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Attorneys for Arizona Public Service Company

BEFORE THE ARIZONA CORPORATION COMMISSION

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Arizona Corporation Commission

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APR 25 2016

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16 IN THE MATTER OF THE APPLICATION
 17 OF UNS ELECTRIC, INC. FOR THE
 18 ESTABLISHMENT OF JUST AND
 19 REASONABLE RATES AND CHARGES
 20 DESIGNED TO REALIZE A
 21 REASONABLE RATE OF RETURN ON
 THE FAIR VALUE OF THE PROPERTIES
 OF UNS ELECTRIC, INC. DEVOTED TO
 ITS OPERATIONS THROUGHOUT THE
 STATE OF ARIZONA, AND FOR
 RELATED APPROVALS.

DOCKET NO. E-04204A-15-0142

**ARIZONA PUBLIC SERVICE
COMPANY'S INITIAL POST-
HEARING BRIEF**

22 The time is right to modernize electric rates. And instituting a three-part rate
 23 design that includes a demand charge as well as a time-of-use feature for all residential
 24 and small general service customers would be an appropriate solution in the UNS
 25 Electric service area. As UNS Electric expert witness Dr. H. Edwin Overcast testified:
 26 “[the rate design proposed] start[s] to give the signal to customers of what causes cost
 27 and assures that the people who cause those costs are making some contribution to those
 28 costs.” See Overcast, Hearing Tr. at 1539:1-4.

1 Arizona Public Service Company (APS) submits to the Arizona Corporation
2 Commission (ACC or Commission) the following post-hearing brief in accordance with
3 the Presiding Officer's Order. APS supports Staff's and UNS Electric's joint rate design
4 proposal and thus will focus its comments on rate design matters and net energy
5 metering (NEM). APS takes no position on the revenue requirement agreed to by Staff
6 and UNS Electric, or on the other rate design issues between UNS Electric and certain
7 intervenors. APS's silence on a particular issue or topic should not be construed as an
8 indication that APS supports any party's position on such issue or topic.

9 **I. APS SUPPORTS STAFF'S AND UNS ELECTRIC'S PROPOSAL TO**
10 **MIGRATE ALL RESIDENTIAL AND SMALL GENERAL SERVICE**
11 **CUSTOMERS TO THREE-PART TIME-OF-USE RATES**

12 Staff proposed that UNS Electric "undertake a revenue neutral process to migrate
13 all of its residential and small general service customers to a new tariff which includes a
14 demand charge within a three-part tariff with time-of-use energy kWh charge
15 differentiation." Direct Test. of T. Broderick at 1:23-26. UNS Electric accepted and
16 supports Staff's proposal. *See* Rebuttal Test. of D. Hutchens at 2:10-12; Rebuttal Test.
17 of C. Jones at 3:3-4. The evidence shows that Staff and the Company's proposal, which
18 includes a modest demand charge of approximately \$5 per kilowatt, a \$15 basic service
19 charge, and time differentiated energy charges that include different energy rates for
20 summer and winter peak and off-peak periods, is just, reasonable and appropriate for all
21 residential customers. *See* Solganick, Hearing Tr. at 2731:17-22; Miessner, Hearing Tr.
22 at 3343:17-23. For these reasons, as well as those set forth below, APS supports Staff's
23 and UNS Electric's proposed plan to implement three-part rates with a time-of-use
24 feature for all residential and small commercial customers. *See* Surrebuttal Test. of C.
25 Miessner at 3:14-15.

26 **A. Three-Part Rates Benefit Customers**

27 The testimony demonstrates that this three-part rate design proposal will benefit
28 UNS Electric's customers by better aligning the cost of service with rates. *See* Dukes,

1 Hearing Tr. at 1937:11-15; Solganick, Hearing Tr. at 2748:8-11; Miessner, Hearing Tr.
2 at 3245:19-23; Broderick, Hearing Tr. at 3713:17-21. There are many benefits to
3 customers of improving the alignment between rates and costs.

