



BEFORE THE ARIZONA CORPORATION COMMISSION

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MIKE GLEASON
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Commissioner
KRISTIN K. MAYES
Commissioner
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Commissioner

Arizona Corporation Commission
DOCKETED
SEP 30 2008

DOCKETED BY *MM*

IN THE MATTER OF THE APPLICATION
OF ARIZONA PUBLIC SERVICE
COMPANY FOR APPROVAL OF
CONCENTRATING SOLAR POWER
CONTRACT

DOCKET NO. E-01345A-08-0106
DECISION NO. 70531
ORDER

Open Meeting
September 23 and 24, 2008
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

Introduction

1. On February 21, 2008, Arizona Public Service Company ("APS") filed an application with the Arizona Corporation Commission ("ACC") for approval of a Purchase Power Agreement ("PPA"). Notice of the application was sent to customers between May 19 and June 17, 2008. A copy of the notice is included as Attachment I to the Staff Memorandum. The proposed PPA would be established with Arizona Solar One LLC ("Arizona Solar One") to purchase the full output of a proposed 280 megawatt ("MW") concentrating solar power ("CSP") facility ("Solana") over a 30 year period. Arizona Solar One would build, own, and operate the facility and APS would contract with Arizona Solar One to purchase the energy produced by the facility, and have rights to renewable energy credits ("RECs") associated with the generation. Arizona Solar One is a wholly owned subsidiary of Abengoa Solar Inc. which is a wholly owned subsidiary of Abengoa Solar S.A. Abengoa Solar S.A. is a wholly owned subsidiary of Abengoa

1 S.A. ("Abengoa"). Abengoa is multi-national technology company with extensive experience in
2 the solar industry.

3 2. The CSP facility would consist of an array of solar troughs covering a three square
4 mile area near Gila Bend. The facility would include molten salt tanks for thermal storage that
5 will allow dispatch of power at peak periods. The facility would be able to meet the electricity
6 needs of approximately 70,000 Arizona homes. Generation through CSP trough technology has a
7 substantial history and is a proven technology.

8 3. Power produced by the Solana facility would help APS meet requirements in the
9 Renewable Energy Standard and Tariff ("REST") rules. The REST rules require utilities to obtain
10 certain portions of the total energy they supply from renewable resources such as CSP. APS
11 selected the Solana project as a potential source of renewable energy following a competitive
12 process that involved the issuance of a request for proposal ("RFP") and an analysis of bids. APS
13 calculates that the price proposed for energy supplied by the Solana facility would be
14 approximately 19 percent greater than the cost of the conventional resource alternative, but is
15 competitive with other renewable energy projects. This calculation assumes timely approval of an
16 extension of a federal investment tax credit.

17 4. The PPA that APS proposes to establish with Arizona Solar One for purchase of the
18 output of the Solana facility includes safeguards for penalty payments to APS should Arizona
19 Solar One fail to deliver energy to APS according to certain requirements. These measures would
20 mitigate risks to APS such as delay of the facility's construction or a shortfall in anticipated output
21 from the facility.

22 5. APS provided some information to Staff under a confidentiality agreement. This
23 appropriately protects APS' ability to enter into contracts and purchase power from the market
24 without competitors knowing the terms of APS' existing agreements.

25 **REST Requirements**

26 6. APS' original application in this matter sought Commission approval of a PPA with
27 Arizona Solar One. The PPA would allow APS to procure the output of the Solana facility. The
28 energy obtained from the Solana facility would meet certain requirements established in Article 18

1 of Arizona Administrative Code (“A.A.C.”). Article 18 contains rules that establish the REST.
2 The REST rules require that electric utilities procure energy from renewable resources such as
3 solar, wind and geothermal generation. Solar resources prescribed by the rules may be either
4 photovoltaic systems or solar thermal electric systems, such as the solar trough generation of the
5 Solana facility. The following are excerpts from the rules that describe eligibility:

6 A.A.C. R14-2-1802(A)

7 *“Eligible Renewable Energy Resources” are applications of the following defined*
8 *technologies that displace Conventional Energy Resources that would otherwise be*
9 *used to provide electricity to an Affected Utility’s Arizona Customers.*

10 A.A.C. R14-2-1802 (A)(10)

11 *“Solar Electricity Resources” use sunlight to produce electricity by either*
12 *photovoltaic devices or solar thermal electric resources.*

13 7. The REST rules created a requirement that 1.25 percent of an electric utility’s retail
14 kilowatt-hours (“kWh”) sold in 2006 be generated from renewable resources. The requirement for
15 the portion of retail kWh that is generated through the use of renewable resources increases
16 annually up to 15 percent in the year 2025. The rules allow utilities to meet the requirement
17 through a combination of self-generation, purchase of renewable energy, or purchase of RECs
18 from other entities. The PPA that APS describes in this application would provide renewable
19 energy to comply with the requirements of the REST rules. The Solana facility is expected to
20 produce 900,000 megawatt-hours (“MWh”) per year. If operational by 2011 the Solana facility,
21 together with existing and new renewable PPAs entered into by APS, could produce 5 percent of
22 APS’ annual retail energy needs in 2012. The REST rules require that 5 percent of annual retail
23 energy needs shall be provided through renewable sources by 2015. The Solana facility would
24 help APS comply with the REST requirements upon becoming operational; however, following
25 2015 APS would likely need to acquire renewable energy from additional projects to meet the
26 REST requirements.

27 8. Since energy produced from the Solana facility would be generated from CSP and
28 because solar thermal electric resources are included as Eligible Renewable Energy Resources in

1 the rules, Staff believes that the Solana PPA is an Eligible Renewable Energy Resource pursuant to
2 R14-2-1802.

