



BEFORE THE ARIZONA CORPORATION COMMISSION

Gary Pierce,  
Chairman

Bob Stump,  
Commissioner

Sandra D. Kennedy,  
Commissioner

Paul Newman,  
Commissioner

Brenda Burns,  
Commissioner

Arizona Corporation Commission  
DOCKETED

SEP 29 2011

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ARIZONA CORPORATION COMMISSION  
DOCKET CONTROL

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IN THE MATTER OF THE APPLICATION  
OF ARIZONA SOLAR ONE, LLC  
PURSUANT TO ARIZONA REVISED  
STATUTE § 40-252 FOR AN AMENDMENT  
OF A.C.C. DECISION NO. 70639

Docket No. L-00000GG-08-0408-00140

L-00000GG-08-0407-00139

APPLICATION TO AMEND  
ARIZONA CORPORATION COMMISSION  
DECISION NO. 70639

Arizona Corporation Commission (“Commission”) Decision No. 70639 (December 11, 2008) (Attachment A) (Line Siting Case No. 140) approved a Certificate of Environmental Compatibility (“CEC”) granted by the Arizona Power Plant and Transmission Line Siting Committee (“Committee”) for Arizona Solar One, LLC (“ASO”) to build a single circuit 230kV transmission line using either single circuit or double circuit towers (the “Gen-Tie line”). The approximately 20 mile long Gen-Tie line will connect the Solana solar generating station (approved in Line Site Case No. 139) with the APS Panda 230kV substation in Gila Bend, Arizona.

1 Pursuant to Arizona Revised Statutes § 40-252, ASO respectfully requests that the  
2 Commission make two amendments to Decision No. 70639 relating to the Gen-Tie line.

3 First, ASO requests that it be allowed to place a second set of conductors on the  
4 double circuit towers and, second, that ASO be allowed to use four H-frame transmission  
5 structures rather than monopole structures in one particular location.

6 Procedurally, ASO respectfully requests that this matter be noticed on two open  
7 meeting agendas. The first open meeting will be for the Commission to decide whether to  
8 authorize a § 40-252 proceeding to consider amending the CEC. If the Commission  
9 authorizes a § 40-252 proceeding, the second open meeting will be for the purpose of  
10 providing an opportunity for all parties to the prior CEC proceeding and members of the  
11 public to be heard on this issue as contemplated by § 40-252, and for the Commission to  
12 make a decision on the amendment request.

### 13 THE SECOND CIRCUIT

14 ASO is constructing the Gen-Tie line using double circuit towers as authorized in  
15 Decision No. 70639. At the time of the Committee hearing, ASO requested the use of  
16 double circuit towers in the event that a second circuit was needed in the future. The CEC  
17 authorized the use of double circuit towers, but only the use of one circuit (*i.e.* only one set  
18 of conductors). CEC at page 3, lines 2-3. As a result of detailed engineering and technical  
19 design work conducted after the issuance of the CEC, ASO determined that it is more  
20 efficient, with less line loss, if the Solana generating station is connected to the  
21 transmission grid using two sets of conductors, rather than a single set of conductors. In  
22 addition, the second set of conductors will make the Gen-Tie line more reliable. For  
23 instance, should the conductors on one side of the transmission structures malfunction, the  
24 second set of conductors will still be able to transmit power from the Solana solar  
25 generating station to APS. As a result, ASO is requesting approval to place a second set of  
26 conductors on double circuit towers because it will increase the efficiency and reliability

1 of the interconnection. Attachment B is the Affidavit of Kate Maracas explaining the  
2 technical analysis that supports the use of a second set of conductors (the “Maracas  
3 Affidavit”).

4 The addition of a second set of conductors will have little environmental impact.  
5 There will be minimal visual and biological impact because there will be more conductors  
6 affixed to the double circuit towers. Attachment C is the Affidavit of Larry Killman  
7 explaining the environmental impact of the second set of conductors (the “Killman  
8 Affidavit”).

9 Specifically, ASO requests that the sentence beginning on page 3, line 2 of the CEC  
10 be deleted and replaced with the following:

11 The Project may be constructed on double-circuit towers  
12 and two sets of conductors may be placed on the towers.

### 13 H-FRAME STRUCTURES

14 While the Decision does not specifically require monopole structures, ASO  
15 indicated during the Committee hearings that it intended to use monopole structures and  
16 did not include any sample H-frame structures in its CEC application or hearing exhibits.  
17 As a result of further studies and a specific request from APS to cross underneath its  
18 existing 230kV transmission line, ASO requests that it be allowed to use four H-frame  
19 structures. The Gen-Tie line connecting the Solana solar generating station with the APS  
20 Panda substation consists of approximately 130 transmission towers. The remaining 126  
21 structures will be monopoles.

22 ASO is requesting this amendment because two of the H-frame structures will  
23 facilitate the Gen-Tie line crossing underneath the existing APS 230kV Panda-Gila Bend  
24 transmission line. APS has requested that the Gen-Tie line cross underneath the APS  
25 230kV line. These H-frame structures will range in height from approximately 63 feet to  
26 66 feet as compared to the 100 foot monopoles used on the rest of the Gen-Tie line. These

1 shorter structures are necessary to cross underneath the APS 230kV transmission lines  
2 which has an approximately 125 foot pole height nearest the crossing while still  
3 complying with all applicable industry standards regarding the safety and reliability of line  
4 crossings. *See Maracas Affidavit.*

5 The other two H-frame structures will be approximately 116 feet tall and are  
6 needed to span wastewater treatment ponds adjacent to the line crossing. The H-frame  
7 structures are wider than the monopole structures and are a more reliable anchor for the  
8 longer span necessary to cross wastewater treatment ponds. The typical span length for  
9 the Gen-Tie line is approximately 875 feet, but the span over the wastewater ponds will be  
10 approximately 1,284 feet. *See Maracas Affidavit.*

11 The environmental impact of these H-frame structures will also be minimal. *See*  
12 *Killman Affidavit.*

13 Specifically, ASO requests that the following sentence be added on page 3, line 3 of  
14 the CEC:

15 The Project may use H-frame structures for purposes of crossing  
16 underneath the existing APS 230kV Panda-Gila Bend transmission  
17 line and for spanning the Town of Gila Bend wastewater treatment  
18 ponds.

