

BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF)
OKLAHOMA GAS AND ELECTRIC)
COMPANY FOR AN ORDER OF THE)
COMMISSION AUTHORIZING APPLICANT)
TO MODIFY ITS RATES, CHARGES AND)
TARIFFS FOR RETAIL ELECTRIC SERVICE)
IN OKLAHOMA

CAUSE NO. PUD 201500273

RESPONSIVE TESTIMONY

OF

MARK E. GARRETT

COST OF SERVICE/
RATE DESIGN ISSUES

ON BEHALF
OF

THE ALLIANCE FOR SOLAR CHOICE ("TASC")

FILED

MAR 31 2016

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CORPORATION COMMISSION
OF OKLAHOMA

March 31, 2016

Responsive Testimony of Mark E. Garrett

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I. WITNESS IDENTIFICATION AND PURPOSE OF TESTIMONY

1 **Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A: My name is Mark Garrett. My business address is 50 Penn Place, Suite 410, 1900 NW
3 Expressway, Oklahoma City, Oklahoma 73118.

4

5 **Q: WHAT IS YOUR PRESENT OCCUPATION?**

6 A: I am the President of Garrett Group, LLC, a firm specializing in public utility regulation,
7 litigation and consulting services.

8

9 **Q: PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR
10 PROFESSIONAL EXPERIENCE RELATED TO UTILITY REGULATION?**

11 A: I am an attorney and a certified public accountant. I work as a consultant in the area of
12 public utility regulation. I received my bachelor's degree from the University of
13 Oklahoma and completed postgraduate hours at the University of Texas and Stephen F.
14 Austin State University. I received my juris doctorate degree from Oklahoma City
15 University Law School and was admitted to the Oklahoma Bar in 1997. I am a Certified
16 Public Accountant licensed in the States of Texas and Oklahoma with a background in
17 public accounting, private industry, and utility regulation. In public accounting, as a
18 staff auditor for a firm in Dallas, I primarily audited financial institutions in the State of
19 Texas. In private industry, as controller for a mid-sized (\$300 million) corporation in
20 Dallas, I managed the Company's accounting function, including general ledger,
21 accounts payable, financial reporting, audits, tax returns, budgets, projections, and

1 supervision of accounting personnel. In utility regulation, I served as an auditor in the
2 Public Utility Division of the Oklahoma Corporation Commission from 1991 to 1995.
3 In that position, I managed the audits of major gas and electric utility companies in
4 Oklahoma. Since leaving the Commission, I have worked on rate cases and other
5 regulatory proceedings on behalf of various consumers and consumer groups.
6

7 **Q: HAVE YOUR QUALIFICATIONS BEEN ACCEPTED BY THIS COMMISSION?**

8 A: Yes, they have. A more complete description of my qualifications and a list of the
9 proceedings in which I have been involved are included at the end of my testimony.
10

11 **Q: ON WHOSE BEHALF ARE YOU APPEARING IN THESE PROCEEDINGS?**

12 A: I am appearing on behalf of The Alliance for Solar Choice (“TASC”).
13

14 **Q: WHO IS TASC?**

15 A: The Alliance for Solar Choice advocates for maintaining successful distributed solar
16 policies nationwide. Founded by the largest rooftop companies in the nation, TASC
17 member companies include Geostellar, Inc., LGCY Power, REPOWER by Solar
18 Universe, SunTime Energy, Sunrun, Lightwave Solar, Palmetto Solar and Demeter
19 Power. These companies are responsible for tens of thousands of solar installations
20 across the country and are engaged at the local, state, and national level.
21

22 **Q: WHAT IS TASC’s INTEREST IN THIS PROCEEDING?**

1 A: TASC's primary interest in this proceeding is to maintain and encourage consumer
2 choice and fair rate setting practices, particularly as it applies to the Company's
3 residential solar customers and those customers who hope to power their homes with
4 solar in the future.

5

6 **Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

7 A: The primary purpose of my testimony is to address, from a ratemaking perspective, the
8 Application of Oklahoma Gas and Electric ("OG&E" or the "Company") to impose
9 distributed generation ("DG") tariff changes in response to 2014 Senate Bill No. 1456
10 ("S.B. 1456"). My testimony considers the proposed DG tariff changes in light of the
11 pending application in Cause No. 2015-00274. It highlights how OG&E's current
12 application not only fails to remedy the deficiencies TASC identified in Cause No. 2015-
13 00274, but also requests penalties for DG customers that are contrary to S.B. 1456. As I
14 discuss, when the Company uses fresh cost of service data—as opposed to the stale data
15 relied on in Cause No. 2015-00274—it is clear that residential DG customers actually
16 provide a subsidy to non-DG residential customers, and not the other way around.
17 Accordingly, OG&E's proposed demand charge and increased fixed charges for DG
18 customers violate the law. To comply with S.B. 1456, I recommend that the Commission
19 reject those charges and maintain the status quo time-variant rate for DG customers.

20 My testimony also addresses the broader implications of the Company's
21 residential rate proposals, including substantial increases to customer fixed charges and a
22 residential demand charge. OG&E seeks to impose a default three-part demand-charge

1 rate design on Oklahoma ratepayers. This is an unwise and unprecedented formula that
2 should be rejected.

II. SUMMARY OF RECOMMENDATIONS

3 **Q: PLEASE SUMMARIZE THE SPECIFIC RECOMMENDATIONS YOU MAKE**
4 **IN YOUR TESTIMONY.**

5 A: I recommend that the Commission reject attempts to impose a discriminatory, mandatory
6 rate structure on residential customers with distributed generation (proposed Schedule R-
7 TOU-kW). The Company's DG proposal is contrary to S.B. 1456 and to standard
8 ratemaking principles for the following reasons:

- 9 • The Company fails to consider the costs and benefits of distributed
10 generation to remedy the evidentiary deficiency of its application in
11 Cause No. PUD 2015-00274 and, again, fails to demonstrate that
12 residential customers with distributed generation are being subsidized by
13 other customers within the same class;
14
- 15 • The Company's Cost of Service Study shows that Residential DG
16 customers are providing a subsidy to other residential ratepayers – the
17 opposite of shifting costs to those customers; and
18
- 19 • The proposed R-TOU-kW violates S.B. 1456 because it would raise rates
20 beyond what is necessary to recover the cost of service for residential
21 customers with distributed generation.
22

23 I further recommend that the Commission reject the Company's proposal to make drastic
24 rate design changes for residential customers, including those with distributed
25 generation. These changes include the establishment of a three-part rate for standard
26 residential customers, with the unprecedented imposition of a demand charge on these
27 customers, and the doubling of the customer charge. I recommend that these proposed

1 changes be rejected for the following reasons:

- 2 • Residential customers are wholly unaccustomed to demand charges, so it
3 is not advisable from a policy perspective to thrust an untested and
4 unprecedented rate experiment on the majority of the Company's
5 residential customers;
6
- 7 • Non-coincident demand charges do not align with cost causation
8 principles and do not reflect the time-specific costs associated with
9 energy consumption;
10
- 11 • Average residential customers generally lack the specialized awareness
12 required to manage demand and cannot readily access the costly
13 equipment necessary to assist in controlling maximum demand;
14
- 15 • Demand charges have the prospect of being punitive and discouraging of
16 beneficial behavior for customers that manage their demand well for 99%
17 of the month, but get hammered for one 15-minute period where usage
18 spikes (perhaps for reasons beyond their control);
19
- 20 • The proposal to double the customer charge inappropriately expands the
21 category of customer-related costs to elements of the distribution grid that
22 vary with the amount of usage, not with the number of customers; and
23
- 24 • The doubling of the customer charge weakens the price signal to conserve
25 electricity.

III. OG&E'S PROPOSAL FOR RESIDENTIAL DG TARIFFS

26 **Q: PLEASE DESCRIBE THE RATE CHANGE THAT OG&E IS PROPOSING FOR**
27 **ITS RESIDENTIAL CUSTOMERS WITH DG.**

28 **A:** The Company is essentially maintaining the same punitive proposals put forward
29 recently in Cause No. PUD 2015-00274. Customers that wish to engage in solar net
30 metering must take service under Schedule NEBO-kW in conjunction with a three-part
31 time-of-use rate (Schedule R-TOU-kW). In comparison to currently effective rates for
32 net metering customers, OG&E proposes to more than double the customer charge from

1 \$13 per month to \$26.54 per month. In Cause No. PUD 2015-00274, the Company
2 proposed to increase the customer charge to \$18 per month for customers on R-TOU-
3 kW. At the time of this testimony, Schedule R-TOU-kW has not been approved, so any
4 changes should be compared to the rates currently in effect.

5
6 **Q: WHAT IS THE CURRENT TARIFF FOR RESIDENTIAL NET METERING**
7 **CUSTOMERS?**

8 **A:** Residential customers with DG engaged in net metering on Schedule NEBO must take
9 service under a time-of-use tariff. For residential customers, that is current standard
10 pricing Schedule R-TOU.

11
12 **Q: OG&E IS CURRENTLY SEEKING APPROVAL OF THE RESIDENTIAL DG**
13 **TARIFF IT SOUGHT IN CAUSE NO. PUD 2015-00274. SHOULD THE**
14 **COMMISSION CONSIDER THE DG TARIFF SOUGHT IN THAT**
15 **PROCEEDING AS THE CURRENT RATE?**

16 **A:** No. The R-TOU-kW tariff should not be considered the current tariff for residential net
17 metering customers until or unless the Commission approves the charge as proposed in
18 that cause. Accordingly, the comparison of the proposed changes from existing rates in
19 Company Witnesses' direct testimony is somewhat misleading and underplays the extent
20 of the actual change that would take place if the pending rate proposal in Cause No.
21 2015-00274 is not approved or not acted upon before the conclusion of this case.¹ At the
22 time of this testimony, it is simply not the case that the Commission has accepted

¹ Direct Testimony of William Wai at p. 27 (Table 14) (December 18, 2015).

1 demand charges as appropriate for any of the residential customers of any of the electric
2 utilities it regulates.

3
4 **Q: DID TASC OPPOSE THE IMPOSITION OF R-TOU-KW ON RESIDENTIAL**
5 **NET METERING CUSTOMERS IN THAT PREVIOUS CASE?**

6 **A:** Yes.

7
8 **Q: ON WHAT BASIS DID TASC OPPOSE MAKING R-TOU-KW MANDATORY**
9 **FOR ALL RESIDENTIAL NET METERING CUSTOMERS?**

10 **A:** In my testimony on behalf of TASC in that matter, I recommended that the Commission
11 reject the Application on the basis that:

- 12 • It is inconsistent with S.B. 1456 because it fails to demonstrate the existence
13 of a subsidy for DG customers and the proposed tariffs are not cost-based.
- 14
- 15 • From both a technical and policy perspective, it represents single-issue
16 ratemaking, which has been disfavored by this Commission and others
17 nationwide. OG&E's Application would only raise costs on DG customers
18 without correspondingly lowering costs for other customers.
- 19
- 20 • It contains several rate design flaws, including implementation of demand
21 charges for residential customers. Residential customers are not equipped to
22 respond to demand charges, and implementing demand charges for DG
23 customers is inconsistent with the express language of S.B. 1456.²
- 24
- 25 • It fails to comply with the Commission-led stakeholders' collaborative
26 process that was specifically designed to provide the necessary information
27 for a transparent evaluation of DG rates.
- 28
- 29 • It makes rate design recommendations for DG customers that are inconsistent

² As I noted throughout the proceeding, it is illogical for demand charges to be imposed on distributed generation customers when they are, by statutory definition, customers that are not subject to a demand charge.

1 with recommendation OG&E has put forward in prior rate cases.”³
2

3 **Q: DO THOSE CRITICISMS REMAIN RELEVANT IN THIS CASE?**

4 A: Yes, with the exception that the concerns over single-issue ratemaking do not apply to
5 the currently proposed rate because it is being put forward in a general rate case
6 proceeding. That criticism remains to the validity of any rate proposed in Cause No.
7 2015-00274, where the charge was sought in isolation, outside of a rate case without any
8 offsetting reductions in rates for other customers where increases in rates to DG
9 customers were contemplated.

10 The criticisms that the Company failed to demonstrate the existence of a subsidy,
11 failed to adequately address the stakeholders’ Master Checklist and would violate S.B.
12 1456 by causing DG customers to subsidize non-DG customers in the same class remain
13 relevant to the current case.

14 **IV. DEFICIENCIES OF OG&E’S RESIDENTIAL DG TARIFF PROPOSAL**

15 **Q: WHAT ARE THE DEFICIENCIES OF OG&E’S PROPOSED DG TARIFF IN THIS CASE?**

16 A: First and most critically, the proposed Residential DG Schedule (R-TOU-kW) is
17 contrary to S.B. 1456. Under that law, the Company must demonstrate the existence of a
18 subsidy in order to trigger the provisions that would allow a special charge or rate
19 structure for DG customers. OG&E fails to produce any evidence of this alleged DG
20 subsidy and does not even attempt to quantify the costs and benefits of DG, as required

³ Responsive Testimony of Mark E. Garrett in Cause No. PUD 2015-00274 at pp. 4-5 (November 3, 2015).

1 by the Master Checklist developed by staff and a collaborative stakeholder group.
2 Moreover, the only new, relevant data that they do provide demonstrates that Residential
3 DG customers are actually providing a subsidy *in favor* of other residential customers.
4 The Company's COSS found that residential DG customers, when looked at as a
5 separate class, are subsidizing other residential customers.⁴

6 OG&E's current residential DG proposal would increase the collection of
7 revenue from residential net metering customers above what it costs to serve those
8 customers. Schedule R-TOU-kW therefore does not comply with S.B. 1456.

9 Finally, the imposition of a demand charge on residential net metering customers
10 represents a significant policy change for Oklahoma ratepayers. This change should be
11 viewed in light of broader rate design proposals. Such fundamentally unfair shifts in
12 rate structure are likely to create widespread dissatisfaction, confusion and, ultimately,
13 backlash.

14
15 **Q: YOU SAID THAT ONE DEFICIENCY OF OG&E'S PROPOSED RESIDENTIAL**
16 **DG RATE (R-TOU-KW) IS THAT THE COMPANY FAILS TO SATISFY THE**
17 **THRESHOLD REQUIREMENT OF DEMONSTRATING THE EXISTENCE OF**
18 **A SUBSIDY. PLEASE EXPLAIN WHY THIS IS A THRESHOLD**
19 **REQUIREMENT.**

20 **A:** S.B. 1456 provides that, after the effective date of the Act, customers installing DG shall
21 not be subsidized by other customers in the same class that do not have DG. Thus, before

⁴ Supplemental Package, Vol. II, W/P Schedule L-1 (showing a higher return on rate base for the residential DG class than any other residential rate schedule) (December 18, 2015).

