

BEFORE THE  
NEW YORK STATE  
PUBLIC SERVICE COMMISSION

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Proceeding on Motion of the Commission as to the  
Rates, Charges, Rules and Regulations of  
New York State Electric & Gas Corporation  
for Electric Service

Case 19-E- \_\_\_\_

Proceeding on Motion of the Commission as to the  
Rates, Charges, Rules and Regulations of  
New York State Electric & Gas Corporation  
for Gas Service

Case 19-G- \_\_\_\_

Proceeding on Motion of the Commission as to the  
Rates, Charges, Rules and Regulations of  
Rochester Gas and Electric Corporation  
for Electric Service

Case 19-E- \_\_\_\_

Proceeding on Motion of the Commission as to the  
Rates, Charges, Rules and Regulations of  
Rochester Gas and Electric Corporation  
for Gas Service

Case 19-G- \_\_\_\_

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**DIRECT TESTIMONY OF  
ELECTRIC AND GAS SUPPLY PANEL**

**Jacqueline I. Casciani  
Patrick W. Fox  
David J. Kimiecik  
Timothy J. Lynch**

May 20, 2019

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**I. INTRODUCTION**

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- Q. Please state the names of the members on this Electric and Gas Supply Panel (“Panel”).
- A. We are Jacqueline I. Casciani, Patrick W. Fox, David J. Kimiecik, and Timothy J. Lynch.
- Q. Ms. Casciani, please state your title and business address.
- A. I am the Manager, Energy Supply Gas. My business address is 18 Link Drive, Binghamton, New York 13902.
- Q. Please summarize your work experience and educational background.
- A. My Curriculum Vitae (“CV”) is set forth in Exhibit \_\_ (EGSP-1).
- Q. Have you previously testified in other proceedings before the New York State Public Service Commission (“PSC” or the “Commission”) or any other state or federal regulatory agency?
- A. No.
- Q. Mr. Fox, please state your title and business address.
- A. I am the Manager, Electric Supply. My business address is 18 Link Drive, Binghamton, New York 13902.
- Q. Please summarize your work experience and educational background.
- A. My CV is set forth in Exhibit \_\_ (EGSP-1).
- Q. Have you previously testified in other proceedings before the Commission or any other state or federal regulatory agency?
- A. Yes. I testified before the Commission in the last rate cases for New York State Electric & Gas Corporation (“NYSEG”) and Rochester Gas and Electric Corporation (“RG&E” and together with NYSEG, the “Companies”), Cases 15-E-0283 et al. In addition, I have testified before regulatory commissions, including the Public Service Commission of

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1 Wisconsin, Michigan Public Service Commission and the Maine Public Utility  
2 Commission.

3 Q. Mr. Kimiecik, please state your title and business address.

4 A. I am the Vice President, Energy Services. My business address is 18 Link Drive,  
5 Binghamton, New York 13902.

6 Q. Please summarize your work experience and educational background.

7 A. My CV is set forth in Exhibit \_\_ (EGSP-1).

8 Q. Have you previously testified in other proceedings before the Commission or any other  
9 state or federal regulatory agency?

10 A. Yes. I submitted testimony before the PSC in the Companies' last rate cases, Cases  
11 15-E-0283 et al. I also testified before the PSC in Case 14-E-0270. Before the Federal  
12 Energy Regulatory Commission ("FERC"), I submitted an affidavit in support of NYSEG  
13 in Docket No. EL00-70-000.

14 Q. Mr. Lynch, please state your title and business address.

15 A. I am the Director of Transmission Services. My business address is 18 Link Drive,  
16 Binghamton, New York 13902.

17 Q. Please summarize your educational background and work experience.

18 A. My CV is attached as Exhibit \_\_ (EGSP-1).

19 Q. Have you previously testified in other proceedings before the Commission or any other  
20 state or federal regulatory agency?

21 A. Yes. I have testified on three occasions before the Commission, including Cases 11-T-  
22 0534 ("Rochester Area Transmission Project"), 12-T-0248 ("Columbia County  
23 Transmission Project") and 13-T-0235 ("Auburn Transmission Project").

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**II. IDENTIFICATION AND SUMMARY OF EXHIBITS**

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Q. Is this Panel sponsoring any exhibits?

A. Yes. This Panel sponsors the following exhibits:

- 1) Exhibit \_\_\_\_ (EGSP-1) provides the CVs of the witnesses testifying on this Panel;
- 2) Exhibit \_\_\_\_ (EGSP-2) provides a list of all NYSEG/RG&E company-owned generation assets and Power Purchase Agreements (“PPAs”);
- 3) Exhibit \_\_\_\_ (EGSP-3) provides the NYSEG and RG&E Local Production Plan;
- 4) Exhibit \_\_\_\_ (EGSP-4) provides a list of the natural gas pipeline and storage contract holdings for NYSEG;
- 5) Exhibit \_\_\_\_ (EGSP-5) provides a list of the natural gas pipeline and storage contract holdings for RG&E;
- 6) Exhibit \_\_\_\_ (EGSP-6) provides the NYSEG city gate annual expense forecast for Rate Years 1-3;
- 7) Exhibit \_\_\_\_ (EGSP-7) provides the RG&E city gate annual expense forecast for Rate Years 1-3;
- 8) Exhibit \_\_\_\_ (EGSP-8) provides NYSEG’s and RG&E’s natural gas market price estimates; and
- 9) Exhibit \_\_\_\_ (ESGP-9) provides an index of the Panel’s workpapers. A copy of the workpapers will be provided to the New York State Department of Public Service Staff (“Staff”).

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**III. ELECTRIC SUPPLY STRATEGIES/PLANS/POLICIES**

**A. Description of Resources**

1  
2  
3 Q. What sources of electric supply do the Companies currently utilize to serve their  
4 retail customers?

5 A. The Companies' current sources of electric supply are: 1) company-owned  
6 generation; 2) fixed-price and market-priced contractual purchases; and 3) New York  
7 Independent System Operator ("NYISO") purchases.

8 *1. Company-Owned Generation*

9 Q. Please describe NYSEG's company-owned generation.

10 A. NYSEG's company-owned generation is listed in Exhibit \_\_ (EGSP-2). The majority of  
11 NYSEG-owned generation is run-of-river hydropower. Please note that a notice of intent  
12 to retire the Auburn State Street Gas Turbine was filed with the Commission on April 9,  
13 2019 in Case 05-E-0889. This natural gas generator is under lease to NYSEG and has  
14 generally been run very intermittently as a peaking unit.

15 Q. What percentage of delivery customer load is served by NYSEG-owned resources?

16 A. For the Test Year (i.e., the 12 months ended December 31, 2018), NYSEG resources  
17 served approximately 1.4% of delivery customer load.

18 Q. Please describe RG&E's company-owned generation.

19 A. A list of RG&E's company-owned generation is also set forth in Exhibit \_\_ (EGSP-2).  
20 RG&E-owned generation is run-of-river hydropower.

21 Q. What percentage of delivery customer load is served by RG&E-owned resources?

22 A. For the Test Year, RG&E resources served approximately 0.5% of delivery customer  
23 load.

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2. *Contractual Purchases*

Q. Please describe NYSEG’s contractual purchases of electric supply.

A. NYSEG’s contractual purchases of electricity supply are listed in Exhibit \_\_ (EGSP-2).

As shown on Exhibit \_\_ (EGSP-2), NYSEG’s contractual purchases are a combination of fixed-price and market-priced physical purchases for energy and capacity from the New York Power Authority (“NYPA”) and various qualifying facilities (“QFs”).