3 **APS' original application and supplemental information**

4 9. A.A.C. R14-2-1804(G) states that "An Affected Utility may ask the Commission to
5 preapprove agreements to purchase energy or Renewable Energy Credits from Eligible Renewable
6 Energy Resources."¹ The original application states that APS seeks approval and assurance of full
7 cost recovery of the proposed PPA under this rule.² The original application also states that "the
8 Company requests that the Commission find that it is prudent for APS to enter into the Solana
9 Generating Station PPA, and that all costs of purchasing energy and RECs pursuant to the PPA,
10 including the above-market costs, will be fully and timely recovered in retail electric rates."³ On
11 April 18, 2008, APS filed in the Docket a document titled Supplemental Information regarding
12 Arizona Public Service Company's Application for Approval of CSP Purchase Power Agreement.
13 The letter of April 18, 2008, clarifies that "APS is not seeking a prudence determination in the
14 Solana PPA docket nor any other pending docket." The letter is included as Attachment II to the
15 Staff Memorandum.

16 Prudence reviews typically include complex analysis and are generally performed after a
17 purchase has been made. As APS has clarified in its letter of April 18, 2008, that it was not
18 seeking a prudence review at this time, Staff did not conduct a prudence review of the proposed
19 PPA. Staff could not have performed a prudence review within APS' requested timeframe for
20 processing this application. Staff's review in this matter is therefore limited to examining whether
21 the Solana Proposal would be an appropriate component of APS' renewable energy portfolio and
22 whether it would be compatible with APS' implementation plan as approved in Commission
23 Decision No. 70313.

24 Staff's findings and recommendations in this matter are as follows:

- 25 1. Based on the information provided by APS, the Solana PPA was selected
26 through a competitive bid procurement process. This item will be discussed in

27 ¹ Proposed Amendments to the Environmental Portfolio Standard Rules, February 3, 2006. Pages 14 and 15.

² Application Page 1.

28 ³ Application Page 7.

- 1 the section titled Selection process used to solicit renewables contracts.
- 2 2. The energy provided through the Solana project is an application of “solar
- 3 electricity resources” as that term is used in the REST Rules. The Solana
- 4 project, as described in the PPA, would displace conventional energy resources
- 5 that would otherwise be used to provide electricity to APS’ customers. Under
- 6 these circumstances, the Solana proposal would meet the requirements of an
- 7 Eligible Renewable Energy Resource pursuant to R14-2-1802. This item has
- 8 been discussed in the section titled REST Requirements.
- 9 3. Taking into account the alternative proposals available to the Company, the
- 10 Solana PPA is a reasonable means of achieving the REST targets and will
- 11 provide a means of complying with the long-term REST requirements. This
- 12 item will be discussed in the section titled Selection process used to solicit
- 13 renewables contracts.
- 14 4. For the above reasons, the Solana PPA is an appropriate component of APS’
- 15 renewable energy portfolio and is compatible with APS’ implementation plan as
- 16 approved in Commission Decision No. 70313.
- 17 Consistent with the correspondence submitted by APS on April 18, 2008, Staff
- 18 believes that APS is not seeking a prudence determination in this docket or any
- 19 other pending docket. Staff’s recommendations in this matter in no way
- 20 address the matter of prudence of the PPA.
- 21 5. Decision No. 67744 of April 2005 clarifies some aspects of the manner in which
- 22 prudence findings may or may not be made in regard to APS’ acquisition of
- 23 renewable energy. It declares the following: “And while the Settlement
- 24 Agreement further stipulates that a renewable resource purchase shall not be
- 25 found imprudent solely because the cost of the renewable resource exceeds
- 26 market price, we stipulate conversely that a renewable resource purchase shall
- 27 not be rendered prudent solely by virtue of the resource’s cost being below 125
- 28 percent of market price.”⁴ Therefore, in any subsequent inquiry into the
- prudence of the Solana PPA, the costs of renewable energy purchased under the
- PPA should not be deemed imprudent solely because the costs are greater than
- for conventional generation.

Detailed description of the PPA

10. APS has entered into a 30-year PPA with Arizona Solar One that is contingent on several conditions, including Commission approval. Arizona Solar One will construct, own, and operate the Solana facility in order to generate energy to deliver under terms of the PPA. The PPA establishes that, by agreement, APS will take ownership of energy produced by the Solana facility at its Gila Bend 230kV Substation. The expected annual net output of the Solana facility is approximately 900,000 MWh. This figure is based on the nameplate capacity of the generating facility.

⁴ Decision No. 67744. April 2005. Page 24.

1 11. The pricing of Solana energy is subject to the timing of approval of the Investment
2 Tax Credit (“ITC”) extension. The ITC is a federal tax credit available to generators of renewable
3 energy. Its future availability is the subject of current Congressional debate.

4 12. The PPA provides an opportunity for APS to renegotiate the contract price should
5 certain conditions occur.

6 13. Should APS elect to exercise any of the rights provided for in the PPA to negotiate
7 price, APS could potentially negotiate a lower price than the pricing established by the PPA.
8 Assuming all other terms of the PPA were held constant, a lower negotiated price would benefit
9 ratepayers.

10 14. An amendment to the PPA establishes a time-based provision that would allow
11 either party the right to terminate the agreement should APS not receive regulatory approval from
12 the Commission by November 30, 2008. The amendment is included as Attachment III.

13 15. The PPA includes provisions that would mitigate harm caused to APS should the
14 energy generated by the Solana facility not be available to APS for a variety of reasons. Certain
15 provisions would require Arizona Solar One to make damage payments to APS.

