

PROCEEDING ON MOTION OF THE  
COMMISSION AS TO THE RATES,  
CHARGES, RULES AND  
REGULATIONS OF THE BROOKLYN  
UNION GAS COMPANY FOR GAS  
SERVICE

PROCEEDING ON MOTION OF THE  
COMMISSION AS TO THE RATES,  
CHARGES, RULES AND  
REGULATIONS OF KEYSpan GAS  
EAST CORPORATION FOR GAS  
SERVICE

Rebuttal Testimony and Exhibits of:  
Theodore Poe Jr.  
Maureen P. Heaphy  
Sean P. Mongan  
Ann E. Bulkley  
Stephen H. Caldwell

Book 1

June 10, 2016

Submitted to:

New York State Public Service Commission

Case 16-G-0058

Case 16-G-0059

Submitted by:

The Brooklyn Union Gas Company and

KeySpan Gas East Corporation

nationalgrid



**Before the Public Service Commission**

**THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY  
and KEYSpan GAS EAST CORPORATION d/b/a NATIONAL GRID**

**Rebuttal Testimony**

**of**

**Theodore Poe, Jr.**

**Case 16-G-0058**

**Case 16-G-0059**

June 10, 2016

Rebuttal Testimony of Theodore Poe, Jr.

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

2 A. My name is Theodore Poe, Jr. My business address is 40 Sylvan Road,  
3 Waltham, Massachusetts 02451.

4

5 **Q. Have you testified previously in these proceedings?**

6 A. Yes. I submitted direct testimony concerning the development of the gas load  
7 forecasts for KEDNY and KEDLI. The terms defined in my direct testimony  
8 have the same definitions here.

9

10 **Q. What is the purpose of your rebuttal testimony?**

11 A. The purpose of my rebuttal testimony is to respond to certain  
12 recommendations set forth in the testimony of the Staff Gas Rates Panel  
13 (“Staff”). Specifically, I will address Staff’s proposed meter count forecasts  
14 and explain why I believe that my forecasts more accurately predict the level  
15 of growth that is expected to occur for KEDNY and KEDLI, particularly in  
16 the Data Years.

17

18 **Q. Please summarize the differences in the methodologies used by the  
19 Companies and Staff to develop their respective meter count forecasts.**

20 A. KEDNY and KEDLI’s meter count forecasts are based on ten years of historic  
21 data (March 2004 through February 2015) and consider the impact of

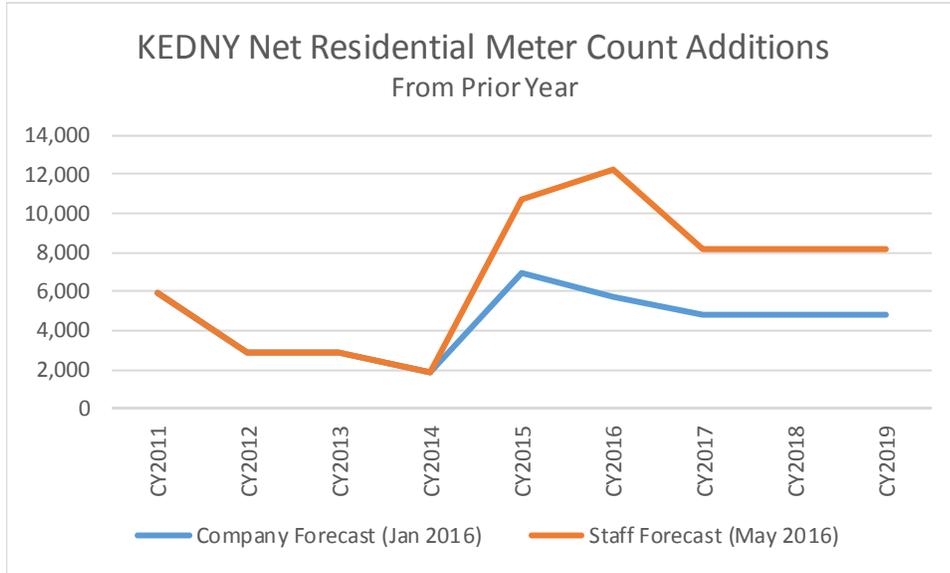
Rebuttal Testimony of Theodore Poe, Jr.

1 independent variables such as economic factors (*e.g.*, population, households,  
2 employment, and natural gas and oil prices) that the Companies believe have  
3 historically affected the growth rates. Staff's meter count forecasts are based  
4 on an extrapolation, using linear regression analysis, of the three most recent  
5 years of data (CY 2013 to CY 2015). That is, Staff simply develops a trend  
6 line using recent data to forecast KEDNY and KEDLI's meter counts and  
7 takes no account of the impact of independent variables. As I discuss below,  
8 Staff erroneously includes a one-time event in its forecast data and the three  
9 years used to establish its trend line were not characterized by the lower oil  
10 prices we are seeing now. Including this one-time event and simply failing to  
11 consider oil prices relative to natural gas prices, a driver of residential gas  
12 growth, results in Staff grossly overestimating the Companies' residential  
13 growth rates. As Figures 1 and 2 show below, KEDNY and KEDLI forecast  
14 approximately 4,800 and 4,200 net residential meter additions, respectively,  
15 per year in CY 17 through CY 19, while Staff forecasts approximately 8,200  
16 and 7,000 net residential meter additions for KEDNY and KEDLI,  
17 respectively, per year in the same timeframe (almost a 50 percent increase for  
18 both Companies).

19  
20  
21

Rebuttal Testimony of Theodore Poe, Jr.

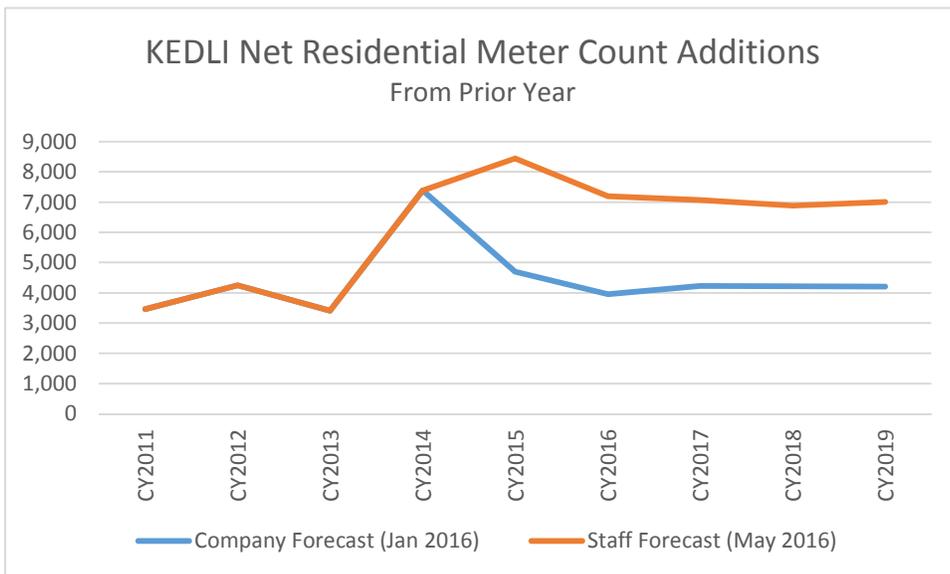
1 **Figure 1: Comparison of KEDNY Net Residential Meter Count Forecasts**



2

3

4 **Figure 2: Comparison of KEDLI Net Residential Meter Count Forecasts**



5

6

Rebuttal Testimony of Theodore Poe, Jr.

1 **Q. Please discuss the one-time event that Staff included in its meter count**  
2 **forecasts.**

3 A. In CY 15, the Companies undertook an initiative to ensure that all meters  
4 registering usage were captured in their respective billing systems. The  
5 initiative was completed at the end of CY 15 and it resulted in the  
6 identification of approximately 52,000 meters for KEDNY and 8,000 meters  
7 for KEDLI that were not accounted for in their billing systems. A portion of  
8 these meters, typically low-use, were rolled into the Companies' billing  
9 system data and a portion were locked off. Staff mistakenly attributes the  
10 meters that were reflected in the billing systems as growth that will continue  
11 year-over-year in its trending analyses. In reality, however, the addition of  
12 these meters was one-time in nature.

13

14 **Q. Please discuss the second issue that you have with Staff's forecasts.**

15 A. The second issue I have with Staff's forecasts relates to its use of the most  
16 recent three years of data to project future growth. The problem is that the  
17 price of natural gas was significantly lower than oil during this period, with oil  
18 prices exceeding \$100/bbl and a gas-to-oil ratio of less than 0.40. This price  
19 differential contributed to an increase in both the number of new customers  
20 and the number of residential non-heat to heat conversions in this period.  
21 Staff's forecast incorrectly assumes that KEDNY and KEDLI's meter counts

## Rebuttal Testimony of Theodore Poe, Jr.

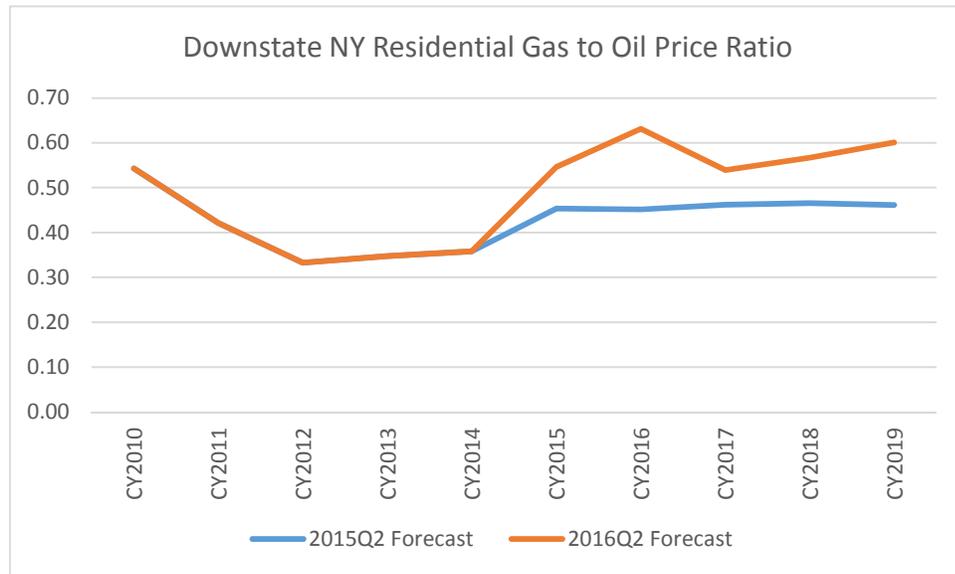
1 will continue to grow, particularly in the Data Years, at the same rate they  
2 grew when the price disparity between oil and gas was very wide. However,  
3 oil prices have dropped dramatically. The monthly average of spot crude oil  
4 prices on an annual basis during the period used by Staff was as follows: 2013  
5 \$104/bbl, 2014 \$96.25/bbl before falling to \$53/91 bbl in 2015. Therefore, at  
6 least two-thirds of the data upon which Staff's forecasts rely are based on oil  
7 prices averaging \$100/bbl, when oil is now at half that value. Clearly, with  
8 gas prices relatively unchanged over that period, Staff's meter count additions,  
9 which rely on oil prices that were much higher than today's prices, are  
10 overstated.

11  
12 Figure 3 shows the ratio of residential delivered natural gas prices to distillate  
13 oil prices used in KEDNY and KEDLI's forecasts as well as the most recent  
14 ratios reflected in the Companies' second quarter CY 2016 forecast. As can  
15 be seen, the gap between natural gas and oil prices was quite significant in the  
16 past three years, but is projected to narrow from CY 17 through CY 19,  
17 reducing the economic benefits of conversion to natural gas. In fact, no  
18 credible forecast of crude oil prices into 2019 shows oil prices close to the  
19 average of \$85/bbl ( $\$104 + \$96 + \$54$  divided  $\times 3 = \$85$ /bbl) seen in the  
20 three-year period used by Staff to derive their meter count forecast.

21

1

**Figure 3: Ratio of Natural Gas to Distillate Oil Prices**



2

3

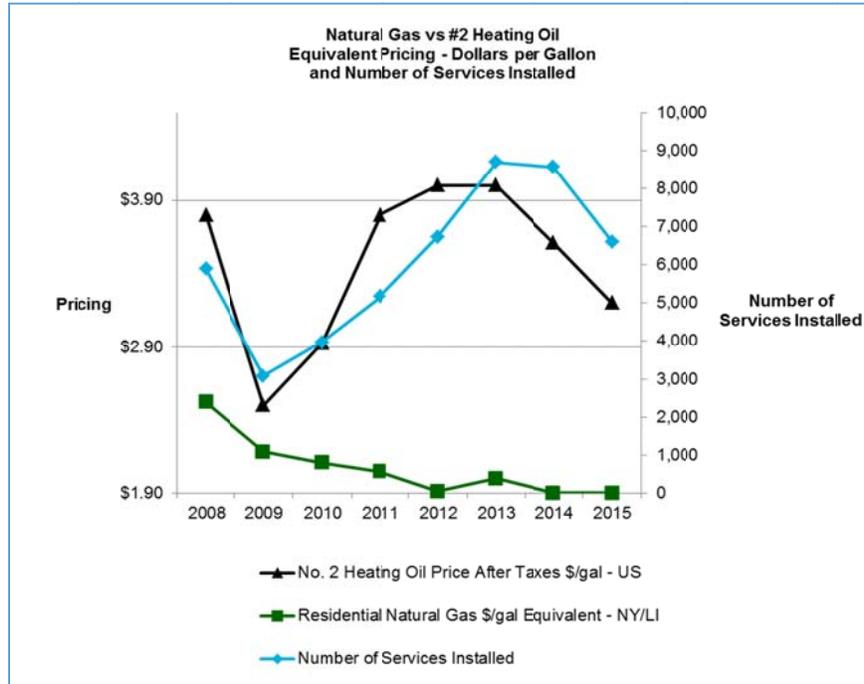
4 **Q. Is there a direct relationship between the difference in natural gas and oil**  
5 **prices and the Companies' ability to add customers?**

6 A. Yes. The impact on the increase in the gas-to-oil ratio is evident in the  
7 Companies' new service installation data (*i.e.* gross meter count additions, as  
8 opposed to the net meter counts in the Companies' forecast data). For  
9 KEDLI, the decrease is evident in Figure 4 below, which shows an uncanny  
10 similarity between the curve of the pricing for #2 home heating oil and the  
11 number of services installed, albeit lagged for a short time, as one would  
12 expect.

13

3  
4

**Figure 4: Natural Gas and Distillate Oil Prices Relative to KEDLI Service Installations**



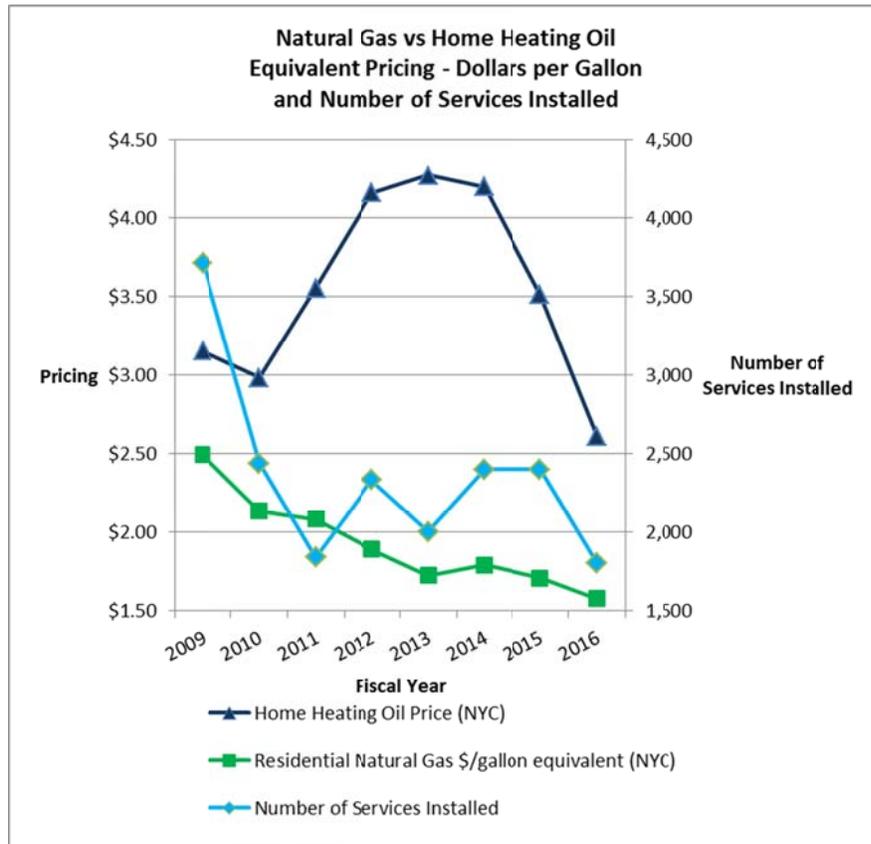
4  
5

10 While KEDNY has a higher saturation rate of natural gas than Long Island  
11 and conversions are largely driven by commercial and new construction  
12 customers who are less sensitive to commodity prices, Figure 5 below shows a  
13 similar downward trend in the number of services installed as oil prices  
14 decline.

11  
12  
13  
14

3  
4  
4

**Figure 5: Natural Gas and Distillate Oil Prices Relative to KEDNY Service Installations**



5  
6

7 **Q. What do you conclude from the above information?**

12 A. I conclude that Staff's meter count forecasts are overstated, especially in the  
13 Data Years, particularly because Staff's meter count forecasts assume a  
14 continuation of the relationship between distillate oil prices and natural gas  
15 prices that is not expected to continue. I further conclude that the Companies'  
16 forecast methodology, which is based on a longer data stream, accounts for

Rebuttal Testimony of Theodore Poe, Jr.

1 independent variables, and is less likely to be influenced by anomalous events,  
2 is more reflective of future conditions. For these reasons, the Companies'  
3 forecasts should be utilized by the Commission to set rates in these  
4 proceedings.

5

6 **Q. Does this conclude your testimony?**

7 A. Yes, it does.

Rebuttal Testimony of  
Maureen P. Heaphy

**Before the Public Service Commission**

**THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY  
and KEYSpan GAS EAST CORPORATION d/b/a NATIONAL GRID**

**Rebuttal Testimony**

**of**

**Maureen P. Heaphy**

**Case 16-G-0058**

**Case 16-G-0059**

June 10, 2016

Rebuttal Testimony of Maureen P. Heaphy

1 **I. Introduction**

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

3 A. My name is Maureen P. Heaphy. My business address is One Metrotech  
4 Center, Brooklyn, New York 11201.

5

6 **Q. Are you the same Maureen P. Heaphy who previously submitted direct  
7 and corrections and updates testimony in these proceedings?**

8 A. Yes, I am. The terms defined in my direct and corrections and updates  
9 testimony have the same definitions here.

10

11 **II. Purpose of the Testimony**

12 **Q. What is the purpose of your rebuttal testimony?**

13 A. The purpose of my rebuttal testimony is to respond to certain  
14 recommendations of Department of Public Service Staff (“Staff”) witness  
15 Daniel S. Gadomski. Specifically, I will address Mr. Gadomski’s  
16 recommendation that \$93,000 of operating expenses for KEDNY and \$60,000  
17 of operating expenses for KEDLI should be disallowed based on his claim that  
18 National Grid’s July 1, 2016 management wage increase should be reduced  
19 from 3.2 percent to 3.0 percent.

20

Rebuttal Testimony of Maureen P. Heaphy

1 **III. Management Wage Increase**

2 **Q. Why is Mr. Gadomski recommending that a portion of the Companies’**  
3 **July 1, 2016 management wage increase should be disallowed?**

4 A. Mr. Gadomski asserts that based on the World at Work organization’s forecast  
5 of “Total Salary Budget Increases,” a 3.0 percent increase is more reasonable  
6 to include in the Companies’ revenue requirements than the 3.2 percent  
7 included by the Companies. Mr. Gadomski further asserts that to the extent  
8 that the additional 0.2 percent increase is intended to increase the cash  
9 compensation of certain positions to bring it closer to market levels, then  
10 “other relatively overpaid positions would have to be adjusted downward.”

11

12 **Q. Do you agree with Mr. Gadomski’s recommendation?**

13 A. No, I do not. In my initial testimony, I presented a compensation study that  
14 showed that National Grid’s total compensation is approximately 95 percent  
15 of the median level of a representative peer group of utility and non-utility  
16 companies’ total compensation. While Mr. Gadomski adjusted the results of  
17 the study, he similarly concluded (at page 9) that National Grid’s total  
18 compensation was approximately 96.32 percent of the median level of the  
19 peer group’s total compensation. He also agreed (at page 5) that the standard  
20 for determining whether a company’s compensation is market competitive  
21 should be whether it is within plus or minus 10 percent of the median market

Rebuttal Testimony of Maureen P. Heaphy

1 level. The July 1, 2016 management wage increase of 3.2 percent will not  
2 cause National Grid's total compensation to exceed the median compensation  
3 of the peer group, much less fall outside the 10 percent upward bound  
4 discussed by Mr. Gadomski. For this reason alone, Mr. Gadomski's  
5 recommendation should be rejected.

6

7 **Q. Are there additional reasons why you believe that a 3.2 percent increase**  
8 **is particularly justified in 2016?**

9 A. Yes. In 2015, National Grid limited management wage increases to 0.43  
10 percent. At the same time, the World at Work survey indicates that the  
11 median management wage increase for 2015 was 3.0 percent. Thus, over the  
12 2015 – 2016 period National Grid's total management wage increase of 3.63  
13 percent was far lower than the market median increase of 6 percent.