### 18 CONCLUSION

19 ASO respectfully requests that the Commission adopt the two proposed  
20 amendments to Decision No. 70639 pursuant to A.R.S. § 40-252. These amendments will  
21 make the project more reliable without any material environmental impact.

22 RESPECTFULLY SUBMITTED this 29<sup>th</sup> day of September, 2011.

23 LEWIS AND ROCA LLP

24 

25 Thomas H. Campbell  
26 Albert H. Acken  
40 N. Central Avenue  
Phoenix, AZ 85004

1 ORIGINAL and twenty-five (25) copies  
2 of the foregoing filed this 29<sup>th</sup> day  
3 of September, 2011, with:

4 The Arizona Corporation Commission  
5 Utilities Division  
6 1200 w. Washington Street  
7 Phoenix, AZ 85004

8 Copy of the foregoing hand-delivered  
9 this 29<sup>th</sup> day of September, to:

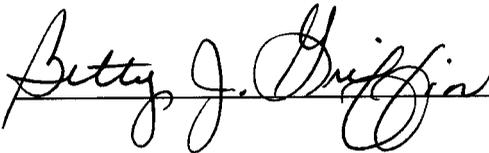
10 Charles H. Hains  
11 Legal Division  
12 Arizona Corporation Commission  
13 1200 West Washington Street  
14 Phoenix, Arizona 85007  
15 Attorney for the Arizona Corporation Commission Staff

16 Copy of the foregoing mailed  
17 this 29<sup>th</sup> day of September, 2011, to:

18 John Foreman, Chairman  
19 Arizona Power Plant and  
20 Transmission Line Siting Committee  
21 Office of the Attorney General  
22 1275 West Washington Street  
23 Phoenix, Arizona 85007

24 Timothy M. Hogan  
25 202 E. McDowell Road, Suite 153  
26 Phoenix, Arizona 85004  
Attorney for Sierra Club – Grand Canyon Chapter

Jeffrey Zimmerman  
Moyes Sellers & Sims  
1850 N. Central Avenue, Suite 1100  
Phoenix, Arizona 85004  
Attorneys for Paloma Irrigation and Drainage District

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# **ATTACHMENT A**

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

Arizona Corporation Commission

**DOCKETED**

Mike Gleason, Chairman  
William A. Mundell  
Jeff Hatch-Miller  
Kristin K. Mayes  
Gary Pierce

DEC 11 2008

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**IN THE MATTER OF THE APPLICATION OF ARIZONA SOLAR ONE, LLC IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES §§ 40-360.03 AND 40-360.06, et seq. FOR A CERTIFICATE OF ENVIRONMENTAL COMPATABILITY AUTHORIZING CONSTRUCTION OF THE SOLANA GENERATING STATION, LOCATED IN SECTION 9, TOWNSHIP 6 SOUTH, RANGE 7 WEST, MARICOPA COUNTY ARIZONA.**

DOCKET NO. L-00000GG-08-0407-00139

CASE NO. 139

**IN THE MATTER OF THE APPLICATION OF ARIZONA SOLAR ONE, LLC IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES §§ 40-360, et seq., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING THE CONSTRUCTION OF THE SOLANA GEN-TIE, WHICH ORIGINATES AT THE SOLANA GENERATING STATION, LOCATED IN MARICOPA COUNTY, AND TERMINATES AT THE PANDA 230 kV SUBSTATION, LOCATED IN GILA BEND, ARIZONA.**

DOCKET NO. L-00000GG-08-0408-00140

CASE NO. 140

**DECISION NO. 70639**  
for GEN-TIE, Case No. 140

The Arizona Corporation Commission ("Commission") has conducted its review, pursuant to A.R.S. § 40-360.07. The Commission finds and concludes that the Certificate of Environmental Compatibility ("CEC") issued by the Arizona Power Plant and Transmission Line Siting Committee ("Committee") is hereby granted as modified by this Order.

The Commission modifies the CEC by deleting lines 3-6 on Page 4 and then inserting the following clarifying language:

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At the point along the section line / Watermelon Road alignment located south of the eastern boundary of the existing APS Panda 230 kV Substation, the corridor also extends 1,000 feet north of Watermelon Road, for 500 feet east of the existing APS Panda 230 kV Substation.

The Commission further modifies the CEC by adding the following condition No. 18:

The Applicant shall maintain appropriate distance between the Project Gen-Tie towers and existing 230 kV transmission lines in the same corridor. Except when crossing existing lines or entering and exiting substations, this distance should be at a minimum equal to or greater than the height of the tallest wooden 230 kV transmission tower in each span.

The Commission further finds and concludes that: (1) the Project is in the public interest because it aids the state in meeting the need for an adequate, economical and reliable supply of electric power; (2) in balancing the need for the Project with its effect on the environment and ecology of the state, the conditions placed on the CEC by the Committee as modified by the Commission effectively minimize its impact on the environment and ecology of the state; (3) the conditions placed on the CEC by the Committee as modified by the Commission resolve matters concerning the need for the Project and its impact on the environment and ecology of the state raised during the course of proceedings, and as such, serve as the findings on the matters raised; and (4) in light of these conditions, the balancing in the broad public interest results in favor of granting the CEC as modified by the Commission.