16 16. Staff recommends that, at any time APS collects damage payments pursuant to the
17 terms of the PPA, that it include in the annual REST implementation plan filing information
18 describing the amount collected, cause for the collection, and how the amount was calculated. The
19 filing should also make a recommendation for the disposition of the proceeds, and if applicable
20 inform the Commission of the measures APS intends to take in order to comply with REST
21 requirements in light of the existing circumstances. Information deemed competitively
22 confidential may be redacted in the filing. Staff makes this recommendation in order to ensure
23 proper use of such proceeds and to ensure that the Commission is sufficiently informed of the
24 disposition of the Solana PPA and APS’ efforts to comply with the requirements of the REST.

25 17. The PPA also places certain requirements on APS as described in Staff’s
26 unredacted Open Meeting memorandum.

27 18. APS conducted an analysis of the PPA to estimate the value of the PPA compared
28 to APS’ projected cost of energy for a conventional resource alternative. This analysis concluded

1 that Solana-generated energy is approximately 19 percent more costly than the conventional
 2 resource alternative. This analysis includes both an assumption of the cost of the conventional
 3 resource alternative and an assumption of the cost of energy generated by the Solana facility. As
 4 discussed previously, the cost of energy generated by the Solana facility is conditional upon
 5 factors such as the timing of approval of extension of the ITC and the level of the ITC approved.
 6 The analysis assumed passage of the ITC prior to 2009 and approval of a 30 percent tax incentive.
 7 As with the typical bill analysis, the presence of a combination of pricing variables creates
 8 numerous pricing scenarios that could be run when performing an avoided cost analysis. In
 9 response to a Staff request, APS additionally calculated the value of the PPA compared to APS'
 10 projected cost of conventional energy assuming that the projected cost of the conventional
 11 alternative varied as a result of both a higher and lower than expected cost of natural gas. Higher
 12 and lower than expected costs of gas are used as natural gas is the fuel predominantly used in
 13 meeting incremental load. APS also performed this analysis assuming that the ITC extension was
 14 approved in June of 2009 with a 30 percent incentive. The results of this additional analysis
 15 include the following:

<u>Assumptions</u>	<u>Percentage Above Avoided Cost</u>
ITC approved in 2008 at 30 percent Avoided cost projections assuming natural gas costs 20% less than expected	32%
ITC approved in 2008 at 30 percent Avoided cost projections assuming natural gas costs 20% more than expected	8%

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 22 19. The percentages above avoided cost figures cited do not mean to say that, for
 23 instance, at 19 percent above avoided cost that a customer's bill would rise 19 percent. The above
 24 avoided cost figures indicate the relative cost of Solana energy alone, which would comprise only
 25 a small portion of energy from which bills are calculated. APS has indicated to Staff that it
 26 expects that, in its first year of operation (2012) Solana generation would represent 2.52 percent of
 27 native load. APS also anticipates that Solana energy would represent 2.27 percent of 2016 load
 28 and 2.02 percent of 2021 load. Should the ITC be approved in 2008 at a 30 percent level, the

1 average residential bill impact resulting from the Solana PPA would be 1.09 percent, or \$1.28 as
2 seen in Table 1.

3 20. National carbon tax legislation has been proposed that would place a tax on fuels
4 that produce carbon dioxide when used. Generation of energy from fuels such as coal, natural gas
5 and other fossil fuels that produce carbon dioxide would become more costly should such a tax be
6 implemented. Cap-and-trade legislation has also been proposed which would place limitations on
7 the emission of a variety of greenhouse gases including carbon dioxide. Cap-and-trade legislation
8 would make generation of electricity more expensive for generators needing to purchase credits in
9 order to exceed emission caps. Overall, such measures would make generation of energy from
10 fossil fuels more costly. The Solana facility would not produce carbon dioxide or other
11 greenhouse gasses as a byproduct of generation of electricity. Implementation of carbon taxes or
12 cap-and-trade measures if implemented would raise the cost of generation avoided by Solana
13 generated energy. Such a scenario would dramatically change the value of Solana generated
14 energy relative to conventional generation. APS estimates that the energy procured by the PPA
15 will help to avoid carbon dioxide emissions by an average of approximately 475,000 tons per
16 year.⁵

17 **Typical Bill Analysis**

18 21. The following table demonstrates the bill impact to customers that would result
19 from approval of the PPA in years 2012, 2016, and 2021. The pricing in this table assumes the
20 ITC is approved in 2008 at a 30 percent level. In this table, residential customer impact is
21 calculated having combined the E-10, E-12, and ET-1 customer classes. Residential customers in
22 the E-10, E-12, and ET-1 classes collectively account for over 90 percent of all of APS' residential
23 customers. For commercial and industrial customers less than 3 MW, the E-32 rate class was
24 used. It accounts for over 93 percent of all small commercial and industrial customers. For
25 commercial and industrial customers with demand greater than 3 MW, a combination of the E-34
26 and E-35 customer classes were used. These account for 100 percent of all large commercial and

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28 ⁵ Application. Page 6.

1 industrial customers. Note that the table includes bill impacts for both median and average
 2 customer kWh consumption. Also note that bill impact is described by both dollar increase and
 3 the increase as a percentage of the total bill.