1 any action is taken—or before any action is required—there must be a demonstration
2 that a subsidy exists. Demonstration of a subsidy is a prerequisite to taking any rate
3 action on DG customers. I explained this concept in my responsive testimony in Cause
4 No. PUD 2015-00274:

5 “OG&E would have to demonstrate that a subsidy exists before the
6 requirements of Title 17 § 156 would take effect, something OG&E has
7 not done... The Company’s proposed new tariffs are based on
8 assumptions, and flawed ones at that. OG&E cannot show that its
9 proposed new tariffs are based on actual costs (as required by the statute).
10 In fact, there is no legitimate way to know whether a subsidy actually
11 exists between one set of customers and other customers unless the utility
12 conducts a comprehensive cost of service study contemporaneous with a
13 full revenue requirement review, in other words, in a general rate case.
14 Without a rate case, or at the very least a cost of service study, no cross-
15 subsidization can be proven.”⁵

16 **Q: DOES THE COMPANY EXPLAIN WHAT CONSTITUTES A SUBSIDY AS IT**
17 **RELATES TO RESIDENTIAL NET METERING CUSTOMERS?**

18 **A:** No. The Company refers to the testimony of Roger Walkingstick in Cause No. PUD
19 2015-00274 to support its assertion that a cross-subsidy occurs.⁶ However, the very
20 definition of what constitutes a “subsidy” was in controversy then, and the matter
21 remains unsettled. The Company’s basic argument was that a subsidy is inherent in the
22 retail rate because the embedded fixed costs of the grid are recovered through the
23 volumetric rate in the current residential rate structure. Of course, this merely suggests
24 that subsidization is possible (i.e., there is an opportunity in the tariff), it does nothing to
25 tell the Commission if subsidization is actually occurring. S.B. 1456 requires, at the
26 threshold, a demonstration that subsidization is **actually** occurring before any remedial

⁵ Responsive Testimony of Mark E. Garrett in Cause No. PUD 2015-00274 at p. 16 (November 3, 2015).

⁶ Direct Testimony of Bryan J. Scott at pp.14-15 (December 18, 2015).

1 action is approved.

2 The Company also alleged that energy produced by net metering customers is
3 only worth the utility's avoided cost, and that the difference between the retail rate and
4 the avoided cost value of the electricity produced by net metering customers represented
5 a subsidy that flows to net metering customers. This argument lacks merit, as the
6 Company has yet to undertake a good faith effort to understand and quantify the benefits
7 of distributed generation to ratepayers, the grid, and society. Between Cause No. PUD
8 2015-00274 and this case, the Company has yet to produce any data showing that they
9 have quantified the benefits and costs of net metering. Where independent third parties
10 have undertaken serious cost-benefit analyses, the results illustrate that net metering
11 provides a net financial benefit to all ratepayers.⁷

12 Moreover, the allegation that net metered customers are paid at retail rates is
13 misleading. The Company does not account for net metered customers' generation as a
14 purchase of electricity and the costs of such "purchases" are not recovered through the
15 Company's fuel adjustment clause. The existence of a subsidy, then, depends on
16 showing that the Company is currently under-recovering from its net metered customers
17 as compared to other customers within the same class. Of course, that view must also
18 consider whether there are other values that DG is contributing to the grid that help
19 lower costs for other customers. OG&E neither defines what constitutes a subsidy, nor
20 shows that it is under-recovering from its net metered customers. In fact, as stated earlier
21 and as I will discuss further below, OG&E's COSS shows that DG customers are

⁷ Melissa Whited, Tim Woolf, and Joseph Daniels, *Caught in a Fix: The Problem With Fixed Charges for Electricity* (Synapse Energy Economics, Inc.) ("Synapse Report") at p. 28 (February 9, 2016), Attached as Exhibit MG_2.

1 providing a subsidy to other non-DG residential ratepayers.

2
3 **Q: DOES THE COMPANY'S APPLICATION QUANTIFY OR DEMONSTRATE**
4 **THE ALLEGED SUBSIDY IN THIS APPLICATION?**

5 No. The Company's Application gives very little discussion to the existence of a subsidy
6 and merely assumes that DG customers (or net metered customers) can be treated as a
7 separate rate class or subclass. Thus, the Company not only skips the critical first step of
8 explaining what constitutes a subsidy, but also fails demonstrate that a subsidy exists and
9 presumes that it may impose unique rates on DG customers. As mentioned previously,
10 the Company's COSS actually demonstrates that putting DG customers into a separate
11 class causes those customers to subsidize the general body of residential customers.
12 Schedule L-1 demonstrates that the Company earns a higher rate of return on the
13 Residential DG class than on any other residential schedule.⁸

Table 1. Return on Rate Base for Residential Rate Schedules						
	Total Residential Service (Col. 1)	Residential Standard (Col. 2)	Residential TOU (Col. 3)	Residential VPP (Col. 4)	Residential CPP (Col. 5)	Residential DG (Col. 6)
Line 31 (Return on Rate Base)	5.33	5.18	4.89	6.28	6.32	7.23

14 This figure also fails to account for the contribution the residential DG class makes to the
15 Company through uncompensated excess generation throughout the year. Under the net
16 metering program, any excess generation that is left at the end of the billing period is

⁸ See W/P Schedule L-1 line 31, column 6.

1 forfeited to the Company without compensation. As Mr. Walkingstick conceded at the
2 hearing of Cause No. PUD 2015-00274, that uncompensated generation transfers value
3 to other ratepayers:

4 “Q. (TASC’s Counsel) Understood. And when a customer produces a
5 kilowatt-hour that’s eventually not compensated or they don’t receive a
6 value for it, the company gets some value out of that; is that correct?

7 A. (Mr. Walkingstick) I don’t think so. I think what occurs is it becomes
8 less of an energy requirement that the customer has to go – or, excuse me,
9 that the company has to go and get from the energy market, the IM. So
10 who receives the benefit from that is less kilowatt-hours are required from
11 the IM, but those additional kilowatt-hours that came into it came in at a
12 zero cost. So the net effect is all the other customers benefited, to some
13 extent, for that uncompensated kilowatt-hours.”⁹

14 In the current application, the Company has not endeavored to put a number on the value
15 of the kWh surrendered to the Company during the test year. In addition to the expected
16 revenues from the residential DG class, this forfeiture of excess kWh represents further
17 contribution of value and shows that residential DG customers are subsidizing other
18 residential customers at an even higher rate than Schedule L-1 reveals.

19 Having failed to demonstrate that DG customers are subsidized – and in fact
20 proving the opposite – the Company has provided no cost basis to impose a different
21 charge or rate structure on DG customers than it does to other residential customers.
22 Because OG&E’s only new evidence shows that DG customers are demonstrably
23 providing a subsidy to other residential customers, their Residential DG proposal must
24 be rejected for failing to satisfy the threshold requirement of S.B. 1456. In other words,
25 because the Company failed to establish the existence of a subsidy, the Residential DG

⁹ Transcript of Proceedings in Cause No. PUD No. 2015-00274, December 2, 2015, RDH 29 (line 20) to RDH 30 (line 8).

1 proposal is plainly discriminatory and violates the intent of S.B. 1456 – to reserve any
2 fee or surcharge on DG customers for circumstances where it is necessary to eliminate a
3 demonstrated subsidy.¹⁰
4

5 **Q: PLEASE EXPLAIN HOW THE STAFF’S CHECKLIST IS RELEVANT TO THE**
6 **DETERMINATION OF A SUBSIDY FOR NET METERING CUSTOMERS?**

7 **A:** As I discussed in my responsive testimony in Cause No. PUD 2015-00274, Governor
8 Fallin issued Executive Order (“E.O.”) 2014-07 on the same day she signed S.B. 1456,
9 directing the Commission to undertake a “transparent evaluation of distributed
10 generation.” In the fall of 2014, the Commission held a series of informal stakeholder
11 meetings to discuss the implementation of S.B. 1456 and, as a result of those meetings,
12 the concept of a “Master Checklist” emerged. As I discussed, “the Master Checklist
13 became the compilation of ideas, concepts, and general information provided by
14 interested stakeholders and members of the public, intended to serve as a guide for the
15 Commission in its review of distributive generation tariff application.”¹¹ The final
16 version of the Master Checklist became the compiled list of information that the
17 Company was supposed to include in its application—information that all stakeholders
18 agreed would be necessary to evaluate distributed generation. The Master Checklist is
19 just as relevant with this filing.

20 The Company’s cavalier attitude toward the Master Checklist, and disregard for
21 the investment of Commission and Staff time in developing the list, undermines the

¹⁰ 17 O.S. § 156.

¹¹ Responsive Testimony of Mark E. Garrett in Cause No. PUD 2015-00274 at p. 26.

1 Commission's ability to fairly evaluate any proposal for its consistency with S.B. 1456.
2 With the exception of the examination of Residential DG as a separate class in the new
3 COSS, the Company's Application does nothing to improve the Company's
4 unpersuasive showing in Cause No. PUD 2015-00274.

5
6 **Q: DOES S.B. 1456 ALLOW A NEW RATE STRUCTURE TO BE IMPOSED ON**
7 **RESIDENTIAL NET METERING CUSTOMERS IF THAT STRUCTURE**
8 **RAISES RATES BEYOND THE COST OF SERVICE AND CAUSES THEM TO**
9 **SUBSIDIZE OTHER CUSTOMERS IN THE CLASS?**

10 **A:** No. In fact, S.B. 1456 expressly prohibits this result. Even if the Company could satisfy
11 the threshold requirement of demonstrating a subsidy, S.B. 1456 includes a general
12 prohibition against increasing the rates charged or enforcing a surcharge on customers
13 with distributed generation if that measure would collect revenue above and beyond
14 what is required to provide electrical service.¹² Put another way, the law requires a valid
15 diagnosis before any medicine can be administered.

16 Importantly, the focus of S.B. 1456 is on the elimination of intra-class
17 subsidization. Whether the residential class, as a whole, contributes 100% of its cost of
18 service—as determined in the COSS—is a separate matter and should not be conflated.
19 Because a subsidy can be shown to be flowing from Residential DG customers to all
20 other residential customers, there can be no question that the Residential DG class is
21 already paying more than its relative cost of service. It would be disingenuous and
22 contrary to S.B. 1456 for the Company to claim that the Residential DG class should be

¹² 17 O.S. § 156(B)

1 held to a different standard from other residential customers when it comes to inter-class
2 subsidization.

3
4 **Q: IF R-TOU-KW IS INAPPROPRIATE, WHAT RATE SCHEDULE SHOULD NET
5 METERED RESIDENTIAL CUSTOMERS TAKE SERVICE UNDER?**

6 **A:** Since the Company has not demonstrated the existence of a subsidy in the first place, it
7 is reasonable to maintain the status quo and allow residential customers to take service
8 on the existing time-of-use rate option.

9
10 **Q. WOULD APPROVAL OF R-TOU-KW NEGATIVELY IMPACT THE
11 ECONOMICS OF RESIDENTIAL CUSTOMERS THAT WISH TO INSTALL
12 DISTRIBUTED GENERATION?**

13 **A.** Yes. The proposed mandatory schedule for distributed generation customers would erode
14 customers' bill savings and create a disincentive to conserve energy or to go solar. For
15 the reasons I discuss below in Section V (general residential rate design proposal),
16 residential customers are ill-equipped to respond to residential demand charges. A net
17 metering customer, thus, will have far less control over how installing DG can be used to
18 lower their overall bill due to both the imposition of an unprecedented residential
19 demand charge and the doubling of the customer charge. The Company's desire to
20 secure a high revenue stream must be mitigated by longstanding ratemaking principles
21 which do not favor reliance on fixed charges for residential customers.

22

1 **Q: HAVE YOU UNDERTAKEN AN ANALYSIS OF THE BILL IMPACT OF THE**
2 **COMPANY'S PROPOSAL FOR RESIDENTIAL NET METERING**
3 **CUSTOMERS, AS COMPARED TO CURRENTLY EFFECTIVE RATES?**

4 A: Yes. In Exhibit MG-3, I provide a bill analysis to show the impact of requiring a
5 customer currently on R-TOU to shift to the R-TOU-kW being proposed in this case.
6 The existing R-TOU represents the status quo existing for many residential DG
7 customers at the time the Company filed its application in this Cause. Exhibit MG-3 uses
8 the basic bill impact model put forward in discovery by the Company in Cause No. PUD
9 2015-00274, updated with the charges proposed in this case. A narrative of the
10 adjustments used to adapt this model is given in Exhibit MG-3.

11
12 **Q: WHAT DOES THE BILL IMPACT ANALYSIS REVEAL?**

13 A: This basic snapshot reveals that a typical DG customer transitioning from the current R-
14 TOU to the proposed R-TOU-kW will see a bill increase of more than 20%, even after
15 adjusting the monthly bill estimate under the proposed R-TOU-kW downward to
16 eliminate the portion of the bill attributable to riders that are not currently in base rates.

17
18 **Q: ARE THERE EXAMPLES FROM OTHER JURISDICTIONS WHERE**
19 **INTRODUCTION OF A RESIDENTIAL DEMAND CHARGE HAS**
20 **NEGATIVELY IMPACTED THE CUSTOMER ECONOMICS OF INSTALLING**
21 **DISTRIBUTED GENERATION?**

1 A: Yes. In Arizona, in the territory of Salt River Project, utility data shows a 95.5%
2 decrease in installations for the year following the implementation of increased fixed
3 charges and a mandatory demand charge on DG customers. In the calendar year
4 following those rate changes, Arizona lost more than 2,200 solar jobs.¹³

5
6 **Q: DO YOU HAVE A RECOMMENDATION FOR THE RATE DESIGN FOR**
7 **CUSTOMERS WITH DISTRIBUTED GENERATION?**

8 A: Yes. I recommend that the Commission maintain the status quo for DG customers – the
9 requirement to take service under a time-of-use tariff – and reject both demand charges
10 and increased fixed charges for any group of residential customers.

V. OG&E'S GENERAL RESIDENTIAL RATE DESIGN PROPOSAL

11 **Q: PLEASE DESCRIBE THE COMPANY'S RATE PROPOSAL FOR**
12 **RESIDENTIAL CUSTOMERS THAT DO NOT USE DISTRIBUTED**
13 **GENERATION.**

14 A: The Company is replacing its current Schedule R-1 (seasonally differentiated, inclining
15 block rate) with a three-part rate that features a substantially increased customer charge,
16 an energy charge, and a demand charge based on the maximum 15-minute demand in the
17 billing month. For customers that wish to opt out of the proposed three-part standard
18 residential rate, they can take service under a TOU rate. That said, the proposed TOU
19 rate also carries significant new fees in the form of fixed charges. With this substantial

¹³ See <http://www.thesolarfoundation.org/wp-content/uploads/2016/02/Arizona-Solar-Jobs-Census-2015.pdf>.

1 increase, and reliance on fixed charges for recovery of costs, this rate is not a true
2 alternative that allows customers to take measures to avoid rising electricity bills.
3 Moreover, OG&E has not provided any information on how it will educate customers
4 about their opportunities to opt out of the three part rate. As it now stands, customers are
5 likely to be stuck on a rate they cannot control or understand.
6

7 **Q: DO THESE RATE PROPOSALS REPRESENT SIGNIFICANT CHANGE FROM**
8 **THE STATUS QUO RATE DESIGN FOR RESIDENTIAL CUSTOMERS IN**
9 **OKLAHOMA?**

10 A: Yes. In fact, the proposal to include a default three-part rate structure (i.e., demand-based
11 rate structure) is not only unprecedented in Oklahoma, but also unprecedented in the
12 United States. I am not aware of any other major investor-owned utility that uses a three-
13 part rate design as its default or standard residential rate offering. Moreover, I am not
14 aware of any other utility in the country that forces residential customers to choose
15 between a three-part rate design and a time-variant rate. The mandatory aspect of this—
16 that residential customers would have to be on a time-variant rate or a demand charge
17 rate—is unprecedented and represents the most aggressive push in residential rate design
18 I have seen in the country. Additionally, I am not aware of any utility that has default
19 time-variant rates.

