

**STATE OF NEW JERSEY  
BOARD OF PUBLIC UTILITIES**

**In the Matter of the Petition of  
Public Service Electric and Gas Company  
for Approval of an Increase in Electric and Gas  
Rates and for Changes in the Tariffs for  
Electric and Gas Service, B.P.U.N.J.  
No. 16 Electric and B.P.U.N.J. No. 16  
Gas, and for Changes in Depreciation Rates,  
Pursuant to N.J.S.A. 48:2-18,  
N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1, and  
for Other Appropriate Relief**

**BPU Docket Nos. \_\_\_\_\_**

**DIRECT TESTIMONY  
OF  
MICHAEL J. ADAMS**

**Submitted on Behalf  
of  
PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
d/b/a PSE&G**

**January 12, 2018  
P-6**

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1                   **PUBLIC SERVICE ELECTRIC AND GAS COMPANY**  
2                   **DIRECT TESTIMONY**  
3                   **OF**  
4                   **MICHAEL J. ADAMS**  
5                   **SENIOR VICE PRESIDENT, CONCENTRIC ENERGY ADVISORS, INC.**

6   **I.       INTRODUCTION**

7   **Q.       Please state your name and business address.**

8   A.       My name is Michael J. Adams. My business address is 293 Boston Post Road West,  
9   Suite 500, Marlborough, Massachusetts 01752.

10   **Q.       By who are you employed?**

11   A.       I am a Senior Vice President with Concentric Energy Advisors, Inc. (“Concentric”).

12   **Q.       Please describe your educational background and experience.**

13   A.       A summary of my educational background and experience is set forth in Appendix A  
14   to my testimony.

15   **Q.       On whose behalf are you appearing in this proceeding?**

16   A.       I am submitting this direct testimony on behalf of Public Service Electric and Gas  
17   Company (“PSE&G” or “the Company”).

18   **Q.       What is the purpose of your direct testimony?**

19   A.       I was retained by the Company to prepare benchmarking analyses evaluating the  
20   financial and operational performance of PSE&G’s electric and gas business operations.

1 **Q. Please describe the nature of the analyses that you performed to assess PSE&G's**  
2 **performance.**

3 A. As I will discuss in greater detail below, I benchmarked PSE&G's electric business  
4 performance related to cost control, reliability and customer satisfaction against four peer  
5 groups to assess the Company's performance. Similarly, PSE&G's gas business cost control,  
6 effective deployment of resources, and customer satisfaction was benchmarked against four  
7 peer groups of comparable companies. The peer groups evaluated PSE&G's performance  
8 against national, regional and New Jersey companies, as well as the operating companies  
9 included in Company witness Bulkley's return on equity peer group.

10 **Q. Please generally summarize your findings and conclusions based upon the**  
11 **results of the benchmarking analyses.**

12 A. Overall, I found that both PSE&G's electric and gas businesses performed very well  
13 when compared to that of the peer groups, which indicates a well-managed company that is  
14 effectively focused on controlling costs and providing high levels of reliability and customer  
15 satisfaction.

16 **Q. How are you proposing that the results of your benchmarking analyses be used**  
17 **in this rate proceeding?**

18 A. I believe it is reasonable for the Board of Public Utilities (the "BPU") to consider the  
19 Company's performance in areas such as fiscal responsibility, operational performance,  
20 service quality and customer satisfaction when establishing the authorized return for the  
21 Company. Given PSE&G's strong performance in each of these areas, in my opinion, it is  
22 appropriate for the BPU to set PSE&G's ROE at the upper end of the range of return on

1 equity in recognition of the Company's consistently strong cost control, operational  
2 performance, service quality and customer satisfaction.

3 **Q. Are you sponsoring any exhibits with your direct testimony?**

4 A. Yes. I am sponsoring PSE&G Schedules MJA-1 through MJA-24 which are  
5 identified below and discussed in my testimony.

Schedules	Description
MJA-1	Electric Peer Group Composition
MJA-2	Gas Peer Group Composition
MJA-3	Distribution Operations and Maintenance ("O&M") expense per electric customer
MJA-4	Distribution O&M per MWh sold
MJA-5	Administrative and General ("A&G") expense per electric customer
MJA-6	A&G expense per MWh sold
MJA-7	Salaries, Wages, Pensions, and Benefits expense per employee
MJA-8	Total O&M (excluding transmission and production) expense per electric customer
MJA-9	Total O&M (excluding transmission and production) expense per MWh sold
MJA-10	Distribution O&M expense per gas customer
MJA-11	Distribution O&M per Mcf sold
MJA-12	A&G expense per gas customer
MJA-13	A&G expense per Mcf sold
MJA-14	Total Non-Production O&M expense per gas customer
MJA-15	Total Non-Production O&M expense per Mcf sold

MJA-16	SAIFI – BPU
MJA-17	CAIDI – BPU
MJA-18	SAIFI – IEEE
MJA-19	CAIDI – IEEE
MJA-20	SAIDI – IEEE
MJA-21	JD Power - Residential Electric Customers
MJA-22	JD Power - Business Electric Customers
MJA-23	JD Power - Residential Gas Customers
MJA-24	JD Power - Business Gas Customers

1     **II.     SOURCE DATA**

2     **Q.     What years were included in the benchmarking analyses?**

3     A.     I used the most current publicly available information for PSE&G and the peer  
4     companies at the time the analyses were prepared. For both electric and gas businesses,  
5     information for the calendar years 2007 through 2016 was used for the benchmarking  
6     analyses.

7     **Q.     Against what peer groups did you benchmark PSE&G’s electric business**  
8     **operations?**

9     A.     PSE&G was benchmarked against four separate peer groups. The “Electric Group”  
10    included all operating companies classified by SNL as “Electric Utility” or “Diversified  
11    Utility” which owned no regulated generation, and had a customer count of more than

1 500,000. The “Electric Group” included either 20 or 21 companies in each year of the  
2 analyses.<sup>1,2</sup>

3 The “Regional Group” included all companies in the “Electric Group” having electric  
4 distribution operations in Connecticut, Delaware, Maryland, New Jersey, New York, or  
5 Pennsylvania. The “Regional Group” included 15 companies for each year of the analyses.

6 The “New Jersey Group” included all companies with electric distribution operations  
7 in New Jersey. The “New Jersey Group” included four companies for each year of the  
8 analyses.

9 The Return on Equity (“ROE”) proxy group included the operating electric  
10 companies owned by the holding companies included in Company witness Bulkley’s cost of  
11 capital recommendation. The “ROE Proxy Group” included 25 companies from 2010-2016,  
12 24 companies in 2008 and 2009 and 23 companies in 2007.<sup>3</sup>

13 The companies included in each electric peer group are set forth on Schedule MJA-1.

14 **Q. What companies were included in the benchmarking of PSE&G’s gas business?**

15 A. PSE&G was benchmarked against four separate peer groups. The “LDC Group”  
16 included all natural gas distribution companies with a customer count of more than 500,000.  
17 The LDC Group included 40 companies.<sup>4</sup>

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<sup>1</sup> Ameren Illinois was officially created in 2010 and hence does not have data prior to 2010.

<sup>2</sup> The number of companies included in the Salaries, Wages, Pensions, and Benefits expense per employee calculation are slightly lower for each proxy group due to availability of data.

<sup>3</sup> As noted earlier, Ameren Illinois was officially created in 2010. Black Hills Colorado Electric Utility Company, LP was created in 2008 and does not have data for 2007.

<sup>4</sup> The number of companies included in the analysis varied between 37 to 40 due to data availability for certain metrics in certain years.

1 The “Regional Group” included all companies in the “LDC Group” having natural  
2 gas distribution operations in Connecticut, Delaware, Maryland, New Jersey, New York, or  
3 Pennsylvania. There were 11 companies in the Regional Group.

4 The “New Jersey Group” included all companies with natural gas distribution  
5 operations in New Jersey. The “New Jersey Group” included four companies for each year of  
6 the analyses.

7 The Return on Equity (“ROE”) proxy group included the operating gas companies  
8 owned by the holding companies included in Company witness Bulkley’s cost of capital  
9 recommendation. The “ROE Proxy Group” included 41 companies.<sup>5</sup>

10 The companies included in the gas company peer groups are set forth in Schedule  
11 MJA-2.

12 **Q. Is the information that you used to benchmark PSE&G’s electric and gas**  
13 **operations publicly available?**

14 A. Yes. All of the information that was used in the benchmarking analyses was obtained  
15 from publicly available sources. The data relied upon for my analyses was obtained from the  
16 Federal Energy Regulatory Commission (“FERC”); Energy Information Administration  
17 (“EIA”); and filings made with the various state regulatory commissions including the New  
18 Jersey BPU.

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<sup>5</sup> The number of companies included in the analysis varied between 34 to 41 due to data availability for certain metrics in certain years.



1 **Q. What modifications were made to the data contained in the publicly available**  
2 **information to complete the benchmarking analyses?**

3 A. No modifications or manipulations were made to the data contained in the referenced  
4 sources. To ensure that the data was comparable, each metric was compared on a cost per  
5 customer basis (i.e., the reported expense level was divided by the reported total number of  
6 customers) or a per unit sold basis (i.e., per mega-watt hour (“MWh”) sold for the electric  
7 business or per million cubic feet (“Mcf”) sold for the gas business).

8 **III. ELECTRIC BENCHMARKING ANALYSES**

9 **Q. What metrics did you use to evaluate PSE&G’s operational performance against**  
10 **that of the peer companies?**

11 A. The following metrics were used to evaluate PSE&G’s electric business performance  
12 against that of its peer companies:

- 13 1. Distribution Operations and Maintenance (“O&M”) expense per electric  
14 customer;
- 15 2. Distribution O&M per MWh sold;
- 16 3. Administrative and General (“A&G”) expense per electric customer;
- 17 4. A&G expense per MWh sold;
- 18 5. Salaries, Wages, Pensions, and Benefits expense per employee;
- 19 6. Total O&M (excluding transmission and production) expense per electric  
20 customer; and
- 21 7. Total O&M (excluding transmission and production) expense per MWh sold.

1 **Q. Please explain why it is appropriate to evaluate PSE&G's performance based**  
2 **upon the metrics set forth above.**

3 A. The items that most directly impact customers' perceptions and experiences with their  
4 utility company revolve around costs (which are a driver of rates), service reliability, and  
5 how well the utility responds when the customer has an issue pertaining to their service. For  
6 that reason, I chose the metrics which I believe best evaluate PSE&G's performance in each  
7 of the above areas. The cost metrics were evaluated both on a cost per customer bases and a  
8 cost per unit sold bases (i.e., per MWh for the electric business and per Mcf for the gas  
9 business).

10 **Q. How did PSE&G perform when compared to its peer companies on a**  
11 **distribution O&M expense per electric customer basis?**

12 A. As shown on Schedule MJA-3, PSE&G's distribution O&M per customer ranged  
13 from a low of \$68.23 in 2010 to a high of \$79.53 in 2012. The Electric Group mean ranged  
14 from a low of \$86.36 in 2009 to a high of \$118.88 in 2016. The Regional Group mean  
15 ranged from a low of \$89.28 in 2009 to a high of \$123.21 in 2016. The New Jersey Group  
16 mean ranged from a low of \$88.54 in 2009 to a high of \$167.24 in 2016. The ROE Proxy  
17 Group mean ranged from a low of \$94.88 in 2008 to a high of \$128.95 in 2016. Therefore,  
18 PSE&G's electric distribution O&M expense per customer was consistently below (i.e.,  
19 performed better than) the group means for each of the four comparison groups.

20 The cumulative average growth rate ("CAGR") of PSE&G's electric distribution  
21 O&M expenses per customer over the 10-year period examined was 0.53 percent. The  
22 Electric Group's CAGR over the same period was 2.95 percent, while the Regional Group's  
23 was 3.05 percent. The New Jersey Group's CAGR was 6.95 percent, while the ROE Proxy

1 Group's was 3.35 percent. Therefore, in each comparison, PSE&G's electric distribution  
2 O&M expenses increased at a lower rate over the period examined than those of the peer  
3 groups.

4 In 2016, PSE&G's electric distribution O&M expense per customer of \$79.27 was  
5 approximately 33 percent lower than the Electric Group mean; 36 percent lower than the  
6 Regional Group mean; 53 percent lower than the New Jersey Group mean; and 39 percent  
7 lower than the ROE Proxy Group mean.

8 **Q. How did PSE&G perform when compared to the peer companies on a**  
9 **distribution expense per MWh basis?**

10 A. As shown on Schedule MJA-4, PSE&G's electric distribution O&M expense per  
11 MWh sold ranged from a low of \$3.37 in 2010 to a high of \$4.24 in 2016 over the ten-year  
12 period. The Electric Group mean ranged from a low of \$3.86 in 2007 to a high of \$5.58 in  
13 2016 over the same period. The Regional Group mean ranged from a low of \$4.06 in 2007 to  
14 a high of \$6.19 in 2016 over the ten year period. The New Jersey Group mean ranged from a  
15 low of \$4.31 in 2007 to a high of \$8.64 in 2016. The ROE Proxy Group mean ranged from a  
16 low of \$4.48 in 2007 to a high of \$6.46 in 2016. Therefore, PSE&G's electric distribution  
17 O&M expense per megawatt-hour sold was consistently below (i.e., performed better than)  
18 the group means for each of the four comparison groups.

19 The CAGR of PSE&G's electric distribution O&M expenses per MWh sold over the  
20 10-year period examined was 2.01 percent. The Electric Group's CAGR over the same  
21 period was 4.19 percent, while the Regional Group's was 4.80 percent. The New Jersey  
22 Group's CAGR was 8.05 percent, while the ROE Proxy Group's was 4.14 percent.

1 Therefore, PSE&G's electric distribution expense per MWh sold increased at a lower rate  
2 over the years examined than that of the peer groups.

3 In 2016, PSE&G's distribution O&M expense per MWh sold of \$4.24 was  
4 approximately 24 percent lower than the Electric Group mean; 31 percent lower than the  
5 Regional Group mean; 51 percent lower than the New Jersey Group mean; and 34 percent  
6 lower than the ROE Proxy Group mean.

7 **Q. Did you compare PSE&G's A&G expense per customer to those of the peer**  
8 **group means?**

9 A. Yes. As shown on Schedule MJA-5, PSE&G's A&G expense per customer was well  
10 below the group means for each of the four comparison groups, for the years 2010 to 2016.  
11 For the years 2007 to 2009, PSE&G's A&G expense per customer was very close to the  
12 Electric Group and Regional Group mean, but well below the New Jersey Group mean and  
13 ROE Proxy Group mean.

14 PSE&G's A&G expense per customer ranged from a low of \$71.26 in 2014 to a high  
15 of \$106.07 in 2009. The Electric Group mean ranged from a low of \$86.87 in 2008 to a high  
16 of \$139.49 in 2016. The Regional Group mean ranged from a low of \$89.70 in 2008 to a  
17 high of \$150.25 in 2016. The New Jersey Group mean ranged from a low of \$143.14 in  
18 2007 to a high of \$182.91 in 2011. The ROE Proxy Group mean ranged from a low of  
19 \$163.05 in 2008 to a high of \$196.38 in 2012. Therefore, PSE&G's A&G expense per  
20 customer was consistently below (i.e., performed better than) the group means for each of the  
21 four comparison groups.

1 The CAGR of PSE&G's A&G expense per customer over the 10-year period  
2 examined was -1.79 percent. The Electric Group's CAGR over the same period was 4.40  
3 percent, while the Regional Group's was 4.92 percent. The New Jersey Group's CAGR was  
4 2.42 percent, while the ROE Proxy Group's was 0.67 percent. Therefore, PSE&G's A&G  
5 expense per customer decreased over the years examined while the CAGR of each of the  
6 peer groups increased.

7 In 2016, PSE&G's A&G expense per customer of \$86.47 was approximately 38  
8 percent lower than the Electric Group mean; 42 percent lower than the Regional Group  
9 mean; 51 percent lower than the New Jersey Group mean; and 51 percent lower than the  
10 ROE proxy group mean.

11 **Q. How did PSE&G perform when compared to the peer companies on an A&G**  
12 **expense per MWh basis?**

13 A. As shown on Schedule MJA-6, PSE&G's electric A&G expense per MWh sold  
14 ranged from a low of \$3.85 in 2014 to a high of \$5.39 in 2009. The Electric Group mean  
15 ranged from a low of \$3.85 in 2008 to \$6.81 in 2016. The Regional Group mean ranged  
16 from a low of \$4.09 in 2008 to \$7.77 in 2016. The New Jersey Group mean ranged from a  
17 low of \$6.43 in 2007 to a high of \$9.20 in 2014. The ROE Proxy Group mean ranged from a  
18 low of \$7.57 in 2007 to a high of \$9.49 in 2012. Therefore, PSE&G's A&G expense per  
19 MWh sold was below (i.e., performed better than) the group means for most years of the four  
20 comparison groups.

21 The CAGR of PSE&G's A&G expense per MWh sold over the 10-year period  
22 examined was -0.34 percent. The Electric Group's CAGR over the same period was 6.08

1 percent, while the Regional Group's was 7.02 percent. The New Jersey Group's CAGR was  
2 4.05 percent, while the ROE Proxy Group's was 1.04 percent. Again, PSE&G's A&G  
3 expense per MWh sold decreased over the years examined while the CAGR of each of the  
4 peer groups increased.