Q. What are the expiration dates of these bilateral contacts?

A. The NYPA agreement is for peaking power and the current contract termination date is December 31, 2020. The QF expiration dates vary as shown on Exhibit \_\_ (EGSP-2).

Market priced QF contracts with an expiration date of 2019 are generally one-year agreements that are extended each year.

Q. Please describe RG&E’s contractual purchases of electric supply.

A. A list of RG&E’s contractual purchases of electricity supply is included in

Exhibit \_\_ (EGSP-2). As shown on Exhibit \_\_ (EGSP-2), RG&E’s contractual purchases are a combination of fixed-price and market-priced physical purchases for energy and capacity, the majority of which come from NYPA.

Q. What are the expiration dates of these bilateral contracts?

A. The NYPA agreement is for firm peaking power and the current contract termination date is December 31, 2020. The RED-Rochester, LLC QF contract is currently scheduled to

terminate in 2019, but is planned to be extended.



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3. *NYISO Purchases*

Q. Do the Companies purchase electric supply from the NYISO?

A. Yes. The Companies meet their remaining physical load requirements, after accounting for the load supplied by bilateral physical purchases, by making physical purchases from the NYISO.

Q. How do the Companies forecast the physical load requirements from the NYISO?

A. Electric Supply presently uses the Electric Power Research Institute’s Artificial Neural Network Short-Term Load Forecast (“ANNSTLF”) model to forecast hourly electricity needs for the next several days. There are eight different NYISO load zones within the Companies’ service territories; a multi-day forecast is created for each of these separate areas and then used to determine how much load is bid into the day-ahead market with the NYISO.

Q. What happens if the Companies’ forecasted contractual purchase volumes exceed their actual load requirements?

A. In that situation, the Companies sell the excess into the NYISO real-time markets.

Q. Do the Companies have any targets for the short-term load forecasting error?

A. For load forecast error, the Companies presently monitor an annual system-wide average forecast error of 3.5%. For the Test Year, the combined forecast error was 3.28%.

Q. Do the Companies plan to change their Short-Term Load Forecasting process?

A. Yes. As noted in Overland Consulting’s Comprehensive Management and Operations Audit Final Report for NYSEG and RG&E which was accepted by the PSC in early February 2019 (the “Management Audit Report”), the Companies were evaluating short-term forecasting models in an effort to improve upon their load forecast error rate.

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1 The Companies performed demonstration trials with a number of vendors of short-term  
2 load forecasting programs and evaluated their effectiveness and savings in comparison to  
3 the existing ANNSTLF model. As a result of these trials, the Companies selected a new  
4 forecasting system that demonstrated improvements in forecasting capabilities to replace  
5 the ANNSTLF system.

6 Q. Do the Companies expect to make changes in how they monitor short-term load forecast  
7 errors?

8 A. Yes. As recommended in the Management Audit Report, the Companies will now  
9 regularly report to the Executive Load Forecast Oversight Committee the results of the  
10 short-term load forecast error. The report will provide: 1) a graphical, rolling 12-month  
11 representation for each operating company (daily load forecast error as well as the  
12 seven-day Moving Average Percent Error (“MAPE”)); 2) any daily load forecast that  
13 exceeds 10% and/or any seven-day MAPE for each operating company that exceeds 5%;  
14 and 3) the results of any formal, root cause analysis conducted in an effort to determine if  
15 the forecast error was the result of weather variances (e.g., temperature, humidity/dew  
16 point, wind, cloud cover, etc.) between forecasted and actual experiences or some other  
17 factor (e.g., system outages, Distributed Energy Resources (“DER”) generation/impact,  
18 and short-term load forecasting modeling issues).

19 Q. What are the costs involved with the development, implementation, and annual  
20 maintenance of the new forecasting system?

21 A. The total cost for the new forecasting system is approximately \$50,000 per year in fees  
22 for the modeling of all eight load areas and continuous updates/improvements. Further

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1 modeling activities will incorporate forecasting the impact to hourly loads associated  
2 with installed DER, by NYISO load zone.

3 **B. Resource Cost Recovery**

4 Q. Please explain how the Companies utilize their three electric supply options.

5 A. Each of the three electric supply options (i.e., company-owned generation, contractual  
6 purchases and NYISO purchases) is utilized differently. The Companies bid  
7 company-owned generators into the NYISO at their applicable dispatch cost. The  
8 revenue received for the generator from the NYISO, minus fuel costs, is allocated to the  
9 Companies' delivery customers through the non-bypassable wires charge ("NBC").  
10 Virtually all of the Companies' contractual supply is "must take." The value of the  
11 capacity and energy supplied by the Companies' contractual purchases, net of contract  
12 costs, is allocated to the Companies' delivery customers through the NBC. Finally, the  
13 Companies use NYISO purchases or sales to balance the remainder of their resources and  
14 load.

15 **C. Market Price Volatility Mitigation**

16 *1. Allocation of Fixed Price Resources*

17 Q. How do the Companies mitigate market price volatility for customers?

18 A. Customers are allocated a load ratio share of fixed price resources, company-owned  
19 generation and contractual purchases. For all of the Test Year, only 5.7% of NYSEG's  
20 residential delivery load and 3.5% of its non-residential delivery load were hedged by  
21 these resources. For all of the Test Year, about 1.8% of RG&E's residential and 0.5% of  
22 its non-residential delivery load were hedged by fixed price resources, RG&E-owned  
23 generation and contractual purchases. The difference between the residential and

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1 non-residential percentages is the Companies' NYPA hydro allocation, which solely  
2 benefits residential customers. The allocation of these fixed price hedges mitigates  
3 market price volatility. In addition to the physical hedges, the Companies also utilize  
4 financial hedges to mitigate market price volatility.

5 *2. Owned Generation*

6 Q. How does the company-owned generation hedge customer market risk?

7 A. All customers receive a load ratio share of the revenues created from the sale of energy  
8 and capacity into the NYISO.

9 Q. How does the loss of company-owned generation or expiration of fixed price contracts  
10 impact the Companies' hedges?

11 A. As fixed price contracts expire or generation is shut down or sold, absent taking other  
12 hedge positions, the hedge percentages will decline, all else remaining equal. However,  
13 the Companies do take additional hedges to replace terminated contracts or generation  
14 that no longer operates on behalf of the Companies' commodity customers.

15 *3. Contractual Purchases*

16 Q. Will the Companies' contractual purchases continue?

17 A. Generally, yes; however, NYSEG's and RG&E's contractual purchases of NYPA  
18 hydropower are presently scheduled to terminate at the end of 2020. Prior to the end of  
19 the existing contract term, and assuming that NYPA is willing to continue a contractual  
20 relationship, NYSEG and RG&E will evaluate whether to enter into an extension and/or  
21 new agreement with NYPA.

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1 Q. Do the Companies still purchase energy from facilities that qualify under the Public  
2 Utility Regulatory Policies Act (“PURPA”)?

3 A. Yes, and it should be noted that in March 2010 in FERC Docket No. QM10-3-000,  
4 pursuant to Section 210(m) of PURPA, FERC granted NYSEG and RG&E relief from  
5 the mandatory purchase obligation for new contracts with QFs in excess of 20 MW. The  
6 Companies are also monitoring PURPA related regulations at FERC as Chair Chatterjee  
7 commented at an Edison Electric Institute conference in March of this year that PURPA  
8 reform was one his 2019 priorities.

