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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

**REPLY CLOSING BRIEF
OF
ARIZONA INVESTMENT COUNCIL**

Arizona Corporation Commission

DOCKETED

AUG 05 2016

DOCKETED BY *[Signature]*

August 5, 2016

1 **I. Introduction**

2 As the title of this docket makes clear, this case is about the value and cost of
3 distributed generation. From a cost perspective, Arizona Public Service Company (“APS”)
4 and Tucson Electric Power and UNS Electric (collectively “TEP”) have presented real
5 evidence in the form of cost of service studies demonstrating that rooftop solar customers are
6 more expensive to serve and have significantly different load patterns than the average
7 residential customer. This data proves that solar customers are not similarly situated to non-
8 solar customers and can (and should) be treated as a separate class for ratemaking purposes.

9 And while the parties may present different views about how the “value of solar”
10 should be derived, all but the Residential Utility Consumer Officer (“RUCO”) agree that
11 whatever method the Commission adopts to ascertain that value, it should apply only to a
12 solar customer’s exported energy, not self-consumption.¹ Arizona Investment Council
13 (“AIC”) agrees. How much money a customer saves through self-consumption after putting
14 a rooftop solar plant on his or her home is a product of rate design. Rates should be designed
15 based on costs, reflecting the principle that all customers should pay for the grid services that
16 they use irrespective of whether they install distributed generation.

17 Additionally, the intent of this proceeding is to approve a methodology that would be
18 used in future dockets and provide more than just the advisory framework that The Alliance
19 for Solar Choice (“TASC”) advocates.² The Commission specifically ordered an evidentiary
20 hearing for this proceeding – not another workshop, not comments to the docket, an
21 evidentiary hearing. This format was chosen so that interested parties could present their
22 proposals and formally examine the recommendations of others on the record and under oath,
23 thereby allowing the Commission to make decisions about how to derive the value of solar
24 on sworn and vetted evidence. While this proceeding was not intended to calculate a specific
25 value of solar figure for each utility, the intent was very much to decide upon a method to
26

27 ¹ APS’s Closing Brief at 2:15-17; TEP’s Initial Post Hearing Brief at 1:12; Vote Solar’s
28 Initial Closing Brief at 11:12-13; and RUCO’s Closing Brief at 4:14-15.

² TASC’s Post-Hearing Brief at 24:15-16 and Staff’s Initial Closing Brief at 1:11-14.

1 calculate such figures for use in future rate cases and related proceedings. Otherwise, why
2 invest the time and expense incurred during the weeks of hearings in this matter? The
3 Commission always has the discretion to waive the application of any of its rules or orders
4 upon request, but it is a step too far to suggest that the purpose of this proceeding was
5 something other than to “set[] forth guidelines or procedures that must be adhered to in the
6 future.”³

7 The Order in this proceeding should reach some conclusion and provide certainty for
8 the parties going forward. AIC advocates for an Order that that concludes as follows: (1)
9 rooftop solar customers are more expensive to serve than the average residential customer;
10 (2) the characteristics of rooftop solar customers are sufficiently distinct to make them a
11 distinct rate class for cost of service purposes; (3) the method for valuing exported rooftop
12 solar should be cost-based; and (4) short-term avoided costs, with time differentiation, should
13 be used to set the rate for rooftop solar exports in their next rate cases.

14
15 **II. Retail net metering is a subsidy created by Commission policy.**

16 Retail net metering, with the ability to carry-over unused credits, is a subsidy. The
17 rate was not based on any transparent or verifiable data and it was not based on cost or value.
18 Rather, it was enacted by the Arizona Corporation Commission to spur the deployment of
19 rooftop solar in order to help utilities meet the Renewable Energy Standard. As RUCO
20 stated well in its post-hearing brief,

21 Subsidies such as net metering were never meant to last
22 forever. There are no longer up front subsidies (“UFI’s) as
23 they were ramped down and eventually extinguished as
24 market penetration of roof top solar proliferated. Net
25 metering, like UFIs, was a tool via a subsidy to jump start
26 the roof top solar market. It was designed and intended, like
27 UFIs, to terminate when the solar market became
28 competitive and could survive on its own.⁴

³ TASC’s Post Hearing Brief at 3:2. ⁴ RUCO’s Closing Brief at 7:11-15.