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1 THE CEC ISSUED BY THE SITING COMMITTEE IS  
2 INCORPORATED HEREIN AND IS APPROVED AS MODIFIED BY THE  
3 COMMISSION BY ORDER OF THE  
4 ARIZONA CORPORATION COMMISSION  
5

6  
7 *Samuel Wilson*  
8 CHAIRMAN

*William A. Mundell*  
COMMISSIONER

9  
10 *Jeffrey H. Hatch*  
11 COMMISSIONER

*Timothy M. ...*  
COMMISSIONER

*Garrett ...*  
COMMISSIONER

12 IN WITNESS WHEREOF, I, BRIAN C. McNEIL,  
13 Executive Director of the Arizona Corporation  
14 Commission, have hereunto, set my hand and caused the  
15 official seal of this Commission to be affixed at the  
16 Capital, in the City of Phoenix, this 11<sup>th</sup> day of  
17 December, 2008.

18 *Brian C. McNeil*  
19 BRIAN C. McNEIL  
20 EXECUTIVE DIRECTOR

21  
22  
23 DISSENT: \_\_\_\_\_

24  
25 DISSENT: \_\_\_\_\_  
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1 **BEFORE THE ARIZONA POWER PLANT AND**  
2 **TRANSMISSION LINE SITING COMMITTEE**

3 IN THE MATTER OF THE APPLICATION )  
4 OF ARIZONA SOLAR ONE, LLC., IN ) Docket No. L-00000GG-08-0408-00140  
5 CONFORMANCE WITH THE )  
6 REQUIREMENTS OF ARIZONA REVISED )  
7 STATUTES §§ 40-360, *et seq.*, FOR A ) Case No. 140  
8 CERTIFICATE OF ENVIRONMENTAL )  
9 COMPATIBILITY AUTHORIZING THE )  
10 CONSTRUCTION OF THE SOLANA GEN- )  
11 TIE, WHICH ORIGINATES AT THE )  
12 SOLANA GENERATING STATION, )  
LOCATED IN SECTION 9, TOWNSHIP 6 )  
SOUTH, RANGE 7 WEST, MARICOPA )  
COUNTY, AND TERMINATES AT THE )  
PANDA 230 kV SUBSTATION, LOCATED )  
IN SECTION 20, TOWNSHIP 5 SOUTH, )  
RANGE 4 WEST, GILA BEND, ARIZONA. )

13  
14 **CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY**

15 Pursuant to notice given as provided by law, the Arizona Power Plant and Transmission  
16 Line Siting Committee (the "Committee") held public hearings on September 22 and 23, 2008,  
17 and October 14, 2008, all in conformance with the requirements of Arizona Revised Statutes  
18 ("A.R.S.") §§ 40-360, *et seq.*, for the purpose of receiving evidence and deliberating on the  
19 Application of Arizona Solar One, LLC. ("Applicant") for a Certificate of Environmental  
20 Compatibility ("Certificate") in the above-captioned case (the "Project").

21 The following members and designees of members of the Committee were present at one  
22 or more of the hearings for the evidentiary presentations and/or for the deliberations:

23	John Foreman	Chairman, Designee for Arizona Attorney General
24		Terry Goddard
25	Paul Rasmussen	Designee for Director, Arizona Department of
26		Environmental Quality

1	Gregg Houtz	Designee for Director, Arizona Department of Water Resources
2		
3	Jack Haenichen	Designee for Director, Energy Office, Arizona Department of Commerce, attended September 22 and 23, 2008
4		
5	Jim Arwood	Director, Energy Office, Arizona Department of Commerce, attended October 14, 2008
6		
7	David Eberhart	Designee for Chairman, Arizona Corporation Commission
8		
9	Michael Biesemeyer	Appointed Member, attended September 22 and 23, 2008
10		
11	Jeff McGuire	Appointed Member
12		
13	Patricia Noland	Appointed Member
14		
15	Michael Palmer	Appointed Member
16		
17	Michael Whalen	Appointed Member
18		
19	Barry Wong	Appointed Member

Applicant was represented by Thomas H. Campbell and Albert H. Acken of Lewis and Roca LLP. Arizona Corporation Commission ("ACC" or "Commission") Staff, represented by Charles H. Hains and Robin R. Mitchell, the Sierra Club-Grand Canyon Chapter, represented by Timothy M. Hogan, and the Paloma Irrigation and Drainage District, represented by Jay Moyes and Jeffrey Zimmerman, were granted intervention pursuant to A.R.S. § 40-360.05.

At the conclusion of the hearings, the Committee, having received the Application, the appearances of the parties, the evidence, testimony, and exhibits presented at the hearings, and being advised of the legal requirements of A.R.S. §§ 40-360 to 40-360.13, upon motion duly made and seconded, voted 10 to 0 to grant Applicant this Certificate of Environmental Compatibility (Line Siting Case No. 140) for the Project.

1 The Project as approved consists of approximately 20 miles of 230 kV transmission line  
2 and required substation and switchyard facilities and modifications. The single-circuit may be  
3 constructed on either single-circuit or double-circuit towers.

4 The Project will originate at a new 230 kV substation within the Solana Generating Station  
5 site (Line Siting Case No. 139, proceeding concurrently with this case), Maricopa County,  
6 Arizona. From the new substation within the Solana site, the Project will head to the intersection  
7 of Painted Rock Dam Road and Powerline Road. The Project will end at the existing APS Panda  
8 Substation (Line Siting Case No. 99) located in Section 20, Township 5 South, Range 4 West,  
9 Gila Bend, Arizona. The Project may interconnect with (loop in and out of) the APS Gila Bend  
10 Substation in addition to terminating at the existing APS Panda 230 kV Substation. From the  
11 intersection of Painted Rock Dam Road and Powerline Road, the Project's route will be as  
12 follows:

