believe that we've anticipated that well and we're
2 managing all of those events, and that's exactly what our
3 objective is.

4 CHMN. FOREMAN: Okay, very good. Thank you.

5 I'm sorry, Member Eberhart.

6 MEMBER EBERHART: Thank you.

7

8

FURTHER EXAMINATION

9

10 Q. (BY MEMBER EBERHART) Just a couple of quick
11 questions about the PPA issue. And I don't want to beat
12 this horse to death, but there was a recent case where the
13 Commission had an extreme interest in knowledge about a
14 PPA for another case.

15 Do you expect to have the PPA in place before, if
16 this Committee recommends for CEC, before it goes to the
17 Commission?

18 A. Rich, the Commission -- may I ask a question of
19 someone else?

20 MEMBER EBERHART: Sure.

21 THE WITNESS: That's early December timetable?
22 Is that what we're anticipating?

23 MR. RICH: Mid-December.

24 MR. SUNDLOF: Mid-December sounds reasonable.

25 THE WITNESS: That would be our goal. It's

1 ambitious. I would prefer not to commit to that as a
2 precondition. What I can say is that prior to our
3 financial close and ground breaking, we will have it in
4 place.

5 Q. (BY MEMBER EBERHART) You talked about or you
6 alluded to a PPA with Arizona utilities. Obviously your
7 first choice would be APS, as I understand it.

8 Have you had any discussions -- or if I'm asking
9 something of a proprietary nature, just tell me so -- with
10 any other Arizona utilities at this time?

11 A. Over the last six months, we have had preliminary
12 discussions with every Arizona utility.

13 Q. Would you be opposed if there was a condition in
14 the CEC -- and I don't know if we can even do this -- that
15 a PPA must be with an Arizona utility?

16 CHMN. FOREMAN: Does counsel Have an opinion as
17 to whether such a condition would violate the commerce
18 clause of the United States Constitution?

19 MR. SUNDLOF: Well, Your Honor, I would say that
20 we would oppose a condition like that because it's very
21 restrictive on the project, but I will let Mr. Nordholm
22 respond.

23 CHMN. FOREMAN: Okay.

24 THE WITNESS: I'm not prepared to comment on any
25 authorities or legal aspects of it. From a practical

1 standpoint, these are very difficult projects to move
2 ahead, and it would be yet another requirement that could
3 become -- could jeopardize the project. We would
4 strongly, strongly prefer not to do so.

5 I would also note that -- and we've had this
6 situation recently in California where there was proposed
7 legislation that only renewable sources could be done from
8 within the state. I would note that when you try to get
9 beyond the concept and get into the detail of it and try
10 to identify who's trading what electrons and where they're
11 going across a grid that crosses state lines, it becomes
12 extremely problematic to actually regulate that. And so
13 again, I strongly would prefer not to see anything like
14 that.

15 MEMBER EBERHART: Thank you. I just want to make
16 clear that I'm not necessarily advocating that. I'm just
17 trying to get some additional information on the record.
18 Thank you.

19 CHMN. FOREMAN: Member Wong.

20 MEMBER WONG: Yes, Mr. Chairman. I apologize for
21 the tardiness and I'll be careful in my questions. If
22 it's too much repetition, just let me know and I'll review
23 the records for the responses.

24

25

1 EXAMINATION

2

3 Q. (BY MEMBER WONG) But Mr. Nordholm, as
4 Mr. Chairman stated, we have visited these type of issues
5 in the past with a couple of other applicants, and I'm
6 just thinking back of similar issues that were raised with
7 those applications as would apply to your application.
8 And I understand the concern of being too restrictive
9 about who is going to buy the output.

10 You just specified, outlined that your intent and
11 desire is to contract with an Arizona utility. And
12 understanding the economics of these type of projects, and
13 there's only a finite number of those utilities in the
14 state.

15 A. Sure.

16 Q. So if you're unable to enter and consummate an
17 agreement, you have to find some other buyer for your
18 output, right? How far is this project, distance-wise, to
19 the California border?

20 A. I don't know the precise mileage as the crow
21 flies. What is, you know, very relevant, of course, is
22 the transmission interconnect and whether you can secure
23 dedicated transmission across that border. It is
24 extremely limited today to get across that border.

25 And I would anticipate very, very serious issues

1 about capacity and interconnection to the CAL-ISO from
2 this location. I'm not saying it can't be done or -- and
3 certainly that we don't have any immediate plan for doing
4 so, but there are very real challenges. We spend hundreds
5 of hours discussing the feasibility of delivering
6 electricity to in-state utilities, as well as out-of-state
7 utilities, and I can tell you delivering into California
8 is extremely, extremely difficult.

9 Now, going to my earlier comment about what does
10 the PPA provide, there are some California utilities that
11 will accept delivery at Palo Verde. The electrons are
12 fungible, and so that depends on whether they have the
13 capacity. And again, it's very, very limited.

14 Q. So you're saying that the capacity to deliver
15 those electrons to the California market is not -- that
16 the infrastructure is not at the level that it needs to be
17 to deliver it; is that correct?

18 A. The infrastructure is not at the level that it
19 needs to be to deliver, that's correct. And today you see
20 a number of high voltage transmission projects that have
21 been approved. No material ones announced. There was the
22 whole Devers 2 debate.

23 Western Area -- WAPA is proposing other projects
24 right now. They're just being discussed. Nothing is
25 certain, and nothing is certain enough that we can

1 actually plan and commit to breaking ground on a power
2 plant against something that could happen in the future.

3 Q. You mentioned earlier that this particular
4 project that's being proposed is a scale that is unmatched
5 at this point internationally, or just domestically in the
6 U.S.?

7 A. Internationally, that is correct.

8 Q. And you stated that you would like to have two
9 phases in terms of implementation, execution, based on the
10 market demands, right?

11 A. Yes, sir.

12 Q. So if both -- let's say the first phase is built
13 and energized. How much of that would help an Arizona
14 utility meet its Renewable Energy Standard requirement
15 that they're subject to today? Would it meet 1 percent?
16 2 percent? Can you gauge that, or is that just too
17 nebulous of a number?

18 A. No, it's not too nebulous a number at all. I
19 think it's clear from testimony in front of the Arizona
20 Corporation Commission and in other venues that in the
21 case of APS, the Arizona Public Service, the two large
22 concentrator solar thermal projects that they previously
23 announced, Solana and ours, were going to meet a large
24 portion of their renewable portfolio standard objective.

25 So, you know, we're talking about a material

1 portion, you know, with the calculation depending on how
2 quickly demand grows in the state of Arizona for those
3 utilities.

4 So these would be -- this project would be very
5 significant. Even if it was done in two phases, 145 and
6 145, it would have a material impact on the supply of
7 renewable energy relative to the renewable portfolio
8 standards, both for the state and for the utility -- two
9 utilities that do have renewable portfolio standard
10 objectives.

11 Q. Help me understand the science of these renewable
12 electrons. I will use an analogy. We have the Central
13 Arizona Project that brings in water from the Colorado
14 River into central Phoenix and then down to Tucson. And
15 in certain jurisdictions it's like trading. They're able
16 to -- a certain, say, municipality can draw off one
17 source, and then whatever rights they have on the Colorado
18 River, they can swap that with some other jurisdiction.
19 And so that's a way to trade and get the water they need.

20 Can an Arizona utility do something similar?
21 Let's say Tucson Electric Power that's way down in
22 southern Arizona, or different rural co-ops, can they --
23 how would that work from a technical point of view? Is
24 that -- you know, let's say you dump your electrons in the
25 grid. It has the renewable label on it. Can they siphon

1 from the nearest grid that provides a -- even if it's from
2 out of state and then you pump -- how does that work? Is
3 that even feasible?

4 A. Well --

5 CHMN. FOREMAN: If you would like, you can punt
6 that question to the electrical engineers that are going
7 to be coming along the line.

8 THE WITNESS: Well, thank you very much. You
9 understand my limitations.

10 But suffice to say if it's the same grid and
11 you're putting electrons in and taking electrons out of
12 the same grid, that you don't have to trace them through
13 all of the way, necessarily, to a specific delivery point.

14 Q. (BY MEMBER WONG) So you're going to defer to
15 your engineers, but you're saying it's feasible. It's
16 possible to do that, right?

17 A. If the grid is connected, and that's generally
18 how it's done. What is measured is the actual output of
19 the renewable energy electrons coming out of a plant like
20 this.

21 Q. So you're not necessarily restricted to the
22 nearest electric utility in terms of negotiating a PPA?

23 A. That is correct. You have to look at the grid
24 and their delivery objectives. That is correct, though.

25 Q. Very good. And I want to also at least note from

1 my perspective is that I think what is important is the
2 cost benefit. Is that by siting this project in Arizona
3 in this particular site, you mentioned a cultivated parcel
4 of -- mostly parcels of land that's already disturbed,
5 that's quantified how much water it draws. Let's say if
6 it's farmland, you know how much it has drawn. Then
7 you're able to say that you're using this in a different
8 use, but you're able to draw less water than it was used
9 before. Is that your analysis?

10 A. Yes, sir.

11 Q. And so whether this electron is shipped out of
12 state or in state, what is the benefit to Arizona, whether
13 it's jobs, employment, acquisition of materials from
14 in-state manufacturing of the equipment in state? And
15 then what is the cost? What is the emission or the net
16 water usage? So that's the analysis that I would use to
17 weigh this project.

18 A. I mean, that becomes a very broad debate,
19 regionally, nationally, even globally when you get into
20 energy emissions.

21 One point I think I would like to make is that
22 the current water that's being consumed on that site is
23 not necessarily being consumed for end consumption within
24 the state of Arizona. To the extent agricultural products
25 are exported out of the state, you have an analogous

1 issue.

2 Q. Yes. And one more issue about the business
3 model --

4 A. Yes, sir.

5 Q. -- is that you have investors -- you're going to
6 have financiers behind this, and clearly they want to have
7 a return on investment and whatever number they have in
8 their head, right?

9 A. Yes.

10 Q. This is not going to be the first and last
11 project of this magnitude or of this company in the way
12 it's structured; isn't that correct?

13 A. That is correct. Starwood Solar I will only be
14 doing this project. Starwood Solar I is the special
15 purpose corporation established solely for this project.
16 But Starwood Energy will sponsor other renewable projects
17 in North America and the U.S. and Canada, and we're eager
18 to do so.

19 Q. Is part of the business model to enter into
20 states and site this and make it a turnkey operation?
21 Secure the governmental regulatory approvals and then
22 potentially flip it like real estate, move it from one
23 investor and owner to another? Is that a business model
24 you're using?

25 A. It could be a business model. It is not a

1 business model for us, and there are two reasons why. Our
2 investment fund that will invest in this business has a
3 10-year life, and we like to be in it for the majority, if
4 not all of the time.

5 Secondly, in renewable energy projects, there are
6 certain tax aspects, investment tax credits and
7 accelerated depreciation, and it is punitive from a tax
8 standpoint to change ownership inside the first
9 five-and-a-half years. So we eventually will sell this.
10 We would be very open, for example, to selling it to the
11 utility. But it almost certainly -- I would say never --
12 it will not be within the first five-and-a-half years.

13 Q. When you said you may sell it after the first
14 five years, what -- short of putting too much
15 restrictions, too many restrictions on this CEC, what type
16 of assurance would a governmental entity, a state
17 regulatory body that's supposed to watch out for the
18 interests of the citizens of the state, what type of
19 assurances can we have that when these are starting to be
20 turned over in the marketplace that the property will be
21 maintained?

22 An analogy is when you flip the real estate. Is
23 it going to maintain the quality of that house or shopping
24 center down the line that's going to be reflective of the
25 state?

1 A. I think there are many, many forms of control for
2 these projects. Certainly there will be permits in place
3 for this that will remain in place through any ownership
4 transition and that any subsequent owner will be bound to
5 adhere to, and so you have that.

6 The second is that in the end, these projects
7 will only get done with intermediate to long-term power
8 purchase agreements with utilities. Those agreements, the
9 utilities have a huge desire to adhere to their regulation
10 and to be good corporate citizens, just as we do, I should
11 add. And so embedded in PPAs there are many restrictions
12 that effectively put the dispatch decision and demand for
13 reliability into those contracts.

14 So I believe that there are numerous checks and
15 balances that exist to assure that the plant will be
16 properly maintained, that it will always be in compliance
17 with its performance permits, land, air, water, otherwise,
18 and that that can't be changed by a subsequent owner
19 without coming back in front of the appropriate
20 authorities or utilities.

21 CHMN. FOREMAN: Let me intrude here. And I don't
22 want to interrupt your questions, but to follow up on the
23 very question that you have asked.

24

25

1 FURTHER EXAMINATION

2

3 Q. (BY CHMN. FOREMAN) I note that you, through
4 counsel, have objected to the language of Paragraph 6 of
5 the conditions that were in the draft conditions that I
6 sent to you, which would require that the entity, that
7 Starwood would have to go back to the Corporation
8 Commission and get the Corporation Commission's approval
9 before it could transfer this, the CEC, to another entity.

10 Now, in response to Member Wong's question, are
11 you indicating that you would be willing to go back to the
12 Corporation Commission and get their approval or --

13 A. No. But what I am -- no, sir. We stand by that.

14 What I am indicating is that all of the permits,
15 all of the requirements that are put in place as a
16 condition of this project must remain in place and be
17 adhered to by a subsequent owner. I mean, that can't be
18 changed just because there's a new owner involved.

19 Q. But there wouldn't be -- if you transferred the
20 CEC to an entity that was not able realistically to
21 make -- to do what needed to be done or had some other
22 problem with its ownership, for example, it was owned by a
23 sovereign wealth fund of a foreign nation, is that
24 something that you would be willing to commit now to not
25 doing?

1 A. Well, first of all, because of the tax benefits
2 involved, I don't see think that that is a possibility at
3 all. What we don't want is a situation where someone has
4 discretion over approval which interferes with the value
5 of the project because of the uncertainty of whether that
6 discretion or approval will be granted.

7 CHMN. FOREMAN: I'm sorry. Go ahead, Member
8 Wong.

9 MEMBER WONG: Thank you, Mr. Chairman. No
10 further questions at this time.

11 Thank you, Mr. Nordholm.

12 CHMN. FOREMAN: All right. We have raised a
13 couple of issues of significant importance during this
14 portion of the testimony, and these were addressed earlier
15 by some of the public comment that was made.

16 And one is the issue of whether or not this body
17 could append a condition to the CEC that would limit the
18 sale of power to an Arizona utility. Now, I think that
19 there are some serious U.S. Constitutional questions
20 associated with such a limitation, serious commerce clause
21 limitations.

22 MEMBER YOULE: Yes.

23 CHMN. FOREMAN: In the Grand Canyon Trust case --
24 and there are very few Arizona Appellate Court cases that
25 deal with the Line Siting Committee's actions or the Line

1 Siting review authority of the Commission -- in Footnote
2 10, it explicitly refers to the fact that need within --
3 as defined in A.R.S. section -- what is it -- 40-360 may
4 be out of Arizona need.

5 It does not indicate that the balancing calculus
6 of environmental impact against benefit, the cost-benefit
7 analysis that Member Wong was just talking about, needs to
8 be the same for power that is distributed inside Arizona
9 as opposed to power that is distributed outside of
10 Arizona.

11 These are really weighty constitutional issues.
12 And I'm not sure that we want to tackle them, but I know
13 that the Commission has discussed them before, and I think
14 it is something that is, for that reason, perhaps
15 appropriate that we include in the record and give the
16 Commission at least our views on.

17 My own thought is that Arizona cannot on the one
18 hand say it wants to become the Saudi Arabia of solar
19 power if it's not willing to export solar power. Saudi
20 Arabia exports its oil.

21 But there is an environmental impact to the
22 generation of power, even solar generation of power, and
23 we need to consider that. And I think that it is
24 legitimate legally to consider the environmental impact of
25 power generation differently, depending upon where that

1 power may go.

2 Now, there aren't green electrons that come out
3 of renewable energy generators and brown electrons that
4 come out of nonrenewable energy generators, but there are
5 impacts on the environment of Arizona with regard to both.

6 I might also point out -- and I think the witness
7 alluded to this indirectly in his testimony -- we now use
8 Arizona water to grow cotton, to grow alfalfa, to help
9 with the dairy cattle, with mining --

10 MEMBER YOULE: Copper mining.

11 CHMN. FOREMAN: -- and with semiconductor chip
12 manufacturing. We have no limitation on selling cotton,
13 alfalfa, milk, computer chips, or copper inside the state
14 of Arizona, and I think it would be seriously problematic
15 to do that.

16 But we are entering a new frontier as a
17 regulatory body, just as these folks are entering a new
18 frontier with regard to the construction and operation of
19 these facilities. And it's good that we have these
20 discussions now as we go forward rather than 5 or 10 years
21 from now looking rearward in the mirror.

22 So I throw those out. We can probably talk about
23 those later at the time that we're discussing the CEC. I
24 intend to bring up again the paragraph that we've talked
25 about before that would require the Applicant to go back

1 to the Corporation Commission before it transferred the
2 CEC, because I do believe that that is something that the
3 law allows, and we may want to talk about that later.
4 There are concerns that that raises, they are legitimate
5 concerns, and we should talk about those at that time.

6 MEMBER YOULE: Mr. Chair?

7 CHMN. FOREMAN: Member Youle.

8 MEMBER YOULE: I agree with you on the
9 constitutional issues. They are huge, particularly
10 interstate commerce. There are also Federal Power Act
11 implications, because it is the federal government and
12 FERC that approves any wholesale contract, and that is
13 what this is going to be. The Corporation Commission does
14 have jurisdiction over retail provision, but on wholesale
15 power it's, you know, another ball game. So I think we
16 have to be very careful for that reason as well.

17 I also want to point out that we import a lot of
18 renewable power. We're importing wind from New Mexico and
19 Colorado and some of these other areas without much
20 concern for those states' natural resources. So while I
21 think it's a very valid concern, and I think we need to be
22 concerned about the water from both an industry realism on
23 an interconnected grid as well as some of the
24 constitutional and federal statutory problems, I think we
25 need to tread very carefully on any kind of condition that

1 would prevent power from going anywhere other than in
2 Arizona.

3 CHMN. FOREMAN: Thank you to Member Eberhart and
4 Member Wong for bringing these issues up so that we can
5 chew on them.

6 Member Wong.

7 MEMBER WONG: May I just -- I want to put on the
8 table some more issues that -- whether it's Mr. Nordholm
9 can address or one of your more technical colleagues.

10 Also, on the issue of cost, what is the cost or
11 the implications of decommissioning the equipment? Is
12 there a chemical spillage? Is there going to be
13 contamination on the land? Issues like that would be a
14 cost factor.

15 Then on the benefit side, you know, you talked
16 about the job creation, the -- I don't know if you said
17 earlier before I arrived about whether the equipment would
18 be manufactured here, whether your vendor will set up a
19 plant here.

20 You're aware that the legislature just passed a
21 generous tax credit program to incent headquarters of
22 solar and renewable energy companies here as well as
23 manufacturing facilities. Are you aware of that?

24 THE WITNESS: Yes. We've been following that
25 very closely.

1 MEMBER WONG: Yes. And I'm again using that to
2 weigh the benefit versus the cost.

3 And Mr. Chairman, you raised the issue about the
4 exporting of the product. We've talked about the policy,
5 the Commission and the legislature, everybody is talking
6 about the Saudi Arabia. Arizona being a major, core part
7 of the renewable energy in this country, and so we may not
8 be able to absorb everything that is going to be sited
9 here.

10 So if we use this as looking at the panels on the
11 screen, is that the next generation? Is that the new
12 alfalfa plant we're looking at? And if it is, then
13 alfalfa, we can't eat every piece of alfalfa that's grown
14 here as well, and we probably have to use that as close of
15 an analogy as we can about what was that land used for
16 before, all of that produce on that farm that the -- I see
17 some of the Martori family. Do they send some of that out
18 of the state or --

19 So those are some of the issues that we need to
20 look at, Mr. Chairman.

21 CHMN. FOREMAN: Your metaphor concerning alfalfa,
22 I'm not a big alfalfa fan. I prefer the cotton. I'm
23 wearing some cotton.

24 MEMBER WONG: Yes, sir. Let's use cotton from
25 now on. Thank you.

1 CHMN. FOREMAN: All right. Before we break for
2 lunch, let me take roll here.

3 Member Eberhart.

4 MEMBER EBERHART: Here.

5 CHMN. FOREMAN: Member Houtz, he's here.

6 Member McGuire.

7 MEMBER MCGUIRE: Here.

8 CHMN. FOREMAN: Member Mundell has said that he
9 will not be here.

10 Member Noland is still with her ill mother.

11 Member Palmer.

12 MEMBER PALMER: Here.

13 CHMN. FOREMAN: Member Rasmussen.

14 MEMBER RASMUSSEN: Here.

15 CHMN. FOREMAN: Member Whalen.

16 MEMBER WHALEN: Here.

17 CHMN. FOREMAN: Member Wong.

18 MEMBER WONG: Present, representing the public.

19 CHMN. FOREMAN: Member Youle.

20 MEMBER YOULE: Here.

21 CHMN. FOREMAN: Very good. Unless you have the
22 proverbial very short witness, why don't we take a break
23 for lunch and reconvene at 1:15. Would that be
24 convenient?

25 MR. SUNDLOF: That would be fine. Thank you.

1 CHMN. FOREMAN: 1:15. We'll reconvene at 1:15.

2 (A recess was taken from 11:48 a.m. to 1:15 p.m.)

3 CHMN. FOREMAN: It's 1:15. It's time to go back
4 on the record. Let's see if we can get ourselves situated
5 here and ready to go.

6 We have our next witness available?

7 MR. SUNDLOF: Yes, we do, Your Honor. We call
8 Rich Weiss.

9 CHMN. FOREMAN: All right. And Mr. Weiss, do you
10 wish an oath or affirmation?

11 MR. WEISS: An oath, please.

12 (Richard Weiss was duly sworn.)

13 CHMN. FOREMAN: Would you tell us your name,
14 please, and spell your last name for the court reporter.

15 THE WITNESS: My name is Richard Weiss. My last
16 name is spelled W-e-i-s-s.

17 CHMN. FOREMAN: Push the little button there.
18 Now you're on.

19 THE WITNESS: Richard Weiss, W-e-i-s-s.

20 CHMN. FOREMAN: All right, very good.

21 Counsel, you may proceed.

22 MR. SUNDLOF: Thank you, Your Honor.

23

24

25

1 RICHARD WEISS,
2 called as a witness on behalf of the Applicant, having
3 been previously duly sworn by the Chairman to speak the
4 truth and nothing but the truth, was examined and
5 testified as follows:

6

7

DIRECT EXAMINATION

8

9 Q. (BY MR. SUNDLOF) Mr. Weiss, would you state your
10 name again and describe your professional affiliation.

11 A. My name is Richard Weiss, and I'm the project
12 manager for Starwood Solar I.

13 Q. And your resumé is attached as STW-11?

14 A. Yes.

15 Q. Exhibits STW-1 and STW-2 are the application and
16 the amendment. These were prepared under your direction?

17 A. That's correct.

18 Q. Mr. Weiss, STW-10 is a copy of your prefiled
19 direct testimony. Was this prepared under your direction?

20 A. That's correct.

21 Q. Do you have any changes or modifications to that
22 testimony at this time?

23 A. Yes, I do. There are a couple of changes
24 relative to the exhibits that I want to make to my
25 testimony.

1 On Page 3, Line 26, high temperature fluid is
2 also referred to as heat transfer fluid. On Page 5,
3 Line 12, the word "mirrors" should be replaced with "solar
4 collector assemblies."

