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COMMISSIONER

Arizona Corporation Commission

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IN THE MATTER OF THE COMMISSION'S  
INVESTIGATION OF VALUE AND COST OF  
DISTRIBUTED GENERATION.

Docket No. E-00000J-14-0023

### RUCO'S CLOSING BRIEF

The Residential Utility Consumer Office ("RUCO") hereby submits the following Closing Brief in the above captioned docket.

### INTRODUCTION

What is the value of solar? There are many facets to this question and the record in this matter is peppered with many different suggestions. RUCO believes that the Commission, consistent with Commissioner Little's letter<sup>1</sup>, should focus on the methods and process and should not assign values or costs to be used in future proceedings.<sup>2</sup> The preference would be to determine the actual values and costs in a future rate case where utility specific information

<sup>1</sup> See Letter of Commissioner Doug Little to the Docket dated December 22, 2015.

<sup>2</sup> RUCO-2 at 1. For ease of reference, trial exhibits will be identified similar by their identification in the Transcript of Proceedings. The transcript volume number will identify references to the transcript.

1 will be gathered and considered. The focus at this time should be on the methodology,  
2 process, and parties should use the results.

3 Like other complex subjects, the perspective one takes can have a large degree of  
4 influence over the outcome. To that end, RUCO's focus is on the value that the approximate  
5 97% of residential customers who are not DG customers receive over a reasonable time  
6 period. There have been numerous proposals by the stakeholders in this matter. Staff believes  
7 that the Commission should approve a methodology that allows for two options – an avoided  
8 cost methodology and a resource comparison method. Transcript at 2324-2325. UNSE-TEP  
9 believes that exports should be valued at the renewable credit rate or the single PPA rate.  
10 Transcript at 2232-2233. APS believes that the exports should be valued at the average price  
11 of utility scale solar. RUCO's recommends that the Commission derive a value through a  
12 methodology that considers both the long term costs and benefits of solar and then create  
13 predictable step-down schedules as market uptake increases and the cost of solar declines.  
14 Transcript at 2154.

15 **1) COST BASED REGULATION IS PREFERRED, BUT IMPRACTICAL FOR**  
16 **RESIDENTIAL DG SOLAR**

17 RUCO believes that cost based regulation is simple, proven, and ratepayer friendly.  
18 However, holding a rate case to determine the revenue requirement for a homeowner to go  
19 solar is impractical at best. There must be a merging between value based compensation and  
20 cost based recovery. The Commission should recommend policies that take advantage of  
21 technology cost declines like previously done with incentive step downs and PBI payments.  
22 This opinion is supported by leading thinkers. Professor Bonbright noted that the reasonable  
23 rate should be somewhere between the cost of the service as the lower limit and the value of  
24 the service as the upper limit. Id. at 2. Therefore, the Commission should use the outcome of

1 the methodology as a starting point in which to decrease from, rather than remain fixed at that  
2 level. In determining this starting value, the Commission should consider the long term costs as  
3 well as the long term benefits in its consideration of the value of solar. The Commission should  
4 also not lose focus on near term bill impacts either when setting policy. Ultimately, the value  
5 assigned to DG should be the benefits minus the costs and should define a range of possible  
6 compensation levels. Id. at 3. This range can be realized through a combination of rates,  
7 incentives, and/or other mechanisms. Id.

8 While there may be certain aspects of value that are quantifiable, there are other  
9 aspects that are not quantifiable. As with the quantifiable aspects of the value of solar the  
10 Commission should take a common sense approach here.

11 Accordingly, when a value is determined, the Commission does not necessarily need to  
12 pay that level of compensation to a solar adopter. In truth, it is seldom if at all where the  
13 Commission in electric and other utility matter attributes values as the cost to ratepayers.  
14 Policy and other consideration need to be collectively considered and valued. For example,  
15 utility scale or community solar provide benefits at a smaller cost than roof-top. Recent reports  
16 show utility scale solar can cost as little as 3.7 cents per kWh and community solar can cost as  
17 little as 8 cents per kilowatt. Id. at 4. Whereas, solar energy from rooftop solar customers is  
18 paid at 11-13 cents per kWh. However, factoring out the intangibles and other policy  
19 consideration and focusing solely on cost, would exclude higher cost solar generation which  
20 would be counter-productive to a healthy DER market sector for Renewable Energy Standard  
21 compliance.