5 In 2016, PSE&G's A&G expense per MWh sold of \$4.63 was approximately 32  
6 percent lower than the Electric Group mean; 40 percent lower than the Regional Group  
7 mean; 50 percent lower than the New Jersey Group mean; and 44 percent lower than the  
8 ROE Proxy Group mean.

9 **Q. Did you compare PSE&G's salaries, wages, pensions, and benefits expenses on a**  
10 **per employee basis to those of the peer companies?**

11 A. Yes. As shown on Schedule MJA-7, PSE&G's salaries, wages, pensions, and  
12 benefits expense per employee ranged from a low of \$104.66 in 2007 to a high of \$126.74 in  
13 2016. The Electric Group mean ranged from a low of \$89.17 in 2007 to a high of \$138.24 in  
14 2015. The Regional Group mean ranged from a low of \$87.24 in 2007 to a high of \$137.62  
15 in 2014. The New Jersey Group mean ranged from a low of \$93.13 in 2007 to a high of  
16 \$156.76 in 2014. The ROE Proxy Group mean ranged from a low of \$113.44 in 2007 to a  
17 high of \$163.45 in 2015.

18 The CAGR of PSE&G's salaries, wages, pensions and benefits expense per employee  
19 over the 10-year period examined was 2.15 percent. The Electric Group's CAGR over the  
20 same period was 4.52 percent, while the Regional Group's was 4.27 percent. The New  
21 Jersey Group's CAGR was 4.59 percent, while the ROE Proxy Group's was 3.67 percent.

1 Therefore, PSE&G's salaries, wages, pensions and benefits expense per employee increased  
2 at a lower rate over the years examined than that of the peer groups.

3 In 2016, PSE&G's salaries, wages, pensions, and benefits expense per employee of  
4 \$126.74 was approximately 5 percent lower than the Electric Group mean; very similar to the  
5 Regional Group mean; 9 percent lower than the New Jersey Group mean; and 19 percent  
6 lower than the ROE Proxy Group mean.

7 **Q. Is it a notable accomplishment that PSE&G's salaries, wages, pensions, and**  
8 **benefits expenses, on a per employee basis is less than those of its peer**  
9 **companies?**

10 A. Yes. Given that the Northeast traditionally has higher wages, I believe that is a  
11 notable accomplishment that PSE&G's salaries, wages, pensions, and benefits expenses per  
12 employee are below not only that of the Regional and New Jersey group means, but also that  
13 of the Electric Group which includes companies across the country.

14 **Q. How can you support the statement that wages in New Jersey are typically**  
15 **higher than those in other regions of the country?**

16 A. The Consumer Price Index ("CPI") for Urban Wage Earners and Clerical Workers, as  
17 reported by the United States Bureau of Labor Statistics ("BLS") sets forth statistics for the  
18 Northeast, Midwest, South and West. The following table presents the reported information  
19 as of December 31, 2016 by region:

Region	CPI-Urban Wage Earners and Clerical Workers	Percent of Northeast
Northeast	252.622	100.0%
Midwest	220.938	87.5%

South	230.016	91.1%
West	241.098	95.4%

1 **Q. Did you also compare PSE&G's total electric O&M expense to that of the peer**  
2 **groups?**

3 A. Yes. Given that this is a distribution-only rate proceeding, for comparison purposes, I  
4 excluded both production and transmission O&M from the total O&M of each of the  
5 companies in the analyses.

6 **Q. How did PSE&G's total O&M (excluding transmission and production**  
7 **expenses) per customer compare to that of the peer companies?**

8 A. As shown on Schedule MJA-8, PSE&G's total O&M expense (excluding  
9 transmission and production) per customer ranged from a low of \$318.53 in 2007 to a high of  
10 \$397.25 in 2013. The Electric Group mean ranged from a low of \$265.26 in 2007 to a high  
11 of \$376.76 in 2016. The Regional Group mean ranged from a low of \$279.71 in 2007 to a  
12 high of \$397.97 in 2016. The New Jersey Group mean ranged from a low of \$355.23 in  
13 2007 to a high of \$544.98 in 2016. The ROE Proxy Group mean ranged from a low of  
14 \$345.36 in 2007 to a high of \$450.42 in 2015.

15 The CAGR of PSE&G's total O&M expense (excluding transmission and production)  
16 per customer over the 10-year period examined was 0.83 percent. The Electric Group's  
17 CAGR over the same period was 3.98 percent, while the Regional Group's was 4.00 percent.  
18 The New Jersey Group's CAGR was 4.87 percent, while the ROE Proxy Group's was 2.61  
19 percent. Therefore, PSE&G's total O&M expense (excluding transmission and production)  
20 per customer increased at a lower rate over the years examined than that of the peer groups.



1 In 2016, PSE&G's total electric O&M (excluding transmission and production) per  
2 customer of \$343.01 was approximately 9 percent lower than the Electric Group mean; 14  
3 percent lower than the Regional Group mean; 37 percent lower than the New Jersey Group  
4 mean; and 21 percent lower than the ROE Proxy Group mean.

5 **Q. Did the comparison of PSE&G's total O&M expenses (excluding transmission**  
6 **and production) per MWh sold basis produce similar results?**

7 A. Yes. As shown on Schedule MJA-9, PSE&G's total electric O&M expenses  
8 (excluding transmission and production) per MWh sold ranged from a low of \$14.96 in 2007  
9 to a high of \$21.11 in 2013. The Electric Group mean ranged from a low of \$11.34 in 2007  
10 to a high of \$18.20 in 2016. The Regional Group mean ranged from a low of \$12.19 in 2007  
11 to a high of \$20.28 in 2014. The New Jersey Group mean ranged from a low of \$16.49 in  
12 2007 to a high of \$28.51 in 2016. The ROE Proxy Group mean ranged from a low of \$16.03  
13 in 2007 to a high of \$22.18 in 2015.

14 The CAGR of PSE&G's total electric O&M expenses (excluding transmission and  
15 production) per MWh over the 10-year period examined was 2.31 percent. The Electric  
16 Group's CAGR over the same period was 5.39 percent, while the Regional Group's was 5.75  
17 percent. The New Jersey Group's CAGR was 6.27 percent, while the ROE Proxy Group's  
18 was 3.36 percent. Therefore, PSE&G's total O&M expense (excluding transmission and  
19 production) per MWh increased at a lower rate over the years examined than that of the peer  
20 groups.

21 In 2016, PSE&G's total electric O&M expenses (excluding transmission and  
22 production) per MWh sold of \$18.37 was very similar to the Electric Group mean; 9 percent

1 lower than the Regional Group mean; 36 percent lower than the New Jersey Group mean;  
2 and 15 percent lower than the ROE Proxy Group mean.

3 **IV. GAS BENCHMARKING ANALYSES**

4 **Q. Have you also benchmarked the performance of PSE&G's gas operations?**

5 A. Yes, I have.

6 **Q. What metrics did you use to evaluate the operational performance of PSE&G's**  
7 **gas business against that of its peer companies?**

8 A. The following metrics were used to evaluate PSE&G's gas business performance  
9 against that of the peer groups:

- 10 1. Distribution O&M expense per gas customer;
- 11 2. Distribution O&M per Mcf sold;
- 12 3. A&G expense per gas customer;
- 13 4. A&G expense per Mcf sold;
- 14 5. Total Non-Production O&M expense per gas customer; and
- 15 6. Total Non-Production O&M expense per Mcf Sold.

16 **Q. Prior to discussing the specific analyses that were prepared, can you discuss how**  
17 **PSE&G's gas business performed when benchmarked against its peer**  
18 **companies?**

19 A. Certainly. PSE&G's gas business was benchmarked against an LDC Group,  
20 Regional Group, New Jersey Group, and an ROE Proxy Group. PSE&G and the peer groups  
21 were evaluated based upon their respective performance over the most recent 10-year period

1 for which data was publicly available. As will be discussed below, PSE&G's gas business  
2 performed well against each of the peer groups.

3 **Q. For what years have you benchmarked PSE&G's gas business performance?**

4 A. PSE&G's gas business performance was benchmarked against its peer companies for  
5 the years 2007 through 2016.

6 **Q. How did PSE&G's gas business perform when compared to its peer companies**  
7 **on a distribution O&M expense per customer basis?**

8 A. As shown on Schedule MJA-10, PSE&G's gas distribution O&M expense per  
9 customer was below (i.e., better than) the group mean for the LDC Group, Regional Group,  
10 and the ROE Proxy Group, in each year of the analysis. PSE&G's gas distribution O&M  
11 expense per customer was lower than the New Jersey Group mean for the most recent five  
12 years, 2012 to 2016. PSE&G's gas distribution O&M per gas customer ranged from a low of  
13 \$42.42 in 2012 to a high of \$55.55 in 2016. The LDC Group mean ranged from a low of  
14 \$62.99 in 2007 to a high of \$83.89 in 2016. The Regional Group mean ranged from a low of  
15 \$76.91 in 2007 to a high of \$114.59 in 2016. The New Jersey Group mean for the gas  
16 companies ranged from a low of \$39.38 in 2007 to a high of \$57.84 in 2016. The ROE  
17 Proxy Group mean for the gas companies ranged from a low of \$66.55 in 2008 to a high of  
18 \$101.02 in 2014.

19 The CAGR of PSE&G's gas distribution O&M expenses per customer over the 10-  
20 year period examined was 1.39 percent. The LDC Group's CAGR over the same period was  
21 3.24 percent, while the Regional Group's was 4.53 percent. The New Jersey Group's CAGR  
22 was 4.36 percent, while the ROE Proxy Group's was 3.69 percent. Therefore, PSE&G's gas

1 distribution O&M expense per customer increased at a lower rate over the years examined  
2 than that of the peer groups.

3 In 2016, PSE&G's gas distribution O&M expense per customer of \$55.55 was  
4 approximately 34 percent lower than the LDC Group mean; 52 percent lower than the  
5 Regional Group mean; 4 percent lower than the New Jersey Group mean; and 42 percent  
6 lower than the ROE Proxy Group mean.

7 **Q. How did PSE&G perform when compared to the peer groups on a gas**  
8 **distribution expense per Mcf sold basis?**

9 A. As shown on Schedule MJA-11, PSE&G's gas distribution O&M expense per Mcf  
10 sold was below (i.e., better than) the group mean for the LDC Group, Regional Group, and  
11 the ROE Proxy Group, in each year of the analysis. PSE&G's gas distribution O&M expense  
12 per Mcf was lower than the New Jersey Group mean for the most recent seven years (i.e.  
13 2010 to 2016). PSE&G's gas distribution O&M expense per Mcf sold ranged from a low of  
14 \$0.25 in 2014 to a high of \$0.37 in 2016. The LDC Group mean ranged from a low of \$0.42  
15 in 2007 to a high of \$0.60 in 2016. The Regional Group mean ranged from a low of \$0.51 in  
16 2007 to a high of \$0.81 in 2016. The New Jersey Group mean ranged from a low of \$0.27 in  
17 2007 to a high of \$0.45 in 2016. The ROE Proxy Group mean ranged from a low of \$0.40 in  
18 2008 to a high of \$0.57 in 2016.

19 The CAGR of PSE&G's total gas distribution O&M expenses per Mcf sold over the  
20 10-year period examined was 2.57 percent. The LDC Group's CAGR over the same period  
21 was 4.09 percent, while the Regional Group's was 5.23 percent. The New Jersey Group's  
22 CAGR was 5.93 percent, while the ROE Proxy Group's was 3.22 percent. Therefore,

1 PSE&G's gas distribution O&M expense per Mcf increased at a lower rate over the years  
2 examined than that of the peer groups.

3 In 2016, PSE&G's gas distribution O&M expense per Mcf sold of \$0.37 was  
4 approximately 39 percent lower than the LDC Group mean; 55 percent lower than the  
5 Regional Group mean; 18 percent lower than the New Jersey Group mean; and 35 percent  
6 lower than the ROE Proxy Group mean.

7 **Q. Did PSE&G compare well on an A&G expense per gas customer basis when**  
8 **compared to the peer groups?**

9 A. Yes. As shown on Schedule MJA-12 , PSE&G's A&G expense per gas customer was  
10 below (i.e., better than) the group mean for each of the four comparison groups in every year  
11 of the analysis. PSE&G's A&G expense per gas customer ranged from a low of \$51.35 in  
12 2014 to a high of \$83.75 in 2009. The LDC Group mean ranged from a low of \$83.25 in  
13 2008 to a high of \$104.77 in 2016. The Regional Group mean ranged from a low of \$112.66  
14 in 2008 to a high of \$155.24 in 2016. The New Jersey Group mean ranged from a low of  
15 \$104.65 in 2008 to a high of \$157.80 in 2016. The ROE Proxy Group mean ranged from a  
16 low of \$82.83 in 2008 to a high of \$110.09 in 2015.

17 The CAGR of PSE&G's A&G expenses per customer over the 10-year period  
18 examined was -2.79 percent. The LDC Group's CAGR over the same period was 2.07  
19 percent, while the Regional Group's was 3.29 percent. The New Jersey Group's CAGR was  
20 4.65 percent, while the ROE Proxy Group's was 1.39 percent. Therefore, PSE&G's A&G  
21 expense per gas customer decreased over the years examined while the CAGR of each of the  
22 peer groups increased. In 2016, PSE&G's A&G expense per gas customer of \$58.05 was

1 approximately 45 percent lower than the LDC Group mean; 63 percent lower than the  
2 Regional Group mean; 63 percent lower than the New Jersey Group mean; and 41 percent  
3 lower than the ROE Proxy Group mean.

4 **Q. How did PSE&G compare in the comparison of gas A&G expense per Mcf sold?**

5 A. As shown on Schedule MJA-13, PSE&G's A&G expense per Mcf sold was below  
6 (i.e., better than) the group mean for each of the four comparison groups in every year of the  
7 analysis. PSE&G's A&G expense per Mcf sold ranged from a low of \$0.27 in 2014 to a high  
8 of \$0.50 in 2009. The LDC Group mean ranged from a low of \$0.55 in 2008 to a high of  
9 \$0.76 in 2016. The Regional Group mean ranged from a low of \$0.76 in 2008 to a high of  
10 \$1.14 in 2016. The New Jersey Group mean ranged from a low of \$0.66 in 2007 to a high of  
11 \$1.15 in 2016. The ROE Proxy Group mean ranged from \$0.47 in 2008 to a high of \$0.60 in  
12 2012.

13 The CAGR of PSE&G's A&G expenses per Mcf sold over the 10-year period  
14 examined was -1.66 percent. The LDC Group's CAGR over the same period was 3.25  
15 percent, while the Regional Group's was 4.41 percent. The New Jersey Group's CAGR was  
16 6.49 percent, while the ROE Proxy Group's was 1.51 percent. Therefore, while PSE&G's  
17 A&G expense per Mcf sold decreased over the years examined while the CAGR of each of  
18 the peer groups increased.

19 In 2016, PSE&G's A&G expense per Mcf sold of \$0.38 was approximately 50  
20 percent lower than the LDC Group mean; 66 percent lower than the Regional Group mean;  
21 67 percent lower than the New Jersey Group mean; and 33 percent lower than the ROE  
22 Proxy Group mean.

1 **Q. How did PSE&G's total non-production O&M per gas customer compare to**  
2 **that of the peer companies?**

3 A. As shown on Schedule MJA-14, PSE&G's total non-production O&M expense per  
4 gas customer ranged from a low of \$226.50 in 2016 to a high of \$277.07 in 2013. The LDC  
5 Group mean ranged from a low of \$234.13 in 2007 to a high of \$282.81 in 2016. The  
6 Regional Group mean ranged from a low of \$289.99 in 2007 to a high of \$374.79 in 2016.  
7 The New Jersey Group mean ranged from a low of \$219.79 in 2007 to a high of \$325.70 in  
8 2014. The ROE Proxy Group mean ranged from a low of \$252.09 in 2008 to a high of  
9 \$319.32 in 2014.

10 The CAGR of PSE&G's total non-production gas O&M expense per customer over  
11 the 10-year period examined was -1.17 percent. The LDC Group's CAGR over the same  
12 period was 2.12 percent, while the Regional Group's was 2.89 percent. The New Jersey  
13 Group's CAGR was 3.80 percent, while the ROE Proxy Group's was 1.31 percent.  
14 Therefore, PSE&G's total non-production gas O&M expense per customer decreased over  
15 the years examined while the CAGR of each of the peer groups increased. In 2016,  
16 PSE&G's total non-production O&M per gas customer of \$226.50 was approximately 20  
17 percent lower than LDC Group mean; 40 percent lower than the Regional Group mean; 26  
18 percent lower than the New Jersey Group mean; and 23 percent lower than the ROE Proxy  
19 Group mean.

20 **Q. Did the comparison of PSE&G's total non-production O&M expenses per Mcf**  
21 **sold bases produce similar results?**

22 A. Yes. As shown on Schedule MJA-15, PSE&G's total non-production O&M expenses  
23 per Mcf sold ranged from a low of \$1.30 in 2014 to a high of \$1.65 in 2013. The LDC

1 Group mean ranged from a low of \$1.54 in 2007 to a high of \$2.06 in 2016. The Regional  
2 Group mean ranged from a low of \$1.93 in 2007 to a high of \$2.69 in 2016. The New Jersey  
3 Group mean ranged from a low of \$1.44 in 2007 to a high of \$2.34 in 2016. The ROE Proxy  
4 Group mean ranged from a low of \$1.56 in 2008 to a high of \$1.86 in 2012.