5 CHMN. FOREMAN: Wait, Mr. Weiss. I'm not a very
6 fast writer. So back to Page 3, Line 12. High
7 temperature fluid, HTF, also means heat transfer fluid?

8 THE WITNESS: That's correct.

9 CHMN. FOREMAN: Then the next --

10 THE WITNESS: Page 5, Line 12, and mirrors, the
11 word "mirror" should be replaced with "solar collector
12 assemblies."

13 CHMN. FOREMAN: Okay.

14 THE WITNESS: On Page 5, Line 25, "mirrors"
15 should also be replaced with "solar collector assemblies."

16 MEMBER YOULE: Also on Line 19?

17 THE WITNESS: 19 I think is all right. Actually,
18 we were on Page 5. Yes, you're correct.

19 MEMBER YOULE: It's all over it.

20 THE WITNESS: That's correct.

21 On Page 9, Line 14, you should add the word
22 "financial" in front of the word "stress." And on
23 Page 10, Line 1, "on" should actually be the word "no."

24 Q. (BY MR. SUNDLOF) Mr. Weiss, with those
25 corrections, if I were to ask you the questions set forth

1 in Exhibit STW-10, would your answers be the same?

2 A. Yes, they would.

3 Q. Mr. Weiss, do you have a summary of your
4 testimony that you would like to present at this time?

5 A. Yes, I do. Mr. Chairman and Commissioners,
6 again, I would like to thank you for this opportunity on
7 behalf of Starwood Solar I to present a very exciting
8 project to you today. My role as project manager for
9 Starwood I, as Ken alluded to before, is to make it
10 happen. And I've got to make it happen in compliance with
11 certainly all of our permits, our contracts, on schedule,
12 and on budget.

13 Starwood will own the project, provide equity and
14 debt, and manage the project through construction and into
15 operations. We plan to start the construction in 2010, as
16 Brad mentioned earlier today, and finish the first phase
17 by 2013.

18 And the first phase would be 145 megawatts. The
19 second phase will take until 2016 to complete. If we look
20 at Exhibit STW-3 again, the project is located along the
21 Indian School Road and 491st Street, kind of at that
22 intersection.

23 Can we go to STW-14 again?

24 As you can see, we're planning -- as explained,
25 we're planning to build a 290 megawatt concentrated solar

1 thermal plant. And again, this is an artist's rendition
2 that's been up. I'll give you the abbreviated version,
3 and certainly you can ask more questions on how all of
4 this works, but I understand that you have heard and been
5 exposed to this before.

6 What we'll do is these are parabolic mirrors, and
7 they're on what we call a space frame, and they are
8 focused on what we call receiver tubes. And so you're
9 focusing the sun's energy on the receiver tubes.

10 And what is in the receiver tube is high
11 temperature fluid or heat transfer fluid, and it's a
12 special oil. And so when you set up the arrangement like
13 this with the focus of these mirrors on that tube, you
14 concentrate the sun's energy by a factor of 70.

15

16

EXAMINATION

17

18 Q. (BY CHMN. FOREMAN) Mr. Weiss, if I can interrupt
19 you there. The receiver tubes are the tubes that
20 Mr. Nordholm referred to that you have -- there are
21 limited production capabilities for those worldwide; is
22 that true?

23 A. There are only two manufacturers in the world of
24 receiver tubes, and so that is one of the issues in terms
25 of supply constraints.

1 Q. That was the tube, though, to which he referred?

2 A. Yeah. Yeah.

3 Q. Okay.

4 A. Let's see. So that -- and in the 290 megawatt
5 plant, as I said, the collector link is 300 feet. We
6 would have 3,500 of these units. And so that's
7 essentially what you see out in the field covering
8 approximately 1,500 acres.

9 Next. And this is a close-up of the receiver
10 tube. It's a special constructed pipe. It's got a
11 coating on the outside that facilitates the absorption of
12 energy, and then you'll notice there's a glass sleeve
13 around it. It's contained all in glass. Between the
14 glass and the pipe is a vacuum, and that minimizes heat
15 losses of the pipe.

16 As I mentioned, right now there are two
17 manufacturers of this material, these collectors, in the
18 world.

19 The mirrors, again, you can see the mirrors. To
20 do 290 megawatts of power, we would have 800,000 mirrors.

21 Again, here is the heat -- the heat -- the
22 transfer pipe, and then the connection. And then this is
23 all connected to each other so the fluid flows around the
24 field, the heat transfer fluid flows around the field.

25 Once we get -- this is a diagram of how the whole

1 system works. And so once we collect the energy in the
2 solar collector field, we can do two things with it. The
3 first thing is obvious and will go to make steam. And so
4 you pump this fluid, now it's probably about 720 degrees,
5 and we'll pump the fluid and it will go through -- these
6 are basically steam generators.

7 And so on one side of these height exchangers
8 we've got high temperature fluid. On the other side we've
9 got pure water, which will be converting to steam. And so
10 that's where you -- and you go through from a technical --
11 from an engineering perspective you want to do it
12 sequentially to make it more efficient, but that's where
13 we'll make the steam, and then the steam will drive a
14 steam turbine, and then the steam turbine will make
15 electricity.

16 The second thing we can do with the high
17 temperature fluid is send it to storage, and we call it a
18 thermal energy storage system. And in that system, we
19 take salt -- now, this is molten salt. It's a very
20 special salt. It's potassium nitrate and sodium nitrate.
21 There are only two places where this salt is manufactured
22 in the world. One is in Chili and the other is in Israel.
23 And it's, like I said, 99 percent purity salt.

24 What we do when we build the plant, the first
25 thing to do is when we finish these tanks, the cold tank,

1 we will start to melt salt and we will receive salt. And
2 as we melt the salt, we'll fill up the cold tank.

3 Now, that salt is going to be about, like I said,
4 500-plus degrees. So when the field is up and running,
5 we're going to run high temperature fluid through this
6 heat exchanger and take cold salt and hit it against
7 700-degree heat transfer fluid, heat it up to 700 degrees
8 and put it in the hot tank. And then this salt is going
9 to continue to do this trip between the cold tank and the
10 hot tank.

11 Q. Is this going to be a daily trip?

12 A. Yeah, it will be. And actually, thanks for the
13 lead-in.

14 And so if I were to look at the day's operation
15 here, what would happen in a normal day, well, as the sun
16 comes up, we would align the mirrors to the sunrise on the
17 east. And this field is designed to produce more energy
18 than we can run out of this steam turbine; in other words,
19 there's excess capacity in the field. And so in the
20 middle of the day when the sun is at its brightest, we
21 have more thermal fluid here, hot fluid, than we can use
22 to make electricity. So what we'll start to do is start
23 to run it through this heat exchanger. We'll take cold
24 salt, run it through the heat exchanger, and make hot
25 salt. So we're doing -- we're both making full output and

1 we're converting. We're putting thermal energy into
2 storage.

3 As the sun goes down at the end of the day, what
4 will happen is the mirrors will be turned down. There's
5 no energy; there's no sun to focus on. And we will start
6 to repump the hot salt through this heat exchanger into
7 the cold tank. And when we do, we are reversing the heat
8 transfer process and putting thermal energy into the high
9 temperature fluid, which will again go back down and make
10 steam and will keep the plant running after the sun goes
11 down. And that is really a big benefit that certainly the
12 utilities like and what was attractive about this design.

13 Q. Mr. Weiss, it appears to me that this process is
14 different from, for example, the process that was
15 described in the Solana project, which was to have all of
16 the heat transfer fluid go through a heat exchanger that
17 then heated all of the salt, and then have the salt and
18 only the salt exchange heat with water.

19 Was that just our misconception or is there a
20 difference between the two?

21 A. That's not what we're doing.

22 Q. That I can see.

23 A. It's a different design.

24 Q. Okay.

25 A. Yeah. We use -- the heat transfer fluid is the

1 only thing that gets exposed to the salt, and the heat
2 transfer fluid is the only thing that gets exposed to the
3 steam, to the pure water to make steam to make
4 electricity.

5 Q. Well, it's exposed only through the heat transfer
6 process, correct? You don't mix the two?

7 A. Right. No, no, no. Yeah. They are
8 completely -- they're separated mechanically so they don't
9 touch each other, but they do transfer heat.

10 Once we make the steam and make the electricity,
11 we've got to cool the steam. And so we go through a
12 condenser. We have a closed cooling loop that's pumping
13 cold water through the condenser to recondense the steam,
14 and then it goes back through the process.

15 To condense the steam, we propose using a wet
16 cooling tower. A wet cooling tower in this case provides
17 benefits in that it's more efficient. It's efficient and
18 it's less costly than a dry cooling tower, and it provides
19 for less parasitic load.

20 If we look at the -- go ahead. Yeah. Go to the
21 next one.

22 If we look at the site -- and just to give you --
23 this has been up a while and what is going on here, these
24 are the molten salt storage tanks. This would be the heat
25 exchanger area. This would be the cooling towers, and

1 this would be the steam turbine generator area. And this
2 would be our 500kV switchyard, and this would be
3 wastewater storage.

4 As I said, we are going to use wet cooling
5 towers, and to do that we expect to consume about
6 2,313 acre-feet a year. We have modeled our water
7 consumption at 3,000 acre-feet a year. We're
8 conservative. We're looking for, you know, potential
9 impact on water quality, ambient conditions, and also for
10 better plant performance.

11 Our source of water is from site wells. The
12 existing land, as we mentioned earlier, Brad mentioned, is
13 used to produce primarily melons, and has historically
14 used about 7,100 acre-feet a year to produce those melons.

15 That 7,100 acre-feet is a combination of CAP and
16 well water. In recent years there's been a lot less CAP
17 water used than well water, and you'll see a chart put up
18 by URS's Mr. Richard Henry showing the difference between
19 CAP and well water. I point out that in 2008, this
20 particular land used 6,000 acre-feet of well water to
21 produce their agricultural crop.

22 I know one of the sites here was looked at for
23 residential use and the water study was conducted on that
24 basis. And converted to residential use, it would require
25 5,000 acre-feet of water per year. And if it were to be

1 converted, that's what they would qualify for.

2 So when you think about water consumption, it's
3 currently using 7,100 acre-feet of water. Last year it
4 used -- the site used 6,000 acre-feet of well water.
5 We're looking to limit our consumption to 3,000 acre-feet
6 a year, but we really expect to use about 2,300 acre-feet
7 a year.

8 As I said, you know, with the question, could we
9 use less water? We could with dry cooling. But as I
10 mentioned, the issues with dry cooling are parasitic load,
11 reduced output, it isn't as efficient, and it adds capital
12 costs and financial stress to the project. We would
13 expect that our price would need to increase by about
14 9 percent to include dry cooling.

15 There was some questions earlier about
16 photovoltaic, and certainly that is part of Starwood's
17 portfolio of projects. We tend to see them on a smaller
18 size than this, and they don't provide the utilities with
19 the load control capability that a plant such as this
20 does. With the solar inertia here in this plant is on,
21 and, you know, a little cloud cover like this has no
22 impact on this project, whereas a solar plant -- PV plants
23 rather, the output would fluctuate as a function of cloud
24 cover.

25 The output tends to be more akin to wind

1 generation, whereas our output tends to be more akin to
2 base-load thermal generation, fossil-fired generation. We
3 would expect to produce about 930 gigawatt hours of power
4 from this plant, and have a 37 to 39 percent capacity
5 factor.

6 As has been said before, Arizona is the solar
7 capital of the U.S. We would have -- this site has great
8 insolarity. It's near a permitted high voltage
9 switchyard. This is disturbed land. It has great
10 groundwater resources and is sparsely populated. And the
11 other ingredient is the land is available in a large
12 block. So this is a great site for us.

13 So now turn to the interconnection.

14 Q. Before we leave that, I don't understand, I
15 guess, the 37 to 39 percent capacity factor. Could you
16 explain that, what that means?

17 A. If you take -- if the plant is rated at 290
18 megawatts and you multiply that times 8,760, the number of
19 hours, that's the maximum number of megawatt hours this
20 plant could produce. And if we look at what our
21 production is expected to be and divide it by that number,
22 that's the capacity factor.

23 Q. And the 8,700 hours would be the number of hours
24 with sunshine?

25 A. 8,760 is the number of hours in the year.

1 Q. Number of hours in a year. So sunshine -- not
2 sunshine.

3 A. So your denominator is your capacity, 290 times
4 8,760. So if you could produce energy year-round
5 regardless of whether the sun was up, you could -- a
6 thermal plant, for example, could have a capacity factor
7 in the high 90s, a fossil plant, because they can run
8 whenever they put fuel in it, whereas we can only run when
9 the sun shines. So we can run more than that because we
10 have salt storage, but basically it's a function of
11 sunshine.

12 Q. Are you aware of the capacity factor for, for
13 example, an equivalent amount of photovoltaic?

14 A. It's less than that, and I can't tell you what
15 the difference is.

16 Q. Substantially less?

17 A. I would say it's probably on the order of 5 or
18 6 percent less.

19 CHMN. FOREMAN: Thank you.

20 Member Palmer.

21

22 EXAMINATION

23

24 Q. (BY MEMBER PALMER) Mr. Chairman, Mr. Weiss. I
25 remember a recent case where the photovoltaic proposal

1 used about 8 acres per megawatt, and that is only during
2 daylight.

3 A. That's correct.

4 Q. And this uses slightly more than 5 acres per
5 megawatt. Is that an accurate calculation?

6 A. That's about right, yeah.

7 Q. And this is also available for 6 to 8 hours after
8 sunset?

9 A. Right now on our solar storage, we were looking
10 at 6 hours. We think it should be less, but right now
11 we're looking at between 3 and 6. I think when we redo
12 the contract with Lockheed and come back and visit the
13 utilities here, we'll be at 3 hours of storage.

14 There's an optimum, and it's a very expensive
15 device. And when you install -- let's say if you look at
16 the sixth hour of storage and how much it's used, and
17 maybe it's used 10 hours a year, it's not worth
18 installing. And that's basically what the analysis shows.

19 Q. Based on efficiency, it would seem that this
20 system is almost twice as efficient as photovoltaic
21 relative to land use.

22 A. Relative to land use, that's correct.

23 MEMBER PALMER: Thank you.

24 THE WITNESS: And if I could turn to the
25 interconnection, we show three routes of interconnection.

1 Our suggested interconnection route is the green route,
2 which is down Indian School Road and Salome Highway to
3 connect to the Delany switch station.

4 I would point out in this part of the country,
5 Indian School Road is a designated road, but there's
6 actually no road there. And Salome Highway is a road, but
7 it's a dirt road all through this area.

8 We've looked at two alternate routes for the
9 interconnection, and this is a half section route which we
10 picked, the green route, because it has the least impact
11 on landowners. It follows section lines and it follows a
12 designated road line. The other route, this route does
13 cross more, divides more properties, basically, but it is
14 an alternate.

15 You might ask, Why not Thomas Road? And this is
16 the Harquahala generating station right here, and this
17 line is their interconnection, which goes to Hassayampa.
18 So that's a 500kV line that runs along there. And the
19 WECC has come out with guidelines that discourage,
20 recommend, that high voltage lines be not in the same
21 corridor. And if we were to put our high voltage line
22 along Thomas Road, it would be considered the same
23 corridor. And the concern is that a failure of one line
24 would trip out the other line. And so that is the reason
25 we have not shown that as an option.

1 The type of pole we're proposing to use is a
2 150-foot single pole structure to support the 500kV line.
3 We're asking for a 1,000-foot corridor to give us the
4 flexibility of negotiating with landowners of where we
5 place our poles and to move this along.

6 Besides the connection to Delany, and then
7 obviously -- or Delany, from Delany we go to PV, and
8 that's per our discussions with APS. We also show an
9 interconnection to Harquahala gen. And in all of our
10 studies, both by K.R. Saline and APS, it shows that that
11 would add stability to the system and improve the
12 reliability of the high voltage system there by looping
13 that. So we would be going out to Palo Verde, whereas
14 Harquahala gen goes to Hassayampa.

15 And so we're asking for permission to put that
16 line in, which is basically on our property, and it jumps
17 over Thomas Road to get there.

18 There was some questions earlier about what the
19 economic impacts of a project like this would be and jobs.
20 And Brad has already stated it, but it bears repeating.
21 This plant would generate 1,000 construction jobs. There
22 would be 75 permanent employees at the site. And during
23 construction, the indirect impact in job generation would
24 be 5,200 jobs. So it's a substantial impact on
25 employment.

1 The study that we did used a very conservative
2 number for the value of the plant at \$1.3 billion. That's
3 a very low number. And if you look at that number and you
4 run it into the economy, that would generate \$2.7 billion
5 of total money measure. It's a measure of capital
6 circulation in the Arizona market based on installation of
7 a project like this. And it also would generate over
8 \$29 million of income, sales and property taxes as a
9 result of that.

10 When you look at a 290 megawatt concentrated
11 solar thermal plant and you look at a typical Arizona
12 utility, we would have the effect of reducing carbon
13 emissions by 490,000 tons a year. So it would be
14 certainly a major positive step in the renewable power
15 supply, and also in any emissions profile for any of the
16 utilities here.

17

18

FURTHER EXAMINATION

19

20 Q. (BY CHMN. FOREMAN) Is that compared to a coal
21 facility or gas facility?

22 A. Yeah. If you compared it to a gas facility, we
23 would -- if you look at some of these larger combined
24 cycle plants, we will displace a 290 megawatt gas turbine
25 facility, combined cycle facility. If you look at it on a

1 coal basis, it's something less than that and it's
2 probably on the 200 megawatt order of magnitude just
3 because coal facilities run more and so, you know, we --
4 you know, they produce more power.

5 Q. Well, your testimony indicates that it would
6 eliminate 490,000 tons per year of carbon emissions.
7 Would that be carbon emissions from a coal plant or carbon
8 emissions from a gas plant?

9 A. The carbon, it's either/or.

10 Q. Either/or.

11 A. Yeah. I mean, you're reducing carbon emissions.
12 Both of those technologies have carbon emissions. The
13 coal plant would have more carbon emissions than a gas
14 turbine project would just because of the fuels.

15 Q. But your testimony is that the carbon opportunity
16 cost would be the same for the coal plant as for the gas
17 plant?

18 A. I think initially I thought you were asking what
19 would we displace, and we would displace a 290 megawatt
20 gas turbine plant. And I think we would displace a
21 somewhat smaller coal plant because a coal plant runs
22 more.

23 Q. But the answer in your prefiled testimony simply
24 refers to fossil fuel. It doesn't indicate what fossil
25 fuel, and so that was the reason for my question.

1 A. Right.

2 CHMN. FOREMAN: Member Mundell.

3 MEMBER MUNDELL: Thank you, Mr. Chairman. Just a
4 follow-up on that.

5

6

EXAMINATION

7

8 Q. (BY MEMBER MUNDELL) Maybe you could put some
9 meat on the bones. I was under the impression that the
10 emissions from a gas-powered plant were significantly less
11 than a coal-fired plant. So I just want to make sure what
12 you're saying.

13 A. Yeah. And when you talk about emissions from a
14 gas turbine plant, you know, you tend to focus on NOX and
15 sulphur emissions or particulate emissions, and they
16 are -- you know, they are regulated. They are lower.

17 But if you look at carbon dioxide emissions, CO₂,
18 that's what we measure when we talk about carbon
19 emissions, and those emissions are -- you know, I
20 wouldn't -- they are less than a coal plant, but they're
21 still fairly high.

22 MEMBER MUNDELL: Okay. Thank you, Mr. Chairman.

23 THE WITNESS: You know, I just as a kind of a --
24 let me see if there was some questions that I wanted to
25 answer.

1 This is the ponds. The retention ponds that we
2 have here are, you know, are designed to discourage
3 wildlife. I think there's going to be high sides to the
4 ponds, you know, more vertical so that there's less area
5 to aggregate. Also, the site is going to be fenced in so,
6 you know, the total perimeter would have a fence. And so,
7 you know, something just can't walk on the property and
8 get into the pond. I think that's the other question that
9 I wanted to answer.

10 Just on a final note, I've been in the energy
11 business for over 35 years, and I've had the pleasure of
12 doing projects from Indonesia, to Prague, to London, and
13 this is one of the most exciting and challenging projects
14 of my career. And I'm very many proud to be a part of it
15 and look forward to some day telling my grandkids about
16 it. But we've got to get through a few steps and make it
17 happen. So thank you for your attention.

18 MR. SUNDLOF: Mr. Weiss, does that conclude your
19 summary?

20 THE WITNESS: Yes, it does.

21 MR. SUNDLOF: Chairman Foreman, we passed out a
22 late-filed exhibit which has been marked as STW-50, and
23 that is an economic impact study.

24 Q. (BY MR. SUNDLOF) Mr. Weiss, STW-50 is an
25 economic impact study that was prepared by Hickey &

1 Associates. Can you describe that document?

2 A. Yes. Lockheed Martin assigned Hickey &
3 Associates to do an analysis that I just summarized in
4 terms of employment impact, total capital movement as a
5 result of the project, and taxes. And so you have that
6 summary.

7 MR. SUNDLOF: Thank you.

8 At this time I would like to offer into evidence
9 Exhibits STW-1 through 4, 10 through 17, 19 through 21,
10 and 50.

11 CHMN. FOREMAN: Any objection?

12 (No response.)

13 CHMN. FOREMAN: No objection, due cause
14 appearing, it's ordered admitting exhibits STW-1 through
15 4, 10 through 17, 19 through 21, and 50. Is that
16 accurate?

17 (Exhibits STW-1 through STW-4, STW-10 through
18 STW-17, STW-19 through STW-21, and STW-50 were admitted
19 into evidence.)

20 MR. SUNDLOF: Yes, that is. Thank you, Your
21 Honor. And at this time I tender the witness for
22 cross-examination and questioning.

23 CHMN. FOREMAN: Okay. Member Rasmussen.

24

25

1

EXAMINATION

2

3 Q. (BY MEMBER RASMUSSEN) In testimony on other
4 solar projects, we had some discussion of this issue, if
5 you could comment.

6

In terms of the reflections from the units either
7 to airplanes, and it's not too far from I-10 vis-à-vis
8 traffic along I-10, what is the possibility of causing any
9 accidents or blinds, temporary blinds from the reflection?

10 A. Could we go to 03?

11

First off, if you look at where I-10 is, we would
12 have the mirrors arranged in a north/south direction. So
13 when they turn in the morning -- can we go to the one
14 where it shows the parabolic mirror? Yeah, that one.

15

So in the morning they would be facing east, and
16 then during the day they would turn to, you know, face the
17 sky, and gradually turn over to face west. So when you go
18 back to Exhibit 3, you know, they will be facing this way,
19 and then that way at the end of the day.

20

If you look at the mirrors from above, they're
21 mirrors. And so what it ends up looking like is a lake,
22 because what you really see is the sky. If you look at
23 mirrors from the ground, you tend to look like you're
24 10 feet tall if you're close. But aside from that, you
25 see the surroundings of what is around you. You'll see

1 trees, you'll see -- if they were, for example, facing
2 east here, you would get whatever growth is whatever is
3 near, and that's what you'll see.