4 **Table I**

5 **Arizona Public Service Company**
 6 **REST - Solana Base Purchased Power Agreement Bill Impacts**
 7 Residential, Small C/I and Large C/I Customer Classes

	2012 - 1st Full Year	2016 - 5th Year	2021 - 10th Year
<i>Increase in REST Charge and Caps³</i>			
per kWh	\$0.003155	\$0.002722	\$0.002362
Residential Cap	\$1.28	\$1.09	\$0.94
Small C/I Cap	\$45.96	\$40.45	\$35.10
Large C/I Cap	\$108.90	\$121.34	\$105.30
<i>REST Monthly Bill Impact \$</i>			
<i>on Average Customer by Rate⁴</i>			
E-10 / E-12 / ET-1	\$1.28	\$1.09	\$0.94
E-32	\$27.19	\$23.46	\$20.36
E-34 / E-35	\$108.90	\$105.30	\$105.30
<i>REST Monthly Bill Impact %</i>			
<i>on Average Customer by Rate⁴</i>			
E-10 / E-12	1.09%	0.93%	0.80%
E-32	3.44%	2.97%	2.57%
E-34 / E-35	0.04%	0.05%	0.04%
<i>REST Monthly Bill Impact \$</i>			
<i>on Median Customer by Rate⁵</i>			
E-10 / E-12 / ET-1	\$1.28	\$1.09	\$0.94
E-32	\$3.93	\$3.39	\$2.94
E-34 / E-35	\$108.90	\$121.34	\$105.30

*REST Monthly Bill Impact %
on Median Customer by Rate⁵*

E-10 / E-12	1.10%	0.94%	0.81%
E-32	0.50%	0.43%	0.37%
E-34 / E-35	0.04%	0.05%	0.04%

¹ Amount reflected is portion above market costs, which is not reflected in the PSA.

² The collection by class corresponds with the proportionality requirement set in Paragraph 63 of the Settlement Agreement approved by A.C.C. Decision No 67744. The kWh charge and caps have been raised proportionally.

³ The compounded customer growth rate used in the calculation of the REST charge for the 9 year period (2012 - 2021) is 2.5%.

The current REST energy rate and caps are: \$0.003288 per kWh, a \$1.32 cap for Residential, a \$48.84 cap for Small C&I, and a \$146.53 cap for Large C&I.

⁴ E-10 / E-12 / ET-1 avg. monthly kWh usage is 1,022 kWh. E-32 avg. monthly kWh usage is 8,619 kWh. E-34 / E-35 avg monthly kWh usage is 3,286,589 kWh.

Average and median usage is for 12 month ending September 2007.

⁵ E-10 / E-12 / ET-1 median monthly kWh usage is 875 kWh. E-32 median monthly kWh usage is 1,245 kWh. E-34 / E-35 median monthly kWh usage is 2,335,000 kWh.

Average and median usage is for 12 month ending September 2007.

22. Table II contains the same information as Table I except that it assumes a circumstance where the ITC is approved in June of 2009 with a 30 percent tax credit. The scenario represents the latest period for approval of the ITC contemplated by Schedule II.

Table II

**Arizona Public Service Company
REST - Solana Purchased Power Agreement Bill Impacts
Residential, Small C/I and Large C/I Customer Classes**

	2012 - 1st Full Year	2016 - 5th Year	2021 - 10th Year
<i>Increase in REST Charge and Caps³</i>			
per kWh	\$0.003487	\$0.003038	\$0.002663
Residential Cap	\$1.39	\$1.22	\$1.07
Small C/I Cap	\$51.81	\$45.13	\$39.56
Large C/I Cap	\$155.44	\$135.39	\$118.68
<i>REST Monthly Bill Impact \$ on Average Customer by Rate⁴</i>			
E-10 / E-12 / ET-1	\$1.39	\$1.22	\$1.07
E-32	\$30.05	\$26.18	\$22.95
E-34 / E-35	\$155.44	\$118.68	\$118.68

1	REST Monthly Bill Impact %			
2	on Average Customer by Rate⁴			
3	E-10 / E-12	1.20%	1.05%	0.92%
4	E-32	3.81%	3.32%	2.91%
5	E-34 / E-35	0.06%	0.06%	0.05%
6	REST Monthly Bill Impact \$			
7	on Median Customer by Rate⁵			
8	E-10 / E-12 / ET-1	\$1.39	\$1.22	\$1.07
9	E-32	\$4.34	\$3.78	\$3.31
10	E-34 / E-35	\$155.44	\$135.39	\$118.68
11	REST Monthly Bill Impact %			
12	on Median Customer by Rate⁵			
13	E-10 / E-12	1.21%	1.06%	0.93%
14	E-32	0.55%	0.48%	0.42%
15	E-34 / E-35	0.06%	0.05%	0.05%

¹ Amount reflected is portion above market costs, which is not reflected in the PSA.

² The collection by class corresponds with the proportionality requirement set in Paragraph 63 of the Settlement Agreement approved by A.C.C. Decision No 67744. The kWh charge and caps have been raised proportionally.

³ The compounded customer growth rate used in the calculation of the REST charge for the 9 year period (2012 - 2021) is 2.5%.

The current REST energy rate and caps are: \$0.003288 per kWh, a \$1.32 cap for Residential, a \$48.84 cap for Small C&I, and a \$146.53 cap for Large C&I.

⁴ E-10 / E-12 / ET-1 avg. monthly kWh usage is 1,022 kWh. E-32 avg. monthly kWh usage is 8,619 kWh. E-34 / E-35 avg monthly kWh usage is 3,286,589 kWh.

Average and median usage is for 12 month ending September 2007.

⁵ E-10 / E-12 / ET-1 median monthly kWh usage is 875 kWh. E-32 median monthly kWh usage is 1,245 kWh. E-34 / E-35 median monthly kWh usage is 2,335,000 kWh.