4 First, it gives customers more transparency and control over their electric usage
5 and bills. *See* Broderick, Hearing Tr. at 3590:15-20; Faruqui, Hearing Tr. at 3052:18-
6 25; Miessner, Hearing Tr. at 3349:3-6. Today, UNS Electric's customers can only save
7 money on their bills by reducing their overall energy use—the total amount of kWh used
8 during the billing period. Faruqui, Hearing Tr. at 3049:8-9. “With a three-part rate
9 [customers] will have additional opportunities to save money by reducing their peak
10 demand.” Faruqui, Hearing Tr. at 3049:10-12; *see also* Miessner, Hearing Tr. at
11 3246:25-3247:3; Surrebuttal Test. of C. Miessner at 17. To decrease peak demand (and
12 therefore their overall bills) customers can stagger appliance use and/or shift use of
13 certain appliances, such as the electric clothes dryer or dishwasher, to off-peak hours
14 when there is no demand charge. *See* Jones, Hearing Tr. at 2570:10-14. Because the
15 proposed rates also have a time-of-use feature, customers can also save money on their
16 bills by shifting usage to off-peak hours when energy rates are lower. *See id.* at
17 2599:18-21; Miessner, Hearing Tr. at 3267:10-15. Customers can also save on their
18 bills by simply decreasing their overall energy usage as they do today. For example,
19 customers may continue to engage in energy saving behaviors such as conservation
20 (shutting off lights and turning up the thermostat a degree or two in summer and down a
21 degree or two in winter), installing more efficient lighting and appliances, and taking
22 advantage of the programs in UNS Electric's Commission approved DSM Plan and
23 energy efficiency portfolio.

24 Importantly, as noted by Mr. Broderick, energy efficiency programs can and
25 should evolve so that in addition to helping customers decrease their overall energy use,
26 the programs help customers learn to decrease their peak demand and/or manage their
27 demand by shifting usage to off-peak times when there is no demand charge and energy
28

1 prices are lower. Broderick, Hearing Tr. at 3665:24-3666:4; Broderick, Hearing Tr. at
2 3719:5-10. Decreasing peak demand not only helps customers save on their bills, but
3 helps defer the need for additional capacity, thus keeping overall system costs lower for
4 all customers. Solganick, Hearing Tr. at 2734:4-6, 2736:12-2737:2.

5 Second, three-part rates decrease intra-class cross subsidies. *See* Direct Test. of T.
6 Broderick at 2:1-9; Broderick, Hearing Tr. at 3600:21-24. Because three-part rates are
7 cost-based, they are a “tried and true rate design to reduce subsidies across the board.”
8 Broderick, Hearing Tr. at 3592:2-3. As discussed by Staff witness Solganick, the
9 existing two-part rate design with net metering provides a subsidy to rooftop solar
10 customers. *See* Solganick, Hearing Tr. at 2737:3-10; *see also* Tilghman, Hearing Tr. at
11 1332:8-1333:18; Huber, Hearing Tr. at 2346:16-25. Customers without rooftop solar
12 over pay for the solar energy rooftop solar customers export to the grid because under
13 net metering, rooftop solar customers are compensated for their exports at the retail rate.
14 *See* Jones, Hearing Tr. at 2011:18-20; Solganick, Hearing Tr. at 2737:3-15. As Mr.
15 Solganick testified, the cost shift can be seen in the LFCR,¹ “it shows it right there.”
16 Solganick, Hearing Tr. at 2737:15. Undoubtedly, the utility could purchase energy on
17 the market for less than the retail price. In addition, customers with rooftop solar do not
18 pay their full cost of service because under a two-part rate design all capacity costs are
19 included in the per kWh energy charges. Thus, when a rooftop solar customer buys less
20 energy—they pay less of the utilities’ fixed costs—shifting costs to non-rooftop solar
21 customers. Three-part rates help fix the inequities of the cross-subsidy inherent in the
22 current two-part rate structure. *See* Surrebuttal Test. of A. Faruqui at 12:20-24;
23 Rejoinder Test. of H. Edwin Overcast at 15:15-16:8.