- 13 • North for approximately two miles to the section line / Watermelon Road alignment,  
14 within a 500-foot wide corridor. The corridor width includes 250 feet east and 250 feet  
15 west of the centerline of the section line / Painted Rock Dam Road / 419<sup>th</sup> Avenue  
16 alignment.
- 17 • At the section line located two miles north of Powerline Road, the route turns east along  
18 the section line / Watermelon Road alignment for approximately sixteen miles to the  
19 existing APS Panda 230 kV Substation, located in Section 20, Township 5 South, Range 4  
20 West, Gila Bend, Arizona. Between 419<sup>th</sup> Avenue and 355<sup>th</sup> Avenue the corridor width is  
21 2,000 feet; 1,000 feet north and 1,000 feet south of the centerline of section line /  
22 Waterline Road alignment. From 355<sup>th</sup> Avenue to the midsection line between 331<sup>st</sup>  
23 Avenue and 323<sup>rd</sup> Avenue, the corridor width is 1,000 feet, located south of the centerline  
24 of the section line / Watermelon Road alignment. From the midsection line between 331<sup>st</sup>  
25 Avenue and 323<sup>rd</sup> Avenue to the east side of the existing APS Panda 230 kV Substation,  
26

1 the corridor width is 1,250 feet, located south of the centerline of the section line /  
2 Watermelon Road alignment.

- 3 • At the point along the section line / Watermelon Road alignment located parallel to the  
4 eastern boundary of the existing APS Panda 230 kV Substation, the route extends 1,000  
5 feet north of Watermelon Road, within a 500-foot wide corridor east of the existing APS  
6 Panda 230 kV Substation.

7 For the authorized, but not required, loop in and out of the Gila Bend Substation, the  
8 Project's route also includes the following corridor:

- 9 • A 1,000-foot wide corridor, approximately two miles long, located between Watermelon  
10 Road and the APS Gila Bend Substation, primarily along the alignment of the existing  
11 APS 230 kV Gila Bend transmission line (Line Siting Case No. 26). The corridor width  
12 includes 500 feet east and 500 feet west of the centerline of the existing alignment. Within  
13 this corridor, the portion of the circuit extending south from Watermelon Road to the APS  
14 Gila Bend Substation and the portion extending north from the APS Gila Bend Substation  
15 to Watermelon Road may be placed on two sets of single-circuit towers or on one set of  
16 double-circuit towers.

17 A general location map of the Project, described herein, is set forth in **Exhibit A**.

### 18 CONDITIONS

19 This Certificate is granted upon the following conditions:

- 20 1. The Applicant, or its assignee(s), shall obtain all required approvals and permits  
21 necessary to construct the Project.
- 22 2. The Applicant, or its assignee(s), shall comply with all existing applicable ordinances,  
23 master plans and regulations of the Town of Gila Bend, State of Arizona, the County  
24 of Maricopa, the United States, and any other governmental entities having  
25 jurisdiction.

26

- 1           3. This authorization to construct the Project will expire ten (10) years from the date the  
2           Certificate is approved by the Commission unless the Project is completed and capable  
3           of operation within the ten-year time frame. If the Project is not complete and capable  
4           of operation within the ten-year time frame, the Applicant or its assignee(s), may  
5           request that the Commission extend this time limitation.
- 6           4. In the event that the Project requires an extension of the term of this Certificate prior to  
7           completion of construction, Applicant, or its assignee(s), shall use commercially  
8           reasonable means to directly notify all landowners and residents within one mile of the  
9           Project corridor for which the extension is sought. Such landowners and residents  
10          shall be notified of the time and place of the proceeding in which the Commission shall  
11          consider such request for extension.
- 12          5. The Applicant, or its assignee(s), shall document and make every reasonable effort to  
13          identify and correct, on a case-specific basis, all complaints of interference with radio  
14          or television signals from operation of the transmission lines and related facilities  
15          addressed in this Certificate. The Applicant, or its assignee(s), shall maintain written  
16          records for a period of five years of all complaints of radio or television interference  
17          attributable to operation, together with the corrective action taken in response to each  
18          complaint. All complaints shall be recorded to include notations on the corrective  
19          action taken. Complaints not leading to a specific action or for which there was no  
20          resolution shall be noted and explained.
- 21          6. To the extent applicable, Applicant, or its assignee(s), shall comply with the notice and  
22          salvage requirements of the Arizona Native Plant Law (A.R.S. §§ 3-901, *et seq.*) and  
23          will, to the extent feasible, minimize the destruction of native plants during Project  
24          construction.
- 25          7. Pursuant to A.R.S. § 41-844, if any archaeological, paleontological or historical site or  
26          object that is at least 50 years old is discovered on state, county or municipal land

1 during Project-related activities, the person in charge shall promptly report the  
2 discovery to the Director of the Arizona State Museum, and in consultation with the  
3 Director, shall immediately take all reasonable steps to secure and maintain the  
4 preservation of the discovery. If human remains and/or funerary objects are  
5 encountered on private land during the course of any ground-disturbing activities  
6 relating to the development of the subject property, Applicant shall cease work on the  
7 affected area of the Project and notify the Director of the Arizona State Museum  
8 pursuant to A.R.S. § 41-865.

- 9 8. Applicant, or its assignee(s), shall design the transmission lines to incorporate  
10 reasonable measures to minimize impacts to raptors.
- 11 9. Applicant, or its assignee(s), shall use non-specular conductor and dulled surfaces for  
12 transmission line structures.
- 13 10. Before construction on this Project may commence, the Applicant, or its assignee(s),  
14 must file a construction mitigation and restoration plan ("Plan") with Commission  
15 Docket Control. Where practicable, the Plan will specify the Applicant's plans for  
16 construction access and methods to minimize impacts to wildlife, to minimize  
17 vegetation disturbance outside of the Project right-of-way, and to revegetate native  
18 areas following construction disturbance.
- 19 11. With respect to the Project, Applicant, or its assignee(s), shall participate in good faith  
20 in state and regional transmission study forums such as Southwest Area Transmission  
21 to coordinate transmission plans related to the Project.
- 22 12. Within 120 days of the Commission decision granting this Certificate, Applicant, or its  
23 assignee(s), will post signs in public rights-of-way giving notice of the Project corridor  
24 to the extent authorized by law. The Applicant, or its assignee(s), shall place signs in  
25 prominent locations at reasonable intervals such that the public is notified along the  
26 full length of the transmission line until the transmission structures are constructed. To