Average and median usage is for 12 month ending September 2007.

23. Table III contains the same information as Table I and Table II except that it assumes a circumstance where the ITC is approved in June of 2009 with a 10 percent tax credit. The scenario represents the latest period for approval of the ITC contemplated by Schedule II combined with the lowest percentage of ITC contemplated by Schedule III. It is the most costly potential price combination that could occur.

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Table III

Arizona Public Service Company
 REST - Solana Purchased Power Agreement Bill Impacts
 Residential, Small C/I and Large C/I Customer Classes

	2012 - 1st Full Year	2016 - 5th Year	2021 - 10th Year
<i>Increase in REST Charge and Caps³</i>			
per kWh	\$0.005437	\$0.004913	\$0.004486
Residential Cap	\$2.17	\$1.97	\$1.79
Small C/I Cap	\$80.78	\$72.99	\$66.64
Large C/I Cap	\$242.33	\$218.96	\$199.93
<i>REST Monthly Bill Impact \$ on Average Customer by Rate⁴</i>			
E-10 / E-12 / ET-1	\$2.17	\$1.97	\$1.79
E-32	\$46.86	\$42.34	\$38.66
E-34 / E-35	\$242.33	\$218.96	\$199.93
<i>REST Monthly Bill Impact % on Average Customer by Rate⁴</i>			
E-10 / E-12	1.87%	1.70%	1.54%
E-32	5.93%	5.36%	4.90%
E-34 / E-35	0.10%	0.09%	0.08%
<i>REST Monthly Bill Impact \$ on Median Customer by Rate⁵</i>			
E-10 / E-12 / ET-1	\$2.17	\$1.97	\$1.79
E-32	\$6.77	\$6.11	\$5.58
E-34 / E-35	\$242.33	\$218.96	\$199.93
<i>REST Monthly Bill Impact % on Median Customer by Rate⁵</i>			
E-10 / E-12	1.89%	1.71%	1.56%
E-32	0.86%	0.77%	0.70%
E-34 / E-35	0.09%	0.08%	0.08%

¹ Amount reflected is portion above market costs, which is not reflected in the PSA.

² The collection by class corresponds with the proportionality requirement set in Paragraph 63 of the Settlement Agreement approved by A.C.C. Decision No 67744. The kWh charge and caps have been raised proportionally.

³ The compounded customer growth rate used in the calculation of the REST charge for the 9 year period (2012 - 2021) is 2.5%.

The current REST energy rate and caps are: \$0.003288 per kWh, a \$1.32 cap for Residential, a \$48.84 cap for Small C&I, and a \$146.53 cap for Large C&I.

⁴ E-10 / E-12 / ET-1 avg. monthly kWh usage is 1,022 kWh. E-32 avg. monthly kWh usage is 8,619 kWh. E-34 / E-35 avg monthly kWh usage is 3,286,589 kWh.

1 Average and median usage is for 12 month ending September 2007.
2 ⁵E-10 / E-12 / ET-1 median monthly kWh usage is 875 kWh. E-32 median monthly kWh usage is 1,245 kWh. E-
3 34 / E-35 median monthly kWh usage is 2,335,000 kWh.
4 Average and median usage is for 12 month ending September 2007.

5 24. The pricing in each of these tables, Tables I, II, and III, include certain assumptions
6 as described in the Staff's unredacted memorandum.

7 **Selection process used to solicit renewables contracts**

8 25. APS selected the Solana project as a result of Abengoa's response to a request for
9 proposal ("RFP"). Based on Staff's review of APS' Renewable Energy Competitive Procurement
10 Procedure ("Procedure"), the RFP, a report on the matter issued by Navigant Consulting, Inc.
11 ("Navigant"), discussions with APS, and the quantitative and qualitative results of the selection
12 process provided to Staff, Staff believes that the Solana PPA was selected through a competitive
13 bid procurement process. APS issued an RFP to solicit bids for provision of renewable energy in
14 order to obtain renewable energy to comply with the requirements of the REST rules. APS
15 evaluated the responses to the RFP and selected the Abengoa proposal as a finalist for
16 consideration. Three other offers were also selected; however, this application addresses only the
17 Solana project at this time. Projects were evaluated and selected based on a number of qualitative
18 and quantitative criteria. Navigant was hired by APS to monitor and audit the RFP and selection
19 process. Navigant issued a report explaining the process used by APS and commenting on its
20 observations and findings as an independent auditor. Navigant's audit also included a review of
21 APS' Procedure. The Procedure is a guideline created by APS to govern the competitive
22 procurement process used to solicit and evaluate renewables offers. Navigant's report is included
23 as Attachment IV to the Staff Memorandum.

24 26. APS received 51 proposals from 28 different Respondents in response to the 2007
25 RFP. As some proposals included multiple product offers, a total of 73 product offers were
26 received.

27 27. The evaluation and selection included a Proposal Evaluation and a Detailed
28 Evaluation. The Proposal Evaluation included a Threshold Evaluation, Screening Evaluation, and
a Short List Selection.

1 28. The Detailed Evaluation included a Transmission Review, Technical Evaluation,
2 Additional Production Cost Modeling, a Financial Creditworthiness check, a Term Sheet
3 Negotiation process, Risk Assessment, and Final Selection.

4 29. The Threshold Evaluation phase considered whether respondents had provided
5 sufficient information to meet the criteria of the RFP. Nine offers were rejected on this basis.