⁴ RUCO’s Closing Brief at 7:11-15.

1 Termination of UFI's did not "devastate" the solar industry, despite the industry's
2 claims that it would. In fact, rooftop solar has grown in both the APS and TEP service
3 territories.⁵ A brief look at both APS's and TEP's Renewable Energy Standard compliance
4 filings evidences that rooftop solar is thriving in both service territories, without UFI's. The
5 rooftop solar industry innovated its business model to maintain profitability notwithstanding
6 the elimination of UFI's. Similarly, eliminating the net metering subsidy will create real
7 competition in the solar distributed generation space that will spur the development of new
8 business models and new technologies, to the benefit of all utility customers.⁶

9 Under the current net metering regime, rooftop solar providers make money by
10 selling solar energy at a price that beats the utility rate. The more the cost of producing solar
11 energy goes down and the more utility rates go up, the greater the margin for the rooftop
12 solar industry. The business model is profitable, which explains why the rooftop solar
13 advocates so staunchly attack any proposal in this docket that does not simply maintain the
14 existing net metering scheme.⁷ The only method for valuing solar likely to result in a figure
15 that exceeds the utility rate (and that would thus preserve net metering under the solar
16 interests' proposals) is one based on a long-term outlook that includes highly subjective and
17 speculative inputs. As described in AIC's initial post-hearing brief, any such method is
18 guaranteed to produce a flawed result that would justify paying solar customers (and, through
19 them, the solar industry) well in excess of what they will save all other customers in the long
20 run.⁸

21 Whether the rooftop solar industry should continue to be subsidized is a policy
22 question for the Commission. However, if subsidies are to be continued, they should be
23 made open and transparent so that customers know what they are paying; they should not be
24 hidden within an artificially inflated value of solar (or in rate design, for that matter). Neither
25 of the rooftop solar advocate's proposals serves this critical goal of transparency. Vote Solar,

26 ⁵ *Id.* at 7:15-17.

27 ⁶ Brown Hearing Testimony, Tr. 1010:14-16.)

28 ⁷ RUCO's Closing Brief at 6:8-13.

⁸ AIC's Initial Post-Hearing Brief at 13:9-12, 14:4-8

1 for example, proposes that if *any* net benefit results from a value of solar analysis, then the
2 status quo of retail net metering should be kept as a matter of “rough justice.” However, if
3 any net *cost* is the result, Vote Solar says, net metering should not be terminated but just
4 “possibly” modified in some undescribed fashion.⁹ The rate scheme underlying this proposal
5 is far from open, transparent, or based on verifiable data. Although its analysis is flawed, at
6 least Vote Solar promotes finding a value as a starting place. TASC does not even veil its
7 unflagging mandate that net metering be preserved behind a value finding, but rather
8 characterizes the export rate as simply “a cost-effective method for the Commission to carry
9 out its renewable energy policies and goals”¹⁰ – in other words, to perpetuate the current net
10 metering subsidy.

11
12 **III. All rates should be based on costs and compensation for exported rooftop solar
energy is a rate.**

13 The parties agree that rates should be set based on transparent and reliable data. Cost-
14 based rate setting is a clean, straight forward, tried-and-true pricing method. Even RUCO
15 agrees that cost-based regulation is preferred because “it’s simple, proven and ratepayer
16 friendly.”¹¹ The methodology approved in this proceeding for valuing exported rooftop solar
17 should be cost-based, and the most clear and straight-forward valuation method is to use the
18 utility’s short-term avoided cost. Additionally, the majority of parties support using some
19 form of traditional avoided cost as the basis for a value of solar calculation, including Staff,
20 AIC, TEP, APS, and the Co-Operatives.¹²

21 Vote Solar agrees that using cost-based methods for rate setting is appropriate,
22 despite its attempt to draw a distinction between the words *rate* (which it agrees should be
23 based on costs) and *compensation* (which it claims should be based on value). According to
24

25
26 ⁹ Vote Solar’s Initial Closing Brief p. 3:19-20 and 12:11-13.