14

15 **Q. Do you agree with Mr. Gadomski's claim (at page 10) that it would be**  
16 **necessary to adjust "relatively overpaid" positions downward to justify**  
17 **an upward adjustment for a subset of positions that are underpaid**  
18 **relative to the market?**

19 A. No, I do not. In the first place, Mr. Gadomski has not identified any positions  
20 in the Companies' management organization that are "relatively overpaid"  
21 such that the compensation for those positions should be reduced. In addition,

Rebuttal Testimony of Maureen P. Heaphy

1 while I would not agree that any management position in National Grid is  
2 “relatively overpaid,” I would note that in allocating the management wage  
3 increase among its management workforce, National Grid takes into account  
4 the salaries of individual workers in relation to the range of salaries  
5 established for particular positions. Those employees who are below the  
6 median salary for a particular position will, all other things being equal,  
7 receive a larger percentage increase and workers above the median will  
8 receive a lower percentage increase. Thus, to the extent that Mr. Gadomski is  
9 contending that National Grid does not adjust the compensation of individual  
10 positions when it provides annual wage adjustments, he is mistaken.

11

12 More importantly however, even assuming that “relatively overpaid” positions  
13 could be identified, it makes far more sense to judge the reasonableness of the  
14 Companies’ overall compensation expense on an aggregate basis than it does  
15 on the basis of an analysis of each individual position. As discussed above,  
16 both Mr. Gadomski and I have reviewed the Companies’ aggregate  
17 compensation costs in comparison to a representative peer group and  
18 concluded that those costs are reasonable. Given these conclusions, Mr.  
19 Gadomski’s recommendation that a relatively small portion of the Company’s  
20 actual compensation costs should be disallowed is not reasonable.

21

Rebuttal Testimony of Maureen P. Heaphy

- 1 **Q. Does this conclude your rebuttal testimony?**
- 2 A. Yes, it does.

Rebuttal Testimony of  
Sean P. Mongan

**Before the Public Service Commission**

**THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY  
and KEYSpan GAS EAST CORPORATION d/b/a NATIONAL GRID**

**Rebuttal Testimony**

**of**

**Sean P. Mongan**

**Case 16-G-0058**

**Case 16-G-0059**

June 10, 2016

Rebuttal Testimony of Sean P. Mongan

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Rebuttal Testimony of Sean P. Mongan

1 **I. Introduction**

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

3 A. Sean P. Mongan. My business address is One MetroTech Center, Brooklyn,  
4 New York 11201.

5

6 **Q. Are you the same Sean P. Mongan who previously submitted direct**  
7 **testimony in these proceedings?**

8 A. Yes, I am. The terms defined in my direct testimony have the same  
9 definitions here.

10

11 **II. Purpose of Testimony**

12 **Q. What is the purpose of your rebuttal testimony?**

13 A. The purpose of my rebuttal testimony is to respond to certain  
14 recommendations and assertions set forth in the testimony of the Department  
15 of Public Service Staff's ("Staff") Gas Rates Panel, Gas Policy and Supply  
16 Panel and Consumer Services Panel. I will also respond to certain  
17 recommendations in the testimony of New York City witness John H. Lee.  
18 Specifically, I will respond to the Gas Rates Panel's assertions that KEDLI is  
19 likely to add 450 customers in 2016 and 2017 in East Hills. In addition, I will  
20 respond to the Gas Policy and Supply Panel's recommendations concerning (i)  
21 the sales promotion expenses to be reflected in the Companies' revenue

Rebuttal Testimony of Sean P. Mongan

1 requirements, (ii) a proposed sales promotion incentive, (iii) modifications to  
2 KEDLI's Neighborhood Expansion Program ("NEP"), (iv) KEDNY's  
3 proposed natural gas vehicle ("NGV") incentive, (v) the Companies' proposal  
4 to participate in the Utilization Technologies Development ("UTD") research  
5 and development program and recover the costs of participating in that  
6 program in rates, and (vi) the Companies' proposal to include the costs of  
7 certain "Reforming the Energy Vision" ("REV") demonstration projects in  
8 rates. I will also address the Consumer Services Panel's recommendations  
9 concerning the Companies' proposed economic development programs and  
10 accounting and reporting requirements related to the Companies' outreach and  
11 education activities.

12  
13 Finally, I will address Mr. Lee's suggestions concerning the sharing of energy  
14 efficiency and consumption data.

15  
16 **III. Rebuttal to the Gas Rates Panel**

17 **Q. The Gas Rates Panel proposes (at 21) to increase KEDLI's customer**  
18 **count by 200 SC No. 1B customers over the remaining eight months of**  
19 **2016 and by 250 SC No. 1B customer in the Rate Year to reflect increases**  
20 **associated with KEDLI's marketing programs in the Village of East Hills.**  
21 **Do you agree with this recommendation?**

Rebuttal Testimony of Sean P. Mongan

1 A. I do not agree with this recommendation for several reasons. First, the  
2 increased marketing spending proposed for the NEP will not be applicable  
3 until the Rate Year and will not impact or influence customer growth in East  
4 Hills in 2016. In addition, while the Company is actively marketing in East  
5 Hills, these efforts are unlikely to produce the number of conversions  
6 proposed by the Gas Rates Panel. There are approximately 1,100 potential  
7 customers that can be added through the facilities that are being constructed in  
8 East Hills. It is inconceivable that 450 of these potential customers will  
9 convert to natural gas over the next two years. While the Companies'  
10 marketing efforts are effective in helping to convince customers facing a  
11 conversion decision to choose natural gas, they will not cause customers who  
12 have no present need to convert, such as customers with new alternative fuel  
13 burning equipment, to accelerate a conversion decision.

14

15 **IV. Rebuttal to the Gas Policy and Supply Panel**

16 **Q. The Gas Policy and Supply Panel (at 16) proposes to increase KEDNY's**  
17 **Rate Year revenue requirement by \$200,000 to provide additional rebates**  
18 **to assist customers converting to firm heating service. Do you agree with**  
19 **this recommendation?**

20 A. I do not oppose this recommendation. However, incremental marketing  
21 expenditures of this magnitude will not have a significant impact on

Rebuttal Testimony of Sean P. Mongan

1 customers moving from non-firm or non-heat service in KEDNY's service  
2 territory. I recommend using these incremental marketing funds to encourage  
3 development of Combined Heat and Power or gas air conditioning projects  
4 where the funds could be used to offset a significant portion of the cost of an  
5 incremental project.

6  
7 **Q. The Gas Policy and Supply Panel recommends (at 14 and 16-17) that**  
8 **there should be a downward-only reconciliation of any unspent rebate**  
9 **amounts included in KEDNY and KEDLI's revenue requirement over a**  
10 **three-year period. Is this recommendation acceptable?**

11 A. Yes. It is my understanding that the reconciliation would be based on total  
12 spending over the three-year period such that, for example, any unspent  
13 amounts in Rate Year One could be carried forward to Rate Years Two or  
14 Three. A multi-year reconciliation will best position KEDNY and KEDLI to  
15 respond to changes in marketing conditions over the multi-year period.

16  
17 **Q. The Gas Policy and Supply Panel proposes (at 18) that the initial density**  
18 **test under the NEP should be reduced from eight to seven customers per**  
19 **500 feet of main. Do you agree?**

20 A. Yes. The impact of this change is that it makes it more likely that KEDLI will  
21 proceed with an extension.

Rebuttal Testimony of Sean P. Mongan

1

2 **Q. The Gas Policy and Supply Panel proposes (at 18-19) an incentive of one**  
3 **basis point for each 10 percent increase in customers above the level**  
4 **reflected in the Gas Rates Panel's forecast. Do you agree with this**  
5 **recommendation?**

6 A. I agree with the concept of the incentive. However, to be effective, the  
7 incentive will have to be sufficient to offset the total costs of adding new  
8 customers in the current environment. The details of such an incentive are  
9 something we would need to explore further with Staff. In particular, the  
10 parties would need to establish an achievable baseline for customer growth,  
11 particularly for the years beyond the Rate Year.

12

13 **Q. The Gas Policy and Supply Panel recommends (at 22) that KEDNY's**  
14 **proposal to provide NGV conversions should be directed toward the**  
15 **replacement of fleet vehicles currently using diesel fuel and that the**  
16 **Companies should be directed to file a report within 90 days of the**  
17 **Commission's rate order in these proceedings identifying the potential**  
18 **number of fleet vehicles that can be converted from diesel fuel and a**  
19 **proposal for an incentive. Do you agree with these recommendations?**

20 A. I do not object to preparing the requested report or to focusing KEDNY's  
21 efforts on converting diesel-powered vehicles. However, I do not believe, as

Rebuttal Testimony of Sean P. Mongan

1 the Panel appears to suggest, that the incentive should be limited to  
2 conversions of diesel-powered vehicles. Nor do I agree that approval of the  
3 incentive program should await preparation of the report. The reality of the  
4 NGV market is that fleet operators consider conversion to NGVs when their  
5 existing vehicles reach the end of their useful lives. As a result, there are only  
6 so many fleet operators looking to convert vehicles at any given time and it is  
7 not in any stakeholder's best interests for KEDNY to refrain from providing  
8 an incentive to convert a gasoline-powered fleet so as to preserve funds for a  
9 speculative conversion of diesel-powered vehicles in the future. To address  
10 the Panel's concerns, I propose that, as part of the proposed report, KEDNY  
11 will provide a marketing plan that will explain how it will prioritize efforts to  
12 convert diesel-powered vehicles. However, this plan will not foreclose  
13 KEDNY from providing incentives for conversion of gasoline-powered  
14 vehicles. Finally, I would note that I am proposing a NGV incentive for  
15 KEDNY only. I do not believe that there is a need for a similar incentive in  
16 KEDLI's service territory at this time.

17

18 **Q. The Gas Policy and Supply Panel recommends (at 25-26) that the**  
19 **Commission should impose certain reporting requirements associated**  
20 **with the Companies' research and development ("R&D") programs. Do**  
21 **you have any comments on this recommendation?**

Rebuttal Testimony of Sean P. Mongan

1 A. Yes. The Panel proposes that for each of the Companies' R&D Programs –  
2 Millennium, Internal, NYSERDA and the new UTD program – the  
3 Commission should require KEDNY, KEDLI and Niagara Mohawk Power  
4 Corporation to provide an initial report that would separately identify program  
5 budgets, annual surcharges per Dekatherm, total revenues collected, total  
6 program expenditures, and end of year program balances, and provide a year-  
7 over-year reconciliation of individual program balances. The Panel further  
8 proposes that this information should be provided annually within sixty days  
9 of the end of the Rate Year.

10

11 The Companies believe that these proposed reporting requirements are unduly  
12 burdensome. Moreover, the Companies presently do not have the internal  
13 resources necessary to comply with these reporting requirements. Up until  
14 now, the reporting on gas R&D activities has been submitted every three years  
15 and has not been broken out by individual companies. When the Commission  
16 adopted the three-year reporting requirement in Case 98-G-1304, it intended  
17 to streamline the filing requirements for R&D programs.<sup>1</sup> Requiring annual  
18 reporting for each of the R&D programs on an individual company basis is  
19 inconsistent with the Commission's prior order and would require the

---

<sup>1</sup> See Case 98-G-1304, *In The Matter of the Reporting Requirements Applicable to the Gas Industry's Research Development and Demonstration Programs*, filed in C. 28538 (December 7, 1998).

Rebuttal Testimony of Sean P. Mongan

1 Companies to focus a significant portion of their internal resources on  
2 reporting rather than conducting R&D.

3  
4 In lieu of an annual report by each company, the Companies would  
5 recommend that they be required to provide a report every three years. The  
6 Companies propose to work with Staff to develop a mutually acceptable  
7 reporting format. In addition to the triennial report, the Companies would also  
8 propose to continue to meet with Staff annually to review the results of the  
9 Millennium program.

10

11 **Q. The Gas Policy and Supply Panel further recommends (at 27) that the**  
12 **Companies should use unspent, un-earmarked R&D dollars for their**  
13 **intended use or, if this is not possible, for gas safety R&D. Do you agree?**

14 A. Yes.

15

16 **Q. The Gas Policy and Supply Panel recommends (at 65) that the**  
17 **Companies' proposed micro CHP program should include the impact of**  
18 **each unit on the peak day gas requirements of the system. Do you agree?**

19 A. Yes.

20

Rebuttal Testimony of Sean P. Mongan

1 **Q. The Gas Policy and Supply Panel further recommends (at 65) that the**  
2 **Companies should permit combinations of various sources of renewable**  
3 **energy to be included as back-up energy for such projects. Do you agree?**

4 A. Yes. If proposals are made to use various sources of renewable energy as  
5 back-up energy sources in the micro CHP program, the Companies will  
6 consider them based on the same factors that would be applied to a gas-fired  
7 project.

8

9 **Q. The Gas Policy and Supply Panel recommends (at 67) that demand**  
10 **response should be tested as part of the Temperature-Control**  
11 **collaborative recommended by both Staff and the Companies. Do you**  
12 **agree?**

13 A. Yes.

14

15 **V. Consumer Services Panel Rebuttal**

16 **Q. The Consumer Services Panel recommends (at 70-71) that economic**  
17 **development funds should not be used to support multi-family buildings.**  
18 **Do you agree?**

19 A. No. The Companies' experience has been that using economic development  
20 funds to assist in the creation of some housing can serve as a real catalyst for  
21 further economic development. At a minimum, I recommend that the

Rebuttal Testimony of Sean P. Mongan

1 Companies should not be prohibited from using economic development funds  
2 to support the residential portions of multi-unit, mixed use projects involving  
3 not-for-profit entities.

4

5 **Q. The Consumer Services Panel recommends (at 59-60) that the Companies**  
6 **should be required to comply with a number of new reporting**  
7 **requirements associated with its outreach and education activities. Do**  
8 **you have any comments concerning these recommendations?**

9 A. Yes. The Consumer Services Panel recommends that the Companies provide  
10 a complete accounting of all funds used for outreach and education purposes.  
11 The Panel further proposes that the annual outreach and education plan be  
12 filed with the Commission's Secretary and the Director of the Office of  
13 Consumer Services, and that the Companies should implement measures to  
14 evaluate all of their outreach and education programs, including outreach  
15 events, and include in their annual outreach and education plans the results of  
16 all of their programs and event evaluations. In my view, these proposed  
17 reporting requirements, as described, would be extremely burdensome. I do  
18 not object to reasonable reporting requirements but believe that the  
19 Companies should work with Staff to develop a reasonably streamlined report.

20

Rebuttal Testimony of Sean P. Mongan

1 **Q. The Consumer Services Panel further recommends (at 62-63) that the**  
2 **Companies include in their annual outreach and education plans how**  
3 **they identify employee timing needs, an evaluation of the effectiveness of**  
4 **the program, ways to measure success of the program and the outcome of**  
5 **employee training goals from previous plans. Do you agree with this**  
6 **recommendation?**

7 A. I have no objections to including a discussion of these items in the  
8 Companies' annual plans. Once again, I believe the Companies should work  
9 with Staff to develop a reasonable reporting format.

10

11 **VI. New York City Rebuttal**

12 **Q. New York City Witness Lee offers a variety of suggestions as to how the**  
13 **Companies should change their process for sharing both energy**  
14 **efficiency-related data and energy consumption data. Do you have any**  
15 **comments concerning those suggestions?**

16 A. Yes. In Case 15-M-0180, the Commission is addressing issues associated  
17 with access to customer and aggregated energy data. The Companies are  
18 participating actively in that proceeding and are working with a consultant to  
19 explore opportunities to improve the exchange of various types of data. New  
20 York City is also participating in that proceeding. The issues raised in Mr.

Rebuttal Testimony of Sean P. Mongan

1           Lee's testimony are best addressed comprehensively in the Case 15-M-0180  
2           proceeding.

3

4   **Q.   Does this conclude your rebuttal testimony?**

5   **A.   Yes, it does.**

Rebuttal Testimony of  
Ann E. Bulkeley

**Before the Public Service Commission**

**THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY  
and KEYSpan GAS EAST CORPORATION d/b/a NATIONAL GRID**

**Rebuttal Testimony**

**of**

**Ann E. Bulkley**

**Case 16-G-0058**

**Case 16-G-0059**

June 10, 2016

Rebuttal Testimony of Ann E. Bulkley

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Rebuttal Testimony of Ann E. Bulkley

1 I. **Introduction**

2 **Q. Please state your name, affiliation, and business address.**

3 A. My name is Ann E. Bulkley. I am a Vice President of Concentric Energy Advisors, Inc.  
4 (“Concentric”), located at 293 Boston Post Road West, Suite 500, Marlborough,  
5 Massachusetts 01752.

6  
7 **Q. Are you the same Ann E. Bulkley who provided direct testimony in this proceeding?**

8 A. Yes. The terms defined in my direct testimony have the same definitions here unless  
9 otherwise indicated.

10

11 II. **Purpose and Overview of Rebuttal Testimony**

12 **Q. What is the purpose of your rebuttal testimony?**

13 A. The purpose of my rebuttal testimony in these proceedings is to respond to the direct  
14 testimony of the Department of Public Service Staff (“Staff”) Cost of Capital Witness  
15 Abdul Qadir regarding the appropriate return on equity (“ROE”) for KEDNY and  
16 KEDLI. My analysis is supported by the data presented in Exhibits\_\_ (AEB-1R) through  
17 (AEB-4R).

18

19 **Q. Please summarize your principal concerns with Mr. Qadir’s recommendations.**

20 A. Mr. Qadir’s recommended ROE of 8.60 percent is 80 basis points lower than the current  
21 authorized ROE for KEDNY of 9.40 percent (June 2013) and 120 basis points lower than

Rebuttal Testimony of Ann E. Bulkley

1 the current authorized ROE for KEDLI of 9.80 percent (December 2007). His  
2 recommendation is also well below any authorized ROE for a gas distribution company  
3 in the U.S. in the past 25 years.<sup>1</sup> Mr. Qadir has provided no evidence to demonstrate that  
4 the Companies' risk profiles are sufficiently different from other natural gas distribution  
5 companies to justify a return that is more than 109 basis points lower than the average  
6 ROE award for other gas distribution companies over the period from 2014 through 2016.  
7 While Mr. Qadir cites the current low interest rate environment in support of his  
8 recommendation, this environment has existed for some time and affects all electric and  
9 gas utilities. As shown in Chart 1, over the last two years, the majority of the authorized  
10 ROEs have been greater than 9.5 percent.

11

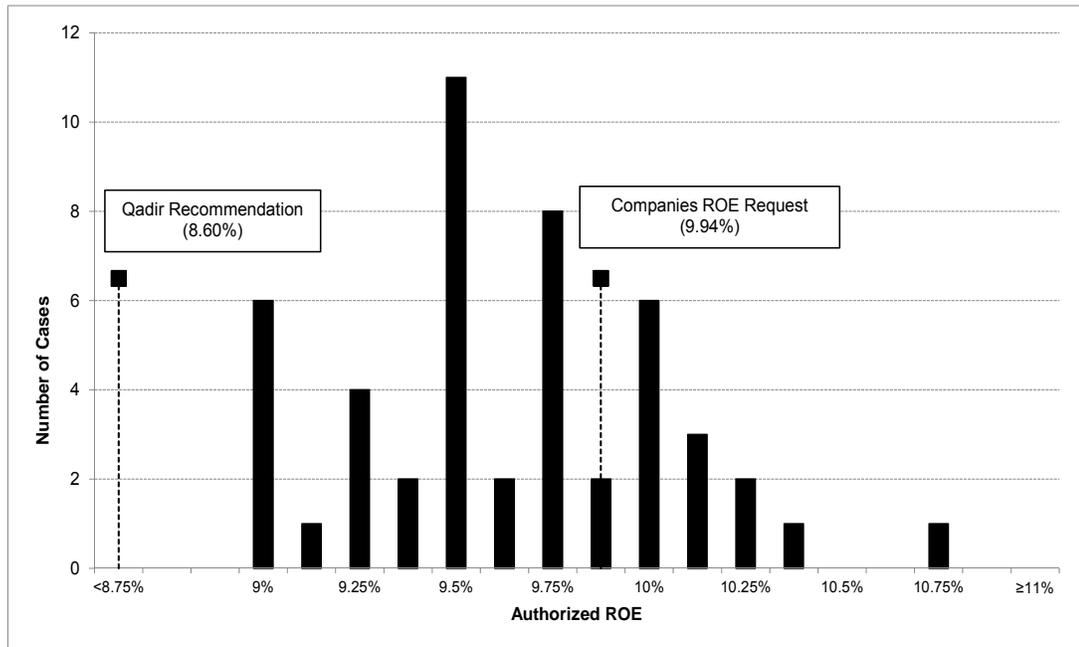
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<sup>1</sup> Source: SNL Financial.

Rebuttal Testimony of Ann E. Bulkley

1  
2

**Chart 1: Authorized ROE for Natural Gas Distribution Utilities  
January 2014 through April 2016**



3

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13

Mr. Qadir applied a two-thirds weighting to the results of the Discounted Cash Flow (“DCF”) analysis and a one-third weight to the Capital Asset Pricing Model (“CAPM”) analysis based on the 1991 Recommended Decision (“RD”) in the Generic Finance Proceeding (“GFP”) and other Commission discussions of the ROE estimation methodology. Mr. Qadir’s entire justification for his methodology and weighting is that the Commission has used this approach in prior cases. While Mr. Qadir cites to other cases, he fails to recognize the changes that the Commission has made to its methodology since the RD to rely on better and more current information. The Commission’s methodology has evolved over time, suggesting that the Commission is open to considering whether the data and methodologies that it has historically relied upon are the

Rebuttal Testimony of Ann E. Bulkley

1 best and most relevant given prevailing market conditions and financial analysis best  
2 practices at the time of the case it is deciding.

3  
4 In contrast to the Commission's demonstrated willingness to change its approach to  
5 reflect the circumstances at the time of its decision, Mr. Qadir has not questioned why the  
6 result of his DCF analysis is inconsistent with the results of other models and whether  
7 that difference is, or can be, accounted for by evidence. Rather, Mr. Qadir has applied  
8 the models in a purely mechanistic fashion based on Commission precedent without  
9 using informed judgment or considering current economic and market conditions, as is  
10 appropriate and as the Commission has demonstrated a willingness to do in prior cases.

11 Furthermore, while Mr. Qadir acknowledges that credit rating agencies "view  
12 unpredictability as a risk,"<sup>2</sup> he has not considered how credit rating agencies or equity  
13 investors would react to an extraordinarily low authorized ROE for the Companies  
14 relative to recently approved ROEs. Such a low ROE is likely to be viewed as punitive  
15 by rating agencies and investors and cause rating agencies to question the level of  
16 regulatory support being provided by the Commission, with consequences that could be  
17 borne by all New York utilities and their customers. Moreover, predictability is not the  
18 only goal of rating agencies and investors, nor is it a requirement in setting the ROE as  
19 established by the *Hope* and *Bluefield* standards.