9 **D. Hedging**

10 *1. Maintain Existing Hedge Level for Residential Customers*

11 Q. Do the Companies do any other hedging?

12 A. Yes. NYSEG and RG&E take additional energy and capacity hedges for non-time-of-use  
13 residential (NYSEG Service Class (“SC”)-1 and RG&E SC-4 Residential Service) and  
14 small commercial/industrial variable rate customers (*i.e.*, mass market or Default Supply  
15 Option) to achieve certain energy and capacity hedge levels. NYSEG’s and RG&E’s  
16 current target is approximately 70% for these customers. The Companies no longer  
17 procure additional energy and capacity hedges for the voluntary residential time-of-use  
18 customers (NYSEG SC-8 and SC-12, and RG&E SC-4), as provided in the  
19 Commission’s June 15, 2016 Order Establishing Rate Plan in Cases 15-E-0283 et al.  
20 (“2016 Rate Order”).

21 Q. Will the Companies continue to maintain the current 70% hedging level for residential  
22 customers?

23 A. Yes. The 70% level strikes a reasonable balance between mitigating market price

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1 volatility and allowing customers to experience some exposure to market prices. The  
2 Companies periodically review the hedge percentage through consultation with Staff.  
3 Lastly, as noted in the Electric Supply Planning and Management Chapter (Chapter 17,  
4 Recommendation 2) of the Management Audit Report, it was recommended that the  
5 Companies “[c]ontinue the 70% hedging target and periodically evaluate its  
6 appropriateness.”

7 *2. Hedging Program Structure*

8 Q. Please explain the importance of duration and timing for electricity supply hedges.

9 A. No entity, including NYSEG and RG&E, can accurately predict electricity supply market  
10 prices. A structured program that layers in hedges over time will smooth out the impact  
11 of price volatility. Hedging too far into the future would expose the Companies’  
12 customers to the risk of customer migration. For example, if a large number of customers  
13 unexpectedly migrates to an energy service company (“ESCO”), the remaining customers  
14 would bear the cost of all these hedges.

15 Q. Can you provide more detail on the hedging program for residential and small  
16 commercial/industrial customers?

17 A. Yes. The Companies take on long-term hedges on a 24-month rolling basis. NYSEG  
18 and RG&E hedge approximately 1/8 of their open position each quarter (subject to  
19 standard market products) such that, coupled with the Companies’ remaining resources,  
20 the desired hedge percentages are achieved prior to the start of the period for which the  
21 hedges are applicable.

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1 Q. What do you mean by the phrase “standard market products”?

2 A. Financial energy hedges generally trade in 25 MW blocks. In addition, certain months  
3 trade together: winter (January and February); spring (March and April); summer (July  
4 and August); and fourth quarter (October – December). May, June and September trade  
5 individually. Rather than pay a premium for a non-standard product, NYSEG and RG&E  
6 generally use standard trading blocks to hedge commodity purchases taken on behalf of  
7 variable price residential customers.

8 Q. Are capacity (“UCAP”) hedging practices the same as energy?

9 A. Generally, yes with the exception that UCAP hedges are taken on a calendar year basis so  
10 that hedges are taken quarterly for two years in advance of the calendar year being  
11 hedged. For example, any UCAP hedges executed in June of 2019 may be for Calendar  
12 Year 2020 and/or Calendar Year 2021.

13 *3. Hedge Cost/Benefit Allocation*

14 Q. How do these hedges benefit small commercial/industrial variable rate customers?

15 A. The additional physical or financial hedges that the Companies take to achieve an  
16 approximately 70% hedge level for residential, Company-supplied customers would be  
17 allocated equally by load share between residential and small commercial/industrial  
18 customers. Small commercial/industrial customers are hedged at a slightly lower level  
19 because these customers do not receive the benefit of NYPA hydropower. Thus, the only  
20 difference between residential and small commercial/industrial customers’ hedge levels  
21 would be the residential customers’ allocated share of NYPA hydropower.

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1           4. *Hedge Reporting*

2           Q.     How do the Companies gauge the effectiveness of their hedging program?

3           A.     The impact of hedging is reported in quarterly coefficient of variation filings submitted to  
4           Staff, as required by the Commission’s February 26, 2008 Order Establishing Electric  
5           Supply Portfolio Standard, Goals, and Reporting Requirements issued in Case  
6           06-M-1017. Additionally, from the Electric Supply Planning and Management Chapter  
7           (Chapter 17, Recommendation 2) of the Management Audit Report, it was recommended  
8           that the Companies “benchmark the hedging practices of other New York utilities to  
9           define best practices,” and “perform an analysis to determine if buying contracts for  
10          differences (CFDs) is appropriate and no less favorable than using transmission  
11          congestion contracts (TCCs).” The Companies have developed plans to address both of  
12          these recommendations.

13          Q.     Do NYSEG and RG&E have any other agreements as part of their portfolio?

14          A.     Yes. NYSEG and RG&E each have a revenue sharing agreement (“RSA”) with Nine  
15          Mile Point 2 (“NM2”).

16          Q.     Please describe the RSA.

17          A.     The RSA was an agreement entered into by NYSEG and RG&E at the time of the sale of  
18          NM2 in 2001. The RSA started in 2011 following the termination of the PPA the  
19          Companies had with NM2. Under the RSA, NYSEG and RG&E receive a share of NM2  
20          revenues in excess of the contractual floor.

21          Q.     How are the revenues tracked?

22          A.     The revenues are tracked on a quarterly basis and any positive amounts are credited to the  
23          Companies’ delivery customers after making up for prior period negative amounts.



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**E. Electric Cost Incentive Mechanism**

1  
2 Q. Are the Companies proposing any electric cost incentive mechanisms (“ECIMs”)?

3 A. Yes. NYSEG proposes two separate mechanisms, while RG&E is proposing one  
4 mechanism. The first, which is associated only with NYSEG, is a mechanism designed  
5 to share all optimization revenues associated with grandfathered transmission  
6 entitlements up to 471 MW from the Homer City Generating Station, located in PJM  
7 Interconnection, LLC (“PJM”), into the NYISO between customers and shareholders.  
8 The second mechanism, associated with NYSEG and RG&E, is designed to share in the  
9 savings associated with the procurement of environmental attributes that are procured in  
10 support of the purchase obligations associated with the Clean Energy Standard.

11 Q. Please describe the ECIM proposal associated with the Homer City Generating Station  
12 grandfathered entitlements.

13 A. NYSEG proposes to share 80% / 20% between its customers and shareholders the cost  
14 savings associated with the optimization activities associated with NYSEG’s  
15 grandfathered transmission entitlements of up to 471 MW from the Homer City  
16 Generating Station, located in PJM, into the NYISO. Under standard operating  
17 procedures and subject to Homer City generation availability, NYSEG evaluates market  
18 conditions and may schedule energy up to 471 MW per hour in the PJM and NYISO  
19 day-ahead and/or real-time markets. For the Test Year, this optimization resulted in over  
20 \$4.6 million savings, \$3.4 million savings from day-ahead market transactions and about  
21 \$1.2 million savings from real-time market transactions.

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1 Q. How would this optimization translate into an ECIM?

2 A. NYSEG, through this incentive mechanism, seeks to share savings through the utilization  
3 of the Homer City Generating Station grandfathered transmission entitlements to be  
4 divided 80% / 20% between customers and shareholders. The optimization of these  
5 entitlements will benefit all delivery customers through lower electric supply costs in the  
6 NBC.

7 Q. What is the forecasted total optimization revenue?

8 A. Although optimization revenue will be a function of the market volatility and opportunity  
9 between PJM and the NYISO, NYSEG estimates that the total optimization revenue  
10 could be approximately \$3 million annually.