27 ¹⁰ TASC’s Post Hearing Brief at 21:4-5 (*emphasis added*).

28 ¹¹ RUCO’s Post-Hearing Brief at 2:16.

¹² Staff’s Closing Brief at 14:19-21; TEP’s Initial Post-Hearing Brief at 4:18-19; AIC’s
Initial-Post Hearing Brief at 3:9-11; APS’s Post-Hearing Brief at 2:15-17; Grand Canyon
State Electric Cooperative’s Initial Closing Brief at 1:14-16.

1 Vote Solar, rooftop solar customers are compensated for their exports, and compensation is
2 different than a rate, and compensation should be based on value.¹³ The purported distinction
3 between compensation and rate is one without a difference. If a customer is required to pay a
4 certain price (i.e. rate) for energy from the utility that is based on costs, then the price a
5 utility is required to pay for energy from the customer should be based on costs as well.
6 Neither logic nor policy suggests otherwise.

7
8 **IV. The rooftop solar advocates' recommendation that the value of solar be based on**
9 **long-term avoided costs should be rejected because it relies on unreliable long-**
10 **term forecasting.**

11 Basing rooftop solar export rates on long-term forecasting is fraught with problems,
12 from having to use subjective inputs to relying on a model that was developed to analyze a
13 different issue than rate-setting. The rooftop solar advocates claim that the only way to
14 capture all of the benefits of rooftop solar would be to compensate rooftop solar customers
15 using a long-term benefit/cost or cost-effectiveness analysis, similar to how demand side
16 resources ("DSM"), such as energy efficiency ("EE") measures, are analyzed.¹⁴ However,
17 using any long-term analysis captures only subjective benefits, and even then inaccurately,
18 using a methodology that was not designed to set rates.

19 **A. Long-term forecasting has significant drawbacks.**

20 Long-term forecasting and analyses are always wrong, which means that getting the
21 price right depends entirely on luck.¹⁵ In Arizona, rates are set based on a costs incurred
22 during a single historical test year, adjusted for known and measurable conditions. They are
23 not set looking forward decades out on a prospective basis. TASC's position that "DG
24 systems should be valued over the long-term and should not be examined as a snapshot in
25 time" ignores this long-standing regulatory requirement.¹⁶ Long-term forecasting over a

26 ¹³ Vote Solar's Initial Closing Brief at 9:5-7.

27 ¹⁴ TASC's Post-Hearing Brief at 1:16-17; and Vote Solar's Initial Closing Brief at 1:4-5.

28 ¹⁵ Tilghman Hearing Testimony, Tr. 811:7-9; Solganick Hearing Testimony, Tr. 1353:17-18,
1355:14-22, 1598:12-16; and Hendrick's Hearing Testimony Tr. 1050:21-25 – 1051:1-3.

¹⁶ TASC's Post-Hearing Brief at 5:11-12.

1 period of decades is a moving target, where the outcome changes based on changes in utility
2 plans, customer behavior, available technologies, and other unknown factors.¹⁷ Forecasting
3 dozens of variables over more than two decades is concerning because it is certain to be
4 wrong, and current non-rooftop solar customers bear the entire risk when the forecasted
5 benefits fall short in the future.¹⁸