6 30. The Screening Evaluation phase applied both a quantitative and qualitative
7 evaluation to the offers. The quantitative evaluation calculated the delivered cost of energy for
8 each bid by adding to each bid cost any additional costs such as system integration, delivery, and
9 imputed debt. Avoided costs were then calculated by determining the cost of the incremental
10 energy avoided by the renewable resource. APS then determined the net present value of the
11 annual bid cost and avoided cost for each offer and created a single table of comparative offers
12 based on a ratio of total bid cost to avoided cost.

13 31. The qualitative evaluation gave consideration to each offer's project viability,
14 technology, permitting considerations, and production risk. The qualitative evaluation was
15 conducted by APS staff members from different relevant disciplines. Twelve offers were rejected
16 in this process as a result of excessive technology risk.

17 32. The Short List Selection reduced the field of offers to 10 based on the best
18 percentages above avoided cost as calculated in the quantitative evaluation.

19 33. The Detailed Evaluation then began with the Transmission Review. In the
20 Transmission Review APS considered the transmission needs and system impact of each offer.
21 One was eliminated from consideration in this phase as it depended on the construction of a nearby
22 coal plant.

23 34. The Technical Evaluation phase considered the technical merits of each offer.
24 Several offers were eliminated as a result of technical concerns.

25 35. The Additional Production Cost Modeling phase refined the avoided costs
26 calculations by using more detailed data.

27 36. The Financial Creditworthiness phase examined the credit risk related to each offer.
28 Two were eliminated as a result of matters related to credit risk.

1 37. The Term Sheet Negotiation phase involved establishment and negotiation of
2 contractual terms that would be established with successful bidders. One bidder was eliminated as
3 a result of being unresponsive in this process.

4 38. The Risk Assessment phase involved a qualitative assessment of risk related to
5 transmission, credit, and technical considerations.

6 39. In the Final Selection phase APS chose four offers from four respondents. APS
7 may seek contracts with each of the four finalists in order to meet the REST requirements.

8 40. APS met with Staff on two occasions to discuss the bidding and selection process.
9 In these meetings APS provided Staff with information describing the quantitative and qualitative
10 conclusions drawn in the selection process. Summary information provided to Staff in these
11 meetings that lists the quantitative and qualitative results of the selection process is provided as
12 Attachment V of the Staff Memorandum. The attachment also provides a descriptive rationale for
13 the selection or rejection of offers. The information provided is deemed competitively
14 confidential. Note that in Attachment V Abengoa is referred to as Solucar.

15 41. The Navigant report states that the Procedure is fair and unbiased.⁶ The Navigant
16 report states about the RFP process:

17 *...we conclude that the solicitation materials associated with the 2007 RFP were*
18 *understandable, comprehensive and consistent with the requirements of the*
19 *Procedure and with other requests for proposals for renewable power supply that*
20 *we have reviewed. The terms of the various certification, confidentiality,*
21 *creditworthiness and other form documents were reasonable and consistent with*
22 *others we have reviewed. The submittal instructions and non-refundable bid fee*
23 *were reasonable and the description of the evaluation process was clear. The*
24 *presentations made at the pre-bid conference were clear and consistent with the*
25 *Procedure and the RFP, and the questions and answers made available on the RFP*
26 *website were also clear and consistent and valuable in further defining the*
27 *solicitation. Although there were some minor shortcomings in the documents, there*
28 *is no evidence that they caused any interested party not to respond to the 2007*
 RFP, nor that it advantaged or disadvantaged any given Respondent in the
 *evaluation.*⁷

42. The Navigant report states about the evaluation process:

⁶ Independent Auditor Report for the 2007 Renewable RFP Process. Navigant Consulting. March 2008. Page 3.

⁷ Independent Auditor Report for the 2007 Renewable RFP Process. Navigant Consulting. March 2008. Page 3.

1 *With respect to the evaluations, we conclude that the evaluation processes were*
2 *performed on a logical, consistent, fair and reasonable basis, and were consistent*
3 *with the requirements of the Procedure and with other power supply offer*
4 *evaluation processes we have performed or observed. The threshold and screening*
5 *processes were performed on a consistent and fair basis. All necessary and typical*
6 *costs (integration, transmission, imputed debt) were included. The use of*
7 *production cost modeling to determine avoided cost was thorough and accurate.*
8 *The selection of shortlist based on lowest cost, qualified offers was reasonable.*
9 *Respondents were given equal opportunity to meet with APS, provide additional*
10 *information to improve their offers, and to negotiate a standard form term sheet.*
11 *APS endeavored to not provide more favorable term sheet terms to any one*
12 *Respondent. The level of technical due diligence review was comprehensive and*
13 *thorough. The transmission and credit reviews, and subsequent disqualification of*
14 *some offers was reasonable. The price and non-price factors considered in*
15 *selection of the Finalists was reasonable.*⁸

16 43. Navigant's report contains no findings or conclusions that indicate impropriety in
17 the selection of the Solana project as a provider of renewable energy for APS. The Navigant
18 report cites that the evaluation process was consistent with other power supply offer evaluation
19 processes that they have performed or observed.⁹

20 44. Staff believes, based on this review, that considering the alternative proposals
21 available to APS, the Solana PPA is a reasonable means of achieving the REST targets and will
22 provide a means of meeting APS' REST requirements.

23 **Detailed description of proposed facility**

24 45. The Solana Generating Station will consist of approximately three square miles of
25 parabolic troughs, two steam turbines, and a six-hour thermal storage capability. The system will
26 provide 280 MW of firm capacity. The Solana facility will provide approximately 900,000 MWh
27 of renewable electricity each year.