5 The CAGR of PSE&G's total non-production O&M expenses per Mcf over the 10-  
6 year period examined was -0.02 percent. The LDC Group's CAGR over the same period  
7 was 3.31 percent, while the Regional Group's was 3.78 percent. The New Jersey Group's  
8 CAGR was 5.53 percent, while the ROE Proxy Group's was 1.01 percent. Therefore,  
9 PSE&G's total non-production O&M expenses per Mcf decreased over the years examined  
10 while the CAGR of each of the peer groups increased. In 2016, PSE&G's total non-  
11 production O&M expenses per Mcf sold of \$1.49 was approximately 28 percent lower than  
12 the LDC Group mean; 44 percent lower than the Regional Group mean; 36 percent lower  
13 than the New Jersey Group mean; and 17 percent lower than the ROE Proxy Group mean.

## 14 **V. RELIABILITY**

15 **Q. Beyond PSE&G's financial performance, did you compare PSE&G's**  
16 **operational performance to that of other electric companies?**

17 A. Yes. I reviewed PSE&G's reported System Average Interruption Frequency Index  
18 ("SAIFI") and Customer Average Interruption Duration Index ("CAIDI") to those of the  
19 other New Jersey electric companies as reported to the BPU. I also compared PSE&G's  
20 SAIFI, CAIDI, and System Average Interruption Duration Index ("SAIDI") to those reported  
21 to the Institute of Electrical and Electronics Engineers ("IEEE").



1    **Q.     What does the SAIFI metric represent?**

2    A.     SAIFI is the average number of interruptions that a customer would experience  
3    during a period, which in the case of the New Jersey data, reflects a calendar year.

4    **Q.     How did PSE&G's SAIFI performance compare to that of the other New Jersey**  
5    **electric companies?**

6    A.     As shown on Schedule MJA-16, for the years 2006 through 2015, PSE&G's reported  
7    SAIFI was consistently below the mean of the reported SAIFI of the other New Jersey  
8    electric companies. PSE&G's SAIFI ranged from 0.58 in 2015 to 0.84 in 2010. The mean of  
9    the reported SAIFI numbers for the New Jersey utilities ranged from 0.94 in 2015 to 1.50 in  
10   2006. Therefore, PSE&G's electric customers, on average, experienced interruptions of  
11   service less frequently than the customers of the other New Jersey utilities.

12   **Q.     What does the CAIDI metric represent?**

13   A.     CAIDI measures the average restoration time during an outage, and is most often  
14   reported in minutes.

15   **Q.     How did PSE&G's CAIDI performance compare to that of the other New Jersey**  
16   **electric companies?**

17   A.     As shown on Schedule MJA-17, for the years 2006 through 2015, PSE&G's reported  
18   CAIDI ranged from 56.39 in 2015 to 76.28 in 2014. The mean of the reported CAIDI  
19   numbers for the other New Jersey utilities ranged from 96.70 in 2015 to 120.93 in 2006.  
20   Based upon the reported figures, not only did PSE&G's customers experience fewer  
21   interruptions; if interruptions were experienced, PSE&G's customers' power was restored  
22   more quickly than the power of other companies' customers.

1 **Q. Does the IEEE also collect and report data for SAIFI and CAIDI of electric**  
2 **utilities in the United States.**

3 A. Yes. The IEEE initiated a benchmarking study in 2003 and the study is conducted  
4 annually. Participants are anonymous and are identified by key identifier only, to retain  
5 anonymity. While the participation list is not revealed, each participant can choose to share  
6 its results.

7 **Q. Have you compared PSE&G's performance to the IEEE's 2016 study results?**

8 A. Yes.

9 **Q. Please describe how PSE&G's SAIFI performance for the years 2009 to 2015**  
10 **compared to data reported by the IEEE.**

11 A. As shown on Schedule MJA-18, PSE&G's reported SAIFI was in the first quartile of  
12 the SAIFI reported by the IEEE during each of the years 2009 to 2015. PSE&G's SAIFI  
13 ranged from 0.64 in 2015 to 0.89 in 2011.

14 **Q. Why are PSE&G's SAIFI figures reported in the IEEE study different than**  
15 **those reported to the New Jersey Board of Public Utilities, as you discussed**  
16 **previously?**

17 A. The NJ BPU and IEEE have different definitions regarding major events and how  
18 they are established and as a result, the SAIFI figures are different.

19 **Q. Does the IEEE also report CAIDI figures?**

20 A. Yes. As shown on Schedule MJA-19, PSE&G's reported CAIDI was again solidly in  
21 the first quartile when compared to the companies participating in the IEEE study. PSE&G's  
22 CAIDI ranged from 61 in 2015 to 78 in 2011.

1 **Q. Does the IEEE study also benchmark utilities' System Average Interruption**  
2 **Duration Index ("SAIDI")?**

3 A. Yes. While CAIDI reports duration on a customer basis, SAIDI reports duration on a  
4 system-wide basis.

5 **Q. How did PSE&G's SAIDI compare to the IEEE study participants?**

6 A. As shown on Schedule MJA-20, PSE&G's SAIDI was also in the first quartile of  
7 metrics reported in the IEEE study for all years examined. PSE&G's SAIDI ranged from 39  
8 in 2015 to 69 in 2011.

9 **VI. CUSTOMER SATISFACTION**

10 **Q. What customer satisfaction information did you review?**

11 A. JD Power conducts and reports the results of annual customer satisfaction surveys.  
12 PSE&G is included in JD Power's Customer Satisfaction Studies in the "Large Utility East"  
13 segment. JD Power conducts customer satisfaction surveys of (1) electric residential  
14 customers; (2) electric business customers; (3) gas residential customers; and (4) gas business  
15 customers.

16 **Q. Based upon JD Power's reported results for the years 2012 through 2016, where**  
17 **did PSE&G rank based upon the feedback from electric residential customers?**

18 A. As shown on Schedule MJA-21, PSE&G ranked in the first quartile or at the top of  
19 the second quartile by its electric residential customers in each of years 2012 through 2016.  
20 In results released by JD Power in July 2017, electric residential customers ranked PSEG in  
21 the first quartile (and third overall) with a rating of 727.

1 **Q. How did PSE&G rank based upon JD Power's survey of its electric business**  
2 **customers during the years 2012 through 2016?**

3 A. Once again, as shown on Schedule MJA-22, PSE&G was ranked in the first quartile  
4 or at the top of the second quartile by its electric business customers during each of the years,  
5 2012 through 2016, and it improved year-over-year each year during that time period.  
6 PSE&G was ranked in the second quartile by its electric business customers in 2017.

7 **Q. Based upon JD Power's reported results for the years 2012 through 2016, where**  
8 **did PSE&G rank based upon the feedback from its gas residential customers?**

9 A. As shown on Schedule MJA-23, PSE&G was ranked just below first quartile by its  
10 gas residential customers in each of years 2012 through 2016. It should also be noted that  
11 PSE&G's gas residential customer satisfaction rating improved year-over-year each year  
12 from 2012 to 2016. In results released by JD Power in September 2017, gas residential  
13 customers ranked PSEG in the first quartile (and third overall) with a rating of 736.

14 **Q. How did PSE&G rank based upon JD Power's survey of its gas business**  
15 **customers during the years 2012 through 2016?**

16 A. As shown on Schedule MJA-24, PSE&G's gas business customer satisfaction rating  
17 improved year-over-year each year from 2012 to 2016. JD Power Gas Business results are  
18 expected to be released on or about January 16, 2018.

1     **VII. SUMMARY AND CONCLUSIONS**

2     **Q.     What are your conclusions based upon the analyses that you prepared?**

3     A.     PSE&G's O&M costs of the gas and electric businesses compare favorably to those  
4     of peer group averages. Similarly, PSE&G's reliability and customer satisfaction scores  
5     indicate strong performance and a focus on improvement.

6             Given PSE&G's strong performance, as set forth in my testimony, I am  
7     recommending that the results of the benchmarking analyses be considered by Company  
8     witness Ann Bulkley when establishing her recommended range of return on equity values  
9     for PSE&G's electric and gas businesses. In my opinion, it is appropriate for the BPU to set  
10    PSE&G's ROE at the upper end of the range of return on equity in recognition of the  
11    Company's consistently strong cost control, operational performance, service quality and  
12    customer satisfaction performance. Therefore, I recommend that PSE&G's authorized return  
13    on equity be established at a level that reflects PSE&G's strong performance and cost  
14    management in an operating environment where costs tend to be higher, the system is older,  
15    and access to maintain the system can be challenging.

16    **Q.     Does this conclude your direct testimony?**

17    A.     Yes, it does.

## Appendix A

### **Background and Qualifications of Michael J. Adams Senior Vice President**

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Michael J. Adams has over thirty-five years of direct experience in the public utility industry. He has worked for an investor-owned utility, a regulatory agency, and most recently as a consultant to the utility industry. As a consultant, Mr. Adams has provided expert testimony or reports before the Arkansas Public Service Commission; the Connecticut Public Utilities Regulatory Authority, the Federal Energy Regulatory Commission (FERC); the Hawaii Public Utility Commission; the Idaho Public Utilities Commission; the Illinois Commerce Commission; the Maine Public Utilities Commission, the Maryland Public Service Commission; the Massachusetts Department of Telecommunications and Energy; the Missouri Public Service Commission; the New Hampshire Public Utilities Commission; the Oklahoma Corporation Commission; the Ontario Energy Board; the Pennsylvania Public Utility Commission; the Public Utilities Commission of Texas; the Tennessee Public Service Commission, and the State Corporation Commission of Virginia.

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#### **PROFESSIONAL HISTORY**

##### **Concentric Energy Advisors, Inc. (2007 – Present)**

Senior Vice President

Vice President

##### **Navigant Consulting, Inc. (1995 – 2007)**

Managing Director

##### **Illinois Commerce Commission (1983 – 1995)**

Deputy Executive Director

##### **Illinois Power Company (1981 – 1983)**

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#### **EDUCATION**

M.B.A., Finance, University of Illinois, Springfield

B.S., Accounting, Illinois College

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#### **DESIGNATIONS AND PROFESSIONAL AFFILIATIONS**

Certified Public Accountant

American Institute of Public Accountants

Illinois Society of Certified Public Accountants

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**Companies Included in Electric Comparisons**

Company	Electric Distribution	Electric Group	Regional Group	New Jersey Group	ROE Proxy Group
* Ameren Illinois Company	IL	✓			✓
Atlantic City Electric Company	NJ	✓	✓	✓	
Baltimore Gas and Electric Company	MD	✓	✓		
** Black Hills Colorado Electric Utility Company, LP	CO				✓
Black Hills Power, Inc.	MT, SD, WY				✓
CenterPoint Energy Houston Electric, LLC	TX	✓			✓
Cheyenne Light, Fuel and Power Company	WY				✓
Cleveland Electric Illuminating Company	OH	✓			
Commonwealth Edison Company	IL	✓			
Connecticut Light and Power Company	CT	✓	✓		✓
Consolidated Edison Company of New York, Inc.	NY				✓
Consumers Energy Company	MI				✓
Delmarva Power & Light Company	DE, MD	✓	✓		
DTE Electric Company	MI				✓
Duquesne Light Company	PA	✓	✓		
Jersey Central Power & Light Company	NJ	✓	✓	✓	
Metropolitan Edison Company	PA	✓	✓		
New York State Electric & Gas Corporation	NY				✓
Niagara Mohawk Power Corporation	NY	✓	✓		
Northern States Power Company - MN	MN, ND, SD				✓
Northern States Power Company - WI	MI, WI				✓
NorthWestern Corporation	MT, SD, WY				✓
NSTAR Electric Company	MA	✓			✓
Ohio Edison Company	OH, PA	✓	✓		
Oncor Electric Delivery Company LLC	TX	✓			
Orange and Rockland Utilities, Inc.	NJ, NY, PA				✓
PECO Energy Company	PA	✓	✓		
Pennsylvania Electric Company	NY, PA	✓	✓		
Potomac Electric Power Company	DC, MD	✓	✓		
PPL Electric Utilities Corporation	PA	✓	✓		
Public Service Company of Colorado	CO				✓
Public Service Company of New Hampshire	NH				✓
Public Service Electric and Gas Company	NJ	✓	✓	✓	✓
Rochester Gas and Electric Corporation	NY				✓
Rockland Electric Company	NJ			✓	
Southwestern Public Service Company	NM, TX				✓
Union Electric Company	MO				✓
United Illuminating Company	CT				✓
West Penn Power Company	PA	✓	✓		
Western Massachusetts Electric Company	MA				✓
Wisconsin Electric Power Company	MI, WI				✓
Wisconsin Public Service Corporation	MI, WI				✓

\* Ameren Illinois was officially created in 2010 and hence does not have data prior to 2010

\*\* Black Hills Colorado Electric Utility Company, LP was created in 2008 and does not have data for 2007

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**Companies Included in Gas Comparisons**

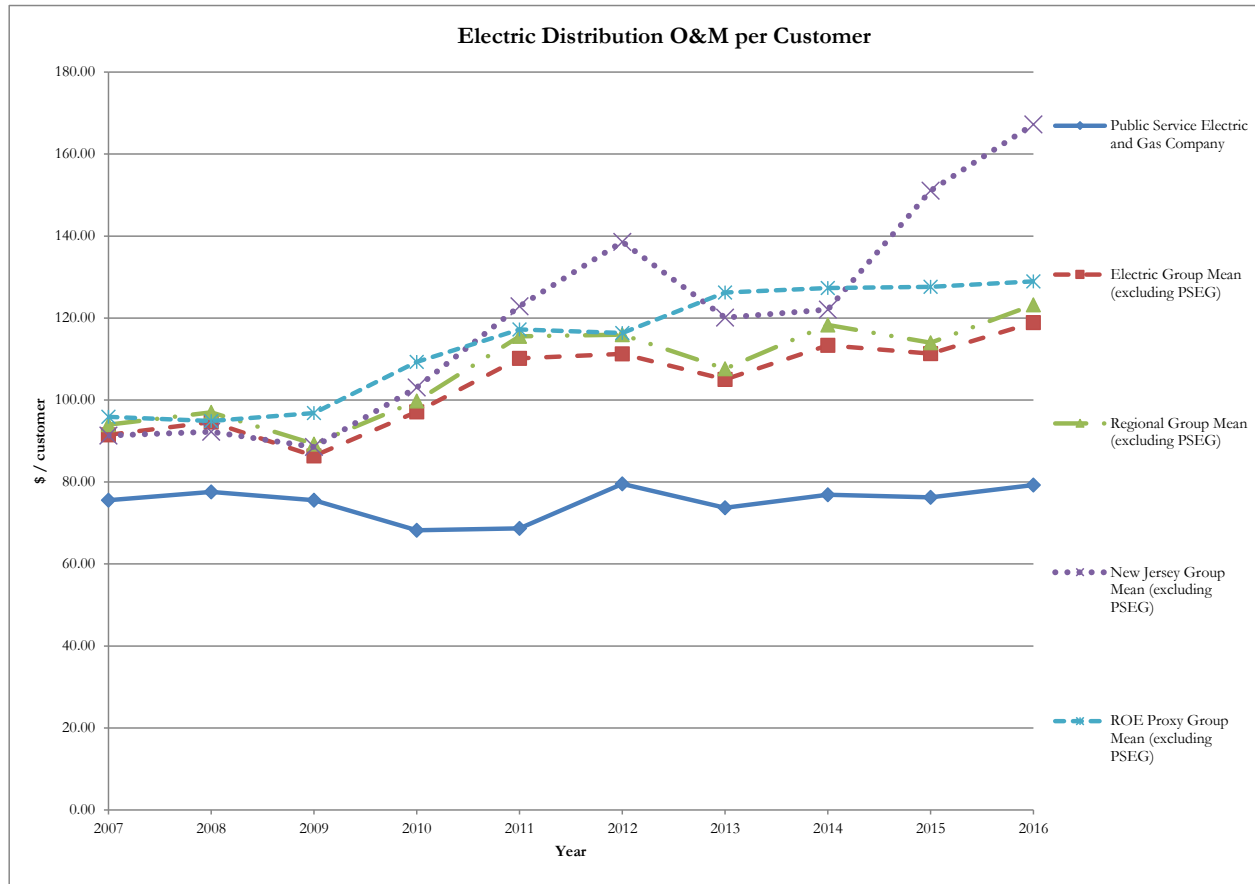
Company	LDC Group	Regional Group	New Jersey Group	ROE Proxy Group
Ameren Illinois Company - IL	✓			✓
Atlanta Gas Light Company - GA	✓			
Baltimore Gas and Electric Company - MD	✓	✓		
Berkshire Gas Company - MA				✓
Black Hills Colorado Gas Utility Company, LP - CO				✓
Black Hills Energy Arkansas, Inc. - AR				✓
Black Hills Gas Distribution LLC - WY				✓
Black Hills Iowa Gas Utility Company, LLC - IA				✓
Black Hills Kansas Gas Utility Company, LLC - KS				✓
Black Hills Nebraska Gas Utility Company LLC - NE				✓
Boston Gas Company - MA	✓			
Brooklyn Union Gas Company - NY	✓	✓		
CenterPoint Energy Resources Corp. - TX	✓			✓
CenterPoint Energy Resources Corp. - MN	✓			✓
CenterPoint Energy Resources Corp. - AR				✓
CenterPoint Energy Resources Corp. - LA				✓
CenterPoint Energy Resources Corp. - OK				✓
CenterPoint Energy Resources Corp. - TX				✓
CenterPoint Energy Resources Corp. - LA				✓
CenterPoint Energy Resources Corp. - MS				✓
Cheyenne Light, Fuel and Power Company - WY				✓
Citizens Gas Fuel Company - MI				✓
Columbia Gas of Ohio, Incorporated - OH	✓			
Connecticut Natural Gas Corporation - CT				✓
Consolidated Edison Company of New York, Inc. - NY	✓	✓		✓
Consumers Energy Company - MI	✓			✓
DTE Gas Company - MI	✓			✓
East Ohio Gas Company - OH	✓			
Equitable Gas Company, LLC - PA	✓	✓		
Indiana Gas Company, Inc. - IN	✓			
Kansas Gas Service Company - KS	✓			
KeySpan Gas East Corporation - NY	✓	✓		
Spire Missouri Inc. - MO	✓			
Maine Natural Gas - ME				✓
Michigan Gas Utilities Corporation - MI				✓
MidAmerican Energy Company - IA	✓			
Minnesota Energy Resources Corporation - MN				✓
National Fuel Gas Distribution Corporation - NY	✓	✓		
New Jersey Natural Gas Company - NJ	✓	✓	✓	
New Mexico Gas Company, Inc. - NM	✓			
New York State Electric & Gas Corporation - NY				✓
Niagara Mohawk Power Corporation - NY	✓	✓		
North Shore Gas Company - IL				✓
Northern Illinois Gas Company - IL	✓			
Northern Indiana Public Service Company - IN	✓			
Northern States Power Company - MN - ND				✓
Northern States Power Company - MN - MN				✓