6 Moreover, despite the rooftop solar advocates' assertion that "the vast majority of
7 value of solar analyses have utilized the long-term benefit and cost approach," the question
8 of how to determine the appropriate method for valuing rooftop solar remains a hotly debated
9 issue across the United States.¹⁹ The "vast majority" of jurisdictions to which TASC cites
10 includes a study performed by Thomas Beach, TASC's own witness in this proceeding.
11 TASC also cites to Nevada as a jurisdiction that incorporated the category of "long-term
12 benefits" into a value of solar analysis, notwithstanding the fact that the Nevada PUC
13 discarded that study and ultimately took action to remove the subsidy inherent in the net
14 metering regime – something for which it was subsequently sued by the rooftop solar
15 industry. Other jurisdictions, such as Utah, have chosen to blend historical rates with a
16 conservative resource planning approach, thereby supporting a lower value of solar.²⁰ In the
17 end, the methods for determining the value of solar have varied significantly and have not
18 been uniformly implemented. To suggest that there is a nationwide trend to use a long term
19 benefit and cost approach is misleading at best.

20
21 **B. The "value" models used in resource planning and EE dockets are
22 inappropriate for pricing purposes.**

23 The compensation that a rooftop solar customer receives for exported energy should
24 be based on verifiable data. The "value" models used in resource planning and energy
25 efficiency dockets make assumptions about conditions that exist 20 to 30 years into the
26 future, data that is not presently verifiable and that is almost certain to be wrong. Such

27 ¹⁷ Solganick Testimony, Tr. at 1355:14-1353:3.

28 ¹⁸ Solganick Testimony, Tr. at 1345:10-14.

¹⁹ Vote Solar's Initial Closing Brief at 7:6-7.

²⁰ Exhibit TEP-2 (Tilghman Rebuttal Testimony) at 3:24-26

1 models are plainly inappropriate for use in setting rates.²¹ TASC's claim that the
2 methodology it proposes is "commensurate with the way utilities evaluate the cost-
3 effectiveness of their own supply-side utility rate base additions"²² both misrepresents how
4 utilities make resource decisions and ignores the fact that those value methods do not provide
5 an alternative for cost based rate-making. TASC confuses what the purpose of an EE
6 analysis is: to evaluate how various programs compare to each other and to choose which
7 should be offered. It does not determine the monetary value of that program or the rate
8 treatment that the program should be afforded.²³ Therefore, neither a cost-benefit analysis
9 nor a societal cost test is an appropriate methodology for assigning a value to rooftop solar
10 exports.

11
12 **C. Any methodology for valuing solar or setting a rate for exported rooftop
13 solar energy should not use subjective metrics.**

14 Using subjective benefits to calculate the value of solar exports, instead of evidence-
15 based costs, means that the rate will never be correct and therefore cannot be shown as just
16 and reasonable.²⁴ Although all parties agree that a methodology that includes long-term and
17 subjective considerations will result in a rate that either under- or over-compensates rooftop
18 solar customers, the rooftop solar advocates and RUCO nonetheless continue to recommend
19 a long-term avoided cost approach. To complicate the matter further, the parties that want to
20 use subjective variables cannot agree on which set of variables to include. RUCO
21 recommends taking a conservative view of the potential benefits and specifically identifies a
22 number of variables,²⁵ including the lost revenues of the utility from rooftop solar sales.²⁶
23 Lost revenues are unlikely a cost consideration that the rooftop solar advocates would agree
24 to include in the calculation. In addition to disagreement among the parties on which long-

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26 ²¹ AIC Initial Post-Hearing Brief at 13:22-27 – 14:1-7.

²² TASC's Post-Hearing Brief at 1:19-20.

²³ Exhibit APS-2 (Snook Rebuttal Testimony) at 7:22-26.

²⁴ AIC Initial Post-Hearing Brief at 17:6-8.

²⁵ RUCO's Closing Brief at 10:19 – 11:2.

²⁶ *Id.* at 11:11-12.

1 term variables to analyze, TASC witness Beach admits that some of the assumptions are
2 inherently unknowable!²⁷ Including subjective metrics in any approved methodology for
3 valuing rooftop solar exports will only create continued debate between the parties in future
4 proceedings. Protracted litigation over the same issue time and again is not in the public
5 interest.

