

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 22-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 22-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 22-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 22-G- ____

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**DIRECT TESTIMONY OF INNOVATION,
SMARTGRIDS AND EV PANEL**

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May 26, 2022

DIRECT TESTIMONY OF INNOVATION, SMARTGRIDS AND EV PANEL

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I. INTRODUCTION

Q. Please state the names of the members on this Innovation, Smartgrids and EV Panel (the “Panel”).

A. We are Miguel Alonso, Scott M. Bochenek, Alvaro Gener, Rita I. King, Sebastian Libonatti, James L. Mader, Robert J. Manning, and Sean K. Sullivan.

Q. Mr. Alonso, please state your title and business address.

A. I am the Senior Technical Project Manager for the Grid Model Enhancement Project (“GMEP”). My business address is 180 South Clinton Avenue, Rochester, New York 14604.

Q. Please summarize your work experience and educational background.

A. I am responsible for leading and delivering on the objectives of the GMEP. I joined Avangrid in June 2021. My previous experience in the utility sector includes 15 years in multiple companies, countries and roles, among them the New York Power Authority and E.ON. I am a licensed Professional Engineer in New York. I hold two Masters’ degrees in Mechanical and Process Engineering from the Polytechnic University of Madrid and the Technical University of Munich. My Curriculum Vitae (“CV”) is set forth in Exhibit __ (ISE-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.

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1 Q. Mr. Bochenek, please state your title and business address.

2 A. I am the Program Director, Smart Grid Innovation Programs. My business address is 18
3 Link Drive, Binghamton, New York 13904.

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

5 A. In my current role, I am responsible for developing strategy and designing programs that
6 support beneficial electrification with a significant focus on electric transportation. I
7 have worked for New York State Electric & Gas Corporation (“NYSEG”) and Rochester
8 Gas Corporation (“RG&E” and together with NYSEG, the “Companies”) for over 18
9 years in various roles including Supervisor of Customer Billing, Manager of Energy
10 Efficiency Programs, and Manager of Smart Grid Programs. I have an AA in Liberal
11 Arts from Cayuga Community College, a BA in Human Development from Binghamton
12 University, an MBA from Strathclyde University, and an MBA from Comillas Pontifical
13 University. My CV is set forth in Exhibit __ (ISE-1).

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

16 A. Yes. I submitted testimony in Cases 19-E-0378 et al., the Companies’ most recent rate
17 proceeding (the “2019 Rate Case”). In addition, I testified before the Connecticut Public
18 Utilities Regulatory Authority (“CTPURA”) in Case 17-12-03RE04, EV Charging
19 Program.

20 Q. Mr. Gener, please state your title and business address.

21 A. I am Program Director of Smart Grids and Planning. My business address is One City
22 Center, 5th Floor, Portland, Maine 04101.

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

2 A. Since August 2021, I have been responsible for developing strategy and designing
3 programs that support energy data sharing mechanisms. More specifically, I am leading
4 the implementation of the Integrated Data Energy Resource for the Companies.

5 Previously, I worked for Iberdrola, Avangrid's parent company, in different positions
6 including electricity and gas supply, energy trading risk management, retail tariffs
7 development, and business planning. I hold a BS in Electrical Engineering from
8 Polytechnic University of Madrid and an MBA from Comillas Pontifical University. My
9 CV is set forth in Exhibit __ (ISE-1).

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

12 A. No.

13 Q. Ms. King, please state your title and business address.

14 A. I am the Senior Director of Smart Grids Innovation and Planning. My business address is
15 180 Marsh Hill Road, Orange, Connecticut 06477.

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

17 A. Commencing in 2018, I have enterprise level responsibilities to promote innovation,
18 pilot, and demonstration projects and develop grid modernization road maps. I have held
19 various positions in the areas of Business Development, Business Process Management,
20 Strategic Planning, Project Management, Economic Development and Transmission
21 Planning. I hold a BS in Electrical Engineering from Worcester Polytechnic Institute,
22 and an MS from Rensselaer at Hartford and have received training in Process
23 Reengineering. My CV is set forth in Exhibit __ (ISE-1).

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

3 A. Yes. I submitted testimony in the 2019 Rate Case. In addition, I testified before the
4 CTPURA on numerous occasions in the grid modernization reopener Dockets, 17-12-03
5 (RE02-RE10).