20 In addition to the proposed structural changes in standard rates for residential
21 customers, the Company's proposal to more than double the fixed customer charge is
22 also troubling. First, the customer-related costs are inflated by including costs that do

1 not truly vary with the number of customers. Second, increasing fixed charges has the
2 effect of lowering the volumetric energy rate, which muddies the price signal for
3 customers and can therefore lead to inefficient use of electricity.
4

V. A. RESIDENTIAL DEMAND CHARGES

5 **Q: ARE NON-COINCIDENT DEMAND CHARGES FOR RESIDENTIAL**
6 **CUSTOMERS CONSISTENT WITH THE PRINCIPLE OF COST CAUSATION?**

7 A: No. While it is true that demand charges are common and generally accepted in
8 commercial and industrial rates, residential customers exhibit dramatically different and
9 less consistent usage patterns than commercial and industrial customers. Demand
10 charges can work as an approximation for non-residential causation of capacity costs
11 because non-residential customers' maximum demands are usually coincident with
12 system peak. The same is not true for the diverse residential customer class. Exhibit
13 MG-4, a recent publication from the Regulatory Assistance Project ("RAP"), discusses
14 this issue in detail, noting that among other things with respect to cost causation, "The
15 rough accuracy that exists for using non-coincident peak (NCP) demand charges for
16 large commercial customers is woefully inaccurate for residential customers."¹⁴ For solar
17 distributed generation customers, the disconnect is particularly troubling because a solar
18 customer's non-coincident peak demand is even more likely to occur outside of peak
19 times that drive system capacity needs. For instance, it is more likely to occur on a
20 cooler, cloudy day or later in the evening when the solar system is not operating at full
21 capacity.

¹⁴ Jim Lazar, "Use Great Caution in Design of Residential Demand Charges" at p. 15, Attached as Exhibit MG_4

1

2 Q. **WOULD A TYPICAL RESIDENTIAL CUSTOMER BE ABLE TO RELIABLY**
3 **MANAGE THEIR ELECTRIC DEMAND IN ORDER TO AVOID HIGH**
4 **DEMAND CHARGES?**

5 A. No. Adapting to demand charges requires investments in advanced technology that are
6 not feasible for a typical customer because of high cost and lack of availability. The
7 customer would have to couple the advanced technology with significant behavioral
8 adjustments. The behavioral adjustments are possible but difficult, and ineffective unless
9 coupled with the right technology. Accordingly, an affluent and fairly sophisticated
10 customer might have the resources to undertake these measures, but a typical customer
11 will not have the luxury of the time, money and attention required to constantly manage
12 their electric demand in order to avoid punitively high demand charges.

13

14 Q. **PLEASE ELABORATE ON WHY IT WOULD BE DIFFICULT FOR**
15 **RESIDENTIAL CUSTOMERS TO MITIGATE DEMAND CHARGES WITH**
16 **BEHAVIORAL ADJUSTMENTS.**

17 A. Managing demand requires a customer to first know and understand what demand is on a
18 conceptual level, how their demand varies, and how each individual load within their
19 residence contributes to that demand. Since OG&E does not currently offer even an opt-
20 in residential demand rate, it is reasonable to conclude that the vast majority of OG&E's
21 customers are totally unfamiliar with this type of rate design, how their energy usage

1 patterns would affect their electricity bills under a demand rate design, and ultimately
2 how to reliably manage their use in order to reduce demand charges.

3 Even assuming that customer understanding would improve over time,
4 controlling demand under the 15-minute demand charge that OG&E proposes would
5 require constant vigilance and control on the part of all members of a household.
6 Demand charges can be managed by staggering the use of appliances and other
7 household electric loads, but this is far easier said than done. It only takes one instance
8 of lack of attention, or one instance of a compelling need to use a series of appliances at
9 the same time, to result in a high demand charge for the entire month. For instance, a
10 homeowner may need to cook dinner and dry clothes while children are watching
11 television and the refrigerator and the HVAC system happen to cycle on. Many
12 residential electric demands may indeed be flexible much of the time, but times of
13 inflexibility frequently occur.

14
15 **Q. WHAT BARRIERS DO YOU SEE TO RELYING ON TECHNOLOGICAL**
16 **SOLUTIONS TO DEMAND MANAGEMENT FOR RESIDENTIAL**
17 **CUSTOMERS?**

18 **A.** While it is true that technological solutions such as smart appliances, demand
19 controllers, and battery storage are available, the reality is they are not affordable to most
20 customers. Simple, less expensive energy management solutions such as programmable
21 thermostats cannot be relied upon to reduce 15-minute demand with unfailing
22 consistency. Reliable measures such as battery storage or demand controls currently are

1 expensive and not widely available. In practice, a typical residential customer is likely
2 to find it extremely difficult to reliably manage a 15-minute demand charge.

3
4 Q. **YOU SAY BEHAVIORAL ADJUSTMENTS FOR THE PURPOSE OF DEMAND**
5 **MANAGEMENT WOULD BE DIFFICULT FOR RESIDENTIAL CUSTOMERS,**
6 **BUT WOULD THIS SAME CHALLENGE NOT APPLY TO TIME-OF-USE**
7 **RATES?**

8 A. With time-of-use rates, the challenge is more controllable and far more intuitive. A
9 residential customer on a time-of-use rate will indeed accrue higher charges if they are
10 unable to shift energy use to off-peak periods. However, the effect of inflexibility under
11 a time-of-use rate is far less sensitive to unusual or infrequent variations in use because a
12 single instance does not set the charge for an entire month. A time-of-use charge for a
13 month is reflective of a customer's average use during peak periods, and is not affected
14 by past usage during the same billing period. In this respect it allows greater flexibility
15 and provides a consistent incentive to the customer throughout a billing period to shift
16 usage toward periods of less demand. This incentive is consistent with the cost-causation
17 principle that TOU communicates a price signal to customers to consistently and
18 habitually reduce or avoid electricity usage at times when system costs are high.

19 A demand charge, on the other hand, does not send a customer a price signal that
20 they can consistently and habitually respond to with the effect of reducing system costs.
21 It sets a benchmark that progressively increases throughout the month. That is, once a
22 high demand is hit, the marginal cost of demand throughout the rest of month is zero for

1 all demand below that point. The only incentive for energy conservation is the
2 volumetric energy charge, which itself has been reduced by the addition of the demand
3 rate. In other words, demand charges (and high fixed charges) violate sound rate design
4 policy in that they fail to align with system costs, and tend to dissuade energy efficiency
5 and conservation because they reduce the price signal communicated by volumetric
6 rates.

7
8 **Q. ARE DEMAND CHARGES COMMON IN RESIDENTIAL RATE DESIGNS?**

9 A. No. Dr. Faruqui cites in Exhibit AF-2 that he has identified 18 utilities that offer
10 residential demand rates. Of these, only 10 are investor-owned utilities. There are
11 approximately 170 investor-owned utilities in the United States currently, and several
12 thousand publicly-owned utilities and electric cooperatives. It is also important to
13 emphasize that, as Dr. Faruqui to his credit notes, most of these demand rates require the
14 customer to opt-in to the rate. Thus, not only is customer participation voluntary, the
15 customer has to exercise an affirmative choice prior to being placed on the rate. Of the
16 18 examples that Dr. Faruqui cites, none are mandatory for most residential customers.

17 Those with any type of mandatory provision are limited to very large residential
18 customers, and to customers with distributed generation in the case of the Salt River
19 Project and Black Hills Power in Wyoming. In fact, in the case of Westar Energy, the
20 demand rate is not actually available to new customers, and several of the other
21 examples actually contain restrictions that appear to be designed to protect customers.
22 For instance, Otter Tail Power (comprising three of the cited examples) only permits

1 customers with a UL-approved demand controller to enroll in the rate, while Longmont
2 Utilities and Fort Collins Utilities in Colorado limit enrollment to electric heating
3 customers, and in the case of Longmont those with annual energy use of 15,000 kWh or
4 more.

5
6 **Q. IS THERE EVIDENCE THAT RESIDENTIAL CUSTOMERS FIND DEMAND**
7 **RATES ACCEPTABLE OR ATTRACTIVE GENERALLY?**

8 A. No. The optional demand rate offered by Arizona Public Service, which Dr. Faruqui
9 cites as an example of a residential demand rate with a relatively large subscription
10 base¹⁵ uses a 60-minute interval and is also limited to applying between the hours of
11 noon to 7 PM on non-holiday weekdays. Despite a design that offers somewhat more
12 flexibility to customers, and the fact that Arizona Public Service has offered a residential
13 demand rate since the late 1970's¹⁶, the rate is not well-subscribed. As Dr. Faruqui notes
14 in Exhibit AF-2, Arizona Public Service has more than 1 million residential customers,
15 putting participation in the optional demand rate at around 10% of residential customers.
16 As observed by one of Dr. Faruqui's colleagues at the Brattle Group, apart from the
17 Arizona Public Service rate and one offered by Black Hills Power in South Dakota and
18 Wyoming, enrollments in optional residential demand rates are "well below 1 percent."¹⁷

19

¹⁵ Direct Testimony of Ahmad Faruqui, p. 12, line 13 (December 18, 2015).

¹⁶ Leland Snook and Meghan Grabel. "There and Back Again". *Public Utilities Fortnightly*. November 2015.

¹⁷ Ryan Hledik. "Rediscovering Residential Demand Charges". *The Electricity Journal*. Volume 27, Issue 7, August–September 2014, p. 85.

1 Q. **HOW WOULD YOU CHARACTERIZE RESIDENTIAL CUSTOMERS'**
2 **EXPERIENCE AND INTEREST IN MOVING TO DEMAND RATES?**

3 A. By and large, residential customers lack experience with demand rates because even opt-
4 in rates are rare. But the most relevant fact here is that OG&E's residential customers
5 have zero experience with this type of charge. While OG&E has not performed specific
6 pricing research on customer interest, a good indicator of customer aversion to demand
7 rates are the customers themselves. Over the past several months, it is my understanding
8 that hundreds of Oklahomans who are either OG&E customers or customers of another
9 utility who are likely afraid that "they are next," have submitted public comments in
10 open dockets opposing demand charges. In addition, the lack of participation by
11 residential customers in other jurisdictions is an indication of either a general lack of
12 awareness, knowledge or interest.

13

14 Q. **HAVE RESIDENTIAL DEMAND CHARGES FOUND FAVOR WITH**
15 **REGULATORY COMMISSIONS IN OTHER STATES?**

16 A. By and large, no. A number of utilities have proposed to apply demand charges to
17 residential distributed generation customers, but thus far, I am aware of no commission
18 that has approved the broad deployment of a mandatory three-part rate design for
19 residential customers, and only one has approved such a change for residential
20 distributed generation customers. That single example, Black Hills Power in Wyoming,
21 is further distinguished by the fact that it arose only in a stipulated settlement and was
22 not supported by any substantive testimony, cost of service analysis, or an analysis of

1 distributed generation costs and benefits.¹⁸ On the opposing side, the commissions in
2 California, Idaho, and Nevada have rejected demand charges for residential distributed
3 generation customers, and proposals have been withdrawn under settlements in
4 Georgia,¹⁹ Kansas,²⁰ Montana²¹ and South Dakota.²² Settlements eliminating similar
5 demand charge proposals are awaiting regulatory approval in Montana and Texas.²³

6
7 **Q. WHAT REASONS HAVE OTHER REGULATORY COMMISSIONS GIVEN**
8 **FOR THE REJECTING RESIDENTIAL DEMAND CHARGES?**

9 A. The Idaho decision, issued in 2013 in a net metering tariff revision proceeding,
10 rejected a proposal by the Idaho Power Company over concerns that it was inconsistent
11 with the Idaho Energy Plan, would discourage investment in distributed generation, and
12 was more properly considered in a general rate case.²⁴ The California Public Utilities
13 Commission (“CPUC”) has rejected the deployment of residential demand rates on two
14 recent occasions. First, in its investigation of potential changes to residential rate design,

¹⁸ Wyoming Public Service Commission. Case No. 13788. *In The Matter Of The Application Of Black Hills Power, Inc., For A General Rate Increase Of \$2,782,883 Per Annum In Its Retail Electric Service Rates.*

¹⁹ Georgia Public Service Commission. Docket No. 36989. *Georgia Power’s 2013 Rate Case.* Order Adopting Settlement Agreement. December 23, 2013.

²⁰ Kansas Corporation Commission. Docket No. 15-WSEE-115-RTS. *In the Matter of the Application of Westar Energy, Inc. and Kansas Gas and Electric Company to Make Certain Changes in Their Charges for Electric Service.* Order Approving Stipulation and Agreement. September 24, 2015.

²¹ Montana Public Service Commission. Docket No. D2015.6.51. *In the Matter of the Application of Montana-Dakota Utilities Co. for Authority to Establish Increased Rates for Electric Service in the State of Montana.* Order No. 7433f. March 25, 2016.

²² South Dakota Public Utilities Commission. Docket No. EL14-026. *In the Matter of the Application of Black Hills Power, Inc. for Authority Increase its Electric Rates.* Black Hills withdrew its residential distributed generation demand charge proposal in a revised filing dated April 11, 2014.

²³ Public Utilities Commission of Texas. Case No. 44941. *Application of the El Paso Electric Company to Change Rates.* Settlement Stipulation and Joint Motion. Filed March 29, 2016.

²⁴ Idaho Public Utilities Commission. Case No. IPC-E-12-27. *In the Matter of Idaho Power Company’s Application for Authority to Modify its Net Metering Service and Increase the Generation Capacity Limit.* Order No. 32846. July 3, 2013.

1 it declined to allow San Diego Gas & Electric to develop a pilot residential demand rate
2 due to concerns over customer understanding and acceptance.²⁵ The CPUC then rejected
3 demand rate proposals from two utilities (Pacific Gas & Electric and San Diego Gas &
4 Electric) in its net metering successor tariff proceeding, finding that residential DG
5 customers would understand demand charges no better than the residential class as a
6 whole.²⁶

7 Finally, in 2015 the Public Utilities Commission of Nevada (“PUCN”) declined
8 to adopt demand rates for residential distributed generation customers, finding that the
9 level of customer acceptance of such a design is unknown and that implementing a
10 demand rate for these customers would require additional ratepayer education.²⁷

11
12 **Q. IS THERE ANY EVIDENCE THAT DISTRIBUTED GENERATION**
13 **CUSTOMERS ARE MORE EQUIPPED TO MANAGE ELECTRIC DEMAND**
14 **THAN THE AVERAGE RESIDENTIAL CUSTOMER?**

15 **A.** I am not aware of any study or evidence to this effect, nor apparently is the CPUC
16 despite its multi-year investigation into residential rate design. OG&E has certainly not
17 provided any evidence for consideration in this proceeding. There is a dearth of
18 information on residential customer response to demand rates generally, let alone any

²⁵ California Public Utilities Commission. Docket No. R.12-06-013. *Order Instituting Rulemaking on the Commission’s Own Motion to Conduct a Comprehensive Examination of Investor Owned Electric Utilities’ Residential Rate Structures, the Transition to Time Varying and Dynamic Rates, and Other Statutory Obligations.* D.15-07-001. July 13, 2015.