4 So because the mirror is focused -- if we can go
5 back to the mirror again. Yeah. The mirror itself
6 actually is focused on the pipe, the receiver tube. So
7 you do not see the sun's reflection. If you do, there's a
8 problem, it's not -- there's something out of alignment.

9 MEMBER RASMUSSEN: Thank you.

10 CHMN. FOREMAN: How often is there a problem?

11 THE WITNESS: Well, we're talking -- it's very
12 small, because these are -- that's one of the key quality
13 control issues is that these corners and the other corners
14 are properly aligned to the tube. And if it's not, you
15 could get, you know, a mirror effect. But it's -- we're
16 talking tenths of a degree. It's very accurate.

17 CHMN. FOREMAN: Is that monitored on a daily
18 basis?

19 THE WITNESS: I don't know that it's monitored to
20 determine if there is an error. I don't know that. We
21 certainly monitor that we're getting the energy we think
22 we should get through the receiver tube. But if we're
23 not, then we would get into an analysis of why not.

24 CHMN. FOREMAN: Okay. Member Houtz.

25 MEMBER HOUTZ: Yes. Thank you, Mr. Chairman.

1

EXAMINATION

2

3 Q. (BY MEMBER HOUTZ) Mr. Weiss, I will have more
4 questions for Mr. Henry, but turning to the water side,
5 your submitted testimony talks about raising the
6 production output price using dry cooling by about
7 9 percent.

8 A. That's correct.

9 Q. And is that a capital cost amortized or --

10 A. As I said in my testimony, there's a couple of
11 components to that. One is capital. It costs more. The
12 other is it's less efficient. It increases the back
13 pressure on the steam turbines so the steam turbine
14 becomes less efficient. And it has more parasitic load.
15 You have got to drive all of those fans and the radiator
16 to push air across the coils, and so your parasitic load
17 goes up as well. So when you look at all of those factors
18 combined, we would have to increase our power price by
19 9 percent.

20 Q. And that's -- I was trying to put it in the realm
21 of Mr. Sundlof said this is a \$2 billion investment. So
22 it would be a \$2 million plus 9 percent or --

23 A. 2 billion -- well, if it was 10 percent of
24 \$2 billion would be a \$200 million impact.

25 Q. Okay. So moving to water supply for the wet

1 cooling. I don't know if it was you noted or someone
2 noted that you're very close to the CAP canal.

3 A. That's correct.

4 Q. And someone mentioned a possible backup supply.

5 Have you had discussions with the Central Arizona
6 Water Conservation District?

7 A. We haven't had specific discussions with those
8 folks. We have talked about, you know, using CAP water as
9 a source of water. The issues, as I understand them, is
10 that we cannot get a long-term contract for CAP water.

11 And we need to demonstrate to our lenders and to
12 the power off-taker, you know, that this plant will be
13 there for 30 years. And I understand that that's not the
14 case. So we have our own -- you know, we looked at the
15 site and selected the site because it has adequate
16 resources, water resources.

17 Q. Okay. There are long-term contracts available,
18 but they are expensive to purchase.

19 A. Okay.

20 Q. They are all allocated. You would have to be
21 purchasing a present contract holder's rights, and that is
22 a pretty expensive market.

23 I think most of the questions that I have about
24 the groundwater use I'll reserve for Mr. Henry.

25 I'll go to Mr. Begalke's question. How much is

1 the mirror washing as a percentage of the amount of water
2 used?

3 A. There are three primary uses of water. The
4 cooling tower probably consumes 97 percent of our water
5 consumption. You have got to keep the steam in the steam
6 loop pure and there's blowdown associated with that. And
7 the mirror washing is the third, and the mirror washing
8 and the blowdown are about a percent each.

9 Q. Earlier, I mentioned to Mr. Sundlof I would like
10 to have someone testify about the land ownership and the
11 proposed uses for this land. I'm assuming you have an
12 option to purchase?

13 A. We control the property we're describing today,
14 yes.

15 Q. Okay. And obviously your consultants are aware
16 that Mr. Martori has submitted an application to the
17 department for an analysis for a planned community?

18 A. Right.

19 Q. And what is the relationship of that to your
20 proposal?

21 A. My understanding is that that occurred before we
22 actually entered into the agreements with the Martoris and
23 the other landowners and that Art just continued that
24 process.

25 Q. Because that has not been approved by the

1 department yet and I was -- would you have an absolute
2 right if he gets an analysis approved by the department?
3 An analysis under the department's rules tends to tie up a
4 portion of the groundwater for a period of time.

5 A. Uh-huh.

6 Q. And I'm more interested in that relationship as
7 we get through this, and maybe Mr. Henry can address some
8 of that tomorrow since they used the same model.

9 A. Yes. And we have been -- and he shared that with
10 us. And actually, that's part of the work that URS has
11 conducted. They've looked at the model and reviewed what
12 our impacts would be against his model.

13 But in terms of residential use and that,
14 that's -- I mean, that's not what we're looking at the
15 property for. And so like I said, I believe that the
16 Martoris are looking at more than one site.

17 Q. Yeah. The lands of the three sections that you
18 have, two of those sections would be included in this
19 analysis, and that's about 45 percent of the land that he
20 was putting an analysis on.

21 A. Okay.

22 Q. I think I'll reserve the rest of my questions on
23 the water to Mr. Henry.

24 And one last, since Ms. Bahr doesn't have
25 Mr. Hogan here, I think when she was asking about -- or

1 concerns about the cooling or the evaporation ponds, I
2 think she was thinking in terms of birds and others that
3 can go over a wall.

4 A. Okay.

5 Q. And maybe you could address how you treat the
6 aviary folks.

7 A. I think, if you don't mind, I'll leave that to
8 somebody from URS to help us with that answer. They've
9 done the design work on the pond.

10 CHMN. FOREMAN: You mentioned in your prefiled
11 testimony on Page 8 that the water will be extracted from
12 new wells and that the existing wells would be capped.

13 THE WITNESS: Yes.

14 CHMN. FOREMAN: Why new wells?

15 THE WITNESS: Just the age of the existing wells.
16 They're over -- some of them are over 30 years old. And
17 if we're going to build a brand new plant, then we're not
18 going to count on old wells to supply the water. We want
19 a reliable source.

20 CHMN. FOREMAN: Okay, very good. Any other
21 questions?

22 (No response.)

23 CHMN. FOREMAN: Thank you very much for coming
24 and testifying.

25 THE WITNESS: Thank you for your time.

1 CHMN. FOREMAN: Oh, I'm sorry. Mr. Johnson, did
2 you have a question?

3 MR. JOHNSON: Just one brief question and maybe a
4 follow-up.

5

6

CROSS-EXAMINATION

7

8 Q. (BY MR. JOHNSON) The Delany substation that is
9 your primary interconnect point here, who is responsible
10 for building that?

11 A. APS is.

12 Q. And what is their timetable?

13 A. Their timetable is they originally filed to put
14 that in service in 2013. And in our discussions with
15 them, going through the different studies that they do,
16 they agreed that they would -- they could bring that up to
17 2012 and be in service for us so we would have time to
18 commission our plant.

19 Q. Is that going to be dependent on obtaining a new
20 PPA with APS?

21 A. No. Well, if you -- no. There is a Chinese
22 wall, you know, with respect to transmission and power
23 purchase agreements. So they're different organizations.

24 MR. JOHNSON: Very good. Thank you. That was
25 all I had. Thank you.

1 CHMN. FOREMAN: Very good. Thank you, sir.

2 Call your next witness. And is Ms. Frownfelter
3 going to be the next witness?

4 MR. SUNDLOF: Yes. We call Jennifer Frownfelter.

5 CHMN. FOREMAN: And I want to call to the
6 attention of the Committee that we -- I need to make a
7 decision about whether to conduct the tour tomorrow, and
8 so I'll want your input after Ms. Frownfelter testifies as
9 to whether you think it would be something that would be
10 worthwhile to Committee members. Some of you have already
11 expressed an indication that you don't think that the tour
12 would be worth the investment of time, but I wanted to
13 wait until after she had testified and we saw the slides
14 that she has before we made that decision.

15 So Ms. Frownfelter, do you wish an oath or
16 affirmation?

17 MS. FROWNFELTER: Oath.

18 (Jennifer Frownfelter was duly sworn.)

19 CHMN. FOREMAN: Please tell us your name for the
20 record, and spell your last name for the reporter.

21 THE WITNESS: Jennifer Frownfelter. Last name is
22 spelled F-r-o-w-n-f-e-l-t-e-r.

23 CHMN. FOREMAN: Counsel, you may proceed.

24 MR. SUNDLOF: Thank you.

25

1 JENNIFER FROWNFELTER,
2 called as a witness on behalf of the Applicant, having
3 been previously duly sworn by the Chairman to speak the
4 truth and nothing but the truth, was examined and
5 testified as follows:

6

7

DIRECT EXAMINATION

8

9 Q. (BY MR. SUNDLOF) Would you restate your name and
10 tell us your professional affiliation.

11 A. Yes. I'm Jennifer Frownfelter. I'm an employee
12 of URS Corporation. I've been serving as the project
13 manager for the preparation of the environmental studies,
14 the facilitation of the public process, and the
15 development of the CEC application on behalf of Starwood
16 Solar I.

17 Q. And your resumé is provided as STW-23?

18 A. Yes.

19 Q. Your direct prefiled direct testimony has been
20 marked as STW-22. Do you have any changes at this time to
21 that testimony?

22 A. No, I do not.

23 Q. Was that prepared under your direction?

24 A. Yes, it was.

25 Q. If I were to ask you the questions in STW-22,

1 would your answers be the same?

2 A. Yes, they would.

3 Q. You mentioned several scopes of work for URS.
4 Could you begin by giving us a summary of your testimony
5 relative to the public process scope of work?

6 A. Sure. The project area is 75 miles west of
7 Phoenix, as I think you have already heard today. It's in
8 a sparsely developed and sparsely populated area.

9 URS, together with Starwood, conducted a very
10 thorough and responsive public and agency outreach effort.
11 The efforts conducted included briefing with elected
12 officials, meetings with various agency representatives,
13 with federal, state, and county and tribal agency staff,
14 letters and newsletters, a website, various e-mail
15 exchanges, and an open house.

16 With respect to the meetings and briefings that
17 were held, more than 20 meetings were held. I won't list
18 them all. They're all in my prefiled testimony.

19 But I will highlight that we did speak with Luke
20 Air Force Base early in the process. We met with Four
21 Southern Tribes at their request and provided a briefing
22 to them at the meeting. We met with various departments
23 of Maricopa County, including the Planning Department,
24 Flood Control District, and Department of Transportation.
25 And we also met with Harquahala Valley Irrigation

1 District. A complete listing of the briefings and when
2 they were held and what was discussed is included in the
3 Exhibit J of the application.

4 In addition to those briefings, we also sent
5 letters to numerous agencies requesting their input and to
6 inform them of the project. That included the State
7 Historic Preservation Office and the Arizona Department of
8 Game & Fish. We offered meetings at their request if they
9 wanted them.

10 As far as newsletters go, we mailed two
11 newsletters throughout the process to over 800 addresses.
12 As you see here, that included -- the mailing list
13 included 52 agencies, 20 elected officials, and 545
14 property owners, which are generally within the vicinity
15 of the project. We included all property owners within
16 two miles of the project and potential transmission line
17 alternatives.

18 The first project newsletter was mailed in July,
19 early July. It provided general information regarding the
20 project. It also announced the public open house which
21 was scheduled for the end of July.

22 The second project newsletter was mailed in early
23 October, this month. It announced the filing of the CEC
24 application and also provided notice of this hearing.

25 You'll also note in the exhibits we filed

1 earlier, that's Exhibits STW-6 and 7, there was public
2 notice of these hearings in newspapers and also posted
3 signs near the site.

4 For the public open house, I think you heard
5 earlier that there were approximately 80 people in
6 attendance at the open house. That was held July 30 in
7 Tonopah. At that meeting, representatives of Starwood,
8 Lockheed Martin, and URS were available to answer
9 questions by the public. A majority of the attendees at
10 that meeting were contractors interested in employment
11 opportunities. Individuals from the community also were
12 in attendance, and a lot of those individuals also had
13 questions or comments regarding job opportunities as well.

14 For the website, we launched a website in July to
15 provide information to the public on the project. We
16 continuously monitored that because we had a comment entry
17 feature that people would e-mail their comments to us. We
18 also had a telephone information line that provided
19 general information on the project.

20 With respect to the comments we received,
21 combined from the website and e-mails, telephone line and
22 the open house, we received comments from 167 contractors.
23 We had a special link on the website for contractors to
24 provide information that was then funneled to Lockheed
25 Martin and Starwood.

1 We received 65 public comments regarding the
2 project, and 22 of those were related to employment
3 opportunities. So really, about a quarter of the comments
4 seemed to be substantive in nature related to the studies
5 that URS was conducting. There were comments on property
6 values, water use and conservation, dust, and biological
7 resources that we recorded.

8 And that's a general summary of the public
9 outreach efforts that we conducted.

10 Q. Thank you. Ms. Frownfelter, you also mentioned
11 that part of the scope of work of URS was to do the
12 environmental work and studies related to the project in
13 this application. Can you summarize your testimony
14 regarding that part of your scope of work?

15 A. Yes. With respect to the environmental studies,
16 URS evaluated the existing and future land use plans,
17 biological resources, including plants, wildlife, and
18 special status species, scenic areas, cultural resources,
19 recreational uses, and noise. In addition to those
20 studies, we also looked at air quality and groundwater as
21 part of the total environment affected by the project.

22 To review land use, I will use the exhibits that
23 were filed with the testimony, beginning with STW-4, which
24 is also on the placemat. As you see on this exhibit, the
25 red boundary area, that's the Starwood Solar I site

1 boundary. The project is located in western Maricopa
2 County.

3 You can see here there's a north/south line kind
4 of on the left side of the screen. It's the La Paz
5 County/Maricopa County boundary. The site is located
6 approximately 75 miles west of Phoenix. It's 20 miles,
7 approximately, west of the incorporated limits of the Town
8 of Buckeye, which is shown on the right side of the screen
9 as a hatched pattern, and about 10 miles west of the Town
10 of Tonopah, which is an unincorporated town within
11 Maricopa County.

12 Zooming in and looking closer at the site, this
13 is STW-3, it shows the aerial photo of the area. The
14 black dashed line shown around the site represents the
15 study area, which is, as I mentioned before, about two
16 miles surrounding the site and transmission line
17 alternatives. And again, the red boundary is the Starwood
18 Solar I site.

19 Here you see the transmission line alternatives,
20 green, yellow, and pink, and the orange dashed as the
21 connection to Harquahala.

22 This map also shows the ownership of the area,
23 with the light blue being State Trust Land, the gold being
24 public land administered by the Bureau of Land Management.
25 The darker blue is land managed by the Flood Control

1 District of Maricopa County, which is adjacent to the
2 flood retarding infrastructure in this area. And the no
3 shaded, the area without shading is the private lands.

4 You'll notice in the lower right the red hatch
5 pattern over the BLM land. This is the Saddle Mountain
6 special recreation management area. I believe you heard
7 Sandy Bahr mention that earlier. It's an area that
8 extends farther to the south outside of our project study
9 area. It includes dispersed recreation opportunities.

10 As you can see from this exhibit, the Starwood
11 Solar I site is located on private land. And the
12 transmission lines proposed, the preferred route in green
13 would cross primarily private land, though it would cross
14 a small portion of the Flood Control District property.

15 What you can also see from this exhibit is that
16 the area is primarily agriculture in nature or vacant,
17 undeveloped.

18 The next exhibit, which is STW-27, shows what
19 existing land use in the area is. Here the colors are the
20 same, the red boundary of the site and the transmission
21 line alternatives. The lighter yellow shading denotes
22 rural residential or agricultural uses in the area. The
23 brown is utility. So the Harquahala generating station is
24 shown as a utility, as is the Saddleback flood retarding
25 structure. And then the green is the BLM managed lands,

1 which is shown as -- it's de facto open space. It's not
2 dedicated, given the multiple use mandates for BLM.

3 Within this area you can see it is mostly
4 agriculture. As I mentioned, there are some residences
5 within approximately one mile of the site. They are about
6 a half a mile. There are three residential properties,
7 and they are to the east of the site boundary.

8 And let's zoom in to the next exhibit, which is
9 STW-28.

10 Within this section, which is just south of
11 Salome Highway just east of 491st Avenue, as I mentioned,
12 there are three residences. You can see these on the
13 aerial photos marked as 1, 2, and 3.

14 The first house that I will show you -- we
15 actually have photographs of these so you can see what
16 they are -- this house is set approximately 300 feet from
17 the boundary of the Starwood Solar I site. This photo is
18 taken viewing to the east, looking at the house, which
19 would be able to view the property to the west.

20 The property owner of this house did attend the
21 public open house, and I spoke with him, as did other
22 representatives of Starwood. They had questions regarding
23 what the project would look like from his property, as
24 well as the water use of the project.

25 The second house, which is located at 487th

1 Avenue, this is a view looking to the east at this
2 property. This property is owned by the same owner as the
3 first house that I showed you. This is the view from,
4 again, as I said looking to the east. They would view to
5 the west toward the property. There is some vegetation
6 screening in their front yard.

7 And the third house in the general vicinity also
8 is No. 3 here. It's also along 487th Avenue. This
9 photograph was taken looking to the east at the property.
10 It's unclear whether or not this residence is occupied.
11 The mail we sent to the property owners came back as
12 undeliverable. On the recent visit to the project area,
13 the stairs were knocked down when we went and conducted a
14 tour dry run. So we don't believe this to be occupied at
15 this time.

16 With respect to future land uses in the project
17 area, we don't expect those to differ much from the
18 existing uses. On the screen you'll see Exhibit
19 No. STW-32. This is the future land use for the area.
20 Again, the light yellow is the rural residential or
21 agricultural uses.

22 The brown is utility, so you see Starwood Solar I
23 as converted to brown. Also in brown is Harquahala 160, a
24 future photovoltaic facility that's been proposed to
25 Maricopa County. But for the most part, it will remain

1 rural residential and agriculture.

2 You'll see with some blue lines some platted
3 subdivisions shown in the area. These have been
4 subdivided or platted between 12 and 50 years ago, yet the
5 only development that has occurred to speak of, there's
6 the three homes that I mentioned just east of the project
7 site, and some scattered residences down in the Rose View
8 Estates area just at the kind of southern boundary of this
9 exhibit.

10

11

EXAMINATION

12

13 Q. (BY CHMN. FOREMAN) Ms. Frownfelter, before we
14 move on, I notice what appears to me to be an
15 inconsistency in the STW-32 with STW-3 in the area that is
16 designated as area within the control of Bureau of Land
17 Management.

18

19 If we could look at STW-3, and then come back to
20 STW-32, there appear to be two sections that are above the
21 crosshatched area that are below Thomas, the Thomas Road
22 alignment. If you go back now to STW-32, those don't
23 appear. Can you help me understand why they don't?

24

25 A. The future land use is derived from the county
plans for the area, which in those county plans designate
this as an open space area, but they do not designate the

1 other sections as that. So we have deferred to the county
2 as they're the jurisdiction for this area. They've
3 designated it as rural residential.

4 Q. So does the county -- so this is a land -- a
5 difference between a land use plan map and an ownership
6 designation map?

7 A. Yes. Yes, that's correct.

8 Q. All right. Thank you for clearing that up for me.

9 A. As I mentioned, there are these formally platted
10 subdivisions, which were up to 50 years old that they were
11 platted, and there's only several residences that have
12 occurred despite those plans being developed. Maricopa
13 County, through our communications with them, has no
14 indication from anyone in this area that they are planning
15 to develop these properties at this time.

16 The one I would like to point out is that the
17 preferred route does cross West Valley Ranches. It does
18 cross along the Salome Highway alignment, which is already
19 an existing road, which does have a dedicated easement
20 through that property.

21 So in summary, our assessment for land uses is
22 that the Starwood Solar I project would not conflict with
23 the existing or future plans for the area.

24 Q. The one homeowner with whom you spoke asked
25 questions concerning the project but did not express

1 either support or opposition to the project; is that true?

2 A. Not to me. He did not express support or
3 objection to the project.

4 Q. Did he express support or objection to the
5 project to anyone that you know of?

6 A. No.

7 CHMN. FOREMAN: Member Eberhart.

8 MEMBER EBERHART: Thank you.

9 If we could have Exhibit 32 put back up on the
10 screen.

11

12

EXAMINATION

13

14 Q. (BY MEMBER EBERHART) Ms. Frownfelter, looking at
15 that West Valley Farms, is it? Ranches subdivision. Even
16 though there's no houses, there's platted lots in that
17 area?

18 A. It's a platted subdivision, but I don't believe
19 the lots have been -- well, it's final plat. I don't know
20 that there's been lot splits, because its owned by two --
21 it's two parcels still on the parcels. So I know the
22 subdivision is platted, but I do not believe that they've
23 sold parcels.

24 Q. You mentioned that there's an easement for the
25 Salome Highway through that development?

1 A. That's correct.

2 Q. It's been a while since I've been out that way.
3 Is there a road through there?

4 A. Yes, there is.

5 Q. And how wide is that easement?

6 A. I don't know. Typically, the road easements are
7 130 feet along the section lines, but I do not know if
8 that's what the width of this right-of-way is.

9 Q. And what width easement is being proposed for
10 this line, for the transmission line?

11 A. Up to 200 feet.

12 Q. Would that coincide with the roadway easement or
13 be outside the roadway easement?

14 A. It could share a portion of it. The county will
15 allow shared rights-of-way. That would still need to be
16 determined, ultimately.

17 Q. Okay. One other question. Were you involved in
18 developing the various alternatives that are shown on the
19 map?

20 A. Yes.

21 Q. And do you know, it seems to me an obvious one
22 that isn't shown is parallel to the existing 500kV line
23 from the Harquahala over straight east. Was there an
24 alternative looked at there?

25 A. We looked at one preliminarily, but due to the

1 WECC criteria about common corridors that was eliminated,
2 and Mr. Weiss spoke to that earlier.

3 MEMBER EBERHART: Thank you.

4 THE WITNESS: For biological resources, URS
5 biologists reviewed, as I said, vegetation, wildlife, and
6 special status species in the area. Through this review,
7 URS identified that seven special status species had the
8 potential to occur in the area. That included, as I think
9 you recall earlier hearing about, the Sonoran desert
10 tortoise and the Western burrowing owl, and five species
11 of bats. None of these species that have potential to
12 occur in the area are federally listed as threatened or
13 endangered. They are wildlife of concern.

14 The Sonoran desert tortoise and Western burrowing
15 owl could occur on the project site. The burrowing owl
16 could occur on the project site and along the transmission
17 line alignments, while the Sonoran desert tortoise is
18 likely or more likely to occur, instead, along just the
19 transmission line alignments but not within the Solar I
20 boundary. The bats, in contrast, are just likely to
21 forage in the area but not roost within the project area
22 as we've defined it.

23 As far as coordination with Game & Fish, URS did
24 receive input from Game & Fish. We solicited their input
25 early in the project. They did provide a letter that's

1 included in Exhibit J of the application. And with their
2 input, we did include that in our analysis during our
3 consideration of the impacts.