---

<sup>2</sup> Prepared testimony of Abdul Qadir, at 62.

Rebuttal Testimony of Ann E. Bulkley

1 As discussed in more detail in Section IV, the GFP was established in 1991 to address the  
2 sensitivity of the DCF model to interest rate fluctuations and to address the unreasonably  
3 low returns that are produced by this methodology when interest rates are low. The  
4 interest rate environment today is certainly much lower than in 1991 when the  
5 Commission decided that the DCF model was not producing reasonable results. While  
6 the 2/3 DCF – 1/3 CAPM weighting was recommended in the GFP as the preferred  
7 convention, the RD in that case left open the opportunity to consider other methods or  
8 weightings for “good reason.”

9  
10 The results of Mr. Qadir’s DCF model in this case provide that good reason. Mr. Qadir’s  
11 application of the DCF model results in an ROE estimate of 8.22 percent, which is 78  
12 basis points below the lowest ROEs authorized by the Commission in the past 35 years  
13 and 147 basis points lower than the average authorized ROE for gas distribution  
14 companies in all U.S. jurisdictions in the past two years (January 2014 – April 2016).  
15 Benchmarking Staff’s DCF results against other observable authorized ROEs supports  
16 the position that it is appropriate to adjust the weightings of the ROE estimation models  
17 in this proceeding to reflect current market conditions.

18  
19 The Federal Energy Regulatory Commission (“FERC”) and the Surface Transportation  
20 Board (“STB”) have both found that the DCF model is producing anomalous results  
21 under current market conditions. FERC is now considering the results of alternative risk

Rebuttal Testimony of Ann E. Bulkley

1 premium models such as the CAPM as a check on the reasonableness of the DCF results.<sup>3</sup>

2 The STB, based on its detailed review of the performance of the ROE estimation models,  
3 has decided to place equal weight on the results of the Multi-Stage DCF and CAPM  
4 approaches.

5  
6 The GFP provided a framework for the Commission to evaluate whether the financial  
7 models used to estimate an appropriate ROE were producing reasonable results under a  
8 given set of market conditions. The Commission has since considered its methodology  
9 and has made modifications to its preferred approach and assumptions to more  
10 reasonably reflect market conditions. Specifically, the Commission has modified the  
11 averaging periods relied on for stock prices in the DCF model and the bond yields used in  
12 the CAPM from six months to three months to more appropriately reflect market data. In  
13 addition, the Commission has changed how it estimates the market risk premium from  
14 relying on historical data to projected data, abandoning stale data in favor of data that  
15 more accurately reflects market conditions that are relevant in setting the ROE. Based on  
16 recent market conditions, that have been acknowledged by other regulatory commissions  
17 as anomalous, it would be reasonable for the Commission to again evaluate the relevant  
18 market data points to be used in the ROE estimation methodologies to best estimate the  
19 forward-looking cost of equity. For the same reasons, it would be reasonable for the  
20 Commission to reconsider the weighting placed on the DCF and CAPM approaches to

---

<sup>3</sup> In Opinion No. 531, the FERC has supported a CAPM methodology that is generally consistent with the approach developed in my direct testimony.

Rebuttal Testimony of Ann E. Bulkley

1 establish a forward-looking ROE that meets the comparability standards of *Hope* and  
2 *Bluefield*.

3  
4 **III. Capital Market Conditions and Their Effect on The Cost of Equity**

5 **Q. Has Mr. Qadir considered the effect of economic and capital market conditions on**  
6 **the cost of equity in determining his ROE recommendation?**

7 A. Mr. Qadir relies on the current low interest rate environment as support for his ROE  
8 recommendation of 8.60 percent. In particular, Mr. Qadir's ROE recommendation is  
9 based on capital market conditions over the past few years, and, while some of his  
10 assumptions are forward-looking, he fails to acknowledge the prospects for financial  
11 markets. Because the ROE is intended to provide a reasonable return to investors over  
12 the forward-looking period during which rates will be in effect, it is important to consider  
13 the expected changes in the financial markets during that period. As discussed in my  
14 direct testimony, extraordinary and persistent Federal Reserve intervention in capital  
15 markets has artificially lowered government bond yields since the Great Recession of  
16 2008-09 as the Federal Reserve has used monetary policy (both reductions in short-term  
17 interest rates and purchases of Treasury bonds and mortgage backed securities) to  
18 stimulate the U.S. economy. This monetary policy has resulted in government bond  
19 yields that have been artificially held down by the Federal Reserve. However, as shown  
20 in Chart 2 below and as discussed in my direct testimony, market data suggest that  
21 investors perceive greater risk in the current market environment and expect rising  
22 interest rates. Therefore, it is important to consider the current and prospective market

Rebuttal Testimony of Ann E. Bulkley

1 conditions and investor expectations for higher interest rates, all of which put upward  
2 pressure on utility capital costs.

3  
4 **Q. What is the financial market’s perspective on the likelihood for future increases in**  
5 **short-term interest rates by the Federal Reserve?**

6 A. As discussed in my direct testimony, in mid-December 2015 the Federal Reserve  
7 announced the first increase in short-term interest rates since the financial market  
8 collapse in 2008. In March 2016, the Federal Reserve indicated that global economic and  
9 financial market developments continued to pose risks and inflation remained below the 2  
10 percent target level. Therefore, the Federal Reserve did not adjust short-term interest  
11 rates. Rather, the Federal Reserve indicated it expects gradual increases in the Federal  
12 Funds rate. Since that time, Federal Reserve officials have suggested that there could be  
13 a rate increase as early as the June 2016 FOMC meeting. Goldman Sachs has also  
14 suggested that the Federal Reserve will need to increase rates due to an increase in core  
15 inflation.<sup>4</sup>

16  
17 **Q. What is the expected timing of additional increases in short-term interest rates by**  
18 **the Federal Reserve?**

19 A. The May 2016 issue of the Blue Chip Financial Forecasts (“Blue Chip”) surveyed leading  
20 economists and market participants concerning their views regarding the timing of a

---

<sup>4</sup> Goldman: Global Coordinated Easing Won’t Last, and the Fed will need to Hike Rates Four Times in 2016, Bloomberg Business, March 21, 2016.

Rebuttal Testimony of Ann E. Bulkley

1 possible increase in short-term interest rates by the Federal Reserve. Blue Chip reports  
2 that approximately 87 percent of market participants surveyed expect the Federal Reserve  
3 to raise short-term interest rates before the end of the third quarter of 2016.<sup>5</sup> According  
4 to Blue Chip, yields on 30-year Treasury bonds are forecast to increase to 3.50 percent by  
5 the third quarter of 2017.<sup>6</sup>

6  
7 **Q. What effect does the expectation of higher interest rates have on the ROE**  
8 **estimation models?**

9 A. Many income-oriented investors hold utility stocks for their dividend yields. During  
10 periods in which interest rates are expected to increase, the dividend yields of utility  
11 stocks become less attractive for income-oriented investors relative to bond yields,  
12 placing pressure on utility share prices relative to the broader market. As discussed in my  
13 direct testimony, the potential for rising interest rates indicates that the calculated cost of  
14 equity for the proxy companies using DCF methodologies is likely to lag investors'  
15 required return during the period that the Companies' rates will be in effect.<sup>7</sup> The  
16 expectation of higher interest rates also affects the risk-free rate that is relied on in the  
17 CAPM, making it unreasonable to only rely on the historical yield on Treasury bonds  
18 when the expectations are that interest rates will increase in the near term. While it is  
19 difficult to adjust the dividend yield in the DCF for expected changes in market

---

<sup>5</sup> Blue Chip Financial Forecasts, Volume 35, No. 9, May 1, 2016, at 14.

<sup>6</sup> *Ibid.*, at 2.

<sup>7</sup> Direct testimony of Ann E. Bulkley, at 88.

Rebuttal Testimony of Ann E. Bulkley

1 conditions over the period when rates are in effect, the CAPM can be easily modified to  
2 rely on the consensus estimate of interest rates over that period to estimate the ROE.  
3 Consequently, a consensus expectation of rising interest rates supports both using a  
4 forward-looking risk-free rate in the CAPM and more heavily weighting the results of the  
5 CAPM than the Commission has in recent decisions.

6

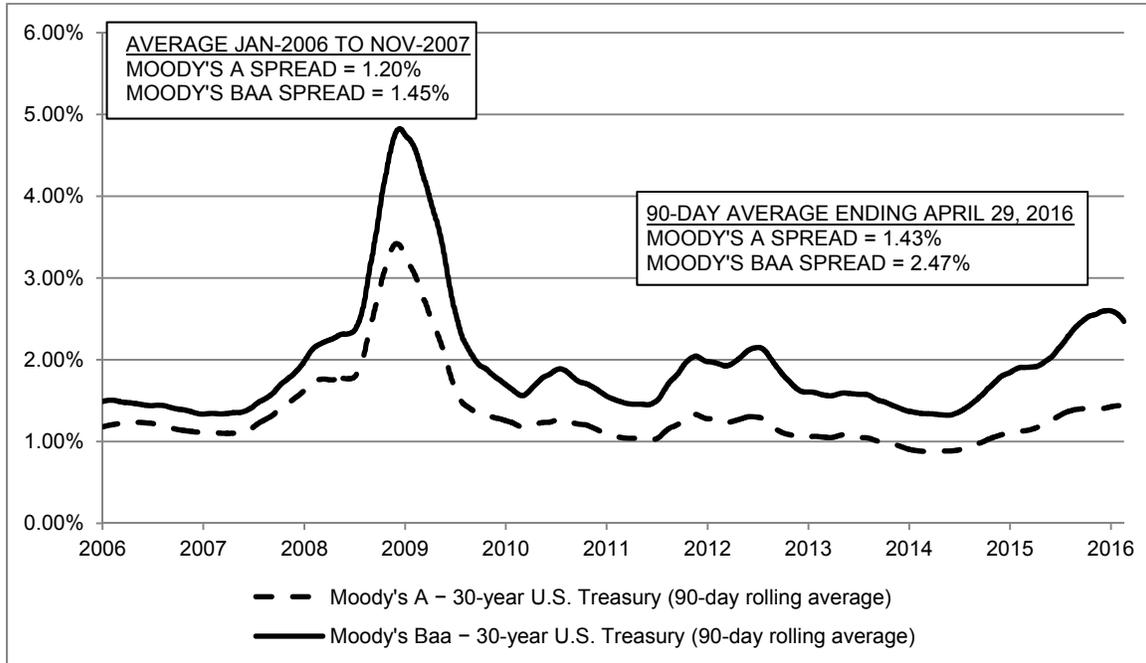
7 **Q. Are there indications that investor risk sentiment is increasing in financial markets?**

8 A. Yes. Even as Treasury bond yields have remained relatively low in 2015 and the first  
9 quarter of 2016, yields on corporate and utility bonds have increased steadily.  
10 Consequently, as shown on Chart 2, credit spreads between Treasury bonds and utility  
11 bonds have increased to the highest level since the credit and financial crisis. For  
12 example, the spread between Baa-rated utility debt and Treasury bonds is now 247 basis  
13 points, while the spread between A-rated utility bonds and Treasury bonds is 143 basis  
14 points. Incremental credit spreads are a widely-recognized measure of investor risk  
15 sentiment. Wider credit spreads indicate that investors are requiring a higher premium  
16 (*i.e.*, a higher interest rate) to compensate them for the higher risk associated with longer-  
17 term or lower-rated debt instruments.

18

## Rebuttal Testimony of Ann E. Bulkley

1

**Chart 2: Credit Spreads for Moody's A- and Baa-rated Utility Bonds**

2

3 **Q. What do higher credit spreads indicate about the market?**

4 A. Higher credit spreads are an indication that bond investors are becoming more concerned  
 5 about future economic conditions and the ability of corporations to withstand any  
 6 economic downturn that may occur. The Wall Street Journal reported on the trend  
 7 toward higher credit spreads:

8 The U.S. corporate-bond market is starting to flash caution signals about  
 9 the broader economy. The difference in yield, called the "spread,"  
 10 between bonds from America's strongest companies and ultrasafe U.S.  
 11 Treasury securities has been steadily increasing, a trend that in the past has  
 12 foreshadowed economic problems. Wider spreads mean that investors  
 13 want more yield relative to Treasuries to own bonds from U.S. companies.  
 14 It can signal that investors are less confident about companies' business  
 15 prospects and financial health, though other factors likely also are at play.

16 Spreads in investment-grade corporate bonds – debt from companies rated  
 17 triple-B minus or higher – are on track to increase for the second year in a  
 18 row, according to Barclays data. That would be the first time since the

Rebuttal Testimony of Ann E. Bulkley

1 financial crisis in 2007 and 2008 that spreads widened in two consecutive  
2 years.

3 \*\*\*

4 Investors and analysts say they are closely watching the action to  
5 determine whether trouble is brewing once again. Concerns are growing  
6 about companies' ability to pay back the massive debt load taken on in  
7 recent years, as ultralow interest rates spurred corporate finance chiefs to  
8 sell record amounts of bonds.<sup>8</sup>

9

10 **Q. What are your conclusions about the effect of capital market conditions on the cost  
11 of equity?**

12 A. Rising interest rates, widening credit spreads, and higher investor risk sentiment all  
13 suggest that the cost of capital for all companies, including regulated utilities, has  
14 increased. As interest rates rise, presently low utility dividend yields become less  
15 competitive with higher yields on government and corporate bonds. As a result of higher  
16 credit spreads and rising interest rates, it is reasonable to expect that the cost of capital for  
17 gas distribution utilities, such as the Companies is increasing, not decreasing.

18

---

<sup>8</sup> Mike Cherney, "U.S. Bonds Flash a Warning Sign," The Wall Street Journal, September 28, 2015, at C1.

Rebuttal Testimony of Ann E. Bulkley

1 **IV. Response to Mr. Qadir**

2 **Q. What is Staff's ROE recommendation in this proceeding?**

3 A. Mr. Qadir recommends an ROE of 8.6 percent based on a two-thirds weighting of the  
4 DCF model results of 8.22 percent and a one-third weighting of the average CAPM  
5 results of 9.24 percent.<sup>9</sup>

6  
7 **Q. What are the primary areas of disagreement between Mr. Qadir and you as it**  
8 **relates to the authorized ROE for the Companies?**

9 A. Mr. Qadir's analysis and criticism of my ROE estimation methodologies are both based  
10 on the principle of consistency with prior Commission methodologies. Mr. Qadir refers  
11 multiple times to Commission precedent as the basis for key assumptions in his ROE  
12 estimation methodology. The foundation of Mr. Qadir's criticisms of my methodology is  
13 simply that the Commission has not developed the ROE estimation models using the data  
14 and methods that I relied on. Mr. Qadir does not provide any evidence to demonstrate  
15 that my assumptions and methods are not those used by investors or are not reasonable.  
16 Simply, Mr. Qadir's position is that my approach is not what was used in the past. While  
17 Mr. Qadir cites to many instances where he has followed precedent with respect to the  
18 development of assumptions, he fails to acknowledge that there are several instances  
19 where the Commission has changed its approach to be responsive to market conditions.

---

<sup>9</sup> Prepared testimony of Abdul Qadir, at 45-46

Rebuttal Testimony of Ann E. Bulkley

1 This forms the basis of the disagreement between my ROE estimation approach and Mr.  
2 Qadir's methodology.

3  
4 The specific areas of disagreement are as follows: (1) the weighting of the DCF and  
5 CAPM results; (2) the composition of the proxy group and the screening criteria used to  
6 develop a risk comparable group; (3) the application of the DCF model and the  
7 reasonableness of the results produced by the DCF model under current market  
8 conditions; (4) the application of the CAPM and the reasonableness of making  
9 adjustments to the inputs and assumptions used in that model given the current low  
10 interest rate environment, and (5) the business risks faced by the Companies. The  
11 following sections address each of these areas of disagreement.

12

13 **A. Weighting of DCF and CAPM Methodologies**

14 **Q. Why did the Commission initiate the GFP?**

15 A. As discussed in my direct testimony, the GFP was initiated because the Commission  
16 recognized that the DCF method was particularly sensitive to interest rate fluctuations  
17 and was producing returns far below the returns produced by other methodologies.<sup>10</sup>

18 The RD proposed that a two-third/one-third weighting be assigned to the results of the

---

<sup>10</sup> Case 91-M-0509, Proceeding on Motion of the Commission to Consider Financial and Regulatory Policies for New York State Utilities, Recommended Decision, (issued July 19, 1994) ("Generic Finance RD"), at 2.

Rebuttal Testimony of Ann E. Bulkley

1 DCF and CAPM analyses, respectively, with less weight given to CAPM because it had  
2 only been used to that point as a check on the DCF model.<sup>11</sup>

3

4 **Q. What justification does Mr. Qadir provide for his decision to continue placing two-**  
5 **thirds weight on the DCF model results?**

6 A. Mr. Qadir relies on the GFP and subsequent cases to support the weighting of DCF and  
7 CAPM results.<sup>12</sup> He also asserts that the DCF model is superior to the CAPM because  
8 the DCF model has one input of primary controversy (*i.e.*, the growth rate), while the  
9 Beta and market risk premium components of the CAPM are dependent on estimates that  
10 are “contested and volatile.”<sup>13</sup> While Mr. Qadir relies on the GFP to support his decision  
11 to place two-thirds weight on the DCF results, he does not acknowledge that the RD in  
12 the GFP left open the possibility that the weightings and methodologies could be adjusted  
13 if necessary to ensure that the results promote regulatory credibility.

14

15 **Q. Does Mr. Qadir provide examples of the Commission’s thoughts regarding the**  
16 **weighting of the DCF and CAPM results?**

17 A. Yes. Mr. Qadir cites several cases and provides one specific example of the  
18 Commission’s discussion of the weighting of the DCF and CAPM results from Case 06-

---

<sup>11</sup> Ibid, at 27.

<sup>12</sup> Prepared testimony of Abdul Qadir at 19.

<sup>13</sup> *Ibid.*, at 27.

Rebuttal Testimony of Ann E. Bulkley

1 E-1433. As noted by Mr. Qadir, in that case, the Commission continued to place two-  
2 thirds weight on the DCF model results and one-third weight on the CAPM results.

3

4 **Q. What are the important factors to consider in reviewing the Commission’s decision**  
5 **in Case 06-E-1433?**

6 A. First, it is important to note that the Commission’s decision was issued in October 2007,  
7 before the financial crisis of 2007-2009 and the ensuing Great Recession, as well as the  
8 Federal Reserve’s extended involvement in the financial markets that began following  
9 those events and continues today. Therefore, the market data used in Case 06-E-1433 to  
10 estimate the projected ROE were not influenced by anomalous market conditions such as  
11 have been experienced in recent history and that affect the market data used in the ROE  
12 estimation methodologies in these proceedings.

13

14 Second, the Commission notes that it changed its calculation of the market return used in  
15 the estimation of the market risk premium in the CAPM. The Commission recognized  
16 that the use of historical returns published by Ibbotson were stale and less reliable and  
17 therefore began relying on projected returns as published by Merrill Lynch. In this same  
18 case, the Commission recognized that six-month average stock prices could be “stale.”<sup>14</sup>  
19 Currently, the Commission’s methodology relies on three-month average stock prices.  
20 These types of changes demonstrate that the Commission is willing to consider

---

<sup>14</sup> State of New York Public Service Commission, Case 06-E-1433, at 11.

## Rebuttal Testimony of Ann E. Bulkley

1 modifications to the ROE estimation methodology to include more current and relevant  
2 information as market conditions change.

3  
4 Finally, it is important to note that the Commission decision in Case 06-E-1433 did not  
5 state that it would never consider changing the weights on the ROE estimation  
6 methodologies. Rather, the Commission's conclusion at that time, nearly ten years ago,  
7 was that it was "not *now* inclined to deviate from our long-held view that the CAPM  
8 should not be entitled to more than one-third of the weight."<sup>15</sup> The Commission  
9 explicitly left open the possibility that there would be a point in the future when it would  
10 be appropriate to consider such a change. Based on the data I have presented and the  
11 viewpoints provided by other regulatory commissions, it is reasonable to conclude that  
12 current market conditions now warrant such a change.

13  
14 Other cases cited by Mr. Qadir to establish the Commission precedent of two-thirds  
15 weighting of the DCF results include Cases 12-E-0201 and 12-G-0202. However, these  
16 cases involved approval of a joint proposal, and the Commission neither considered  
17 alternative weighting structures, nor specifically determined that the two-thirds weighting  
18 on the DCF results remained more appropriate than an alternative weighting proposal.

---

<sup>15</sup> State of New York Public Service Commission, Case 06-E-1433, at 15. (Emphasis added.)

Rebuttal Testimony of Ann E. Bulkley

1 **Q. Why do you believe that current conditions in financial markets support**  
2 **reconsideration of the weight placed on the DCF and CAPM Methodologies?**

3 A. When the RD was issued in the GFP in 1991, one of the primary concerns identified by  
4 the Commission was that the low interest rate environment was causing the DCF model  
5 to understate investors' return requirements.<sup>16</sup> The Commission also noted that there was  
6 nothing sacrosanct about the DCF return on equity analysis.<sup>17</sup> The average daily yield on  
7 30-year Treasury bonds in 1991 was 8.14 percent, whereas the average daily yield on 30-  
8 year Treasuries in 2016 has been 2.69 percent. The extraordinarily low interest rate  
9 environment today should do nothing to alleviate concerns about how the DCF model is  
10 affected by the interest rate environment. On the contrary, if the interest rate  
11 environment in 1991 was sufficient reason for the RD in the GFP to conclude that placing  
12 one-third weight on the CAPM results was appropriate, then the current interest rate  
13 environment should provide sufficient basis for a conclusion that the weighting of the  
14 DCF and CAPM methodologies should be modified in these cases.

15

16 **Q. What are your conclusions regarding the weighting of the DCF and CAPM**  
17 **methodologies?**

18 A. The Companies proposed ROE of 9.94 percent, which relies on an equal weighting of the  
19 results of the DCF and CAPM methodologies, is appropriate. While I understand the  
20 desire to employ a consistent process to estimate the return on equity, as discussed in the

---

<sup>16</sup> 1994 N.Y. PUC Lexis 141, \*37.