28 46. Parabolic troughs work in a simple manner. Sunlight strikes long troughs of
mirrors curved in a parabolic shape. This shape allows all the incoming sunlight to be reflected
and focused onto long black receiver tubes holding a transfer fluid. The heated transfer fluid is
pumped through a solar evaporator, which produces steam. This steam is used to run a
conventional steam turbine, to produce electricity.

⁸ Independent Auditor Report for the 2007 Renewable RFP Process. Navigant Consulting. March 2008. Page 3.

⁹ Independent Auditor Report for the 2007 Renewable RFP Process. Navigant Consulting. March 2008. Page 30.

1 47. A unique feature of the Solana Generating Station is that during the day, some of
2 the sun's heat is transferred to a Molten Salt Tank for use after the sun sets. This storage
3 capability will allow the Solana Generating Station to more closely match the daily APS system
4 peak electricity demand. The ability to provide electricity during non-sunny hours offers the
5 Solana Generating Station a unique advantage over other solar electric systems that are limited to
6 only daytime electricity output.

7 48. Parabolic trough solar collector systems have a long and interesting history. In
8 1913, F. Shuman and C. V. Boys built a large solar trough system near Cairo, Egypt, to run a 50
9 horsepower pump that pumped irrigation water from the Nile River.¹⁰ In the 1980's,
10 approximately 354 MW of solar trough systems were built in the California desert near Daggett.
11 The systems are still operational today, providing peak hour and non-peak hour renewable solar
12 electricity.

13 49. The Solana Generating Station, when operating at full output, will provide the
14 electricity needs of 70,000 Arizona homes. The six-hour thermal storage capacity will allow the
15 station to provide electricity during the key peak hours, from noon to 8:00 p.m. during the peak
16 summer months of June through September. The system will operate at greater than 90 percent
17 capacity factor during those hours.

18 50. Unlike some of the newer renewable energy technologies, the solar trough
19 technology has a history dating back almost 100 years. The large, 354-MW series of solar troughs
20 installed in the California desert have 20 plus years of operational experience providing renewable
21 energy to electric utilities.

22 51. Although new in this application, the use of molten-salt storage has a history dating
23 back over 20 years and has been reviewed and tested by Sandia National Laboratory and the
24 National Renewable Energy Laboratory. The ability to maintain electricity output after sunset will
25 allow APS to avoid or reduce using peaking generators or purchasing high-cost peaking power
26 during the hot summer season.

27

28

¹⁰ Daniels, Farrington. Direct Use of the Sun's Energy, Ballantine Booles, 1964, Pages 6 and 7.

1 52. Staff believes that the track record of similar solar trough plants indicates that the
2 Solana Generating Station will perform as expected, providing the renewable kWh needed by APS
3 starting in 2011. The thermal storage system will help APS to meet its peak summer needs at the
4 lowest possible cost.

5 53. Significant presence of solar generation in APS' resource mix adds supply diversity
6 to APS' generation portfolio. Constraints to other fuels or to fossil fuels in general can be
7 mitigated by the added generation the Solana facility would supply. Staff notes that fuel stock for
8 the Solana facility, the sun's energy, would not be purchased from either foreign or domestic
9 vendors, will not deplete, is not subject to supply or transportation constraints other than
10 atmospheric conditions, and produces no waste product that is taxed or requires disposal.

11 **Detailed description of Abengoa**

12 54. Abengoa is a Spanish technology company engaged in the solar, bio-energy,
13 environmental services, information technology, and industrial engineering and construction
14 industries. The company was originally formed in 1941 as Sociedad Abengoa, S.L. Abengoa
15 operates in approximately 70 countries and has more than 20,000 employees.

16 55. Abengoa deals with a variety of solar facilities including photovoltaic, CSP, space
17 and water heating, and cooling using parabolic troughs. Abengoa generates power through a
18 variety of CSP systems including solar trough, solar tower, and Stirling engine.

19 56. Abengoa has constructed a variety of large solar power generating facilities.
20 Sevilla PF is a 1.2 MW photovoltaic facility near Seville. PS10 is an 11 MW solar tower near
21 Seville. PS20 is a 20 MW solar tower under construction near Seville. Solnova 1 and 3 are 50
22 MW solar trough facilities near Seville. Six other plants are in development stages.¹¹ Abengoa is
23 also involved in Integrated Solar Combined Cycle facilities in Morocco and Algeria. Abengoa has
24 developed several solar heating and cooling systems in the United States including two in Arizona.

25 57. As a result of the size of the investment required for development of the Solana
26 facility, Abengoa will finance the construction of the facility with capital from a third party lender.

27
28

¹¹ <http://www.abengoasolar.com>

1 The application states that successful development of the project is contingent on several factors,
2 including its ability to obtain acceptable third-party financing.¹²

3 **Other regulatory matters**

4 58. In addition to the issues already discussed, other factors must be resolved for the
5 Solana project to be realized. Arizona Solar One must obtain a certificate of environmental
6 compatibility ("CEC") to operate. Certain circumstances described in the PPA allow Arizona
7 Solar One a right to terminate the agreement if not met. One of the circumstances is that Congress
8 must approve an investment tax credit. Another is that Arizona Solar One must have a reasonable
9 expectation that it will be able to finalize an interconnection agreement so that the Solana facility
10 can interconnect with transmission lines.

11 59. The ITC, if extended in its present format, would provide a 30 percent tax credit to
12 Arizona Solar One for its production of solar power. The tax credit was originally established in
13 the Tax Relief and Health Care Act of 2006. After initial passage the tax credit was once extended
14 until the end of 2008, but has not yet received a second extension to keep the tax credit in place
15 beyond 2008. The fact that the ITC and CEC are still pending approval does not preclude the
16 Commission from reviewing the PPA in the context of the REST Rules.