24 Third, three-part rates provide better information to customers considering
25 adopting new technologies, such as rooftop solar and battery storage, and will help

26 ¹ LFCR stands for the Lost Fixed Cost Adjustor. The LFCR is a Commission approved adjustor that
27 addresses kWh sales lost as a result of the Renewable Energy Standard Tariff and Energy Efficiency
28 Rules. *See* Decision No. 74235 (Oct. 31, 2013).

1 provide a “long-term successful market orientation here for new technology.”
2 Broderick, Hearing Tr. at 3592:5-6.²

3 **B. The Staff’s Three-Part Rate Proposal Does Not Adversely Impact**
4 **Limited Income Customers**

5 A number of intervenors voiced concerns about the potential impact of three-part
6 time-of-use rates on limited income customers. There is ample evidence in the record to
7 conclude that the rate design proposed by Staff won’t harm limited income customers.
8 *See* Broderick, Hearing Tr. at 3592:15-19; Broderick, Hearing Tr. at 3593:16-18.³ And
9 as eloquently noted by Mr. Broderick “the solution for a low income person is a higher
10 income”—not a refusal to adopt a clearly superior rate design. Broderick, Hearing Tr. at
11 3594:3-4; *see also* Broderick, Hearing Tr. at 3594:4-5. Despite extensive scrutiny, Staff
12 was unable to “see a connection . . . between the creation of a demand charge which
13 would apply to all residential customers that would differentially impact the low-income
14 customers in an unfavorable manner.” Broderick, Hearing Tr. at 3592:15-19.

15 Indeed, many limited income customers will benefit from three-part rates. For
16 example, approximately 80-90 percent of customers in the UNS Electric service territory
17 have gas appliances. *See* Smith, Hearing Tr. at 693:11-18; Zwick, Hearing Tr. at
18 708:23-709:3. A customer who has gas appliances would likely benefit from three-part
19 rates because they (i) would tend to have less demand because at least some of their
20 major appliances rely upon gas instead of electricity (lowering customers’ peak demand
21 charges), and (ii) would likely use less electricity (lowering their energy charges). Even
22 without gas appliances, many customers, including limited income customers, will save
23 on their bills under a three-part rate design, even without making any changes in their
24 energy use behavior. Savings result because energy charges are necessarily lower in

25 ² *See also* Jones, Hearing Tr. at 2013:9-2014:1; Solganick, Hearing Tr. at 2746:9-12; Broderick, Hearing
26 Tr. at 3601:3-6; Surrebuttal Test. of A. Faruqui at 5:9-14; Surrebuttal Test. of A. Brown at 24:9-10
(citing Lehrman, Matt, “*Are Residential Demand Charges the Next Big Thing in Electricity Rate*
Design?” Blog Post, RMI Outlet (May 21, 2015)).

27 ³ UNS Electric is, after all, requesting a rate increase. Thus, the great majority of residential customers,
28 limited income or otherwise, will see an increase in their bills.

1 three-part rates than in two-part rates. In a two-part rate the kilowatt hour charge is
2 increased to include all of the costs which are actually driven by capacity needs and that
3 would otherwise be recovered through the demand charge. *See* Direct Test. of A.
4 Faruqui at 10:1-24; Surrebuttal Test. of A. Faruqui at 2:17-21. Also because of how
5 two-part rates are designed, with most capacity costs recovered in the volumetric charge,
6 some customers are paying more than their cost of service. *See* Direct Test. of A.
7 Faruqui at 10:16-24; Surrebuttal Test. of A. Faruqui at 2:20-22. Three-part rates that
8 better align rates with costs decrease these cross subsidies so that customers are more
9 likely to pay their share of costs and not their neighbor's share.

10 APS has had a successful three-part rate for nearly 35 years. *See* Direct Test. of
11 C. Miessner at 6:19. Thus proving that having the latest high tech gadgets for accessing
12 information on the Internet or a mobile phone, or having programmable devices, are not
13 required for customers to be able to effectively benefit from a demand rate. With
14 additional information and education, customers can use what they already know to
15 determine the best ways for their families to manage their demand and energy usage.
16 Some will do so with behavioral strategies. Others may employ technology such as
17 programmable thermostats, load controls or distributed energy resources such as rooftop
18 solar or battery storage. Concerns about the costs of technology tools are often
19 overstated, but in any event, could be mitigated if the ACC choose to do so through
20 incentives or other strategies.