6 Q. Mr. Libonatti, please state your title and business address.

7 A. I am the Vice President of Business Development. My business address is One City
8 Center, 5th Floor, Portland, Maine 04101.

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

10 A. In my current role, I oversee the transmission and green hydrogen development efforts
11 across the Companies. I have worked for the Companies since 2019. I hold a Bachelor's
12 degree in Business Administration – Finance from Sherbrooke University, a Master's
13 degree in Electric Power Industry from Comillas Pontifical University, and a Master's in
14 Economics and Network Industries from Paris-Sud XI University. My CV is set forth in
15 Exhibit __ (ISE-1).

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

18 A. No.

19 Q. Mr. Mader, please state your title and business address.

20 A. I am the Senior Manager of Programs and Projects, Smart Grids Innovation. My business
21 address is 180 Marsh Hill Road, Orange, Connecticut 06477.

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

2 A. In my current role, I help develop and implement innovative technologies in the areas of
3 energy storage and microgrids. I have worked in multiple engineering disciplines
4 throughout my 30 years in the utility industry including Substation Engineering,
5 Protection and Control Engineering, Transmission Engineering, and Distribution Design.
6 I received a BS in Electrical Engineering Technology from Northeastern University in
7 1991 and I am a certified Project Management Professional. My CV is set forth in
8 Exhibit __ (ISE-1).

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

11 A. I have not testified before the Commission. However, I have testified recently before the
12 CTPURA in Case 17-12-03RE03, Electric Storage, as well as in other various dockets
13 before CTPURA.

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

15 A. I am the Program Director - Smart Grids Innovation Programs. My business address is
16 180 Marsh Hill Road, Orange, Connecticut 06477.

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

18 A. I have held various positions in Distribution Operations, Distribution Planning, Work
19 Methods, Reliability Engineering, Work Management, Engineering & Project Excellence,
20 and Technical Services. In 2019, I became Program Director – Smart Grids Innovation
21 Programs. I hold a BS in Electrical Engineering from Worcester Polytechnic Institute, an
22 MBA from the University of New Haven and I completed PTI's Power Technology

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1 course. I have received training in Process Reengineering and am a licensed Professional
2 Engineer registered in Connecticut. My CV is set forth in Exhibit __ (ISE-1).

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

5 A. I have not testified before the Commission. However, I have testified before the
6 Connecticut Siting Council, which is a quasi-judicial administrative agency, and
7 regulatory commissions in Connecticut and Maine. Specifically, I testified before the
8 CTPURA in Amendments to Rates, Interconnection Guidelines and most recently Docket
9 No. 17-12-03 – Investigation into Distribution System Planning of the Electric
10 Distribution Companies, and the Maine Public Utilities Commission in Docket No. 2016-
11 00162 – Efficiency Maine Trust, Request for Examination of Voltage Optimization Pilot
12 Program.

13 Q. Mr. Sullivan, please state your title and business address.

14 A. I am the Program Director, Smart Grids Innovation Programs. My business address is
15 180 South Clinton Avenue, Rochester, New York 14604.

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

17 A. In my current role, I am responsible for progressing the Companies' innovation pilots and
18 demonstration project strategy and lead NYSEG's Energy Smart Community ("ESC")
19 Program located within Tompkins County, including Ithaca, New York. I hold a BS in
20 Geology from St. Lawrence University and an MBA from DeSales University. My CV is
21 set forth in Exhibit __ (ISE-1).

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

A. Yes. I submitted testimony in the 2019 Rate Case.

II. OVERVIEW OF TESTIMONY

Q. Please provide an overview of the Panel's testimony.

A. The energy landscape in New York and across the United States is in the midst of rapid transformation. New York State is taking a leadership role in the fight against climate change as evidenced by the passage of the Climate Leadership and Community Protection Act ("CLCPA").¹ Our testimony describes major clean energy transformation initiatives that the Companies are undertaking to support the State and our customers in achieving these important goals. Specifically:

1) Beneficial Transportation Electrification Programs to support New York's goal of over 850,000 electric vehicles ("EVs") in the State by 2025, including:

- 2,000 additional charge ports for medium and heavy duty EVs, including school and transit buses;
- 100 new chargers in disadvantaged communities (with the goal of driving down the cost of charging to costs comparable to in-home charging); and
- A new fast charging hub that will bank as many as 80 fast chargers in a strategic location;

¹ Chapter 106 of the Laws of 2019 (N.Y.). As it relates to clean energy, the CLCPA requires that: (1) by 2030, 70% of statewide electric generation shall be generated by renewable energy systems; and (2) by 2040, the statewide electric grid will be zero-emissions. The CLCPA also mandates a 40% reduction in greenhouse gas emissions by 2030 and an 85% reduction in greenhouse gas emissions by 2050.