²⁶ California Public Utilities Commission. Docket No. R.14-07-002. *Order Instituting Rulemaking to Develop a Successor to Existing Net Energy Metering Tariffs Pursuant to Public Utilities Code Section 2827.1, and to Address Other Issues Related to Net Energy Metering.* D.16-01-044. February 5, 2016.

²⁷ Nevada Public Utilities Commission. Docket No. 15-07041. *Application of Nevada Power Company d/b/a NV Energy for Approval of a Cost of Service Study and Net Metering Tariffs.* Modified Final Order. February 17, 2016. This order also covers a similar application by Sierra Pacific Power in Docket No. 15-07042.

1 that address distributed generation customers. Dr. Faruqui cites only four such general
2 studies, one from Norway and three others that date from the 1980's.²⁸ Notably, he does
3 not cite any statistics from these studies or how they are relevant to OG&E's proposal.
4

5 **Q. DO YOU HAVE ANY RECOMMENDATIONS FOR THE COMMISSION**
6 **REGARDING OG&E'S RESIDENTIAL DEMAND RATE PROPOSAL?**

7 A. I recommend that the Commission reject the imposition of a default demand rate for
8 residential customers.

V. B. RESIDENTIAL CUSTOMER CHARGE INCREASE

9 **Q: WHAT INCREASE TO THE RESIDENTIAL CUSTOMER CHARGE IS THE**
10 **COMPANY PROPOSING IN THIS PROCEEDING?**

11 A: The Company is proposing to more than double the monthly fixed charge from \$13.00 to
12 \$26.54, across all residential schedules.²⁹
13

14 **Q. HOW WOULD THIS CUSTOMER CHARGE COMPARE TO THOSE**
15 **AUTHORIZED FOR OTHER UTILITIES THROUGHOUT THE COUNTRY?**

16 A. OG&E's proposed charge would be the highest customer charge in the more than 100
17 investor-owned utilities whose tariffs I reviewed.

²⁸ Direct Testimony of Ahmad Faruqui, p. 10-11, line 25 on p. 10 to line 5 on p. 11.

²⁹ Wai Direct, p. 9, Table 1.

1 **Q: WHAT TYPES OF COSTS ARE ORDINARILY INCLUDED IN A MONTHLY**
2 **CUSTOMER CHARGE OF THIS SORT?**

3 A: Typically, customer charges such as this are intended to collect only costs that vary with
4 the number of customers, rather than costs driven by the volume of electricity consumed.

5
6 **Q: WHAT TYPES OF COSTS DOES THE COMPANY SEEK TO RECOVER WITH**
7 **THIS SUBSTANTIALLY LARGER MONTHLY CUSTOMER CHARGE?**

8 A: According to Company Witness Scott, the Company believes the customer charge
9 “should recover metering costs, local distribution facilities, and customer billing and care
10 costs.”³⁰ When asked what is included in the category of “local distribution facilities,” as
11 used by Mr. Scott in TASC DR 5-3, the Company responded by attaching a single page
12 from the NARUC manual which states that FERC accounts 369 (Services), 370
13 (Meters), 371 (Installations on Customer Premises), and 373 (Street Lighting and Signal
14 Systems) are classified as “customer-related” costs.

15 However, the sentence that is cut off at the top of the excerpted page discusses
16 how these are the non-controversial categories. As the manual notes, the classification of
17 the accounts listed directly above is not as controversial as the classification of some
18 costs as customer-related costs (allocated based on the number of customers) rather than
19 demand-related costs (allocated on the basis of customer demand):

20 The preceding discussion of the merits of minimum-system versus the
21 zero-intercept classification schemes will affect the major distribution-
22 plant accounts for FERC Accounts 364 through 368. Several other plant
23 accounts remain to be classified. While the classification of the following
24 distribution-plant accounts [e.g., 369, 370, 371, 373] is an important step,

³⁰ Direct Testimony of Bryan J. Scott at p.4 lines 24-25.

1 it is not as controversial as the classification of substations, poles,
2 transformers, and conductors.”³¹

3 **Q: WHAT “LOCAL DISTRIBUTION COSTS” DOES THE COMPANY CLAIM TO**
4 **BE “CUSTOMER-RELATED DISTRIBUTION COSTS” THAT VARY WITH**
5 **THE NUMBER OF CUSTOMERS?**

6 A: Company Witness Smith states that “[c]ustomer-related distribution costs are limited to
7 the costs that vary directly with the number of customers (except for meters and lighting
8 costs which are directly assigned)” and that “[t]hese costs include poles, conductors,
9 underground conduit, service drops, transformers, and associated expenses.”³²

10
11 **Q: DO YOU AGREE THAT THESE COSTS VARY WITH THE NUMBER OF**
12 **CUSTOMERS RATHER THAN WITH THE AMOUNT OF ELECTRICITY**
13 **USED BY CUSTOMERS?**

14 A: No. While costs such as service drops are customer-specific, it does not follow that
15 conductors and transformers vary with the number of customers. Outside of dedicated
16 transformers, line transformers are often shared and evaluated on the anticipated demand
17 of customers using those assets, including consideration of customer diversity.
18 According to the NARUC manual including these costs can be controversial.³³
19 Continually expanding the category of items that are recoverable in the fixed customer
20 charge serves the utility’s desire to increase the certainty of cost recovery.

³¹ *Electric Utility Cost Allocation Manual* (NARUC), January 1992, available at pubs.naruc.org/pub/53A3986F-2354-D714-51BD-23412BCFEDFD. (Excerpt attached as Exhibit MG-5).

³² Direct Testimony of David Smith at p. 16, lines 17 through 22 (December 18, 2015).

³³ See Exhibit MG_5.

1 In Order No. 564437 in Cause No. PUD 200800144, the Commission approved
2 Public Service Company of Oklahoma’s (“PSO”) request to continue to collect
3 distribution costs on a demand basis. As PSO noted in that case, it “used a demand-only
4 allocator for distribution costs in Accounts 364-368 because the distribution system
5 poles, wires, and conduit contained in those accounts are sized to meet the maximum
6 load demand imposed on the system and the cost of those facilities does not vary directly
7 with the number of customers, unlike distribution costs such as service drops and meters,
8 which are allocated based on the number of customers.”³⁴ OG&E’s position on inclusion
9 of these costs in the customer charge is unorthodox in Oklahoma.

10
11 **Q: DOES THE COMPANY’S TESTIMONY EXPLAIN WHETHER IT IS USING A**
12 **MINIMUM-SYSTEM APPROACH OR A ZERO-INTERCEPT APPROACH?**

13 A: Yes. Company Witness Smith states that FERC accounts 364-368 “are considered both
14 demand and customer related and are classified based on the zero-intercept methodology
15 as supported by the NARUC Cost Allocation Manual.”³⁵ He further states that “[t]his
16 zero-intercept methodology was approved in Cause No. PUD 200800398 and is
17 consistent with the OG&E’s previous rate case.”³⁶

18
19 **Q: DID THE COMMISSION’S ORDER IN THAT CAUSE SPECIFICALLY**
20 **ADDRESS WHETHER THE COMPANY HAD PROPERLY USED THE ZERO-**
21 **INTERCEPT METHOD TO CLASSIFY CUSTOMER-RELATED COSTS?**

³⁴ Order No. 564437 at p. 34.

³⁵ Direct Testimony of David Smith at pp. 15-16.

³⁶ *Id.* at p. 16, lines 2-3.

1 A: No. The Commission approved a settlement stipulation and did not address the merits of
2 the zero-intercept method directly.

3

4 **Q: DID THE CUSTOMER CHARGE APPROVED IN CAUSE NO. 2008-00398**
5 **RECOVER ALL CUSTOMER-RELATED COSTS THE COMPANY**
6 **DETERMINED USING THE ZERO-INTERCEPT METHOD?**

7 A: No. The amount of the customer charge approved in the last case was based on a
8 settlement stipulation. The settlement stipulation adopts OG&E's cost of service and
9 allocation methodologies, but does not specifically address whether it properly applied
10 the zero-intercept method to classify certain distribution costs as customer-related.³⁷ The
11 Commission has not directly addressed whether it is appropriate to incorporate these
12 wires, poles, conduit, transformer and conductor costs as a customer-related cost. This
13 remains an area of controversy and OG&E's proposal to double its customer charge rests
14 on the supposition that the Commission has accepted the inclusion of these types of
15 demand-related costs in a customer-related classification. Clearly, there is no consensus,
16 either in Oklahoma or nationally, in what elements of the distribution system should be
17 classified as customer costs (i.e., those that vary with the number of customers).

18

19 **Q: DOES INCREASING RECOVERY OF FIXED COSTS, BEYOND THOSE THAT**
20 **ARE CLEARLY "CUSTOMER-RELATED" COSTS THROUGH A FIXED**
21 **CHARGE ENCOURAGE CUSTOMERS TO REDUCE ELECTRICITY**
22 **CONSUMPTION?**

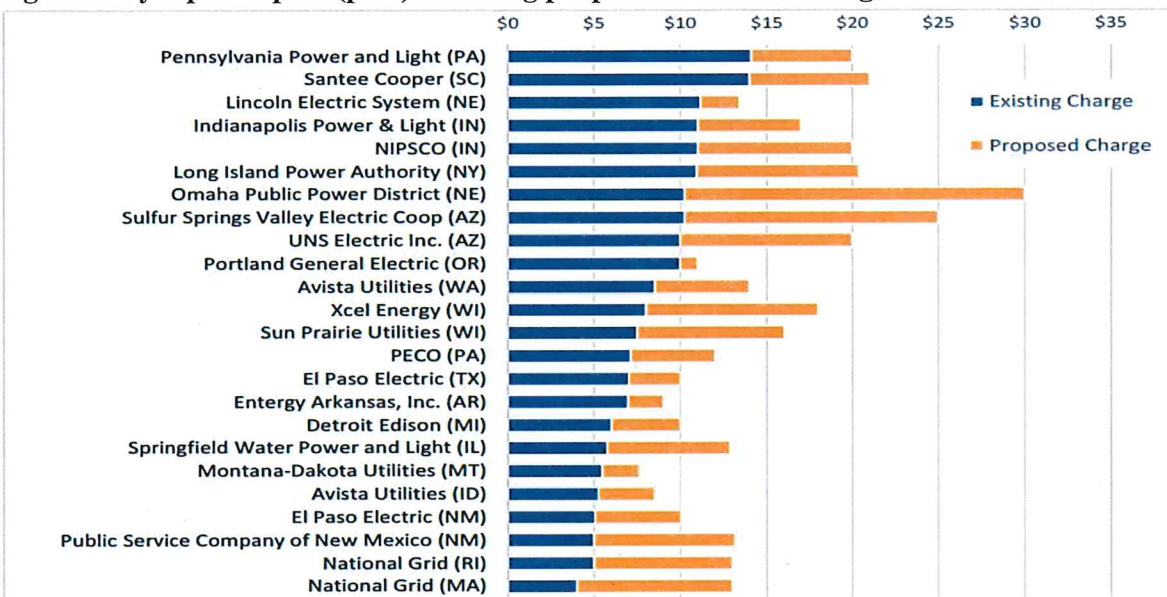
³⁷ *Joint Stipulation and Settlement Agreement*, Cause No. PUD 2008-00398 (filed July 2, 2009).

1 A: No, it does the opposite. Increasing the share of fixed costs recovered through a fixed
2 charge means that the share of fixed costs recovered through the energy charge is
3 reduced. This muffles the price signal in volumetric rates that encourages customers to
4 consume less electricity, or to self-generate electricity in lieu of purchasing the next unit
5 from the grid. Thus, increasing reliance on fixed charges to recover fixed costs runs
6 counter to important policy considerations of encouraging customer behaviors that help
7 reduce consumption of electricity and, ultimately, help lessen long-run system costs by
8 reducing the investments needed to provide service to all customers. Regardless of
9 whether the rate structure is flat, tiered, or time-variant, increasing the share of recovery
10 of fixed costs through a fixed customer charge reduces the ability of the energy rate to
11 effectively communicate to customers to reduce their overall (or time-specific)
12 electricity consumption.

13 **Q: IS THERE A GENERAL TREND IN THE UTILITY INDUSTRY TO TRY TO**
14 **INCREASE RELIANCE ON FIXED MONTHLY CHARGES TO RECOVER**
15 **FIXED COSTS?**

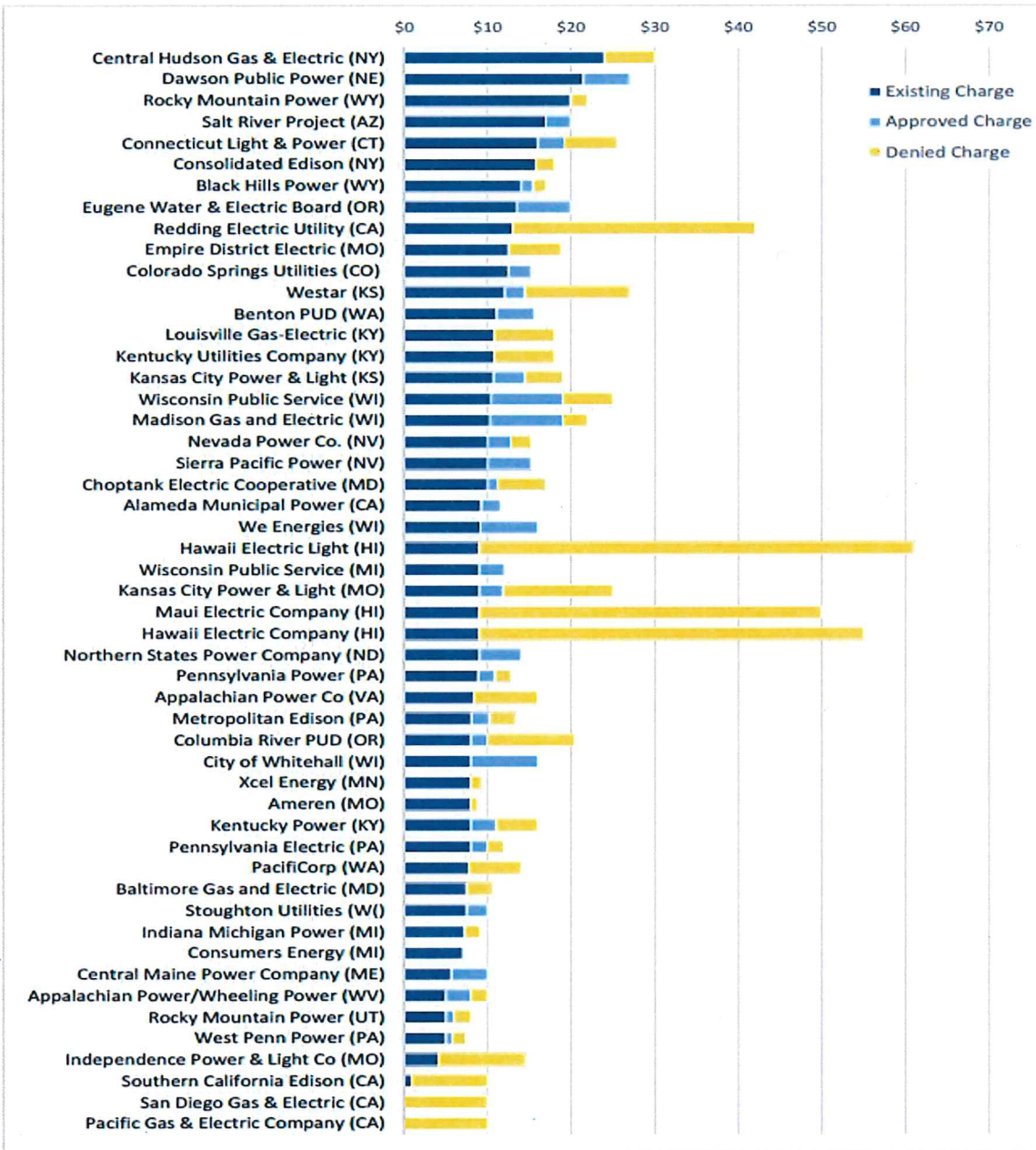
16 A: Yes, as Figure 1 below, illustrates, a large number of utilities have sought substantial
17 increases to their residential monthly fixed charge in the past two years.