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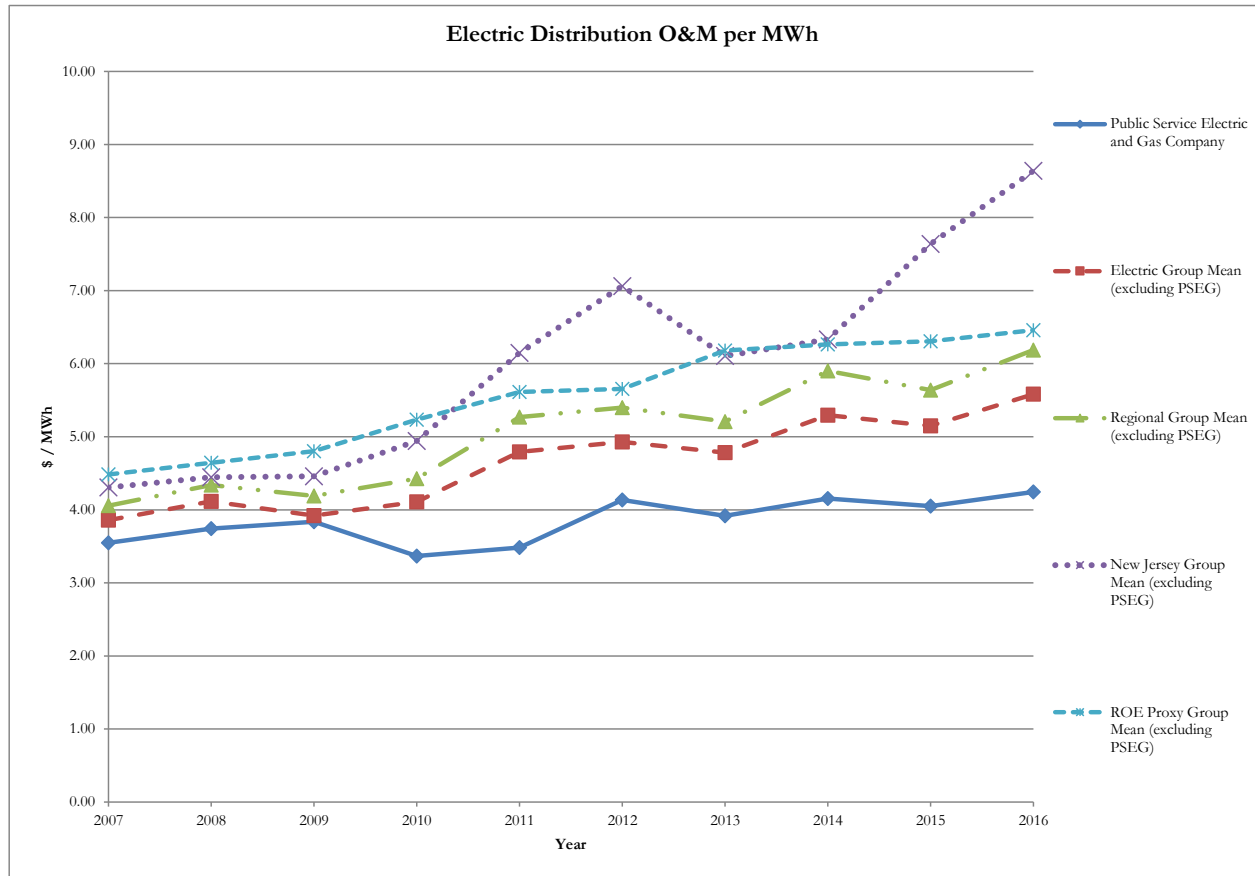
**Companies Included in Gas Comparisons**

Company	LDC Group	Regional Group	New Jersey Group	ROE Proxy Group
Northern States Power Company - WI - MI				✓
NorthWestern Corporation - MT				✓
NSTAR Gas Company - MA				✓
Oklahoma Natural Gas Company - OK	✓			
Orange and Rockland Utilities, Inc. - NY				✓
Pacific Gas and Electric Company - CA	✓			
PECO Energy Company - PA	✓	✓		
Peoples Gas Light and Coke Company - IL	✓			✓
Philadelphia Gas Works Co. - PA	✓	✓		
Piedmont Natural Gas Company, Inc. - NC	✓			
Pivotal Utility Holdings, Inc. - NJ			✓	
Public Service Company of Colorado - CO	✓			✓
Public Service Company of North Carolina, Incorporated - NC	✓			
Public Service Electric and Gas Company - NJ	✓	✓	✓	✓
Puget Sound Energy, Inc. - WA	✓			
Questar Gas Company - UT	✓			
Rochester Gas and Electric Corporation - NY				✓
San Diego Gas & Electric Co. - CA	✓			
South Jersey Gas Company - NJ			✓	
Southern California Gas Company - CA	✓			
Southern Connecticut Gas Company - CT				✓
Southwest Gas Corporation - NV	✓			
Texas Gas Service Company - TX	✓			
Wisconsin Electric Power Company - WI				✓
Wisconsin Gas LLC - WI	✓			✓
Yankee Gas Services Company - CT				✓

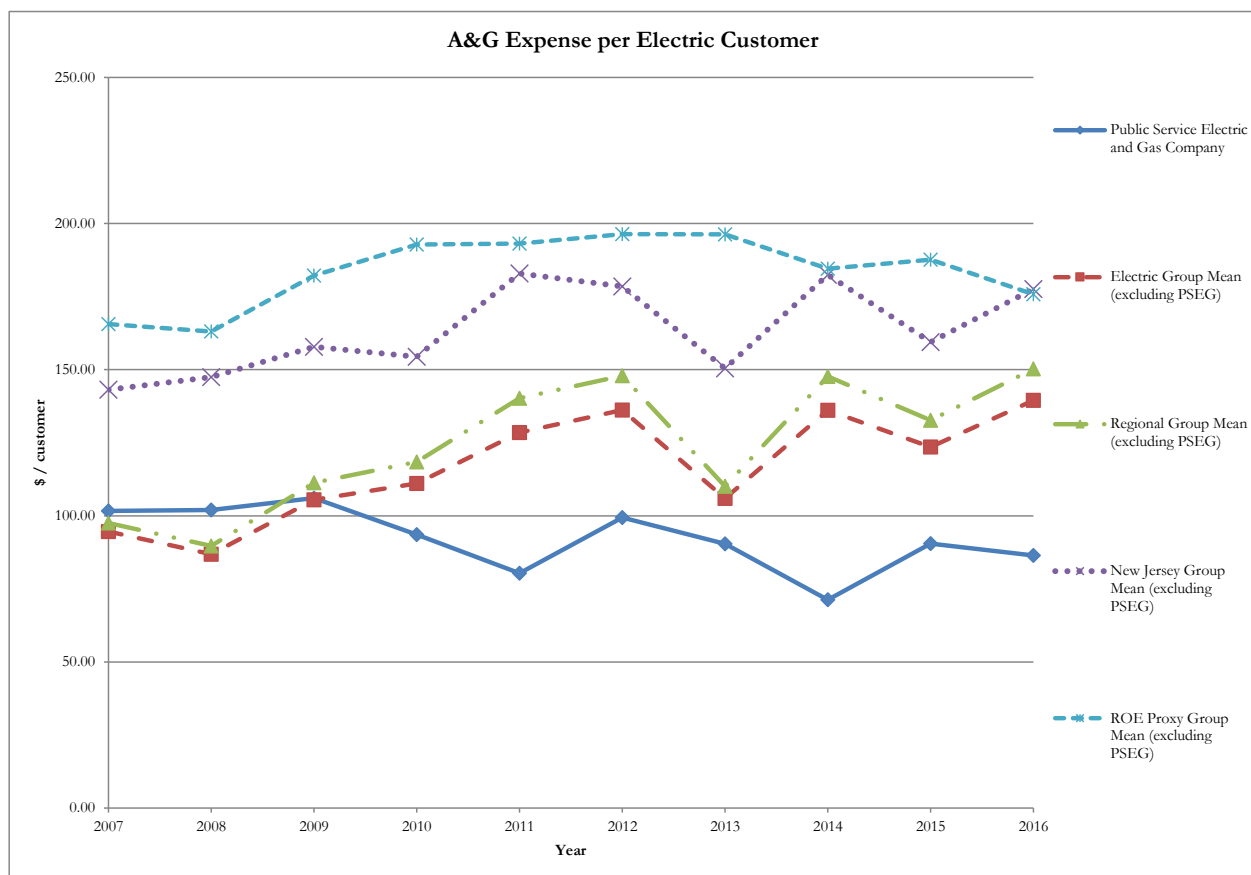


Electric Distribution O&M per Customer										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	75.55	77.58	75.54	68.23	68.66	79.53	73.70	76.89	76.25	79.27
Electric Group Mean (excluding PSEG)	91.52	94.61	86.36	97.09	110.17	111.27	105.01	113.35	111.34	118.88
Regional Group Mean (excluding PSEG)	94.02	96.98	89.28	99.78	115.52	115.95	107.62	118.33	113.99	123.21
New Jersey Group Mean (excluding PSEG)	91.32	92.25	88.54	103.04	122.85	138.58	120.08	122.08	151.05	167.24
ROE Proxy Group Mean (excluding PSEG)	95.90	94.88	96.82	109.27	117.23	116.37	126.23	127.33	127.62	128.95

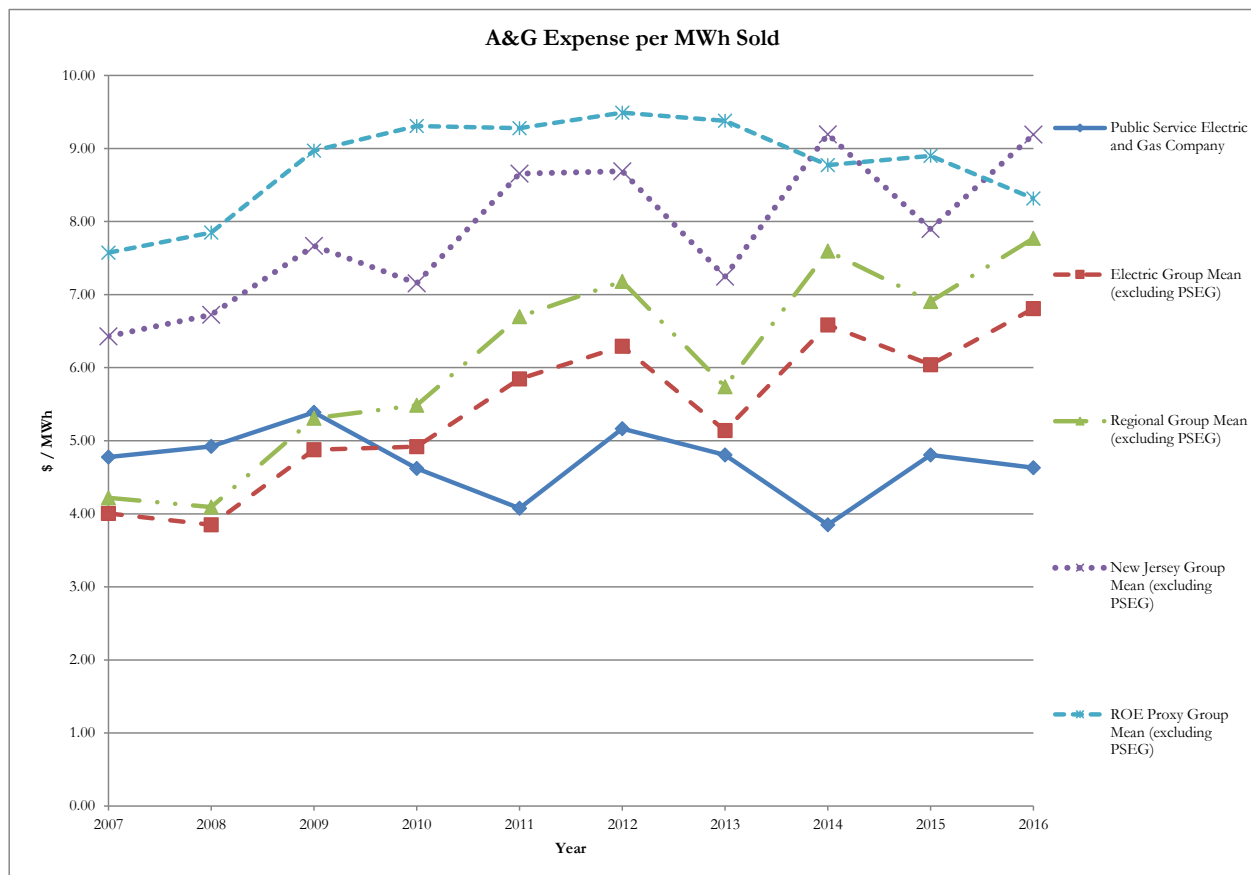
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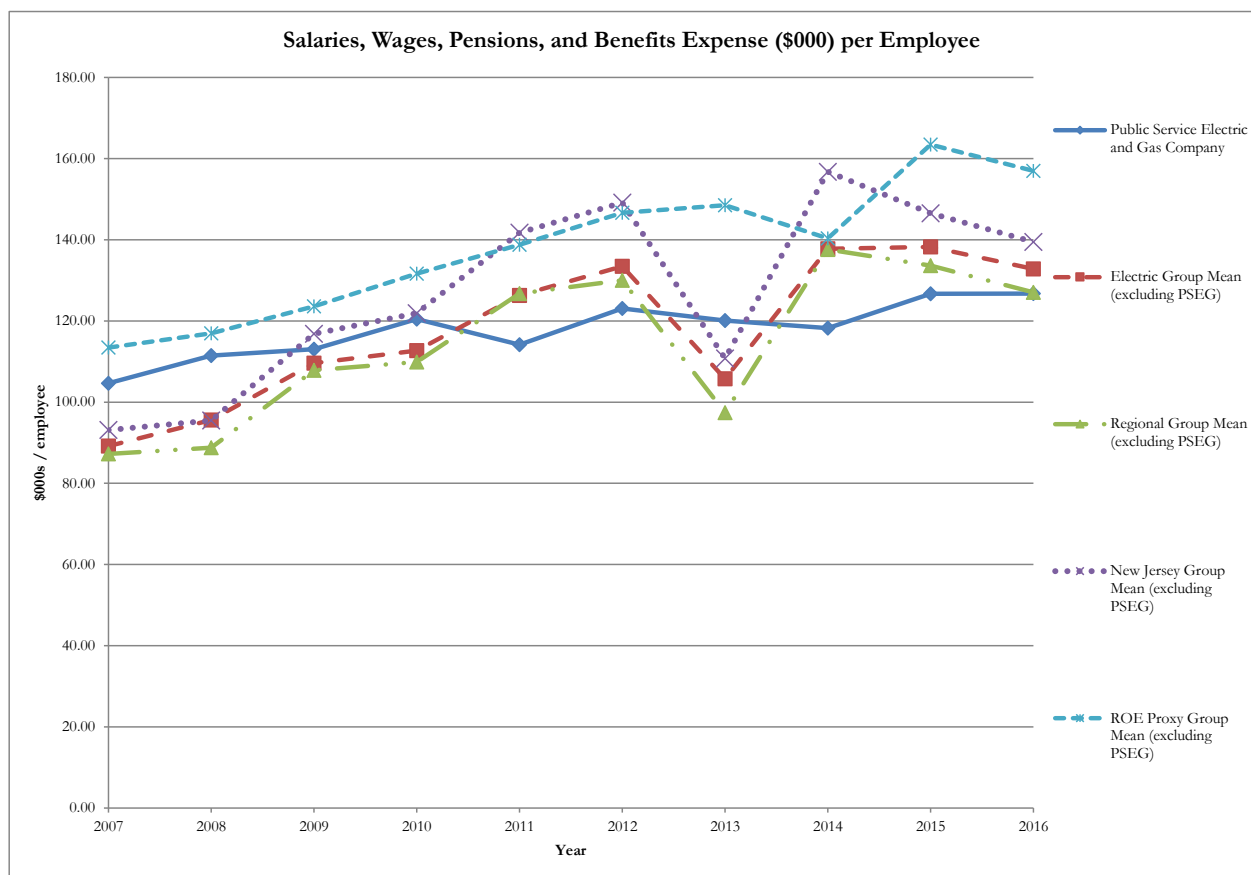
Electric Distribution O&M per MWh										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	3.55	3.74	3.84	3.37	3.48	4.13	3.92	4.15	4.05	4.24
Electric Group Mean (excluding PSEG)	3.86	4.12	3.92	4.11	4.79	4.93	4.78	5.29	5.15	5.58
Regional Group Mean (excluding PSEG)	4.06	4.34	4.19	4.43	5.27	5.40	5.21	5.90	5.64	6.19
New Jersey Group Mean (excluding PSEG)	4.31	4.44	4.46	4.94	6.15	7.06	6.10	6.33	7.64	8.64
ROE Proxy Group Mean (excluding PSEG)	4.48	4.64	4.80	5.23	5.61	5.65	6.18	6.27	6.31	6.46