11 Q. Please explain the proposed sharing mechanism associated with the procurement of  
12 environmental attributes.

13 A. By its August 1, 2016 Order Adopting a Clean Energy Standard in Case 15-E-0302  
14 (“CES Order”), the PSC established a Renewable Energy Standard (“RES”). The RES  
15 requires each Load Serving Entity (“LSE”), on behalf of its customers, to procure  
16 qualifying CES Tier-1 eligible renewable energy credits as defined in the CES Order and  
17 subsequent implementation orders, in the form of Tier-1 eligible renewable energy  
18 certificates (“REC Certificates”). The CES Order also established the RES compliance  
19 period as January 1 to December 31 of each year. Under the CES Order, LSEs may meet  
20 their customers’ RES obligations by:

21 1) Purchasing CES compliance-eligible REC Certificates from the New York State  
22 Energy Research and Development Authority (“NYSERDA”) or other third-party  
23 sources;

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1           2) Making Alternative Compliance Payments (“ACPs”) to NYSERDA; or

2           3) Any combination thereof.

3           The Companies propose a sharing mechanism associated with the procurement activities  
4           of REC Certificates. Given the increased annual LSE obligations as set forth in the CES  
5           Order and subsequent implementation orders and the likelihood of limited availability of  
6           Tier 1 RECs from NYSERDA, utilizing the rules established for the banking of RECs,  
7           and in combination with procurement of RECs from third-parties, the Companies propose  
8           an 80% / 20% sharing between customers and shareholders of savings in procurement  
9           costs for NYSEG and RG&E through a two-step process.

10           The first step is to identify the number of RECs that would be subject to  
11           ACP-related costs if RECs through NYSERDA auctions and/or generation related to the  
12           Value of Distributed Energy Resources (“VDER”) were not available to meet the  
13           mandated, Compliance Year obligations. This would be accomplished through the  
14           following formula:

15           [THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

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1                      $REC_{Sharing} = REC_{Annual\ Obligation} - REC_{VDER} - REC_{NYSERDA}$

2             Where:

3              $REC_{Sharing}$ :             The calculated number of RECs that will be used in  
4   calculating/determining any sharing in savings between  
5   customers and shareholders.

6              $REC_{Annual\ Obligation}$ :     Total LSE Compliance Year requirements which are  
7   established annually as a percentage of LSE total load and  
8   will ramp up over time in an effort to meet the State’s  
9   renewable generation mandates.

10             $REC_{VDER}$ :             The total number of VDER RECs acquired through the  
11    Company’s Value Stack tariff and that are allocated to meet  
12    obligations for a specific Compliance Year.

13             $REC_{NYSERDA}$ :         The total number of RECs acquired through NYSERDA’s  
14    Tier-1 REC auctions and closeout period and that are  
15    allocated to meet obligations for a specific Compliance  
16    Year.

17            The second step is to calculate the overall savings by applying the ACP value for that  
18            specific Compliance Year to the remaining number of RECs ( $REC_{Sharing}$ ) needed to meet  
19            a specific Compliance Year obligation and deducting the procurement costs associated  
20            with third-party arrangements, any banked RECs from previous compliance periods, and,  
21            if necessary, any ACP for any remaining REC obligations. The following formula  
22            provides the process to determine the total savings to be shared between customers and  
23            shareholders:

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1             $REC_{Savings} = REC_{Sharing\ Cost} - REC_{Banked\ Cost} - REC_{Third-Party\ Cost} - REC_{ACP\ Cost}$

2            Where:

3             $REC_{Savings}$ :            Represents the total dollars that will be shared between  
4    customers (80%) and shareholders (20%).

5             $REC_{Sharing\ Cost}$ :       Represents the total costs of remaining number of RECs at  
6    the Compliance Year ACP rate.

7             $REC_{Banked\ Cost}$ :       Represents the total procurement cost of previously banked  
8    RECs from prior compliance years to be used to meet  
9    obligations for a specific Compliance Year. As permitted  
10    in the CES Implementation Plans and within certain,  
11    defined parameters, which may be changed through  
12    subsequent CES-related orders, RECs may be banked to  
13    meet obligations in future compliance years.

14             $REC_{Third-Party\ Cost}$ :    Represents the total cost of RECs purchased from eligible  
15    third-party providers to meet mandated obligations that are  
16    allocated for a specific Compliance Year.

17             $REC_{ACP\ Cost}$ :            Represents the total ACP cost associated with meeting  
18    Compliance Year remaining obligations.

19            Q.     How are the annual LSE obligations [ $REC_{Annual\ Obligation}$ ] for REC Certificates set?

20            A.     As noted in the CES Order, by letter of December 2, 2015, Governor Andrew Cuomo  
21    directed Staff to develop and propose a Clean Energy Standard that if adopted, would  
22    convert the State Energy Plan goals into enforceable requirements. The direction led to  
23    the development and issuance of the CES Order, which at that time, established the “50

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1 by 30 goal” (i.e., 50% of all electricity used in New York by 2030 should be generated  
2 from renewable resources). On January 16, 2019, Governor Cuomo, in his State of the  
3 State address, supplanted the 50 x 30 goal with an aim to increase the CES renewable  
4 generation mandate from 50% to 70% by 2030. Since the proposed sharing mechanism  
5 is based on compliance year REC obligations and obligations are set annually, there  
6 would be no change in the implementation of the proposed mechanism at the higher 70%  
7 target.

8 Q. What are the Tier 1 annual LSE obligations for the Test Year through 2021?

9 A. For the Test Year, the obligation target was set at 0.15%. For 2019 through 2021, the  
10 annual LSE obligations are as follows: 1) 2019: 0.78%; 2) 2020: 2.84%; and 3) 2021:  
11 4.20%.

12 Q. What are the Companies’ experiences with meeting its annual LSE obligations?

13 A. For Compliance Year 2017, the first year of the obligation, RG&E met its obligation  
14 without the need to pay an ACP, while NYSEG had to pay an ACP for four RECs. For  
15 Compliance Year 2018, subject to the availability and allocation of additional Tier 1  
16 RECs in the May-June 2019 closeout period, NYSEG and RG&E may be required to pay  
17 ACPs for about 6,700 RECs and 2,300 RECs, respectively. It should be noted that for  
18 Compliance Year 2017, NYSERDA reported that for an annual obligation percentage of  
19 0.035%, or 53,601 RECs, it had an annual purchase of 41,891 RECs, or from its own  
20 report, a shortfall of 11,710 RECs in meeting the Statewide obligations. For Compliance  
21 Year 2018, while not fully closed, and after the four quarterly auctions for 2018 and one  
22 quarterly auction for 2019, where 2018 Vintage Tier 1 RECs were available, NYSEG and

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1 RG&E are expected to have an ACP exposure for 48% and 27% of its annual obligations,  
2 respectively.

3 Q. Please provide an example of the mechanics associated with the incentive mechanism.

4 A. For illustrative purposes, please assume for Compliance Year 1 that Company A has the  
5 following information:

6 1) An annual CES Tier 1 REC obligation of 95,400 [REC<sub>Annual Obligation</sub>].

7 2) NYSERDA announced that the CES Tier-1 REC costs for Compliance Year 1 is  
8 \$22.43/REC, with an ACP of \$24.67/REC.

9 3) Company A has procured from NYSERDA 36,000 Tier-1 RECs [REC<sub>NYSERDA</sub>] that  
10 were allocated to Compliance Year 1.

11 4) Company A has banked 26,000 RECs from the previous Compliance Year at a cost of  
12 \$18.00/REC that were allocated to Compliance Year 1.

13 5) Through the Value Stack compensation, Company A procured another 1,000 RECs  
14 [REC<sub>VDER</sub>] that were allocated to Compliance Year 1.

15 6) Company A has also procured 12,500 Tier-1 RECs from Third-Party Providers at an  
16 average cost of \$16.85/REC that were allocated to Compliance Year 1.