21 APS performed an analysis of its customers who switched from APS's two-part
22 time-of-use rate, to its three-part demand rate that also had a time-of-use feature. APS
23 found that 90 percent of the customers in its sample, saved on their bills under a three-
24 part rate. APS also found that sixty percent of customers saved on their summer demand
25 and had an average demand savings of 12 percent in the summer. *See* Miessner,
26 Hearing Tr. at 3249:9-12; *see also* Direct Test. of C. Miessner at 7:22-24. And while
27
28

1 not all customers will save on their bills under a three-part rate, many will, including
2 limited income customers.

3 The resourcefulness of customers and particularly limited income customers
4 should not be underestimated. *See* Broderick, Hearing Tr. at 3593:22–3594:2;
5 Solganick, Hearing Tr. at 2894:5-14. The testimony established that customers can
6 control their demand (as well as their energy usage) without purchasing expensive or
7 high tech equipment. *See* Solganick, Hearing Tr. at 2735:7-8. Most Arizonans know
8 that you don't bake cookies or run your electric clothes dryer on a hot July afternoon.
9 Such activities heat up the house, causing the air conditioning unit to work even harder
10 and run more, thus increasing their electric bills. Customers have learned to manage
11 their bills and their energy usage, while still maintaining comfort even in the hot
12 Arizona summer. There is no reason to believe, and there was no evidence presented,
13 that customers would not learn to manage their demand.

14 **C. Why Transition Customers to Three-Part Rates Now?**

15 “In most parts of the country, three-part rates are mandatory for
16 commercial/industrial customers. Why? Because they are cost based. And customers
17 are not given the option of not paying a cost based rate.” Faruqui, Hearing Tr. at
18 3047:16-19. Indeed, three-part rates are “a tried and true rate design approach” that has
19 been almost universally applied to commercial and industrial customers in Arizona and
20 much of the rest of the country for decades. *See* Broderick, Hearing Tr. at 3590:8-10;
21 *see also* Overcast, Hearing Tr. at 1389:13-17 (“The rationale historically that led to the
22 two-part rates was a compromise based on the inability to meter and bill a three-part rate
23 at a cost effective meter price. That compromise is no longer needed.”).

24 Residential usage is less homogenous than in the past, thus creating significant
25 intra-class subsidies. *See* Overcast, Hearing Tr. at 1411:17-1413:4. But, the primary
26 reason that three-part rates have not historically been used for residential customers was
27 the lack of appropriate metering technology. *See* Direct Test. of A. Faruqui at 13. By
28

1 “appropriate metering technology,” APS means more than having meters that can
2 measure demand. Meters must be able to provide consumers with the information about
3 usage needed to allow a more universal response to demand rates. The advent and
4 wholesale deployment of cost-effective advanced meters for residential customers, such
5 as AMI and AMR meters, facilitates moving all customers—not just commercial and
6 industrial—to cost-based rates. *See* Faruqui, Hearing Tr. at 3047:7-15.

7 The testimony demonstrated that UNS Electric has almost completed installing
8 advanced meters for its residential customers. By the time that the proposed rates would
9 go into effect in March of 2017, UNS Electric’s deployment will have been complete,
10 and nearly 90 percent of its customers will have had access to at least one year’s worth
11 of demand related data. *See* Jones, Hearing Tr. at 1998:10-11. With the metering
12 barrier removed, there is no logical reason not to move residential customers to rates that
13 are more reflective of costs. Doing so will reduce cross subsidies and result in long term
14 savings that will benefit all customers. *See* Solganick, Hearing Tr. at 2736:12-16;
15 Faruqui, Hearing Tr. at 3047:23-3048:8.