<sup>17</sup> Ibid.

Rebuttal Testimony of Ann E. Bulkley

1        *Hope* decision, “[u]nder the statutory standard of ‘just and reasonable,’ it is the result  
2        reached, not the method employed, which is controlling.” Mr. Qadir’s ROE  
3        recommendation of 8.60 percent, which is based on a weighting of the DCF and CAPM  
4        results that was established 25 years ago, is not comparable to returns available to  
5        investors in other jurisdictions for companies with comparable risk.

6  
7        As shown in Exhibit \_\_ (AQ-2), Mr. Qadir’s application of the DCF model results in a  
8        median ROE for his proxy group of 8.22 percent, which is:

- 9        1) 78 basis points below the lowest authorized ROE for a gas distribution company in the  
10       past two years;  
11       2) 147 basis points below the mean return for a gas distribution company over that  
12       period;  
13       3) 74 basis points lower than his Traditional CAPM results of 8.96 percent; and  
14       4) 129 basis points below his zero-beta CAPM results of 9.51 percent.

15       In summary, the DCF models are not producing reasonable results as compared to the  
16       results of other models, such as the CAPM, and the returns authorized in other  
17       jurisdictions. This provides the Commission with the “good reason” contemplated in the  
18       RD of the GFP to consider placing more weight on the results of alternative ROE  
19       estimation methodologies.

20

## Rebuttal Testimony of Ann E. Bulkley

**B. Proxy Group Composition****Q. What is your position with respect to the Proxy Group Composition?**

A. The proxy group appropriately consists of companies that are comparable in business and financial risk to the Companies. The importance of selecting a proxy group that is similar in overall financial and business risk to the subject company was endorsed by the United States Court of Appeals for the District of Columbia (the “Circuit Court”) in the *Petal Gas Storage* decision. The Circuit Court acknowledged that the goal of a proxy group is to rely on companies that possess similar risk to the subject company for the determination of the cost of equity:

That proxy group arrangements must be risk-appropriate is the common theme in each argument. The principle is well-established. *See Hope Natural Gas Co.*, 320 U.S. at 603 (“[T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.”); *CAPP I*, 254 F.3d at 293 (“[A] utility must offer a risk-adjusted expected rate of return sufficient to attract investors.”). The principle captures what proxy groups do, namely, provide market-determined stock and dividend figures from public companies comparable to a target company for which those figures are unavailable. *CAPP I*, 254 F.3d at 293–94. Market determined stock figures reflect a company’s risk level and, when combined with dividend values, permit calculation of the “risk-adjusted expected rate of return sufficient to attract investors.”

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What matters is that the overall proxy group arrangement makes sense in terms of relative risk and, even more importantly, in terms of the statutory command to set “just and reasonable” rates, 15 U.S.C. § 717c, that are “commensurate with returns on investments in other enterprises having corresponding risks” and “sufficient to assure confidence in the financial

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1 integrity of the enterprise . . . [and] maintain its credit and . . . attract  
2 capital,” Hope Natural Gas Co., 320 U.S. at 603<sup>18</sup>

3 Consistent with the Circuit Court’s decision, I have selected a proxy group of companies  
4 with comparable investment risk to the Companies. In contrast, Mr. Qadir applied less  
5 stringent screening criteria, which result in a larger, less comparable proxy group.

6  
7 **Q. Do you believe that Mr. Qadir’s proxy group of only electric utilities is appropriate  
8 for purposes of setting the authorized ROE for a gas distribution company?**

9 A. No, I do not. Mr. Qadir has not included any natural gas distribution companies in his  
10 proxy group, even though the return on equity is being set for two gas distribution  
11 companies. The business and operating risks for electric utilities and gas distribution  
12 companies are different. Mr. Qadir acknowledges these differences in his assessment of  
13 the business risks of his proxy group as compared with the Companies.<sup>19</sup> I strongly  
14 disagree with Mr. Qadir’s opinion that the authorized ROE for the Companies should be  
15 established based on a proxy group consisting entirely of electric utilities, and excluding  
16 gas distributors. From the perspective of investors, there would be no reason to dismiss  
17 market data for gas distribution companies when setting the return requirements for a gas  
18 distribution company. Rather, in my view, investors would give more weight to market  
19 data for companies in the gas distribution industry and less weight to electric utilities.

20  

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<sup>18</sup> *Petal Gas Storage v. FERC*, 496 F.3d 695, 699 (D.C. Cir. 2007).

<sup>19</sup> Prepared testimony of Abdul Qadir at 16-17.

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1 **Q. How would the inclusion of the seven gas distribution companies shown in table 3 of**  
2 **your direct testimony affect the results of Mr. Qadir’s DCF analysis?**

3 A. As shown in Exhibit\_\_(AEB-1R), adding the seven gas distribution companies from my  
4 direct testimony to Mr. Qadir’s Exhibit\_\_(AQ-9) produces a median DCF result of 8.34  
5 percent as compared to the 8.22 percent set forth on Exhibit\_\_(AQ-9).

6  
7 **Q. Do you agree with Mr. Qadir that your proxy group is less comparable to KEDNY**  
8 **and KEDLI than his proxy group?**

9 A. No, I do not. As shown in Exhibits\_\_(AEB-2R) and (AEB-3R), the S&P credit ratings  
10 for the companies in my proxy group average an A- rating, which is consistent with the  
11 credit ratings of KEDNY and KEDLI.

12  
13 **Q. How do the authorized ROEs for your proxy group compare with Staff’s proposed**  
14 **ROE?**

15 A. The average authorized ROE of the Combined Utility Proxy Group is 9.96 percent, which  
16 is 136 basis points higher than Mr. Qadir’s proposed ROE. The range of authorized ROEs  
17 for the A- rated proxy companies is 9.21 percent to 10.31 percent, with a mean of 9.88  
18 percent. This range is 61 to 171 basis points above Mr. Qadir’s proposed ROE.<sup>20</sup> This  
19 analysis supports the Companies’ requested ROE of 9.94 percent.

20

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<sup>20</sup> The average credit rating of the NGPG is also A- rated, and the average ROE of this group is 9.80 percent.

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1       **C. Application of the DCF Model**

2       **Q.     Please summarize Mr. Qadir’s application of the DCF model.**

3       A.     Mr. Qadir uses a two-stage DCF model that forecasts dividends from 2016 to 2021 using  
4           Value Line’s estimates of projected dividends in that period, and a “sustainable growth  
5           rate” from 2021 forward. Using the DCF methodology, Mr. Qadir calculates a median  
6           ROE for his proxy group of 8.22 percent. Mr. Qadir applies a 2/3 weight to his DCF  
7           model results in deriving his overall ROE recommendation.

8  
9       **Q.     What are the differences between your application of the DCF model and Mr.  
10           Qadir’s approach?**

11      A.     The most significant difference between my application of the DCF model and Mr.  
12           Qadir’s approach is the growth rates we use in our respective analyses. I have used a  
13           consensus of analysts’ EPS growth rates for the proxy group companies as the near-term  
14           growth rate, and an estimate of growth in the overall economy for the long-term growth  
15           rate. This mitigates the uncertainty associated with forecasting individual companies’  
16           growth rates over very long time horizons. By contrast, Mr. Qadir uses dividend growth  
17           projections from a single source (*i.e.*, Value Line) for his near-term growth rate, and a  
18           “sustainable growth rate” for his long-term growth rate. Mr. Qadir states that it is “highly  
19           unlikely that investors would rely exclusively on the earnings per share growth rate  
20           forecasts of Wall Street analysts in determining short-term dividend projections”.<sup>21</sup>

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<sup>21</sup> Prepared testimony of Abdul Qadir, at 59.

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1 **Q. Do you agree with Mr. Qadir’s position on earnings growth rates?**

2 A. No, I do not. Mr. Qadir prefers dividend growth rates rather than earnings growth rates  
3 as the near-term growth rate in his DCF analysis. However, as discussed in my direct  
4 testimony, dividend growth is fundamentally driven by earnings growth.<sup>22</sup> While the  
5 model is, indeed, called the “Discounted Cash Flow” model, the cash flows it refers to are  
6 those an investor can expect to receive during the time they own the stock. Those cash  
7 flows are quarterly dividend payments plus any capital appreciation that occurs between  
8 when the stock is purchased and when it is sold. Dividend payments and capital  
9 appreciation are both a function of earnings per share (“EPS”), which is ultimately what  
10 determines the return on equity to the investor. As discussed in my direct testimony,  
11 dividends are based on management decisions related to cash management and other  
12 factors, and therefore dividend growth rates are less likely to accurately reflect investors’  
13 growth expectations than earnings growth rates.<sup>23</sup>

14  
15 I have relied on earnings growth because earnings are the fundamental determinant of a  
16 company’s ability to pay dividends. As noted by Brigham and Houston:

17 Growth in dividends occurs primarily as a result of growth in earnings per  
18 share (EPS). Earnings growth, in turn, results from a number of factors,  
19 including (1) inflation, (2) the amount of earnings the company retains and  
20 invests, and (3) the rate of return the company earns on its equity (ROE).<sup>24</sup>

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<sup>22</sup> Direct testimony of Ann E. Bulkley, at 46.

<sup>23</sup> *Ibid.*, at 46-47.

<sup>24</sup> Eugene F. Brigham and Joel F. Houston, *Fundamentals of Financial Management*, at 317 (Concise Fourth Edition, Thomson South-Western, 2004).

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1 Investment analysts report predominant reliance on EPS growth projections. In a survey  
2 completed by 297 members of the Association for Investment Management and  
3 Research, the majority of respondents ranked earnings as the most important variable in  
4 valuing a security (more important than cash flow, dividends, or book value).<sup>25</sup>

5  
6 Academic research also supports the use of EPS growth estimates. A 2002 study in the  
7 *Journal of Accounting Research*, examined “the valuation performance of a  
8 comprehensive list of value drivers” and found that “forward earnings explain stock  
9 prices remarkably well” and were generally superior to other value drivers analyzed.<sup>26</sup> A  
10 2012 study from the journal *Contemporary Accounting Research* found that the sell-side  
11 analysts with the most accurate stock price targets were those whom the researchers  
12 found to have more accurate earnings forecasts.<sup>27</sup>

13  
14 **Q. According to Mr. Qadir, the Value Line growth rates are produced by a group of**  
15 **analysts, and therefore represent a consensus view. Do you agree?**

16 A. No, I do not. Mr. Qadir provides a letter from Value Line describing the development of  
17 its growth projections, as Exhibit \_\_\_(AQ-15). Value Line states that each company it

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<sup>25</sup> Block, Stanley B., “A Study of Financial Analysts: Practice and Theory”, *Financial Analysts Journal* (July/August 1999).

<sup>26</sup> Liu, Jing, et al., “Equity Valuation Using Multiples,” *Journal of Accounting Research*, Vol. 40 No. 1, March 2002.

<sup>27</sup> Gleason, C.A., et al., “Valuation Model Use and the Price Target Performance of Sell-Side Equity Analysts,” *Contemporary Accounting Research*.

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1 covers is assigned to a lead analyst who is responsible for building the coverage model  
2 for that company. Specifically, the letter states, “[e]ach stock in The Value Line  
3 Investment Survey is assigned to a specific analyst.”<sup>28</sup> The letter goes on to report the  
4 quality control procedures applied to the analyst’s report. Nowhere in the letter, titled  
5 “Quality Control Procedures,” does Value Line describe a process whereby multiple  
6 independent evaluations are performed and then averaged together to form a consensus  
7 view. That is the important element missing from Mr. Qadir’s analysis: he relies on a  
8 source for growth rate estimates that reflects the opinion of a single analyst.

9  
10 While I agree that Value Line is a trusted source for investment professionals, it is not the  
11 only tool that investors rely on to make decisions. There are additional data sources  
12 readily available that compile the consensus viewpoints of multiple brokerage analysts,  
13 and it is reasonable to expect that investors also consider that information. In fact, there  
14 have been studies performed comparing Value Line and I/B/E/S analyst earnings  
15 forecasts in terms of accuracy, rationality and as proxies for market expectations. In  
16 2001, a study concluded that “I/B/E/S forecasts were superior, as explained by the  
17 combination of I/B/E/S’s timing advantage and the mitigation of idiosyncratic error

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<sup>28</sup> Exhibit \_\_ (AQ-15).

Rebuttal Testimony of Ann E. Bulkley

1 through consensus building.”<sup>29</sup> Furthermore, the I/B/E/S long-term forecasts were less  
2 biased and more accurate.<sup>30</sup>

3  
4 **Q. Please summarize your concerns with Mr. Qadir’s sustainable growth rate.**

5 A. I have two main concerns with Mr. Qadir’s sustainable growth rate. First, while Mr.  
6 Qadir asserts that his calculation of the sustainable growth rate represents a measure of  
7 long-term growth for the period 2020 and beyond, the inputs to its calculation are, for the  
8 most part, shorter-term estimates for the period 2019 and earlier. For example, the “b\*r”  
9 component of his sustainable growth rate is derived from Value Line forecasts that only  
10 extend through 2020. Therefore, Mr. Qadir’s long-term growth rate estimate reflects, at  
11 best, one analyst’s forecast of only the very early years of the second stage of Mr. Qadir’s  
12 DCF model, which theoretically extends into perpetuity. In contrast, my estimate of  
13 long-term GDP growth reflects projections over 30 years or more and considers overall  
14 measures of economic growth.<sup>31</sup> Second, Mr. Qadir’s sustainable growth rate relies on  
15 Value Line’s estimate of each proxy company’s ROE, as the “r” in the “b \* r” component  
16 of his growth rate is the expected ROE. This introduces an element of circularity into  
17 Mr. Qadir’s calculation. In addition, based on Exhibit \_\_ (AQ-9), the mean and median  
18 ROE assumed in Mr. Qadir’s calculation in 2020 are 10.71 percent and 10.38 percent,

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<sup>29</sup> Ramnath, Sundaresh, Rock, Steven, Shane, Philip, “Value Line and I/B/E/S Earnings Forecasts, November 8, 2001, at 1.

<sup>30</sup> Ibid.

<sup>31</sup> Direct testimony of Ann E. Bulkley, at 55.

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1           respectively. The range presented by the mean and median ROE is highly consistent with  
2           the range of ROEs established in my analysis for my proxy group companies (*i.e.*, 9.89  
3           percent to 10.42 percent).<sup>32</sup> It cannot be reconciled, however, with Mr. Qadir’s  
4           recommended ROE of 8.60 percent, and especially with his 8.22 percent DCF result.

5  
6   **Q.   Have other regulatory commissions abandoned the use of the sustainable growth  
7           rate?**

8   A.   Yes. In Opinion No. 531, FERC noted that the sustainable “br +sv” growth estimate  
9           produces a projection of short-term growth, similar to the IBES growth projections.  
10          FERC determined that the use of the IBES projections, without the sustainable growth  
11          rate were appropriate in a two-stage DCF model.<sup>33</sup>

12  
13   **Q.   Why is it reasonable to rely on historical averages of real GDP growth to  
14          approximate future economic activity?**

15   A.   I disagree with Mr. Qadir that historical averages “are poor indicators of future economic  
16          activity.”<sup>34</sup> Based on current and recent market conditions, the use of historical real GDP  
17          growth is more appropriate than using a current projection of real GDP growth.  
18          Economists have reviewed historical growth patterns related to severe financial crises and  
19          have concluded that estimates of GDP growth have generally been understated in the

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<sup>32</sup> Direct testimony of Ann E. Bulkley, at 67.

<sup>33</sup> FERC Opinion 531, at 34, 39.

<sup>34</sup> Prepared testimony of Abdul Qadir, at 63-64.

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1 decade following severe financial crises. Specifically, the financial crisis and recession  
2 that began in 2007 were qualitatively different from most other U.S. economic  
3 downturns, which were followed by a rapid return to pre-recession overall output growth  
4 levels. In that regard, the current U.S. economic growth situation is similar to that  
5 following the two most severe economic events in U.S. history (*i.e.*, the 1929 stock  
6 market crash and the 1973 oil shock). Economists who have examined the repercussions  
7 of those two historical crises (and similar severe financial crises in other countries) have  
8 found that GDP growth rates tended to be lower during the decade following such  
9 events.<sup>35</sup> Therefore, it would not be appropriate to assume that current projections of  
10 GDP growth are representative of long-term GDP growth starting in 2026 and continuing  
11 for the next 200 years.

12  
13 **Q. Have you performed an analysis of historical GDP growth rates?**

14 **A.** Yes. I compared the average real GDP growth in the first ten years following the two  
15 historical economic crises most comparable to the recent financial crisis (*i.e.*, the 1929  
16 stock market crash and the 1973 oil shock) to the average real GDP growth in the next  
17 two decades following each crisis (*i.e.*, eleven to 30 years after the events). I did the

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<sup>35</sup> See, Reinhart, Carmen M. and Vincent R. Reinhart, "After the Fall," NBER Working Paper 16334, September 2010, in Federal Reserve Bank of Kansas City Economic Policy Symposium Volume, *Macroeconomic Challenges: The Decade Ahead* at Jackson Hole, Wyoming, on August 26-28, 2010, at 2.

## Rebuttal Testimony of Ann E. Bulkley

1 same for each of the twentieth-century U.S. recessions for which sufficient data are  
 2 available. My findings are presented in Table 1.

3  
 4 **Table 1: Real GDP Growth Rates Following U.S. Economic Downturns**<sup>36</sup>

Event	Compound Average Real GDP Growth Rate		
	Decade Following Crisis	Next Two Decades	Difference (Basis Points)
<b>Major Economic Crises</b>			
1929 Stock Market Crash	2.06%	4.72%	266
1973 Oil Shock	2.55%	3.39%	83
<b>Other Recessions</b>			
1937	6.68%	4.15%	-253
1945	3.77%	3.59%	-18
1948	3.79%	3.95%	16
1953	3.60%	3.23%	-37
1957	4.84%	3.13%	-170
1960	4.41%	3.28%	-112
1969	3.57%	3.01%	-56
1980	3.32%	2.45%	-88
1981	3.52%	2.62%	-90

5  
 6 Table 1 shows that real GDP growth in the first ten years following the 1929 stock  
 7 market crash and the 1973 oil shock was substantially lower than real GDP growth in the  
 8 next two decades following each event. In contrast, eight out of the nine other twentieth  
 9 century U.S. economic downturns analyzed showed the opposite pattern. In light of the

<sup>36</sup> Real GDP data are from the U.S. Bureau of Economic Analysis. The years in which each recession started are from the National Bureau of Economic Research (“NBER”), “US Business Cycle Expansions and Contractions,” available at <http://www.nber.org/cycles.html>. Note that this table excludes the three most recent recessions, which started in 1990, 2001, and 2007 owing to a lack of sufficient data for GDP growth in the following years to calculate comparable long-term GDP growth rates.

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1 academic research cited above and the findings presented in Table 1, it is reasonable to  
2 believe that current projections of real GDP growth are under-stated. For that reason, the  
3 most reasonable means to forecast long-term GDP growth is to assume a return to long-  
4 term historical rates of real GDP growth and to estimate long-term nominal GDP growth  
5 based largely on market-based, long-term inflation estimates.

6  
7 **Q. Has Mr. Qadir relied on historical data in any of his analyses?**

8 A. Yes. For example, in his CAPM analysis, Mr. Qadir rejects the use of Bloomberg Betas  
9 because they introduce “short-term volatility” and instead relies exclusively on Value  
10 Line Betas that use a 5-year historical estimate of the relative risk of proxy companies  
11 and the overall market.

12  
13 **Q. What do you conclude about the results of the DCF models under current market  
14 conditions?**

15 A. As explained in my direct testimony, the DCF models are not producing reasonable  
16 results under current market conditions as a result of low dividend yields and high stock  
17 valuations.<sup>37</sup> High valuations on utility shares, as suggested by Value Line, could result  
18 in an underestimation of the cost of equity using the DCF model, especially if those high  
19 valuations are not sustainable in the future. For these reasons, I believe it is appropriate  
20 to afford an appropriate weight to the results of other ROE estimation methodologies. In

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<sup>37</sup> Direct testimony of Ann E. Bulkley, at 31-32.

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1 particular, the CAPM is more sensitive to changes in interest rates, which is an important  
2 risk factor to investors in the current financial market.

3  
4 **Q. Using FERC's methodology for selecting the appropriate cost of equity from the**  
5 **range of DCF results, as adopted in Opinion No. 531, what would be the DCF**  
6 **estimate using Mr. Qadir's proxy group?**

7 A. Given the anomalous results produced by the DCF model under current market  
8 conditions, FERC has determined that the reasonable cost of equity is the midpoint  
9 between the midpoint and high DCF results for the proxy group. As shown in  
10 Exhibit\_\_(AQ-9), the median and high DCF results using Mr. Qadir's methodology and  
11 electric utility proxy group are 8.22 percent and 11.10 percent, respectively. The  
12 midpoint of that range of results is 9.66 percent. When the gas distribution companies  
13 are added to Mr. Qadir's proxy group, the median DCF result using his methodology is  
14 9.34 percent, and the midpoint of the median and high DCF results is 9.72 percent. These  
15 results are generally consistent with Mr. Qadir's Zero beta CAPM results of 9.51 percent.  
16 While I continue to believe that 9.94 percent is the appropriate ROE for the Companies,  
17 the midpoint of Mr. Qadir's median and high DCF results of 9.66 percent (for Staff's  
18 electric utility only proxy group) and 9.72 percent (adding gas distribution companies to  
19 Staff's electric utility proxy group) are similar to the authorized ROEs for gas distribution  
20 companies in other jurisdictions since January 2014.

21

Rebuttal Testimony of Ann E. Bulkley

1       **D. Application of the CAPM**

2       **Q. Please summarize Mr. Qadir's application of the CAPM.**

3       A. Mr. Qadir developed his estimate of the risk-free rate of 2.32 percent by using a recent  
4       average of 10-year and 30-year Treasury bond yields. For his Beta estimate, Mr. Qadir  
5       used the median Value Line Beta for his proxy group of 0.75. To estimate the market  
6       risk premium, Mr. Qadir subtracted his risk free rate estimate from an average of the  
7       forecast returns for the S&P 500 from Merrill Lynch's February, March and April 2016  
8       Quantitative Profiles. Mr. Qadir also developed a zero-Beta CAPM using similar inputs  
9       as his traditional CAPM analysis, but using a market risk premium based on weighting  
10      the Beta times the market risk premium by 0.75 and the market risk premium itself by  
11      0.25. Mr. Qadir relied on the average of his two CAPM analyses and weighted that result  
12      by one-third in the formulation of his overall ROE recommendation.