17 Without considering the use of Banked RECs and any/or Third-Party procurements,  
18 Company A would be required to make an ACP on the 58,400 RECs as follows:

19 
$$\text{REC}_{\text{Annual Obligation}} - \text{REC}_{\text{VDER}} - \text{REC}_{\text{NYSERDA}} = \text{REC}_{\text{Sharing}}$$
  
20 
$$95,400 - 1,000 - 36,000 = 58,400$$

21 Without considering Banked and/or Third-Party procured RECs, the ACP total costs  
22 [REC<sub>ACP Cost</sub>] would be \$1,440,728 (58,400 RECs x \$24.67/REC). The Companies  
23 propose, through the use of banking rules and procurements from Third Parties, to share

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1 in the savings from using banked and Third-Party procured RECs and accordingly reduce  
2 their overall REC costs as well as their exposure to ACPs.

3 Q. Explain how Banked RECs could reduce overall REC costs and how you propose to  
4 share the savings from those activities.

5 A. Through the rules established and updated through subsequent PSC orders, banking of  
6 RECs is presently permitted for up to two compliance years after the REC is minted and  
7 banked into an LSE's New York Generation Attribute Tracking System account. In the  
8 example above, the REC cost for the previous compliance year was \$18.00/REC.

9 Utilizing costs associated for RECs, Company A has made a decision for compliance  
10 year needs and future needs to bank excess RECs for a future need (not to exceed two  
11 compliance years). Since the Compliance Year 1 REC price was \$22.43/REC and the  
12 Company banked RECs from the previous year at \$18.00/REC, as part of this sharing  
13 mechanism, the Company proposes to use previously banked RECs to meet its  
14 Compliance Year 1 obligations to reduce its exposure to ACPs, which are presently at a  
15 10% premium to the annual REC fee for each Compliance Year. It should be noted that  
16 the adder that is used for the ACP may differ in future years as more projects come  
17 on-line and New York State looks to align the New York-related ACP rate with the ACP  
18 rate(s) of the surrounding areas. In this example, Company A proposes to use 26,000  
19 Banked RECs to meet its annual obligation, at a banked amount at \$18.00/REC, and to  
20 use 12,500 RECs from Third-Party providers at an average cost of \$16.85/REC to share  
21 in the savings from the ACP price of \$24.67/REC. However, it should be noted that in  
22 this example, even after the use of Banked and Third-Party procured RECs, Company A  
23 would still have an ACP exposure to 19,900 RECs [REC<sub>ACP</sub>], as follows:



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1            $REC_{ACP} = REC_{Sharing} - REC_{Banked} - REC_{Third-Party}$

2            $REC_{ACP} = 58,400 - 26,000 - 12,500$

3            $REC_{ACP} = 19,900$

4           For this example, the total savings [REC Savings] would be:

5            $REC_{Savings} = [REC_{Sharing Cost}] - [REC_{Banked Cost}] - [REC_{Third-Party Cost}] - [REC_{ACP}$   
6            $Cost]$

7            $REC_{Savings} = \$1,440,728 - [26,000 REC_s \times \$18.00/REC] - [12,500 REC_s \times$   
8            $\$16.85/REC] - [19,900 \times \$24.67/REC]$

9            $REC_{Savings} = \$1,440,728 - \$468,000 - \$210,625 - \$490,933$

10           $REC_{Savings} = \$271,170$

11          Through the efforts of banking and Third-Party REC procurements, Company A was able  
12          to reduce its exposure to paying ACP, providing a savings of \$271,170 in overall REC  
13          costs, with that savings to be split 80% customers, 20% shareholders, or about \$216,936  
14          to customers and \$54,234 to shareholders.

15   Q.      What about purchases from third-party developers?

16   A.      As shown in the above example, if third-party procurements are used to reduce the  
17          exposure to the ACPs, then the Companies propose the same sharing arrangement against  
18          the ACP.

19          **F. Determination of Customer Installed Capacity (“UCAP”) Requirements**

20   Q.      Are the Companies proposing to make any changes to the way they determine individual  
21          UCAP requirements?

22   A.      Yes.

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1 Q. What are the specific changes?

2 A. For customers who participate in demand response (“DR”) programs administered by the  
3 NYISO and/or the Companies, the Companies propose to add any customer DR load  
4 reductions back into those individual customer Installed Capacity (“ICAP”) responsibility  
5 determinations, should those load reductions be included in the NYISO peak load  
6 determination.

7 Q. Why do the Companies propose this change?

8 A. The Companies propose this change to ensure an equitable distribution of UCAP charges  
9 among all customers. If this change is not made, non-DR participant customers would  
10 incur a disproportionate share of UCAP charges.

11 Q. How will the Companies determine what load needs to be added to the individual  
12 customer UCAP requirements?

13 A. For DR events called by the NYISO or the Companies, NYSEG and RG&E will add back  
14 into those individual DR customer UCAP requirements the amount of load reductions as  
15 reported by or to the NYISO.

16 Q. What tariff changes will be required to effectuate these changes?

17 A. For NYSEG, a slight modification would be made to the definition of UCAP<sub>req</sub> in PSC  
18 No: 120 – Electricity and at RGE to PSC No: 19 – Electricity.

19 **IV. NATURAL GAS PROCUREMENT STRATEGIES/PLANS/POLICIES**

20 Q. What are NYSEG and RG&E’s goals and objectives in the procurement of natural gas?

21 A. The Companies procure natural gas to promote the best interests of customers in  
22 obtaining the maximum projected value for dollars spent, consistent with maintaining  
23 supply capability, system reliability, and mitigation of customer risk.

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1 Q. How do the Companies currently forecast their day-ahead requirements?

2 A. The Companies utilize a combination of the results from an internally developed Excel  
3 spreadsheet model and a forecasting model, GasDay, developed by Marquette Energy  
4 Analytics for forecasting up to a seven-day demand forecast and supply requirements.

5 Q. Please describe the plans and processes used to achieve these natural gas procurement  
6 objectives.

7 A. The natural gas procurement program is a comprehensive process involving many  
8 different components of analysis, with respect to customer demand, price volatility,  
9 contract strategy, day-to-day operations, as well as billing activities. Both Companies  
10 develop detailed short- and long-term supply plans based on forecast requirements and  
11 customer demand, both historical and projected future demand, as well as changes in  
12 customer migration to retail marketers. The Companies ensure that they have sufficient  
13 supply to meet design day and winter capability period requirements. These plans enable  
14 the Companies to analyze and determine the need for transportation and storage assets to  
15 meet system reliability requirements, including certain assets to support retail access load  
16 migration. NYSEG and RG&E issue an internal portfolio report annually, which  
17 provides a review of current market trends, emerging and declining supply sources, and  
18 other trends that can impact portfolio design and optimization. The report also provides  
19 portfolio recommendations for each company. NYSEG and RG&E implemented  
20 Recommendation 21.2, of the most recent Management Audit Report, in August 2018,  
21 which states that all recommendations outlined in the Natural Gas Portfolio Report that  
22 are intended to contribute towards the optimal portfolio should contain target  
23 implementation dates or be designated as continuous.

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1 Q. How do you address market volatility?

2 A. NYSEG and RG&E engage in hedging transactions to reduce the exposure of customers  
3 to changes in natural gas prices.

4 Q. Please describe the contractual process NYSEG and RG&E use for supply procurement.

5 A. Our purchasing process encompasses significant contracting activities to analyze,  
6 evaluate and select natural gas suppliers and pipeline services, as well as to negotiate,  
7 execute, and administer contractual agreements. Such agreements cover natural gas  
8 supply, transportation and storage capacity, and portfolio optimization activities.