16 **D. Optional Rates Do Not Work**

17 As bluntly stated by UNS Electric witness Dr. Overcast, “optional rates don’t
18 work.” Overcast, Hearing Tr. at 1511:21. Optional rates “let some customers escape
19 some cost that then will flow back at a later time to other customers.” Overcast, Hearing
20 Tr. at 1511:18-20. Alternatively, if the rate design is revenue neutral and customers
21 elect the optional rate only if it results in them paying less than they would on a demand
22 rate “[y]ou’re guaranteeing a loss to the utility.” Overcast, Hearing Tr. at 1514:11-12.
23 Mr. Solganick and Dr. Faruqui, were similarly opposed to making three-part rates
24 optional for customers because, among other reasons, it allows some customers to avoid
25 paying their share of fixed costs. *See* Solganick, Hearing Tr. at 2893:6-7; Faruqui,
26 Hearing Tr. at 3054:19-21.

1 **II. UNS ELECTRIC'S ORIGINAL POSITION ON NEM WAS**
2 **REASONABLE AND SHOULD BE ADOPTED**

3 Although the issue of NEM is potentially affected by the underlying rate design,
4 rate design reform and modernization does not remove the need for the Commission to
5 carefully review the NEM program as currently in place within the UNS Electric service
6 territory. As testified by APS witness Brown, NEM never had any cost justification in
7 the jurisdictions that adopted it, with Arizona being no exception. *See Surrebuttal Test.*
8 *of A. Brown at 29; Brown, Hearing Tr. at 832:1-12, 902:18-19.* NEM represented a
9 policy determination by the Commission in 2008 to provide a powerful incentive for the
10 development of rooftop solar. *See Decision No. 70567 (Oct. 23, 2008).* In that respect,
11 NEM has succeeded beyond anyone's reasonable expectations to the point where, in the
12 case of APS, rooftop solar installations were over 9,300 in 2015.⁴ This is a pace that
13 greatly exceeds the amount of DG required by the RES Rule.⁵

14 So is APS arguing for the end of NEM? No and neither is UNS Electric. *See*
15 *Surrebuttal Test. of C. Miessner at 23; Rebuttal Test. of C. Tilghman at 6.* The UNS
16 Electric proposal only addresses the pricing of what is referred to as "export energy"
17 from residential rooftop solar installations and even then only for rooftop solar
18 installations after June 1, 2015. *See Direct Test. of C. Tilghman at 8; Direct Test. of L.*
19 *Huber at 13.*⁶ Because the NEM Rule allows rooftop solar customers to carry-over
20 excess generation from one month to another, effectively treating the grid as a giant no
21 cost battery, such customers are paid the full bundled retail tariff rate for what is
22 essentially a wholesale energy product, with little to no capacity value. *See Rebuttal*

23 ⁴ APS's 2015 Renewable Energy Standard Annual Compliance Report, Docket No. E-00000R-16-0084
(Apr. 1, 2016).

24 ⁵ A debate over what "compliance" with the DG "carve-out" means under the RES Rules in a post-
25 incentive post-REC world is beyond the scope of these proceedings. The point is that rooftop solar
26 installations are proliferating faster than ever envisioned when the RES Rule was enacted by the
27 Commission.

28 ⁶ There are some fine points to UNS Electric's, RUCO's and Staff's "grandfathering" proposals
(although Staff does not characterize its proposal as "grandfathering") that APS will not address in its
post-hearing brief. Suffice it to say that APS does believe that rooftop solar customers who were paid
incentives for their systems are distinguishable from later DG customers who were put on notice of the
potential for changes in NEM and most certainly from prospective rooftop solar customers.

1 Test. of H. Overcast at 12:1-4; Tilghman, Hearing Tr. at 1250:17-1251:1; Surrebuttal
2 Test. of A. Brown at 11:19-21. Although this is equally true of the rooftop solar
3 generation used by the NEM customer, neither APS nor UNS Electric is proposing to
4 end that subsidy. *See* Rebuttal Test. of C. Tilghman at 6. UNS Electric suggests
5 substituting what it calls the Renewable Credit Rate (RCR) for this exported energy, as
6 determined on a monthly basis. *See* Direct Test. of C. Tilghman at 7-8.