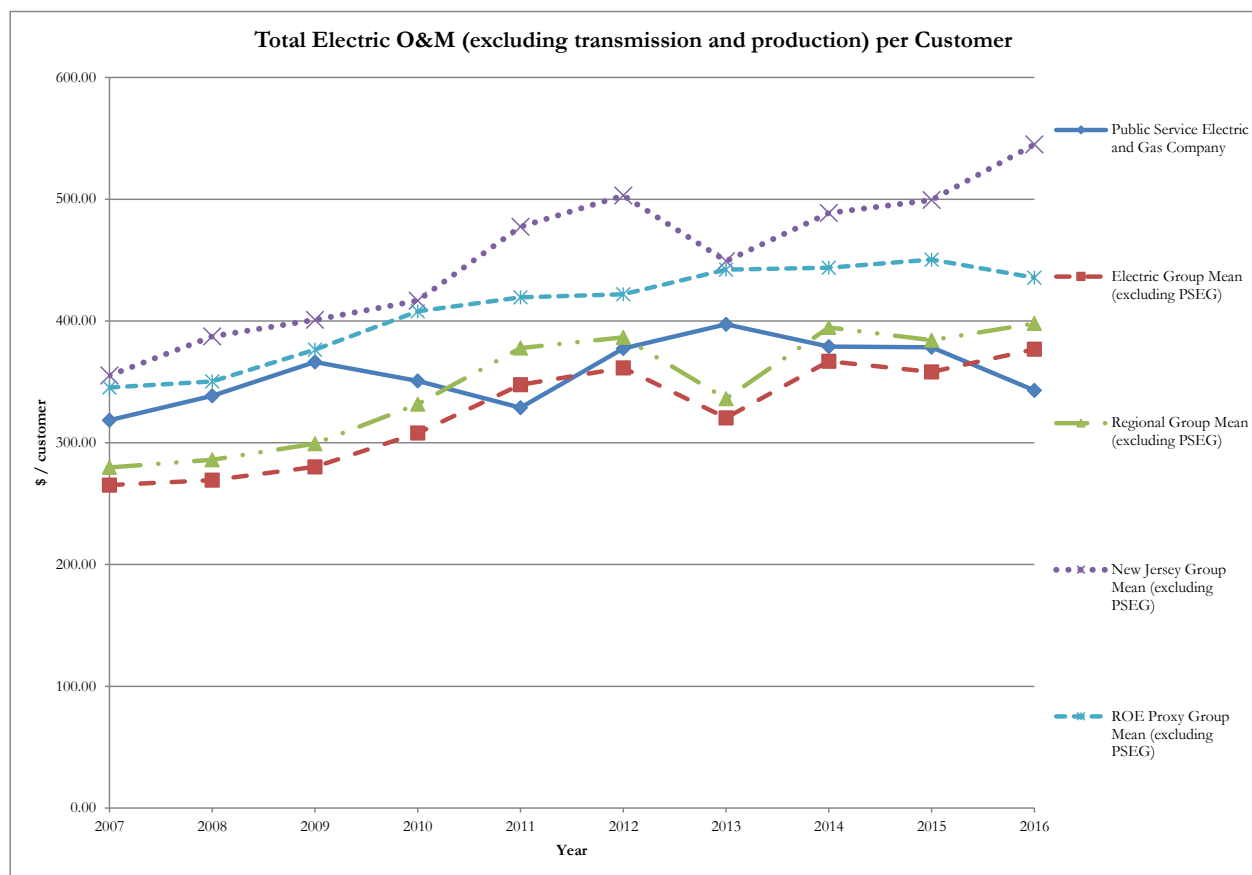
A&G Expense per Electric Customer										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	101.70	102.02	106.07	93.60	80.35	99.40	90.42	71.26	90.50	86.47
Electric Group Mean (excluding PSEG)	94.65	86.87	105.44	111.09	128.49	136.16	105.97	136.08	123.53	139.49
Regional Group Mean (excluding PSEG)	97.52	89.70	111.30	118.46	140.20	147.95	110.13	147.69	132.73	150.25
New Jersey Group Mean (excluding PSEG)	143.14	147.43	157.79	154.45	182.91	178.47	150.48	182.41	159.46	177.55
ROE Proxy Group Mean (excluding PSEG)	165.59	163.05	182.23	192.79	193.19	196.38	196.31	184.59	187.66	175.77



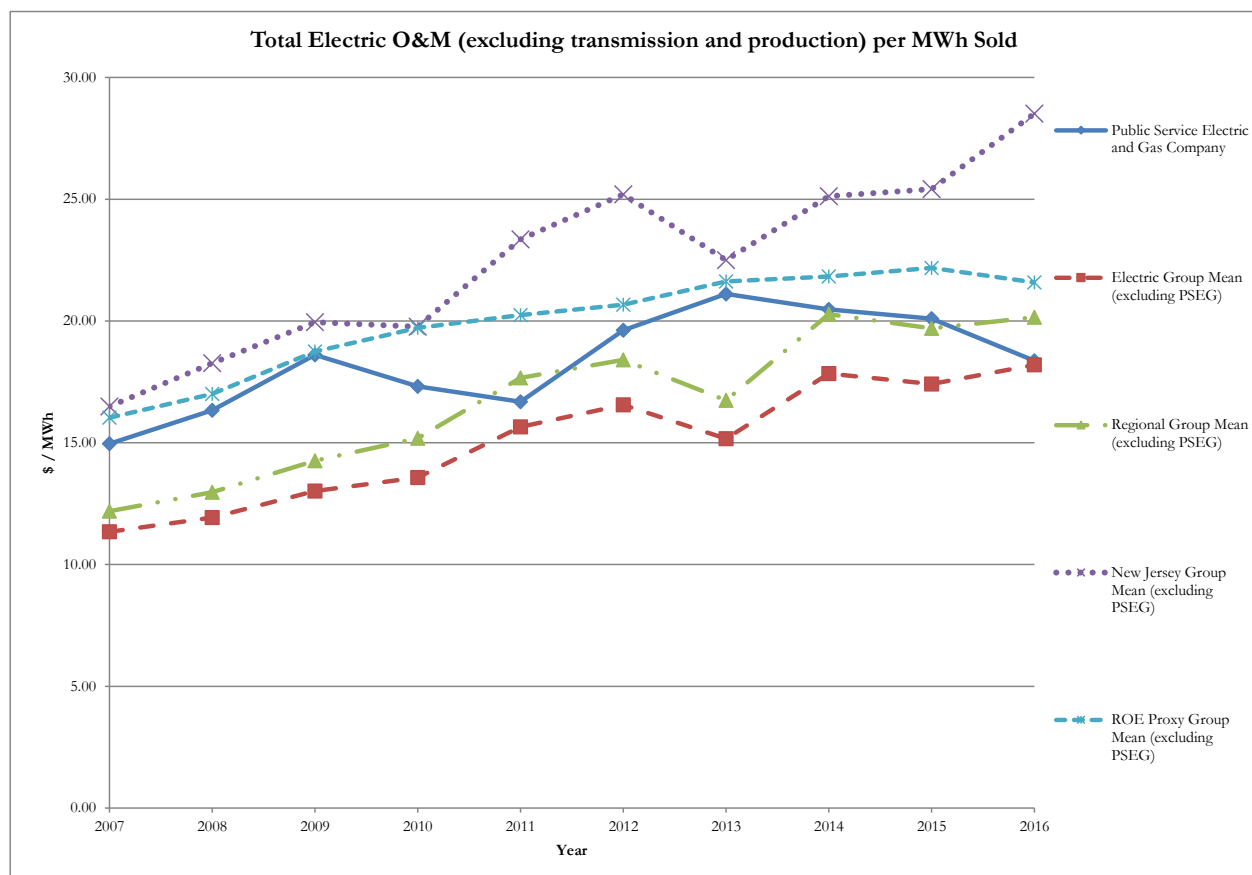
A&G Expense per MWh Sold										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	4.78	4.92	5.39	4.62	4.08	5.17	4.81	3.85	4.81	4.63
Electric Group Mean (excluding PSEG)	4.00	3.85	4.88	4.92	5.85	6.29	5.14	6.58	6.04	6.81
Regional Group Mean (excluding PSEG)	4.22	4.09	5.31	5.49	6.70	7.18	5.74	7.60	6.91	7.77
New Jersey Group Mean (excluding PSEG)	6.43	6.72	7.67	7.15	8.66	8.69	7.25	9.20	7.90	9.19
ROE Proxy Group Mean (excluding PSEG)	7.57	7.85	8.97	9.31	9.28	9.49	9.38	8.77	8.90	8.32



Salaries, Wages, Pensions, and Benefits Expense (\$000) per Employee										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	104.66	111.47	113.03	120.44	114.16	123.07	120.12	118.26	126.71	126.74
Electric Group Mean (excluding PSEG)	89.17	95.60	109.59	112.71	126.30	133.49	105.76	137.77	138.24	132.80
Regional Group Mean (excluding PSEG)	87.24	88.79	107.88	109.92	126.74	130.02	97.43	137.62	133.64	127.07
New Jersey Group Mean (excluding PSEG)	93.13	95.47	116.85	121.93	141.75	149.16	110.76	156.76	146.54	139.46
ROE Proxy Group Mean (excluding PSEG)	113.44	116.96	123.63	131.65	138.79	146.64	148.52	140.33	163.45	156.97



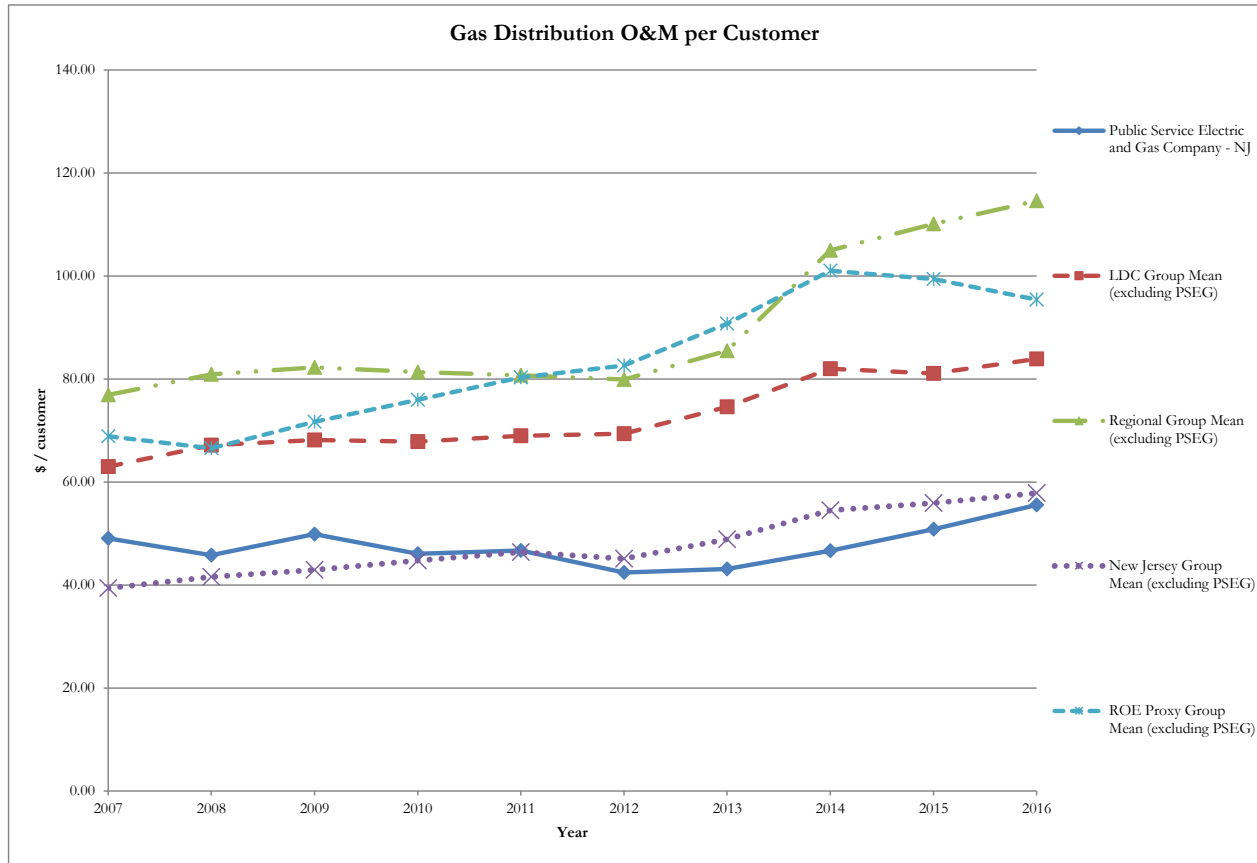
Total Electric O&M (excluding transmission and production) per Customer										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	318.53	338.54	366.38	350.71	328.83	377.36	397.25	378.98	378.28	343.01
Electric Group Mean (excluding PSEG)	265.26	269.21	280.18	307.96	347.56	361.47	320.48	366.90	358.16	376.76
Regional Group Mean (excluding PSEG)	279.71	286.06	299.25	331.69	377.78	386.57	336.12	394.66	384.15	397.97
New Jersey Group Mean (excluding PSEG)	355.23	387.26	400.95	416.59	477.45	502.97	449.11	488.64	499.38	544.98
ROE Proxy Group Mean (excluding PSEG)	345.36	350.41	376.45	407.96	419.49	421.97	442.22	443.78	450.42	435.46



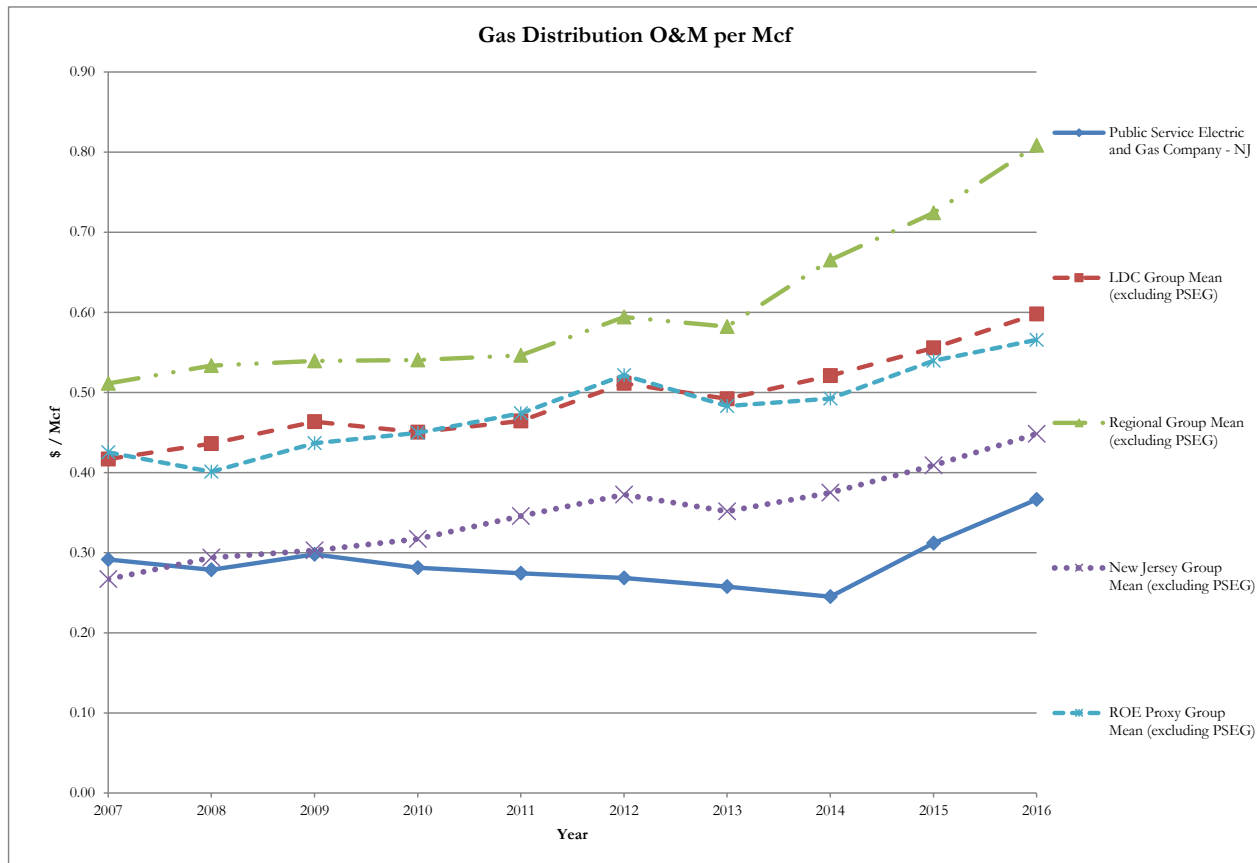
Total Electric O&M (excluding transmission and production) per MWh Sold										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	14.96	16.33	18.61	17.31	16.68	19.62	21.11	20.47	20.09	18.37
Electric Group Mean (excluding PSEG)	11.34	11.93	13.02	13.58	15.65	16.56	15.16	17.84	17.41	18.20
Regional Group Mean (excluding PSEG)	12.19	12.97	14.26	15.19	17.66	18.41	16.74	20.28	19.70	20.15
New Jersey Group Mean (excluding PSEG)	16.49	18.27	19.95	19.77	23.35	25.20	22.50	25.12	25.42	28.51
ROE Proxy Group Mean (excluding PSEG)	16.03	17.01	18.74	19.72	20.24	20.66	21.62	21.82	22.18	21.59