9 Q. How do you manage the process to maximize contractual effectiveness?

10 A. While developing and maintaining long-term plans, the Companies continually monitor  
11 and manage their short-term, day-to-day operations throughout the year to take advantage  
12 of opportunities to maintain reliability. The Companies prepare daily short-term  
13 forecasts and schedules and adjust their nominations and delivery schedules on both  
14 interstate and intrastate natural gas pipelines that serve the Companies' city gates, while  
15 incorporating retail access program requirements to identify portfolio opportunities (e.g.,  
16 capacity releases, third-party sales, and volatility mitigation transactions).

17 Q. Are there any other components in NYSEG and RG&E's natural gas procurement  
18 processes?

19 A. Yes. After transactions have been implemented, Energy Services billing personnel  
20 reconcile supplier and pipeline invoices to our Energy Transaction Risk Management  
21 ("ETRM") system, and generate reports in accordance with all applicable requirements.

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1 Q. Please describe how NYSEG and RG&E meet the natural gas supply requirements of  
2 their customers.

3 A. NYSEG and RG&E meet customer natural gas requirements by utilizing various contract  
4 assets, both pipeline and storage. Natural gas is purchased from suppliers in the  
5 Northeast and is transported on inter- and intra-state pipelines pursuant to firm, long-term  
6 transportation contracts to the various Companies' city gates. Natural gas is also  
7 purchased from suppliers located in Canada and from local production. The Northeast,  
8 Canadian and local production supplies are supplemented with storage gas, peaking  
9 supplies and compressed natural gas ("CNG") in our Mechanicville area. NYSEG and  
10 RG&E also utilize short-term supply contracts to meet customer demand in the winter  
11 season (November-March). In 2018, RG&E also entered into a firm city gate peaking  
12 contract which gave RG&E the option to purchase gas for a pre-determined number of  
13 days during the winter season, allowing RG&E to meet peak load in a cost-effective  
14 manner without having to subscribe to year-round pipeline capacity.

15 Q. Do the Companies purchase local production natural gas for supply?

16 A. Yes. In 2018, NYSEG purchased local production natural gas from a single supplier for  
17 system supply requirements, which equated to 0.55% of NYSEG's total system supply.  
18 ESCO supply from local production to end-users was 0.35% of NYSEG's total system  
19 supply. Within the RG&E service territory, three local producers sold natural gas to  
20 ESCOs for end-user supply, but none directly to RG&E, which equated to 0.07% of  
21 RG&E's total system supply.

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1 Q. What is the source of current natural gas local production interconnected to the  
2 Companies' systems?

3 A. Current local production interconnected to NYSEG and RG&E's systems is sourced from  
4 natural gas wells in New York and Pennsylvania.

5 Q. Have the Companies had any requests for Renewable Natural Gas ("RNG") as a source  
6 of local production?

7 A. The Companies have seen a recent increase in inquiries to discuss interconnecting RNG  
8 to the Companies' systems. To date, no RNG projects have moved past the initial  
9 discussion stages.

10 Q. Have the Companies updated their existing Local Production Plan?

11 A. The Companies have updated their existing Local Production Plan, attached as Exhibit  
12 \_\_\_\_ ESNNG-3), which: 1) provides non-discriminatory access to all local producers by  
13 providing a standardized approach to assess the viability of each project without  
14 compromising safety or reliability, defines requirements for gas flow, and outlines the  
15 roles and responsibilities of both the local producers and the Companies, 2) includes  
16 RNG as a form of local production, and 3) incorporates on-line access to the  
17 interconnection process via NYSEG and RG&E's websites. Online access is anticipated  
18 to be available by June 1, 2019.

19 Q. Please describe NYSEG's existing natural gas supply, capacity and storage contracts.

20 A. NYSEG's existing natural gas supply and capacity contracts are designed to serve the  
21 Company's city gates across its non-contiguous service territory. These city gates are  
22 served by Algonquin Gas Transmission Company ("AGT"), Columbia Gas Transmission  
23 Corporation ("TCO"), Dominion Energy Transmission Inc. ("DETI"), Empire Pipeline,

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1 Inc. (“Empire”), Iroquois Gas Transmission System (“IGTS”), North Country Gas  
2 Pipeline Corporation (“NCPL”), and Tennessee Gas Pipeline Company (“TGP”), as well  
3 as other interconnects behind Local Distribution Companies (“LDCs”). In addition,  
4 NYSEG holds capacity on a number of other pipelines upstream of these interconnected  
5 systems, including Columbia Gulf Transmission Company (“CGT”) and TransCanada  
6 Pipelines Limited (“TCPL”). NYSEG also has contracts with four companies for the  
7 storage of natural gas: 1) Arlington Storage; 2) TCO; 3) DETI; and 4) TGP. This storage  
8 gas is transported on the pipeline capacity referenced above. Exhibit \_\_ (EGSP-4)  
9 provides a list of NYSEG’s capacity and storage assets and expiration dates.

10 Q. Please describe RG&E’s existing natural gas supply and capacity contracts.

11 A. RG&E’s existing natural gas supply and capacity contracts are designed to serve the  
12 Company’s two main city gates at Caledonia and Mendon. The Caledonia city gate is  
13 served by DETI including pipelines upstream of DETI. The Mendon city gate is served  
14 by Empire including pipelines upstream of Empire. RG&E holds capacity on TCPL for  
15 this upstream capacity. In addition, RG&E has contracts with both DETI and Empire for  
16 the storage of natural gas. Exhibit \_\_ (EGSP-5) provides a list of RG&E’s capacity and  
17 storage assets and expiration dates.

18 Q. Will there be any changes to NYSEG or RG&E’s capacity and storage assets?

19 A. NYSEG’s current contract 80242 with CGT will expire on October 31, 2019. When  
20 NYSEG originally contracted for this long-haul capacity, gas typically flowed from Gulf  
21 of Mexico production to pipelines serving NYSEG loads in the North. NYSEG has been  
22 able to obtain reliable and more cost-effective supplies without the need to utilize the  
23 CGT pipeline capacity. No other changes are currently anticipated by either Company.

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1 Q. Please explain how NYSEG and RG&E source their supply for retail customers.

2 A. The Companies' portfolios of natural gas supply and capacity contracts are designed to  
3 serve the city gates that are referenced above. Given the Companies' portfolios, they are  
4 able to acquire natural gas from various sources that originate in the Gulf of Mexico,  
5 Appalachia, mid-continent and Canada. Based on system requirements and availability  
6 of supply, the Companies purchase on a best-cost basis in order to optimize the cost  
7 effectiveness of purchases on behalf of retail customers. The Companies not only have  
8 geographic supply diversity in their purchasing programs, but maintain price diversity by  
9 virtue of the different types of pricing mechanisms that apply to their individual supply  
10 portfolios (e.g., First of Month ("FOM"), daily index, fixed price, New York Mercantile  
11 Exchange ("NYMEX") products, and storage Weighted Average Cost of Gas  
12 ("WACOG")).

13 Q. What are the key factors that influence NYSEG and RG&E's natural gas purchasing  
14 practices today?

15 A. There are three key factors that influence NYSEG and RG&E's natural gas purchasing  
16 practices: 1) magnitude and variability of each Company's load; 2) optimization of  
17 underground storage use; and 3) mitigation of wholesale natural gas price volatility.

18 Q. Please describe how magnitude and variability of load affect the Companies' natural gas  
19 purchasing practices.

20 A. The Companies' load consists primarily of high-priority, low load factor end users.  
21 These two considerations are balanced to ensure supply reliability while minimizing  
22 natural gas costs to customers.