22 While there may be policy reasons to invest in all types of solar, RUCO believes that the  
23 greatest consideration should be on how to optimally spend ratepayer money across the range  
24

1 of potential solar solutions. Id. at 4. The intangible benefits should be considered as a policy  
2 matter and not for purposes of ratemaking. Id. at 5.

3  
4 **2) THE COMMISSION SHOULD CONSIDER BOTH THE VALUE OF SELF**  
5 **CONSUMPTION AND THE VALUE OF EXPORTS TO THE GRID WHEN**  
6 **CONSIDERING THE VALUE OF SOLAR.**

7 There is a question of whether this docket should focus on the question of self -  
8 consumption or the value that the DG customer receives for the electricity that is exported to  
9 the grid. Vote Solar 8 at 6-7. The parties who argue that the focus should be on the exports  
10 believe that the self-consumption portion of DG production is best addressed in the individual  
11 utility rate case. Id. Thus denying the Commission the ability to explore the value of all output  
12 like other states have done. Vote Solar argues that that the focus should be on the export  
13 since every customer should have the individual right to choose how much energy to consume  
14 or not consume from the utility. Id. at 7, Vote Solar 7 at 8.

15 RUCO believes that the value of solar should consider both the costs and benefits of the  
16 self-consumption and the value of the exports. Vote Solar's argument actually sells its position  
17 short. The solar industry posits that perhaps DG's greatest benefit is the utilities need to build  
18 less infrastructure in the future. According to Vote Solar, DG can reliably contribute to system  
19 peak, which can reduce or delay the need for additional capacity on the system. Vote Solar 7  
20 at 30. Vote Solar's expert, Ms. Briana Kobor further testified:

21 Q. And this seems to be one of the most talked-up  
22 Benefits of DG, this offsetting the need for additional generation. Is that  
23 fair? Is that pretty much one of the biggest or largest benefits?

24 A. Yeah, to the extent that we reduce load through increased  
renewable penetration prompted by customer choice that would avoid  
the need to build additional generation in the future.

1 Transcript at 1805.

2       Given Vote Solar the benefit of any doubt, failure to consider the benefits associated  
3 with the DG user's self-consumed solar surely would reduce if not almost eliminate this  
4 significant "benefit". In other words, to only consider the avoided costs associated with export  
5 energy and not the total system output would significantly reduce, if not mostly eliminate, the  
6 avoided infrastructure costs resulting from DG.

7       When asked specifically whether self-consumed generation should be considered in the  
8 value of generation when considering benefits, Ms. Kobor conceded that self-consumed  
9 generation should be considered from a "policy" perspective. Transcript at 1806. Ms. Kobor  
10 testified that it is a factor from the policy and not the quantitative perspective. Id. Ms. Kobor  
11 further testified that the value of solar is a broad topic. Id. at 1807.

12       RUCO agrees with Ms. Kobor that the value of solar is a broad topic. RUCO believes  
13 that both self-consumption and exports should be considered and that there is no sound  
14 economic or technical justification to value them separately. RUCO-3 at 3. The electrons are  
15 the same and the distances traveled are both short. Id. Moreover, a sizable difference in  
16 valuing exports and self-consumption is likely to lead to customer confusion and make it even  
17 more complicated for a customer in evaluating solar. Id. at 4.

18       It would not be complicated, however to avoid this problem through rate designs which  
19 would send appropriate price signals. One example would be DG specific seasonal on/off  
20 peak TOU rate design. This would send an appropriate price signal to both self-consumption  
21 and exports without being reliant on complicated load metering and export ratio calculations.  
22 Id. at 5.