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2) An Electric Heat Make-Ready Program to assist customers with electrical upgrades necessary to electrify heating sufficient to increase the number of homes heating with electricity in the Companies' service territories by 300% and to support Governor Hochul's target of two million electric heat-ready homes in the State by 2030;

3) A Low Income Clean Generation Program to ensure that disadvantaged communities receive the benefits of distributed generation investment through electric bill credits and increasing the amount of installed solar capacity in the Companies' service territory by 8%;

4) Continued progress on two existing energy storage projects and a proposal for three new projects (consisting of 29 MWs of new storage capacity and resulting in an approximate 47% increase to installed energy storage capacity in the Companies' service territories) that will serve customers by addressing multiple distribution system needs via direct integration into the Companies' operations and processes;

5) Innovative Collaborations, Partnerships, and Pilot Projects including a geothermal district energy pilot project to support the City of Ithaca's electrification efforts and a Hydrogen Blending Pilot;

6) Integrated Energy Data Resource ("IEDR") platform implementation;

7) GMEP implementation as a foundational, clean energy enabling project; and

8) Distribution System Implementation Plan ("DSIP") key initiatives and a roadmap to transforming into the Distribution System Platform ("DSP").

We provide detail and support for these proposed initiatives.

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Q. Please describe further how the Companies' proposed innovation programs and efforts would enable achievement of the CLCPA goals.

A. The CLCPA goals require the Companies to play a fundamental role in partnering with innovative solution providers and stakeholders to collectively invest in a clean energy, low-carbon future. Technological advancements are allowing for a more dynamic, efficient, and digitalized grid that will support adoption of beneficial electrification and clean energy resources. To that end, the innovation efforts proposed by this Panel will enhance the operational performance of the Companies' electric distribution system, accommodate higher levels of clean energy generation resources, prepare for electric vehicle deployment, and integrate emerging technologies, such as energy storage, that can provide flexibility as the electric grid evolves to meet CLCPA goals.

Q. Does this Panel focus on addressing macro policy issues relating to how the Companies' proposed rate case filings overall are consistent with the CLCPA?

A. No. While we address specific innovation efforts around emerging technologies, beneficial electrification, clean energy, stakeholder collaboration efforts and developing DSP capabilities, the Policy Panel addresses on a global basis how these rate cases are consistent with the CLCPA.

III. IDENTIFICATION AND SUMMARY OF EXHIBITS

Q. Is this Panel sponsoring any exhibits?

A. Yes. This Panel sponsors the following exhibits:

- 1) Exhibit __ (ISE-1) – Innovation Panel Witness CVs;
- 2) Exhibit __ (ISE-2) – Mass Market Managed Charging Program Proposal – June 2021;
- 3) Exhibit __ (ISE-3) – Medium and Heavy-Duty EV Program Proposal;

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- 4) Exhibit __ (ISE-4) – Municipal Curbside Charging Program Proposal;
- 5) Exhibit __ (ISE-5) – EV Charging Hub Program Proposal;
- 6) Exhibit __ (ISE-6) – Electric Heat Make-Ready Program Proposal;
- 7) Exhibit __ (ISE-7) – Low Income Clean Generation Program Proposal;
- 8) Exhibit __ (ISE-8) – Energy Storage Lessons Learned;
- 9) Exhibit __ (ISE-9) – NYSEG Stephentown Project Proposal;
- 10) Exhibit __ (ISE-10) – NYSEG Wales Center Project Proposal;
- 11) Exhibit __ (ISE-11) – RG&E Station 125 Project Proposal;
- 12) Exhibit __ (ISE-12) – New Energy New York Collaboration;
- 13) Exhibit __ (ISE-13) – RG&E Hydrogen Blending Pilot Proposal;
- 14) Exhibit __ (ISE-14) – Smart Meter – Smart Inverter Interface Pilot Proposal;
- 15) Exhibit __ (ISE-15) – Demand Side LMI HVAC Management Proposal;
- 16) Exhibit __ (ISE-16) – Academic Institution Collaboration;
- 17) Exhibit __ (ISE-17) – Global Innovation Collaboration;
- 18) Exhibit __ (ISE-18) – Integrated Energy Data Resource Project Detail;
- 19) Exhibit __ (ISE-19) – Grid Model Enhancement Project Detail;
- 20) Exhibit __ (ISE-20) – CYME Server Proposal;
- 21) Exhibit __ (ISE-21) – Advanced Load DER Forecasting Proposal;
- 22) Exhibit __ (ISE-22) – Interconnection Portal Screening Proposal;
- 23) Exhibit __ (ISE-23) – Interconnection Portal Enhancements Proposal;
- 24) Exhibit __ (ISE-24) – Flexible Interconnection Capacity Solutions Scalability Proposal; and
- 25) Exhibit __ (ISE-25) – EPRI Membership.