13

14      **Q. What are the primary differences between your application of the CAPM and Mr.**  
15      **Qadir's application of this model?**

16      A. Because the estimation of the ROE is a forward-looking concept, and the ROE that is  
17      authorized in these cases will be in effect for some period in the future, my analysis  
18      appropriately considers both the recent historical risk-free rate and the projected risk-free  
19      rate. The analysis presented in my direct testimony also relies on Bloomberg estimates of  
20      Beta that reflect more recent market conditions. Finally, I estimate the market risk  
21      premium based on the difference between the return on large company stocks, as  
22      measured by the S&P 500, and the yield on 30-year Treasury bonds.

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1 **Q. Why is the use of 30-year Treasury bond yields more appropriate than relying on**  
2 **10-year and 30-year Treasury bond yields?**

3 A. Mr. Qadir’s rationale for relying on 10-year and 30-year Treasury bond yields in his  
4 CAPM analysis is that it is consistent with the approach the Commission has relied on in  
5 prior cases, and the use of these securities reflects the expectations of investors who have  
6 “intermediate and long-term investment horizons.”<sup>38</sup> I disagree with Mr. Qadir’s rationale.  
7 As noted by Morningstar, “the horizon is a function of the investment, *not the investor.*”  
8 The use of the 30-year Treasury bond yield as the risk-free rate is consistent with the  
9 investment horizon for electric and natural gas utility assets. Taking Mr. Qadir’s  
10 rationale to the limits, an investor who plans to hold a position in a utility equity share for  
11 only six months would use a certificate of deposit rate to evaluate the potential return.  
12 That is clearly not the case for any rational investor considering return requirements.

13  
14 **Q. Have other regulatory agencies commented on the appropriate securities to use for**  
15 **the risk-free rate in the CAPM?**

16 A. Yes. In Opinion No. 531, the FERC relies on the yield on the 30-year Treasury bond.  
17 As noted above, the 30-year U.S. Treasury bond yields are a generally  
18 accepted proxy for the risk-free rate in a CAPM analysis, and are also  
19 considered superior to short- and intermediate-term bonds for this  
20 purpose.<sup>39</sup>

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<sup>38</sup> Prepared testimony of Abdul Qadir, at 37.

<sup>39</sup> FERC Order 531-B at para 114. Citing also to Roger A. Morin, *New Regulatory Finance* 151-152 (Public Utility Reports, Inc. 2006) (“the yield on very long-term government bonds, namely, the

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1 **Q. Why are projected treasury bond yields informative in the CAPM analysis?**

2 A. As discussed in my direct testimony, and confirmed by the FERC in Opinion No. 531,  
3 recent market conditions, particularly recent artificially low interest rates, have had an  
4 effect on the results of the ROE estimation models. Given these market conditions, I  
5 disagree with Mr. Qadir’s position that “current rates are the best indicator of future rates,  
6 as they are based on the latest available information to investors.”<sup>40</sup> Just as investors  
7 have available to them actual and projected growth rates for individual companies, they  
8 also have available current and projected yields on Treasury bonds.

9  
10 Furthermore, the use of projected Treasury bond yields is consistent with the use of a  
11 forward-looking market risk premium. In the estimation of the market risk premium, Mr.  
12 Qadir states that the *ex-post* method to derive the market risk premium is “fundamentally  
13 flawed because *ex-post* MRP’s are based on the faulty premise that past performance is a  
14 valid proxy for expectations regarding future results.”<sup>41</sup> For this same reason, it is not  
15 appropriate to rely only on 3-month average Treasury bond yields, when investors and  
16 the market generally are expecting interest rates to increase from the historical lows that  
17 have recently been experienced in the market. This is particularly important when the  
18 expectation is that interest rates will increase over the period that the ROE that is

---

yield on 30-year Treasury bonds, is the best measure of the risk-free rate for use in the CAPM and Risk Premium methods.”).

<sup>40</sup> Prepared testimony of Abdul Qadir at 69-70.

<sup>41</sup> *Ibid.*, at 40.

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1 determined in these cases will be in effect. As discussed previously, consensus forecasts  
2 predict interest rates to increase in the near and longer-term. It is reasonable to expect  
3 that investors can and do consider this information, as they do other market projections.  
4 Therefore, it is reasonable, and consistent with Mr. Qadir's position regarding the  
5 calculation of the market risk premium, to rely on expectations of market conditions to  
6 the extent that those expected conditions differ from recent history.

7  
8 Furthermore, as discussed in Section III, the yield spread between Treasuries and  
9 corporate bonds is widening. These data points demonstrate a change in the recent  
10 historical low interest rate environment. Mr. Qadir's sole reliance on historical interest  
11 rates as the risk-free rate in the CAPM analysis is particularly inappropriate at a time  
12 when interest rates are rising, and are expected to continue to do so.

13  
14 Finally, from a practical perspective, the ROE that is approved by the Commission will  
15 be the return that the Companies are authorized to earn on equity over the rate period,  
16 until such time as another rate proceeding is filed. It is important to reflect investors'  
17 expectations of returns over that time period. Therefore, I conclude that it is appropriate  
18 to consider consensus estimates of investors' expectation of yields on Treasury bonds in  
19 the CAPM analysis.

20

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1 **Q. Does Mr. Qadir misunderstand your testimony with respect to the use of 30-year**  
2 **Treasury bonds in the CAPM?**

3 A. Yes. Mr. Qadir suggests that in my direct testimony I conclude that “all utility equity  
4 investors have an investment horizon of 30 years.” He then states that this conclusion is  
5 unsubstantiated and erroneous. Mr. Qadir provides no citation for where this conclusion  
6 appears in my direct testimony.

7

8 **Q. What is your testimony with respect to the use of the yield on 30-year Treasury**  
9 **bonds as the risk-free rate?**

10 A. As discussed in my direct testimony, it is important to select the term (or maturity) that  
11 best matches the life of the underlying investment.<sup>42</sup> I also cite to Morningstar, which  
12 notes that the Treasury security relied on should match the time horizon of what is being  
13 valued, and that the time horizon is a function of the investment, not the investor. I do  
14 not suggest that equity investors have an investment horizon of 30 years, nor does my  
15 testimony suggest that this would be a relevant factor in determining the appropriate  
16 security for the risk-free rate even if investors’ time horizons were that long.

17

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<sup>42</sup> Direct testimony of Ann E. Bulkley, at 56-57.

Rebuttal Testimony of Ann E. Bulkley

1 **Q. Why does Mr. Qadir disagree with the use of Bloomberg Betas in your CAPM**  
2 **analysis?**

3 A. Mr. Qadir asserts that Bloomberg employs less reliable, shorter time periods for its  
4 calculation of Beta than does Value Line.<sup>43</sup>

5  
6 **Q. Why is it reasonable to rely on the Bloomberg Betas?**

7 A. It is reasonable to consider several measures of market conditions in estimating the ROE.  
8 As noted in my direct testimony, the Bloomberg Beta coefficient is widely used, and  
9 because it is based on a two-year period as compared to Value Line's five-year period, it  
10 reflects more recent market conditions.<sup>44</sup> However, to limit the differences between our  
11 respective methodologies, I have modified the results of the CAPM analysis in my direct  
12 testimony to only include Value Line betas.

13

14 **Q. Please summarize Mr. Qadir's concern with your estimation of the Market Risk**  
15 **Premium.**

16 A. Mr. Qadir testifies that the use of the Constant Growth DCF model to develop the market  
17 return on the S&P 500 is not appropriate because the companies in the S&P 500 cannot  
18 sustain their three-to-five year growth rates in perpetuity.<sup>45</sup>

19

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<sup>43</sup> Prepared testimony of Abdul Qadir at 38.

<sup>44</sup> Direct testimony of Ann E. Bulkley, at 64-65.

<sup>45</sup> Prepared testimony of Abdul Qadir at 70-71.

Rebuttal Testimony of Ann E. Bulkley

1 **Q. What is your response?**

2 A. The calculation of the MRP is based on the return on the broader market, as measured by  
3 S&P 500, less the return on a risk-free instrument. The S&P 500 is an index that includes  
4 the largest 500 companies by market capitalization. Over time, the specific companies  
5 that are included in the S&P 500 Index will vary, but investor expectations of growth and  
6 return overall for the index as a whole may not, based on the selection process involved  
7 in the index. Therefore, it is reasonable to assume that the average growth of the index  
8 could be sustainable in the long-run.

9  
10 **Q. Have other commissions supported the use of a Constant Growth DCF model in the**  
11 **estimation of the market return?**

12 A. Yes. In Opinion 531-B, FERC addresses the use of the Constant Growth DCF model to  
13 estimate the market return in the calculation of the MRP used in the CAPM analysis. In  
14 that opinion, FERC notes:

15 While an individual company cannot be expected to sustain high short-  
16 term growth rates in perpetuity, the same cannot be said for a stock index  
17 like the S&P 500 that is regularly updated to contain only companies with  
18 high market capitalization and the record in this proceeding does not  
19 indicate that the growth rate of the S&P 500 stock index is  
20 unsustainable.<sup>46</sup>

21 The methodology and assumptions used in my CAPM analyses are consistent with those  
22 adopted by FERC for estimating the total market return and the market risk premium.

23

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<sup>46</sup> FERC Opinion 531-B at 113.

Rebuttal Testimony of Ann E. Bulkley

1 **Q. What are your conclusions regarding the CAPM analysis?**

2 A. In principle, Mr. Qadir and I agree that the development of the inputs and assumptions  
3 for the CAPM should be done on a forward-looking basis, and that ex-post analysis can  
4 be flawed in some circumstances. Furthermore, both our CAPM analyses contain some  
5 historical data where we believe it to be the best estimate in current market conditions. In  
6 particular, I note that recent market conditions should not be considered a proxy for  
7 future ROE results. As such, I have developed the assumptions used in the CAPM to be  
8 forward-looking to the period that KEDNY's and KEDLI's rates will be in effect. In the  
9 instance of Beta, I initially relied on Bloomberg Betas with this same principle in mind,  
10 that more current market information would be more appropriate than historical data;  
11 however, in order to minimize the differences between my analysis and Mr. Qadir's  
12 methodology, I have updated my CAPM analysis to rely only on Value Line Betas.

13  
14 Based on the specification of the methodology, and the support for this methodology that  
15 has been offered by other regulatory agencies as a result of recent market conditions, I  
16 believe that it is appropriate to give this form of the CAPM an equal weighting in the  
17 estimation of the ROE.

18  
19 **E. Regulatory Framework and Business Risks**

20 **Q. Please summarize Mr. Qadir's position regarding the Companies' business risks.**

21 A. Mr. Qadir relies on credit rating agencies' commentary on the risk of the utility segment  
22 as a whole to support conclusions regarding the risk of KEDNY and KEDLI. His review

Rebuttal Testimony of Ann E. Bulkley

1 of the Companies' business risk is as compared to the overall industry risk for electric  
2 utilities and does not provide any evidence as to the relative risk of the Companies and  
3 the proxy group.<sup>47</sup> Because the ROE is estimated using the proxy group results as a  
4 surrogate for the investor required return, it is important that any analysis of the credit  
5 supportiveness and business risk of the Companies be conducted relative to the proxy  
6 group.

7  
8 **Q. Is Mr. Qadir's business risk analysis consistent with the development of his proxy**  
9 **group?**

10 A. No, it is not. Mr. Qadir supports the use of an electric proxy group on the basis that the  
11 parent company of KEDNY and KEDLI has significant electric operations, and therefore  
12 the use of an electric utility proxy group is appropriate, even though KEDNY and KEDLI  
13 are natural gas distribution companies. However, in the discussion of business risk, Mr.  
14 Qadir concludes, without an analysis of his specific proxy group, that KEDNY and  
15 KEDLI are less risky than most electric utility companies.<sup>48</sup> Mr. Qadir further notes that  
16 New York's electric and gas utilities are not vertically integrated and are instead  
17 primarily transmission and distribution companies, also suggesting lower risk.<sup>49</sup> While  
18 he suggests that these factors are important in assessing relative risk, they were not  
19 considered in the development of Mr. Qadir's proxy group. In fact, Mr. Qadir's entirely

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<sup>47</sup> Prepared testimony of Abdul Qadir at 16-17.

<sup>48</sup> *Ibid.*, at 16.

<sup>49</sup> Prepared testimony of Abdul Qadir at 17.

Rebuttal Testimony of Ann E. Bulkley

1 electric proxy group contains 27 companies that are vertically integrated. In the  
2 assessment of business risk, Mr. Qadir finds it important to note that the Companies are  
3 lower overall risk than the electric utilities generally, and vertically integrated companies  
4 specifically. Based on these differences in risk, it would seem more appropriate in setting  
5 the ROE for the Companies, to consider the returns of a proxy group that includes natural  
6 gas distribution companies that have a more similar risk profile to KEDNY and KEDLI.

7  
8 **Q. Have you conducted any analysis of the risk of your proxy group as compared with**  
9 **KEDNY and KEDLI?**

10 A. Yes. As discussed in my direct testimony, I examined two rankings performed by the  
11 investment community of U.S. regulatory commissions (one by Regulatory Research  
12 Associates, or “RRA”, and one by Standard & Poor’s, or “S&P”). As noted in my direct  
13 testimony, RRA accords New York an “Average/2” rating, which is in the exact middle  
14 of RRA’s ranking system.<sup>50</sup> S&P ranks New York 34<sup>th</sup> out of 53 regulatory jurisdictions  
15 (including Federal, the District of Columbia, and two Texas state regulators) for credit  
16 supportiveness, suggesting that New York is below average when compared to other U.S.  
17 regulatory jurisdictions, and, at a minimum, does not “have a more credit supportive  
18 ratemaking environment in place than that found in many other states.”<sup>51</sup>

19  

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<sup>50</sup> Regulatory Research Associates, [https://www.snl.com/interactivex/Commission\\_Profiles.aspx](https://www.snl.com/interactivex/Commission_Profiles.aspx)  
(October 6, 2015).

<sup>51</sup> Prepared testimony of Abdul Qadir, at 16.

Rebuttal Testimony of Ann E. Bulkley

1 **Q. Mr. Qadir notes that revenue decoupling mechanisms reduce revenue risk. Have**  
2 **you considered the effect of the company's revenue decoupling mechanism on the**  
3 **required ROE?**

4 A. Yes, I have. The ROE recommendation is established for a company based on its risk  
5 relative to the proxy group. Given the similarity of the Companies' revenue decoupling  
6 mechanisms to similar mechanisms at other natural gas distribution companies, I have  
7 reviewed the alternative rate mechanisms that have been implemented by the Natural Gas  
8 proxy companies. Exhibit\_\_(AEB-4R) summarizes the alternative rate mechanisms that  
9 have been implemented by the Natural Gas proxy companies. As shown in Exhibit \_\_  
10 (AEB-4R), approximately 66.7 percent of the jurisdictions where the proxy companies  
11 operate have approved some form of adjustment mechanism (*i.e.*, formula rate plan,  
12 revenue decoupling mechanism, straight fixed-variable rate design) to reduce the risk of  
13 revenue shortfalls.

14  
15 **Q. What are your conclusions regarding the Companies' business risk relative to the**  
16 **proxy group?**

17 A. As discussed in my direct testimony, New York's relative regulatory rankings from a  
18 credit perspective, coupled with the heightened level of business risk faced by the  
19 Companies due to their capital spending plans, demonstrate that the Companies' business  
20 risk is above average compared to the proxy companies. That elevated risk profile  
21 increases the importance of setting a return for the Companies that is within the range of

Rebuttal Testimony of Ann E. Bulkley

1           reasonableness as established by the returns for the two proxy groups that I used in  
2           formulating my return recommendation.<sup>52</sup>

3

4   **V.   Conclusions and Recommendation**

5   **Q.   What is your conclusion regarding a fair return on equity for KEDNY and KEDLI?**

6   A.   My ROE recommendation considers the results of the DCF and CAPM models,  
7       summarized in my direct testimony and modified in Table 2 to use only Value Line betas  
8       in the CAPM analysis. My recommendation also considers the specific risks to which the  
9       Companies are exposed. In my view, these results support the 9.94 percent ROE  
10      proposed by the Companies as reasonable, if not conservative.

11

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<sup>52</sup> Direct testimony of Ann E. Bulkley, at 82.

## Rebuttal Testimony of Ann E. Bulkley

1

**Table 2: Summary of Analytical Results<sup>53</sup>**

<b>Combined Utility Proxy Group</b>			
	<b>Low</b>	<b>Mean</b>	<b>High</b>
DCF	9.28%	9.49%	9.76%
Mean CAPM	11.09%	11.21%	11.49%
Mean ROE (50/50 weighting)	10.18%	10.37%	10.63%
<b>Natural Gas Proxy Group</b>			
	<b>Low</b>	<b>Mean</b>	<b>High</b>
DCF	9.01%	9.25%	9.61%
Mean CAPM	11.45%	11.55%	11.78%
Mean ROE (50/50 weighting)	10.23%	10.42%	10.70%

2

3 **Q. Does this conclude your Rebuttal Testimony?**4 **A.** Yes, it does.

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<sup>53</sup> Updated analytical results are based on the analysis provided in my direct testimony excluding Bloomberg Betas.

**Rebuttal Testimony of Ann E. Bulkley**

**Index of Exhibits**

Exhibit ___ (AEB-1R)	Adjusted Staff DCF
Exhibit ___ (AEB-2R)	Authorized Return on Equity – Combined Utility Proxy Group
Exhibit ___ (AEB-3R)	Authorized Return on Equity – Natural Gas Proxy Group
Exhibit ___ (AEB-4R)	Non-Volumetric Rate Design & Capital Tracking Mechanisms



**Case 16-G-0058**  
**Case 16-G-0059**

**Rebuttal Testimony of Ann E. Bulkley**

Exhibit \_\_ (AEB-1R)

Adjusted Staff DCF

KeySpan Gas East Corporation d/b/a National Grid  
 The Brooklyn Union Gas Company d/b/a National Grid NY  
 Case 16-G-0058 and 16-G-0059

STAFF METHODOLOGY - ADJ. STAFF PROXY GROUP  
 DCF ROE CALCULATION - GENERIC FINANCE METHOD

Company	Ticker	Beta	Price 1/2016 - 3/2016	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
				EPS Years 4-6	DPS Year 1	DPS Year 2	DPS Year 3	DPS Year 4	DPS Year 4-6	DPS Year 5	DPS Year 6	BPS Year 1	BPS Year 2	BPS Year 3	BPS Year 4	
Alliant Energy Corporation	LNT	0.800	\$33.50	2.35	1.18	1.25	1.37	1.42	1.50	1.50	1.57	18.05	18.73	19.15	19.58	
Ameren Corporation	AEE	0.750	\$45.85	3.25	1.72	1.78	1.87	1.96	2.05	2.05	2.12	29.45	30.45	31.63	32.82	
American Electric Power Company, Inc.	AEP	0.700	\$61.45	4.25	2.27	2.39	2.51	2.63	2.75	2.75	2.85	37.95	39.45	41.05	42.65	
Almos Energy Corporation	ATO	0.800	\$68.71	4.00	1.68	1.80	1.92	2.03	2.15	2.15	2.34	31.35	32.50	33.88	35.27	
Avista Corporation	AVA	0.800	\$37.61	2.50	1.37	1.42	1.48	1.54	1.60	1.60	1.66	25.40	26.05	26.87	27.68	
Black Hills Corporation	BKH	0.800	\$52.72	4.00	1.68	1.84	1.96	2.08	2.20	2.20	2.36	30.55	32.65	34.85	37.05	
CenterPoint Energy, Inc.	CNP	0.850	\$18.56	1.35	1.03	1.07	1.11	1.15	1.19	1.19	1.23	8.30	8.55	8.87	9.18	
CMS Energy Corporation	CMS	0.750	\$38.87	2.50	1.24	1.32	1.41	1.51	1.60	1.60	1.69	15.15	16.15	17.18	18.22	
Consolidated Edison, Inc.	ED	0.550	\$70.35	4.50	2.68	2.76	2.84	2.92	3.00	3.00	3.09	45.75	47.35	48.98	50.62	
Edison International	EIX	0.700	\$64.83	5.00	1.96	2.10	2.27	2.43	2.60	2.60	2.74	36.70	38.60	40.73	42.87	
El Paso Electric Company	EE	0.750	\$41.18	2.50	1.23	1.23	1.32	1.41	1.50	1.50	1.55	25.90	26.80	27.70	28.60	
Energy Corporation	ETR	0.700	\$71.87	6.75	3.42	3.52	3.68	3.84	4.00	4.00	4.18	53.80	56.15	58.85	61.55	
Eversource Energy	ES	0.750	\$54.24	3.75	1.78	1.90	2.00	2.10	2.20	2.20	2.29	33.60	34.80	36.12	37.43	
FE FirstEnergy Corp.	FE	0.650	\$38.20	3.25	1.44	1.48	1.52	1.56	1.60	1.60	1.67	31.40	32.75	34.33	35.92	
Great Plains Energy Inc.	GXP	0.800	\$28.76	2.00	1.06	1.12	1.18	1.24	1.30	1.30	1.33	24.40	25.10	25.90	26.70	
IDACORP, Inc.	IDA	0.800	\$70.18	4.50	2.08	2.24	2.39	2.55	2.70	2.70	2.80	42.65	44.45	46.22	47.98	
MGEE Energy, Inc.	MGEE	0.700	\$49.29	3.25	1.20	1.25	1.30	1.35	1.40	1.40	1.52	20.85	21.70	22.80	23.90	
New Jersey Resources Corporation	NJR	0.800	\$34.67	1.90	0.96	0.98	0.99	1.01	1.02	1.02	1.07	13.60	14.45	15.27	16.08	
Northwest Natural Gas Company	NWN	0.650	\$51.34	3.15	1.87	1.91	1.96	2.00	2.05	2.05	2.12	29.85	30.95	32.43	33.92	
NorthWestern Corporation	NWE	0.700	\$57.32	4.00	2.00	2.08	2.16	2.24	2.32	2.32	2.43	34.05	35.25	36.67	38.08	
OGEE Energy Corp.	OGE	0.950	\$25.94	2.25	1.16	1.28	1.40	1.53	1.65	1.65	1.70	17.30	17.95	18.55	19.15	
P&G Corporation	PG	0.700	\$55.54	4.50	1.82	1.90	2.05	2.20	2.35	2.35	2.48	35.70	37.75	39.92	42.08	
Pinnacle West Capital Corporation	PNM	0.750	\$67.99	4.75	2.56	2.68	2.82	2.96	3.10	3.10	3.21	42.70	44.25	45.75	47.25	
Pinnacel West Capital Corporation	PNM	0.800	\$31.76	2.35	0.88	0.96	1.07	1.19	1.30	1.30	1.35	22.70	23.60	24.23	24.87	
Portland General Electric Company	POR	0.800	\$38.18	2.75	1.26	1.34	1.43	1.51	1.60	1.60	1.66	26.35	27.45	28.63	29.82	
PPL Corporation	PPL	0.700	\$35.22	3.00	1.52	1.58	1.64	1.70	1.76	1.76	1.88	15.65	16.65	17.85	19.05	
SCANA Corporation	SCG	0.750	\$64.25	4.75	2.26	2.34	2.43	2.51	2.60	2.60	2.74	39.25	41.40	43.68	45.97	
Sempra Energy	SRE	0.800	\$95.60	8.25	3.02	3.24	3.46	3.68	3.90	3.90	4.21	49.30	51.35	54.65	57.95	
South Jersey Industries, Inc.	SJI	0.850	\$25.47	2.20	1.08	1.15	1.23	1.32	1.40	1.40	1.48	15.30	16.20	17.00	17.80	
Southwest Gas Corporation	SWX	0.800	\$59.95	4.80	1.80	1.92	2.05	2.17	2.30	2.30	2.49	34.70	35.00	35.92	36.83	
Spire, Inc.	SR	0.700	\$63.99	4.20	1.92	1.96	2.04	2.12	2.20	2.20	2.33	38.10	39.65	41.25	42.85	
Westar Energy, Inc.	WR	0.750	\$44.25	3.10	1.52	1.60	1.68	1.76	1.84	1.84	1.95	26.65	27.50	28.27	29.03	
WGL Holdings, Inc.	WGL	0.800	\$68.71	3.55	1.87	1.93	1.96	2.00	2.03	2.03	2.13	26.40	27.65	29.03	30.42	
Wisconsin Energy Corporation	WEC	0.700	\$55.68	3.75	1.98	2.08	2.19	2.29	2.40	2.40	2.50	28.30	29.30	30.45	31.60	
Xcel Energy Inc.	XEL	0.650	\$38.37	2.75	1.36	1.44	1.53	1.61	1.70	1.70	1.77	21.70	22.55	23.53	24.52	