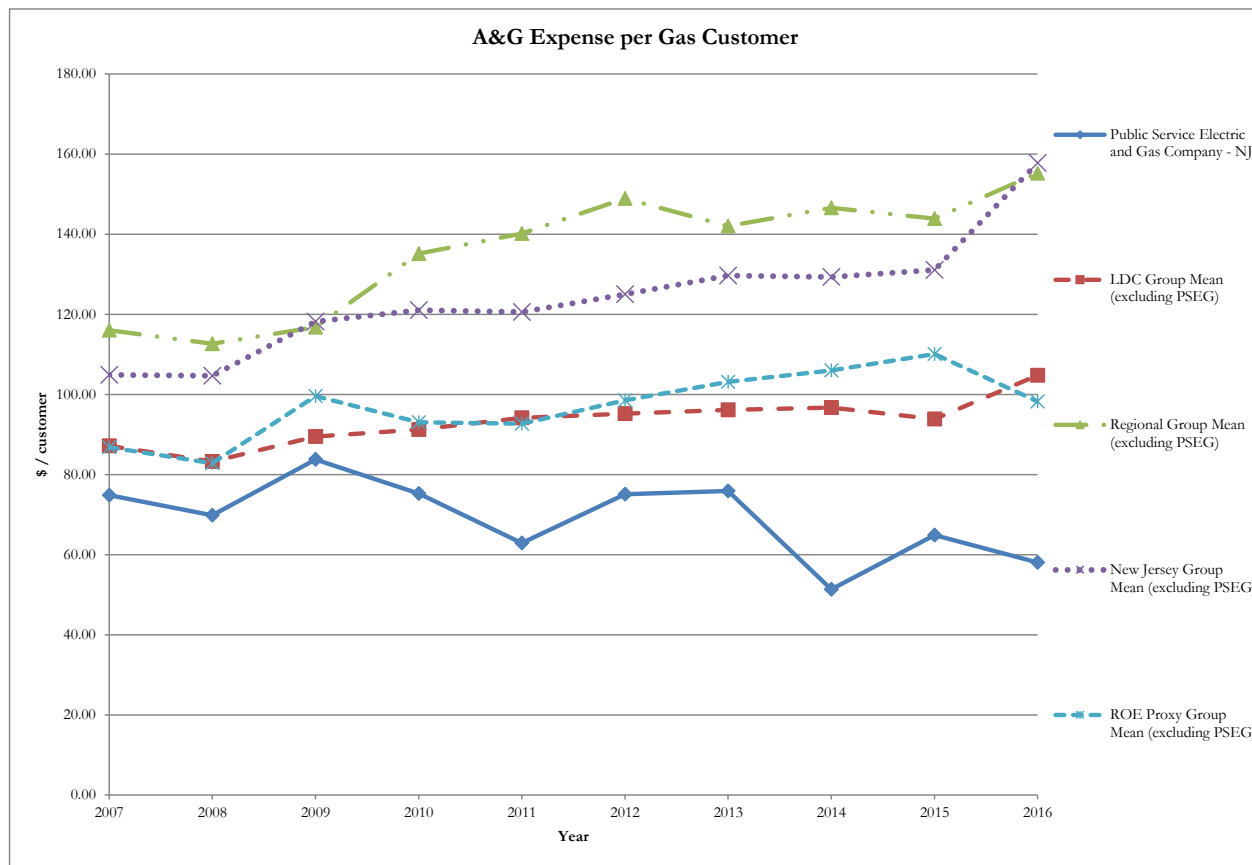
**EXHIBIT P-6**  
**Schedule MJA-10**  
**Page 1 of 1**



Gas Distribution O&M per Customer										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company - NJ	49.07	45.78	49.89	46.05	46.69	42.42	43.12	46.65	50.80	55.55
LDC Group Mean (excluding PSEG)	62.99	67.16	68.17	67.82	68.95	69.38	74.59	81.98	81.07	83.89
Regional Group Mean (excluding PSEG)	76.91	80.90	82.25	81.36	80.72	79.88	85.50	104.97	110.10	114.59
New Jersey Group Mean (excluding PSEG)	39.38	41.59	42.92	44.73	46.38	45.10	48.86	54.51	55.91	57.84
ROE Proxy Group Mean (excluding PSEG)	68.86	66.55	71.70	75.93	80.31	82.62	90.75	101.02	99.41	95.40



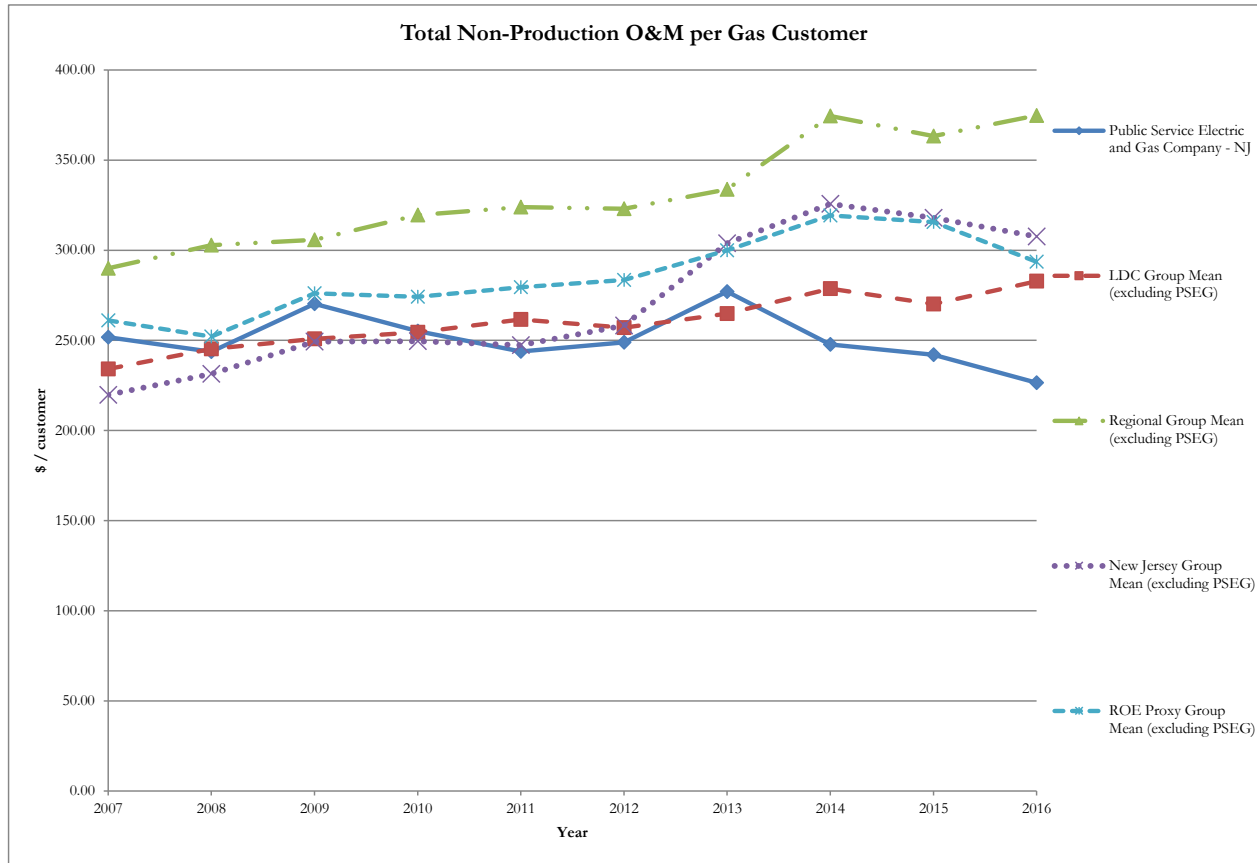
Gas Distribution O&M per Mcf										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company - NJ	0.29	0.28	0.30	0.28	0.27	0.27	0.26	0.25	0.31	0.37
LDC Group Mean (excluding PSEG)	0.42	0.44	0.46	0.45	0.46	0.51	0.49	0.52	0.56	0.60
Regional Group Mean (excluding PSEG)	0.51	0.53	0.54	0.54	0.55	0.59	0.58	0.67	0.72	0.81
New Jersey Group Mean (excluding PSEG)	0.27	0.29	0.30	0.32	0.35	0.37	0.35	0.37	0.41	0.45
ROE Proxy Group Mean (excluding PSEG)	0.43	0.40	0.44	0.45	0.47	0.52	0.48	0.49	0.54	0.57



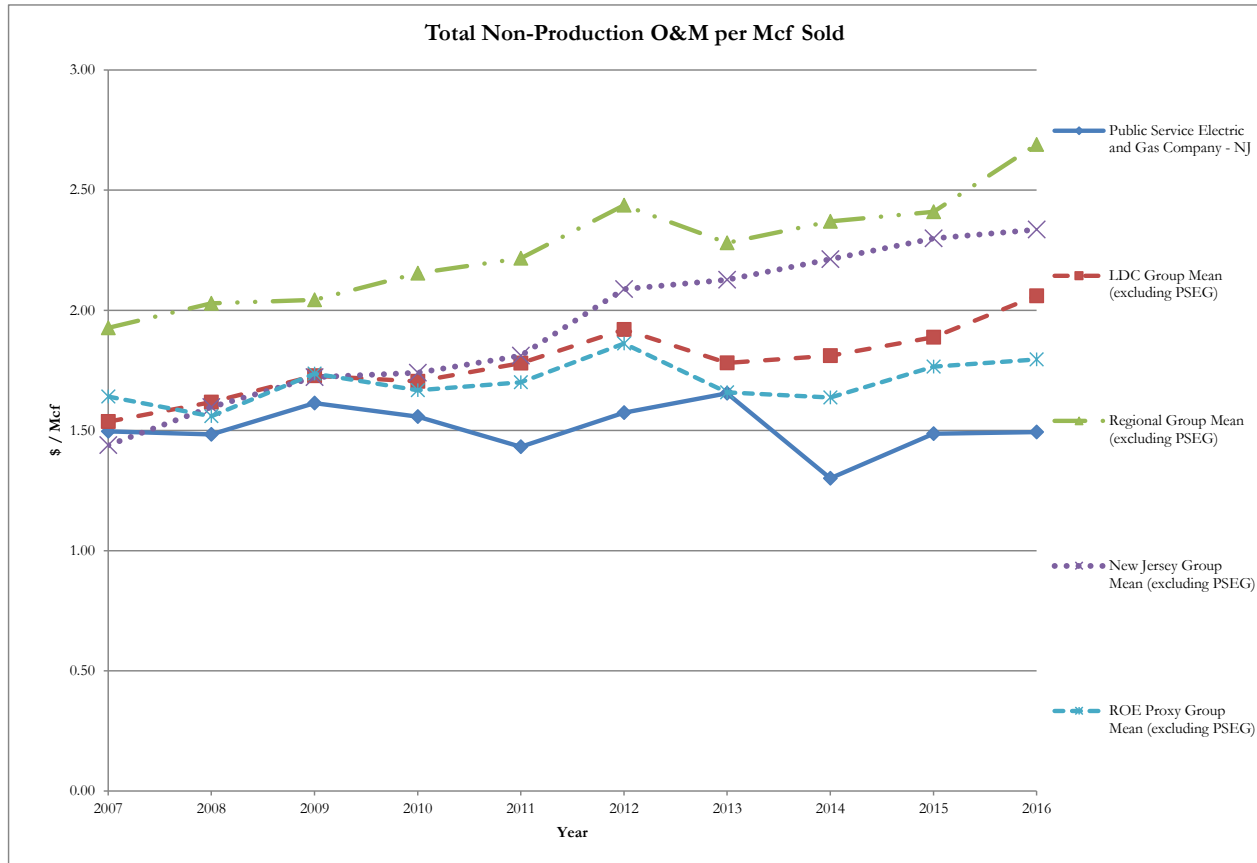
A&G Expense per Gas Customer										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company - NJ	74.87	69.81	83.75	75.25	62.89	75.06	75.90	51.35	64.88	58.05
LDC Group Mean (excluding PSEG)	87.14	83.25	89.48	91.26	94.17	95.18	96.14	96.71	93.89	104.77
Regional Group Mean (excluding PSEG)	116.05	112.66	116.78	135.16	140.15	148.94	142.05	146.58	143.92	155.24
New Jersey Group Mean (excluding PSEG)	104.87	104.65	118.21	121.05	120.59	125.02	129.65	129.30	131.05	157.80
ROE Proxy Group Mean (excluding PSEG)	86.82	82.83	99.59	93.03	92.68	98.50	103.11	106.02	110.09	98.26



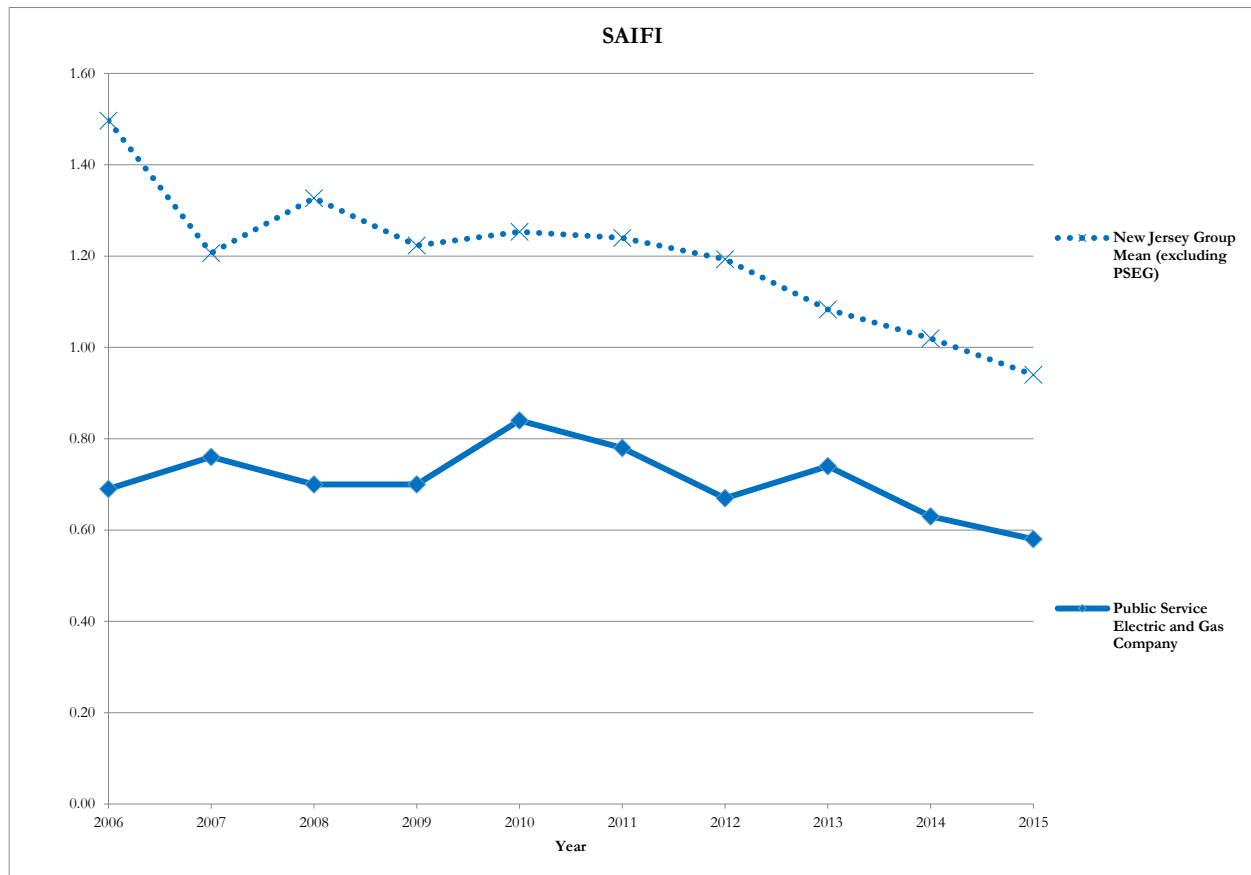
A&G Expense per Mcf Sold										
Annual Values										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company - NJ	0.44	0.42	0.50	0.46	0.37	0.47	0.45	0.27	0.40	0.38
LDC Group Mean (excluding PSEG)	0.57	0.55	0.62	0.61	0.63	0.70	0.64	0.63	0.66	0.76
Regional Group Mean (excluding PSEG)	0.77	0.76	0.78	0.92	0.96	1.12	0.97	0.93	0.97	1.14
New Jersey Group Mean (excluding PSEG)	0.66	0.70	0.79	0.82	0.85	0.99	0.90	0.86	0.92	1.15
ROE Proxy Group Mean (excluding PSEG)	0.50	0.47	0.58	0.54	0.53	0.60	0.53	0.52	0.56	0.57