1           **3) ARRIVING AT A SOUND METHODOLOGY WHICH PRESERVES THE DG**  
2           **MARKET, IMPLEMENTS COST BASE PRINCIPALS, AND IS FAIR TO THE DG**  
3           **AND NON-DG CONSUMER ALIKE**

4           The evidence in the record presents two competing perspectives. The cost based  
5 perspective is more traditional and easier to work with. In ratemaking, we traditionally set rates  
6 on costs and apply a return that is just and reasonable. From the utility perspective, the utility  
7 earns this return based on its costs. Transcript at 1481. The utility does not get paid for value.  
8 Id. It is understandable why the utilities believe the focus should be on cost, not value.

9           It is equally understandable why the solar industry wants to focus on value. The solar  
10 industry lives in a competitive world. Its costs and profits are not regulated by a state  
11 Commission. The solar industry is tied directly to the retail rate - the savings that a solar  
12 company can offer is directly linked to the retail rate. Transcript at 1482. Its focus on costs is  
13 critical to its survival among other solar competitors. Unlike the standard utility service, the  
14 consumer has options if the solar product is priced to high.

15           Given these competing interests, there is a lot to consider when deciding a methodology  
16 that is fair to both solar and non-solar ratepayer. Another undisputed reality is the fact that roof  
17 top solar technology is getting cheaper as manufacturing becomes more competitive and  
18 technology becomes more cost effective. Id. at 1483. This reality creates a situation where a  
19 solution is being sought to address what amounts to a moving target. This dynamic highlights  
20 the difficulty of the task, and makes a solution more challenging. As a start, RUCO aligns with  
21 the utility perspective which favors cost of service. As a general principal, RUCO believes that  
22 ratepayers should pay their cost for the service – no more and no less. It is difficult to argue  
23 with this basic proposition because few people when asked if they believe that it is fair to have  
24 to pay for someone else's service in addition to paying for their own. Hence, the notion of cost  
of service ratemaking is arguably the only way to guarantee fair rates – or the fairest rates.

1 However, like most things, it is never this simple. RUCO recognizes that the Commission is  
2 required to consider policy and other factors beyond strictly costs, and must factor these other  
3 elements in its consideration of a fair and reasonable rate.

4 The countervailing notion of subsidies so heavily relied on and encouraged by the solar  
5 industry is a policy consideration and should not be dismissed by the Commission in its  
6 consideration of the value of solar. However, in its consideration of solar policy, the  
7 Commission must also consider the policy created by solar-type subsidies which ultimately  
8 requires the non-solar customer to pay more than his or her cost of service to pay for the  
9 policy. The Commission's perspective on rooftop solar subsidies should be tapered by the  
10 reality of where we are, as opposed to where we were in the deployment of rooftop solar.  
11 Subsidies such as net metering were never meant to last forever. There are no longer up front  
12 subsidies ("UFI's) as they were ramped down and eventually extinguished as market  
13 penetration of roof top solar proliferated. Net metering, like UFI's, was a tool via a subsidy to  
14 jump start the roof top solar market. It was designed and intended, like UFIs, to terminate  
15 when the solar market became competitive and could survive on its own. When the UFI's  
16 terminated, the roof top solar business did not end in Arizona – in fact it has actually grown – at  
17 least in APS and TEP's territories.

18 Despite what should be obvious about the current roof top solar market, the solar  
19 industry does not want to concede any of these points, and wants to maintain the status quo.  
20 On the issue of net metering the solar industry will not waver in its position that the benefits of  
21 DG outweigh the costs in Arizona which makes it very difficult to reach any sort of compromise  
22 and discredits the few attempts the solar industry makes to further a solution. See for example  
23 TASC-26 at 14-26. The solar industry is more interested in attacking any proposed solution,  
24 while offering little if any reasonable solutions on their own.

1 RUCO is disinterested in the solar industry vs. the utility debate which focuses on  
2 winners and losers. RUCO is focused on how to best address this moving target in a  
3 progressive technological environment that holds the non-DG customers who comprise a  
4 significant majority of the residential class harmless and at the same time allow for a vibrant  
5 and robust solar market.