1 the extent practicable, within 45 days of securing easement or right-of-way for the  
2 Project, the Applicant, or its assignee(s), shall erect and maintain signs providing  
3 public notice that the property is the site of a future transmission line. Such signage  
4 shall be no smaller than a normal roadway sign. The signs shall advise:

- 5 (a) That the site has been approved for the construction of Project facilities;
- 6 (b) The expected date of completion of the Project facilities;
- 7 (c) A phone number for public information regarding the Project;
- 8 (d) The name of the Project;
- 9 (e) The name of the Applicant, or its assignee(s); and
- 10 (f) The website of the Applicant, or its assignee(s).

11 13. The Applicant, or its assignee(s), shall provide copies of this Certificate to the Town of  
12 Gila Bend, the Maricopa County Planning and Development Department, the Arizona  
13 State Land Department, the State Historic Preservation Office, and the Arizona Game  
14 and Fish Department.

15 14. Within 120 days after the approval of this Certificate by the Commission, Applicant, or  
16 its assignee(s), will provide known homebuilders and developers within one mile of  
17 the center line of the Certificated route (i) a copy of this Certificate, (ii) a map showing  
18 the location of the Project, (iii) a pictorial depiction of the type of power line being  
19 constructed, and (iv) a written request that the developers and homebuilders include  
20 this information in the developers' and homebuilders' homeowners' disclosure  
21 statements.

22 15. Before commencing construction of Project facilities located parallel to and within 100  
23 feet of any existing natural gas or hazardous liquid pipeline, the Applicant, or its  
24 assignee(s), shall:

- 25 (a) Perform the appropriate grounding and cathodic protection studies to show that  
26 the Project's location parallel to and within 100 feet of such pipeline results in

1 no material adverse impacts to the pipeline or to public safety when both the  
2 pipeline and the Project are in operation. If material adverse impacts are noted  
3 in the studies, Applicant, or its assignee(s), shall take appropriate steps to  
4 ensure that such material adverse impacts are mitigated. Applicant, or its  
5 assignee(s), shall provide to Commission Staff reports of studies performed;  
6 and

7 (b) Perform a technical study simulating an outage of the Project that may be  
8 caused by the collocation of the Project parallel to and within 100 feet of the  
9 existing natural gas or hazardous liquid pipeline. This study should either:  
10 i) show that such outage does not result in customer outages, or ii) include  
11 operating plans to minimize any resulting customer outages. Applicant, or its  
12 assignee(s), shall provide a copy of this study to Commission Staff.

13 16. Applicant, or its assignee(s), will follow the latest Western Electricity Coordinating  
14 Council/North American Electric Reliability Corporation planning standards as  
15 approved by the Federal Energy Regulatory Commission, and National Electrical  
16 Safety Code construction standards.

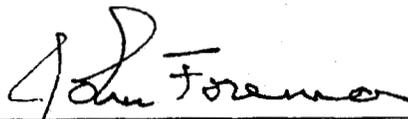
17 17. The Applicant, or its assignee(s), shall submit a self-certification letter annually,  
18 identifying progress made with respect to each condition contained in the Certificate,  
19 including which conditions have been met. Each letter shall be submitted to the  
20 Commission Docket Control on December 1, beginning in 2009. Attached to each  
21 certification letter shall be documentation explaining how compliance with each  
22 condition was achieved. Copies of each letter along with the corresponding  
23 documentation shall be submitted to the Arizona Attorney General and Department of  
24 Commerce Energy Office. The requirement for the self-certification shall expire on  
25 the date the Project is placed into operation.  
26

**FINDINGS OF FACT AND CONCLUSIONS OF LAW**

This Certificate incorporates the following findings of fact and conclusions of law:

1. The Project is in the public interest because it aids the state in meeting the need for an adequate, economical and reliable supply of electric power.
2. In balancing the need for the Project with its effect on the environment and ecology of the state, the conditions placed on the Certificate by the Committee effectively minimize its impact on the environment and ecology of the state.
3. The conditions placed on the Certificate by the Committee resolve matters concerning the need for the Project and its impact on the environment and ecology of the state raised during the course of proceedings, and as such, serve as the findings on the matters raised.
4. In light of these conditions, the balancing in the broad public interest results in favor of granting the Certificate.