Total Non-Production O&M per Gas Customer										
Annual Values										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company - NJ	251.78	243.77	270.27	255.17	243.84	248.92	277.07	247.70	242.08	226.50
LDC Group Mean (excluding PSEG)	234.13	245.29	250.80	254.40	261.60	257.04	264.84	278.72	270.14	282.81
Regional Group Mean (excluding PSEG)	289.99	302.84	305.80	319.54	323.93	323.01	333.80	374.46	363.34	374.79
New Jersey Group Mean (excluding PSEG)	219.79	231.38	249.25	249.50	247.29	258.28	303.89	325.70	318.02	307.58
ROE Proxy Group Mean (excluding PSEG)	261.08	252.09	276.16	274.17	279.51	283.46	299.97	319.32	315.69	293.61

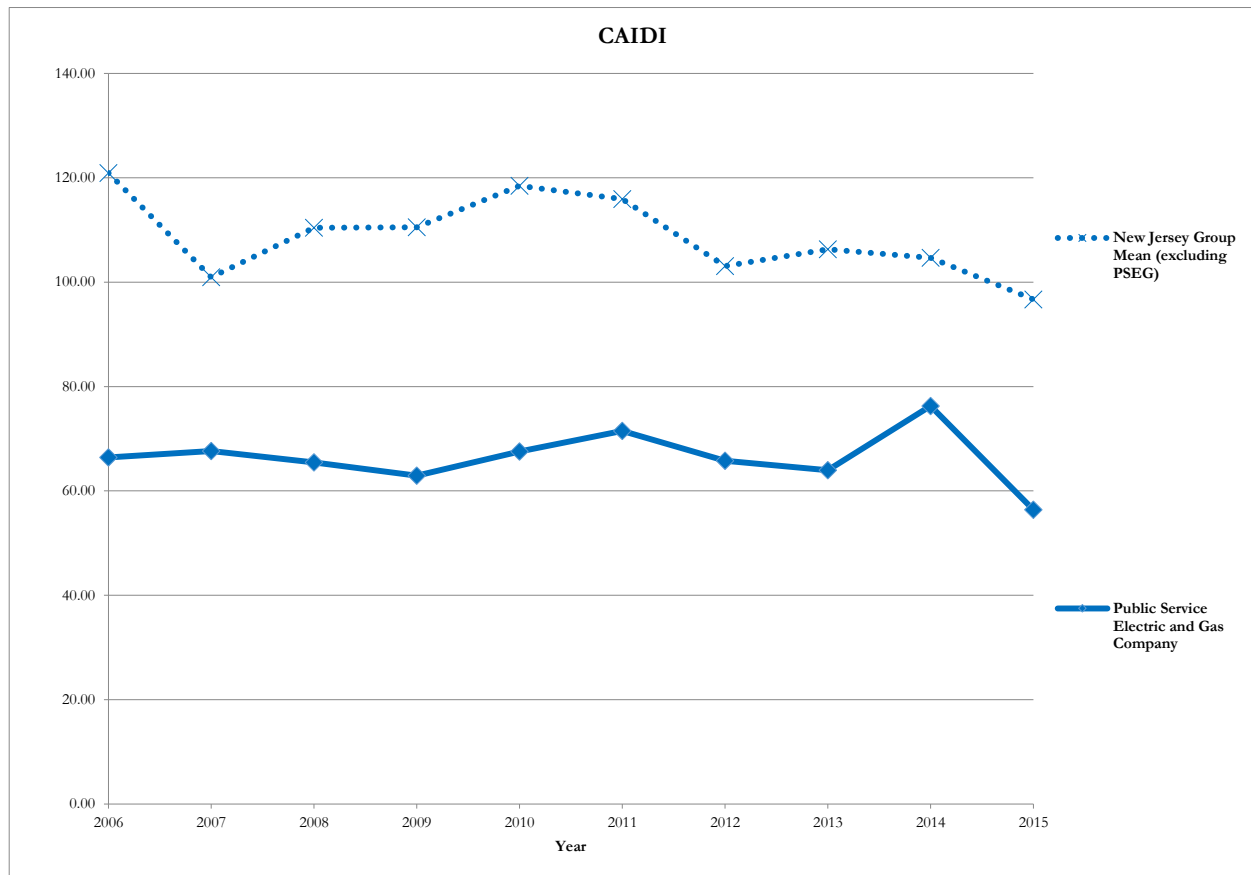


Total Non-Production O&M per Mcf Sold										
	Annual Values									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Public Service Electric and Gas Company - NJ	1.50	1.48	1.61	1.56	1.43	1.57	1.65	1.30	1.49	1.49
LDC Group Mean (excluding PSEG)	1.54	1.62	1.73	1.70	1.78	1.92	1.78	1.81	1.89	2.06
Regional Group Mean (excluding PSEG)	1.93	2.03	2.04	2.15	2.22	2.44	2.28	2.37	2.41	2.69
New Jersey Group Mean (excluding PSEG)	1.44	1.60	1.72	1.74	1.81	2.09	2.13	2.21	2.30	2.34
ROE Proxy Group Mean (excluding PSEG)	1.64	1.56	1.74	1.67	1.70	1.86	1.66	1.64	1.77	1.80



SAIFI										
Annual Values										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Public Service Electric and Gas Company	0.69	0.76	0.70	0.70	0.84	0.78	0.67	0.74	0.63	0.58
New Jersey Group Mean (excluding PSEG)	1.50	1.21	1.33	1.22	1.25	1.24	1.19	1.08	1.02	0.94

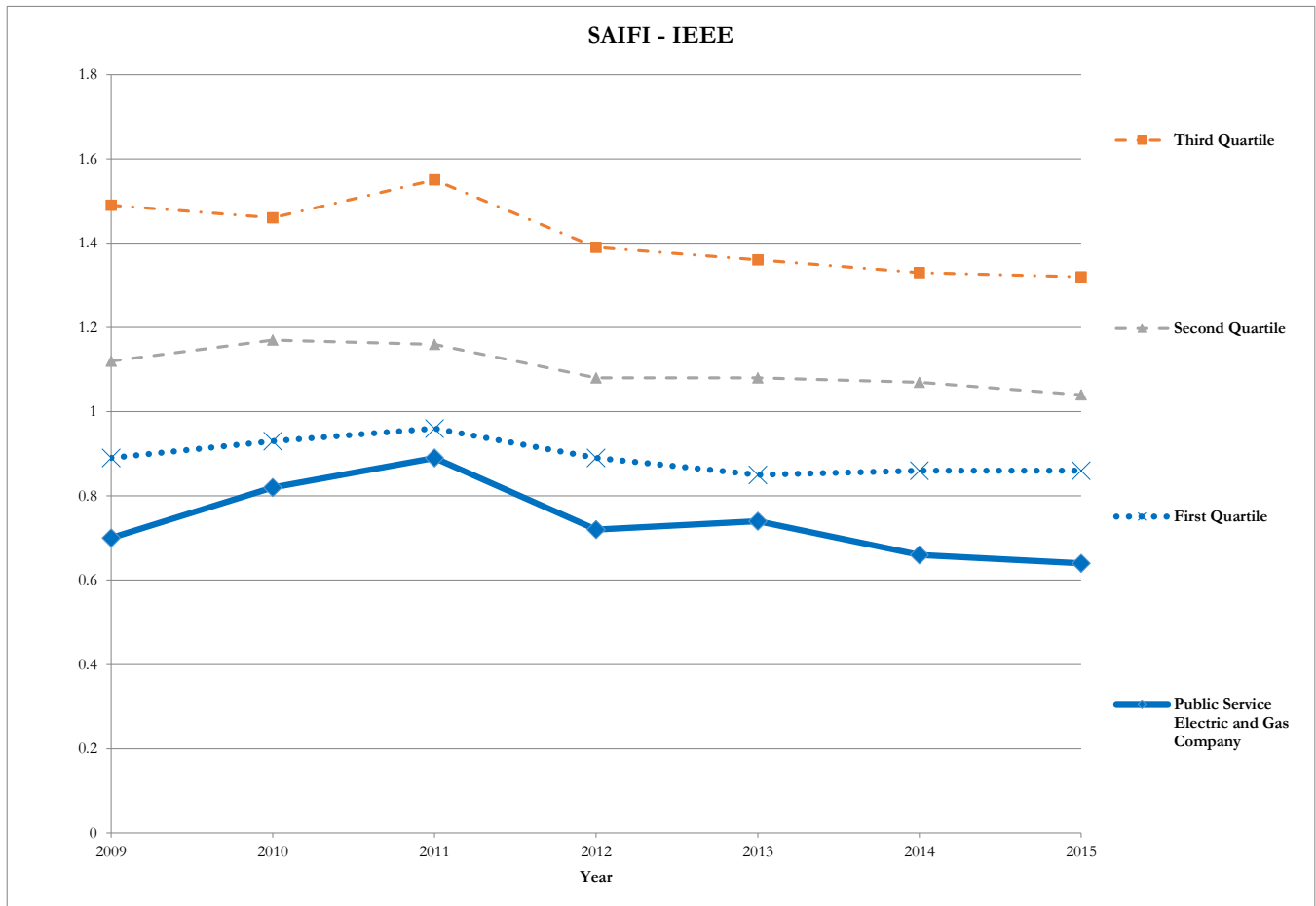
Source: Annual System Performance Reports filed with NJ BPU



CAIDI										
Annual Values										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Public Service Electric and Gas Company	66.44	67.65	65.45	62.92	67.54	71.49	65.77	63.97	76.28	56.39
New Jersey Group Mean (excluding PSEG)	120.93	100.93	110.43	110.53	118.47	115.93	103.10	106.30	104.67	96.70

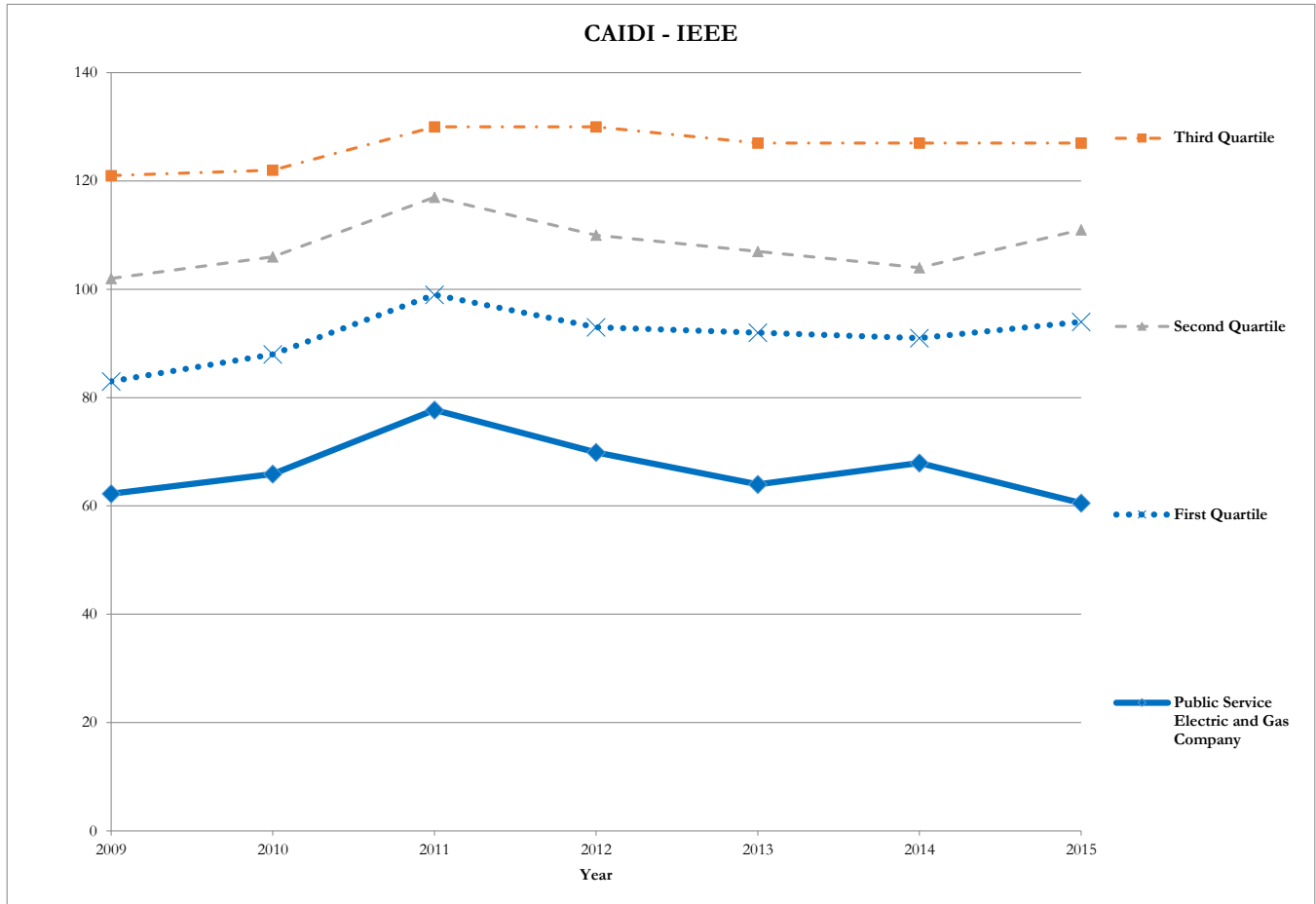
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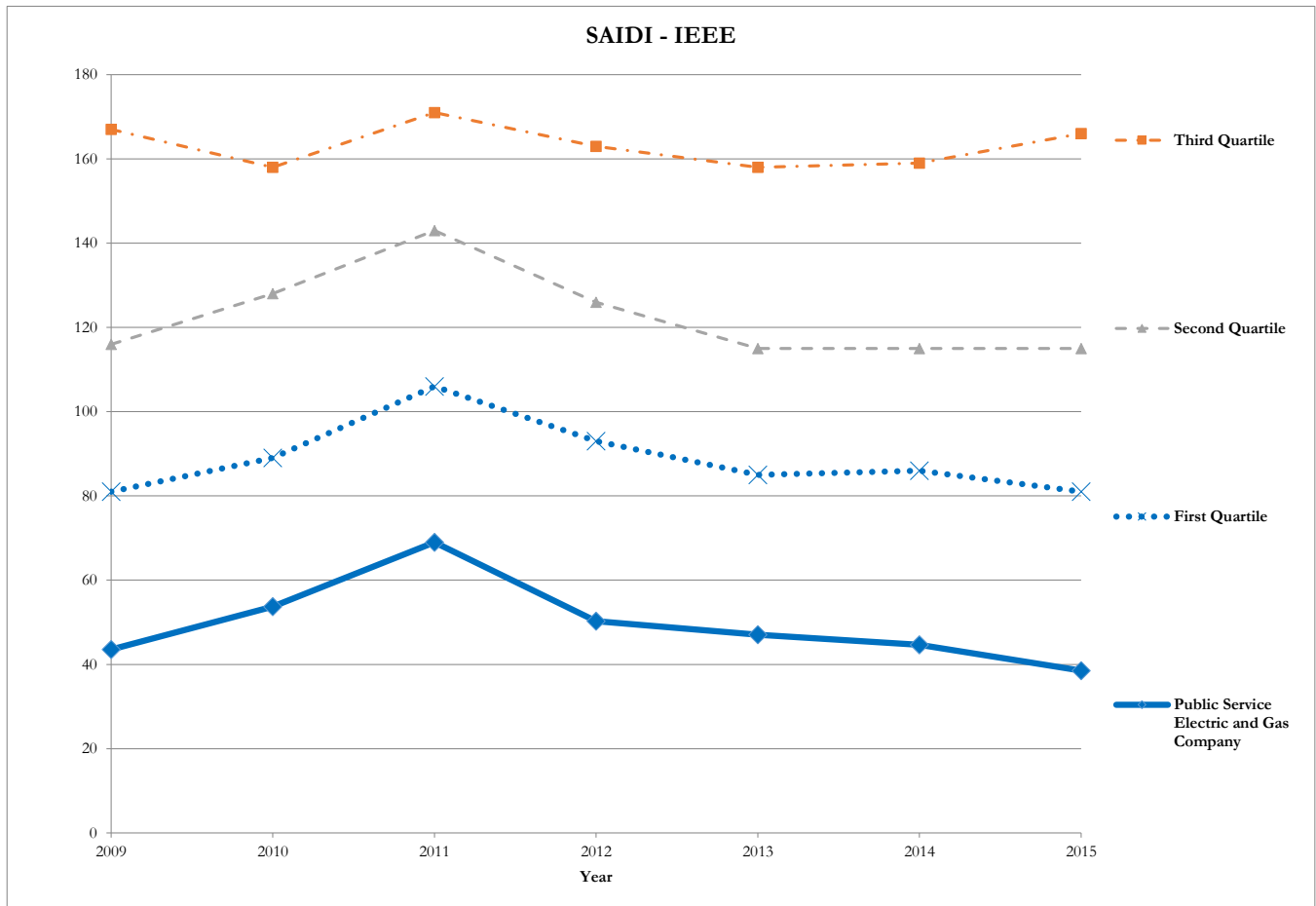
SAIFI - IEEE							
Annual Values							
	2009	2010	2011	2012	2013	2014	2015
Public Service Electric and Gas Company	0.70	0.82	0.89	0.72	0.74	0.66	0.64
Third Quartile	1.49	1.46	1.55	1.39	1.36	1.33	1.32
Second Quartile	1.12	1.17	1.16	1.08	1.08	1.07	1.04
First Quartile	0.89	0.93	0.96	0.89	0.85	0.86	0.86