4 We've identified mitigations such as specie
5 specific surveys that could be conducted prior to
6 construction, and relocate individuals, tortoise and/or
7 burrowing owls, to mitigate and minimize the potential of
8 mortality for those individuals.

9 There was a question earlier regarding the
10 evaporation ponds. And Mr. Weiss deferred to me, so I'll
11 answer that. As far as the ponds go, the slopes of the
12 sides of the ponds would be steep enough to at least
13 minimize the potential for wading birds. It's not going
14 to eliminate it completely. The ponds would be maintained
15 such that vegetation wouldn't be growing in those ponds to
16 minimize the attractiveness of the ponds for those
17 species.

18 It's not -- you're not able to see it here.
19 There's also -- there are some tailwater wetlands just
20 immediately south of the project area on Courthouse Road
21 that provide extensive, I think, wetland habitat and which
22 would be far more attractive to wildlife than to anything
23 that a brine pond would provide on site.

24 Also, if there were to be any kind of mortality
25 of avian species on the Starwood project site, there would

1 obviously be some measures taken to identify what is
2 causing that and to minimize the potential for future
3 incidents.

4 With respect to the cultural resources, URS did
5 conduct a records review which did document that there are
6 no recorded historical or archaeological sites. Not -- I
7 didn't mean to say no historical, but there are no
8 archaeological sites recorded in the Starwood Solar I site
9 within the site boundary.

10 Within the overall area within two miles of the
11 project, there have been 12 prehistoric archaeological
12 sites recorded, nine historical sites, and two historical
13 roads. The resources were mostly scatters of artifacts
14 that were at the surface or shallow. If any of those
15 kinds of resources were present at the solar site, they
16 likely would have been destroyed through the agricultural
17 activities; therefore, we did not conduct a pedestrian
18 survey of the Solar I site. We consulted early in the
19 process with SHPO, and they concurred with that course of
20 study.

21 Three of the previous recorded archaeological
22 sites are located along the preferred or Alternative 1
23 transmission line alignment. If those sites do remain
24 intact, direct impacts could be avoided to those sites
25 through spanning of the sites during construction. No

1 archaeological sites have been recorded along Alternative
2 Route 2, but there has not been any survey of that
3 alignment. As I mentioned, we did notify the SHPO early
4 in the process. We also sent letters to 10 tribes
5 regarding the project.

6 SHPO recommended that if a CEC is issued for the
7 project, and once the route is approved for the
8 transmission line to Delany, that that alignment and the
9 ultimate right-of-way be surveyed for cultural resources
10 because it crosses undeveloped lands. The most recent
11 letter received from SHPO is included within
12 Exhibit STW-33.

13 With respect to visual resources, URS reviewed
14 the project and assessed the impacts the project would
15 have on both scenic quality as well as sensitive viewers.

16 With respect to scenic quality impacts, our
17 analysis showed the impacts would be minimal due to the --
18 because the project is not located in any designated or
19 protected areas for scenic resources. The study area
20 includes previously disturbed landscapes and agricultural
21 fields. And the study area is limited in its diversity of
22 form, line, color, and texture in the context of the
23 surrounding region.

24 Regarding impacts on sensitive viewers, there are
25 very few viewers in the area, as you are aware. However,

1 we did want to assess the impacts on what the project
2 would look like from those nearest residences. So what
3 you see on screen now is STW-34. It shows the viewpoint
4 locations from where we prepared simulations, and I will
5 show the simulations. They're included in your
6 exhibit materials as Starwood 34, 35, and 36, which are
7 just -- or I apologize. Starwood 35, 36, and 37.

8 These are the same exhibits that were filed with
9 the application in Exhibit E. So I don't want anybody to
10 be confused that they're different simulations. We've
11 just included them again for the ease of going through
12 this.

13 The first simulation is prepared from
14 Viewpoint 1, which is just north of the residence along
15 491st Avenue. Actually, the top photograph here is the
16 existing condition. The bottom photograph is the
17 simulation. This is viewing to the west or southwest.
18 You can see here in the photos the residences that I
19 showed you earlier.

20 Looking at the simulation, the second photograph,
21 you can see the back side of the solar troughs, which is
22 the main feature you see from this viewing location. It's
23 just the solar collector assemblies that Mr. Weiss spoke
24 of. In this simulation, those mirrors are oriented toward
25 the sky.

1 The second simulation is --

2 CHMN. FOREMAN: Before we move on, Member
3 Eberhart had a question.

4 Q. (BY MEMBER EBERHART) If we could go back to that
5 previous slide, Ms. Frownfelter. You mentioned that the
6 homeowner for this site is the same landowner as for
7 No. 2?

8 A. Yes.

9 Q. Do you know if this house is occupied, or does
10 that person live in the second house?

11 A. I don't know that.

12 Q. Not that it matters, but this obviously is the
13 most impacted resident of the three, and I just wondered
14 if there was a way to find out if there was a potential
15 use by Starwood for this site that would -- because,
16 obviously, there is going to be a huge impact to his
17 viewshed to the west from this house as opposed to the
18 second one. Maybe you could entice him to move to the
19 second house.

20 But you don't know if he rents that one out or --

21 A. I do not know.

22 MEMBER EBERHART: Thank you.

23 THE WITNESS: The second simulation we prepared
24 was from 487th Avenue shown as Viewpoint No. 2. Here the
25 view is oriented to the southwest again. This road you

1 see in the top photos is the existing condition. Again,
2 the bottom is the simulation. The road is 487th Avenue.

3 In both the existing and simulation, you can see
4 Harquahala generating station. It's just left of the
5 center of the photograph. In the simulation, the features
6 that you can see are the transmission line structures
7 heading to the east out to the left side of the photo. In
8 the center of the photo, the two pole structures to drop
9 the transmission line into the switchyard. You'll see the
10 long building-like structure in the center. That's the
11 cooling tower cells. And then just to the right of that
12 you see the salt storage tanks.

13 The other feature that's not as predominant is a
14 dark line along the horizon extending out to the right
15 side of the screen, and that would be the solar collector
16 assemblies.

17 That view -- so we've looked at a view that was
18 approximately 300 to 400 feet away, the second about a
19 half a mile, and the third viewpoint is approximately a
20 mile. This is from just south of Courthouse Road viewing
21 to the northwest. Again, the top photo existing
22 conditions, the bottom the simulation.

23 From a mile away it's not -- the solar generating
24 facility is not as evident. You do see in both
25 photographs the existing Harquahala generating station,

1 which is toward the left side of the photograph. This is
2 STW-37. And then again, you can see the dark line along
3 the horizon denoting the solar collector assemblies, which
4 is the major part of this facility.

5 CHMN. FOREMAN: Member Mundell.

6 MEMBER MUNDELL: Mr. Chairman.

7

8

EXAMINATION

9

10 Q. (BY MEMBER MUNDELL) Do you have any simulations
11 with the sun actually reflecting or hitting the solar
12 panels?

13 A. No, we've not prepared those.

14 Q. Okay. So in the pictures that you have showed
15 us, at the angle of the -- as I recall, they rotate; is
16 that correct? The panels rotate?

17 A. That is correct.

18 Q. From your perspective, at what point in the
19 rotation would they be -- would they cause the most
20 reflection, if at all, to these residences?

21 A. I don't know that I think that they would at all,
22 because at the point where they would face the residences,
23 they would be too low, oriented too low to actually be
24 generating electricity.

25 Q. Well, that's why I said if at all. I'm not the

1 expert. That's why I asked the question the way I asked
2 it, if at all.

3 So your testimony would be that there would be no
4 reflection back towards these residences at any time
5 during the sun -- prior to sunset?

6 A. That's correct.

7 MEMBER MUNDELL: Thank you.

8 THE WITNESS: With respect to noise, URS
9 conducted an analysis. We measured the ambient noise in
10 the project area and also modeled conditions based on the
11 preliminary list of equipment that would be used for
12 operations of the facility.

13 As a result, the predicted operational noise
14 levels at noise sensitive receptors, which would be the
15 nearest residences, would increase only a barely
16 perceptible amount over existing levels. The construction
17 would obviously generate additional noise, but the impacts
18 would be temporary and intermittent.

19 And finally, with respect to air and groundwater,
20 I'll just highlight with respect to air quality, we did
21 conduct a preliminary evaluation of the emissions
22 associated with the power plant construction and
23 operation. And though the facility design is not
24 complete, URS estimated the emissions for the facility,
25 combined with the ambient air quality in the area, would

1 not result in an exceedance of the national ambient air
2 quality standards.

3 The facility would be subject to permitting, as
4 you heard earlier, with Maricopa County air quality
5 department, at which time more detailed analyses will be
6 prepared, and Starwood will complete that permitting prior
7 to the construction of the facility as required by
8 statute.

9 With respect to the project's use of groundwater,
10 Mr. Henry will testify regarding the project's impacts. I
11 did want to note a bit about the question that Mr. Houtz,
12 ,you had, regarding the competing uses.

13 I do understand that the Martoris have evaluated
14 or have submitted an analysis of the area for residential
15 development. They started that process, it's my
16 understanding, in 2007, which was prior to Starwood's
17 securing control of this site, and that it includes
18 properties outside of the Starwood Solar site boundary.

19 While they're undergoing that evaluation, they
20 have not yet indicated any intent to the county planning
21 department to develop this property. So based on our
22 understanding is that, you know, this is not necessarily a
23 conflicting use, but that they had undertaken that study
24 prior to contracting with Starwood for this site.

25 And that concludes the summary of my testimony.

1 DIRECT EXAMINATION (Cont'd)

2

3 Q. (BY MR. SUNDLOF) Thank you, Ms. Frownfelter.

4 Would you give us a summary of your findings with
5 respect to the environmental impacts of this project.

6 A. Yes. Based on our review of the project and the
7 factors set forth in Arizona Revised Statute 40-360.06, we
8 find that the project is environmentally compatible.

9 Q. Ms. Frownfelter, marked as Exhibit STW-6 are
10 hearing signs and hearing locations. Were they erected
11 according to your direction and are those up right now?

12 A. Yes, they are.

13 Q. Exhibit STW-7 is a hearing notice and affidavit
14 of publication. Was this performed under your direction
15 and in accordance with requirements of law?

16 A. Yes.

17 MR. SUNDLOF: At this point I would like to offer
18 into evidence Exhibits STW-6 and 7, and Exhibits STW-22
19 through 37.

20 CHMN. FOREMAN: Any objection to 6 and 7, and 22
21 through 37?

22 MR. JOHNSON: No.

23 CHMN. FOREMAN: No objection, good cause
24 appearing, it's ordered admitting Exhibits STW-6 and 7, 22
25 through 37.

1 (Exhibits STW-6, STW-7, and STW-22 through STW-37
2 were admitted into evidence.)

3 MR. SUNDLOF: Thank you, Your Honor. I tender
4 this witness for cross-examination and questions.

5 CHMN. FOREMAN: Counsel, do you have any cross-
6 examination?

7 MR. JOHNSON: We do not.

8 CHMN. FOREMAN: Questions from the Committee?
9 I have a few.

10

11

FURTHER EXAMINATION

12

13 Q. (BY CHMN. FOREMAN) First of all, let's talk
14 about the tour. You have generated a proposed tour
15 protocol schedule and map, and that's found in the
16 exhibits. And which exhibits? I'm sorry. The exhibit
17 number?

18 MR. SUNDLOF: 5.

19 CHMN. FOREMAN: Exhibit 5. All right.

20 Q. (BY CHMN. FOREMAN) Tell us how long the tour
21 that you propose would take.

22 A. We estimate that the tour would take
23 approximately four to five hours departing from the
24 Wigwam.

25 Q. Do the photographs that you have provided to the

1 Committee fairly and accurately depict what we would see
2 if we went on the tour?

3 A. Yes. The other structures that are out there are
4 generally associated with the agricultural operations, so
5 those are the only other structures in the general
6 vicinity.

7 Q. And how close would those be to the project site?

8 A. Some of those are on the project site. Some of
9 them are on the Starwood property. There are some storage
10 units.

11 Q. Some old agricultural buildings --

12 A. Yes.

13 Q. -- and well sites?

14 A. Yes.

15 CHMN. FOREMAN: Okay. Is there any member of the
16 Committee who would like to take the tour tomorrow?

17 Member Eberhart.

18 MEMBER EBERHART: I just have one question.

19 Mr. Chair.

20 Ms. Frownfelter, if we were to take the tour,
21 between the preferred alternative and the two alternatives
22 for the transmission line, in your opinion, do you think
23 that we would see or gain any information that would allow
24 us to better choose which alternative alignment the
25 transmission line should be sited on?

1 THE WITNESS: There's not extensive access, but
2 you can drive out -- you cannot drive along -- let me
3 point to it -- this portion, the north/south portion of
4 Alternative Route 1. You can continue out, let's see,
5 this portion of Alternative Route 1.

6 So I think the only difference you would see here
7 is, you know, being on different roads, but I don't know
8 that that would give you any better perspective on
9 choosing an alignment. There's not much difference
10 between the alternatives.

11 CHMN. FOREMAN: Could you put Exhibit 5 up on --
12 the map of Exhibit 5 up on the screen? Go to the map,
13 please. There. And if you could enlarge that a little
14 bit. If you can see that, I think it's -- well,
15 Ms. Frownfelter, tell us the -- what is the color of the
16 tour route?

17 THE WITNESS: The driving route is shown here in
18 orange. So you come out I-10 and you get off at
19 Harquahala Valley Road, and then proceed along -- this is
20 Courthouse, I believe. Yes, Courthouse Road.

21 MEMBER MUNDELL: Courthouse?

22 THE WITNESS: Yeah, Courthouse Road.

23 CHMN. FOREMAN: And we're assuming that the
24 courthouse that is a part of the name is perhaps in
25 another part of the state than this particular area?

1 THE WITNESS: There's not a courthouse in this
2 area.

3 CHMN. FOREMAN: Any other questions about the
4 tour route? Is there anyone who feels that taking the
5 tour would materially assist them in making their decision
6 in this case?

7 Member Mundell.

8 MEMBER MUNDELL: Just to reiterate what you said,
9 you said there's only three residential structures
10 anywhere close to either the project or -- tell me about
11 the lines. Would I see anything? Just to follow up on my
12 colleague's questions, I mean --

13 THE WITNESS: Sure. Within a half a mile, the
14 only residential uses are in the section as we already --
15 I already showed you. The only other residences that
16 would be within a mile of the transmission lines is
17 located north of Salome Highway, and I'm kind of pointing
18 to it right now with the laser. So it's almost a mile,
19 probably three-quarters of a mile from the transmission
20 line alignment. That's the only other residence that
21 would be within a mile of any project facilities.

22 MEMBER MUNDELL: Thank you.

23 CHMN. FOREMAN: So going once, going twice.

24 All right. I'm going to make a call here and
25 we're going to not take the tour tomorrow. It does not

1 appear that the information that we might receive from the
2 tour would materially add to what we already have seen.
3 The area is almost uniformly undeveloped territory. We
4 have seen photographs of the area, and so I don't think
5 that it would be helpful, and none of my colleagues have
6 indicated an interest. So I wanted to make that call so
7 that the Applicant would have the opportunity to cancel
8 whatever reservations that have been made.

9 Now, could we put up on the screen STW-15. Let
10 me follow up on Member Mundell's interesting question.

11 MEMBER MUNDELL: I thought you were going to say
12 brilliant.

13 CHMN. FOREMAN: Well, it piqued my interest.

14 And Mr. Weiss is still here and still under oath,
15 and I'm going to ask his response on this, too.

16 Would I be correct in assuming that no portion of
17 the parabolic mirror that's depicted on STW-15 would ever
18 reach the point where it would be directly reflecting
19 sunlight into any of those houses?

20 It would have to be early morning sun, but it
21 looks to me like the early morning sun, if you brought it
22 down even to the level that is on STW-15, it would not --
23 the reflection would not go towards the houses. It would
24 still be directed up in the air. Is that accurate,
25 Ms. Frownfelter?

1 THE WITNESS: Yes.

2 CHMN. FOREMAN: And Mr. Weiss, you confirm that?

3 MR. WEISS: Yes, I do.

4 CHMN. FOREMAN: For the record, Mr. Weiss says
5 yes. Okay, very good. We've got that issue tied down.

6 Q. (BY CHMN. FOREMAN) Now, Ms. Frownfelter, I would
7 like to call your attention to the letter from Arizona
8 Game & Fish that's dated July 7, 2009. That is in
9 Exhibit J to Exhibit STW-1, which is the application.

10 A. Yes, I have that.

11 Q. In that letter, the representative of Arizona
12 Game & Fish -- who just happens to be back in the back of
13 the room now -- expresses a concern about constructing
14 brine ponds, which I would assume would be the evaporative
15 cooling ponds, in a way that would discourage birds that
16 might fly over from landing and discourage wading birds
17 from landing and trying to wade.

18 Is there any objection to including in, let's say
19 Paragraph 14 of the -- I'm sorry, Paragraph 13 of the CEC,
20 language that would require the Applicant to take
21 reasonable steps to discourage waterfowl from landing in
22 the ponds and wading birds from wading in the ponds?

23 A. Speaking from my -- in my professional opinion, I
24 don't think that that's a problem for the Applicant. The
25 ponds will be designed -- it's a prescriptive design based

1 on requirements set forth in statute and by Arizona
2 Department of Environmental Quality. That said, the sides
3 are fairly steep so that they do discourage birds from
4 wading.

5 CHMN. FOREMAN: Okay, Mr. Weiss, any problem with
6 language that would require you to take reasonable steps
7 to avoid -- to discourage the use by waterfowl and wading
8 fowl?

9 MR. WEISS: I don't have a problem with that. I
10 believe that's part of the ADEQ standards is to discourage
11 wildlife as part of the design.

12 CHMN. FOREMAN: All right. Very good.

13 Member Whalen.

14 MEMBER WHALEN: Thank you, Mr. Chairman.

15 CHMN. FOREMAN: Hit your button.

16 MEMBER WHALEN: I don't talk that often to get to
17 punch the button.

18 Do power plants have --

19 CHMN. FOREMAN: I think you have it the other way
20 around. You don't have to punch the button to talk.

21 MEMBER WHALEN: Do power plants have problems
22 with pigeons?

23 THE WITNESS: Not that I'm aware of.

24 MEMBER WHALEN: I was just wondering, the cooling
25 towers don't promote that problem?

1 MR. WEISS: Not that I'm aware of.

2 MEMBER WHALEN: Okay, thank you. That's all I
3 have.

4 CHMN. FOREMAN: I would guess that the heat
5 transfer fluid would probably discourage roosting by
6 pigeons.

7 MR. WEISS: Yes.

8 MEMBER MUNDELL: Mr. Chairman.

9 CHMN. FOREMAN: Member Mundell.

10 MEMBER MUNDELL: I think some of the people in
11 the room will remember, though, that some -- I don't know
12 if it was pigeons or bird droppings actually caused a
13 major transformer fire here in Arizona a few years ago.
14 The Westwing transformer fire, at least the stated reason
15 by the owners of that facility indicated that it might
16 have been bird droppings.

17 So in any event, I can segue into a couple of
18 questions if you would like me to.

19 CHMN. FOREMAN: Please do.

20 MEMBER MUNDELL: I'm just here partly for
21 historical reference. I think that's one of my
22 responsibilities. But in any event --

23 CHMN. FOREMAN: As we get older, we all are.

24

25

1 FURTHER EXAMINATION

2

3 Q. (BY MEMBER MUNDELL) You know, I'm looking at
4 the September 22, 2009 letter, State Parks. It starts
5 off, "Thank you for consulting with the State Historical
6 Preservation Office." And then they talk about the
7 comments from the Tohono O'Odham Nation that indicate they
8 believe an intensive survey of the proposed plant site is
9 appropriate.

10 And you may have covered this this morning, and
11 if you did, I apologize. Is there going to be some
12 discussion about that at some point in time or has there
13 already been?

14 A. No. We've not discussed that yet, and I can
15 speak to that a bit. We received those comments for that
16 additional survey early in the process. We've made
17 various attempts to consult with the Tohono. We attended
18 the Four Southern Tribes meeting in August at their
19 request. Joe Joaquin from the Tohono was present for that
20 meeting and didn't offer any comments either way following
21 up on their prior written comments, which are included in
22 Exhibit J. There's e-mail correspondence between Peter
23 Steer of the Tohono Nation, and Gene Rogge, our senior
24 archaeologist as URS.

25 We also did send the Tohono the cultural

1 resources report prepared for the project, which
2 documented the prior studies conducted in the area, as
3 well as the historic resources have been subsequently
4 followed up again with them, and they have not offered any
5 additional comments on the project.

6 Q. So what will you do going forward if, in fact, a
7 CEC is granted on this issue?

8 A. Regarding this issue, Starwood is committed to
9 surveying the transmission line route, which is in
10 undisturbed areas. As far as the site goes, it would be
11 the typical conditions that if artifacts are discovered
12 during construction of the plant to then halt construction
13 and determine what needs to happen.

14 MEMBER MUNDELL: Okay, thank you.

15 Thank you, Mr. Chairman.

16 CHMN. FOREMAN: And again, the area where the
17 generator is to be located is already well disturbed for
18 many years, agricultural land?

19 THE WITNESS: That's correct.

20 CHMN. FOREMAN: And the only land which might
21 contain the historical issues that Member Mundell has
22 raised would be along the transmission route, and that
23 would depend upon the transmission route that we selected,
24 correct?

25 THE WITNESS: That's correct.

1 CHMN. FOREMAN: And part of that transmission,
2 part of the preferred transmission route and one of the
3 alternative routes goes along Salome Highway, which is a
4 dirt road now, has been built at least?

5 THE WITNESS: That's correct.

6 CHMN. FOREMAN: All right. Any other questions?

7 (No response.)

8 CHMN. FOREMAN: All right. Very good. Why don't
9 we take a recess to allow our court reporter to regain
10 blood flow to her fingertips. We'll resume again at five
11 minutes after 3:00.

12 (A recess was taken from 2:51 p.m. to 3:05 p.m.)

13 CHMN. FOREMAN: Let's see if we can take our
14 seats and get started again. All right, our hearing is
15 resuming.

16 Counsel, you may call your next witness.

17 MR. SUNDLOF: Thank you, Your Honor. We call
18 Mr. Richard Henry.

19 CHMN. FOREMAN: All right. Mr. Henry, would you
20 like an oath or affirmation?

21 MR. HENRY: An oath, please.

22 CHMN. FOREMAN: Push the button over there so the
23 green light goes on, and pull it in towards you a little
24 bit.

25 (Richard Henry was duly sworn.)

1 CHMN. FOREMAN: State your name for the record,
2 and spell your last name for the court reporter.

3 THE WITNESS: Richard Henry, H-e-n-r-y.

4 CHMN. FOREMAN: Pull the microphone in just a
5 little closer to you. There we go.

6 Counsel, you may proceed.

7 MR. SUNDLOF: Thank you, Your Honor.

8

9

RICHARD HENRY,

10 called as a witness on behalf of the Applicant, having
11 been previously duly sworn by the Chairman to speak the
12 truth and nothing but the truth, was examined and
13 testified as follows:

14

15

DIRECT EXAMINATION

16

17 Q. (BY MR. SUNDLOF) Mr. Henry, would you please
18 restate your name and describe your professional
19 affiliation.

20 A. Yes. My name is Richard Henry. I'm a senior
21 hydrologist with URS Corporation.

22 Q. And your resumé is provided as STW-39; is that
23 right?

24 A. That's correct.

25 Q. And what is your scope of responsibility with

1 respect to the Starwood Solar I project?