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1 Q. How is underground storage utilized as a component of NYSEG and RG&E's supply  
2 portfolios?

3 A. Both Companies utilize natural gas storage for three purposes: 1) to satisfy peak winter  
4 demand; 2) to help ensure available supply for short-term peaks, typically from a few  
5 hours to a few days; and 3) to manage daily fluctuations resulting from variations from  
6 weather and forecasting. To ensure adequate supplies are available to meet seasonal  
7 requirements through the heating season, the Companies inject substantial amounts of  
8 natural gas into storage facilities during the non-heating season from April to October;  
9 during this time period, demand increases as temperatures increase. The Companies  
10 maintain a consistent injection and withdrawal schedule to ensure storage levels are  
11 approximately 95% full on October 31 and 5% full on March 31. This provides the  
12 Companies with the ability to inject or withdraw in the shoulder months of October and  
13 April when weather can still be quite variable. This methodology provided better results  
14 than that reflected in the overall gas industry storage levels in 2018, which were below  
15 the five-year average national storage level for most of the year. Natural gas storage  
16 facilities provide NYSEG and RG&E flexibility in balancing supply and demand for firm  
17 customers and retail access customers. Storage provides greater system efficiency by  
18 allowing level production and transmission flow throughout the year. Thus, storage  
19 decreases the amount of new transmission capacity needed to meet customer  
20 requirements. Storage can also provide a seasonal price advantage to customers, since  
21 natural gas placed into storage is purchased during summer months when prices are  
22 typically lower than flowing supplies that would otherwise be purchased during the  
23 winter.

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1           Since the Companies fill storage to targeted levels in the summer and withdraw  
2           the gas in the winter, the Companies are able to reduce both cost/price and volatility for  
3           firm gas customers in the winter.

4   Q.   How do NYSEG and RG&E mitigate price volatility?

5   A.   The major element of the Companies’ programs to mitigate price volatility for customers  
6           involves hedging a portion of the projected natural gas requirements. Such requirements  
7           are accomplished, in part, through the natural price hedge associated with injecting into  
8           storage during the summer season and withdrawing during the winter season. In  
9           addition, both Companies enter into forward financial future transactions to further  
10          manage the price of natural gas for customers. These strategies and associated  
11          transactions are developed and reviewed on an on-going basis.

12                           **V.   GAS COST INCENTIVE MECHANISM**

13   Q.   Please describe the Gas Cost Incentive Mechanism (“GCIM”) in the Companies’ existing  
14          rate plan, as set forth in the joint proposal approved in the Commission’s September 21,  
15          2010 Order Establishing Rate Plan in Cases 09-G-0715 et al.

16   A.   The GCIM relates to portfolio optimization activities conducted by the Companies on a  
17          stand-alone basis. The current sharing mechanism for savings under the GCIM are as  
18          follows:

19           1) 85% / 15% sharing between customers and shareholders for NYSEG and RG&E  
20           non-migration capacity releases;

21           2) 85% / 15% sharing between customers and shareholders for NYSEG and RG&E  
22           off-system sales net of gas costs;

23           3) 85% / 15% sharing between customers and shareholders for NYSEG and RG&E

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1 related optimization transactions; and

2 4) 80% / 20% sharing between customers and shareholders for local production.

3 Q. Do you propose to extend the GCIM?

4 A. Yes. The optimization activities under the GCIM provide benefits to customers and  
5 proper incentives to the Companies and, thus, should be extended.

6 Q. Do you propose any changes to the current GCIM?

7 A. Yes. Over time, the Companies have eliminated a number of long haul contracts. This  
8 has resulted in a reduction in overall commodity costs to customers, but has significantly  
9 reduced the Company benefit associated with GCIM activities. To incent the Companies  
10 to continue to look at optimizing their asset portfolio which includes de-contracting of  
11 unnecessary assets, while also encouraging optimization of the existing assets, the  
12 Companies are proposing that all categories of GCIM be shared 80% customers / 20%  
13 shareholders.

14 **VI. NATURAL GAS EXPENSE FORECAST**

15 Q. Have the Companies prepared a natural gas expense forecast that covers quantities as  
16 well as costs?

17 A. Yes. Exhibit \_\_\_\_ (EGSP-6) and Exhibit \_\_\_\_ (EGSP-7) provide the respective NYSEG  
18 and RG&E city gate annual expense forecasts for Rate Years 1-3. The forecast includes  
19 projected load requirements together with natural gas commodity costs and total pipeline  
20 costs (i.e., transportation and storage costs).

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1 Q. Please explain the natural gas market price estimate that was used to prepare the expense  
2 forecast.

3 A. The natural gas market price estimate is provided in Exhibit \_\_\_\_ (EGSP-8). It is based on  
4 NYMEX and basis futures prices as of May 3, 2019. Production area prices and market  
5 prices are developed from data contained in that exhibit. As a result of changing market  
6 conditions and high natural gas price volatility, the estimate is subject to change.

7 Q. Do NYSEG and RG&E propose to continue the existing Gas Supply Charge (“GSC”) to  
8 collect the cost of gas purchased for firm sales customers?

9 A. Yes.

10 **VII. SMART ENERGY TRANSACTION RISK MANAGEMENT SYSTEM**

11 Q. How do NYSEG and RG&E manage administration of both electric and gas supply, from  
12 bid to bill?

13 A. The Companies utilize a combination of Excel spreadsheets and a commercial ETRM for  
14 credit and contract management, commodity transactions, physical logistics, regulatory  
15 compliance and accounting.

16 Q. What types of software hosting are available for ETRM systems?

17 A. Typically, ETRM software has been installed on the clients’ servers. Recently, some  
18 ETRM vendors have moved to web-based vendor hosting. Generally, there is no  
19 difference in the actual software and the vendor utilizes the same software installer tool  
20 that a client would use when installing and upgrading the applications. An example of  
21 vendor web-based hosting is NYSEG and RG&E’s gas retail access software (“GTS”).

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1 Q. How is your current ETRM system hosted and maintained?

2 A. The Companies' current ETRM system is hosted internally on dedicated servers and is  
3 maintained by Avangrid Information Technology ("IT"). Web-based hosting is not  
4 available for our current version of ETRM software.

5 Q. What are the benefits of vendor-hosted services over client-hosted services?

6 A. Vendor-hosted services allow companies to become more efficient by offloading the IT  
7 portion of the software maintenance, including managing all aspects of the database,  
8 applying all software upgrades in a timely manner, providing the database backup from  
9 production environments to testing and development environments, migrating approved  
10 development work to the client's production environment, monitoring performance of all  
11 servers and the database, troubleshooting performance problems, ensuring contracted  
12 disaster recovery services are in place and ready, and providing the hardware to run the  
13 software application. An additional advantage of vendor-hosted services is their IT  
14 resources are specialized in supporting the applications whereas NYSEG and RG&E's  
15 internal IT resources must monitor and maintain many diverse applications.

16 Q. What are the differences between a traditional ETRM system and a SMART ETRM  
17 system?

18 A. Traditional ETRM systems, such as that currently used by NYSEG and RG&E:

- 19 1) Rely on heavily customized core software;  
20 2) Are typically not comprehensive;  
21 3) Have limited integration;  
22 4) Upgrades and maintenance release updates can require significant IT resources or  
23 additional vendor support and fees;

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- 1 5) Cost of ownership can be very high;
- 2 6) Data is typically not real time (most processes run at the end of the day or overnight);
- 3 7) Have limited workflow automation;
- 4 8) Have limited customization, especially with multiple companies under the same
- 5 license; and
- 6 9) Have limited analytics.