6 RUCO recognizes that in order to reach this objective the Commission must find a fair  
7 value for solar. Beyond that, the Commission must implement this value with a common sense  
8 approach for each particular circumstance. In the pending UNSE rate case (Docket No. E-  
9 04204A-15-0142), RUCO has recommended several rate options. One option is a Renewable  
10 Portfolio Standard ("RPS") Bill Credit option which is a fair and innovative methodology which  
11 addresses the constantly changing environment of solar and provides a roadmap for the future.  
12 This option starts at or near the current retail rate and decreases over time, based on the  
13 Company's REST compliance. See RUCO's Reply Brief in Docket No. E-04204A-15-0142 at 6-  
14 7. The RPS option provides a window of time for solar companies to be profitable with the  
15 subsidy, while providing time to develop a business model that better addresses the  
16 decreasing costs of solar in a profitable manner which holds the non-solar customers  
17 harmless. Like the UFI's before it, the RPS option is a gradual "ramp down" option which  
18 phases out the subsidy over time. It is not a blunt instrument designed to cut off the subsidy all  
19 at once (which there clearly is a basis for given the current level of DG market penetration and  
20 the state of the current DG market), but a common sense, gradual, proposal which is sensitive  
21 to the solar business model while at the same addressing the changing DG market. The RPS  
22 model considers the value of solar in a very fair manner to both the DG customer and the non-  
23 DG customer and incorporates the value of solar in an implementation method designed to  
24 promote gradualism in many different levels.



1           Unfortunately, the stakeholders for the most part ignored it. Transcript at 1483. But its  
2 attributes and its potential significance in this docket has not gone unnoticed by at least one  
3 Commissioner. Commissioner Stump, in his letter of May 10, 2016<sup>3</sup> in the UNSE rate case,  
4 noticed that RUCO's RPS proposal "arguably mirrors" ... "Maine's alternative net metering  
5 paradigm." "Maines program would capitalize on the use of various market-based mechanisms  
6 to ensure that utilities procure the lowest price long-term contracts available. Ultimately this  
7 could all lead to establishing pre-determined solar pricing for fixed long term which squarely  
8 addresses the rate stability that the solar industry so loudly complains is necessary to their  
9 business model. Further it solves the grandfathering issue, which will come up time and time  
10 again.

11           Commissioner Stump, among other things, further noted that RUCO's RPS option "...  
12 affords enhanced pricing certainty to residential DG customers, given that credit rate  
13 reductions are based on pre-determined allocations while better addressing notable cost shift  
14 concerns. Id. at 2. Commissioner Stump concluded that he believed it would be beneficial to  
15 the Commissioners to have a discussion on the "plausibility of adopting a market-based  
16 aggregation credit approach...." like RUCO's RPS proposal.

17           RUCO's RPS proposal is also consistent with all the relevant "policy considerations" that  
18 Commissioner Stump believes are necessary in this docket. Commissioner Stump set forth  
19 those considerations in his letter to this docket dated February 19, 2016. Among those policy  
20 considerations that Commissioner Stump outlined:

- 21           • A desire to maintain the growth of solar power via net metering until  
22           penetration adversely affect utility fixed-cost recovery...;

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23  
24           <sup>3</sup> See Commissioner Stumps letter of May 10, 2016 in the UNSE rate case Docket No. E-04204A-15-0142.

- Rate structures and market services should be predictable and transparent;
- Heightened solar penetration may require the gradual implementation of rate structures;
- Customers' right to own and employ behind the meter technologies.

See Commissioner Stump's letter of February 19, 2016 at 2.

It was in this vein that RUCO suggested its RPS proposal in the first place and sees its significance here as a possible template for a value for solar methodology and the implementation thereof. Commissioner Stump recognized Maine's proposal as an "innovative template for examining more sustainable market-based alternatives to Arizona's net metering policy." See Commissioner Stump's letter of May 10, 2016 in Docket No. E-04204A-15-0142 at 1. Likewise, RUCO's RPS proposal could be viewed in this docket also as a "template" or potential methodology for both the consideration in valuing solar, and the implementation of the value of solar.

RUCO's RPS proposal starts at or near the retail rate and trends downward as more rooftop solar is implemented in the market. Should the Commission consider the value of solar differently, the RPS template still serves as an innovative and fair approach to implementing the value of solar.