17 **Staff Findings and Recommendation**

18 60. Based on Staff's review of the Application and the REST requirements, Staff
19 believes the Solana PPA is a reasonable means of achieving the REST targets and would provide a
20 means of complying with the long-term REST requirements. However, Staff's recommendations
21 in this matter do not address approval of the PPA, as the Commission does not typically approve
22 wholesale rates; nor do Staff's recommendations address issues of prudence, as such issues are not
23 present in this matter.

24 61. Based on Staff's review of APS' Renewable Energy Competitive Procurement
25 Procedure, the RFP, a report on the matter issued by Navigant Consulting, Inc., discussions with
26 APS, the quantitative and qualitative results of the selection process, and considering the
27 alternative proposals available to APS, Staff concludes that the Solana PPA was selected through a
28 competitive bid procurement process.

¹² Application. Pages 1 and 2.

1 62. Staff further believes that energy provided through the Solana project is an
2 application of "solar electricity resources" as that term is used in the REST Rules. The use of the
3 Solana project, as described in the PPA, would displace conventional energy resources that would
4 otherwise be used to provide electricity to APS' customers. Under these circumstances, Staff finds
5 that the Solana proposal would meet the requirements of an Eligible Renewable Energy Resource
6 pursuant to R14-2-1802.

7 63. Staff further believes that consistent with the correspondence submitted by APS on
8 April 18, 2008, APS is not seeking a prudence determination in this docket or any other pending
9 docket. Staff's recommendations in this matter do not address the prudence of the PPA or
10 otherwise address its ratemaking treatment.

11 64. Staff concludes that the Solana PPA is an appropriate component of APS'
12 renewable energy portfolio and is compatible with APS' implementation plan as approved in
13 Commission Decision No. 70313.

14 65. Staff recommends that, in any subsequent inquiry into the prudence of the Solana
15 PPA, the expense of renewable energy purchased under the PPA should not be deemed imprudent
16 solely because the costs are greater than for conventional generation.

17 66. Staff recommends that, at any time APS collects damage payments pursuant to the
18 terms of the PPA, it include in the annual REST implementation plan filing information describing
19 the amount collected, cause for the collection, and how the amount was calculated. The filing
20 should also make a recommendation for the disposition of the proceeds, and if applicable inform
21 the Commission of the measures APS intends to take in order to comply with REST requirements
22 in light of the existing circumstances.

CONCLUSIONS OF LAW

23 1. Arizona Public Service Company is a public service corporation within the meaning
24 of Article XV of the Arizona Constitution.

25 2. The Commission has jurisdiction over Arizona Public Service Company and the
26 subject matter of the application.

27 3. The Commission, having reviewed the application and Staff's Memorandum dated
28 September 10, 2008, concludes that the Solana PPA is a reasonable means of achieving the REST
targets, would provide a means of complying with the long-term REST requirements, is an

1 appropriate component of APS' renewable energy portfolio, and is compatible with APS'
2 implementation plan as approved in Decision No. 70313.

3 4. The Commission, having reviewed the application and Staff's Memorandum dated
4 September 10, 2008, concludes that it is in the public interest to adopt Staff's recommendations as
5 contained in Findings of Fact Nos. 65 and 66.

6 5. The Commission concludes that this decision is not intended to address approval of
7 the PPA.

8 ORDER

9 IT IS THEREFORE ORDERED that the Solana PPA is an appropriate component of APS'
10 energy portfolio and is compatible with APS' implementation plan as approved in Commission
11 Decision No. 70313.

12 IT IS FURTHER ORDERED that the Solana proposal would meet the requirements of an
13 Eligible Renewable Energy Resource pursuant to R14-2-1802.

14 IT IS FURTHER ORDERED that in any subsequent inquiry into the prudence of the
15 Solana PPA, the expense of renewable energy purchased under the PPA should not be deemed
16 imprudent solely because the expense is greater than for conventional generation.

17 IT IS FURTHER ORDERED that this decision is not intended to address the prudence of
18 the PPA or its ratemaking treatment.

19 IT IS FURTHER ORDERED that this decision is not intended to address approval of the
20 PPA.

21 ...
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23 ...
24 ...
25 ...
26 ...
27 ...
28 ...

1 IT IS FURTHER ORDERED that at any time APS collects damage payments pursuant to
 2 the terms of the PPA that it include in the annual REST implementation plan filing information
 3 describing the amount collected, cause for the collection, and how the amount was calculated. The
 4 filing should also make a recommendation for the disposition of the proceeds, and if applicable
 5 inform the Commission of the measures APS intends to take in order to comply with REST
 6 requirements in light of the existing circumstances.

7 IT IS FURTHER ORDERED that this Decision shall become effective immediately.

8
 9 **BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION**

10
 11 *Samuel R. Mason* *William J. Mandell*
 CHAIRMAN COMMISSIONER

12
 13 *Jeffrey H. Hatcher-Miller* *Robert M. ...* *Gary J. Stein*
 COMMISSIONER COMMISSIONER COMMISSIONER

14
 15 IN WITNESS WHEREOF, I, BRIAN C. McNEIL, Executive
 16 Director of the Arizona Corporation Commission, have
 17 hereunto, set my hand and caused the official seal of this
 18 Commission to be affixed at the Capitol, in the City of
 Phoenix, this 30th day of September, 2008.

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

22
 23
 24 DISSENT: _____
 25
 26 DISSENT: _____
 27
 28 EGJ:SPI:red:JW

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