7 In contrast, SMART ETRM systems:

- 8 1) Are highly specialized with modular components and high levels of data integration;
- 9 2) Upgrades and maintenance are typically seamless and require fewer IT resources;
- 10 3) Cost of ownership is typically lower;
- 11 4) Data is real time;
- 12 5) System is web-based;
- 13 6) User level configuration, workflow automation and analytics are highly robust; and
- 14 7) Allow for greater customization by the Companies.

15 Q. Have the ETRM needs of NYSEG and RG&E changed?

16 A. Yes. Technology is evolving as are the requirements of our vendor and the Companies.  
17 The current version of the ETRM software that is utilized by NYSEG and RG&E is no  
18 longer considered a “Major Version” by our vendor. The vendor notified the Companies  
19 in June 2018 that if the Companies do not move to the latest “Major Version,” they will  
20 incur incremental annual License Support costs. These incremental costs will likely  
21 increase by 20% or more per year until the Companies upgrade to a Major Version.

22 In addition, the Companies’ goal has been to rely on the software instead of Excel  
23 spreadsheets and SQL queries to generate tables of load pricing and usage from multiple

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1 data sources into the ETRM system. While it is unlikely an ETRM or SMART ETRM  
2 system could completely eliminate all Excel spreadsheets and SQL queries, it is likely a  
3 SMART ETRM system would come very close.

4 The largest expense for Energy Supply is related to the various electric  
5 Independent System Operator (“ISO”) markets in which the Companies participate, with  
6 the NYISO being the largest. SMART ETRM systems are capable of handling five-  
7 minute data, utilized by the NYISO, and many ETRM systems can handle even more  
8 granular levels of data. The Companies’ current ETRM system does not have the  
9 capability to handle five-minute data, nor does the next “Major Version;” thus, SQL  
10 queries have been developed to generate weighted average pricing from the actual  
11 five-minute data to process ISO transactions within the current ETRM system. SMART  
12 ETRM systems are also capable of doing a real time analysis of all pricing, usage, meter  
13 data etc., and generating reports and highlighting discrepancies whereas traditional  
14 ETRM systems require SQL report and query development that is ever changing.  
15 SMART ETRM vendor-hosted applications are maintained by the vendor and they  
16 typically have staff dedicated to the ever-changing regulations associated with ISOs.

17 Q. Will NYSEG and RG&E issue a Request for Proposals (“RFP”) for a SMART ETRM  
18 system?

19 A. Yes. NYSEG and RG&E plan to issue an RFP in 2020 for a SMART ETRM system.

20 **VIII. ELECTRIC INTERCONNECTION REQUESTS**

21 Q. What volume of applications for distributed generation interconnection has NYSEG and  
22 RG&E experienced from 2013 to the present?

23 A. The volume of interconnection applications is as follows:

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A. NYSEG

Year	Applications
2013	625
2014	1273
2015	2061
2016	2143
2017	990
2018	1066
2019	307 (through April 30)

B. RG&E

Year	Applications
2013	61
2014	101
2015	423
2016	342
2017	341
2018	279
2019	61 (through April 30)

Q. Why are the Companies experiencing this volume and pattern of interconnection applications?

A. Reasons for the volume and pattern of interconnection requests are numerous. Government incentives play a major and consistent role. NYSERDA provides cash incentives to developers, and State and federal tax incentives are available for qualifying solar generation and energy storage installations. The cost of these technologies on a per kW installed basis has continued to decline, which generally improves the economic payback to customers for system installation. Net metering provisions, as well as the recent Value Stack approach, provide an offset for energy and delivery charges on participating customer electric bills. New York State continues to develop and refine other compensation mechanisms which incentivize development of these types of DERs.



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1 Additionally, project developers/installers and other parties may offer innovative  
2 financing arrangements, including lease agreements, that can be attractive to customers.

3 Q. Has the nature of the interconnection work changed over time?

4 A. Yes. The Companies are seeing more large projects come to fruition in recent years.

5 With the Commission's Order on Phase One Value of Distributed Energy Resources  
6 Implementation Proposals, Cost Mitigation Issues, and Other Related Matters issued on  
7 September 14, 2017 in Cases 15-E-0751 et al., the Commission extended "Value Stack"  
8 compensation under VDER tariffs to projects larger than 2 MW. As a result, the  
9 Companies have seen a consistent stream of applications for solar installations sized at 5  
10 MW, which is the limit for projects to qualify for interconnection under the New York  
11 Standardized Interconnection Requirements ("SIR"). There is a substantial pipeline of  
12 projects moving through the engineering and construction phases toward completion.

13 Q. What is significant about the 5 MW size?

14 A. The interconnection of solar generation projects sized at 5 MW requires a higher level of  
15 expenditure and resource commitment by the Companies' engineering resources, as well  
16 as additional material and labor required to install equipment to provide those  
17 interconnections. The Companies administer these projects through the SIR process,  
18 coordinated by a Program Manager and involving Transmission Planning, Distribution  
19 Planning, Distribution Engineering, Protection and Control Engineering, Field Operations  
20 and Construction, Telecommunications Engineering, Real Estate Services, and Meter  
21 Services. Some larger projects can also change the historical direction of power flow and  
22 system dynamics, requiring additional study work during the application review process.  
23 In contrast to residential roof-top solar generation interconnections which typically

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1 require a simple residential meter replacement, the 5 MW SIR projects require  
2 utility-grade distribution equipment, including poles, wire, reclosers, voltage regulators,  
3 capacitor banks, voltage and current sensing devices, and relay protection. The planning  
4 and implementation of these projects can take one year or more from application to  
5 energization.

6 Q. Are there other requirements under the New York SIR?

7 A. Yes. The SIR establishes requirements that each utility must follow with respect to the  
8 interconnection process. There are numerous steps which detail activities with respect to  
9 application processing, payments, engineering studies, notices, cancellations, and account  
10 settlements and refunds. Each of these steps has an associated deadline. In order to  
11 ensure compliance with SIR requirements, the Companies track and monitor compliance  
12 with the deadlines. The Companies currently monitor compliance with 62 separate SIR  
13 requirements.

14 Q. Are there other industry changes that may affect Interconnections?

15 A. Yes. In addition to the State's goals for renewable energy, advancements in battery  
16 technology have resulted in the introduction of utility-scale energy storage. Governor  
17 Cuomo recently announced a 1,500 MW energy storage target for New York State by  
18 2025. Also, on December 13, 2018, the Commission issued its Order Establishing  
19 Energy Storage Goal and Deployment Policy in Case 18-E-0130 which established goals  
20 to install 1,500 MW of energy storage by 2025 and up to 3,000 MW by  
21 2030. Furthermore, NYSERDA has made available a \$350 million incentive fund which  
22 will provide \$350 per kWh toward the cost of energy storage capacity. The Companies  
23 have received applications to add battery storage to existing solar generation projects as

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1 well as applications for new solar-plus-energy storage projects. The Companies expect  
2 this area to continue to grow as the State continues to move forward toward its energy  
3 goals.

4 Q. What is the effect of these industry changes on workload and staffing?

5 A. As noted, the Companies are experiencing an increased workload for engineering,  
6 construction, administration and compliance monitoring for interconnections projects  
7 under the New York SIR as larger projects are seeking to interconnect and construct. The  
8 Companies also anticipate an increased workload resulting from energy storage projects.  
9 To meet the anticipated need for planning study related items and flexibility around  
10 timing of interconnection requests, the Companies intend to use contractor resources.  
11 The Companies' workforce needs with respect to interconnection engineering and  
12 construction activities are addressed by the Electric Reliability and Operations Panel.

13 Q. Does this conclude your testimony at this time?

14 A. Yes.