2 A. I was responsible for evaluating groundwater
3 impacts of the Starwood facility.

4 Q. Marked as Exhibit STW-38 is your prefiled direct
5 testimony. Was this prepared under your direction?

6 A. Yes, it was.

7 Q. Do you have any changes to that testimony at this
8 time?

9 A. I do not.

10 Q. Mr. Henry, if I were to ask you the questions set
11 out in STW-38, would your answers be the same?

12 A. Yes, they would.

13 Q. Thank you. Mr. Henry, do you have a summary of
14 your testimony to present to the Committee?

15 A. I do.

16 Q. Please proceed.

17 A. To support the CEC application, URS reviewed the
18 historical water use, water quality, and groundwater
19 induced subsidence data for the proposed solar facility
20 property and the surrounding Harquahala Basin area to
21 evaluate the potential groundwater impacts if the facility
22 is approved, constructed, and operated.

23 To do this, URS developed a numerical groundwater
24 flow model to simulate future groundwater conditions at
25 the proposed Starwood Solar I site and projected potential

1 groundwater impacts from the operation of the proposed
2 facility for a 30-year operational life.

3 A copy of the URS report is included as
4 Exhibit STW-40, and the results of these analyses are
5 summarized in exhibits that we'll see here, STW-41 through
6 45, and in the prefiled direct testimony, Exhibit STW-38.

7 Exhibit STW-41 shows the reported annual
8 groundwater use in the Harquahala Basin between 1950 and
9 2008, and that's the histograms that you see on the
10 screen. As shown on this figure, groundwater use
11 increased from about 10,000 acre-feet in 1950 when
12 agriculture was beginning in the area, and increased to
13 200,000 acre-feet in the early '60s, and subsequently
14 dropped off until about 1986 when it was about
15 13,000 acre-feet of usage as agricultural demand
16 decreased. And subsequently, since that time period,
17 groundwater use has increased up to about 66,000 acre-feet
18 in 2008.

19 Following the peak -- or in 1986, the groundwater
20 use reached its low, and shortly thereafter the Central
21 Arizona Project water became available. And a lot of the
22 groundwater -- or a lot of the water use at the site is a
23 combination of both CAP water and groundwater pumpage.

24 Exhibit 42 shows the historic depth of water
25 changes for a well located adjacent to the proposed solar

1 facility and the annual groundwater use in the Harquahala
2 Basin. As a result of groundwater pumpage in the basin,
3 the depth to groundwater in this well decreased steadily
4 from about 381 feet. And the depth to water is shown on
5 the right-hand side of the chart, and the annual
6 groundwater use is shown on the left-hand side. It
7 decreased from about 381 feet in the '60s until -- to a
8 low of about 532 feet in 1981. And that's at this point
9 here.

10 Subsequently, with less groundwater demand and
11 the availability of CAP water, groundwater levels
12 increased from the low in the mid-'80s until the high in
13 about 1998. The reduced groundwater use for irrigation
14 allowed the groundwater levels to recover to about
15 411 feet in 1998, a groundwater level rise of
16 approximately 90 feet. The decrease from the 1960s to the
17 low point was approximately 150 feet.

18 Subsequently, with increased groundwater usage
19 because of limited access to excess CAP water, the
20 groundwater levels have dropped approximately 30 feet
21 since 1998 to 2008, and that's this period here.

22 The next exhibit, Exhibit 43, shows historic
23 groundwater and CAP water use at the proposed solar
24 facility property for the time period 2000 to 2008, and
25 these are the reported uses of both groundwater and CAP

1 water. Groundwater use is shown in the light olive color
2 at the base of the diagram, and the CAP water use is shown
3 in the dark olive color at the top.

4 Just for reference, the average or the proposed
5 maximum groundwater use for the solar facility is shown
6 here at 3,000 acre-feet per year.

7 The annual groundwater use reported for 2000
8 through 2008 ranged between 1,000 acre-feet and
9 6,300 acre-feet, and averaged approximately
10 2,600 acre-feet.

11 Annual CAP water use reported for 2000 through
12 2008 ranged between about 1,000 acre-feet and
13 9,300 acre-feet per year. The average is about 4,500
14 acre-feet per year.

15 The maximum proposed groundwater use at the
16 proposed solar facility is 3,000 acre-feet per year, which
17 is approximately 58 percent less than the current average
18 total agricultural water use in the area, and that is
19 approximately 7,100 acre-feet per year.

20 Considering the proposed solar facility property
21 acreage, the average estimated total water use for
22 agriculture is about 3.7 acre-feet per acre per year. The
23 proposed solar facility is projected to use approximately
24 1.6 acre-feet per acre per year, or 2.3 times less than
25 the current agricultural use on average.

1 Two water use scenarios were modeled for the
2 proposed solar facility using the maximum proposed rate
3 for the facility of 3,000 acre-feet per year. The results
4 of those simulations will be shown in the next two
5 exhibits.

6 Scenario 1 simulated the existing agricultural
7 water use based on 2006 CAP water and groundwater use
8 rates in the Harquahala Basin area into the future, and
9 then groundwater as the sole water supply for the proposed
10 solar facility.

11 The results of these simulations predict that the
12 proposed solar facility will likely have no measurable
13 impact on groundwater levels compared to continued
14 agricultural use over the 30-year operational life of the
15 facility.

16 Groundwater levels in both scenarios are
17 predicted to continue to increase as they have recently.
18 However, the groundwater level increase will be less at
19 the solar facility, about 0.8 feet per year less, compared
20 to continued agricultural use, resulting in 24 feet less
21 recovery than agricultural use.

22 And the reason for that 24-foot difference over
23 the 30-year operational life is primarily that the average
24 groundwater use or -- yeah, the average groundwater use in
25 2006 was about 800 acre-feet per year less than what we're

1 modeling as the maximum groundwater use of the facility.
2 So that causes the facility to cause groundwater levels to
3 recover at a lesser rate. In fact, if we ran the
4 simulations at approximately the expected water use of
5 about 2,300 acre-feet, those two lines would almost
6 coincide with one another.

7 CHMN. FOREMAN: Member Houtz.

8 MEMBER HOUTZ: On your simulations for your
9 recharge from the agricultural use and the difference with
10 having the solar plant, did you fully account for the fact
11 there wouldn't be any recharge from the lands?

12 THE WITNESS: We did. We eliminated irrigation
13 recharge at the solar facility properties. We maintained
14 the recharge on the surrounding -- in the surrounding
15 agricultural properties.

16 MEMBER HOUTZ: Is that a primary reason for the
17 difference?

18 THE WITNESS: That's one of the largest reasons,
19 yes.

20 MEMBER HOUTZ: Okay, thank you.

21 THE WITNESS: The next Exhibit, Exhibit 45, shows
22 Scenario 2, and we conservatively simulated groundwater as
23 the sole future water source both within the basin and at
24 the proposed solar facility, assuming the CAP water would
25 not be available.

1 The results of these simulations predict that the
2 proposed facility will likely have no measurable impact on
3 groundwater levels compared to continued agricultural use
4 over the 30-year operational life of the facility. In
5 fact, groundwater levels, at least from the numerical
6 model perspective, are actually predicted to rise about
7 10 feet under the solar facility operation relative to the
8 agricultural use.

9 In summary, URS's evaluation determined that
10 groundwater at the proposed site will provide an adequate
11 water supply for the proposed solar facility project based
12 on a maximum groundwater use of 3,000 acre-feet per year
13 for the 30-year operational life of the facility without
14 measurably impacting groundwater levels, water quality, or
15 groundwater withdrawal induced subsidence, beyond what
16 currently occurs under agricultural use and as allowed by
17 statute.

18 On average, the proposed solar facility is
19 estimated to use about 2.3 times less water compared to
20 continued agricultural use, and will meet all of the
21 requirements under A.R.S. 45-440 for withdrawal of
22 groundwater from historically irrigated lands within an
23 irrigation nonexpansion area for commercial or industrial
24 use.

25 As a final point, it's worth noting again, and

1 looking at Exhibit 43, that an INA, an irrigation
2 nonexpansion area, only limits the irrigated acreage and
3 does not limit groundwater pumpage for agricultural use at
4 the site.

5 As you can see on this exhibit, in 2008,
6 groundwater use actually rose to the highest point of any
7 time during this period. The increase in groundwater use
8 at this point compared to CAP water use, the increase at
9 this point is because of limited excess CAP water
10 availability. If CAP water continues to be limited in the
11 future, agricultural groundwater use at the site will
12 likely increase and may result in groundwater overdraft.

13 If approved by the Commission, the proposed solar
14 facility would limit groundwater pumpage at this site to
15 about 3,000 acre-feet per year, which will effectively
16 conserve groundwater at the property for the 30-year
17 operational life of the facility.

18 Those conclude my remarks.

19 MR. SUNDLOF: Thank you, Mr. Henry. I think you
20 just said that this concludes your summary?

21 THE WITNESS: Yes.

22 MR. SUNDLOF: At this point, Your Honor, I would
23 like to offer into evidence Exhibits STW-38 through 45.

24 CHMN. FOREMAN: Any objection?

25 MR. JOHNSON: No.

1 CHMN. FOREMAN: No objection, good cause
2 appearing, it's ordered admitting Exhibits STW-38 through
3 45.

4 (Exhibits STW-38 through STW-45 were admitted
5 into evidence.)

6 CHMN. FOREMAN: I might also point out for the
7 members of the Committee that during the break I had the
8 Applicant provide for each of us the most recent proposed
9 language for the CEC and a page that's entitled STW-51,
10 which I presume is the agreed upon language that was
11 referred to this morning; is that correct?

12 MR. SUNDLOF: Yes, Your Honor. I want to make it
13 clear that Exhibit STW-51 is the wording that Mr. Johnson
14 and I have agreed to jointly submit to the Committee.

15 CHMN. FOREMAN: Okay.

16 MR. JOHNSON: That's correct.

17 CHMN. FOREMAN: Does that accurately reflect your
18 stipulation, Mr. Johnson?

19 MR. JOHNSON: Yes, it does.

20 CHMN. FOREMAN: Okay. Very good. And that's
21 apropos of this, because there is specific reference to
22 water usage in that agreement, and I wanted to call that
23 to the attention of the Committee members while Mr. Henry
24 was still available for examination.

25 So other questions?

1 MEMBER HOUTZ: Mr. Chairman.

2 CHMN. FOREMAN: Member Houtz.

3

4

EXAMINATION

5

6 Q. (BY MEMBER HOUTZ) Mr. Henry, I hope you can help
7 me. I would like to kind of make a record here of some of
8 reasons that you have some of these charts and graphs.

9 A. Okay.

10 Q. The assumption you are making has a 2044 use of
11 CAP water in the Harquahala INA or for the Harquahala
12 Irrigation District. Can you explain why the 2044 date?

13 A. Well, really, the 2044 date, the time period from
14 2014 to 2044 is the 30-year -- projected 30-year
15 operational life of the facility. It has no bearing on
16 whether CAP water will be truly available or not. We're
17 not making that assumption. We are actually making the
18 assumption that groundwater use will be our sole source of
19 groundwater for the site.

20 Q. For agricultural use, though, probably it's also
21 going to be primarily groundwater by that time period,
22 too?

23 A. That's likely correct. That's why we model two
24 scenarios, one that was a scenario that continued what we
25 have seen over the 2008 -- or the 2000 to 2008 time period

1 where we have a mixture of CAP water and groundwater, and
2 then we had the other scenario where we looked at
3 groundwater use only.

4 Q. Because, in fact, probably after 2030 there's no
5 guarantee of any excess CAP water being available to the
6 farmers in Harquahala?

7 A. Yes. So that's why we ran two separate
8 scenarios.

9 Q. Okay. I'm going to go back to Martori Farms.

10 A. Yes, okay.

11 Q. You raised this a couple of times. I noticed
12 that in your analysis you used the same model that was
13 submitted by Southwest Groundwater for Martori Farms' --

14 A. We did.

15 Q. -- application for a water analysis on certain
16 lands in the vicinity.

17 A. Uh-huh.

18 Q. And probably it's good to use someone else's
19 model. You didn't have to pay to develop it.

20 A. That's always good.

21 Q. Under the Martori Farms proposal -- and granted,
22 it's a little over twice as much land that would be
23 involved -- they were seeking a designation for
24 11,343 acre-feet of water to be preserved or reserved out
25 of the aquifer for that development over a 100-year

1 period.

2 Does the 2,313 or the 3,000 number come out of
3 that proposed analysis, or is it on top of that proposed
4 analysis?

5 A. When we analyzed, we removed the -- the
6 assumption, as it's been mentioned by Ms. Frownfelter and
7 Mr. Weiss, the Martori model was developed initially in
8 2007 for their anticipated development of their properties
9 as residential areas.

10 When we used the model, we made the assumption,
11 since Starwood now has control of the land, that those --
12 any properties that were included in that model, the
13 residential use scenario was taken out. So we only
14 modeled for the Starwood property, the 3,000 acre-feet per
15 year.

16 Q. Would it be safe to say that the Martori Farms
17 proposed use for the two sections of land that were
18 included in that that would be for Starwood was almost
19 6,000 acre-feet of water, of groundwater use?

20 A. That's almost correct, yes.

21 Q. And so this would be -- your use of water for the
22 entire project was less than what was being preserved?

23 A. From a water balance perspective, about twice
24 less.

25 Q. And you stated earlier that you, in your modeling

1 analysis, did take out the fact that when you do apply
2 water to lands for irrigation purposes, there is some
3 recharge to the aquifer whether it's groundwater or CAP
4 water?

5 A. That's correct.

6 Q. You didn't mention in your summary, but in your
7 testimony you did talk about subsidence.

8 A. Uh-huh.

9 Q. And are there some fissures or subsidence
10 evidence in the vicinity of the proposed site?

11 A. Based on our -- on the ADWR website and the
12 information provided there, as well as our other research
13 into the area and having surveyed the ground area, there
14 are no fissures on the site proper. There are fissures in
15 the vicinity, but not at the Starwood Solar facility.

16 Q. If my looking at my map is correct, one fissure
17 identified about a mile south, and one looks like almost
18 10 miles to the west?

19 A. Yeah. It's about 8 to 10 miles maybe, yeah.

20 Q. Okay. You're familiar with the term monuments in
21 the use for subsidence monitoring?

22 A. I am.

23 Q. Are you aware of any monitors in the area of the
24 Starwood proposal?

25 A. I am personally not aware, no.

1 Q. Okay. And I don't know if you're the one to look
2 at this, but if there was -- if we -- if the Committee
3 recommended the CEC and there was a condition that would
4 require the placement of a monument for fissure monitoring
5 on the Starwood properties, what would be your
6 recommendation to your client on that?

7 A. I guess I would have to defer to Mr. Weiss. My
8 recommendation would be that we don't anticipate any
9 subsidence in the area other than what we have seen from
10 continued agricultural use, and that wouldn't be
11 sufficient from a geotechnical perspective to be an issue
12 for the site. However, to be prudent, it may be
13 worthwhile to include the monitors for the site.

14 Q. Let's go to the provisions of our Title 45,
15 Section 440. You made a reference to meeting that
16 criteria.

17 In that section, in the INAs, and especially in
18 the Harquahala INA, if there's a proposal for a use of
19 over 50 acre-feet of water for an industrial use, there's
20 certain criteria put in place in the statute to approve
21 that type of change of use from irrigated lands to the
22 industrial use.

23 Have you ever worked a proposal like this before?

24 A. I have not personally worked a proposal to
25 convert the land, no.

1 Q. It's not a very common thing to do. Have you
2 discussed this with the Department of Water Resources?

3 A. We have looked at the regulations. And as
4 provided in the testimony that was submitted, we felt that
5 we met all of the requirements that are in the
6 regulations. Now, we have -- until we understand whether
7 or not the CEC will be approved, we haven't moved forward
8 with looking into the details of what the actual
9 requirements would be.

10 MEMBER HOUTZ: And Mr. Chairman, just for the
11 record, I have been informed by the people at the
12 Department of Water Resources, they would request that
13 they not do the analysis required by the department to
14 confirm what Mr. Henry has said until there is an actual
15 application by the Applicant, and so --

16 CHMN. FOREMAN: An actual application for what?

17 MEMBER HOUTZ: For the 45-440 conversion of the
18 ag lands to municipal use.

19 CHMN. FOREMAN: And when would we anticipate that
20 that application would be made in the process?

21 MEMBER HOUTZ: My assumption would be that they
22 would do it after they have a CEC and they've got
23 financing in place.

24 MR. SUNDLOF: Yes, that's correct.

25 CHMN. FOREMAN: Okay.

1 MEMBER HOUTZ: And I just say this because the
2 department -- I don't know if anyone has noticed -- but
3 the budget has been kind of tight, and they don't want to
4 do any work that involves taking time from people from
5 other jobs.

6 CHMN. FOREMAN: Well, I think it's probably
7 appropriate that we alert the Commission to this issue by
8 putting it in the transcript so that they'll not be
9 concerned about the lack of the application when they
10 consider it, if they consider this in review.

11 MEMBER HOUTZ: And I'll place in the record at
12 this point, if -- the way the statute is written, if they
13 make the application and it meets the criteria of the
14 statute, it is a done deal. There is not a public notice,
15 an objection period. It is just holding up the piece of
16 paper and then the hydrologic analysis and, if it meets
17 the criteria, then they do have the right to use the water
18 for the municipal or industrial purpose.

19 Q. (BY MEMBER HOUTZ) Is that your understanding,
20 Mr. Henry?

21 A. That's my understanding.

22 Q. I know I have one more thing. Oh, Mr. Henry, in
23 URS's studies for Starwood, did you do an alternative
24 water supply analysis? I asked Mr. Weiss some of these
25 things, but I thought I would ask you.

1 A. No, I personally did not. My responsibility was
2 strictly looking at the groundwater.

3 Q. You were just the groundwater person. You didn't
4 look to see if there -- what the cost of CAP water would
5 be or other sources?

6 A. There were other water sources? No, did not.

7 Q. And so your final position is that the
8 differences of the proposed solar facility at these lands
9 versus continuing agriculture and the difference in
10 aquifer storage would be almost immeasurable?

11 A. That's my conclusion, is that it would be
12 immeasurable. We can model them and the models tell us,
13 you know, numbers out to decimal places, but just from a
14 practical sense, I believe it would be immeasurable.

15 Q. Do you remember what depth? I think it was in
16 your testimony or it was in the study, what depth you
17 would probably try to make the perforations in the wells
18 for drawing water?

19 A. We haven't actually designed the wells at this
20 point, but the modeling shows that the water levels would
21 be drawn down to about 500 feet or so. So that, of
22 course, the well screens would be screened sufficiently
23 below that to allow the water to be drawn in without any
24 concern for water levels dropping too low.

25 Q. In your looking at the groundwater models, were

1 you concerned about the continued agricultural pumping of
2 all of the neighbors in the basin?

3 A. Well, we did simulate the continued ag pumping of
4 all of the neighbors. We didn't simulate any extreme
5 scenario. Well, I guess we did simulate the groundwater
6 use scenario, a groundwater use only scenario, so I guess
7 that is the extreme scenario. So that has been simulated
8 and hopefully accounted for.

9 Q. And in the statutes for the Harquahala INA, there
10 is also provision to provide for the transportation of
11 groundwater into an original AMA at a certain rate.

12 Was that modeled, then, at the presumed
13 3 acre-feet per acre of transportation out of the basin?

14 A. That was not modeled.

15 Q. I just wondered if that's too speculative or just
16 out of your time frame?

17 A. Well, at this point we tried to model what we saw
18 to be on the near-term horizon. So I guess that would be
19 too speculative. Although it may occur, at this point we
20 haven't looked at that.

21 MEMBER HOUTZ: Mr. Chairman, I don't have any
22 more questions.

23 CHMN. FOREMAN: Other questions?

24 Member Eberhart.

25 MEMBER EBERHART: I remembered to turn on the

1 button.

2

3

EXAMINATION

4

5 Q. (BY MEMBER EBERHART) Mr. Henry, just this may be
6 technical, but I want to clarify the record.

7 Are you a registered geologist in the state of
8 Arizona?

9 A. I am not a registered geologist in the state of
10 Arizona.

11 Q. So Page 2 of your prefiled testimony where you
12 have the initials PG after your name probably should not
13 be there, because that would seem to imply that you're
14 licensed here in Arizona?

15 A. Okay. Yeah. That was included because I am
16 licensed in other states.

17 Q. Thank you. In Exhibit 40, that's a report. Was
18 that prepared under your direction?

19 A. It was.

20 Q. Will that be submitted or does that need to be
21 submitted to the Department of Water Resources for review,
22 or is that strictly for the Committee's use?

23 A. At this point it's strictly for the Committee's
24 use.

25 Q. Thank you. In the chart that's on the screen,

1 Exhibit 43, I see that the proposed, and I think it's
2 maximum use, is 3,000 acre-feet per year.

3 A. Correct.

4 Q. Are you proposing to use any CAP water, or is it
5 all proposed to be groundwater?

6 A. At this point it's all proposed to be
7 groundwater.

8 Q. So according to this chart, Exhibit 43, you will
9 actually be pumping more groundwater than the site is
10 currently?

11 A. The site currently pumps about 26 -- on average
12 for this time period, about 2,600 acre-feet. The actual
13 facility is expected to use about 2,300 acre-feet. We
14 modeled 3,000 acre-feet kind of as a maximum on the upper
15 end. So if we pump the maximum, we would exceed the
16 average for this time period. But under normal facility
17 operations, we would expect it to be about 300 acre-feet
18 less on average.

19 Q. Now, there was testimony earlier about having to
20 drill new wells. If you're pumping the same amount of
21 groundwater that's being pumped now, why do you need to go
22 to that expense?

23 A. Well, as Mr. Weiss mentioned, a lot of wells in
24 this area are 30 to 40 years old. So from a facility
25 perspective they would prefer to have new wells to make

1 sure that the wells perform appropriately.

2 Q. How many wells do you propose or do you think
3 will need to be drilled?

4 A. At this point we haven't designed the well field.
5 I have seen three wells being shown just in preliminary
6 discussions and maybe a fourth as a backup at this point,
7 but we haven't actually designed the field, so we're not
8 sure.

9 Q. Just ballpark number, at this depth, which I
10 assume you're talking about 700 feet or something like
11 that, how much would a well that would produce the volume
12 that you need, how much, ballpark, does that cost?

13 A. Actually, I haven't looked at the cost.
14 Mr. Weiss may be able to respond to that.

15 MR. WEISS: \$3 to \$4 million for three wells.

16 MEMBER EBERHART: Thank you.

17 Q. (BY MEMBER EBERHART) Do you know, if the project
18 is phased in two phases, how many wells would they need
19 initially? All three, or could they do one initially, or
20 two?

21 A. Well, I would think that at a minimum we would
22 want at least two wells just from the perspective of being
23 able to overproduce water for the facility if we needed to
24 in case, you know, one well didn't perform as expected.
25 Of course, when they're drilled they'll be tested to make

1 sure that they perform appropriately, but at this point,
2 again, we haven't really looked at that and designed the
3 well field.