#### **4) THE COMMISSION SHOULD CONSIDER MANY VARIABLES IN CALCULATING THE VALUE OF SOLAR**

The simple truth is that solar technology is advancing rapidly and we are trying to design a rate for a generation type that is constantly getting cheaper. An approach which locks in a solar value at a single point in time and fails to consider the rapidly changing solar technology over time would only be relevant for a short period of time. RUCO believes that the

1 Commission should take a focused and conservative view of the potential benefits and identify  
2 a number. Transcript at 1483. The Commission should then design rates or other  
3 compensation mechanisms that do not pay more than this levelized value<sup>4</sup>. Id. From there,  
4 the Commission should then predictably and gradually lower the rate so that solar can become  
5 a net benefit to all ratepayers – DG and non-DG customers alike.

6 RUCO supports the concept set forth in Commissioner Little's letter of December 22,  
7 2015, wherein Commissioner Little acknowledges this levelized cost of electricity calculated  
8 over the life of the system. See Commissioner Little's letter to the Docket dated December 22,  
9 2015 at page 2, pp. 6. This calculation is also consistent with the way other generation costs  
10 are compared. Id.

11 In calculating the costs of DG solar RUCO recommends the Commission consider the  
12 lost revenues of the utility from DG solar sales and incremental utility system costs due to DG  
13 solar adoption – integration costs, administration costs, etc. RUCO-2 at 14. The Commission  
14 should differentiate between these two cost categories – the first representing sunken costs not  
15 caused by DG customers and the other category being marginal costs caused by DG  
16 customers. Id.

17 The most important cost assumption the Commission needs to consider in determining  
18 the cost, is the change of revenue collected by the utility from the customer before and after  
19 the customer installs a DG system. This cost can be calculated by looking at the average  
20 customer's contribution to fixed cost revenue compared to the DG adopter. Id.

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22 <sup>4</sup> This methodology mirrors RUCO's RPS proposal and is consistent with the rate design  
23 characteristics encompassed in Maine's alternative net metering proposal applauded by Commissioner  
24 Stump.

1 Other factors that need to be considered in the value of solar are far more difficult to  
2 quantify. For example, when considering cost of DG solar, the Commission should consider  
3 the intermittent nature of DG solar. The intermittent nature of DG solar can lead to some  
4 incremental costs to operate the system. Id.

5 Like costs, the Commission should consider the benefits of DG solar in determining the  
6 value of solar. These benefits would include quantifiable and forecasted quantifiable benefits.  
7 Benefits should also be considered on a case by case basis as variables specific to the utility in  
8 question would also need to be factored in calculating the value of solar. For example, DG  
9 solar produces some energy during peak demand hours, so DG provides value in terms of  
10 reducing peak demand. Id. at 17. Peak demand varies from utility to utility so trying to quantify  
11 this benefit like most benefits is utility specific.

12 Continuing with peak demand, the Commission should consider avoided capacity costs.  
13 Utilities may have lower capacity needs as more DG production coincides with peak demand.  
14 Id. The Commission could assign a higher value to DG resources producing energy that better  
15 coincides with peak hours. Id. This issue is likely to be contentious and the avoided capacity  
16 numbers must be updated because as market penetration increases peak demand is further  
17 pushed out and away from the hours where DG produces generation.

18 DG also provides fuel cost savings which are a major benefit to ratepayers. DG may  
19 also result in some avoided transmission and distribution capacity benefits. Id. at 19. Another  
20 benefit would include off-system sales. DG could replace other forms of utility generated  
21 electricity which could then be sold to other utilities. Id. at 21. Other benefits include locational  
22 and ancillary service benefits.