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IV. MAJOR PANEL INITIATIVES

A. Beneficial Transportation Electrification Programs

Q. What are the new Beneficial Transportation Electrification Programs being proposed by the Companies?

A. The Companies are proposing a Medium and Heavy-Duty Vehicle (“MHD”) Make-Ready Program, a Municipal Curbside Charging Pilot, and an EV Charging Hub Pilot.

Q. How do these proposed programs align with State climate goals?

A. The proposed programs directly support the State’s goal of 100% of light-duty vehicle sales being zero-emissions by 2035 and 100% of MHD vehicle sales being zero-emissions by 2045.² The MHD Make-Ready Program would enable as many as 2,000 charging plugs that could support over 2,300 MHD vehicles, which will help create momentum towards decarbonizing the MHD sector. The EV Charging Hub Pilot will support up to 80 direct current fast chargers (“DCFC”) in a single, strategically placed location built to accommodate a variety of vehicle and charging types and showcase a next-generation model for DCFC stations and infrastructure. The Municipal Curbside Charging Pilot will deploy up to 100 low-cost chargers in underserved communities with the goal of driving down the cost of charging to a level that is comparable to the cost of at-home charging. These programs will accelerate the adoption of EVs in the Companies’ service territory and support the greenhouse gas emissions reduction goals of the CLCPA.

² See Environmental Conservation Law § 19-0306-b (1).

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1 Q. How many light-duty EVs are currently in the Companies' service territory?

2 A. As of March 2022, there were 15,622 light-duty EVs registered in the Companies'
3 service territory. This amounts to just under 1% of the total registered light-duty vehicles
4 in the Companies' service territory.

5 Q. How many additional light-duty EVs do the Companies anticipate in the service territory
6 through 2025?

7 A. The Companies recognize New York State's goal to have 850,000 EVs on the road in
8 New York by 2025 of which approximately 19% (161,500 EVs) will be in the
9 Companies' service territory. This would account for about 10% of the total currently
10 registered light-duty vehicles. A critical component of reaching the New York's electric
11 vehicle goal is supporting market growth by ensuring there is sufficient charging
12 infrastructure that will eliminate range anxiety, build driver confidence, and meet electric
13 vehicle charging needs.

14 Q. How many MHD EVs are currently in the Companies' service territory?

15 A. Exact data on current MHD EV registrations in the Companies' service territory is
16 unknown, although the Companies are aware of a total of 17 electric transit buses and one
17 electric school bus.

18 Q. How many additional MHD EVs do the Companies anticipate in the service territory
19 through 2025?

20 A. The Companies anticipate that in order to meet the CLCPA goals there will need to be
21 16,957 MHD EVs registered in New York by 2025 with 3,222 of those in the
22 Companies' service territory.

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1 Q. Are the Companies currently implementing EV programs and is it the Companies' intent
2 to continue these programs?

3 A. Yes.

4 Q. Will the Panel please briefly describe the current EV programs?

5 A. The Companies currently implement the following programs ordered by the Commission
6 in Case 18-E-0138: 1) DCFC Per Plug Incentive Program; 2) Light-Duty Make-Ready
7 Program; 3) Transit Bus Make-Ready; 4) MHD Make-Ready Pilot; and 5) Fleet
8 Assessment Service.³

9 Q. Please describe the DCFC Per Plug Incentive Program.

10 A. The DCFC Per Plug Incentive Program is an annual declining per-plug incentive to
11 qualifying public DCFC operators intended to offset electric delivery costs incurred by
12 DCFC stations while charging utilization is low. As of March 2022, NYSEG has
13 enrolled 19 DCFC plugs across three participants at five sites, and RG&E has enrolled 0
14 plugs. These account for most of the new DCFC plugs installed in the Companies'
15 service territory.