4 Q. As far as the current CAP use, what happens to
5 that allocation to this site if it's no longer needed?

6 MEMBER HOUTZ: Could I interject here? History
7 shows that in 1992 the Harquahala Irrigation District sold
8 their CAP long-term contract to the Secretary of the
9 Interior for Indian water rights settlement. So all CAP
10 use in Harquahala Valley right now has been on excess
11 water contracts that are year to year.

12 And I referred to a shorter time period. Right
13 now the CAWCD policy is to make less expensive water
14 available to the irrigation districts in the year 2030,
15 and at that time there will be no guarantees of excess
16 water to agriculture. And as it is, it's a declining rate
17 of excess water available to the farmers in the state
18 right now. Just wanted to clarify that.

19 MEMBER EBERHART: Thank you.

20 Q. (BY MEMBER EBERHART) Is the CAP water, could
21 that be used at a savings compared to groundwater for this
22 site if that allocation were still available?

23 A. I believe Mr. Weiss has looked into that. I
24 personally haven't. My responsibility was largely just
25 evaluating groundwater impacts.

1 I think the main issue with CAP water is because
2 of the limited availability or the potential limited
3 availability that the facility doesn't want to count on
4 that water, and that's why they picked this property so
5 that it had available groundwater resources to cool the
6 facility, or to make steam and cool this facility.

7 Q. One thing in your prefiled testimony you talked
8 about that URS took a look at was water quality?

9 A. Right.

10 Q. Is there a difference, do you know, between water
11 quality of CAP water and the groundwater in this area?

12 A. We didn't actually look at the difference between
13 CAP water and groundwater. We just looked at the existing
14 groundwater quality in the area and whether or not it
15 would be potentially impacted by the facility use.

16 However, my anticipation would be that CAP water
17 is much cleaner water than the existing water at the site,
18 the existing groundwater. Cleaner meaning less total
19 dissolved solids since it's river water. So it would have
20 a different chemical character.

21 Q. So it would require less, potentially less
22 expensive treatment on site?

23 A. That is, you know, possible, yeah.

24 MEMBER EBERHART: I think that's all the
25 questions that I have now. Thank you.

1 CHMN. FOREMAN: Any other questions?

2 Member Mundell.

3 MEMBER MUNDELL: Thank you, Mr. Chairman.

4

5

EXAMINATION

6

7 Q. (BY MEMBER MUNDELL) I may have missed this.

8 Mr. Houtz was asking you about the monitoring for

9 subsidence. And what would the monitor cost?

10 A. Actually, I'm not familiar with that cost.

11 MEMBER MUNDELL: Well, is there somebody on the --

12 maybe I can ask counsel. Is there someone that can

13 testify to the approximate cost to have the monitor,

14 (a) for installation, and then I guess the yearly cost?

15 MR. SUNDLOF: Member Mundell, there doesn't seem

16 to be anybody in the audience right now who has priced one

17 of those out.

18 MEMBER MUNDELL: I could ask Mr. Houtz, I guess.

19 MR. WITT: Actually, Mr. Chairman, I believe the

20 reference is just to a benchmark, which would cost on the

21 order of several thousand dollars. But then to use the

22 benchmark, you have to survey it annually or on some

23 regular period, which would be kind of a yearly cost. But

24 the benchmark itself is cheap, I mean, several thousand

25 dollars.

1 CHMN. FOREMAN: And for the record, give us your
2 name, sir.

3 MR. WITT: Jerry Witt, manager of W Harquahala.

4 MEMBER MUNDELL: Thank you, Mr. Chairman, that
5 was what I was looking for.

6 And then again, Mr. Chairman, bear with me if
7 this was discussed this morning, and just I'll cease my
8 questioning. But was the September 23 letter that was
9 attached by the Applicant as a -- inserted as Applicant's
10 hearing Exhibit STW-033, was that letter discussed this
11 morning?

12 CHMN. FOREMAN: No.

13 MEMBER MUNDELL: Okay. Let me ask the question
14 of this witness. Again, if he's not the one to answer it,
15 then hopefully someone from the expert panel can answer
16 it. It looks like it's being brought over now. Thank
17 you.

18 CHMN. FOREMAN: There are actually two letters in
19 Exhibit STW-33, and this would be the letter.

20 MEMBER MUNDELL: This is the letter dated
21 September 23, 2009, that was attached to the pleading,
22 entitled, "Notice of Filing Applicant's Additional Hearing
23 Exhibit," dated the 23rd of October, 2009, by Mr. Sundlof.

24 CHMN. FOREMAN: Okay. Actually, it looks like
25 there are four or five letters there, but go ahead.

1 Q. (BY MEMBER MUNDELL) In any event, I'm referring
2 to the September 23, 2009 letter. And sir, you have that
3 in front of you?

4 A. I do have it in front of me.

5 Q. And I'll read the first sentence, and then I'll
6 jump down to the last paragraph just so there's some
7 context for the Commissioners when they're -- if they
8 don't review the actual exhibit and they're reading the
9 transcript.

10 It says: "Dear Mr. Sundlof, I represent
11 Harquahala Valley Irrigation District in which your
12 client, Starwood Solar I, LLC, is purchasing irrigated
13 lands upon which to build a solar electric generating
14 station."

15 Then it drops down to the -- I'll drop down to
16 the last paragraph and then read it into the record and
17 then ask a question.

18 "Ever since the Harquahala Generating Company
19 came into the District, the board has sought conditions to
20 restrict groundwater pumping by nonagricultural users so
21 as to protect the aquifer for agricultural pumping. In
22 keeping with that purpose, the District has entered into
23 an agreement with HGC -- which is the Harquahala
24 Generating Company, that's my addition -- and Scottsdale,
25 limiting their pumping for off-site use to 3 acre-feet AF,

1 slash, irrigated acre. We would hope that your client
2 would enter into such an agreement with the District."

3 Do you know if that's occurred?

4 A. I would have to defer to Mr. Weiss. I don't
5 think it has but --

6 Q. So would it be fair to say that's an outstanding
7 issue that is unresolved?

8 A. As far as my understanding, it is.

9 MR. SUNDLOF: Committee Member Mundell, if I
10 could respond, this is probably not the right witness to
11 ask. There's been discussions with Mr. Baker and also his
12 client, and there is no problem with that request. In
13 fact, it is resolved by one of the two conditions that
14 Mr. Johnson and I have proposed.

15 We're talking about limiting it to
16 3,000 acre-feet, which would be about 1.6 acre-feet per
17 acre, and Mr. Baker's request is to limit it to 3. So I
18 think we're covered there. And there's been discussions,
19 and Mr. Baker seems to be -- Mr. Baker is ill, but his
20 client seems to be satisfied.

21 MEMBER MUNDELL: Just so I'm clear, there's been
22 discussions and testimony put on the record this morning
23 before I got here that the issue is resolved?

24 MR. SUNDLOF: No, there's not been testimony put
25 on the record. And if you would like me to call Mr. Weiss

1 back up, I would be glad to do that. My point was is that
2 Mr. Baker's request is taken care of by the stipulated
3 condition that we've proposed to the Committee.

4 MEMBER MUNDELL: And I'm not agreeing or
5 disagreeing. All I'm saying is this letter was attached
6 as an exhibit for some purpose. And then when I read it,
7 it seemed to be there was an issue that needed to be
8 addressed. And you're saying that the condition that
9 you're going to propose will address that issue?

10 MR. SUNDLOF: Yes, that is correct.

11 MEMBER MUNDELL: Okay. Thank you.

12 Thank you, Mr. Chairman.

13 CHMN. FOREMAN: And just so the record is
14 complete, that's the condition to which I made reference
15 earlier that you had placed before each one of the
16 Committee members after the break; is that true?

17 MR. SUNDLOF: Yes, Your Honor, that would be the
18 second condition listed in Exhibit 51.

19 CHMN. FOREMAN: Okay. Very good.

20 Member Wong.

21 MEMBER WONG: Thank you, Mr. Chairman.

22 Some issues, some things are -- that have been
23 raised concern me about water usage. I'm not an expert in
24 water at all, so I'm listening to the conversation here by
25 Member Houtz and Member Mundell about the groundwater use.

1 All of the years that I have spent in the
2 legislature and outside of that, I have followed water,
3 the groundwater area, and we have these active management
4 areas, AMAs, in certain counties. I think that's
5 Maricopa, Pinal, and Pima Counties, specifically, about
6 the necessity for balance of charge and recharge.

7 And I was always under the impression that Tucson
8 was the area that had the greatest dependence on
9 groundwater usage, and here I'm hearing that now we're
10 looking at this particular project at or maybe exceeding
11 the agricultural use of the land on groundwater use. Even
12 though on the gross -- or actually on the net basis you
13 may be using one-third of the total agricultural use,
14 still there's a high dependence on groundwater usage.

15 So that's a fine balance we're striking here
16 between the support of clean energy, renewable energy, and
17 the benefits derived therefrom, and then the potential
18 negative impact of high usage of another resource, that
19 being water, which is also a precious commodity in this
20 desert environment that we live in.

21

22

EXAMINATION

23

24 Q. (BY MEMBER WONG) Let me ask you, sir, is that --
25 Mr. Henry, am I correct in understanding that the project

1 has acquired additional land in addition to the actual
2 site of the hardware for energy production as a means of
3 having available additional water supplies; is that
4 correct?

5 A. The project has acquired three sections of land,
6 and those sections of land have water rights associated
7 with them. One point to make, there is a significant
8 difference between an AMA and an irrigation nonexpansion
9 area, and that primary difference is that in an INA there
10 is no limit on groundwater pumpage for historically
11 irrigated lands.

12 So the farmers, without CAP water, could pump as
13 much water as they wanted. If they needed 10,000
14 acre-feet per year, they could pump 10,000 acre-feet per
15 year. There's no restriction on the historically
16 irrigated lands in that property, or in the INA. The only
17 restriction is that you can't add additional irrigated
18 properties within the area. So that is a distinction.

19 Now, back to the original point, the average
20 groundwater use even for this time period is about
21 2,600 acre-feet per year. The facility is actually
22 expected to use about 2,300 acre-feet under normal
23 operating conditions, and therefore that's about a
24 300 acre-foot per year difference. So the facility under
25 just typical conditions would probably use about

1 300 acre-feet per year less. We modeled the maximum of
2 3,000 just to give ourselves a buffer for any
3 uncertainties that may come up in the facility operation
4 that hasn't been anticipated.

5 MR. SUNDLOF: Committee Member Wong, I think if I
6 may interject, I think you asked a question about whether
7 there was additional lands other than the project land,
8 and the answer is no.

9 MEMBER WONG: There is -- I think he addressed
10 many areas here. Let me back up a little bit.

11 Q. (BY MEMBER WONG) So you have the actual physical
12 plant, the hardware and production of the electricity on
13 certain parcels. Do you have additional lands surrounding
14 that that will not be used for production that will be
15 used for its water availability?

16 MR. SUNDLOF: Member Wong --

17 THE WITNESS: No.

18 MR. SUNDLOF: -- if I may answer that, there are
19 only three sections of land here, and they will be
20 completely covered with facilities for the generation of
21 electricity, mostly the solar collectors, and there is no
22 additional land other than those three sections.

23 So to answer your question, there is no land
24 that's going to be used to withdraw water that's not being
25 used for production.

1 MEMBER WONG: So there will be no excess land
2 like cities use as water farms; is that correct?

3 MR. SUNDLOF: That is correct, yes.

4 MEMBER WONG: Planted ranches in Scottsdale.

5 Q. (BY MEMBER WONG) So therefore, the land that you
6 have acquired, the water rights under it, which you will
7 be using, will be sufficient to address your water
8 demands?

9 A. That's correct.

10 Q. Back to your earlier response about groundwater
11 use, you said that the agricultural use has no limitations
12 under the AMA, so your --

13 A. INA.

14 Q. -- INEA, which you're subject to. So therefore,
15 you're piggy-backing under that type of policy. But if
16 this was just an industrial project, separate from the
17 agricultural INEA, could you do what you're doing without
18 that agricultural opportunity?

19 A. You mean could we do this within the INA? Within
20 an INA, yes, we would -- for the regulations for INAs,
21 this facility could be operated within those regulations.

22 Q. But if you didn't have that opportunity, the
23 INEA, could you be drawing this much groundwater?

24 A. I guess I'm not clear on your question.

25 Q. Well, what -- and I apologize, because I'm not an

1 expert in water, but I'm following you saying that under
2 the INEA? Is that correct?

3 CHMN. FOREMAN: INA.

4 MEMBER WONG: INA. Thank you.

5 MEMBER YOULE: Irrigation nonexpansion area.

6 MEMBER WONG: Irrigation nonexpansion area, thank
7 you, INA.

8 Q. (BY MEMBER WONG) That it allows agricultural use
9 to draw unlimited supplies of groundwater, correct?

10 A. Correct.

11 Q. And therefore, with that allowance, that allows
12 this project to do the same?

13 A. It does not allow this project to draw unlimited
14 water. There are certain stipulations within the INA
15 regulations that specify the rate of drawdown, the depth
16 that the water table can drop, and the depth that water
17 can be withdrawn from. So there are specific regulations
18 for commercial or industrial use of the water.

19 So a facility doesn't necessarily have the
20 ability to draw as much water as they choose. They have
21 to meet these regulations in order to draw water from
22 within the INA.

23 Q. So subject to limitations, restrictions?

24 A. It is subject to some limitations and
25 restrictions, largely on groundwater drawdown and the rate

1 of drawdown, and the number of acre-feet per acre per
2 year. So there are limitations on a commercial or
3 industrial user --

4 Q. And your --

5 A. -- relative to irrigation.

6 Q. And your projection on this usage, you said
7 you -- it's likely to be under what the agricultural used
8 in groundwater; is that correct?

9 A. Correct.

10 Q. But you used a little higher number to be
11 conservative?

12 A. Yeah. In our analyses, we tried to be as
13 conservative as possible just so that we were projecting
14 the worst-case scenarios.

15 Q. What is the worst case?

16 A. Well, the worst-case scenario would be -- let's
17 see. Exhibit, what is it, 45. Exhibit 45. That would be
18 the worst-case scenario, that would be solely using
19 groundwater both for agricultural use and for the solar
20 facility at the site.

21 So as you can see here, the black line represents
22 agricultural use, and it's using groundwater as the sole
23 source. Under this scenario, ag use would actually draw
24 the aquifer down slightly less than the same scenario with
25 the Starwood facility.

1 Q. What if a scenario such as that or something
2 similar came to fruition? Is that -- alarm bells go off,
3 Department of Water Resources, would they know about this,
4 or do you have the CEC and we don't know anything about
5 that?

6 A. Well, the ADWR monitors water levels in these
7 regions. And because of the requirements under A.R.S.
8 45-440 for commercial use of water, there would be certain
9 requirements for the facility in terms of its groundwater
10 use. The -- I lost my train of thought.

11 However, the rate that is projected, the rate of
12 drawdown that's projected is really no worse than what was
13 seen from the 1960 until the 1986 period, which is roughly
14 about, on average, about 5 feet per year. So our
15 projected rate here is really no worse than that
16 worst-case scenario when much more agricultural land was
17 irrigated than is currently irrigated today.

18 So we couldn't expect really -- I mean, the
19 worst-case scenario has already happened from 1960 to
20 1986, at least as we currently understand it. And we
21 really wouldn't anticipate it being any worse just because
22 the number of irrigated acres are less today than they
23 were at the height of farming in the '60s.

24 MEMBER WONG: Is there a regular monitoring by
25 the -- maybe Member Houtz can answer this.

1 Is there regular monitoring that the Department
2 of Water Resources would know what is going on?

3 MEMBER HOUTZ: The water right holders in the INA
4 are supposed to file annual reports of how much
5 groundwater they withdraw. Our records are not completely
6 accurate, because the penalties are not very stiff for not
7 reporting accurately.

8 You need to understand that the INA is not like
9 an AMA, in that it is designed to be basically dewatered
10 in the next couple of hundred years. There is a provision
11 for the transportation of 3 acre-feet per acre on an
12 average -- I don't want to -- people that have interest in
13 that know that it can be higher than that in certain
14 years -- to the Phoenix metropolitan area, and there are
15 people that have been looking at that.

16 But this worst-case scenario that they're
17 showing, if there is no conversion of these lands and it
18 is just continued in agricultural purposes, that is
19 probably a pretty true sense of where we're going.
20 Because as I noted earlier, the CAP water is becoming less
21 and less available to the farmers, and they will turn,
22 because they have the legal right to, to groundwater.

23 And as Mr. Henry pointed out, they could be
24 growing rice paddies out there if they really found a
25 market for it and wanted to spend the electricity to put

1 11 or 12 acre-feet per acre on there. There is no
2 restriction of what they grow; how much they use per acre.
3 The only restrictions are when they no longer are farming
4 and they convert this either to a municipal or an
5 industrial use.

6 MEMBER WONG: So is the Department of Water
7 Resources satisfied with this scenario presented?

8 MEMBER HOUTZ: I think that, you know, we would
9 look at this as probably something that the statute
10 anticipated in 45-440. The department has not used its
11 resources to analyze it, because they don't have the
12 resources and won't do it until there's an actual
13 application. But in my estimation, this is probably a
14 fairly reasonable use for the groundwater, and with some
15 conditions I think that it's a very viable source of
16 water.

17 Q. (BY MEMBER WONG) And Mr. Henry, you heard Member
18 Houtz say that the state is poor, getting toward
19 destitute, so we can't monitor and enforce.

20 Is your client the type of company that's a good
21 citizen that will follow through and if there is a
22 problem, an emergency, that they will appropriately notify
23 the appropriate regulatory authorities?

24 A. I believe they are, yes.

25 MEMBER WONG: Thank you.

1 CHMN. FOREMAN: Other questions, Committee
2 members?

3 (No response.)

4 CHMN. FOREMAN: Okay, very good.

5 Thank you, sir, for coming and testifying.
6 You're excused.

7 Why don't we take just a 10-minute break again
8 for the assistance of our court reporter before we begin
9 the climactic witness testimony of the day.

10 (A recess was taken from 4:00 p.m. to 4:10 p.m.)

11 CHMN. FOREMAN: Let's take our seats and see if
12 we can get ready again.

13 All right, Counsel, let's resume our hearing.
14 We'll go back on the record. You may call your next
15 witness.

16 MR. SUNDLOF: Thank you, Your Honor. We call to
17 the stand Mr. Jerry Smith, who is already up there.

18 CHMN. FOREMAN: Mr. Smith, would you prefer an
19 oath or affirmation?

20 MR. SMITH: An oath, please.

21 (Jerry Smith was duly sworn.)

22 CHMN. FOREMAN: Please state your name for the
23 record, and spell your last name for the court reporter.

24 THE WITNESS: Jerry Smith, S-m-i-t-h.

25 CHMN. FOREMAN: Counsel, you may proceed.

1 MR. SUNDLOF: Thank you.

2

3

JERRY SMITH,

4 called as a witness on behalf of the Applicant, having
5 been previously duly sworn by the Chairman to speak the
6 truth and nothing but the truth, was examined and
7 testified as follows:

8

9

DIRECT EXAMINATION

10

11 Q. (BY MR. SUNDLOF) Good afternoon, Mr. Smith. You
12 are the same Jerry Smith who has testified many times
13 before this Committee?

14 A. That is correct. Although I will have to say
15 it's the first time I have testified before the Chairman.

16 Q. How many times have you testified? How many
17 different cases have you testified in?

18 A. I'm afraid the count has gotten as high as 40
19 cases. So I may be that historical relic that Mr. Mundell
20 referred to earlier.

21 Q. Mr. Smith, what is your current employment and
22 what is your affiliation with this case?

23 A. I work for K.R. Saline & Associates. We have
24 been retained by Starwood as a technical advisor for their
25 project.

1 Q. And Mr. Smith, your resume has been marked as
2 STW-47; is that correct?

3 A. That is correct.

4 Q. Mr. Smith, your prefiled direct testimony has
5 been marked as STW-46. Do you have any changes to that
6 testimony at this time?

7 A. I do not.

8 Q. Thank you, Mr. Smith.

9 If I were to ask you now the questions set forth
10 in STW-46, would your answers be the same?

11 A. Yes, they would.

12 Q. Mr. Smith, could you give the Committee a summary
13 of your testimony?

14 A. I would be glad to. First of all, let me say how
15 much I'm pleased to be before the Siting Committee and the
16 Chairman today. As he just said, it's been a while since
17 I've been before you, but I've been watching your work
18 from afar and you continue to do excellent work.

19 My purpose as being retained for this particular
20 project was twofold. Our firm was retained by Starwood,
21 first of all, to do some technical studies so that they
22 could file a 90-day filing in accordance with the statutes
23 in advance of filing their CEC application.

24 Secondly, we have been serving in a technical
25 capacity to advise Starwood as it has gone through its

1 interconnection studies with Arizona Public Service
2 Company for the interconnection at Delany.

3 And I will refer to on screen Exhibit STW-20,
4 which you have previously seen displayed on the screen.
5 And Mr. Weiss previously testified, along with
6 Ms. Frownfelter, regarding the three routes proposed for
7 the transmission line that would interconnect the Starwood
8 power plant with the Delany switchyard.

9 My challenge is to help you understand how this
10 project gets interconnected to the grid, so I'm not going
11 to spend a lot of time talking about the segment on the
12 screen. I'm going to talk about how Delany gets
13 interconnected to the electric grid and how the Starwood
14 project relates to that interconnection.

15 Let me begin by sharing with you that Starwood is
16 one of six interconnecters proposing to interconnect at
17 the Delany switchyard. And if we go to the next slide,
18 those six interconnecting generating projects are
19 displayed and highlighted on Exhibit 49 with some
20 highlighted stars in yellow or pale green.

21 There are four generators proposing to
22 interconnect directly at the Delany switchyard that total
23 1,810 megawatts. Then there are two generators proposing
24 to interconnect at the Starwood switchyard which total
25 1,200 megawatts, and the Starwood Solar I represents 300

1 megawatts that is interconnecting at their switchyard.

2 So we're talking about a total number of
3 generators totaling roughly 3,000 megawatts choosing to
4 interconnect at the Delany switchyard.

5 There are two types of studies that have been
6 performed. The first was an interconnection --
7 preliminary interconnection study effort that K.R. Saline
8 & Associates performed for Starwood.

9

10

EXAMINATION

11

12 Q. (BY CHMN. FOREMAN) Mr. Smith, I'm sorry. I'm
13 moving much slower than you are. If we could back up.
14 You mentioned there are two generators that are supposed
15 to hook up to the Starwood switchyard?

16 A. That is correct.

17 Q. And right now, without the proposed
18 interconnection that's a part of this project, those would
19 only go to Delany and there would be no other connection
20 for those generators; is that true?

21 A. That is not quite accurate, Chairman.

22 Q. Okay, help me out then.

23 A. Let me describe a little better orientation as to
24 the interconnection effort going on.

25 There are four generators proposing to

1 interconnect directly to the Delany switchyard. There are
2 two generator projects proposing to interconnect at
3 Starwood's switchyard. Starwood Solar I is one of those
4 two units, one of those two projects, and its total is 300
5 megawatts in the interconnection study process. So 300
6 megawatts out of the total 3,000 is before you today,
7 one-tenth of the total capacity, one of six projects.