THE ARIZONA POWER PLANT AND  
TRANSMISSION LINE SITING COMMITTEE

  
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Hon. John Foreman, Chairman

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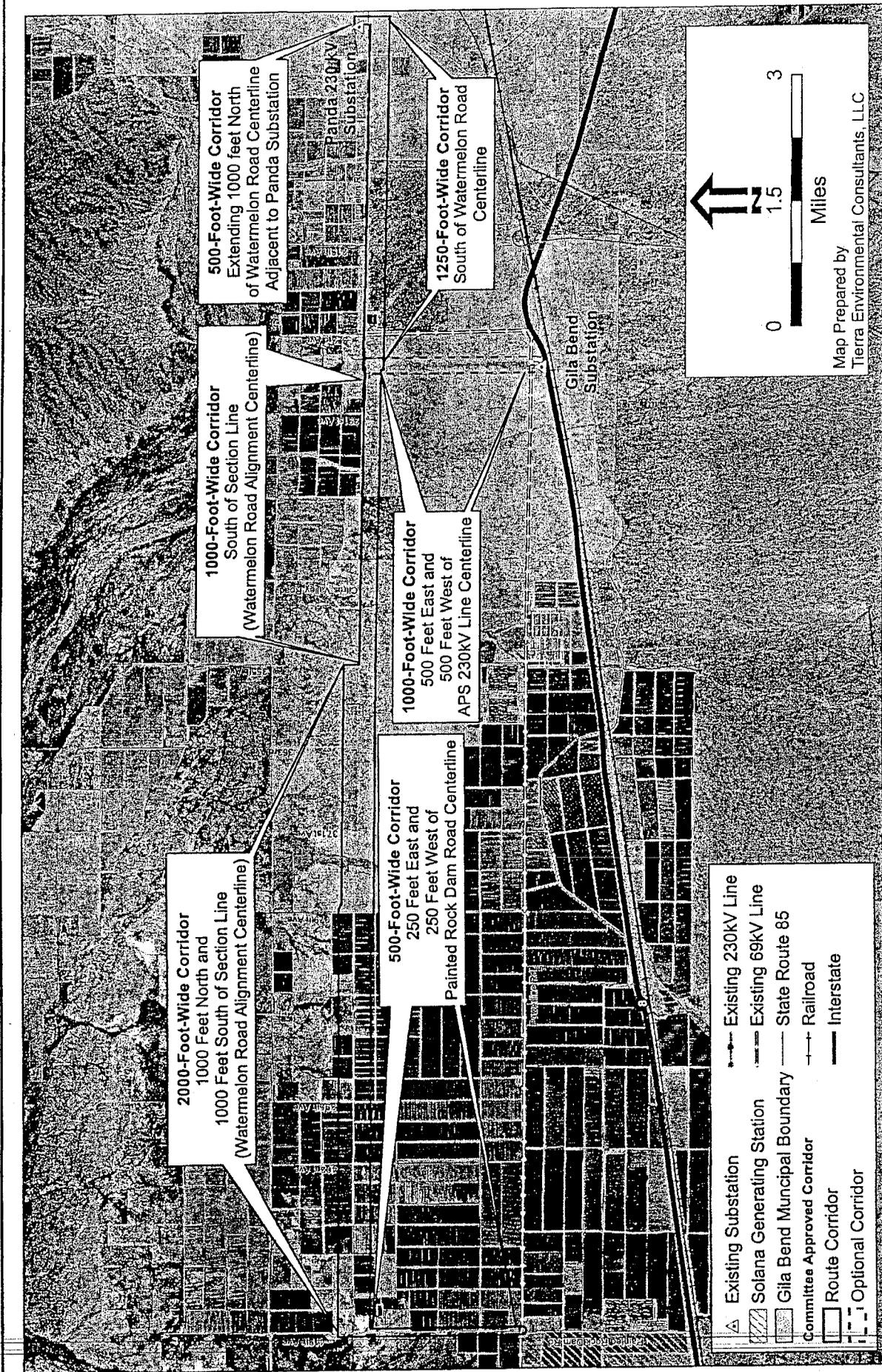


Exhibit A

**ATTACHMENT B**

AFFIDAVIT

STATE OF ARIZONA

:

COUNTY OF MARICOPA

:

I, Kate Maracas, being duly sworn under oath, depose and state:

1. I am the Vice President of Arizona Operations for Abengoa Solar, Inc. Abengoa Solar, Inc. is the sole owner of Arizona Solar One, LLC ("ASO").

2. I testified on behalf of ASO during the Arizona Power Plant and Transmission Line Siting Committee ("Committee") hearings in this docket and am personally familiar with the Certificate of Environmental Compatibility ("CEC") as well as the proposed changes to the CEC related to ASO's 230kV transmission line ("Gen-Tie") connecting the Solana solar generating station to the APS transmission system.

3. The CEC authorizes ASO to construct double circuit towers but only to affix one circuit to these towers. Engineering studies and detailed design work conducted after the CEC was issued demonstrate the need for a second set of conductors. This second set of conductors will allow ASO to more reliably and efficiently, with less line loss, deliver power from the Solana generating station to APS' transmission system. Having two sets of conductors will provide enhanced reliability should one set of conductors malfunction.

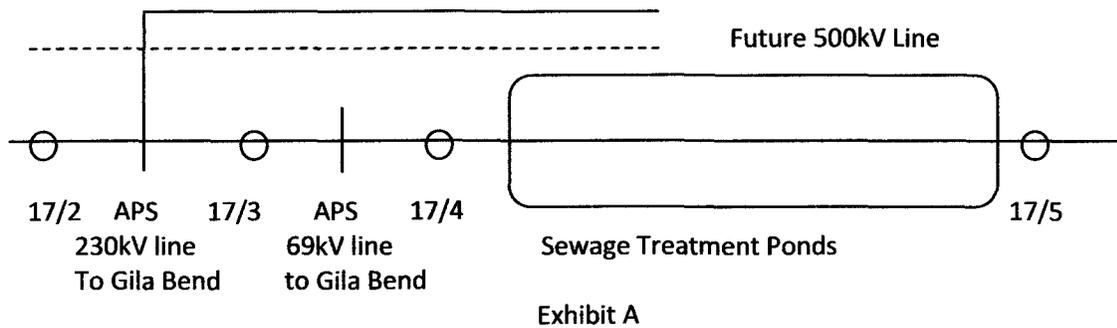
4. During the Committee hearings, ASO explained that it would use monopole transmission structures and provided typical examples of such structures in the evidentiary record. The same engineering and design studies referred in paragraph 3 also identified the need to use four H-frame transmission structures rather than monopoles at one point in the route.



# **EXHIBIT A**

## Solana – Panda, H-Frame Structure Information

The Solana to Panda 230kV transmission line is designed for tubular steel monopole configuration in all locations except the four structures associated with the Arizona Public Service (APS) 230kV and 69kV adjacent transmission line crossings and across the sewage treatment pond crossing.



The four structures as seen in Exhibit A of this document (17/2, 17/3, 17/4, and 17/5) are of a horizontal, H-frame configuration. These structures were designed to minimize the environmental impacts in the area and to meet the intent of the Arizona Corporation Commission. See Exhibits 1 and 2 for the pole designs.