6
7 **D. RUCO’s renewable portfolio standard (“RPS”) bill credit option is not
8 cost-based and requires long-term forecasting.**

9 Because RUCO’s RPS bill credit option is not based on historic costs and uses long-
10 term forecasting, it falls prey to many of the criticisms discussed above. While AIC is
11 encouraged to see parties attempting to reach a compromise, they cannot support this specific
12 recommendation. First, the RPS bill credit option starts by compensating customers for
13 exported rooftop solar exactly at, or near, the retail rate – compensation that has no
14 evidentiary correlation to the cost savings attributable to the energy produced. Then, to be
15 “fair,” RUCO recommends decreasing the compensation level over time, based on the
16 utilities’ renewable energy standard tariff compliance.²⁸ Unfortunately, pre-determining the
17 compensation reduction would require long-term forecasting and analysis, which, as
18 previously discussed, is always wrong. If the Commission wants to continue to bolster the
19 solar industry, it should do so in a manner that candidly lets customers know that they are
20 funding a subsidy – not by masking the fact of the subsidy in the guise of an artificially
21 inflated “value of solar” rate.

22 **V. The Rooftop Solar Advocates argument that grid-scale solar is not an
23 appropriate proxy for rooftop solar is unfounded and should be disregarded.**

24 Vote Solar’s attempt to distinguish rooftop solar from grid-scale solar because of the
25 owner’s characteristics or availability of an export energy market ignores the basic fact that
26 both sources of generation produce electrons that flow onto the grid. Differentiating rooftop
27 solar from grid-scale solar based on whether the generation asset is owned by a residential

28 ²⁷ Beach Hearing Testimony, Tr. at 1938:1-21.

²⁸ RUCO’s Closing Brief at 8:12-14.

1 customer compared to a large sophisticated energy company is a distinction without a
2 difference. Vote Solar's argument that residential and small business customers should be
3 paid more for their energy than grid-scale producers because they do not intend to make a
4 "significant profit on their solar investment," "sell electricity as a business enterprise," or
5 have "complex energy management"²⁹ systems is entirely devoid of logic. Vote Solar
6 essentially suggests that rooftop solar producers be rewarded for being inefficient consumers.
7 That is not good public policy.

8 The argument that claims a higher value for rooftop solar over grid-scale solar based
9 on to whom the owner can sell the excess power is similarly illogical.³⁰ The utility is
10 required by law to purchase excess energy produced by its customers with rooftop solar,
11 regardless if it needs the energy or not, at a price that likely is significantly higher than any
12 other energy on the market during the hours when solar is producing. Grid-scale producers,
13 on the other hand, are selected through a competitive procurement process only after a utility
14 determines that it actually needs the energy.³¹ In fact, basic economics suggest that exported
15 energy from rooftop solar plants should be compensated at a lower amount compared to grid-
16 scale plants because the rooftop solar energy sellers have a guaranteed transaction. Grid
17 scale providers do not.³²

18 While rooftop solar may have value-adding characteristics, the "retail" nature of
19 rooftop solar is not one of them. TASC's claim that rooftop solar exports are a retail product
20 that should be compensated at a retail rather than a wholesale rate is wholly unfounded.³³
21 Exported rooftop solar energy has not "been delivered to load," as the rooftop solar
22 advocates claim, but is sold to the utility, which in turn uses its grid to resell it to other utility
23 customers. As APS witness Albert explains, "[e]xported energy is the quintessential
24 wholesale product."³⁴ Despite the rooftop solar advocates' attempts to differentiate rooftop

25 ²⁹ Vote Solar's Initial Brief at 5:17-18 and 6:1-3.

26 ³⁰ *Id.* at 10 and TASC's Post-Hearing Brief at 18:17-21.

27 ³¹ See Exhibit APS-5 (Albert Direct Testimony) at 27-28.

28 ³² Albert Hearing Testimony, Tr. at 365:21-366:8.