Figure 1. Synapse Report (p.10): Pending proposals for fixed charge increases.



- 1 **Q: HOW ARE REGULATORS ADDRESSING THESE REQUEST TO**
- 2 **DRAMATICALLY INCREASE FIXED MONTHLY CHARGES?**
- 3 **A: Regulators have repeatedly denied or reduced fixed charge increases.**

Figure 2. Synapse Report (p.11): Recent decisions regarding fixed charge proposals.



1 Notably, the National Association of State Utility Consumer Advocates adopted a
2 resolution last summer opposing the increased reliance on customer charges to collect a
3 greater portion of utility fixed costs through this unavoidable charge.³⁸
4

5 **Q: DO YOU HAVE A RECOMMENDATION FOR THE COMMISSION**
6 **REGARDING THE COMPANY'S PROPOSAL TO DOUBLE THE**
7 **RESIDENTIAL CUSTOMER FIXED CHARGE?**

8 A: Yes. I recommend that the Commission adhere to the status quo level of the fixed
9 charge, as the Company has not demonstrated the need to increase reliance on fixed
10 charges to adequately recover its fixed costs. Absent a compelling justification for that
11 substantial shift in policy, I would recommend that the Commission err on the side of
12 continuity and maintain the same proportionality of the current fixed customer charge as
13 a percentage of overall costs. The Commission should also ensure that only customer-
14 related costs are being classified in this manner (and collected in this manner), to prevent
15 the gradual creep toward fixed charges for larger and larger portions of the distribution
16 system.

VI. CLASS COST OF SERVICE STUDY AND RESIDENTIAL DG LOAD STUDY

17 **Q: THE "MASTER CHECKLIST" INCLUDES A SUBCATEGORY FOR**
18 **"SEPARATE CLASS FOR DISTRIBUTED GENERATION (DG) CUSTOMERS."**
19 **DID THE COMPANY'S CLASS COST OF SERVICE STUDY TREAT**
20 **DISTRIBUTED GENERATION CUSTOMERS AS THEIR OWN CLASS?**

³⁸ The National Association of State Utility Consumer Advocates Resolution 2015-1, Attached as Exhibit MG_6.

1 A: Yes. The COSS creates a separate “Residential-DG” class and a “General Service-DG”
2 class for purposes of the analysis.

3

4 **Q: DOES THE COMPANY’S CLASS COST OF SERVICE STUDY REVEAL ANY**
5 **INFORMATION RELEVANT TO THE CONSIDERATION OF WHETHER A**
6 **SEPARATE CHARGE OR RATE IS JUSTIFIED?**

7 A: Yes. The COSS reveals that residential DG customers, on a unit basis, are less costly to
8 serve than other residential customers. Table 2 compiles the unit cost analyses in
9 Schedule L-8.1, 8.2 and 8.3 to give a comparative look at the unit costs associated with
10 the various residential schedules.

11

Table 2. Comparative Residential Unit Cost Per Customer/Month³⁹					
	Res-DG	Res-Std	Res-TOU	Res-VPP	Res-CPP
Customer Component	\$24.54	\$28.64	\$26.07	\$27.20	\$24.57
Energy Component	\$0.35	\$0.37	\$0.45	\$0.42	\$0.39
Demand-Production	\$17.65	\$35.19	\$38.17	\$26.44	\$29.71
Demand-Transmission	\$5.20	\$9.78	\$10.69	\$7.60	\$8.40
Demand-Distribution	\$11.03	\$13.08	\$13.19	\$14.37	\$11.89
Total	\$58.77	\$87.06	\$88.57	\$76.03	\$74.96

12 **Q: WHAT APPEARS TO DRIVE THE SIGNIFICANTLY LOWER UNIT COSTS**
13 **FOR RESIDENTIAL DG CUSTOMERS?**

³⁹ Derived from W/P L-8.1 – 8.3.

1 A: The categories where Residential DG is significantly less expensive on a unit basis are
 2 those where costs are allocated to the class based on the 4 CP allocators (i.e., production
 3 and transmission demand). This suggests that the residential customers with DG have
 4 significantly smaller contributions to system peaks than other residential customers.

5 Looking to W/P Schedule L-13, at page 10, Residential DG's percentage share of
 6 total residential class contribution to system peak demand is significantly lower in the
 7 months from June to September than its percentage share of contribution to system peak
 8 demand for the other months. In fact, Residential DG cuts its averaged share of the
 9 residential contribution to system peak in half in the 4 CP months when compared to the
 10 average over the non-4 CP months.

Table 3. Residential DG Share of Residential Contribution to Peak in Test Year.⁴⁰					
	Res-DG	Res-Std	Res-TOU	Res-VPP	Res-CPP
Avg. Share of Residential Contribution to System Peak Demand (Oct.-May)	0.036%	83.198%	0.569%	16.075%	0.123%
Avg. Share of Residential Contribution to System Peak Demand (June-Sept.)	0.018%	86.986%	0.573%	12.308%	0.114%

11 **Q: IS THE FACT THAT RESIDENTIAL DG CUSTOMERS CONTRIBUTE LESS**
 12 **TO SYSTEM PEAK RELEVANT FOR CONSIDERATION OF THE**
 13 **CHECKLIST?**

14 A: Yes, the purpose of the checklist was to give the Commission sufficient information to
 15 determine the threshold question of whether a subsidy is occurring within the residential

⁴⁰ Derived from W/P Schedule L-13.

1 class. The fact that residential DG customers are significantly less costly to serve, when
2 analyzed as a separate class, is an important indicator that they are creating system
3 benefits. Thus, the Staff and stakeholders had considerable foresight in requiring a COSS
4 that looks at residential DG as a separate class, as that information has proven to be quite
5 revealing.

6
7 **Q: DOES THE FACT THAT RESIDENTIAL DG CUSTOMERS ARE LESS**
8 **COSTLY TO SERVE REQUIRE THEM TO BE TREATED AS A SEPARATE**
9 **CLASS FOR RATEMAKING PURPOSES?**

10 A: No. The Master Checklist called for a COSS to look at the cost to serve residential DG
11 as a separate class as an analytical exercise to determine if a subsidy is occurring in favor
12 of DG customers at the expense of the general body of residential ratepayers. Neither
13 S.B. 1456 nor the Master Checklist presupposes or suggests that residential DG
14 customers should be a separate class.

15
16 **Q: WOULD THE CURRENT R-TOU CLASS BENEFIT FROM RETAINING DG**
17 **CUSTOMERS ON THAT SCHEDULE?**

18 A: Yes. Because Residential DG customers have a lower contribution to the 4 CPs than all
19 other residential schedules, it would follow that they would help lower the contributions
20 to system peak for R-TOU customers if they remained on that schedule.

1 **Q: DOES THE COMPANY PROVIDE ANY JUSTIFICATION FOR TREATING**
2 **RESIDENTIAL DG CUSTOMERS AS A SEPARATE CLASS FOR**
3 **RATEMAKING PURPOSES?**

4 A: No. Although the new COSS presents vital new information about residential DG
5 customers, the Company's testimony lacks discussion of the impact of the COSS results
6 for the Residential DG class on the legal requirements of S.B. 1456. Given the fact that
7 the Commission has yet to approve the Company's proposal in Cause No. 2015-00274,
8 this lack of discussion is perplexing, and perhaps indicates the Company did not want to
9 focus attention on the fact that its COSS shows DG customers actually subsidize other
10 residential customers.

11
12 **Q: WHAT IS THE RELEVANCE OF THE CLASS COST OF SERVICE STUDY**
13 **RESULTS FOR THE RESIDENTIAL DG CLASS TO THE LEGAL**
14 **REQUIREMENTS OF S.B. 1456?**

15 A: First, the COSS shows that Residential DG customers are not being subsidized. Instead,
16 they are providing a subsidy to other residential customers, as they provide the highest
17 rate of return on rate base of all of the residential classes. Second, the results of OG&E's
18 COSS demonstrate that the Company's effort in Cause No. PUD 2015-00274, using an
19 outdated COSS, was wholly inadequate to demonstrate that DG customers are
20 subsidized. With the knowledge that residential DG customers are providing substantial
21 peak reduction benefits to the grid — and to other customers in the class by reducing
22 allocations to the class—the results of the current COSS suggest that residential DG

1 customers are actually paying in excess of their cost of service. In Cause No. PUD
2 2015-00274, it would have been impossible for the Company to provide this picture, as
3 they lacked load data on residential DG customers.⁴¹
4

5 **Q: DID THE COMPANY HAVE A LOAD STUDY IN SUPPORT OF ITS CLASS**
6 **COST OF SERVICE STUDY?**

7 A: Yes. In response to TASC Data Request 6-2, the Company provided an explanation of
8 this study and provided a spreadsheet showing the 8760 data for the Residential DG
9 class and General Service-DG class.
10

11 **Q: PLEASE GENERALLY DESCRIBE THE APPROACH THE COMPANY TOOK**
12 **TO CREATE A DG LOAD PROFILE.**

13 A: As described by the Company in its response to TASC DR 6-2, the Company started
14 with the mean-per-unit (“MPU”) load shape and then performed several adjustments to
15 end up with a net profile. To account for the fact that residential net metering customers
16 are capable of both receiving and supplying kWh over the course of a 60-minute period,
17 the Company created a calculation that nets the “net flowing in” and the “net flowing
18 out” over that period. However, the Company states that if the outflow in an hour
19 exceeds the inflow, the negative reading would be changed to zero.⁴²
20

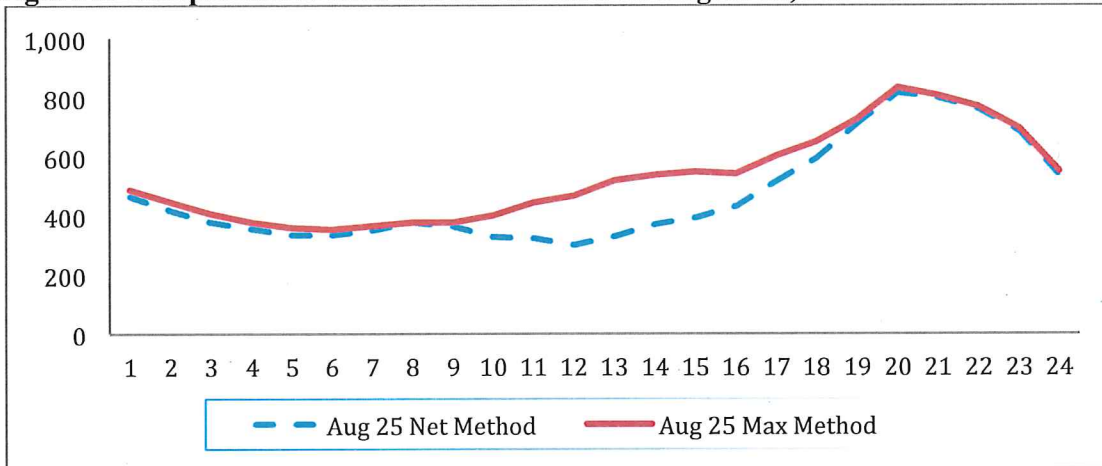
⁴¹ Transcript of Proceedings in Cause No. PUD No. 2015-00274, December 2, 2015, RDH 10

⁴² See TASC Data Request to OG&E 6-2 (Response Provided by Bryan Scott on March 22, 2016), attached as Exhibit MG-7.

1 Q: DO YOU AGREE WITH THE COMPANY THAT IT IS PROPER TO
2 SUBTRACT THE “NET FLOWING OUT” FROM THE “NET FLOWING IN”
3 TO DETERMINE THE FINAL MPU LOAD SHAPE FOR DG CUSTOMERS?

4 A: Yes. It is reasonable to treat electricity that is exported by a customer as a load reduction
5 in the measured period. A customer’s electricity export is consumed by nearby load and
6 represents a quantity of electricity that the Company was not called upon to generate and
7 is rightly assigned to DG customers. The net load method reflects capacity value over the
8 hour period, so it is appropriate to count “net flowing out” as reducing the load profile of
9 the residential customer. Figure 3 shows the impact of the net load method.

Figure 3: Comparison of Max and Net Method on August 25, 2014 for Residential DG.⁴³



10 As shown in Figure 3, the “Net” method recognizes DG customers’ reduction of
11 contribution to system peak. With the Company’s system peak demand occurring during
12 the test year on August 25, 2014 at 1600 hours, the dotted line shows an approximate

⁴³ Derived from data in TASC 6-2_Att.

1 20% reduction from what the residential DG customers' demand would have been at
2 coincident peak under the Max Method (solid line). It is important to note that even with
3 the Max method, a customer is likely consuming onsite solar behind the meter,
4 significantly reducing load at times of system peak. Accordingly, the net method is an
5 appropriate means of reflecting the fact that exports to the grid have value and help to
6 offset the transmission and production costs allocated by 4 CP.
7

8 **Q: DO YOU AGREE THAT IT IS PROPER TO REPLACE ANY NEGATIVE NET**
9 **FLOW IN ANY HOUR WITH A ZERO?**

10 A: No. This suggests that any capacity value the Company is recognizing for exported kWh
11 is being limited arbitrarily and that some portion (potentially large) of customer
12 generation is being ignored and not valued. Even if it were proper to assign a zero for
13 load research purposes, the ability of exported electricity to reduce demand on the grid is
14 a benefit that should be quantified and carefully considered when determining whether
15 subsidization is occurring. While typical customer demand can never be below zero, this
16 framing ignores the benefit of solar exports to the grid. The load research for DG, in this
17 regard, does not give a full picture of the benefit of all exported electricity to the grid,
18 including the ability of those exports to reduce line losses for electricity delivered to
19 other nearby customers.
20

1 **Q: DOES THE DG LOAD STUDY SUGGEST THAT DG CUSTOMERS ARE**
 2 **HELPING REDUCE PEAK DEMAND BY REDUCING CUSTOMER**
 3 **CONTRIBUTION TO PEAKS AT TIMES OF SYSTEM PEAK?**

4 **A:** Yes. For four of the highest demand months (June, July, August, September), the system
 5 peak occurs at 1600 hours, a time where solar production is still quite significant. Using
 6 the average production profile for the months of June through September from the
 7 publicly available tool PV Watts, it appears that solar would likely be contributing an
 8 average range of 20 to 50% of its highest hourly output at the times of system peak.