These locations presented an engineering challenge with the following requirements that were not addressed in the Arizona Corporation Commission decision.

1. The span between structures 17/2 to 17/3. There is a crossing of the APS 230kV Panda-Gila Bend transmission line, with the APS line crossing above the Solana-Panda transmission line. The structures on the Solana-Panda line were designed to be as low as possible in order to keep the APS structures as low as possible. The OPGW is located under the conductors in this span to minimize the structure heights.
2. The span between structures 17/3 to 17/4. There is a crossing of the APS 69kV transmission line, with the Solana-Panda line crossing over the APS transmission line. Structure 17/2 is relatively low to cross under the APS 230kV line and structure 17/4 is fairly high to cross over the sewage treatment ponds.
3. The span between structures 17/4 to 17/5. There is a very long span required to cross the sewage treatment plant ponds. This long span requires the use of taller dead-end structures in order to meet required electrical clearances over the ponds.

The following alternatives were considered for the design of these four structures to meet the intent of the Arizona Corporation Commission and minimizing the environmental impact in the area:

1. Single pole, double circuit structures  
In this design, there would be 1 pole with vertically stacked conductors on each side of the pole, with the OPGW either above or below the conductors. Similar poles used in the remaining part of the line are generally more than 100' high. The use of this design would require the APS 230kV transmission line to be significantly higher to maintain electrical clearances. Also, the

poles on either side of the sewage retention pond would be very high in order to span the long distance and maintain electrical clearance.

2. 3-Pole, monopole structures

In this design, there would be 3 poles each with 2 phases in a vertically stacked configuration. The OPGW would either be above or below the conductors. This design would allow for shorter structures than the single pole structures, but they still would be fairly tall in order to maintain electrical clearance between the phases and the OPGW.

3. Horizontal, H-frame structures

In this design, there would be 2 side-by-side structures with 1 horizontal beam each. The OPGW would either be mounted above or below the conductors. With the H-frame design, the OPGW can be mounted between the conductors, allowing the structures to be slightly shorter than other designs. The use of this design results in the lowest structures of any design, but has a higher impact with 2 structures located side by side. It takes the most space in the ROW of any alternative.

4. Vertical, double H-frame structures

In this design, there would be 2 poles with 2 horizontal beams. The OPGW would be mounted above or below the conductors. With the H-frame design, the OPGW can be mounted between the conductors, allowing the structures to be slightly shorter than other designs. The use of this design is the most compact in the ROW and results in lower structures than either the single pole, double circuit or 3-pole monopole structures. This design was selected as the best alternative as it keeps the structures (including those on the APS 230kV line) as low as possible, fits more compactly in the ROW, and has a low visual impact with only 2 vertical poles.