³³ TASC's Post-Hearing Brief at 19:10-11.

³⁴ Exhibit APS-6 (Albert Rebuttal Testimony) at 8:12-13.

1 solar from grid-scale solar, the two are much more alike than they are different. Using grid-
2 scale solar pricing as a proxy for rooftop solar export energy pricing is thus a reasonable, if
3 not preferable, alternative to basing the export energy price on avoided cost.

4 **VI. Rooftop solar customers are not being discriminated against by being placed in**
5 **their own separate class for ratemaking and cost allocation purposes.**

6 AIC, TEP and APS have argued to consider rooftop solar customers as a separate
7 class for rate making purposes because their characteristics are sufficiently different from the
8 average residential customer to justify separate class treatment. As a matter of law, it is not
9 discriminatory to treat customers who are not similarly situated dissimilarly. TASC does not
10 take issue with the conclusion that rooftop solar customers have different usage and load
11 patterns, but rather questions why other customers with different usage patterns are not also
12 being singled out.³⁵ But other customers' variations in use do not differ from an average
13 residential customer to the same extent as a rooftop solar customer – no other customer
14 exports energy to the grid. For this reason, as one expert economist testified, it is not even
15 statistically possible for rooftop solar customers to remain in the average residential customer
16 class.³⁶ Even Staff agrees that “what distinguishes [rooftop] solar from other forms of DSM
17 programs is the export function where excess power from the facility can flow back to the
18 grid.”³⁷

19 Categorizing customers based on common usage and load patterns is not
20 discriminatory; rather, it is a routine part of allocating costs to cost-causers during the
21 ratemaking process. TASC's claim that APS's and TEP's cost of service studies cannot be
22 used to justify separate class treatment for rooftop solar customers lacks support and should
23 thus be rejected.³⁸

24
25
26 _____
27 ³⁵ TASC's Post-Hearing Brief at 21.

28 ³⁶ Overcast Hearing Testimony, Tr. 846:19-23.

³⁷ Staff's Initial Closing Brief at 6:10-11.

³⁸ TASC's Post-Hearing Brief at 21.

1 **VII. Conclusion**

2 At the end of the day, the rooftop solar advocates' participation in this docket seeks to
3 preserve in perpetuity the net metering subsidy. But the Commission has the opportunity to do
4 more than that in this proceeding. AIC encourages the Commission to use this docket to
5 develop a regulatory regime that applies broadly to the various technologies on the horizon –
6 not just rooftop solar – and that will support utilities in their attempts to incorporate emerging
7 technologies seamlessly onto the grid with fair regard for all utility customers, not favoring any
8 one customer class above the other. Such a regime should acknowledge that customers using
9 rooftop solar and other behind-the-meter technologies are sufficiently different to justify being
10 placed in a separate class for cost of service purposes, that rate design should reflect how
11 customers use the electric grid, and that customers who install rooftop solar or other types of
12 distributed generation are entitled to compensation for exported energy for the savings that
13 they can demonstrate through tangible evidence that they will bring to other utility customers.

14 For these reasons, AIC respectfully requests that the Order from this proceeding
15 conclude that: (1) subsidies should be eliminated from rate design and net metering; (2) rooftop
16 solar customers are more expensive to serve than the average residential customer; (3) the
17 characteristics of a rooftop solar customer are sufficiently distinct to make them a different
18 class for ratemaking purposes, (4) subsidies and the current cost shift can be mitigated by
19 changes to residential rate design (such as a three-part demand rate); and (5) a utility's short-
20 term avoided cost is the appropriate methodology for valuing rooftop solar exports.

21 RESPECTFULLY SUBMITTED this 5th day of August, 2016.

22 OSBORN MALEDON, P.A.

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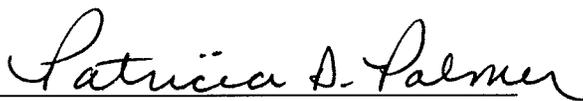
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9 All Parties of Record

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