Table 4. Average Solar Production Profile for a 5 kW PV System in Oklahoma City Using Standard Assumptions on NREL's PV Watt Production.⁴⁴				
hour	June	July	August	September
5	0.04	0.02	0.00	0.00
6	0.27	0.19	0.13	0.07
7	0.88	0.81	0.70	0.57
8	1.60	1.57	1.52	1.37
9	2.23	2.20	2.22	2.03
10	2.65	2.75	2.70	2.49
11	3.04	2.94	2.91	2.81
12	3.14	3.11	3.12	2.89
13	2.95	3.11	3.02	2.80
14	2.69	2.77	2.70	2.43
15	2.26	2.34	2.27	1.90
16	1.60	1.77	1.58	1.25
17	0.87	0.98	0.81	0.47
18	0.28	0.29	0.17	0.05
19	0.04	0.04	0.01	0.00

9 Thus, solar is providing significant peak reduction, regardless of whether solar peak
 10 output is perfectly correlated with system peak. This is just one example of the types of

⁴⁴ Data derived from PV Watts, the solar free online solar calculation tool published by the National Renewable Energy Laboratory, available at <http://pvwatts.nrel.gov/>. The average solar production profile for August was based on a 5 kW fixed PV system using default inputs on tilt and azimuth.

1 benefits that the Company's application should have explored in reference to the Master
2 Checklist.

3
4 **Q: WITH THE COST OF SERVICE STUDY SHOWING THAT THERE IS NO**
5 **SUBSIDIZATION OCCURRING, AND WITH S.B. 1456 BARRING AN**
6 **ADDITIONAL FEE OR SUCHARGE, SHOULD THE COMPANY STILL BE**
7 **REQUIRED TO FULFILL THE MASTER CHECKLIST?**

8 A: Yes. Even if the Company withdraws its DG proposals from this case, it is important to
9 understand and capture the cost saving benefits that customer-side DG can create. If the
10 Company ignores the benefits created by customer's own private investment, then it
11 might also ignore other cost saving opportunities, particularly where it relates to
12 opportunities to defer or avoid distribution, transmission or generation capacity. The
13 Company's COSS suggests that it is in ratepayers' interests for DG customers to be
14 encouraged to make investments in these beneficial technologies. Keeping DG
15 customers within the classes they belong, and not segregating and punishing them with
16 draconian rate designs, will produce savings that spread among other customers in the
17 class, and across the system as a whole.

18
19 **VII. CONCLUSION**

20 **Q: DOES THIS CONCLUDE Y OUR TESTIMONY?**

21 A: Yes, it does.

Exhibit MG_1

MARK E. GARRETT

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EDUCATION:

Juris Doctor Degree, With Honors, Oklahoma City University Law School, 1997
Post Graduate Hours in Accounting, Finance and Economics, 1984-85:
University of Texas at Arlington; University of Texas at Pan American;
Stephen F. Austin State University
Bachelor of Arts Degree, University of Oklahoma, 1978

CREDENTIALS:

Member Oklahoma Bar Association, 1997, License No. 017629
Certified Public Accountant in Oklahoma, 1992, Certificate No. 11707-R
Certified Public Accountant in Texas, 1986, Certificate No. 48514

WORK HISTORY:

GARRETT GROUP, LLC - REGULATORY CONSULTING PRACTICE (1996 - Present)

Participates as a consultant and expert witness in electric utility, natural gas distribution company, and natural gas pipeline matters before regulatory agencies making recommendations related to cost-based rates. Reviews management decisions of regulated utility companies for reasonableness from a ratemaking perspective especially regarding the reasonableness of prices paid for natural gas supplies and transportation, coal supplies and transportation, purchased power and renewable energy projects. Participates in gas gathering, gas transportation, gas contract and royalty valuation disputes to determine pricing and damage calculations and to make recommendations concerning the reasonableness of charges to royalty and working interest owners and other interested parties. Participates in regulatory proceedings to restructure the electric and natural gas utility industries. Participates as an Instructor at NMSU Center for Public Utilities and as a Speaker at NARUC Staff Subcommittee on Accounting and Finance.

OKLAHOMA CORPORATION COMMISSION - Coordinator of Accounting and Financial Analysis (1991 - 1994)

Planned and supervised the audits of major public utility companies doing business Oklahoma for the purpose of determining revenue requirements. Presented both oral and written testimony as an expert witness for Staff in defense of numerous accounting and financial recommendations related to cost-of-service based rates. Audit work and testimony covered all areas of rate base and operating expense. Supervised, trained and reviewed the audit work of numerous Staff CPAs and auditors. Promoted from Supervisor of Audits to Coordinator in 1992.

FREEDOM FINANCIAL CORPORATION - Controller (1987 - 1990)

Responsible for all financial reporting including monthly and annual financial statements, cash flow statements, budget reports, long-term financial planning, tax planning and personnel development. Managed the General Ledger and Accounts Payable departments and supervised a staff of seven CPAs and accountants. Reviewed all subsidiary state and federal tax returns and facilitated the annual independent financial audit and all state or federal tax audits. Received promotion from Assistant Controller in September 1988.

SHELBY, RUCKSDASHEL & JONES, CPAs - Auditor (1986 - 1987)

Audited the financial statements of businesses in the state of Texas, with an emphasis in financial institutions.

Previous Experience Related to Cost-of-Service, Rate Design, Pricing and Energy-Related Issues

1. **Texas Gas Service, 2016 (Docket No. 10488)** – Participating as an expert witness on behalf of South Jefferson County Service Area (“SJCSA”) before the Texas Railroad Commission in TGS’s General Rate Case application, sponsoring testimony to address the utility’s overall revenue requirement and various rate design proposals.
2. **Oklahoma Gas and Electric Company, 2016 (Cause No. PUD 201500273)** – Participating as an expert witness on behalf of Oklahoma Industrial Energy Consumers (“OIEC”) and Oklahoma Energy Results, LLC (“OER”) before the Oklahoma Corporation Commission in OG&E’s General Rate Case application. Sponsoring testimony to address the utility’s overall revenue requirement and rate design proposals.
3. **Oklahoma Gas and Electric Company, 2016 (Cause No. PUD 201500273)** – Participating as an expert witness on behalf of The Alliance for Solar Choice (“TASC”) before the Oklahoma Corporation Commission in OG&E’s General Rate Case application. Sponsoring rate design testimony to address the utility’s proposed new rates for distributed generation customers.
4. **Anchorage Municipal Light and Power, 2016 (Docket No. U-13-097)** – Participating as an expert witness before the Alaska Regulatory Utility Commission on behalf of Providence Health and Services to provide testimony on rates and tariffs proposed for customer-owned combined heat and power plant generation.
5. **Oklahoma Natural Gas Company, 2015 (Cause No. PUD 201500213)** – Participated as an expert witness on behalf of the OIEC before the Oklahoma Corporation Commission in ONG’s General Rate Case application. Sponsored testimony to address the utility’s overall revenue requirement and rate design proposals.
6. **Oklahoma Gas & Electric Company, 2015 (Cause No. PUD 201500274)** – Participated as an expert witness on behalf of The Alliance for Solar Choice (“TASC”) before the Oklahoma Corporation Commission to address OG&E’s proposed Distributed Generation (“DG”) rates for solar DG customers.
7. **Nevada Power Company, 2015 (Docket No. 15-07004)** – Participated as an expert witness on behalf of the Southern Nevada Hotel Group (“SNHG”)¹ before the Nevada PUC. Sponsoring written and oral testimony in NPC’s 2015 Integrated Resource Plan to provide analysis of the On Line transmission line allocation, the Siverhawk plant acquisition, and the Griffith contract termination.
8. **Oklahoma Gas & Electric Company, 2015 (Docket No. 15-034-U)** – Participated as an expert witness on behalf of the Arkansas River Valley Energy Consumers (“ARVEC”)² before the Arkansas Public Service Commission in OG&E’s Act 310 application to implement a rider to recover environmental compliance costs.
9. **MGM Resorts, LLC, 2015 (Docket No. 15-05017)** – Participating as an expert witness on behalf of the MGM Resorts, LLC before the Nevada PUC. Sponsoring written and oral testimony in MGM’s application to purchase energy and capacity from a provider other than Nevada Power.

¹ The Southern Nevada Hotel Group is comprised of Boyd Gaming, Caesars Entertainment, MGM Resorts, Station Casinos, Venetian Casino Resort, and Wynn Las Vegas.

² ARVEC is an association of industrial manufacturing facilities in northwest Arkansas.

10. **Entergy Arkansas, 2015 (Docket No. 15-015-U)** – Participating as an expert witness on behalf of the Hospital and Higher Education Group (“HHEG”) an intervener group that includes the University of Arkansas and several hospitals before the Arkansas PSC in Entergy’s general rate case to provide testimony on various revenue requirement issues.
11. **Public Service Company of Oklahoma, 2015 (Cause No. PUD 201500208)** – Participating as an expert witness on behalf of OIEC before the OCC in AEP/PSO’s general rate case application to provide testimony on various cost-of-service issues and on the utility’s overall revenue requirement and rate design proposals.
12. **Nevada Power Company, 2014 (Docket No. 14-05003)** – Participated as an expert witness on behalf of the Southern Nevada Hotel Group (“SNHG”) before the Nevada PUC. Sponsored written and oral testimony in NPC environmental compliance case, called the Emissions Reduction and Capacity Replacement case. The main focus of our testimony was our recommendation to eliminate the \$438M Moapa solar project from the compliance plan.
13. **Nevada Power Company, 2014 (Docket No. 14-05004)** – Participated as an expert witness on behalf of the Southern Nevada Hotel Group before the Nevada PUC to sponsor written and oral testimony in both the revenue requirement phase and the rate design phase of the proceedings to establish prospective cost-of-service based rates for the power company.
14. **Oklahoma Gas and Electric Co., 2014 (Cause No. PUD 201400229)** – Participating as an expert witness on behalf of Oklahoma Industrial Energy Consumers (“OIEC”)³ in OG&E’s Environmental Compliance and Mustang Modernization Plan before the Oklahoma Corporation Commission to provide testimony addressing the economics and rate impacts of the plan.
15. **Sourcegas Arkansas, Inc., 2014 (Docket No. 13-079-U)** Participated as an expert witness on behalf of the Hospital and Higher Education Group (“HHEG”), an intervener group that includes the University of Arkansas and several hospitals before the Arkansas PSC in SGA’s general rate case to provide testimony on various revenue requirement issues.
16. **Anchorage Municipal Light and Power, 2014 (Docket No. U-13-184)** – Participating as an expert witness before the Alaska Regulatory Utility Commission on behalf of Providence Health and Services to provide testimony on various revenue requirement and cost of service issues.
17. **Public Service Company of Oklahoma, 2014 (Cause No. PUD 201300217)** – Participating as an expert witness on behalf of OIEC before the OCC in AEP/PSO’s general rate case application to provide testimony on various cost-of-service issues and on the utility’s overall revenue requirement and rate design proposals.
18. **Entergy Texas Inc., 2013 (PUC Docket No. 41791)** – Participating as an expert witness on behalf of the Cities⁴ in ETI’s general rate case to provide testimony on various cost of service issues and on the utility’s overall revenue requirement.
19. **MidAmerican/NV Energy Merger, 2013 (Docket No. 13-07021)** – Participated as an expert witness on behalf of the Southern Nevada Hotel Group (“SNHG”) before the Nevada PUC. Sponsored testimony to address various issues raised in the proposed acquisition of NV Energy by MidAmerican

³ OIEC is an association of approximately 25 large commercial and industrial customers in Oklahoma.

⁴ The Cities include Beaumont, Conroe, Groves, Houston, Huntsville, Orange, Navasota, Nederland, Pine Forest, Pinehurst, Port Arthur, Port Neches, Rose City, Shenandoah, Silsbee, Sour Lake, Vidor, and West Orange.

Energy Holdings Company, including capital structure and acquisition premium recovery issues.

20. **Entergy Arkansas, 2013 (Docket No. 13-028-U)** – Participated as an expert witness on behalf of the Hospital and Higher Education Group (“HHEG”) an intervener group that includes the University of Arkansas and several hospitals before the Arkansas PSC in Entergy’s general rate case to provide testimony on various revenue requirement issues.
21. **Sierra Pacific Power Company, 2013 (Docket No. 13-06002)** – Participated as an expert witness on behalf of the Northern Nevada Utility Customers⁵ before the Nevada PUC in SPPC’s general rate case proceeding to provide testimony on various cost of service and revenue requirement issues. Sponsored written and oral testimony in the depreciation phase, the revenue requirement phase and the rate design phase of these proceedings.
22. **Gulf Power Company, 2013 (Docket No. 130140-EI)** – Participated as an expert witness on behalf of the Office of Public Counsel before the Florida Commission in Gulf Power’s general rate case proceeding to provide testimony on various revenue requirement issues.
23. **Public Service Company of Oklahoma, 2013 (Cause No. PUD 201200054)** – Participating as an expert witness on behalf of the OIEC before the Oklahoma Corporation Commission (“OCC”) to provide testimony in PSO’s application seeking Commission approval of its settlement agreement with EPA.
24. **Southwestern Electric Power Company, 2012 (PUC Docket No. 40443)** – Participated as an expert witness on behalf of Cities Advocating Reasonable Deregulation (“CARD Cities”) before the Texas Public Utility Commission in SWEPCO’s general rate case proceeding to provide testimony on various cost of service issues and on the utility’s overall revenue requirement.
25. **Doyon Utilities, 2012 Alaska Rate Case (Docket No. TA7-717)** – Participated as an expert witness consultant on behalf of the Department of Defense to provide expert testimony in twelve rate case reviews for the utility systems of Fort Wainwright, Fort Greely and Joint Base Elmendorf-Richardson before the Regulatory Commission of Alaska.
26. **University of Oklahoma, 2012** – Participated as an expert witness on behalf of the University of Oklahoma to provide expert testimony on various revenue requirement issues in the University’s general rate case with the Corix Group, which provides utility services to the University.
27. **Public Service Company of Oklahoma, 2012 (Cause No. PUD 201200079)** – Participated as an expert witness on behalf of the OIEC before the Oklahoma Corporation Commission to provide expert testimony addressing the utility’s request to earn additional compensation on a 510MW purchased power agreement with Exelon
28. **Centerpoint Energy Texas Gas, 2012 (Docket No. GUD 10182)** – Participated as an expert witness on behalf of the Steering Committee of Cities before the Texas Railroad Commission to provide expert testimony on various revenue requirement issues.
29. **Entergy Texas Inc., 2012 (PUC Docket No. 39896)** – Participated as an expert witness on behalf of the Cities in ETI’s general rate case to provide testimony on various cost of service issues and on the utility’s overall revenue requirement.