Structures 17/4 and 17/5  
230 kilovolt Double Circuit Structure

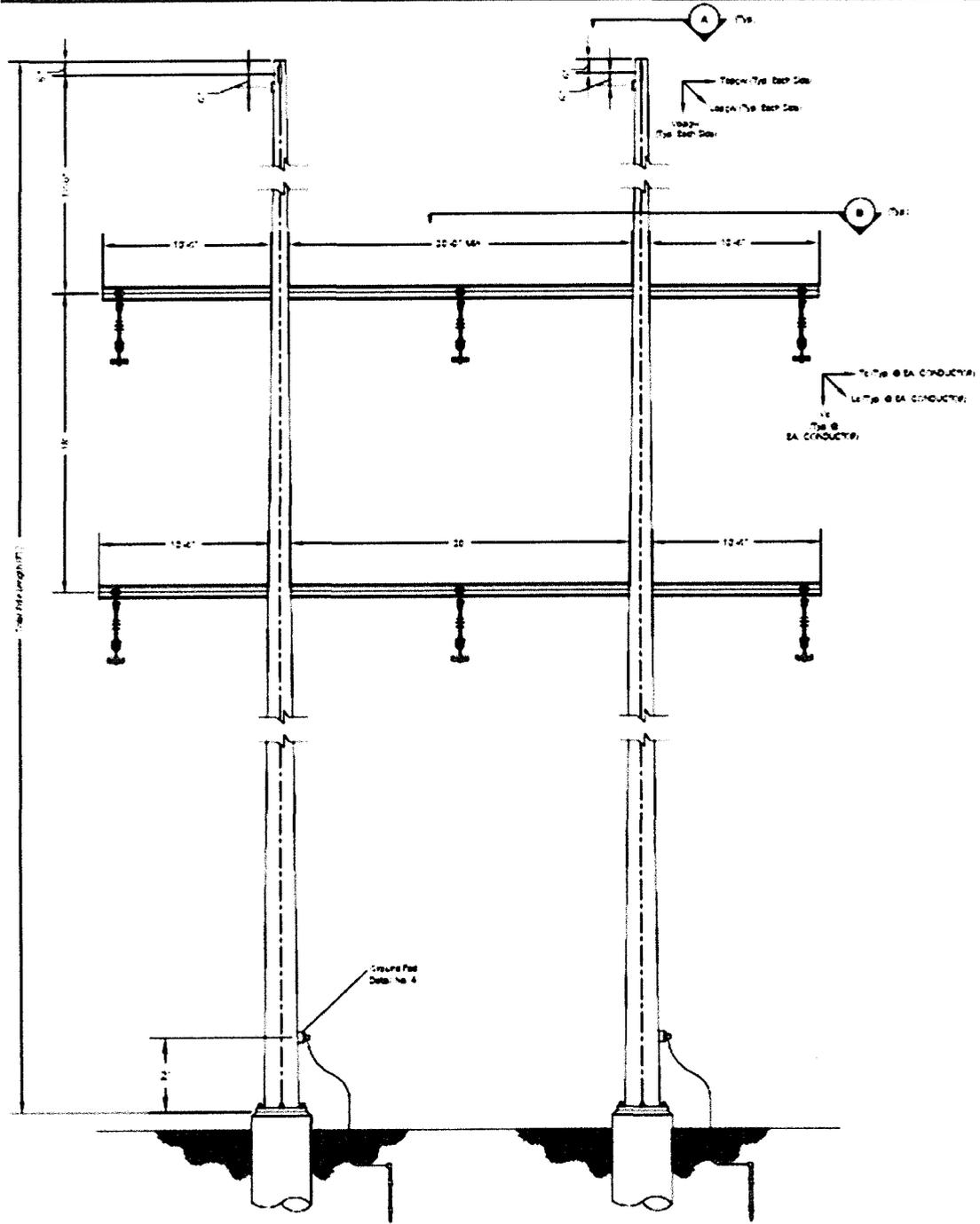


Exhibit 2

## **ATTACHMENT C**

1 **AFFIDAVIT**

2 STATE OF ARIZONA :

3 COUNTY OF MARICOPA :

4 I, Larry Killman, being duly sworn under oath, depose and state:

5 1. I am the Principal of Tierra Environmental Consultants (“Tierra”).

6 2. I directed the environmental studies for the Certificate of Environmental  
7 Compatibility (“CEC”) prepared on behalf of Arizona Solar One, LLC (“ASO”) for the  
8 230kV transmission line (“Gen-Tie”) connecting the Solana solar generating station to the  
9 APS transmission system.

10 3. I provided testimony for ASO during the Arizona Power Plant and  
11 Transmission Line Siting Committee (“Committee”) hearings in this docket concerning  
12 the environmental compatibility of the Gen-Tie.

13 4. I am personally familiar with the CEC as well as the proposed changes to the  
14 CEC to affix a second set of conductors on the Gen-Tie and build four H-frame structures  
15 at one point along the route.

16 5. I oversaw the environmental studies conducted for the CEC application and  
17 have directed the environmental analyses conducted to determine the environmental  
18 effects associated with proposed changes.

19 6. The addition of a second set of conductors will have minimal environmental  
20 effects. It will have little to no effect on land use, cultural resources, or recreational  
21 opportunities. A second set of conductors will create additional perch space for raptors and  
22 other birds. While the Gen-Tie must be designed pursuant to public safety standards  
23 promulgated by the National Electric Safety Code, ASO will make efforts to incorporate  
24 design elements to encourage avian-safe facilities in accordance with *Suggested Practices*  
25 *for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line  
26 Interaction Committee [APLIC] 2006).

1           7.     Due to several existing transmission and distributions lines, which are  
2 already elements of the built environment in which the Gen-Tie will be constructed, the  
3 addition of a second set of conductors will result in a negligible visual change from the  
4 single circuit 230kV already approved for the Gen-Tie. While the audible noise resulting  
5 from corona discharge, or "arcing" across particles or moist air, will increase slightly with  
6 the additional conductors, it will remain well below recommended guidelines of the  
7 Federal Communications Commission and local noise ordinances. Changes in the radio-  
8 frequency interference and TV interference associated with the transmission line will  
9 either be negligible, or slightly reduced as a result of the second set of conductors.

10           8.     Attached as Exhibit A to my affidavit is a photographic simulation of the  
11 additional circuit.

12           9.     It is my expert opinion that the additional circuit will be environmentally  
13 compatible.

14           10.    The four H-frame structures will have no effect on land use, cultural  
15 resources, recreational opportunities, noise, or radio-frequency or TV interference. The H-  
16 frame structures will provide additional roosting opportunities for birds, but the effects  
17 will be minimized by using standard avian protection measures pursuant to APLIC's  
18 suggested practices.

19           11.    The use of H-frame structures will be visually consistent, because the H-  
20 frame structures will range in height from approximately 63 feet to 116 feet, as compared  
21 to the 100-foot-tall monopoles. APS's existing 230kV transmission line, which the Gen-  
22 Tie must cross, is on H-frame structures in this location, and therefore use of H-frames for  
23 the Gen-Tie at this isolated locale along the alignment will result in visual continuity. The  
24 H-frame structures are wider than the monopole structures and are a more reliable anchor  
25 for the longer span necessary to cross the wastewater treatment ponds. The typical span  
26

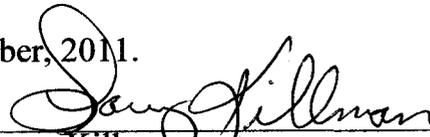
1 length for the Gen-Tie line is 875 feet, but the span over the wastewater treatment ponds  
2 will be 1,284 feet.

3 12. Attached as Exhibit B to my affidavit is a photographic simulation of the  
4 four proposed H-frame structures.

5 13. It is my expert opinion that the use of four H-frame structures will be  
6 environmentally compatible.

7 DATED this 28th day of September, 2011.

8

  
Larry Killman

9

10

11

SWORN and SUBSCRIBED to before me this 28th day of September, 2011, by:



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Notary Public

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My commission expires:

7-13-12

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**EXHIBIT A: SECOND SET OF CONDUCTORS VISUAL SIMULATIONS**



**Figure 1. Existing conditions along Watermelon Road showing an existing 230kV south of the road and an existing 69kV with 12kV underbuild north of the road (view to west).**



**Figure 2. Visual simulation showing the approved single circuit 230kV Gen-Tie south of the existing 230kV (view to west).**



**Figure 3. Visual simulation showing the addition of a second set of conductors on the 230kV Gen-Tie south of the existing 230kV (view to west).**

## EXHIBIT B: H-FRAME VISUAL SIMULATIONS



Figure 1. Existing conditions surrounding the wastewater treatment ponds (view to west).  
APS's existing 230kV and 69kV are in the middleground.



Figure 2. Visual simulation showing the four proposed H-frame structures required to span the wastewater treatment ponds and accommodate APS's existing transmission lines.