8 And I want to speak today first about the studies
9 that have been done both by K.R. Saline & Associates, and
10 secondly, by APS for those interconnecting parties. And
11 both of those studies have similar and common results, so
12 I'm able to speak to the results as though they were
13 unified for today's purposes.

14 Q. Is the Starwood I project the first of those
15 proposed?

16 A. Yes, Starwood Solar I is Q56 in the
17 interconnection request to APS. Maybe what would help
18 here is to talk for a moment about the interconnection
19 process when you have multiple interconnecters choosing to
20 interconnect with a utility.

21 Each utility has an interconnection protocol that
22 is approved in its tariff by FERC that establishes how
23 they will address interconnections that come to them. And
24 they must be considered in the order in which a request is
25 received.

1 So in these six projects, there is an identifier
2 with each of the six projects. And the number, Q30, was
3 the first one in that interconnection process at Delany
4 for APS, the last one was Q57. And they are considered in
5 the order in which they come in, and Arizona Public
6 Service Company has the right to cluster these and study
7 them in groups, rather than study each individual project.

8 CHMN. FOREMAN: Member Mundell.

9 MEMBER MUNDELL: Thank you, Mr. Chairman.

10 Mr. Smith, let me just ask and see if I
11 understand what you said. Does FERC not give a preference
12 to renewable interconnection? It doesn't matter if it's
13 coal or natural gas, or they don't give any preference?

14 THE WITNESS: Member Mundell, that is correct.
15 The interconnection protocols do not make a distinction
16 between types of generators that are choosing to
17 interconnect. All of these projects are solar-related
18 projects that are choosing to interconnect at Delany.

19 MEMBER MUNDELL: Well, maybe that's something
20 that we ought to --

21 THE WITNESS: And these projects all, by FERC
22 requirements, are kept confidential until the individual
23 projects so disclose who they are by name. And this
24 project, Starwood Solar I, is public and is known, and I'm
25 telling you it is Q56 as depicted here on this diagram,

1 Exhibit 49.

2 MEMBER MUNDELL: Well, Mr. Chairman, my only
3 point, Mr. Smith, was to make a record for the
4 Commissioners so that they're aware that there's no
5 preference at FERC for renewable interconnection
6 applications as opposed to fossil fuel applications, if
7 that's what you just testified to, if I understood you
8 correctly.

9 THE WITNESS: That is correct.

10 MEMBER MUNDELL: Okay, thank you.

11 MEMBER WONG: Mr. Chair, a follow-up.

12 CHMN. FOREMAN: Member Wong.

13 Mr. Smith, the interconnection, will the
14 interconnection occur physically without a purchased power
15 agreement, or is it subject to that buyer of that output,
16 of the power output? Explain that, please.

17 THE WITNESS: I would be glad to, Member Wong.

18 There are two types of interconnections that can
19 be requested by a generator. One is called a network
20 resource, in which case the applicant would intend to have
21 a power purchase agreement with the host transmission
22 provider that they're interconnecting with. That was the
23 case for this project when it had a PPA with APS.

24 The second type of interconnector would be what
25 is called an energy resource only. That means they're

1 interconnecting and are simply intending to sell to the
2 wholesale market. It does not require that they have to
3 have a PPA in place to establish the interconnection, just
4 that they have to have an agreement with the transmission
5 provider that they can interconnect in a fashion that does
6 not compromise the transmission system.

7 Q. (BY CHMN. FOREMAN) So Member Smith -- Member
8 Smith -- Mr. Smith, if we look at what you have have up
9 there on Exhibit STW-49, Q30, 38, 39, and 42 are all solar
10 projects. And would we be correct in assuming that none
11 of those has initiated an application for a CEC from the
12 State of Arizona?

13 A. That is correct.

14 Q. Are some of those photovoltaic projects who will
15 not, because of the present unfortunate state of the law
16 in Arizona, have to do that?

17 A. Only one of those projects would be a solar
18 photovoltaic as described in its application. And what I
19 can also report to you is that of the six projects, two of
20 them over the last month have withdrawn their
21 interconnection request. That would be Q30 and Q42. So
22 610 megawatts are no longer under consideration by APS as
23 potential interconnects. That one unit, Q30, was a
24 photovoltaic project.

25 Q. So if they make a request, does APS have the

1 ability to tell them, "We're not going to grant your
2 request, we're not going to hook you up," or does APS
3 simply say, "We'll hook you up when you're ready, but
4 you're going to be subject, then, to putting power into
5 the system as limited by our ability to transport it"?

6 A. The FERC regulations require that the utility
7 must entertain all interconnections and cannot say no.
8 They must define what is required for that interconnection
9 to meet reliability requirements so it's done in a safe
10 fashion.

11 Q. And as a result of that, is there a priority
12 given to electricity generated by different generators who
13 might wish to put power into the system, and is that
14 priority the priority that's reflected in the numbering
15 system that you have up there on Exhibit 49, or is it a
16 priority that comes as a result of who first actually
17 finishes the project and begins to generate, or is it a
18 priority that comes as a result of a decision by FERC or
19 some other means?

20 A. Regarding the priority issue for interconnectors,
21 the project that is first in the interconnection request
22 queue before the utility has a priority only in terms of
23 if there are additional reinforcements required. The
24 earlier project may be exempt from those requirements if
25 they are successful in signing an agreement with the

1 utility they're interconnecting with.

2 If it is a network resource interconnection
3 request, priority does not matter as long as the requester
4 has a PPA with the utility they're interconnecting with
5 and can show that they can do that reliably.

6 Those projects that are energy only have no
7 priority status from a transmission delivery perspective,
8 because they are simply saying, "We will deliver when
9 there is transmission capacity available," and so they are
10 at risk and the utility is not putting a priority in terms
11 of where they stand in that transmission service.

12 I'm sorry for the long answers, but sometimes
13 it's required to get the complete picture.

14 CHMN. FOREMAN: I, at least, am trying to fill in
15 some knowledge blanks in my understanding in this area.

16 Member Eberhart.

17 MEMBER EBERHART: Thank you. Mr. Smith --

18 CHMN. FOREMAN: Hit your button.

19 MEMBER MUNDELL: You talk a lot, so I don't know
20 why you don't remember that.

21 MEMBER EBERHART: I'm focusing on Exhibit 049.

22

23 EXAMINATION

24

25 Q. (BY MEMBER EBERHART) Is Q57 part of the Starwood

1 facility, or is that another --

2 A. It is another project. It is not this Starwood
3 Solar I project.

4 Q. It's not like Phase II of Starwood?

5 A. No, it is not. It is not necessarily a project
6 that would be viewed as being a Starwood project.

7 Q. Well, I just wanted to clarify, because the
8 Applicant has asked to do this project in two phases, and
9 I just want to clarify Q56 and Q57 are totally different
10 owners or operators, or it's not the two phases that we're
11 looking at?

12 A. That is correct, Member Eberhart. Q56, Starwood
13 Solar I, consists of two units, and it's the two units
14 that they're proposing to phase in that one project. That
15 one project is -- this Q57 is a different project and is
16 not related to the staging for the Solar I project.

17 Q. Okay. Now focusing on Exhibit 049, the
18 Harquahala station is in place; is that correct?

19 A. That is correct.

20 Q. And the orange line between Harquahala and
21 Hassayampa, is that an existing --

22 A. Yes, it is.

23 Q. -- facility?

24 A. Would it be helpful if I gave some orientation of
25 what exists and what is planned on this diagram?

1 Q. Yes, because I'm not quite sure what the dotted
2 lines are and orange lines.

3 A. I would be glad to do that.

4 Q. Thank you.

5 A. The existing transmission lines are shown in
6 solid lines in black. The dashed black lines are planned
7 500kV lines that have been through the siting process and
8 are in a transmission provider's 10-year plan.

9 The exception to that would be the Palo
10 Verde/Devers 2 line, which has been through the siting
11 process, has been denied a CEC, has returned in an attempt
12 to revitalize the project, and has since withdrawn.

13 The dashed red lines are part of what was sited
14 as part of the TS-5 transmission line project when it was
15 assumed that the Harquahala line, Harquahala/Hassayampa
16 line, would be looped in to Delany when APS chose to
17 construct its line to TS-5, which now we know as Sun
18 Valley.

19 The line from Delany to Palo Verde shown in red
20 is a new line that has already been sited also in the TS-5
21 as an alternative line that's needed long-term, and that
22 Case 128 identified two ways that that line could be
23 interconnected. It could be either connected to Palo
24 Verde, or it could be connected to the Arlington Valley
25 power plant switchyard as an alternative.

1 And so as part of this project, that line is
2 being proposed to be built in association with the
3 Starwood Solar I project as the first link of the line
4 that would connect to Sun Valley.

5 The only line that I have not spoken to on the
6 screen is the dashed line between the Starwood switchyard
7 and Harquahala, and that line is dependent upon the number
8 of generators that choose to interconnect at Delany. At a
9 particular level, that line may be required in order to
10 have a reliable system with all of the generators that are
11 interconnecting. So it is not something that's needed
12 initially with this Starwood Solar I project, but may
13 become needed as additional projects are approved for
14 interconnection.

15 CHMN. FOREMAN: But is it a part of the
16 application in this case?

17 THE WITNESS: It's my understanding that it is
18 part of the application. It's not envisioned that it
19 would be built initially with the Starwood Solar I project
20 unless there are other interconnecters that are approved
21 that would, from a timing standpoint, dictate the need for
22 it to be constructed early.

23 CHMN. FOREMAN: Could we jump back to STW-20?
24 The orange broken line from Starwood to Harquahala, is
25 that the same as the red broken line on the other page?

1 THE WITNESS: That is correct.

2 CHMN. FOREMAN: Okay, all right.

3 Member Palmer.

4 MEMBER PALMER: Thank you, Mr. Chairman.

5

6

EXAMINATION

7

8 Q. (BY MEMBER PALMER) Mr. Smith, I think I know the
9 answer to this, but that broken orange line is proposed to
10 be a 500kV despite the fact that this project, today's
11 effort, is projected to be 290 megawatts, and a typical
12 230kV line could handle that with no problem.

13 So you're talking about reliability issues and
14 being able to connect the energy created from those three
15 proposed plants, Q42 -- well, one of them is withdrawn.
16 One of them was photovoltaic and withdrawn, right? And
17 the other one was solar thermal and withdrawn. So there's
18 only two or one remaining.

19 Can we get that back up on the screen?

20 So there's two remaining on that, and what is
21 their generation capacity?

22 A. 1,200 megawatts.

23 Q. 1,200 for those two. Okay. That answers the
24 question why you need a 500kV.

25 A. And just to make sure that there is no confusion,

1 what Starwood has as a challenge is to propose this
2 project within the context of all of the potential
3 development that could cure at this location. And
4 secondly, recognizing that the existing transmission lines
5 that are existing or proposed are 500kV lines. And
6 therefore, it has proposed to build a 500kV line from the
7 Starwood switchyard to Delany.

8 And as an alternative, if additional projects
9 also interconnect, it would also propose at some future
10 point there may be a need to build the tie to the
11 Harquahala power plant switchyard.

12 MEMBER PALMER: Mr. Chairman, just a quick
13 follow-up question.

14 Q. (BY MEMBER PALMER) The black line emanating from
15 Delany into Q56, 57 exists now or is proposed? No.

16 The other way. The black line.

17 A. This is not existing now and probably should be a
18 red line --

19 Q. That's what I thought.

20 A. -- on this diagram.

21 Q. It should be a red line. But if you add the
22 1,200 megawatts from the two remaining generating
23 resources underneath Delany, and you add the 290 megawatts
24 from this proposal today, that still could be carried by a
25 500 kV --

1 A. Yes.

2 Q. -- with the right conductors?

3 A. The question was, can the 1,200 and the 300 for
4 this project be carried over this 500kV path back to Palo
5 Verde Hub?

6 Q. Or the proposed link with Harquahala, the orange
7 dotted line.

8 A. Okay.

9 Q. Because that's also proposed to be 500kV.

10 A. It is 500 today from Harquahala to Hassayampa.
11 That exists today. You're asking a question about the
12 study results, and that's just exactly where I am in my
13 summary statement.

14 Q. That's why I thought I knew the answer.

15 A. I appreciate the lead back onto the summary.

16 The technical studies show that -- both studies,
17 the one performed by K.R. Saline & Associates and also the
18 APS system impact study that was completed and posted on
19 their open access same-time information system last month,
20 which this diagram is taken from that report, shows that
21 you can interconnect the Starwood Solar I project. If it
22 is the only project, you can interconnect it by a single
23 line back to the Palo Verde Hub without any violations of
24 Western Electricity Coordinating Council reliability
25 criteria.

1 Those two studies also show that if you have two
2 or more generators interconnect at Delany, that the
3 transmission system becomes transient stability limited
4 until such time that you have additional transmission
5 constructed. For example, completion of the Sun Valley to
6 TS-9 or Morgan substation line, a line like the Palo
7 Verde/Devers 2 line or equivalent, looping in of the
8 Harquahala line or possibly the tie between Starwood and
9 Harquahala. All of those future transmission lines would
10 be dependent timing-wise on the number of additional units
11 that would interconnect at Delany.

12 So again, I'm giving you sort of a bracketed
13 perspective here. If Starwood Solar I is the only project
14 that interconnects, it can interconnect with a radial line
15 to Delany, which then is interconnected initially by a
16 line that either connects to Palo Verde Hub or to Sun
17 Valley.

18 Once the other end of the bracket says there are
19 additional transmission -- additional generation
20 interconnecting, there will need to be additional
21 transmission, or otherwise you have to place the units
22 that are interconnecting under a unit tripping scheme for
23 contingencies to protect against transient stability.

24 This is not a new finding. It's something that
25 we've known for a number of years. And these studies are

1 simply reflecting old information in a different format,
2 because we have had a lot of transmission plans that have
3 changed over the last 18 months, been delayed, some
4 withdrawn and not being pursued. But the encouraging part
5 is that we're showing that this project can interconnect
6 without a problem if it is the only project
7 interconnected.

8 CHMN. FOREMAN: Member Eberhart.

9 MEMBER EBERHART: Thank you.

10

11

FURTHER EXAMINATION

12

13 Q. (BY MEMBER EBERHART) Mr. Smith, I'm more
14 concerned about what you're not saying than what you're
15 saying, and maybe I'm reading between the lines here.

16 Are you saying that if two or more generators --
17 and I don't know when you used that term if you included
18 Starwood in the two or more -- that an additional
19 transmission line would need to be constructed?

20 A. Member Eberhart, the answer is there are two ways
21 to solve the transient stability issue if two generators
22 or more interconnect. And I'm including Starwood Solar I
23 as one of those two or more.

24 If you have two or more, there's a transient
25 stability limitation in the system that says either you

1 have to have another transmission line to solve the
2 transient stability issue, or you have to arm the units to
3 trip the generation in excess of 600 megawatts for an
4 outage event where that transient stability would
5 otherwise be exhibited.

6 Q. Given the recent history of this Committee over
7 the last eight, ten months, this is the third major solar
8 project we've had, not necessarily in this exact region,
9 but in the western Maricopa County area.

10 What implications -- again, I'm trying to read
11 between the lines here. I fully expect our workload is
12 not going to decrease in the near future, probably it will
13 increase. And if that is true, what -- are we siting a
14 facility that is within the next 12 months going to be
15 substandard?

16 A. No. I think, in fact, this project offers a
17 solution that you haven't been hearing from other projects
18 in recent applications. This study shows that the
19 Mesquite solar plant as a part of the study work that was
20 done for this project. It does not show the Agua Caliente
21 project, which is a network resource -- or excuse me -- is
22 an energy-only resource, which says they're only going to
23 deliver when there's transmission available. I suspect
24 that's also true for the Mesquite solar project.

25 What I'm offering here is this project can

1 interconnect so it's reliably interconnected with
2 sufficient transmission to avoid problems, and can even be
3 a network resource with assurance that there are no
4 problems interconnecting.

5 So if you're asking if you interconnect all of
6 these projects if there are problems, absolutely, we have
7 known that for some time. But what I'm telling you is
8 that this project is interconnecting in a fashion that
9 it's building into a transmission plan that is the
10 solution for additional generation to interconnect.

11 Q. Okay. Now, the orange or red line between the
12 Harquahala and Hassayampa, is that proposed or existing?

13 A. That's existing.

14 Q. Okay. So should that have been black?

15 A. That should have been black.

16 Q. Okay. Again, I'm just trying to get clear here.

17 Mr. Smith, are you -- would it provide a more
18 reliable system connection to the grid if the orange
19 dotted line between Starwood and Harquahala was a required
20 portion of this project rather than what I thought I heard
21 you testify was an option at the Applicant's discretion?

22 A. To answer that question I have to know what other
23 generators are interconnecting at Delany to give you an
24 effective answer.

25 What I can tell you is that the system is limited

1 to 1,400 megawatts being connected as a radial here
2 without creating the largest single hazard on the WECC
3 system. That is the size of the Palo Verde unit.

4 Q. And Mr. --

5 CHMN. FOREMAN: Mr. Smith, so I'll understand it,
6 by radial you mean the wire goes out and it doesn't loop
7 around and come back?

8 THE WITNESS: That is correct.

9 MEMBER MUNDELL: It's a long extension cord.

10 THE WITNESS: So let's assume for a second that
11 you did not build the Starwood to Delany line, instead
12 just built the tie line to Harquahala. Then you have 300
13 megawatts for Starwood, plus 1,100 for Harquahala, all
14 served by a single line back to Hassayampa. That can
15 become problematic if these other -- if this second
16 project interconnects.

17 Similarly, you could make the same claim if you
18 proceed to build the line from Starwood to Delany to the
19 Palo Verde Hub and the 1,200 megawatts here that remain in
20 that interconnection process do interconnect along with
21 Starwood's 300, then you have exceeded the 1,400
22 limitation and it becomes problematic.

23 So those are the things -- one of the things that
24 are driving the need for additional lines that are network
25 reinforced, not just a single line connecting to the hub.

1 Q. (BY MEMBER EBERHART) And who is responsible for
2 building these additional lines that may be needed? That
3 seems to be a system issue, not a -- as this Committee
4 deals with individual applicants, who is looking out for
5 the big picture of the grid?

6 A. The interconnection process that the utilities
7 use guarantee that an interconnecting party cannot have
8 adverse impact on the system. So if all of these parties
9 are going to interconnect, then a requirement of all of
10 those parties would be to have sufficient transmission to
11 enable the interconnection to be done in a reliable
12 fashion. And that is something that the utility has an
13 obligation to demonstrate is that those projects can be
14 interconnected reliably without putting the system at
15 risk.

16 Q. So the last guy to the dance has to pay the --

17 A. Yes. And, in fact, this is not a new issue
18 either. A decade ago, as we started seeing all of the
19 combined cycle units at Palo Verde Hub, we had the same
20 issue where there were more interconnecters than there was
21 transmission capacity, and it was the last one to
22 construct that was viewed as the one that would have the
23 onus of additional transmission.

24 Q. Now, you mentioned that Delany is not constructed
25 yet, correct?

1 A. That is correct. Delany is not yet constructed.

2 Q. Do you know the timing on that from -- that's an
3 APS?

4 A. Delany is part of the APS Sun Valley line
5 project. And their latest plan date for the Delany -- for
6 the Sun Valley line is 2014. What they have committed to
7 Starwood is that they can advance the date of the Delany
8 switchyard to be consistent with an in-service of the
9 first unit of the Starwood project late in 2010, as well
10 as the line from Delany back to the Palo Verde Hub.

11 Q. I just don't want -- should negotiations on the
12 PPA fall through with APS, I don't want Starwood to be
13 held up, so to speak, by not having anyplace to send their
14 electricity. Is that an issue, or am I not seeing it?

15 A. Mr. Eberhart, I would suggest to you that the
16 interconnection process already protects the system in
17 that regard. For example, where is Mesquite solar going
18 to deliver? It's not building any additional
19 transmission. Where is the Agua Caliente project going to
20 deliver? It's not building any additional transmission.

21 What the utility has an obligation is to assure
22 that they can interconnect reliably. They do not assure
23 that they have the commercial right to schedule over the
24 transmission if that capacity is not there.

25 Q. One last question and then I'll turn off my

1 microphone. There was -- I had a question earlier in the
2 day regarding locating adjacent to the existing line from
3 Harquahala over to Hassayampa and was told that was a new
4 WECC requirement that they could not be parallel. Is that
5 correct? Are you familiar with that?

6 A. I'm familiar with the reference, and I'll be glad
7 to add some clarity if you would like on that topic.

8 Q. Please do.

9 A. If I could have the previous slide back up on the
10 screen. Exhibit 20 I'll use for this.

11 The question being posed is why not simply build
12 the line from Starwood to Delany along the corridor of the
13 existing line from Harquahala to Palo Verde.

14 And there is a WECC reliability criteria that
15 defines what is a common corridor. It was adopted in
16 2008. It says any transmission line separated by less
17 than 500 feet, or the longest span of the line, are
18 considered to be in a common corridor. And for common
19 corridor events, they must be treated in concert with the
20 same -- as if they were on the same structure in that
21 corridor.

22 And so what that implies is back again, if we had
23 Starwood and Harquahala in a common corridor, then a
24 common mode outage of that corridor would mean we would be
25 losing 1,400 megawatts of generation in the system. And

1 that would be viewed as approaching a concern for the
2 industry should the capacity be in excess of a Palo Verde
3 unit, which is the largest exposure today. So the
4 solution to that is Starwood is offering another route.

5 And I need to mention an exclusion here because
6 it's important. The WECC criteria does exempt the first
7 five spans out of a switchyard from this requirement. And
8 so the portion of the routes that come out of Delany and
9 are in the common corridor with the existing lines are
10 within that five-span limit and would be outside and
11 excluded from that criteria.

12 MEMBER EBERHART: Thank you.

13 CHMN. FOREMAN: Member Wong.

14 MEMBER WONG: Thank you, Mr. Chairman.

15

16

EXAMINATION

17

18 Q. (BY MEMBER WONG) Mr. Smith, I'm going to ask you
19 some questions. And I've been following Member Eberhart's
20 questions, and I'm following as much as possible the
21 engineering -- P.E. to P.E., but I'm -- this is a lawyer
22 to P.E., okay, so excuse me.

23 The schematic -- may I have the schematic again?
24 I'm still confused with that, but I'm trying to use a
25 different perspective to understand the tie-in to the

1 system that you have in the schematic.

2 Let me start off with an analogy. As I
3 understand, in Washington, D.C. today there's a debate
4 about the Internet service providers that provide these
5 big pipelines to bring you the Internet traffic as the
6 pipeline delivery service, and then you have the content
7 provider jamming in their content. And the pipeline says,
8 hey, you're slowing down my traffic because you're pumping
9 in, so we should charge you more. And so they have to
10 upgrade their systems every now and then to take on that
11 traffic.

12 So the question I have from a parallel point of
13 view is that by tying in this 500kV line, the Applicant is
14 generating power, electrons, pushing it through this grid.
15 I see that as a series of, for lack of a better term, a
16 bunch of power strips. Everyone is familiar with power
17 strips at home, right? You plug in here; you plug in
18 there; there's like six or seven plugs there. So at some
19 point you've got two or three power strips. Some of them
20 have low capacity, others are more robust, and hopefully
21 you don't overload it by plugging in too much power there.