Proxy Group Median: 0.750  
 Proxy Group Average: 0.754

Notes:

- [1] Source: Value Line
- [2] Source: Bloomberg. Three month average price.
- [3] Source: Value Line
- [4] Source: Value Line
- [5] Source: Value Line
- [6] Equals (([8] - [5]) / 3) + [5]
- [7] Equals (([8] - [5]) / 3) + [6]
- [8] Source: Value Line
- [9] Equals [8]
- [10] Equals [9] x (1 + [27])
- [11] Source: Value Line
- [12] Source: Value Line
- [13] Equals ((([15] - [12]) / 3) + [12])
- [14] Equals ((([15] - [12]) / 3) + [13])
- [15] Source: Value Line
- [16] Source: Value Line
- [17] Source: Value Line
- [18] Equals (([8] / [5]) ^ (1/3)) - 1
- [19] Equals 1 - ([8] / [3])
- [20] Equals ([3] / (0.5 x ([15] + [12]) x ([15] / [12]) ^ (2/3)))
- [21] Equals [19] x [20]
- [22] Equals ((([17] / [16]) ^ (1/4)) - 1)
- [23] Equals [2] / [11]
- [24] Equals [22] x [23]
- [25] Equals 1 - (1 / [23])
- [26] Equals [24] x [25]
- [27] Equals [21] + [26]
- [28] Calculated ROE

KeySpan Gas East Corporation d/b/a National Grid  
 The Brooklyn Union Gas Company d/b/a National Grid NY  
 Case 16-G-0058 and 16-G-0059

STAFF METHODOLOGY - ADJ. STAFF PROXY GROUP  
 DCF ROE CALCULATION - GENERIC FINANCE METHOD

Company	Ticker	BPS		# of Shares		DPS		Retention		Return on		B x R	Increase in Shares	MBR	S Factor	V Factor	S x V	Sustainable Growth	Long-Form ROE
		Year 4-6	Year 1	Year 4-6	Year 1	Year 4-6	Year 5	Year 4-6	Year 5	Year 1	Year 1								
Alliant Energy Corporation	LNT	20.00	227.00	6.27%	11.88%	36.17%	4.30%	0.33%	1.86	0.61%	46.12%	0.28%	4.58%	8.34%					
Ameren Corporation	AEE	34.00	242.63	4.82%	36.92%	3.99%	3.59%	0.00%	1.56	0.00%	0.00%	0.00%	35.77%	7.50%					
American Electric Power Company, Inc.	AEP	44.25	493.00	4.79%	35.29%	9.78%	3.45%	0.35%	1.62	0.57%	38.24%	0.22%	36.77%	7.57%					
Almos Energy Corporation	ATO	36.65	107.00	6.10%	11.13%	46.25%	5.15%	2.91%	2.19	6.37%	54.37%	3.47%	86.1%	10.88%					
Avista Corporation	AVA	28.50	66.00	4.06%	8.90%	36.00%	3.21%	0.77%	1.48	1.14%	32.46%	0.37%	35.6%	7.30%					
Black Hills Corporation	BKH	39.25	61.00	6.14%	10.50%	45.00%	4.73%	3.58%	1.73	6.17%	42.05%	2.60%	7.32%	10.52%					
CenterPoint Energy, Inc.	CNP	9.50	436.00	3.61%	11.85%	14.46%	1.71%	1.07%	2.24	2.40%	55.28%	1.33%	3.04%	8.76%					
CenterPoint Energy, Inc.	CNP	19.25	279.00	6.62%	13.37%	36.00%	4.81%	0.71%	2.57	1.82%	61.03%	1.11%	5.92%	9.23%					
CMS Energy Corporation	CMS	52.25	293.00	2.82%	33.33%	8.75%	2.92%	0.00%	1.54	0.00%	34.97%	0.00%	2.92%	6.75%					
Consolidated Edison, Inc.	ED	45.00	325.81	7.36%	46.00%	11.40%	5.47%	0.00%	1.77	0.00%	43.39%	0.00%	54.7%	8.73%					
Edison International	EIX	29.50	40.55	6.84%	40.00%	8.61%	3.44%	0.28%	1.59	0.44%	37.10%	0.16%	6.77%	6.77%					
El Paso Electric Company	ETR	64.25	178.40	4.35%	40.74%	10.74%	4.38%	0.00%	1.34	0.00%	25.14%	0.00%	4.38%	9.12%					
Eversource Energy	ES	38.75	319.00	5.01%	41.33%	9.85%	4.07%	0.31%	1.61	0.50%	38.05%	0.19%	4.26%	7.72%					
FirstEnergy Corp.	FE	37.50	439.00	2.63%	50.77%	8.86%	4.50%	0.70%	1.08	0.74%	5.43%	0.04%	8.64%	8.64%					
Great Plains Energy, Inc.	GXP	27.50	155.75	5.09%	35.00%	7.38%	2.58%	0.16%	1.18	0.19%	15.16%	0.03%	2.61%	6.68%					
IDACORP, Inc.	IDA	49.75	50.40	6.42%	40.00%	9.22%	3.69%	0.10%	1.65	0.16%	39.23%	0.06%	3.75%	7.07%					
MGE Energy, Inc.	MGEE	25.00	35.00	3.65%	56.92%	13.31%	7.57%	0.71%	2.36	1.67%	57.70%	0.96%	8.54%	10.60%					
New Jersey Resources Corporation	NJR	16.90	85.00	1.34%	46.32%	11.54%	5.34%	0.00%	2.55	0.00%	60.77%	0.00%	5.34%	7.76%					
Northwest Natural Gas Company	NWN	35.40	27.75	2.39%	34.92%	9.10%	3.18%	0.22%	1.72	0.39%	41.85%	0.16%	3.34%	6.88%					
NorthWestern Corporation	NWE	39.50	48.50	3.71%	42.00%	10.32%	4.33%	0.51%	1.68	0.86%	40.80%	0.35%	4.68%	8.10%					
OG Energy Corp.	OGE	19.75	202.50	8.83%	25.67%	11.37%	3.89%	0.25%	1.50	0.37%	33.31%	0.12%	8.74%	8.74%					
PG&E Corporation	PG	44.25	505.00	7.34%	47.76%	10.44%	4.89%	0.95%	1.56	1.52%	35.73%	0.54%	8.97%	8.97%					
Pinnacle West Capital Corporation	PNW	48.75	111.50	4.97%	34.74%	9.90%	3.44%	0.45%	1.59	0.71%	37.19%	0.26%	3.70%	7.67%					
PNM Resources, Inc.	PNM	25.50	80.00	10.63%	44.68%	9.33%	4.17%	0.00%	1.40	0.00%	28.53%	0.00%	4.17%	7.63%					
Portland General Electric Company	POR	31.00	89.80	6.09%	41.82%	9.05%	3.78%	0.22%	1.45	0.32%	30.99%	0.10%	3.89%	7.49%					
PPL Corporation	PPL	20.25	676.00	3.66%	41.33%	15.30%	6.32%	0.55%	2.25	1.24%	55.56%	0.69%	7.01%	10.93%					
SCANA Corporation	SRE	48.25	143.00	3.57%	45.26%	10.10%	4.57%	1.20%	1.64	1.97%	38.91%	0.77%	5.34%	8.68%					
Sempra Energy	SRE	61.25	250.50	6.38%	52.73%	13.87%	7.31%	0.79%	1.94	1.53%	48.43%	0.74%	8.05%	11.10%					
South Jersey Industries, Inc.	SJI	18.60	72.00	6.78%	36.36%	6.71%	4.40%	2.02%	1.66	3.36%	39.93%	1.34%	5.74%	10.19%					
Southwest Gas Corporation	SWX	37.75	49.00	6.20%	52.08%	12.88%	6.71%	1.98%	1.73	3.42%	42.12%	1.44%	8.15%	11.01%					
Spire, Inc.	SR	44.45	44.00	3.93%	47.62%	9.63%	4.59%	2.20%	1.68	3.69%	40.46%	1.49%	6.06%	8.83%					
Westar Energy, Inc.	WR	29.80	145.00	4.77%	40.65%	10.54%	4.28%	2.49%	1.68	4.14%	39.78%	1.65%	5.93%	9.29%					
WGL Holdings, Inc.	WGL	31.80	50.00	1.70%	42.82%	11.42%	4.89%	0.00%	2.53	0.00%	60.43%	0.00%	4.89%	7.43%					
Wisconsin Energy Corporation	WEC	32.75	315.70	4.89%	36.00%	11.66%	4.20%	0.00%	1.97	0.00%	49.17%	0.00%	4.20%	7.88%					
Xcel Energy Inc.	XEL	25.50	508.00	5.69%	35.16%	11.01%	4.20%	0.00%	1.77	0.00%	43.45%	0.00%	4.20%	7.96%					

Proxy Group Median: 40.74%  
 Proxy Group Average: 4.38%

- Notes:
- [1] Source: Value Line
  - [2] Source: Bloomberg. Three month average price.
  - [3] Source: Value Line
  - [4] Source: Value Line
  - [5] Source: Value Line
  - [6] Equals (([8] - [5]) / 3) + [5]
  - [7] Equals (([3] - [5]) / 3) + [6]
  - [8] Source: Value Line
  - [9] Equals [6]
  - [10] Equals [9] x (1 + [27])
  - [11] Source: Value Line
  - [12] Source: Value Line
  - [13] Equals (([15] - [12]) / 3) + [12]
  - [14] Equals (([15] - [12]) / 3) + [13]
  - [15] Source: Value Line
  - [16] Source: Value Line
  - [17] Source: Value Line
  - [18] Equals (([8] / [5]) ^ (1/3)) - 1
  - [19] Equals 1 - ([8] / [3])
  - [20] Equals ([3] / (0.5 x ([15] + [12]) x ([15] / [12]) ^ (2/3)))
  - [21] Equals [19] x [20]
  - [22] Equals (([17] / [16]) ^ (1/4)) - 1
  - [23] Equals [2] / [11]
  - [24] Equals [22] x [23]
  - [25] Equals 1 - (1 / [23])
  - [26] Equals [24] x [25]
  - [27] Equals [21] + [26]
  - [28] Calculated ROE



**Case 16-G-0058**  
**Case 16-G-0059**

**Rebuttal Testimony of Ann E. Bulkley**

Exhibit \_\_ (AEB-2R)

Authorized Return on Equity – Combined Utility Proxy Group

AUTHORIZED RETURN ON EQUITY ANALYSIS  
 AUTHORIZED RETURN ON EQUITY

Combined Utility Proxy Group Company	Ticker	S&P Credit Rating	Numeric Rank	Authorized Return on Equity
Alliant Energy Corporation	LNT	A-	7.00	10.31%
Ameren Corporation	AEE	BBB+	8.00	9.42%
Atmos Energy Corporation	ATO	A-	7.00	9.73%
Avista Corporation	AVA	BBB	9.00	10.05%
CenterPoint Energy, Inc.	CNP	A-	7.00	9.85%
CMS Energy Corporation	CMS	BBB+	8.00	10.30%
Consolidated Edison, Inc.	ED	A-	7.00	9.21%
DTE Energy Company	DTE	BBB+	8.00	10.30%
New Jersey Resources Corporation	NJR	A	6.00	10.30%
Northwest Natural Gas Company	NWN	A+	5.00	9.80%
NorthWestern Corporation	NWE	BBB	9.00	10.25%
SCANA Corporation	SCG	BBB+	8.00	10.43%
Sempra Energy	SRE	BBB+	8.00	10.23%
South Jersey Industries, Inc.	SJI	BBB+	8.00	9.75%
Southwest Gas Corporation	SWX	BBB+	8.00	9.73%
Spire, Inc.	SR	A-	7.00	
Vectren Corporation	VVC	A-	7.00	10.25%
WGL Holdings, Inc.	WGL	A+	5.00	9.50%
Xcel Energy Inc.	XEL	A-	7.00	9.93%
MEAN		A-	7.32	9.96%

AUTHORIZED RETURN ON EQUITY - UTILITY OPERATING COMPANIES

Company Name	Ticker	Type	States of Operation	Year Completed	Docket No.	Authorized Return on Equity
Interstate Power & Light Co.	LNT	Electric	Iowa	2010	D-RPU-2010-0001	10.44%
Interstate Power & Light Co.	LNT	Natural Gas	Iowa	2012	D-RPU-2012-0002	10.00%
Wisconsin Power and Light Co	LNT	Electric	Wisconsin	2014	D-6680-UR-119 (Elec)	10.40%
Wisconsin Power and Light Co	LNT	Natural Gas	Wisconsin	2014	D-6680-UR-119 (Gas)	10.40%
Ameren Illinois	AEE	Electric	Illinois	2015	D-15-0305	9.14%
Ameren Illinois	AEE	Natural Gas	Illinois	2015	D-15-0142	9.60%
Union Electric Co.	AEE	Electric	Missouri	2015	C-ER-2014-0258	9.53%
Atmos Energy Corp.	ATO	Natural Gas	Colorado	2015	D-15AL-0299G	9.60%
Atmos Energy Corp.	ATO	Natural Gas	Kentucky	2014	C-2013-00148	9.80%
Atmos Energy Corp.	ATO	Natural Gas	Tennessee	2015	D-14-00146	9.80%
Alaska Electric Light Power	AVA	Electric	Alaska	2011	D-U-10-029	12.88%
Avista Corp.	AVA	Electric	Idaho	2015	C-AVU-E-15-05	9.50%
Avista Corp.	AVA	Natural Gas	Idaho	2015	C-AVU-G-15-01	9.50%
Avista Corp.	AVA	Natural Gas	Oregon	2016	D-UG 288	9.40%
Avista Corp.	AVA	Electric	Washington	2016	D-UE-150204	9.50%
Avista Corp.	AVA	Natural Gas	Washington	2016	D-UG-150205	9.50%
CenterPoint Energy Houston	CNP	Electric	Texas	2011	D-38339	10.00%
CenterPoint Energy Resources	CNP	Natural Gas	Arkansas	2007	D-06-161-U	9.65%
CenterPoint Energy Resources	CNP	Natural Gas	Louisiana	2004	D-U-27676 (ARKLA)	10.25%
CenterPoint Energy Resources	CNP	Natural Gas	Minnesota	2016	D-G-008/GR-15-424	9.49%
Consumers Energy Co.	CMS	Electric	Michigan	2015	C-U-17735	10.30%
Consolidated Edison Co. of NY	ED	Electric	New York	2015	C-15-E-0050/C-13-E-0030 (Ext)	9.00%
Consolidated Edison Co. of NY	ED	Natural Gas	New York	2014	C-13-G-0031	9.30%
Orange & Rockland Utills Inc.	ED	Electric	New York	2015	C-14-E-0493	9.00%
Orange & Rockland Utills Inc.	ED	Natural Gas	New York	2015	C-14-G-0494	9.00%
Rockland Electric Company	ED	Electric	New Jersey	2014	D-ER-13111135	9.75%
DTE Electric Co.	DTE	Electric	Michigan	2015	C-U-17767	10.30%
New Jersey Natural Gas Co.	NJR	Natural Gas	New Jersey	2008	D-GR-07110889	10.30%
Northwest Natural Gas Co.	NWN	Natural Gas	Oregon	2012	D-UG-221	9.50%
Northwest Natural Gas Co.	NWN	Natural Gas	Washington	2008	D-UG-08-0546	10.10%
NorthWestern Corp.	NWE	Electric	Montana	2010	D-D2009.9.129 (elec)	10.25%
Public Service Co. of NC	SCG	Natural Gas	North Carolina	2008	D-G-5, Sub 495	10.60%
South Carolina Electric & Gas	SCG	Electric	South Carolina	2012	D-2012-218-E	10.25%
San Diego Gas & Electric Co.	SRE	Electric	California	2012	Ap-12-04-016 (Elec)	10.30%
San Diego Gas & Electric Co.	SRE	Natural Gas	California	2012	Ap-12-04-016 (Gas)	10.30%
Southern California Gas Co.	SRE	Natural Gas	California	2012	Ap-12-04-017	10.10%
South Jersey Gas Co.	SJI	Natural Gas	New Jersey	2014	D-GR-13111137	9.75%
Southwest Gas Corp.	SWX	Natural Gas	Arizona	2011	D-G-01551A-10-0458	9.50%
Southwest Gas Corp.	SWX	Natural Gas	California	2014	A-12-12-024 (SoCal)	10.10%
Southwest Gas Corp.	SWX	Natural Gas	Nevada (Northern)	2012	D-12-04005 (Northern)	9.30%
Southwest Gas Corp.	SWX	Natural Gas	Nevada (Southern)	2012	D-12-04005 (Southern)	10.00%
Indiana Gas Co.	VVC	Natural Gas	Indiana	2008	Ca-43298	10.20%
Southern Indiana Gas & Elec Co	VVC	Electric	Indiana	2011	Ca-43839	10.40%
Southern Indiana Gas & Elec Co	VVC	Natural Gas	Indiana	2007	Ca-43112	10.15%
Washington Gas Light Co.	WGL	Natural Gas	District of Columbia	2013	FC-1093	9.25%
Washington Gas Light Co.	WGL	Natural Gas	Maryland	2013	C-9322	9.50%
Washington Gas Light Co.	WGL	Natural Gas	Virginia	2012	C-PUE-2010-00139	9.75%
Northern States Power Co. - MN	XEL	Electric	Minnesota	2015	D-E-002/GR-13-868	9.72%
Northern States Power Co. - MN	XEL	Natural Gas	Minnesota	2010	D-G-002/GR-09-1153	10.09%
Northern States Power Co. - MN	XEL	Electric	North Dakota	2014	C-PU-12-813	9.75%
Northern States Power Co. - MN	XEL	Natural Gas	North Dakota	2007	C-PU-06-525	10.75%
Northern States Power Co - WI	XEL	Electric	Wisconsin	2015	D-4220-UR-121 (Elec)	10.00%
Northern States Power Co - WI	XEL	Natural Gas	Wisconsin	2015	D-4220-UR-121 (Gas)	10.00%
Public Service Co. of CO	XEL	Electric	Colorado	2015	D-14AL-0660E	9.83%
Public Service Co. of CO	XEL	Natural Gas	Colorado	2016	D-15AL-0135G	9.50%
Southwestern Public Service Co	XEL	Electric	New Mexico	2015	C-15-00139-UT	9.96%
Southwestern Public Service Co	XEL	Electric	Texas	2015	D-43695	9.70%

Notes:

- [1] Source: SNL Financial
- [2] AAA=1, AA+=2, AA=3, AA-=4, A+=5, A=6, A-=7, BBB+=8, BBB=9, BBB-=10
- [3] Source: Commission Order in Atmos Energy - Colorado's 2015 Rate Case (Proceeding No. 15AL-0299G).
- [4] Operating Subsidiaries with rate cases not covered by SNL Financial were excluded from the analysis.
- [5] Operating Subsidiaries with rate cases that were silent with respect to traditional rate case parameters were excluded from the analysis.
- [6] Rate Cases were only included if the Authorized Return on Equity was available.
- [7] Excludes Operating Subsidiaries with most recent rate case prior to 2002.