16 Q. Please describe the Light-Duty Make-Ready Program.

17 A. The program provides incentives for the installation of light-duty EV infrastructure for
18 both Level 2 ("L2") and DCFC stations. The program covers up to 100% of the eligible
19 costs needed to prepare a site for EV charging if all eligibility criteria are met, or 50% of
20 the costs if the station does not meet the public accessibility or standardized plug
21 eligibility requirements. As of March 2022, the program has supported installation of

³ See Case 18-E-0138, Order Establishing Electric Vehicle Infrastructure Make-Ready Program and Other Programs (issued July 16, 2020) ("Make-Ready Order").

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155 L2 plugs and 12 DCFC plugs at NYSEG and 113 L2 plugs at RG&E. By 2025, the program will support up to 9,279 L2 plugs and 250 DCFC plugs at NYSEG and up to 4,178 L2 plugs and 149 DCFC plugs at RG&E. The program offers an incentive of up to \$6,000 for each L2 plug and up to \$55,000 for each DCFC plug.

Q. Please describe the Transit Bus Make-Ready Program.

A. The Make-Ready Order allocated \$1.9 million to support the Transit Bus Make-Ready Program for the Regional Transit Service (“RTS”), which will support RTS's goal of achieving 25% electrification by 2025. RG&E is working closely with RTS to support required electrical upgrades to accommodate transit bus charging load.

Q. Would the Panel please describe the MHD Make-Ready Pilot?

A. The Make-Ready Order authorized a pilot program that would cover up to 90% of the utility-side make-ready cost to accommodate MHD vehicle charging where the participating customer is also a participant in the New York State Energy Research and Development Authority (“NYSERDA”) Truck Voucher Incentive Program. The Companies have received one application to date from a transit agency. Additionally, there has been ongoing dialogue with a municipal customer looking to electrify part of its refuse fleet.

Q. What is the Fleet Assessment Service?

A. The Fleet Assessment Service provides fleet customers with site feasibility and rate analysis related to fleet electrification to help evaluate potential conversion to EVs.

Q. How are costs being recovered for the current EV programs?

A. Investments in utility-owned electrical infrastructure are treated as plant and recovered through base rates. Customer-owned equipment incentives and program administration

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costs are deferred as a regulatory asset and are being recovered through a surcharge mechanism.

Q. Are there capital costs being proposed for current EV programs as part of this rate case?

A. Yes, the capital costs to support the current EV programs are included in the Electric and Common Capital Expenditures Panel and total \$11.7 million, which includes \$8 million for NYSEG and \$3.7 million for RG&E. Incentives toward customer-owned equipment and program administration costs will be deferred as a regulatory asset and recovered via an existing surcharge mechanism as directed in the Make-Ready Order.

Q. Are there other EV programs that the Companies have proposed previously but have not yet implemented?

A. Yes. The Companies have proposed a Mass Market Managed Charging Program.

Q. Please describe the Mass Market Managed Charging Program.

A. The Mass Market Managed Charging Program proposal was filed in Case 18-E-0138 on December 4, 2020, with an update filed on June 4, 2021, and is currently pending Commission approval. The proposed program will be available for residential customers and includes incentives that will optimize the time of charging. The program proposal is included as Exhibit __ (ISE-2).

Q. What is the proposed budget for the Mass Market Managed Charging Program?

A. The estimated program budget under a high EV adoption scenario is \$30.4 million.

Q. Are there any incremental costs being proposed for the Mass Market Managed Charging Program as part of this rate case?

A. No.

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Q. How will costs for the Mass Market Managed Charging Program be recovered?

A. Program costs will be deferred as a regulatory asset and recovered through an existing surcharge over a 10-year period, with the net-of-tax balances accruing carrying charges at each company's pretax overall cost of capital.