22 So at what point -- who owns these power strips
23 and all of this robust equipment that at some point
24 they're going to say, hey, it's time to upgrade the power
25 strip, the grid, to be more robust to take in more

1 electricity being pumped into the grid.

2 If APS is the one that's managing this equipment,
3 somebody has got to oversee this. Because if it's just
4 relying on different providers agreeing to not overload it
5 by plugging in, somebody has got to manage that.

6 And if that is APS, does that mean that APS would
7 say we need to upgrade and make it a more robust system so
8 that APS would upgrade it, and then does that mean that
9 APS's customers shoulder the cost burden of that upgraded
10 system? Would you talk about that?

11 A. I'll be glad to. And I need to speak at it from
12 two different vantage points. The first is as a network
13 resource, which means if we're talking about APS as the
14 transmission provider, if they are the one that is taking
15 the power from the interconnecting power plant, then it
16 would be the APS customer that would pay for the upgrades
17 eventually to accommodate that transaction.

18 If, on the other hand, the power plant that's
19 interconnecting is selling to the wholesale grid on an
20 as-available basis on the existing transmission system,
21 there is no requirement for the transmission grid to be
22 upgraded. And, in fact, that is the national debate
23 that's going on regarding renewable energy resources, is
24 that there are parties that would like to simply plug and
25 play on the presumption that there is adequate

1 transmission to deliver to the wholesale market, and that
2 just simply is not the case.

3 And we have a lot of testimony before the Siting
4 Committee about the limited capacity out at the Palo Verde
5 Hub, and this is an example of that. It depends on what
6 kind of resource it is that's interconnecting and who they
7 intend to deliver to.

8 The other question is to what degree do we want
9 to view these generators that are interconnecting to be a
10 reliable, firm source of energy. If they're susceptible
11 to availability of transmission capacity, they may not be
12 as desirable as if there was certainty because they have
13 interconnected in a fashion that assures they can deliver
14 to the intended market. And this project has proposed
15 transmission facilities that ensures that it can deliver
16 to the market.

17 If it has a PPA with an Arizona utility, the
18 transmission lines that it's proposing would enable it to
19 deliver as a network resource to those Arizona utilities.
20 If it is to sell to the wholesale market, it is intending
21 to deliver to the Palo Verde Hub, like all of the other
22 interconnections that have occurred at the Palo Verde Hub,
23 where the obligation for those type of resources is the
24 buyer has to obtain the transmission service rights to get
25 from the place of receipt to their load center.

1 Q. So there's different scenarios, as you explained.
2 So Mr. Smith, the current capacity, then, is adequate for
3 the Applicant to plug in; is that correct?

4 A. The Applicant's project has proposed transmission
5 as part of its application that enables it to either be a
6 network resource or an energy-only resource with it
7 delivering to the Palo Verde Hub. That, again, is part of
8 the flexibility that it's seeking in terms of the second
9 line being there to ensure from an outage perspective it
10 can deliver if it is a network resource.

11 Q. And earlier you used the term plug and play. You
12 plug in your line and you're part of the system, your
13 electricity is part of the grid. Is there a plug, pay and
14 play?

15 A. The pay is a requirement by the party that's
16 buying the output of the units to assure there is
17 transmission service available to deliver for that
18 transaction. And what I have testified for a decade is
19 that there's limited opportunity to deliver outside of the
20 local market out of the Palo Verde Hub.

21 MEMBER WONG: Thank you.

22

23 FURTHER EXAMINATION

24

25 Q. (BY CHMN. FOREMAN) So let me see if -- I

1 similarly an engineering challenged, having the same
2 professional trajectory as my friend Member Wong.

3 It appears to me that as a result of this
4 project, Starwood is in a position where it needs to
5 provide this double tie-in line in order to tie in to the
6 system because of what is already on the system and
7 because of the present nature of the system.

8 And so by having this double tie in, a line to
9 Delany and a line to Harquahala, it appears to me that
10 Starwood is not only putting itself in a position where it
11 can go to utilities and say, "You can buy our electricity
12 because we're plugged into the system and the system is
13 effectively able to take our electricity," but they're
14 also as a part of that doing something that will aid other
15 potential generators in the area; is that true?

16 A. That is part of the opportunity that comes from
17 this application. By initially connecting on the Sun
18 Valley to Palo Verde Hub line, it has two delivery points,
19 Sun Valley and the Palo Verde Hub. It can be an effective
20 network resource for Arizona utilities.

21 If additional generation develops at the Delany
22 switchyard, this tie between Harquahala and Starwood may
23 be a requirement for all of the interconnectors, not just
24 Starwood, for all of the interconnectors to be able to
25 effectively deliver to the Palo Verde Hub.

1 CHMN. FOREMAN: All right. I think I do
2 understand.

3 MR. SUNDLOF: Chairman Foreman, could I
4 interject? Because I think there might be a
5 misunderstanding here.

6 CHMN. FOREMAN: Okay. Well, we'll allow some
7 time for misunderstandings, but we're approaching -- go
8 ahead.

9 MR. SUNDLOF: I just wanted to make clear that
10 the proposal in this application is to interconnect at
11 Delany. We are asking for the right to build the line to
12 Harquahala so that we don't have to come back at a later
13 time and site that small segment. But there is no request
14 right now to interconnect with Harquahala, and, in fact,
15 that is not part of the scope of the project.

16 Now, there's a reason for siting that line, is
17 because in the future, you know, depending on what happens
18 and other interconnectors, and it may be necessary to
19 interconnect at Harquahala, but we do not want a condition
20 now that we have to do it. It would happen at a later
21 time. And I just wanted to --

22 CHMN. FOREMAN: All right. Let's pursue that
23 then. What would motivate you to build the line? Why
24 would you do it? So you get the CEC?

25 MR. SUNDLOF: I'll let Mr. Weiss handle that.

1 CHMN. FOREMAN: Mr. Weiss, you're still under
2 oath.

3 MR. WEISS: Thank you. I appreciate that.

4 We would do that. It improves -- as I said in my
5 testimony, it improves the reliability of our generation,
6 it would improve the reliability of the Harquahala
7 generator, that we would both have alternative paths to
8 deliver power into the grid.

9 The fact of the matter is Harquahala generating
10 station is a private entity. The line that they own to
11 Hassayampa is a private line. It's not owned by APS. And
12 so, you know, APS is interested in buying it. And we're
13 looking down the road and we're saying, down the road,
14 that makes a lot of sense.

15 And so as counsel said, we're looking for
16 permission to do that, but contractually there's a number
17 of things that have to happen before we can do that. Our
18 agreement with APS is to connect to Delany, and APS will
19 take our power from Delany to PV.

20 CHMN. FOREMAN: If another -- if those two other
21 generators hook into Delany, Mr. Smith has indicated to us
22 that you're going to need that line to Harquahala in order
23 to provide --

24 MR. WEISS: I mean, that's if other generators
25 occur. You know, part of what Mr. Smith was saying is

1 there is a queue and what gets built and when it gets
2 built. Right now, we're leading the pack in terms of our
3 process.

4 CHMN. FOREMAN: So let's assume we grant you the
5 CEC, you build the Delany line, you don't build the
6 Harquahala line, the two new generators come on. Are they
7 going to come to you and say, "We need for you to build
8 the Harquahala line," and you're going to say to them,
9 "How much is it worth?"

10 MR. WEISS: Well, it's not up to us to say we
11 will -- up to them to come and ask for that. That would
12 go through the interconnection process. And I think as
13 Mr. Smith explained, APS will say in order for you to
14 interconnect, we need to do these things, we need to build
15 to Sun Valley, or we need some of the constraints on your
16 equipment so that if an emergency occurs, we're going to
17 turn you off. And so you can't get on unless you are not
18 going to jeopardize the system. And that's a --

19 Q. (BY CHMN. FOREMAN) So Mr. Smith, if that -- this
20 is helping me understand your testimony a little bit
21 better. So if those two new generators, if 38 and 39 come
22 on, the Delany line is built from Starwood's generator to
23 Delany, at that point will that Harquahala line, the
24 Starwood to Harquahala line be necessary, and who will
25 tell Starwood to build that? Will that be APS?

1 A. The interconnection process will determine what
2 additional lines need to be constructed, and it will be
3 the interconnecting parties that will have the obligation
4 to pay for those facilities.

5 Q. Well, what happens, though, if you have a
6 seven-year limit on this CEC and those two new projects
7 aren't built until after that seven-year limit is done?
8 Then what happens?

9 MR. WEISS: Well, if we needed to connect to
10 Harquahala and we expired here, we would have to come
11 back, I would expect, and ask for permission.

12 THE WITNESS: That is correct.

13 And let me add one other perspective on the
14 existing Harquahala to Hassayampa line. Initially, it was
15 envisioned as part of the TS-5 project that the first
16 thing that would occur would be the loop-in of that line
17 into Delany, the dashed line shown on Exhibit 49. That is
18 not occurring because the Palo Verde/Devers 2 line is not
19 proceeding, and, in fact, Southern California Edison has
20 right of first refusal over the generator tie between
21 Harquahala and Hassayampa.

22 So until there's resolution with Southern Cal
23 Edison about its first right of refusal, you don't --
24 you're not able to effectively commercially make effective
25 use of the tie between Starwood and Harquahala.

1 CHMN. FOREMAN: Member Palmer.

2

3

FURTHER EXAMINATION

4

5 Q. (BY MEMBER PALMER) Mr. Chairman, Mr. Smith, if
6 Starwood and Q57 didn't exist and Delany was constructed,
7 wouldn't it be necessary to have a tie or interconnect
8 between Harquahala and Delany?

9 A. Would you please restate that, Member Palmer.

10 Q. Okay. Let's assume for argument purposes that
11 Starwood and Q57 don't exist. They are not proposals, so
12 that's now a blank, and Delany gets constructed.

13 Isn't it necessary to have an interconnect
14 between Harquahala and Delany?

15 A. No, it would not be.

16 Q. It would not be necessary?

17 A. If all you had were the 1,200 megawatts that
18 remain being proposed to Delany, that would not be an
19 initial requirement.

20 Q. No, I don't mean the -- I mean the substation,
21 not necessarily the generation.

22 A. You're saying if only the switchyard, Delany
23 switchyard is constructed?

24 Q. Yeah. If only Delany switchyard is constructed
25 and Starwood and Q57 didn't exist, would it be necessary

1 to interconnect Harquahala to Delany through a 500kV line?

2 A. It would not be necessary. And, in fact, I
3 expect what you will see in the next APS 10-year plan
4 filing is their intent to build a Delany to Palo Verde Hub
5 line, because the Palo Verde/Devers 2 is not proceeding
6 and they cannot get access to the Harquahala/Hassayampa
7 line because of Southern California Edison's first right
8 of refusal.

9 Q. So if Starwood and Q57 reappear on the horizon
10 and they become a reality, then it is necessary to
11 interconnect Harquahala with the proposed Delany
12 switchyard?

13 A. The answer to that lies in to what degree Sun
14 Valley to Morgan or TS-9 is constructed. If it is
15 constructed, you probably would not have to make this
16 interconnection.

17 Q. I don't mean that interconnection. I mean the
18 dotted -- yeah, that one right there. If Starwood and Q57
19 reappear and are going to be constructed, wouldn't you
20 anticipate an interconnection between Harquahala and them
21 and Delany? The Delany to Starwood should be a red line,
22 as we've been discussing before.

23 A. That is correct.

24 Q. But wouldn't that also necessitate an
25 interconnect from Harquahala to Delany --

1 A. No. Studies have not --

2 Q. -- through Starwood?

3 A. Studies have not characterized that with the
4 Starwood Solar I and the two remaining projects, which
5 would be a total of 1,500 megawatts, there has been no
6 study work that demonstrates that you would have to, at
7 that point in time, either build this tie line or
8 interconnect the Harquahala.

9 If both of these Q56 and 57 projects and the Q38
10 and 39 projects were so interconnected, then yes, there is
11 good probability that that would be a requirement.

12 MEMBER PALMER: Okay, thank you.

13 CHMN. FOREMAN: Member Eberhart.

14 MEMBER EBERHART: Thank you, Mr. Chairman. I
15 promise just two questions.

16

17 FURTHER EXAMINATION

18

19 Q. (BY MEMBER EBERHART) Mr. Smith, looking at the
20 map where they schematically show Starwood at the
21 approximate center of the three sections, basically that's
22 a little over a mile away from the Harquahala station,
23 which, according to the application, they were talking
24 about having their poles about 1,200 feet apart.

25 So are we talking about four or five transmission

1 poles if that were the spacing?

2 A. You're talking about for the Starwood to
3 Harquahala section?

4 Q. Correct.

5 A. And that is a little over a mile in length, and
6 you would probably have four to five spans between those
7 two switchyards. There will be some corner structures,
8 two corner structures involved, which will involve some
9 shorter spans, but I would say you're talking about five
10 to six spans for that.

11 Q. Okay. And I don't know what the price of a pole
12 costs. I think we've had testimony on other projects,
13 \$10,000, \$20,000. So I'm just coming up with a ballpark
14 of \$100,000 to install that, at least just the poles
15 compared to -- I think we had testimony earlier for the
16 irrigation wells that I think were on the order of
17 millions of dollars.

18 It would seem to me to be a relatively small cost
19 to go ahead and put those poles in, but then the next
20 question that begs is what impact does four or five poles
21 in that alignment have on the solar panels that are in
22 that area as far as shade onto the panels? Is that an
23 issue? And maybe -- I'm not sure if you're person to ask
24 or someone from the Applicant.

25 A. I would recommend Mr. Weiss speak to that issue.

1 MR. WEISS: Yeah. We've looked at that and
2 that's -- we would keep the poles to a minimum like you're
3 suggesting, and probably four poles. That would -- that
4 could -- three to four poles that create a shading
5 problem, and that's acceptable.

6 MEMBER EBERHART: Thank you.

7 CHMN. FOREMAN: All right. It's now 5:15. I'm
8 willing to continue because I'm going to be here until
9 after 6:00, but I'm willing also to take the evening
10 recess and resume again at 9:30 in the morning.

11 MR. SUNDLOF: Your Honor, are we done with the
12 questions of Mr. Smith? Should I offer the --

13 CHMN. FOREMAN: I'm not sure yet.

14 MR. SUNDLOF: All right.

15 CHMN. FOREMAN: I thought I would test the
16 enthusiasm for proceeding. I've already driven my poor
17 fellow Committee members past 5:00 on an occasion
18 recently, and I'm trying to tread --

19 MEMBER PALMER: Yeah. That would be 7:30 last
20 Wednesday.

21 CHMN. FOREMAN: Everybody willing to go a little
22 while longer this evening?

23 MEMBER WONG: Mr. Chair, may I just --

24 CHMN. FOREMAN: Member Wong.

25 MEMBER WONG: Not a question for Mr. Henry, but I

1 wanted to follow up on a question about the water usage
2 but address it to Mr. Nordholm. Is he still here?

3 MR. SUNDLOF: No. I'm sorry, Member Wong. He
4 had to leave.

5 MEMBER WONG: Is there another witness? I know
6 that Mr. Henry addressed it, but his area of expertise is
7 the water and hydrology and geology, and I had a question
8 about procedure and process.

9 CHMN. FOREMAN: Let's see if we can finish with
10 Mr. Smith and then go back and clean up.

11 Are there more questions for Mr. Smith?

12 MEMBER RASMUSSEN: To your question, Chairman, I
13 would suggest reconvening tomorrow morning. I personally
14 want to get going.

15 CHMN. FOREMAN: All right. That's reasonable.
16 Why don't we do that. We'll reconvene in the morning. We
17 will conclude the testimony of Mr. Smith and ask any
18 follow-up questions that we need.

19 Mr. Johnson, do you anticipate making any
20 closing?

21 MR. JOHNSON: No.

22 CHMN. FOREMAN: We are going to want you here,
23 but we are going to want -- I anticipate there may be some
24 questions asked about the wording of the agreement that
25 you have with Starwood.

1 MR. JOHNSON: We wouldn't miss it.

2 CHMN. FOREMAN: All right, very good. And
3 Counsel, I'm assuming a relatively short closing, followed
4 by relatively long questioning.

5 MR. SUNDLOF: I think it will be a short closing,
6 and I hope there's not too much after that.

7 CHMN. FOREMAN: All right. Member Whalen.

8 MEMBER WHALEN: Is it safe to leave our materials
9 here?

10 MR. SUNDLOF: Yes.

11 CHMN. FOREMAN: Very good.

12 Oh, you want to ask a question so you can get it
13 out there and they can research it for tomorrow?

14 MEMBER WONG: Please, thank you, Mr. Chairman.

15 Mr. Sundlof, I just wanted to have the
16 appropriate witness from -- Mr. Sundlof, is the
17 appropriate witness that -- I had originally intended to
18 ask Mr. Nordholm, but I wanted to have it for the record
19 about what would be the company procedure, the process in
20 the instance where the projected water use exceeds the
21 expert's projection, and what process the company would
22 incorporate to notify the state, short of the state
23 reviewing just on a periodic basis.

24 You know, you heard from Member Houtz that, you
25 know, the state is not going to follow up just because

1 they don't have the resources. Is there a process that
2 the company, the Applicant, would review and basically
3 self-report if there is a usage exceeding projection?

4 MR. SUNDLOF: Member Wong, let me answer that, if
5 I can, first. First, there is a reporting requirement for
6 groundwater withdrawal. And that is a state law and, of
7 course, the Applicant will comply with that.

8 Second, we have proposed a CEC condition that
9 limits groundwater withdrawal for this project to
10 3,000 acre-feet a year, and we will have periodic
11 reporting requirements to the Commission in compliance
12 with the CEC. So between those two, I think you're pretty
13 well covered.

14 MEMBER WONG: All right. That answers my
15 question. Thank you, Mr. Sundlof.

16 CHMN. FOREMAN: All right. Very good. We will
17 see you all at 9:30 in the morning.

18 (The Evidentiary Hearing recessed at 5:15 p.m.)

19

20 (The Public Comment Session commenced at
21 6:00 p.m.)

22 CHMN. FOREMAN: All right. It's a little bit
23 after 6:00. We have a public comment session that has
24 been noticed for the application for Starwood Solar I for
25 a solar project.

1 Are there members of the public who are present
2 who would like to say something for the record? Do we
3 have anybody here who would like to say anything for the
4 record?

5 We've been hearing testimony all day. Member
6 Eberhart and I have stayed over this evening in case there
7 was anybody who wanted to say something to the committee
8 that we could include in the record.

9 We're not going to take any other testimony.
10 We'll resume tomorrow and conclude the testimony, and I
11 anticipate we'll vote on the project.

12 Any of you folks interested in saying something
13 for the record?

14 (No response.)

15 CHMN. FOREMAN: We've got some forms. If you
16 are, you can fill them out. You can write down something
17 and we'll include the written form in the record. Or if
18 you would like to speak, you can step up to the
19 microphone. It's like open mic night at Comedy Central.

20 All right. We're going to -- we will wait 10
21 more minutes until 6:15, and then we will conclude for the
22 evening.

23 (A recess was taken from 6:05 p.m. to 6:15 p.m.)

24 CHMN. FOREMAN: We'll go back on the record now.

25 It's 6:15. As indicated earlier, we had a

1 noticed public comment session for this project, or for
2 this hearing. My name is John Foreman, and I'm the
3 Chairman of the Arizona Power Plant and Transmission Line
4 Siting Committee.

5 We have an application before us, the Starwood
6 Solar I project, our Case No. 150, I believe. And this is
7 the time that's been noticed for a public comment session.

8 We have a few members of the public here. I've
9 given them an opportunity to indicate whether they wanted
10 to address some comments for the record. And if you do,
11 as I said earlier, simply fill out one of the forms, and
12 we would be happy to listen to what you have to say.

13 All right. We have a public comment from Janet
14 and Robert Gonzales. Would you like to speak or just --

15 MS. GONZALES: Maybe just briefly.

16 CHMN. FOREMAN: If you would, please, step up to
17 the podium. And just for the record, because this is
18 being taken down by a court reporter, tell us your name
19 and spell your last name, please.

20 MS. GONZALES: Okay. I am Janet Gonzales.
21 G-o-n-z-a-l-e-s. My husband and I are the managers of the
22 Saddle Mountain RV park in Tonopah, which I gather is
23 going to be very close to the project.

24 And just my comment would be that our community
25 is really looking forward to the project. We are really

1 hoping that it goes through. We are all very outdoorsy
2 and environmentally conscious in that area. And we have a
3 lot of outdoor activities, and people just really
4 appreciate the lovely outdoors there.

5 And so we really feel that this project with the
6 alternative energy is really an idea whose time has come,
7 and we're just grateful to see it finally coming to
8 fruition and just want to do everything we can do to
9 encourage the project. So our facilities will be
10 available to house the workers that may be able to build
11 the park. That's all.

12 CHMN. FOREMAN: Thank you very much for coming
13 and speaking.

14 MS. GONZALES: Yes, thank you.

15 CHMN. FOREMAN: And Shirley Caudillo. If you
16 would like to step up to the podium, please, ma'am.

17 And again, give us your name, and spell your last
18 name for the court report, please.

19 MS. CAUDILLO: Sure. My name is Shirley
20 Caudillo. It's C-a-u-d-i-l-l-o. The L's are silent.

21 I would echo Janet's comment. I'm also from
22 Tonopah. I am the publisher of the Tonopah Tribune, a new
23 newspaper in the area. I have already published some of
24 the PSAs that were sent my way, and I attended the other
25 meeting at the high school there in Tonopah when there was

1 an open type of forum meeting there.

2 And we really, really are anticipating this
3 happening. We wish to welcome all of you folks, and we
4 are looking forward to this project being completed.

5 Can I -- may I have a question? May I ask a
6 question?

7 CHMN. FOREMAN: You can ask. I'm not sure that
8 we can answer.

9 MS. CAUDILLO: Okay. I understood this project
10 was going to start next year, 2010. Is that a
11 possibility?

12 CHMN. FOREMAN: That's a question you're probably
13 going to have to address to the folks who are operating
14 the project.

15 MS. CAUDILLO: Sitting here.

16 MR. SUNDLOF: The project manager is the
17 gentleman here in the red tie. He would be glad to talk
18 with you. We do anticipate a start date in 2010.

19 MS. CAUDILLO: That's what I thought. Okay.

20 And then, like Janet, we are looking forward to
21 the possibility of providing jobs out in that area. We
22 are wild and woolly and spread out there, but we have a
23 lot of fun. So I'm looking forward to this coming to
24 pass.

25 CHMN. FOREMAN: Very good. Thank you for coming,

1 ma'am, and participating.

2 All right. There's no one else who has indicated
3 an interest. We will take the evening recess, and we'll
4 see everybody here at 9:30 in the morning.

5 (The Public Comment Session concluded at
6 6:20 p.m.)

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 STATE OF ARIZONA)
) ss.
 2 COUNTY OF MARICOPA)

3

4 I, MICHELE E. BALMER, Certified Reporter
 5 No. 50489 for the State of Arizona, do hereby certify that
 6 the foregoing printed pages constitute a full, true and
 7 accurate transcript of the proceedings had in the
 8 foregoing matter, all done to the best of my skill and
 9 ability.

10

11 WITNESS my hand this 28th day of October, 2009.

12

13

14

Michele E. Balmer

 MICHELE E. BALMER
 Certified Reporter
 Certificate No. 50489

15

16

17

18

19

20

21

22

23

24

25