**Case 16-G-0058**  
**Case 16-G-0059**

**Rebuttal Testimony of Ann E. Bulkley**

Exhibit \_\_ (AEB-3R)

Authorized Return on Equity – Natural Gas Proxy Group

AUTHORIZED RETURN ON EQUITY ANALYSIS  
AUTHORIZED RETURN ON EQUITY

Natural Gas Proxy Group Company	Ticker	S&P Credit Rating	Numeric Rank	Authorized Return on Equity
Atmos Energy Corporation	ATO	A-	7.00	9.73%
New Jersey Resources Corporation	NJR	A	6.00	10.30%
Northwest Natural Gas Company	NWN	A+	5.00	9.80%
South Jersey Industries, Inc.	SJI	BBB+	8.00	9.75%
Southwest Gas Corporation	SWX	BBB+	8.00	9.73%
Spire, Inc.	SR	A-	7.00	
WGL Holdings, Inc.	WGL	A+	5.00	9.50%
MEAN		A-	6.57	9.80%

AUTHORIZED RETURN ON EQUITY - UTILITY OPERATING COMPANIES

Company Name	Ticker	Type	States of Operation	Year Completed	Docket No.	Authorized Return on Equity
Atmos Energy Corp.	ATO	Natural Gas	Colorado	2015	D-15AL-0299G	9.60%
Atmos Energy Corp.	ATO	Natural Gas	Kentucky	2014	C-2013-00148	9.80%
Atmos Energy Corp.	ATO	Natural Gas	Tennessee	2015	D-14-00146	9.80%
New Jersey Natural Gas Co.	NJR	Natural Gas	New Jersey	2008	D-GR-07110889	10.30%
Northwest Natural Gas Co.	NWN	Natural Gas	Oregon	2012	D-UG-221	9.50%
Northwest Natural Gas Co.	NWN	Natural Gas	Washington	2008	D-UG-08-0546	10.10%
South Jersey Gas Co.	SJI	Natural Gas	New Jersey	2014	D-GR-13111137	9.75%
Southwest Gas Corp.	SWX	Natural Gas	Arizona	2011	D-G-01551A-10-0458	9.50%
Southwest Gas Corp.	SWX	Natural Gas	California	2014	A-12-12-024 (SoCal)	10.10%
Southwest Gas Corp.	SWX	Natural Gas	Nevada (Northern)	2012	D-12-04005 (Northern)	9.30%
Southwest Gas Corp.	SWX	Natural Gas	Nevada (Southern)	2012	D-12-04005 (Southern)	10.00%
Washington Gas Light Co.	WGL	Natural Gas	District of Columbia	2013	FC-1093	9.25%
Washington Gas Light Co.	WGL	Natural Gas	Maryland	2013	C-9322	9.50%
Washington Gas Light Co.	WGL	Natural Gas	Virginia	2012	C-PUE-2010-00139	9.75%

Notes:

- [1] Source: SNL Financial
- [2] AAA=1, AA+= 2, AA=3, AA-=4, A+=5, A=6, A-=7, BBB+=8, BBB=9, BBB-=10
- [3] Source: Commission Order in Atmos Energy - Colorado's 2015 Rate Case (Proceeding No. 15AL-0299G).
- [4] Operating Subsidiaries with rate cases not covered by SNL Financial were excluded from the analysis.
- [5] Operating Subsidiaries with rate cases that were silent with respect to traditional rate case parameters were excluded from the analysis.
- [6] Rate Cases were only included if the Authorized Return on Equity was available.
- [7] Excludes Operating Subsidiaries with most recent rate case prior to 2002.



**Case 16-G-0058**  
**Case 16-G-0059**

**Rebuttal Testimony of Ann E. Bulkley**

Exhibit \_\_ (AEB-4R)

Non-Volumetric Rate Design & Capital Tracking Mechanisms

NON-VOLUMETRIC RATE DESIGN & CAPITAL TRACKING MECHANISMS

Proxy Group Company	Ticker	Utility	State	Non-Volumetric Rate Design					Capital Tracking Mechanism	
				Formula Rate Plan	Revenue Decoupling Mechanism	Straight Fixed-VARIABLE Rate Design	Non-Volumetric Rate Design			
Atmos Energy Corporation	ATO	Atmos Energy Corporation	CO	N	N	N	N	N	Y	[6]
		Atmos Energy Corporation	KS	N	N	N	N	N	Y	
		Atmos Energy Corporation	KY	N	N	N	N	N	Y	
		Atmos Energy Corporation	LA	Y	N	N	Y	Y	N	
		Atmos Energy Corporation	MS	Y	N	N	Y	Y	Y	
		Atmos Energy Corporation	TN	Y	N	N	Y	Y	Y	
		Atmos Energy Corporation	TX	Y	N	N	Y	Y	Y	
		Atmos Energy Corporation	VA	N	N	N	N	N	Y	
New Jersey Resources Corporation	NJR	New Jersey Natural Gas Company	NJ	N	Y	N	Y	Y	Y	
Northwest Natural Gas Company	NWN	Northwest Natural Gas Company	OR	N	Y	N	Y	Y	Y	
		Northwest Natural Gas Company	WA	N	N	N	N	N	Y	
South Jersey Industries, Inc.	SJI	South Jersey Gas Company	NJ	N	Y	N	N	N	Y	
Southwest Gas Corporation	SWX	Southwest Gas Corporation	AZ	N	Y	N	Y	Y	N	
		Southwest Gas Corporation	CA	N	Y	N	Y	Y	Y	
		Southwest Gas Corporation	NV	N	Y	N	N	N	Y	
Spire, Inc.	SR	Alabama Gas Corporation	AL	Y	Y	N	Y	Y	Y	
		Laclede Gas Company	MO	N	N	N	N	N	Y	
		Missouri Gas Energy	MO	N	N	Y	Y	Y	Y	
WGL Holdings, Inc.	WGL	Washington Gas Light Company	DC	N	N	N	N	N	Y	
		Washington Gas Light Company	MD	N	Y	N	Y	Y	Y	
		Washington Gas Light Company	VA	N	Y	N	Y	Y	Y	
Total Number of Jurisdictions (Y)							14	19		
Total Number of Jurisdictions							21	21		
Percent of Jurisdictions							66.7%	90.5%		

Notes:

- [1] Source: American Gas Association, Innovative Rates, Non-Volumetric Rates, and Tracking Mechanisms: Current List, May 2016.
- [2] Source: American Gas Association, Innovative Rates, Non-Volumetric Rates, and Tracking Mechanisms: Current List, May 2016.
- [3] Source: American Gas Association, Innovative Rates, Non-Volumetric Rates, and Tracking Mechanisms: Current List, May 2016.
- [4] Identifies companies with either a formula rate plan, revenue decoupling mechanism or straight fixed-variable rate design.
- [5] Source: American Gas Association, Innovative Rates, Non-Volumetric Rates, and Tracking Mechanisms: Current List, May 2016.
- [6] Source: Commission Order in Atmos Energy - Colorado's 2015 Rate Case (Proceeding No. 15AL-0299G).



**Before the Public Service Commission**

**THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY  
and KEYSpan GAS EAST CORPORATION d/b/a NATIONAL GRID**

**Rebuttal Testimony**

**of**

**Stephen H. Caldwell**

**Case 16-G-0058**

**Case 16-G-0059**

June 10, 2016

Rebuttal Testimony of Stephen H. Caldwell

1 **I. Introduction**

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

3 A. My name is Stephen H. Caldwell. My business address is 40 Sylvan Road,  
4 Waltham, Massachusetts 02451.

5

6 **Q. Are you the same Stephen H. Caldwell who previously submitted**  
7 **prepared direct testimony and corrections and updates testimony in these**  
8 **proceedings?**

9 A. Yes, I am. The defined terms in my direct and corrections and updates  
10 testimony have the same definitions here.

11

12 **Q. What is the purpose of your rebuttal testimony?**

13 A. The purpose of my rebuttal testimony is to address certain cost of capital and  
14 capital structure proposals, assertions, and calculations made by Department  
15 of Public Service Staff (“Staff”) Witness Patrick Piscitelli. Specifically, I  
16 explain that: (1) the variable-rate debt true-up mechanism proposed by Mr.  
17 Piscitelli for KEDNY should be adopted, with modification, to comport with  
18 the variable-rate debt true-up mechanism approved by the Commission in  
19 May 2016 for the Companies’ affiliate, Niagara Mohawk; (2) the Companies’  
20 forecast cost of debt for new long-term debt issuances should be adopted for  
21 ratemaking purposes, subject to a true-up mechanism; and (3) Mr. Piscitelli’s

Rebuttal Testimony of Stephen H. Caldwell

1 prescription for pre-defined tranches of new debt with specific tenors should  
2 be rejected in favor of allowing the Companies the discretion to obtain the  
3 most favorable financing costs for customers over the long term from new  
4 debt issuances based on market conditions at the time of issuance. The  
5 proposed true-up of the costs of new long-term debt addresses the  
6 disagreement between the Companies and Staff over the reliability of forecast  
7 interest rates and promotes the Companies' and Staff's mutual interest in  
8 structuring new long-term debt issuances to obtain the best overall value for  
9 customers.

10

11 **Q. Do other Companies' witnesses address other aspects of Staff's**  
12 **recommendation concerning the Companies' costs of capital?**

13 A. Yes. Company Witness Ann Bulkley's rebuttal testimony addresses Staff  
14 Witness Abdul Qadir's recommendation concerning KEDNY and KEDLI's  
15 requested returns on equity. Taken together, my rebuttal of Mr. Piscitelli's  
16 testimony and Ms. Bulkley's rebuttal of Mr. Qadir's testimony demonstrate  
17 that the capital structure and overall rate of return for KEDNY and KEDLI  
18 proposed in my corrections and updates testimony should be used for  
19 ratemaking purposes in these proceedings.

20

21

Rebuttal Testimony of Stephen H. Caldwell

1 **Q. Do you sponsor any exhibits as part of your rebuttal testimony?**

2 A. Yes. Exhibit \_\_ (SHC-1R) provides the explanation of KEDNY's variable-  
3 rate debt costs and the Companies' LIBOR forecast from the response to IR  
4 DPS-457 (PP-4).

5

6 **II. Cost of Debt**

7 **Q. Please describe Mr. Piscitelli's proposal with regard to KEDNY's**  
8 **variable-rate debt.**

9 A. Mr. Piscitelli recommends that the components of KEDNY's weighted  
10 average cost of debt attributable to its variable-rate bonds be based on the  
11 actual LIBOR prior to when the Commission makes its decision in this  
12 proceeding, as opposed to the variable rates presented by KEDNY based on a  
13 LIBOR forecast (see Exhibit \_\_ (SHC-1R)). In addition, Mr. Piscitelli  
14 recommends that KEDNY be allowed a true-up mechanism to reflect the  
15 actual interest expense of the auction rate debt to the interest expense allowed  
16 by the Commission.

17

18 **Q. Does KEDNY agree that the current LIBOR is a more appropriate rate**  
19 **for establishing its Rate Year cost of debt and revenue requirement than**  
20 **the LIBOR forecast?**

## Rebuttal Testimony of Stephen H. Caldwell

1 A. While KEDNY appreciates that Mr. Piscitelli is proposing ultimately to true-  
2 up the interest expense associated with variable-rate debt, KEDNY believes  
3 that its LIBOR forecast should be used as the basis for establishing the cost of  
4 variable-rate debt included in rates. The 2017 Rate Year cost of variable-rate  
5 debt presented by KEDNY in Exhibit \_\_\_ (SHC-1CU), Schedule 2, Page 1 of  
6 7, relies on a forecast of the LIBOR based on an arithmetic average for 2017  
7 of the forward weekly one month LIBOR mid par coupon swap-to-fixed rates  
8 from Bloomberg Professional Services (see Exhibit \_\_ (SHC-1R)). As such,  
9 rather than simply relying on the current LIBOR as of May 2016, KEDNY's  
10 forecast reflects the market prices of financial derivatives related to the  
11 LIBOR that reflect the capital market's expectations regarding the movement  
12 of interest rates during the Rate Year. Basing the LIBOR used for setting  
13 rates for the Rate Year on a forecast interest rate is especially appropriate  
14 given the potential for the Federal Reserve to raise its benchmark interest rate  
15 in 2016 and/or 2017.<sup>1,2</sup> Therefore, the Commission should reject Mr.

---

<sup>1</sup> See, e.g., Spicer, Jonathan and Jason Lange, "Fed's Yellen Sees Rate Hikes Ahead, but Few Hints on When," *Reuters*, June 6, 2015, "Fed's Mester Says Gradual Rate Hikes Still Appropriate after Jobs Report," *Reuters*, June 4, 2016, and Spicer, Jonathan, "Fed's Williams Sees U.S. Rate Hikes Despite Brexit Risk, More in 2017," *Reuters*, May 23, 2016.

<sup>2</sup> The Federal Open Market Committee ("FOMC") will meet five more times in 2016, and will meet eight times in 2017, constituting thirteen opportunities for the FOMC to raise its benchmark interest rate between now and the end of the Rate Year. See Board of Governors of the Federal Reserve System, "Federal Open Market Committee: Meeting Calendars, Statements, and Minutes (2011-2016)," available at <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm> and "What Is the FOMC and When Does It Meet?" available at [https://www.federalreserve.gov/faqs/about\\_12844.htm](https://www.federalreserve.gov/faqs/about_12844.htm).

Rebuttal Testimony of Stephen H. Caldwell

1 Piscitelli's recommendation to rely on the current LIBOR for establishing the  
2 cost of KEDNY's variable-rate debt and instead rely on KEDNY's LIBOR  
3 forecast as the best available data.

4

5 **Q. Does KEDNY agree with Mr. Piscitelli that there should be a true-up for**  
6 **its variable-rate debt interest expense?**

7 A. Yes. KEDNY agrees with Mr. Piscitelli that the "LIBOR is set by the market  
8 and is not within the control of the Company" (page 12) and that a true-up  
9 mechanism is therefore appropriate.

10

11 **Q. Are there additional considerations related to a variable-rate debt true-**  
12 **up mechanism?**

13 A. Yes. In its "Order Authorizing Issuance of Securities" in Case 15-G-0309  
14 ("KEDNY Financing Order"), the Commission approved KEDNY's proposal  
15 to refinance its current variable-rate debt with new fixed-rate debt should that  
16 prove to be economic in the long-run, stating:

17 KEDNY requests the flexibility to refinance its New York  
18 State Energy Research and Development Authority  
19 (NYSERDA) variable rate debt and the ability to redeem  
20 callable debt obligations through March 31, 2019. While  
21 the 7-day auction rate debt has extremely low rates,  
22 KEDNY finds that this may not continue in the future, and  
23 it may be advantageous to refinance with fixed rates. Given  
24 the potential of optional refinancing to reduce the  
25 Company's overall cost of debt in the long run, we find it

Rebuttal Testimony of Stephen H. Caldwell

1                   reasonable for the Company to pursue refinancing as long  
2                   as it can demonstrate that such refinancing is appropriate  
3                   and reasonable.<sup>3</sup>

4                   As such, in the event that KEDNY finds it economically advantageous for  
5                   customers to refinance the NYSERDA variable-rate debt per the terms of the  
6                   KEDNY Financing Order, the effective interest rate of the replacement debt  
7                   should be trued-up to the effective interest rate of the NYSERDA variable-  
8                   rate debt reflected in KEDNY's rates.

9

10 **Q. Has the Commission recently approved a variable-rate debt true-up**  
11 **mechanism that accommodates the refinancing of such debt?**

12 A. Yes. KEDNY's affiliate company, Niagara Mohawk, also has variable-rate  
13 debt on its books. In its recent financing petition, Niagara Mohawk requested  
14 that, in the event it refinances its variable-rate debt with fixed-rate long-term  
15 debt, a true-up mechanism be established to reconcile the actual interest  
16 expense of the replacement issues to the interest and other debt-related costs  
17 included in rates for Niagara Mohawk's variable-rate debt. The Commission  
18 approved this requested true-up mechanism in May 2016, finding it to be in  
19 the best interest of customers.<sup>4</sup>

20

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<sup>3</sup> Case 15-G-0309, "Order Authorizing Issuance of Securities" (December 18, 2015), at 5-6.

<sup>4</sup> Case Nos. 15-M-0744 and 15-M-0509, "Order Granting Incremental Cost Relief, in Part, and Authorizing the Issuance of Securities" (May 19, 2016), at 19, 56.

Rebuttal Testimony of Stephen H. Caldwell

1 **Q. Please describe Mr. Piscitelli's recommendations regarding the planned**  
2 **new long-term debt issuance for KEDNY.**

3 A. KEDNY's proposed rate of return reflects a plan to issue new long-term debt  
4 in March 2017 and includes a forecast interest rate for 30-year debt issued at  
5 that time (see Exhibit \_\_\_\_ (SHC-1CU), Schedule 2, Page 1 of 7). Mr.  
6 Piscitelli recommends that KEDNY's Rate Year cost of debt assume that its  
7 planned debt issuance be split roughly evenly between 10- and 30-year bonds  
8 and that the interest rates used for ratemaking be the current comparable  
9 utility bond yields at the time the Commission makes its decision in these  
10 proceedings.

11

12 **Q. Please describe Mr. Piscitelli's recommendations regarding the planned**  
13 **new long-term debt issuance for KEDLI.**

14 A. KEDLI currently plans to issue new long-term debt as early as August 2016.  
15 For this debt issuance planned before the start of the Rate Year, Mr. Piscitelli  
16 recommends that KEDLI's cost of debt for ratemaking assume that the new  
17 debt issued by KEDLI is evenly split between new 10- and 30-year bonds and  
18 that the rates assumed should be updated based on the most recent rates prior  
19 to when the Commission makes its decision in these proceedings.

20

Rebuttal Testimony of Stephen H. Caldwell

1 **Q. Do you agree with Mr. Piscitelli's recommendations concerning KEDNY**  
2 **and KEDLI's cost of new long-term debt?**

3 A. In part. In the case of KEDLI's planned 2016 new debt issuance, the actual  
4 cost of the new debt should be known before the Commission makes its  
5 decision in these proceedings, such that the Commission's decision can reflect  
6 the actual cost of debt. Should debt market conditions warrant delaying  
7 KEDLI's debt issuance into 2017 or splitting the issuance between 2016 and  
8 2017, KEDLI proposes that the cost of debt used for ratemaking for the Rate  
9 Year should be the 5.09 percent forecast weighted average cost of debt  
10 reflected in Exhibit \_\_\_ (SHC-1CU), Schedule 2, Page 1 of 7, subject to true  
11 up to KEDLI's actual weighted average cost of debt, including the actual cost  
12 of the new debt issuances in 2016 and/or 2017. In the case of KEDNY's  
13 planned 2017 new debt issuance, the 4.56 percent forecast interest rate  
14 presented in Exhibit \_\_\_ (SHC-1CU), Schedule 2, Page 1 of 7 is more  
15 reflective of market expectations for the interest rate likely to be available to  
16 KEDNY at that time. KEDNY's forecast interest of 4.56 percent reflects the  
17 judgment of National Grid plc's investment bankers regarding the credit  
18 spread to U.S. Treasuries expected for KEDNY and a U.S. Treasury rate  
19 forecast that is the Bloomberg Professional Services' implied forward rate for  
20 the time when the new debt is planned to be issued.

21

Rebuttal Testimony of Stephen H. Caldwell

1 **Q. Do you agree with Mr. Piscitelli's recommendation to assume that the**  
2 **next long-term debt issuances at KEDNY and KEDLI should be split into**  
3 **prescribed tranches of 10- and 30-year debt?**

4 A. No. While it is true KEDNY determined that the optimal composition of its  
5 \$1 billion March 2016 new long-term debt issuance was an even split between  
6 10- and 30-year bonds, that determination was based on the market demand  
7 for debt and the relative pricing of debt at different tenors at that time. Debt  
8 market conditions, investor appetites, and the relative pricing of bonds of  
9 different tenors change, however. In addition, the Companies need to  
10 consider factors such as how tranches of different tenors will compare to the  
11 benchmark size for bond issuances and how the size of the tranches will affect  
12 the interest rate. As such, it is important for the Companies to retain the  
13 discretion to set the terms of the new debt to achieve the most favorable long-  
14 term cost of debt for customers based on market conditions at the time of  
15 issuance.

16  
17 **Q. Do the Companies have a proposal for reconciling their cost of long-term**  
18 **debt that addresses Mr. Piscitelli's concerns regarding the reliance on**  
19 **forecast interest rates and his intention to optimize the composition of the**  
20 **Companies' new long-term debt issuances?**

Rebuttal Testimony of Stephen H. Caldwell

1 A. Yes, the Companies propose that: (1) KEDLI's overall rate of return be  
2 updated to reflect the actual costs of its 2016 new long-term debt anticipated  
3 to be issued in advance of the Commission's final decision in this proceeding;  
4 (2) the Commission authorize a true-up mechanism related to the cost of new  
5 long-term debt issued by KEDNY in the Rate Year (and for KEDLI, should  
6 debt market conditions warrant a change of timing for KEDLI's planned 2016  
7 issuance); (3) the overall rate of return for KEDNY for the Rate Year be based  
8 on the forecast cost of debt of 4.56 percent presented by KEDNY, subject to  
9 true-up; and (4) KEDNY and KEDLI retain the discretion to issue new long-  
10 term debt at the terms and tenors that the Companies determine to be in the  
11 best long-term interests of their customers given debt market conditions at the  
12 time of the issuances and that the actual costs of those issuances be used for  
13 ratemaking.

14  
15 **Q. Is the Companies' proposal in the best interest of customers?**

16 A. Yes. Providing the Companies with discretion with regard to the composition  
17 of new debt issuances allows the Companies to secure the best long-term  
18 financing costs on behalf of customers in light of debt market conditions at the  
19 time of issuance, which may differ from those faced by KEDNY when it split  
20 its debt issuance evenly between 10- and 30-year bonds in March 2016.  
21 Moreover, setting rates based on the forecast interest rate for KEDNY's

Rebuttal Testimony of Stephen H. Caldwell

1           planned 2017 long-term debt issuance insures that the most reliable indicator  
2           of interest rates at the time of the debt issuance is reflected in rates. Similarly,  
3           allowing KEDLI the flexibility to adjust the timing of its currently anticipated  
4           2016 issuance in light of market conditions will allow KEDLI to secure the  
5           most favorable terms for its customers. Finally, providing a true-up  
6           mechanism for the actual cost of KEDNY's 2017 debt issuance (and KEDLI's  
7           debt issuance should all or a portion of it be delayed until 2017) assures that  
8           customers benefit to the extent that KEDNY (and KEDLI) is able to secure a  
9           lower cost of debt than forecast.