Source: IEEE



CAIDI - IEEE							
Annual Values							
	2009	2010	2011	2012	2013	2014	2015
Public Service Electric and Gas Company	62	66	78	70	64	68	61
Third Quartile	121	122	130	130	127	127	127
Second Quartile	102	106	117	110	107	104	111
First Quartile	83	88	99	93	92	91	94

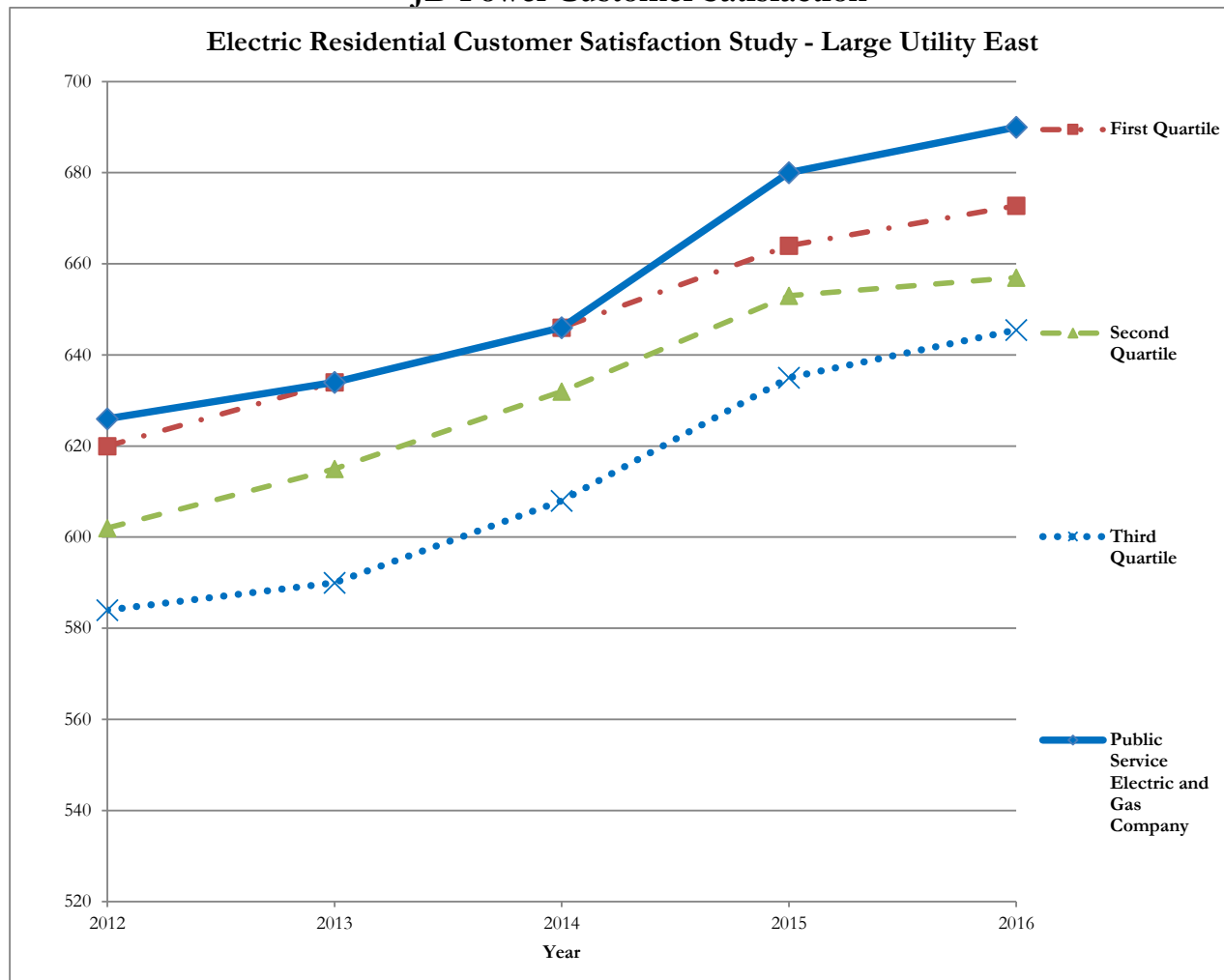
Source: IEEE



SAIDI - IEEE							
Annual Values							
	2009	2010	2011	2012	2013	2014	2015
Public Service Electric and Gas Company	44	54	69	50	47	45	39
Third Quartile	167	158	171	163	158	159	166
Second Quartile	116	128	143	126	115	115	115
First Quartile	81	89	106	93	85	86	81

Source: IEEE

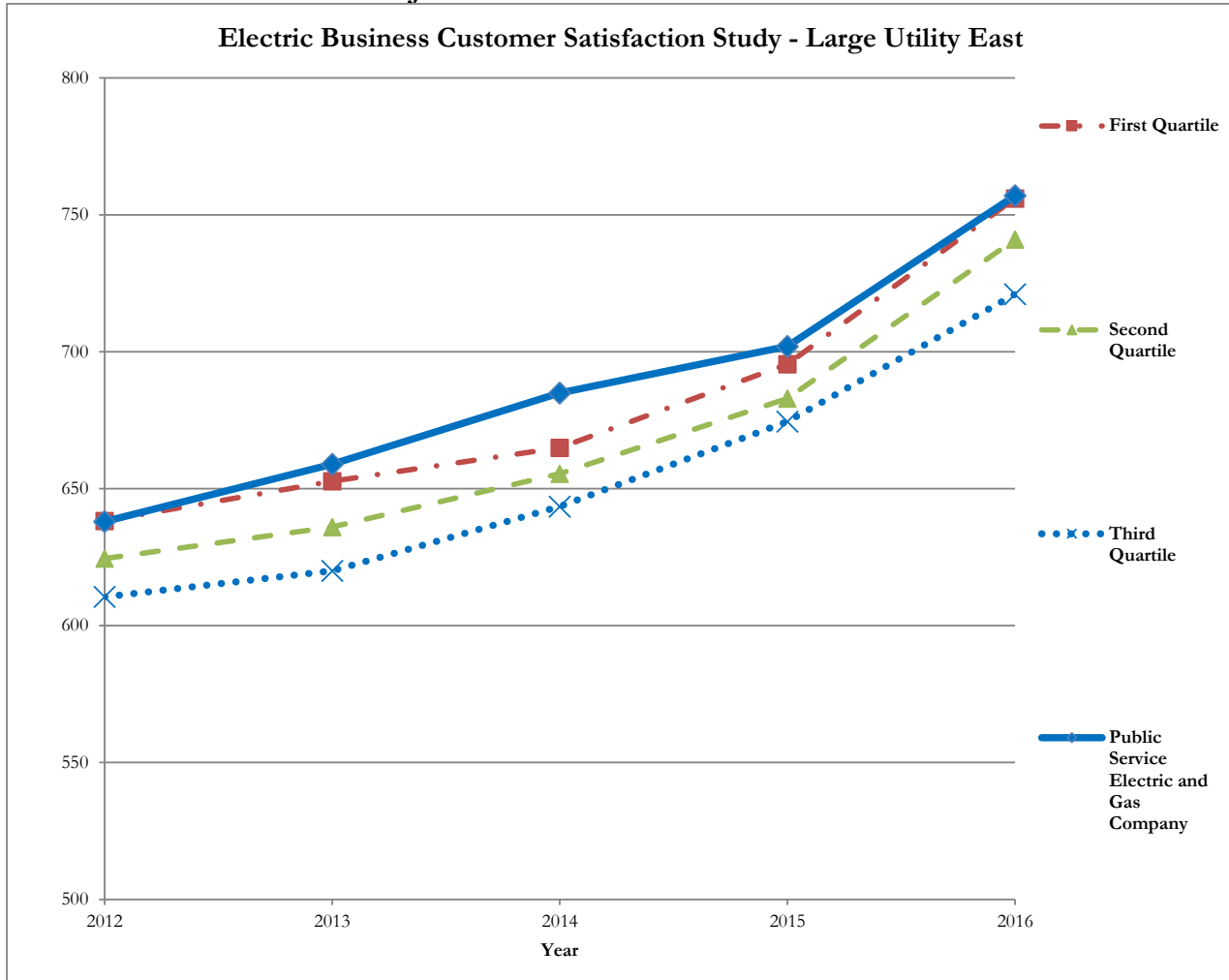
### JD Power Customer Satisfaction



Electric Residential Customer Satisfaction Study - Large Utility East					
	Annual Values				
	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	626	634	646	680	690
First Quartile	620	634	646	664	673
Second Quartile	602	615	632	653	657
Third Quartile	584	590	608	635	646

Source: JD Power

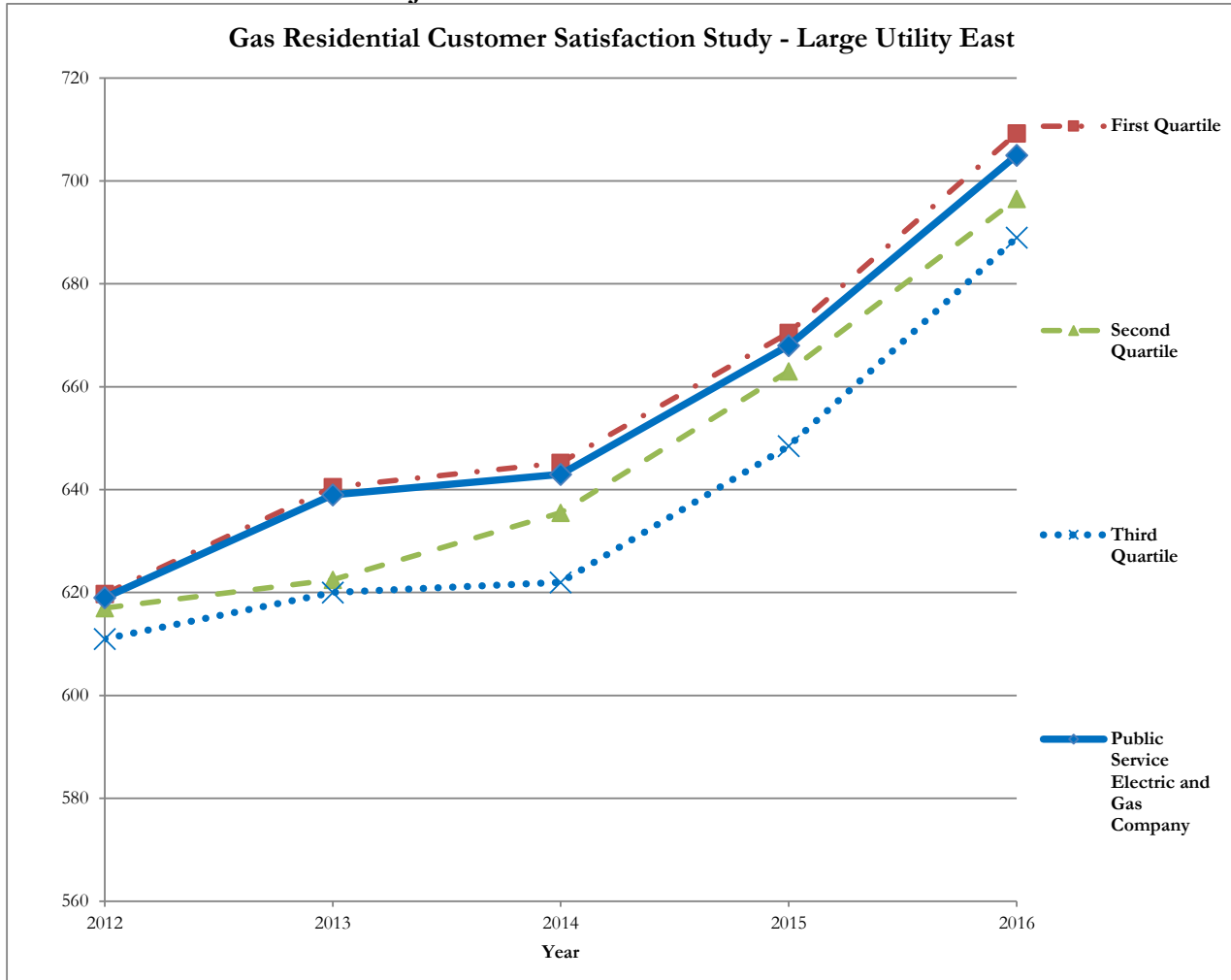
**JD Power Customer Satisfaction**



Electric Business Customer Satisfaction Study - Large Utility East					
	Annual Values				
	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	638	659	685	702	757
First Quartile	638	653	665	696	756
Second Quartile	625	636	656	683	741
Third Quartile	611	620	644	675	721

Source: JD Power

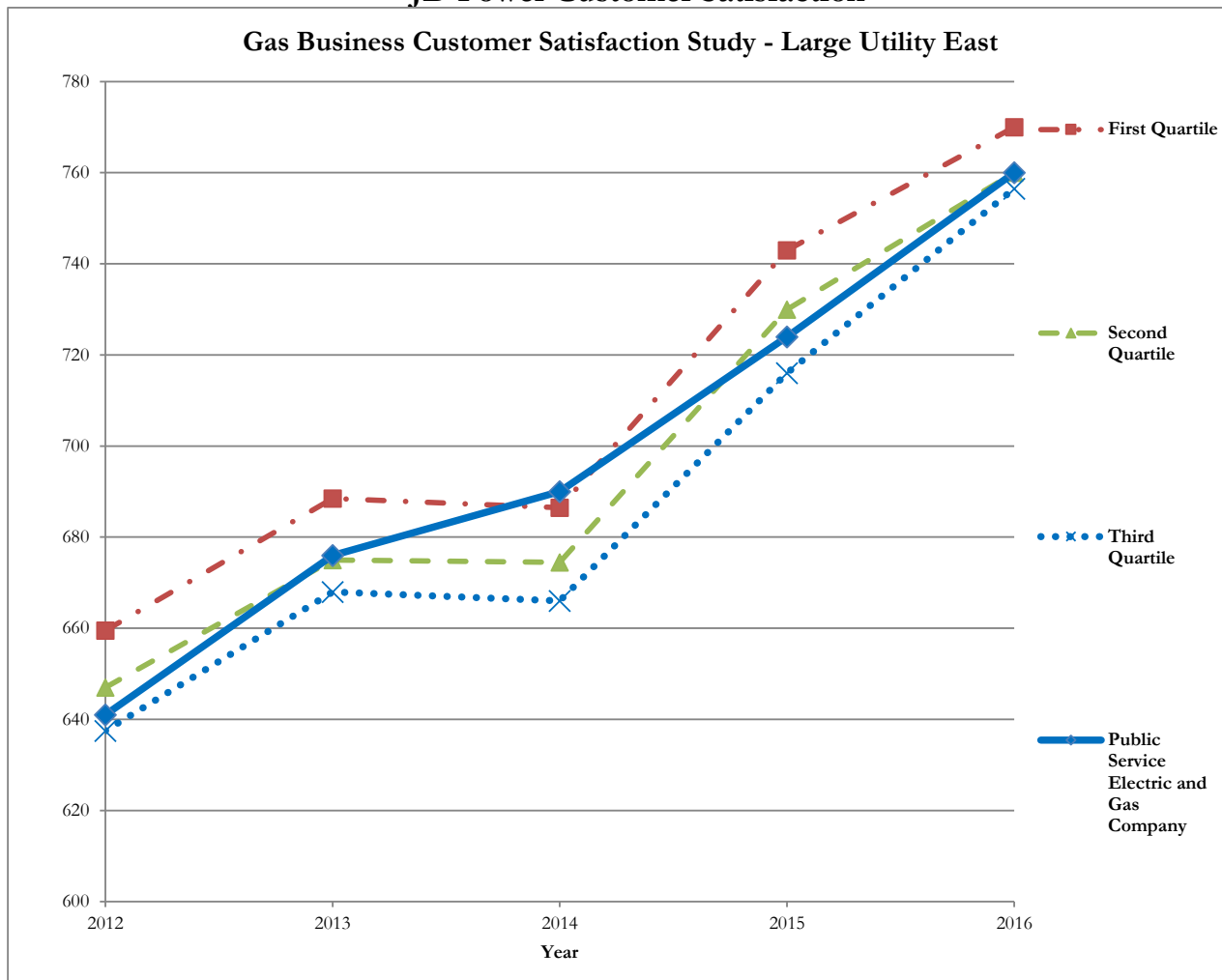
**JD Power Customer Satisfaction**



Gas Residential Customer Satisfaction Study - Large Utility East					
	Annual Values				
	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	619	639	643	668	705
First Quartile	620	641	645	671	709
Second Quartile	617	623	636	663	697
Third Quartile	611	620	622	649	689

Source: JD Power

**JD Power Customer Satisfaction**



Gas Business Customer Satisfaction Study - Large Utility East					
	Annual Values				
	2012	2013	2014	2015	2016
Public Service Electric and Gas Company	641	676	690	724	760
First Quartile	660	689	687	743	770
Second Quartile	647	675	675	730	760
Third Quartile	638	668	666	716	757

Source: JD Power