1           **5) RUCO'S PROPOSAL MAY BE USED ALONG WITH OTHER PROPOSALS**  
2           **OFFERED IN THIS DOCKET**

3           Ultimately, RUCO's proposal makes sense. The DG customer is offered a "solar offer  
4 rate". RUCO's proposal here is to set rates for all of the DGs customer's production - both the  
5 consumption piece and the export piece, not solely the export piece. Transcript at 2161.  
6 He/she can self consume on the best utility rate plan for them while the rate they get paid on all  
7 of the solar production is fixed at the solar offer rate. This rate declines for new customers as  
8 market penetration increases. Transcript at 2154. The other option is to have just their exports  
9 based on the solar offer rate. In other words, the solar adopter can choose which plan works  
10 best for them. Id. These customers will have predictability, grandfathering will be resolved and  
11 they will have options. Setting the export rate at a utilities PPA proxy or utility owned solar cost  
12 alone does not solve the grandfathering issue or offer predictability. Nor does it address the  
13 moving nature of the market and technology. These methods proscribe a number at one point  
14 in time that does not consider the changing nature of the solar industry nor consumption and  
15 hence are not optimal alternatives. Moreover these alternatives are not nearly as similar as one  
16 might expect. PPA's and utility scale have different tax consequences as well as end of life  
17 treatment. Transcript at 2175. PPAs typically start out low and then ramp up because of  
18 escalators and such whereas utility scale costs start high and ramp down as solar costs  
19 decrease. Id. One can only guess at this time what a new PPA rate will be after the term of a  
20 PPA contract expires. These differences, among others makes a proposed PPA rate or utility  
21 scale rate arbitrary in nature. From RUCO's viewpoint, if what we are left with is an arbitrary  
22 rate, it makes sense to start with a number and go down as market penetration increases. This  
23 way all new solar customers will be locked into a rate and most of the issues associated with  
24 this exercise are eliminated.

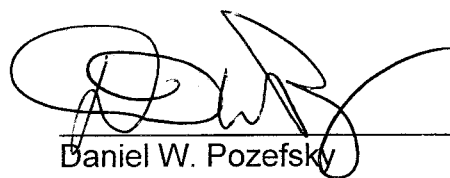
1 Staff's two-methodology proposal offers a viable alternative. While RUCO does not  
2 agree that setting the export rate alone using the avoided cost methodology or the PPA  
3 methodology is ideal, RUCO favors options. RUCO believes that its proposal could be used as  
4 another methodology/implementation option in addition to Staff's two methods. Since the  
5 purpose of this docket is to not set a rate, but rather to suggest "methodologies" RUCO  
6 believes that another option in addition to the two that Staff is offering is in the public interest.  
7 Staff believes that the "...methodology should look at the universe that the utility has  
8 undertaken, and then whittle it down from there." Transcript at 2326. In the end, after all the  
9 factors are whittled down for a particular utility, it is highly possible, and RUCO believes  
10 probable, that RUCO's methodology may be the best for many utilities.

#### 11 **6) CONCLUSION**

12 The Commission has numerous options when determining the value of solar. RUCO  
13 believes that the value of solar is specific to each utility. Each utility has a different set of  
14 circumstances and there does not appear to be a valid one approach fits all answer. When  
15 approaching a methodology, the Commission should look at all of the DG output, not just the  
16 exports. At the same time, there should be mechanisms put in place that call for a financially  
17 sustainable future that takes into account the rapid changes in technology. RUCO believes its  
18 step-down approach identified above is a well-reasoned, balanced methodology that is fair to  
19 both the DG and the non-DG customer and should be approved by the Commission

20 RESPECTFULLY SUBMITTED this 20<sup>th</sup> day of July, 2016.

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23  
24



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Daniel W. Pozefsky  
Chief Counsel

1 AN ORIGINAL AND THIRTEEN COPIES  
2 of the foregoing filed this 20<sup>th</sup> day  
3 of July, 2016 with:

3 Docket Control  
4 Arizona Corporation Commission  
5 1200 West Washington  
6 Phoenix, Arizona 85007

6 COPIES of the foregoing mailed/  
7 e-mailed this 20<sup>th</sup> day of July, 2016 to:

8 Maureen Scott  
9 Matthew Laudone  
10 Legal Division  
11 Arizona Corporation Commission  
12 1200 West Washington  
13 Phoenix, Arizona 85007  
14 [tford@azcc.gov](mailto:tford@azcc.gov)