10

11   **Q.    Has the Commission previously approved true-up mechanisms related to**  
12   **the cost of new long-term debt issuances?**

13   A.    Yes. The Commission has previously adopted the terms of joint proposals  
14   that included true-up mechanisms for long-term debt costs.<sup>5</sup>

15

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

17   A.    Yes.

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<sup>5</sup> See, e.g., Case Nos. 09-S-0794, 09-G-0795, and 09-S-0029, "Order Establishing Three-Year Steam and Gas Rate Plans and Determining the East River Repowering Project Cost Allocation Methodology" (Sept. 22, 2010); Case Nos. 09-E-0588 and 09-G-0589, "Order Establishing Rate Plan" (June 18, 2010); and Case Nos. 14-E-0318 and 14-G-0319, "Order Approving Rate Plan" (June 17, 2015).

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**Case 16-G-0059**

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**Index of Exhibits**

Exhibit \_\_\_\_ (SHC-1R)

Response to IR DPS-457 (PP-4)



**Case 16-G-0058**

**Case 16-G-0059**

**Rebuttal Testimony of Stephen H. Caldwell**

Exhibit \_\_ (SHC-1R)

Response to IR DPS-457 (PP-4)

Date of Request: April 21, 2016  
Due Date: May 2, 2016

DPS Request No. DPS-457 PP-4  
KEDNY/ KEDLI Req. No. BULI-565

KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID  
THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY

Case 16-G-0058 KeySpan Gas East Corporation d/b/a National Grid  
Case 16-G-0059 The Brooklyn Union Gas Company d/b/a National Grid NY

Request for Information

FROM: NYPSC, Patrick Piscitelli

TO: National Grid, Stephen Caldwell

SUBJECT: Financial Projections

Request:

1. Provide the rate year, rate year ending 12/31/18, and rate year ending 12/31/19 financial ratios for both KEDLI and KEDNY incorporating the updates contained in your Corrections and Updates Testimonies filed on April 4, 2016. Reference where in the Companies' rate case presentation each figure used in the calculations are presented or contained.  
In instances where the figures contained in the Companies' rate case presentation are adjusted explain your understanding of how the figures are adjusted and illustrate how the adjustments are made.
2. Provide the following financial documents in Excel format:
  - a) Funds from Operations/debt (%);
  - b) Debt/Earnings before Interest, Taxes, Depreciation, and Amortization(EBITDA)(x);
  - c) Funds From Operations(FFO)/Interest(x);
  - d) EBITDA/Interest(x);
  - e) Cash Flow From Operations/Debt (%);
  - f) Free Operating Cash Flow/Debt (%); and
  - g) Discretionary Cash Flow/Debt (%).
3. Provide supporting documentation in Excel format for Exhibit \_\_ (SCH-1CU) for both the KEDNY and KEDLI Corrections and Updates Testimonies filed on April 4, 2016.

4. Schedule 1, p. 1 of Exhibit \_\_ (SCH-1CU), includes a \$700,000,000 new issuance of 30 year Senior Notes for KEDLI issued November 2016 at 4.53%. Provide the basis and reference documents for the assumed cost rate.
5. Schedule 2, p.3 of Exhibit \_\_ (SCH-1CU), includes a \$700,000,000 new issuance of 30 year Senior Notes for KEDLI issued June 2019 at 4.79%. Provide the basis and reference documents for the assumed cost rate.
6. Schedule 2, p. 1 of Exhibit \_\_ (SCH-1CU) includes the following cost rates for KEDNY:
  - NYSERDA Variable 2005 Series B Due 2025 – 1.89%
  - NYSERDA Variable 1991 Series B Due 2026 – 1.51%
  - NYSERDA Variable % GFRB 1997 Series Due 2020 A-1 – 1.50%
  - NYSERDA Variable % GFRB 1997 Series Due 2020 A-2 – 1.50%
  - a. Provide the basis and all supporting documentation for the interest rate projections for the NYSERDA variable rate bonds listed above.
  - b. Provide the methodology currently used to establish the variable interest rate for each of the NYSERDA variable rate bonds listed above.
  - c. Provide the interest rate on April 15, 2016 for each of the NYSERDA variable rate bonds listed above.

Response:

1. Attachment 1 provides the financial ratios listed in question 2 for KEDNY and KEDLI based on the data contained in Witness Caldwell’s Corrections and Updates testimonies filed on April 4, 2016. Attachment 1 also updates the inputs derived from the Revenue Requirements Panels’ exhibits to reflect the Revenue Requirements Panels’ Corrections and Updates testimonies as well. In addition to the financial ratios listed in question 2, Attachment 1 also updates Moody’s financial ratios provided earlier in response to DPS-352, as discussed with Mr. Piscitelli on April 26, 2016. Compared to the response to DPS-352, Attachment 1 provides a refined calculation methodology for cash flow from operations before changes in working capital (“CFO pre-WC”) for the Moody’s credit ratings and revises the current tax expenses used for the calculation of Funds from Operations (“FFO”) to correctly align with the rate case presentation. Attachment 1 reflects the material adjustments that the Companies understand the rating agencies make in calculating credit metrics, where the Companies have financial forecasts corresponding to those adjustments.
2. See Attachment 1.
3. Please see Attachment 2 for the Excel format of Exhibit \_\_ (SCH-1CU) for both KEDNY and KEDLI’s Corrections and Updates testimonies filed on April 4, 2016.
4. The Company forecast the interest rates at the time of the anticipated new long-term debt issuances based on the forward Treasury yields projected by Bloomberg Professional Services and the estimated credit spread for KEDNY and KEDLI relative to Treasury rates as

provided by investment bankers for National Grid plc. Attachment 3 provides the details behind the forecast interest rate of 4.53% for the projected debt issuance in 2016 for KEDLI.

5. The Company forecast the interest rates at the time of the anticipated new long-term debt issuances based on the forward Treasury yields projected by Bloomberg Professional Services and the estimated credit spread for the Company relative to Treasury rates as provided by investment bankers for National Grid plc. Attachment 4 provides the details behind the forecast interest rate of 4.79% for projected debt issuances in 2019 for KEDLI.
6. For clarification, to match the variable-rate bonds listed on Schedule 2, page 1 of Exhibit \_\_ (SCH-1CU) for KEDNY, the second bond referenced in the question above should be “Series D” not “Series B.” In addition, the effective rates shown on Schedule 2 pages 1-3 of Exhibit \_\_ (SCH-1CU) for KEDNY’s four variable-rate bonds are the change in the variable interest rates from the prior year, because Schedule 2 pages 1-3 carry over the principal amount and total effective interest rate from the prior period. For example, the “effective rates” shown on Schedule 2 page 1 for the variable-rate bonds must be added to the corresponding interest rates shown on Schedule 1 page 1 of Exhibit \_\_ (SCH-1CU) to find the projected variable interest rate for the Rate Year.

(a) The methodology used to establish the variable interest rate for the NYSERDA bonds explained in part (b) below was applied to forward weekly 1-month LIBOR mid par coupon swap-to-fixed rates from Bloomberg Professional Services, with the arithmetic average of the weekly rates calculated for each of calendar years 2017, 2018, and 2019. The change in the interest rate for each bond from the prior period was included in Schedule 2, pages 1-3 of Exhibit \_\_ (SCH-1CU). Attachment 5 provides the supporting documentation.

(b) The methodology currently used to establish the variable interest rate for each of the NYSERDA variable rate bonds is based on a Dutch auction process that is run by the Company’s Trustee and Paying Agent, The Bank of New York Mellon. During each auction, bids are placed on the bonds that reflect the amount the broker-dealers are willing to buy or sell at a specific interest rate. Once all bids have been submitted, the bids are sorted from the highest bid to the lowest with the winning rate determined by the last bid to clear the entire auction.

In the event that an auction fails, where there is an insufficient number of bids to clear the number of bonds to be traded, a formula rate is used. The formula rate is based on a reference rate that is the greater of the 1-month LIBOR or the 30-day AA Composite Commercial Paper Rate multiplied by an applicable percentage. The applicable percentage is based on the credit rating of the company and can be between 175% to 300%.

At present, the auctions are in failure mode, with the NYSERDA bonds’ variable interest rates based on the formula tied to LIBOR. All of the bonds’ interest rates are based on 175% of LIBOR except for the 2005 Series B bond, which has an interest rate set to 250% of LIBOR. The projected interest rates in Schedule 2 pages 1-3 of Exhibit \_\_ (SCH-1CU) assume that the NYSERDA bonds will remain in failure mode at least through the end of calendar year 2019.

(c) The interest rate on April 15, 2016, for each of the NYSERDA variable rate bonds is presented in the table below:

<b>Description</b>	<b>Interest Rate</b>
NYSERDA GFRB 2005 Series B	1.091%
NYSERDA GFRB 1991 Series D	0.683%
NYSERDA GFRB 1997 Series A-1	0.683%
NYSERDA GFRB 1997 Series A-2	0.683%

Name of Respondent:  
Stephen Caldwell

Date of Reply:  
May 2, 2016

Variable Interest Rate Calculation									
Bond Series	Principal (\$000)	Historical Test Year Interest Payments (\$000)	Historical Test Year**	Interest Rate*			Change in Interest Rate from Prior Period		
				2017	2018	2019	2017***	2018	2019
NYSERDA Variable 2005 Series B Due 2025	\$55,000	\$246	0.45%	2.34%	3.06%	3.70%	1.89%	0.73%	0.64%
NYSERDA Variable 1991 Series D Due 2026	\$50,000	\$65	0.13%	1.63%	2.14%	2.59%	1.51%	0.51%	0.45%
NYSERDA Variable % GFRB 1997 Series Due 2020 A-1	\$75,000	\$98	0.13%	1.63%	2.14%	2.59%	1.50%	0.51%	0.45%
NYSERDA Variable % GFRB 1997 Series Due 2020 A-2	\$50,000	\$65	0.13%	1.63%	2.14%	2.59%	1.50%	0.51%	0.45%

\*Interest rates for 2017 through 2019 as a function of LIBOR presented in the table below.

\*\*Historical test year interest rate equals the test year interest payments divided by the principal amount.

\*\*\*The change in the variable interest rates for 2017 is the change from the historical test year.

Annualized 1-month Libor Forward Rates (Swap to Fixed)		
Year	175% of LIBOR	250% of LIBOR
2017	1.63%	2.34%
2018	2.14%	3.06%
2019	2.59%	3.70%

Source: Bloomberg Professional Services, as of 3/22/16

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<b>Weekly 1-month Libor Forward Rates (Swap to Fixed) [1]</b>				
<b>StartDate</b>	<b>Maturity</b>	<b>Mid Par Rate</b>	<b>175% of LIBOR</b>	<b>250% of LIBOR</b>
1/5/2017	2/6/2017	0.796	1.393	1.990
1/12/2017	2/13/2017	0.796	1.393	1.990
1/19/2017	2/21/2017	0.796	1.393	1.990
1/26/2017	2/27/2017	0.796	1.393	1.990
2/2/2017	3/2/2017	0.796	1.393	1.990
2/9/2017	3/9/2017	0.796	1.393	1.990
2/16/2017	3/16/2017	0.798	1.397	1.995
2/23/2017	3/23/2017	0.815	1.426	2.038
3/2/2017	4/3/2017	0.839	1.468	2.098
3/9/2017	4/10/2017	0.856	1.498	2.140
3/16/2017	4/18/2017	0.871	1.524	2.178
3/23/2017	4/24/2017	0.873	1.528	2.183
3/30/2017	4/28/2017	0.874	1.530	2.185
4/6/2017	5/8/2017	0.874	1.530	2.185
4/13/2017	5/15/2017	0.874	1.530	2.185
4/20/2017	5/22/2017	0.874	1.530	2.185
4/27/2017	5/30/2017	0.874	1.530	2.185
5/4/2017	6/5/2017	0.874	1.530	2.185
5/11/2017	6/12/2017	0.874	1.530	2.185
5/18/2017	6/19/2017	0.874	1.530	2.185
5/25/2017	6/26/2017	0.885	1.549	2.213
6/1/2017	7/3/2017	0.901	1.577	2.253
6/8/2017	7/10/2017	0.917	1.605	2.293
6/15/2017	7/17/2017	0.933	1.633	2.333
6/22/2017	7/24/2017	0.947	1.657	2.368
6/29/2017	7/31/2017	0.947	1.657	2.368
7/6/2017	8/7/2017	0.947	1.657	2.368
7/13/2017	8/14/2017	0.947	1.657	2.368
7/20/2017	8/21/2017	0.947	1.657	2.368
7/27/2017	8/29/2017	0.947	1.657	2.368
8/3/2017	9/5/2017	0.947	1.657	2.368
8/10/2017	9/11/2017	0.947	1.657	2.368
8/17/2017	9/18/2017	0.947	1.657	2.368
8/24/2017	9/25/2017	0.957	1.675	2.393
8/31/2017	9/29/2017	0.969	1.696	2.423
9/7/2017	10/10/2017	0.992	1.736	2.480
9/14/2017	10/16/2017	1.008	1.764	2.520
9/21/2017	10/23/2017	1.023	1.790	2.558
9/28/2017	10/30/2017	1.024	1.792	2.560

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<b>Weekly 1-month Libor Forward Rates (Swap to Fixed) [1]</b>				
<b>StartDate</b>	<b>Maturity</b>	<b>Mid Par Rate</b>	<b>175% of LIBOR</b>	<b>250% of LIBOR</b>
10/5/2017	11/6/2017	1.024	1.792	2.560
10/12/2017	11/13/2017	1.024	1.792	2.560
10/19/2017	11/20/2017	1.024	1.792	2.560
10/26/2017	11/27/2017	1.024	1.792	2.560
11/2/2017	12/4/2017	1.024	1.792	2.560
11/9/2017	12/11/2017	1.024	1.792	2.560
11/16/2017	12/18/2017	1.024	1.792	2.560
11/24/2017	12/27/2017	1.041	1.822	2.603
11/30/2017	12/29/2017	1.048	1.834	2.620
12/7/2017	1/8/2018	1.070	1.873	2.675
12/14/2017	1/16/2018	1.087	1.902	2.718
12/21/2017	1/22/2018	1.101	1.927	2.753
12/28/2017	1/29/2018	1.101	1.927	2.753
1/4/2018	2/5/2018	1.101	1.927	2.753
1/11/2018	2/12/2018	1.101	1.927	2.753
1/18/2018	2/20/2018	1.101	1.927	2.753
1/25/2018	2/26/2018	1.101	1.927	2.753
2/1/2018	3/1/2018	1.101	1.927	2.753
2/8/2018	3/8/2018	1.101	1.927	2.753
2/15/2018	3/15/2018	1.101	1.927	2.753
2/22/2018	3/22/2018	1.103	1.930	2.758
3/1/2018	4/3/2018	1.128	1.974	2.820
3/8/2018	4/9/2018	1.143	2.000	2.858
3/15/2018	4/16/2018	1.158	2.027	2.895
3/22/2018	4/23/2018	1.172	2.051	2.930
3/29/2018	4/30/2018	1.174	2.055	2.935
4/5/2018	5/8/2018	1.174	2.055	2.935
4/12/2018	5/14/2018	1.174	2.055	2.935
4/19/2018	5/21/2018	1.174	2.055	2.935
4/26/2018	5/29/2018	1.174	2.055	2.935
5/3/2018	6/4/2018	1.174	2.055	2.935
5/10/2018	6/11/2018	1.174	2.055	2.935
5/17/2018	6/18/2018	1.174	2.055	2.935
5/24/2018	6/25/2018	1.184	2.072	2.960
5/31/2018	6/29/2018	1.194	2.090	2.985
6/7/2018	7/9/2018	1.213	2.123	3.033
6/14/2018	7/16/2018	1.228	2.149	3.070
6/21/2018	7/23/2018	1.240	2.170	3.100
6/28/2018	7/30/2018	1.240	2.170	3.100
7/5/2018	8/6/2018	1.240	2.170	3.100

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<b>Weekly 1-month Libor Forward Rates (Swap to Fixed) [1]</b>				
<b>StartDate</b>	<b>Maturity</b>	<b>Mid Par Rate</b>	<b>175% of LIBOR</b>	<b>250% of LIBOR</b>
7/12/2018	8/13/2018	1.240	2.170	3.100
7/19/2018	8/20/2018	1.240	2.170	3.100
7/26/2018	8/28/2018	1.240	2.170	3.100
8/2/2018	9/4/2018	1.240	2.170	3.100
8/9/2018	9/10/2018	1.240	2.170	3.100
8/16/2018	9/17/2018	1.240	2.170	3.100
8/23/2018	9/24/2018	1.250	2.188	3.125
8/30/2018	9/28/2018	1.260	2.205	3.150
9/6/2018	10/9/2018	1.280	2.240	3.200
9/13/2018	10/15/2018	1.293	2.263	3.233
9/20/2018	10/22/2018	1.305	2.284	3.263
9/27/2018	10/29/2018	1.305	2.284	3.263
10/4/2018	11/5/2018	1.305	2.284	3.263
10/11/2018	11/13/2018	1.305	2.284	3.263
10/18/2018	11/19/2018	1.305	2.284	3.263
10/25/2018	11/26/2018	1.305	2.284	3.263
11/1/2018	12/3/2018	1.305	2.284	3.263
11/8/2018	12/10/2018	1.305	2.284	3.263
11/15/2018	12/17/2018	1.305	2.284	3.263
11/23/2018	12/24/2018	1.317	2.305	3.293
11/29/2018	12/31/2018	1.332	2.331	3.330
12/6/2018	1/7/2019	1.347	2.357	3.368
12/13/2018	1/14/2019	1.363	2.385	3.408
12/20/2018	1/22/2019	1.376	2.408	3.440
12/27/2018	1/28/2019	1.376	2.408	3.440
1/3/2019	2/4/2019	1.376	2.408	3.440
1/10/2019	2/11/2019	1.376	2.408	3.440
1/17/2019	2/19/2019	1.376	2.408	3.440
1/24/2019	2/25/2019	1.376	2.408	3.440
1/31/2019	2/28/2019	1.376	2.408	3.440
2/7/2019	3/7/2019	1.376	2.408	3.440
2/14/2019	3/14/2019	1.376	2.408	3.440
2/21/2019	3/21/2019	1.377	2.410	3.443
2/28/2019	3/29/2019	1.394	2.440	3.485
3/7/2019	4/8/2019	1.415	2.476	3.538
3/14/2019	4/15/2019	1.431	2.504	3.578
3/21/2019	4/23/2019	1.446	2.531	3.615
3/28/2019	4/29/2019	1.449	2.536	3.623
4/4/2019	5/7/2019	1.449	2.536	3.623
4/11/2019	5/13/2019	1.449	2.536	3.623

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<b>Weekly 1-month Libor Forward Rates (Swap to Fixed) [1]</b>				
<b>StartDate</b>	<b>Maturity</b>	<b>Mid Par Rate</b>	<b>175% of LIBOR</b>	<b>250% of LIBOR</b>
4/18/2019	5/20/2019	1.449	2.536	3.623
4/25/2019	5/28/2019	1.449	2.536	3.623
5/2/2019	6/3/2019	1.449	2.536	3.623
5/9/2019	6/10/2019	1.449	2.536	3.623
5/16/2019	6/17/2019	1.449	2.536	3.623
5/23/2019	6/24/2019	1.461	2.557	3.653
5/30/2019	6/28/2019	1.473	2.578	3.683
6/6/2019	7/8/2019	1.495	2.616	3.738
6/13/2019	7/15/2019	1.512	2.646	3.780
6/20/2019	7/22/2019	1.527	2.672	3.818
6/27/2019	7/29/2019	1.527	2.672	3.818
7/5/2019	8/5/2019	1.527	2.672	3.818
7/11/2019	8/12/2019	1.527	2.672	3.818
7/18/2019	8/19/2019	1.527	2.672	3.818
7/25/2019	8/27/2019	1.527	2.672	3.818
8/1/2019	9/3/2019	1.527	2.672	3.818
8/8/2019	9/9/2019	1.527	2.672	3.818
8/15/2019	9/16/2019	1.527	2.672	3.818
8/22/2019	9/23/2019	1.527	2.672	3.818
8/29/2019	9/30/2019	1.527	2.672	3.818
9/5/2019	10/7/2019	1.527	2.672	3.818
9/12/2019	10/15/2019	1.527	2.672	3.818
9/19/2019	10/21/2019	1.527	2.672	3.818
9/26/2019	10/28/2019	1.527	2.672	3.818
10/3/2019	11/4/2019	1.527	2.672	3.818
10/10/2019	11/12/2019	1.527	2.672	3.818
10/17/2019	11/18/2019	1.527	2.672	3.818
10/24/2019	11/25/2019	1.527	2.672	3.818
10/31/2019	11/29/2019	1.527	2.672	3.818
11/7/2019	12/9/2019	1.527	2.672	3.818
11/14/2019	12/16/2019	1.527	2.672	3.818
11/21/2019	12/23/2019	1.527	2.672	3.818
11/29/2019	12/30/2019	1.527	2.672	3.818
12/5/2019	1/6/2020	1.527	2.672	3.818
12/12/2019	1/13/2020	1.527	2.672	3.818
12/19/2019	1/21/2020	1.527	2.672	3.818
12/27/2019	1/27/2020	1.527	2.672	3.818
1/2/2020	2/3/2020	1.527	2.672	3.818
1/9/2020	2/10/2020	1.527	2.672	3.818
1/16/2020	2/18/2020	1.527	2.672	3.818

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<b>Weekly 1-month Libor Forward Rates (Swap to Fixed) [1]</b>				
<b>StartDate</b>	<b>Maturity</b>	<b>Mid Par Rate</b>	<b>175% of LIBOR</b>	<b>250% of LIBOR</b>
1/23/2020	2/24/2020	1.527	2.672	3.818
1/30/2020	2/28/2020	1.527	2.672	3.818
2/6/2020	3/6/2020	1.527	2.672	3.818
2/13/2020	3/13/2020	1.527	2.672	3.818
2/20/2020	3/20/2020	1.527	2.672	3.818
2/27/2020	3/27/2020	1.547	2.707	3.868
3/5/2020	4/6/2020	1.604	2.807	4.010
3/12/2020	4/14/2020	1.648	2.884	4.120
3/19/2020	4/20/2020	1.688	2.954	4.220
3/26/2020	4/27/2020	1.718	3.007	4.295

[1] Per Bloomberg Professional Services.