⁵ The Northern Nevada Utility Consumers is a group of large commercial and industrial customers in the SPPC service territory.

30. **Oklahoma Natural Gas Company, 2012 (Cause No. PUD 2012-029)** – Participating as an expert witness on behalf of the OIEC before the OCC in ONG’s Performance Based Rate (“PBR”) application seeking Commission approval of a requested rate increase based upon formula results for 2011.
31. **University of Oklahoma, 2012** – Assisted the University of Oklahoma with an audit of the costs associated with its six utility operations and its contract with the Corix Group to provide utility services to the university.
32. **Oklahoma Gas and Electric Company, 2012 (Cause No. PUD 2011-186)** – Participating as an expert witness on behalf of the OIEC before the OCC in OG&E’s application seeking Commission approval of a special contract with Oklahoma State University and a wind energy purchase agreement in connection therewith.
33. **Empire Electric Company, 2011, (Cause No. PUD 11-082)** – Participated as an expert witness on behalf of Enbridge before the OCC in Empire’s rate case to provided testimony in both the revenue requirement and rate design phases of the proceedings to establish prospective cost-of-service based rates for the power company.
34. **Nevada Power Company, 2011, (Docket No. 11-04010)** - Participated as an expert witness on behalf of the Southern Nevada Hotel Group (“SNHG”) before the Nevada PUC. Sponsored written and oral testimony to address proposed changes to the Company’s customer deposit rules.
35. **Nevada Power Company, 2011, (Docket No. 11-06006)** - Participated as an expert witness on behalf of the Southern Nevada Hotel Group before the Nevada PUC. Sponsored written and oral testimony in both the revenue requirement phase and the rate design phase of the proceedings to establish prospective cost-of-service based rates for the power company.
36. **Public Service Company of Oklahoma, 2011 (Cause No. PUD 2011-106)** – Participated as an expert witness on behalf of the OIEC before the OCC in PSO’s application seeking rider recovery of third party SPP transmission costs and fees.
37. **Oklahoma Gas and Electric Company, 2011 (Cause No. PUD 2011-087)** – Participating as an expert witness on behalf of OIEC before the OCC in OG&E’s rate case to provided testimony in both the revenue requirement and rate design phases of the proceedings to establish prospective cost-of-service based rates for the power company.
38. **Oklahoma Gas & Electric Company, 2011 (Docket No. 10-109-U)** – Participated as an expert witness on behalf of Gerdau Macsteel before the Arkansas Public Service Commission in OG&E’s application to recover Smart Grid costs to make recommendations regarding the allocation of the Smart Grid costs.
39. **Oklahoma Gas & Electric Company, 2011 (Cause No. PUD 2011-027)** – Participated as an expert witness on behalf of the OIEC before the OCC in OG&E’s application seeking to include retire medical expense in the Company’s pension tracker mechanism.
40. **Public Service Company of Oklahoma, 2011 (Cause No. PUD 2010-50)** – Participated as an expert witness on behalf of OIEC before the Oklahoma Corporation Commission in AEP/PSO’s application to recover ice storm O&M expenses through a regulatory asset/rider mechanism to address tax impact and return issues in the proposed rider.
41. **Public Service Company of Colorado, 2011 (Docket No. 10AL-908E)** – Participated as an expert

witness on behalf of the Colorado Retail Council (“CRC”) before the Colorado Public Utilities Commission providing written and live testimony to address PSCo’s proposed Environmental Tariff.

42. **Oklahoma Gas & Electric Company, 2011 (Docket No. 10-067-U)** – Participated as an expert witness on behalf of the Northwest Arkansas Industrial Energy Consumers (“NWIEC”)⁶ before the Arkansas Public Service Commission in OG&E’s general rate case application to provide testimony on various revenue requirement, cost of service and rate design issues.
43. **Oklahoma Gas & Electric Company, 2010 (Cause No. PUD 2010-146)** – Participated as an expert witness on behalf of the OIEC before the OCC in OG&E’s application seeking rider recovery of third party SPP transmission costs and SPP administration fees.
44. **Massachusetts Electric Co. & Nantucket Electric Co. d/b/a National Grid, 2010 (Docket No. DPU 10-54)** – Participated as an expert witness providing both written and live testimony before the Massachusetts Department of Public Utilities on behalf of the Associated Industries of Massachusetts (“AIM”) to address the Company’s proposed participation in the 438MW Cape Wind project in Nantucket Sound.
45. **Public Service Company of Oklahoma, 2010 (Cause No. PUD 2010-50)** – Participated as an expert witness on behalf of the OIEC before the OCC in AEP/PSO’s general rate case application to provide testimony on various cost-of-service issues and on the utility’s overall revenue requirement and rate design proposals.
46. **Texas-New Mexico Power Co., 2010 (Docket 38480)** – Participating as an expert witness on behalf of the Alliance of Texas Municipalities (“ATM”) before the Texas PUC in TMNP’s general rate case application to address various revenue requirement and rate design issues to establish prospective cost-of-service based rates.
47. **Southwestern Public Service Co., 2010 (PUCT Docket No. 38147)** – Participating as an expert witness on behalf of the Alliance of Xcel Municipalities (“AXM”) in the SPS general rate case application to provide testimony before the Texas Public Utility Commission regarding rate base and operating expense issues and sponsor the AXM Accounting Exhibits.
48. **Oklahoma Gas & Electric Company, 2010 (Cause No. PUD 2010-37)** – Participating as an expert witness on behalf of OIEC before the OCC to address the preapproval and ratemaking treatment of OG&E’s 220MW self-build wind project.
49. **Oklahoma Gas & Electric Company, 2010 (Cause No. PUD 2010-29)** – Participated as an expert witness on behalf of the OIEC before the OCC in OG&E’s application seeking pre-approval of deployment of smart-grid technology and rider-recovery of the associated costs. Sponsored written testimony to address smart-grid deployment and time-differentiated fuel rates.
50. **Public Service Company of Oklahoma, 2010 (Cause No. PUD 2010-01)** – Participated as an expert witness on behalf of the OIEC before the OCC in the Company’s proposed Green Energy Choice Tariff. Sponsored testimony to address the pricing and ratemaking treatment of the Company’s proposed wind subscription tariff.
51. **Nevada Power Company, 2010 (Docket No. 10-02009)** – Participated as an expert witness on behalf of the Southern Nevada Hotel Group (“SNHG”) before the Nevada PUC to provide testimony in NPC’s Internal Resource Plan to address the ratemaking treatment of the proposed ON Line

⁶ NWIEC is an association of industrial manufacturing facilities in northwest Arkansas.

transmission line.

52. **Entergy Texas Inc., 2010 (PUC Docket No. 37744)** – Participating as an expert witness on behalf of the Cities in ETI's general rate case to provide testimony on various cost of service issues and on the utility's overall revenue requirement.
53. **El Paso Electric Company, 2010 (PUC Docket No. 37690)** – Participated as an expert witness on behalf of the City of El Paso in the EPI general rate case to provide testimony on various cost of service issues and on the utility's overall revenue requirement.
54. **Public Service Company of Oklahoma, 2009 (Cause No. 09-196)** – Participated as an expert witness on behalf of the OIEC before the OCC in PSO's application for approval of DSM programs and cost recovery. Sponsored testimony to address program costs, lost revenue recovery, cost allocations and incentives.
55. **Oklahoma Gas and Electric Company, 2009 (Cause No. PUD 09-230 and 09-231)** – Participated as an expert witness on behalf of OIEC before the OCC in OG&E's application to add wind resources from two purchased power contracts. Sponsored written testimony to address the proper ratemaking treatment of the contract costs and the renewable energy certificates.
56. **Oklahoma Gas and Electric Company, 2009 (Cause No. PUD 08-398)** – Participated as an expert witness on behalf of OIEC before the OCC in OG&E's rate case. Provided testimony in both the revenue requirement and rate design phases of the proceedings to establish prospective cost-of-service based rates for the power company.
57. **Nevada Power Company, 2009, (Docket No. 08-12002)** - Participated as an expert witness on behalf of the Southern Nevada Hotel Group before the Nevada PUC. Sponsored written and oral testimony in both the revenue requirement phase and the rate design phase of the proceedings to establish prospective cost-of-service based rates for the power company.
58. **Public Service Company of Oklahoma, 2009 (Cause No. 09-031)** – Participated as an expert witness on behalf of OIEC before the OCC in PSO's application to add wind resources from two purchased power contracts. Sponsored written testimony to address the proper ratemaking treatment of the contract costs and the renewable energy certificates.
59. **Oklahoma Natural Gas Co., 2009 (Cause No. PUD 08-348)** – Participated as an expert witness on witness on behalf of the OIEC before the OCC in ONG's application to establish a Performance Based Rate tariff. Sponsored both written and oral testimony to address the merits of the utility's proposed PBR.
60. **Rocky Mountain Power, 2009 (Docket No. 08-035-38)** – Participated as an expert witness on behalf of the Division of Public Utilities (Staff) in PacifiCorp's general rate case to provide testimony on various revenue requirement issues.
61. **Texas-New Mexico Power Co., 2008 (Docket 36025)** – Participating as an expert witness on behalf of the Alliance of Texas Municipalities ("ATM") before the Texas PUC in TMNP's general rate case application to address various revenue requirement and rate design issues to establish prospective cost-of-service based rates.
62. **Public Service Company of Oklahoma, 2008 (Cause No. 08-144)** – Participated as an expert witness on behalf of the OIEC before the OCC in PSO's general rate case application to address revenue requirement and rate design issues to establish prospective cost-of-service based rates.

63. **Public Service Company of Oklahoma, 2008 (Cause No. 08-150)** – Participated as an expert witness on behalf of the OIEC before the OCC to address PSO’s calculation of its Fuel Clause Adjustment for 2008.
64. **Oklahoma Gas and Electric Company, 2008 (Cause No. PUD 08-059)** – Participated as an expert witness on behalf of the OIEC before the OCC in OG&E’s application seeking authorization of its Demand Side Management (“DSM”) programs and the establishment of a DSM Rider to recover program costs, lost revenues and utility incentives.
65. **Entergy Gulf States, 2008 (PUC Docket No. 34800, SOAH Docket No. 473-08-0334)** – Participated as an expert witness on behalf of the Cities in EGSI’s general rate case to provide testimony on various cost of service issues and on the utility’s overall revenue requirement.
66. **Public Service Company of Oklahoma, 2008 (Cause No. 07-465)** – Participated as an expert witness on behalf of the OIEC before the OCC in PSO’s application to recover the pre-construction costs of the cancelled Red Rock coal generation facility.
67. **Oklahoma Gas and Electric Company, 2008 (Cause No. 07-447)** – Participating as an expert witness on behalf of the OIEC before the OCC in OG&E’s application seeking authorization to recover the pre-construction costs of the cancelled Red Rock coal generation facility using proceeds from sales of excess SO₂ allowances.
68. **Rocky Mountain Power, 2008 (Docket No. 07-035-93)** – Participating as an expert witness on behalf of Division of Public Utilities (Staff) in PacifiCorp’s general rate case to provide testimony on various revenue requirement issues.
69. **Public Service Company of Oklahoma, 2008 (Cause No. PUD 07-449)** – Participated as an expert witness on behalf of the OIEC before the OCC in PSO’s application seeking authorization of its Demand Side Management (“DSM”) programs and the establishment of a DSM Rider to recover program costs, lost revenues and utility incentives.
70. **Public Service Company of Oklahoma, 2008 (Cause No. PUD 07-397)** – Participated as an expert witness on behalf of OIEC before the OCC in PSO’s application seeking authorization to defer storm damage costs in a regulatory asset account and to recover the costs using the proceeds from sales of excess SO₂ allowances.
71. **Oklahoma Gas & Electric Co., 2007 (Cause No. PUD 07-012)** – Participated as an expert witness on behalf of OIEC before the OCC in OG&E’s application seeking pre-approval to construct the Red Rock coal plant to address the Company’s proposed rider recovery mechanism.
72. **Oklahoma Natural Gas Co., 2007 (Cause No. PUD 07-335)** – Participated as an expert witness on behalf of the OIEC before the OCC in ONG’s application proposing alternative cost recovery for the Company’s ongoing capital expenditures through the proposed Capital Investment Mechanism Rider (“CIM Rider”). Sponsored testimony to address ONG’s proposal.
73. **Public Service Company of Oklahoma, 2007 (Cause No. PUD 06-030)** – Participated as an expert witness on behalf of the OIEC before the OCC in PSO’s application seeking a used and useful determination for its planned addition of the Red Rock coal plant to address the Company’s use of debt equivalency in the competitive bidding process for new resources.
74. **Public Service Company of Oklahoma, 2006 (Cause No. PUD 06-285)** – Participated as an expert

witness on behalf of the OIEC before the OCC in PSO's general rate case application to address various revenue requirement and rate design issues to establish prospective cost-of-service based rates.

75. **Nevada Power Company, 2007, (Docket No. 07-01022)** - Participated as an expert witness on behalf of the MGM MIRAGE before the Nevada PUC in Nevada Power Company's deferred energy docket to determine the level of prudent company expenditures for fuel and purchased power.
76. **Nevada Power Company, 2006, (Docket No. 06-11022)** - Participated as an expert witness on behalf of the MGM MIRAGE properties before the Nevada PUC. Sponsored written and oral testimony in both the revenue requirement phase and the rate design phase of the proceedings to establish prospective cost-of-service based rates for the power company.
77. **Southwestern Public Service Co., 2006 (PUCT Docket No. 37766)** – Participated as an expert witness on behalf of the Alliance of Xcel Municipalities (“AXM”) in the SPS general rate case application. Provided testimony before the Texas Public Utility Commission regarding rate base and operating expense issues and sponsored the Accounting Exhibits on behalf of AXM.
78. **Atmos Energy Corp., Mid-Tex Division, 2006 (Texas GUD 9676)** – Participated as an expert witness in the Atmos Mid-Tex general rate case application on behalf of the Atmos Texas Municipalities (“ATM”). Provided written and oral testimony before the Railroad Commission of Texas regarding the revenue requirements of Mid-Tex including various rate base, operating expense, depreciation and tax issues. Sponsored the Accounting Exhibits for ATM.
79. **Nevada Power Company, 2006 (Docket No. 06-06007)** – Participated as an expert witness on behalf of the MGM MIRAGE in the Sinatra Substation Electric Line Extension and Service Contract case. Provided both written and oral testimony before the Nevada Public Utility Commission to provide the Commission with information as to why the application is consistent with the line extension requirements of Rule 9 and why the cost recovery proposals set forth in the application provide a least cost approach to adding necessary new capacity in the Las Vegas strip area.
80. **Public Service Co. of Oklahoma, 2006 (Cause No. PUD 05-00516)** - Participated as an expert witness on behalf of the OIEC to review PSO's application for a “used and useful” determination of its proposed peaking facility.
81. **Oklahoma Gas and Electric Co., 2006 (Cause No. PUD 06-00041)** – Participated as an expert witness on behalf of the OIEC in OG&E's application to propose an incentive sharing mechanism for SO₂ allowance proceeds.
82. **Chermac Energy Corporation, 2006 (Cause No. PUD 05-00059 and 05-00177)** – Participated as an expert witness on behalf of the OIEC in Chermac's PURPA application. Sponsored written responsive and rebuttal testimony to address various rate design issues arising under the application.
83. **Oklahoma Gas and Electric Co., 2006 (Cause No. PUD 05-00140)** – Participated as an expert witness on behalf of the OIEC in OG&E's 2003 and 2004 Fuel Clause reviews. Sponsored written testimony to address the purchasing practices of the Company, its transactions with affiliates, and the prices paid for natural gas, coal and purchased power.
84. **Nevada Power Company, 2006, (Docket No. 06-01016)** - Participated as an expert witness on behalf of the MGM MIRAGE properties before the Nevada PUC. Sponsored written testimony in NPC's deferred energy docket to determine the level of prudent company expenditures for fuel and purchased power.