11 [rlloyd@azcc.gov](mailto:rlloyd@azcc.gov)  
12 [tbroderick@azcc.gov](mailto:tbroderick@azcc.gov)  
13 [mlaudone@azcc.gov](mailto:mlaudone@azcc.gov)  
14 [msscott@azcc.gov](mailto:msscott@azcc.gov)

13 Consented to Service by Email

14 Dillon Holmes  
15 Clean Power Arizona  
16 9635 N. 7<sup>th</sup> Street, #47520  
17 Phoenix, Arizona 85068  
18 [dillon@cleanpoweraz.org](mailto:dillon@cleanpoweraz.org)  
19 Consented to Service by Email

17 C. Webb Crockett  
18 Patrick Black  
19 Fennemore Craig, P.C.  
20 2394 E. Camelback Road, Suite 600  
21 Phoenix, Arizona 85016-3429  
22 [wcrockett@fclaw.com](mailto:wcrockett@fclaw.com)  
23 [pblack@fclaw.com](mailto:pblack@fclaw.com)  
24 Consented to Service by Email

Garry Hays  
Law Offices of Garry D. Hays, PC  
2198 E. Camelback Road, Suite 305  
Phoenix, Arizona 85016  
Attorney for Arizona Solar Deployment  
Alliance

Court Rich  
Rose Law Group, PC  
7144 E. Stetson Dr., Suite 300  
Scottsdale, Arizona 85251  
Attorneys for The Alliance for Solar  
Choice  
[CRich@RoseLawGroup.com](mailto:CRich@RoseLawGroup.com)  
Consented to Service by Email

Timothy Hogan  
Arizona Center for Law in the Public  
Interest  
514 W. Roosevelt St.  
Phoenix, Arizona 85003  
Attorneys for Vote Solar and Western  
Resource Advocates  
[thogan@aclpi.org](mailto:thogan@aclpi.org)  
[rick@votesolar.org](mailto:rick@votesolar.org)  
[briana@votesolar.org](mailto:briana@votesolar.org)  
[ken.wilson@westernresources.org](mailto:ken.wilson@westernresources.org)  
[cosuala@earthjustice.org](mailto:cosuala@earthjustice.org)  
[mhiatt@earthjustice.org](mailto:mhiatt@earthjustice.org)  
Consented to Service by Email

1 Craig Marks  
Craig A. Marks, PLC  
2 10645 N. Tatum Blvd., Suite 200-676  
Phoenix, Arizona 85028  
3 Attorney for Arizona Utility Ratepayer  
Alliance  
4 Craig.Marks@azbar.org  
Consented to Service by Email  
5  
6 Meghan Grabel  
Osborn Maledon, PA  
2929 N. Central Ave., Suite 2100  
7 Phoenix, Arizona 85012  
mgrabel@omlaw.com  
8 gyaquinto@arizonaaic.org  
Consented to Service by Email  
9  
10 Jennifer Cranston  
Gallagher & Kennedy, PA  
2575 E. Camelback Rd., Suite 1100  
11 Phoenix, Arizona 85016  
Attorneys for Grand Canyon State  
12 Electric Cooperative Association, Inc.  
Jennifer.cranston@gknet.com  
13 Consented to Service by Email for Grand  
Canyon State Electric Cooperative  
14 Association, Inc.  
Also Attorney for Arizona Electric Power  
15 Cooperative, Inc. and Dixie Escalante  
Rural Electric Association, Inc., who have  
16 not consented to email service  
17  
18 Richard Adkerson  
Ajo Improvement Company  
333 N. Central Ave.  
Phoenix, Arizona 85004  
19  
20 Gary Pierson  
Arizona Electric Power Cooperative, Inc.  
P.O. Box 670  
21 1000 S. Highway 80  
Benson, Arizona 85602  
22  
23  
24

Thomas Loquvam  
Thomas Mumaw  
Mellissa Krueger  
Pinnacle West Capital Corporation  
P.O. Box 53999, MS 8695  
Phoenix, Arizona 85072  
Attorneys for Arizona Public Service Co.  
Thomas.loquvam@pinnaclewest.com  
Consented to Service by Email

Charles Kretek  
Columbus Electric Cooperative, Inc.  
P.O. Box 631  
Deming, New Mexico 88031