Q. Are the Companies also proposing new EV programs?

A. Yes. As mentioned above, the Companies are proposing the following new programs: 1) MHD Make-Ready Program; 2) Municipal Curbside Charging Pilot; and 3) EV Charging Hub Pilot.

Q. Please describe the MHD Make-Ready Program.

A. The program is similarly structured to the existing Light-Duty Make-Ready Program with customer incentives of up to \$6,000 per plug towards L2-related infrastructure and up to \$55,000 per plug for DCFC-related infrastructure. The proposed program will provide make-ready infrastructure incentives to support approximately 2,332 MHD vehicles through the installation of 1,128 L2 EV ports and 842 DCFC ports. This program will cover up to 100% of make-ready costs for public sector fleets, including school buses and other transit and municipal vehicles. Private fleet operators, including but not limited to delivery vehicles, will be eligible for incentives covering up to 50% of their make-ready costs.

Q. What are the proposed costs associated with the MHD Make-Ready Program?

A. The Companies propose a three-year program with a \$52.9 million total budget.

Q. How do the Companies propose to recover program costs?

A. Similar to the Light-Duty Make-Ready Program, utility-side infrastructure will be capitalized as utility plant. As a result, \$11.2 million of the total proposed spend will be

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capital costs. Incentives toward customer-owned electrical infrastructure will be treated as a regulatory asset and amortized over a 15-year period, and recovered through an existing surcharge, inclusive of carrying costs. Of the total proposed spend, \$41.7 million will be treated as a regulatory asset. Additional details for the MHD Make-Ready Program are included in Exhibit __ (ISE-3).

Q. Please describe the Municipal Curbside Charging Pilot.

A. The Municipal Curbside Charging Pilot will assist two to four municipal partners in planning, developing, and installing EV charging infrastructure for residents that do not have dedicated residential parking. Municipalities will be evaluated and selected based on level of interest. One of the direct customer incentives to adopting EVs is related to its lower operating costs, including lower and less volatile “refueling” costs associated with electricity as a fuel versus petroleum-based options. However, there is a cost premium for EV customers that charge “on-the-go” at retail and public locations. As a result, a customer class that is inadvertently left out of accessing low-cost charging are customers that do not have dedicated residential parking. The proposed pilot would investigate the opportunities and barriers for municipalities to deploy wide-scale curbside charging in neighborhoods with higher rates of multi-family dwellings, and therefore limited residential off-street parking. The variety in the built environment and the diversity of landscapes and urban design across our service territories results in a lack of uniformity for designing and making EV charging accessible for our residential customers that reside within or in close proximity to denser urban neighborhoods. The complexity of siting, coupled with need and/or desire to minimize the costs of providing EV charging at on-street parking locations to serve EV drivers without dedicated garage

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1 parking, may require pole mounting on existing utility poles, streetlight poles, dedicated
2 EV pedestals or a combination thereof. The Companies will collaborate closely with our
3 municipal partners on the lowest cost methods to install EV charging, leveraging the
4 existing Light-Duty Make Ready Program incentives. The Municipal Curbside Charging
5 Pilot will expand the eligible costs beyond the existing Light-Duty Make-Ready Program
6 and will include incentives toward the EV charging station, signage, and other related
7 costs.

8 A secondary benefit of these pilots is that they support EV adoption through
9 visible EV charging along public rights-of-way. There is the potential for these charging
10 solutions to act as both visible advertising for EV charging, and potential economic
11 generators for mixed-use urban neighborhoods close to central business districts. The
12 intent of these pilots is to create a replicable program model within our service territories.

13 Q. How many curbside chargers will be installed through the pilot?

14 A. The program will support up to 100 L2 curbside charging ports and focus on the
15 deployment of low-cost charging solutions.

16 Q. Are there incremental costs associated with the Municipal Curbside Charging Pilot?

17 A. No. The pilot will be paid for within the Light-Duty Make-Ready Program budget.
18 Additional details for the Municipal Curbside Charging Pilot are included in Exhibit ____
19 (ISE-4).

20 Q. Please describe the EV Charging Hub Pilot.

21 A. The EV Charging Hub Pilot is large scale, purpose-built infrastructure that will serve
22 corridor charging needs for light-duty, medium-duty, and heavy-duty vehicles within the
23 NYSEG service area. The project will include one or more third-parties that will own

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and operate the chargers, and the operator will also be responsible for all driver amenities. The project will be in close proximity to a NYSEG substation and will include a dedicated feeder to serve future expected load of 20 MW. Assuming an average charger power level of 250 kW, the hub will charge up to 80 EVs simultaneously. The exact number of vehicles served will depend on charger specification and the mixture of vehicle types served.