85. **Oklahoma Gas and Electric Co., 2005 (Cause No. PUD 05-151)** – Participated as an expert witness on behalf of the OIEC in OG&E’s general rate case application. Sponsored both written and oral testimony before the OCC to address various revenue requirement and rate design issues for the purpose of setting prospective cost-of-service based rates.
86. **Oklahoma Natural Gas Co., 2005 (Cause No. PUD 04-610)** – Participated as an expert witness on behalf of the Attorney General of Oklahoma. Sponsored written and oral testimony to address numerous rate base, operating expense and depreciation issues for the purpose of setting prospective cost-of-service based rates.
87. **CenterPoint Energy Arkla, 2004 (Cause No. PUD 04-0187)** – Participating as an expert witness on behalf of the Attorney General of Oklahoma: Sponsored written testimony to provide the OCC with analysis from an accounting and ratemaking perspective of the Co.’s proposed change in depreciation rates from an Average Life Group to an Equal Life Group methodology. Addressed the Co.’s proposed increase in depreciation rates associated with increased negative salvage value calculations.
88. **Public Service Co. of Oklahoma, 2004 (Cause No. PUD 02-0754)** – Participated as an expert witness on behalf of the OIEC. Sponsored written testimony (1) making adjustments to PSO’s requested recovery of an ICR programming error, (2) correcting errors in the allocation of trading margins on off-system sales of electricity from AEP East to West and among the AEP West utilities and (3) recommending an annual rather than a quarterly change in the FAC rates.
89. **PowerSmith Cogeneration Project, 2004 (Cause No. PUD 03-0564)** - Participated as an expert witness on behalf of the OIEC to provide the OCC with direction in setting an avoided cost for the PowerSmith Cogeneration project under PURPA requirements. Provided both written and oral testimony on the provisions of the proposed contract under PURPA:
90. **Electric Utility Rules for Affiliate Transactions, 2004 (Cause No. RM 03-0003)** – Participated as a consultant on behalf of the OIEC to draft comments to assist the OCC in developing rules for affiliate transactions. Assisted in drafting the proposed rules. Successful in having the Lower of Cost or Market rule adopted for affiliate transactions in Oklahoma.
91. **Nevada Power Company, 2003, (Docket No. 03-10001)** - Participated as an expert witness on behalf of the MGM MIRAGE properties before the Nevada PUC. Sponsored written and oral testimony in both the revenue requirement phase and the rate design phase of the proceedings to establish prospective cost-of-service based rates for the power company.
92. **Nevada Power Company, 2003, (Docket No. 03-11019)** - Participated as an expert witness on behalf of the MGM MIRAGE before the Nevada PUC in Nevada Power Company’s deferred energy docket to determine the level of prudent company expenditures for fuel and purchased power.
93. **Public Service Company of Oklahoma, 2003 (Cause No. PUD 03-0076)** – Participating as an expert witness on behalf of the OIEC before the OCC in PSO’s general rate case application to address various revenue requirement and rate design issues to establish prospective cost-of-service based rates.
94. **Oklahoma Gas & Electric Co., 2003 (Cause No. PUD 03-0226)** – Participated as an expert witness on behalf of the OIEC. Provided both written and oral testimony before the OCC to determine the appropriate level to include in rates for natural gas transportation and storage services acquired from an affiliated company.

95. **Nevada Power Company, 2003 (Docket No. 02-5003-5007)** - Participated as an expert witness on behalf of the MGM Mirage before the Nevada PUC. Sponsored written and oral testimony to calculate the appropriate exit fee in MGM Mirage's 661 Application to leave the system.
96. **McCarthy Family Farms, 2003** – Participated as a consultant to assist McCarthy Family Farms in converting a biomass and biosolids composting process into a renewable energy power producing business in California.
97. **Bice v. Petro Hunt, 2003 (ND, Supreme Court No. 20030306)** - Participated as an expert witness in a class certification proceeding to provide cost-of-service calculations for royalty valuation deductions for natural gas gathering, dehydration, compression, treatment and processing fees in North Dakota.
98. **Nevada Power Company, 2003 (Docket No. 03-11019)** - Participated as a consulting expert on behalf of the MGM Mirage before the Nevada PUC in Nevada Power Company's deferred energy docket to determine the level of prudent company expenditures for fuel and purchased power. Provided written and oral testimony on the reasonableness of the cost allocations to the utility's various customer classes.
99. **Wind River Reservation, 2003 (Fed. Claims Ct. No. 458-79L, 459-79L)** – Participated as a consulting expert on behalf of the Shoshone and Arapaho Tribes to provide cost-of-service calculations for royalty valuation deductions for gathering, dehydration, treatment and compression of natural gas and the reasonableness of deductions for gas transportation.
100. **Oklahoma Gas & Electric Co., 2002 (Cause No. PUD 01-0455)** – Participated as an expert witness on behalf of the OIEC before the OCC. Sponsored written and oral testimony on numerous revenue requirement issues including rate base, operating expense and rate design issues to establish prospective cost-of-service based rates.
101. **Nevada Power Company, 2002 (Docket No. 02-11021)** - Participated as an expert witness on behalf of the MGM Mirage before the Nevada PUC in Nevada Power Company's deferred energy docket to determine the level of prudent company expenditures for fuel and purchased power and to make recommendations with respect to rate design.
102. **Nevada Power Company, 2002 (Docket No. 01-11029)** - Participated as a consulting expert on behalf of the MGM Mirage before the Nevada PUC in Nevada Power Company's deferred energy docket to determine the level of prudent company expenditures for fuel and purchased power included in the Company's \$928 million deferred energy balances.
103. **Nevada Power Company, 2002 (Docket No. 01-10001)** - Participated as an expert witness on behalf of the MGM Mirage before the Nevada PUC. Sponsored written and oral testimony in both the revenue requirement phase and the rate design phase of the proceedings to establish prospective cost-of-service based rates for the power company.
104. **Chesapeake v. Kinder Morgan, 2001 (CIV-00-397L)** - Participated as an expert witness on behalf of Chesapeake Energy in a gas gathering dispute. Sponsored testimony to calculate and support a reasonable rate on the gas gathering system. Performed necessary calculations to determine appropriate levels of operating expense, depreciation and cost of capital to include in a reasonable gathering charge and developed an appropriate rate design to recover these costs.
105. **Southern Union Gas Company, 2001** - Participated as a consultant to the City of El Paso in its review of SUG's gas purchasing practices, gas storage position, and potential use of financial hedging

instruments and ratemaking incentives to devise strategies to help shelter customers from the risk of high commodity price spikes during the winter months.

106. **Nevada Power Company, 2001** - Participated as an expert witness on behalf of the MGM-Mirage, Park Place and Mandalay Bay Group before the Nevada Public Utility Commission to review NPC's Comprehensive Energy Plan (CEP) for the State of Nevada and make recommendations regarding the appropriate level of additional costs to include in rates for the Company's prospective power costs associated with natural gas and gas transportation, coal and coal transportation and purchased power.
107. **Bridenstine v. Kaiser-Francis Oil Co. et al., 2001 (CJ-95-54)** - Participated as an expert witness on behalf of royalty owner plaintiffs in a valuation dispute regarding gathering, dehydration, metering, compression, and marketing costs. Provided cost-of-service calculations to determine the reasonableness of the gathering rate charged to the royalty interest. Also provided calculations as to the average price available in the field based upon a study of royalty payments received on other wells in the area.
108. **Klatt v. Hunt et al., 2000 (ND)** - Participated as an expert witness and filed report in United States District Court for the District of North Dakota in a natural gas gathering contract dispute to calculate charges and allocations for processing, sour gas compression, treatment, overhead, depreciation expense, use of residue gas, purchase price allocations, and risk capital.
109. **Oklahoma Gas and Electric Co., 2000 (Cause No. PUD 00-0020)** - Participated as an expert witness on behalf of the OIEC before the OCC. Sponsored testimony on OG&E's proposed Generation Efficiency Performance Rider (GEPR). Provided a list of criteria with which to measure a utility's proposal for alternative ratemaking. Recommended modifications to the Company's proposed GEPR to bring it within the boundaries of an acceptable alternative ratemaking formula.
110. **Oklahoma Gas and Electric Co., 1999** - Participated as an expert witness on behalf of the OIEC before the OCC. Sponsored testimony on OG&E's proposed Performance Based Ratemaking (PBR) proposal including analysis of the Company's regulated return on equity, fluctuations in the capital investment and operating expense accounts of the Company and the impact that various rate base, operating expense and cost of capital adjustments would have on the Company's proposal.
111. **Nevada Power Company, 1999 (Docket No. 99-7035)** - Participated as an expert witness on behalf of the Mirage, Park Place and Mandalay Bay Group before the Nevada PUC. Sponsored written and oral testimony addressing the appropriate ratemaking treatment of the Company's deferred energy balances, prospective power costs for natural gas, coal and purchased power and deferred capacity payments for purchased power.
112. **Nevada Power Company, 1999 (Docket No. 99-4005)** - Participated as an expert witness on behalf of the Mirage, Park Place and Mandalay Bay Group before the Nevada PUC. Sponsored written and oral testimony to unbundle the utility services of the NPC and to establish the appropriate cost-of-service allocations and rate design for the utility in Nevada's new competitive electric utility industry.
113. **Nevada Power Company, 1999 (Docket No. 99-4005)** - Participated as an expert witness on behalf of the Mirage, Park Place and Mandalay Bay Group before the Nevada PUC. Sponsored written and oral testimony to establish the cost-of-service revenue requirement of the Company.
114. **Nevada Power/Sierra Pacific Merger, 1998 (Docket No. 98-7023)** - Participated as an expert witness on behalf of the Mirage and MGM Grand before the Nevada PUC. Sponsored written and oral testimony to establish (1) appropriate conditions on the merger (2) the proper sequence of regulatory events to unbundle utility services and deregulate the electric utility industry in Nevada (3)

the proper accounting treatment of the acquisition premium and the gain on divestiture of generation assets. The recommendations regarding conditions on the merger, the sequence of regulatory events to unbundle and deregulate, and the accounting treatment of the acquisition premium were specifically adopted in the Commission's final order.

115. **Oklahoma Natural Gas Company, 1998 (Cause No. PUD 98-0177)** - Participated as an expert witness in ONG's unbundling proceedings before the OCC. Sponsored written and oral testimony on behalf of Transok, LLC to establish the cost of ONG's unbundled upstream gas services. Substantially all of the cost-of-service recommendations to unbundle ONG's gas services were adopted in the Commission's interim order.
116. **Public Service Company of Oklahoma, 1997 (Cause No. PUD 96-0214)** - Audited both rate base investment and operating revenue and expense to determine the Company's revenue requirement and cost-of-service. Sponsored written testimony before the OCC on behalf of the OIEC.
117. **Oklahoma Natural Gas /Western Resources Merger, 1997 (Cause No. PUD 97-0106)** - Sponsored testimony on behalf of the OIEC regarding the appropriate accounting treatment of acquisition premiums resulting from the purchase of regulated assets.
118. **Oklahoma Gas and Electric Co., 1996 (Cause No. PUD 96-0116)** - Audited both rate base investment and operating income. Sponsored testimony on behalf of the OIEC for the purpose of determining the Company's revenue requirement and cost-of-service allocations.
119. **Oklahoma Corporation Commission, 1996** - Provided technical assistance to Commissioner Anthony's office in analyzing gas contracts and related legal proceedings involving ONG and certain of its gas supply contracts. Assignment included comparison of pricing terms of subject gas contracts to portfolio of gas contracts and other data obtained through annual fuel audits analyzing ONG's gas purchasing practices.
120. **Tenkiller Water Company, 1996** - Provided technical assistance to the Attorney General of Oklahoma in his review of the Company's regulated cost-of-service for the purpose of setting prospective utility rates.
121. **Arkansas Oklahoma Gas Company, 1995 (Cause No. PUD 95-0134)** - Sponsored written and oral testimony before the OCC on behalf of the Attorney General of Oklahoma regarding the price of natural gas on AOG's system and the impact of AOG's proposed cost of gas allocations and gas transportation rates and tariffs on AOG's various customer classes.
122. **Enogex, Inc., 1995 (FERC 95-10-000)** - Analyzed Enogex's application before the FERC to increase gas transportation rates for the Oklahoma Independent Petroleum Association and made recommendations regarding revenue requirement, cost-of-service and rate design on behalf of independent producers and shippers.
123. **Oklahoma Natural Gas Company, 1995 (Cause No. PUD 94-0477)** - Analyzed a portfolio of ONG's gas purchase contracts in the Company's Payment-In-Kind (PIC) gas purchase program and made recommendations to the OCC Staff on behalf of Terra Nitrogen, Inc. regarding the inappropriate profits made by ONG on the sale of the gas commodity through the PIC program pricing formula. Also analyzed the price of gas on ONG's system, ONG's cost-of-service based rates, and certain class cross-subsidizations in ONG's existing rate design.
124. **Arkansas Louisiana Gas Company, 1994 (Cause No. PUD 94-0354)** - Planned and supervised the rate case audit for the OCC Staff and reviewed the workpapers and testimony of the other auditors on

the case. Sponsored cost-of-service testimony on cash working capital and developed policy recommendations on post test year adjustments.

125. **Empire District Electric Company, 1994 (Cause No. PUD 94-0343)** - Planned and supervised the rate case audit for the OCC Staff and reviewed the workpapers and testimony of other auditors. Sponsored cost-of-service testimony on rate base investment areas including cash working capital.
126. **Oklahoma Natural Gas Company, 1992 through 1993 (Cause No. PUD 92-1190)** - Planned and supervised the rate case audit of ONG for the OCC Staff. Reviewed all workpapers and testimony of the other auditors on the case. Sponsored written and oral testimony on numerous cost-of-service adjustments. Analyzed ONG's gas supply contracts under the Company's PIC program.
127. **Oklahoma Gas and Electric Company, 1991 through 1992 (Cause No. PUD 91-1055)** - Audited the rate base, operating revenue and operating expense accounts of OG&E on behalf of the OCC Staff. Sponsored written and oral testimony on numerous revenue requirement adjustments to establish the appropriate level of costs to include for the purpose of setting prospective rates.