LaDel Laub  
Dixie Escalante Rural Electric Association  
71 E. Highway 56  
Beryl, Utah 84714

Steven Lunt  
Duncan Valley Electric Cooperative  
379597 AZ 75  
P.O. Box 440  
Duncan, Arizona 85534

Dan McClendon  
Marcus Lewis  
Garkane Energy Cooperative  
P.O. Box 465  
Loa, Utah 84747

William Sullivan  
Law Offices of William P. Sullivan, PLLC  
501 E. Thomas Rd  
Phoenix, Arizona 85012  
Attorneys for Garkane Energy Coop.,  
Mohave Electric Coop., and Navopache  
Electric Coop.

Than Ashby  
Graham County Electric Cooperative  
9 W. Center St.  
P.O. Drawer B  
Pima, Arizona 85543



1 Tyler Carlson  
 Peggy Gillman  
 2 Mohave Electric Cooperative  
 P.O. Box 1045  
 3 Bullhead City, Arizona 86430

4 Roy Archer  
 Morenci Water and Electric Company,  
 5 and Ajo Improvement Company  
 P.O. Box 68  
 6 Morenci, Arizona 85540

7 Charles Moore  
 Paul O'Dair  
 8 Navopache Electric Cooperative  
 1878 W. White Mountain Blvd.  
 9 Lakeside, Arizona 85929

10 Jeffrey Crockett  
 Crockett Law Group, PLLC  
 11 2198 E. Camelback Rd, Suite 305  
 Phoenix, Arizona 85016  
 12 Attorney for Sulphur Springs Valley  
 Electric Cooperative  
 13 [jeff@jeffcrockettlaw.com](mailto:jeff@jeffcrockettlaw.com)  
[kchapman@ssvec.com](mailto:kchapman@ssvec.com)  
 14 [jblair@ssvec.com](mailto:jblair@ssvec.com)  
Consented to Service by Email

15 Vincent Nitido  
 16 Trico Electric Cooperative  
 8600 W. Tangerine Rd  
 17 Marana, Arizona 85658

18 Michael W. Patten  
 Timothy J. Sabo  
 19 Jason D. Gellman  
 Snell & Wilmer, LLP  
 20 One Arizona Center  
 400 E. Van Buren St., Suite 1900  
 21 Phoenix, Arizona 85004  
 Attorneys for Ajo Improvement Co.,  
 22 Morenci Water and Electric Co., Trico  
 Electric Coop., Inc, Tucson Electric  
 23 Power Co., and UNS Electric, Inc.

Bradley Carroll  
 Tucson Electric Power Company  
 88 E. Broadway Blvd, MS HQE910  
 P.O. Box 711  
 Tucson, Arizona 85701  
[mpatten@swlaw.com](mailto:mpatten@swlaw.com)  
[BCarroll@tep.com](mailto:BCarroll@tep.com)  
[docket@swlaw.com](mailto:docket@swlaw.com)  
Consented to Service by Email

David Hutchens  
 Kevin Larson  
 UNS Electric, Inc.  
 88 E. Broadway Blvd, MS HQE910  
 P.O. Box 711  
 Tucson, Arizona 85701

Patricia Ferre  
 P.O. Box 433  
 Payson, Arizona 85547

Nancy Baer  
 245 San Patricio Drive  
 Sedona, Arizona 86336

Nicholas Enoch  
 Lubin & Enoch, P.C.  
 349 N. Fourth Ave.  
 Phoenix, Arizona 85003  
 Attorneys for IBEW Locals 387, 1116 &  
 769

Lewis Levenson  
 1308 E. Cedar Lane  
 Payson, Arizona 85541

Susan Pitcairn  
 Richard Pitcairn  
 1865 Gun Fury Rd  
 Sedona, Arizona 86336

1 Tom Harris, Chairman  
Arizona Solar Energy Industries Assoc.  
2 2122 W. Lone Cactus Dr., Suite 2  
Phoenix, Arizona 85027  
3 Tom.Harris@AriSEIA.org  
Consented to Service by Email

4  
5 By Cheryl Fraulob  
6 Cheryl Fraulob