Q. Will the EV Charging Hub Pilot utilize existing make-ready program incentives?

A. Yes. The project will apply existing make-ready program incentives as applicable.

Q. What is the key premise underlying the proposed EV Charging Hub Pilot approach to building corridor fast charging infrastructure?

A. A key premise of the EV charging hub concept is that the current approach of deploying corridor fast chargers cannot be scaled up as market adoption increases as each site, containing roughly four to twelve DCFCs, will only work in an environment with only one or two percent EV market penetration. The current approach is also unable to accommodate MHD EVs as these sites are not designed for those types of vehicles. In the next several years significant funding will be allocated toward construction of new EV chargers, including make-ready programs and federal infrastructure programs. It is important that, to the extent possible, funding is used toward charger installations that will scale with the market.

Q. What are the proposed costs associated with the EV Charging Hub Pilot?

A. The capital budget for the EV Charging Hub Pilot is \$30 million. The project is expected to take four years to implement with planning occurring in 2023, expenditures beginning in 2024, and project completion in 2026. NYSEG and one or more third-party partners

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will seek federal grants to compliment and contribute toward the cost of the project. If the project successfully secures federal funding, the capital requirement being recovered in rates would be reduced. Additional details for the EV Charging Hub Pilot are included in Exhibit __ (ISE-5).

Q. Are the Companies proposing any other initiatives to support the ongoing transition toward EVs?

A. Yes. The Companies are proposing dedicated funding to support studies, analysis, and working groups related to EVs to help with program planning, assess future system impacts, and strategize how to integrate this new electrical load most efficiently. Studies may include data gathering, including granular registration data and demographic factors to consider in future adoption forecasts, corridor fast charging needs based on peak travel days, fleet electrification potential and depot charging analysis, and consumer charging behavior analysis. Working groups may include EV Watts, CALSTART, Alliance for Transportation Electrification, and others. The Companies are also proposing dedicated funding for customer outreach and education on the benefits of electricity as a transportation fuel along with the overall benefits of EVs. Additionally, the Companies will support their fleet customers with an Online EV Fleet Assessment Tool that will allow customers to perform a “self-service fleet assessment” to identify the feasibility, costs, and benefits of converting their fleet to EVs.

Q. What are the proposed costs associated with the Companies’ EV studies and analysis, outreach and education, and Online EV Fleet Assessment Tool proposals?

A. The Companies are proposing expenditures of \$700,000 at NYSEG and \$300,000 at RG&E in the Rate Year and annually thereafter to support these efforts.

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1 Q. Are the Companies proposing any incremental FTE resources to support the proposed EV
2 programs?

3 A. Yes, the Companies are proposing three incremental FTEs to directly support the
4 proposed EV programs and two FTEs to support ongoing planning and community and
5 stakeholder engagement related to beneficial electrification. The three program
6 implementation FTEs will include: 1) a Program Manager who will be responsible for the
7 MHD Make-Ready Program; 2) an Energy Specialist who will support implementation of
8 the MHD Make-Ready Program; and 3) a Portfolio Manager who will be responsible for
9 overseeing all EV programs. The two community and stakeholder engagement FTEs will
10 be Lead Analysts and will support engagement with communities, government entities,
11 and other stakeholders on matters related to EVs and other beneficial electrification,
12 including the Municipal Curbside Charging Pilot, and will act as beneficial electrification
13 subject matter experts. The Lead Analysts will also perform research to help inform the
14 Companies on technology, standards, state and federal policies, and market trends and
15 developments related to EVs. The Lead Analysts will also participate in regional and
16 national groups related to beneficial electrification to gather information and identify
17 industry best practices and support future program development.

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B. Electric Heat Make-Ready Program

Q. How does the decarbonization of heating factor into New York State's achievement of CLCPA targets?

A. The building sector is the largest source of emissions in New York, accounting for 32% of emissions.⁴ Decarbonizing this sector is fundamental to achieving the CLCPA greenhouse gas emissions reduction targets.⁵ In addition, on January 5, 2022, Governor Hochul announced a plan to achieve two million electrified or electrification-ready homes by 2030.⁶

Q. Are the Companies currently implementing programs that support the decarbonization of heating in buildings?

A. Yes. The Companies are currently implementing rebate programs to incentivize the adoption of ground-source and air-source heat pumps as well as heat pump hot water heaters. Details on the heat pump rebate program can be found in the Energy Efficiency Panel testimony.