7 The RCR would be market-based. Although UNS Electric's suggested use of a
8 recent solar PPA entered into by its interconnected affiliate, Tucson Electric Power
9 Company for the RCR is reasonable, see Surrebuttal Test. of C. Miessner at 23 and
10 Surrebuttal Test. of A. Brown at 35, there could certainly be variations such as the
11 average of several recent solar PPAs with Arizona utilities.⁷ *See* Tilghman, Hearing Tr.
12 at 1347:8-1348:9. The important thing is to recognize that allowing the full bundled
13 retail rate for exported power never made sense from an economic point of view and
14 lacked the discipline of either cost of service regulation or the market. It was simply a
15 public policy decision. *See* Surrebuttal Test. of A. Brown at 4, 23, 30; Direct Test. of L.
16 Huber at 13:16-21.

17 And rather than recalculate the RCR every time a new PPA were signed or even
18 on an annual basis, it could be kept in place until the utility's next general rate case.
19 These are details that can be left to the Commission's discretion. The important thing is
20 to fix the most obvious shortcoming of NEM, which is the gross overpricing of export
21 energy to the detriment of both non-solar customers and the long-term sustainability of
22 solar energy as an alternative to fossil fuels. *See* Surrebuttal Test. of A. Brown at 13-
23 14.⁸

24 ⁷ One would certainly want to use recent solar PPAs so that UNS Electric customers would benefit from
25 the recent and dramatic decrease in the cost of solar PPAs from grid-scale solar.

26 ⁸ UNS Electric witness Tilghman asserts that this change in the billing credit for export energy does not
27 require a waiver of A.A.C. R14-2-2306. *See* Rebuttal Test. of C. Tilghman at 6. APS believes this to be
28 a non-issue because whether this is a fair interpretation by the Commission of its own NEM Rule or an
actual waiver, both would be within the power of the Commission. *See* Surrebuttal Test. of A. Brown at
33:17-34:4, 34:5-15.

1 Only RUCO proposed concrete alternatives to the Company’s proposed treatment
2 of NEM. Direct Rate Design Test. of L. Huber at 11. These were essentially: (1) the
3 “non-export” option; (2) the advanced TOU option (with demand charges); and (3) a
4 variant of UNS Electric’s RPS bill credit proposal (excepting it seemingly would be
5 applied to all output and not just exported electric power). The non-export option was
6 not favored by RUCO itself⁹ and was criticized by APS expert Brown because it would
7 discourage exports from rooftop solar that might, if properly priced, provide value for
8 both the rooftop solar customer and other UNS Electric customers. Surrebuttal Test. of
9 A. Brown at 41:27–42:4. The other two options showed considerable thought, but
10 because they were only options they largely cancelled out whatever benefit they may
11 have provided in the way of improved fixed cost recovery from rooftop solar customers.
12 See Surrebuttal Test. of C. Jones at 30:16-27; Surrebuttal Test. of A. Brown at 42-43;
13 Tilghman, Hearing Tr. at 1338:15-1339:11; *see also* Part I.D. above.

14 In summary, APS agrees with UNS Electric witness Tilghman that if the
15 Commission were to approve universal demand charges and higher basic service charges
16 for UNS Electric residential customers, the *urgency* for NEM reform in the UNS
17 Electric service area could be reduced. See Rebuttal Test. of C. Tilghman at 3.
18 However, the *need* for such reform is unaffected by whether or not universal three-part
19 rates are adopted, and a good place to start is in that area of NEM where the cross-
20 subsidy and disparity between cost and value are most egregious – the pricing of
21 exported rooftop solar energy.

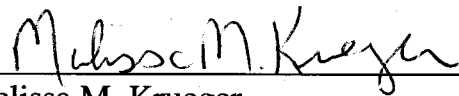
22 **III. CONCLUSION**

23 For these reasons APS respectfully urges that the Commission adopt Staff’s and
24 the Company’s proposal for mandatory three-part rates for all residential and small
25 commercial customers. APS also asks the Commission to modify the export rate for
26 NEM as requested by UNS Electric.

27

⁹ See Huber, Hearing Tr. at 2367:18-25; Direct Test. of L. Huber at 24:8.
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1 RESPECTFULLY SUBMITTED this 25th day of April 2016.

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