Q. Are the Companies proposing any new programs to support the electrification of heating?

A. Yes, the Companies are proposing an Electric Heat Make-Ready Program. This program will utilize the general make-ready concept from the EV Make-Ready Program to support customer adoption of electric heating systems.

⁴ NYSDEC, 2021 Statewide GHG Emissions Report.

⁵ Id. at 41.

⁶ Governor Hochul, 2022 State of the State Book at 152 (issued January 5, 2022).

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1 Q. Can the Panel explain why the Electric Heat Make-Ready Program is necessary to
2 support customers seeking to shift to electrical heat?

3 A. Additional costs associated with electric equipment upgrades can be a major barrier for
4 customers when considering a transition from fossil fuel heat to heat pump or electrical
5 technology. Installation and use of heat pumps can lead to significant increases in
6 electric load. If that load exceeds the capacity of a customer's electrical panel, the
7 customer may need to have their entrance cable and electrical panel box replaced.
8 Depending on the upgrades required and what size service the customer is upgrading to,
9 costs could range between \$2,000 and \$5,000.

10 Q. How often are electric upgrades required to accommodate heat pump installations?

11 A. Initial analysis of 400 heat pump installations for low to moderate income households
12 conducted by NYSERDA found that 17% of the installations required an electrical
13 upgrade.⁷

14 Q. Please describe the proposed Electric Heat Make-Ready Program.

15 A. The program will provide a customer incentive toward the cost of electrical upgrades
16 required to accommodate full heating load heat pump installations. This would include
17 electrical upgrades such as entrance cable replacement and panel box replacement to
18 accommodate a new heat pump. The incentive would be up to \$3,000, which reflects the
19 expected average cost per installation.

⁷ See NYSERDA, LMI Heat Pump Demo Study: Electrical Panel Box Upgrade Analysis.

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1 Q. What customers will be eligible for program participation?

2 A. Eligible participants will include existing or new residential single family and multi-
3 family customers installing full heating load air-source or ground-source heat pumps that
4 also qualify for Clean Heat program incentives.

5 Q. What equipment will be eligible for program incentives?

6 A. Eligible equipment will include all on-premises electrical infrastructure upgrades
7 required to accommodate installation of an air-source heat pump or ground source heat
8 pump.

9 Q. How many installations will the program support?

10 A. The program will support heating electrification for at least 8,400 homes, which
11 represents a 300% increase in the Companies' service territories.

12 Q. What is the proposed program cost?

13 A. The estimated cost of the program is \$29.8 million.

14 Q. How are the Companies proposing to treat program costs?

15 A. All program costs will be deferred as a regulatory asset, amortized over a 15-year period
16 and recovered through an existing surcharge mechanism, inclusive of carrying costs.

17 Q. Are there incremental resources required to manage the Electric Heat Make-Ready
18 Program?

19 A. Yes, program implementation will require three incremental FTEs. One FTE will be a
20 Program Manager responsible for all aspects of implementation including direct
21 engagement with participating customers, engagement and coordination with market
22 participants, oversight of program vendors, tracking and reporting of program
23 performance, and evaluation of program effectiveness. The Program Manager will split

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1 their time between NYSEG and RG&E. The two other FTEs will be Energy Specialists
2 (one for NYSEG and one for RG&E) that will support all aspects of implementation,
3 including data collection and budget and performance tracking. Additional details for the
4 Electric Heat Make-Ready Program are included in Exhibit __ (ISE-6).

5 **C. Low Income Clean Generation Program**

6 Q. Please describe the proposed program in the renewable generation area and how it
7 supports CLCPA targets.

8 A. The Companies are proposing a Low Income Clean Generation Program. The program
9 would enable the development of 50 MW of solar photovoltaic (“PV”) installed capacity,
10 and revenues from the solar facilities would be used to provide bill credits to low-income
11 customers. The CLCPA requires that 70% of statewide electric generation come from
12 renewable energy systems by 2030, and that the grid be zero-emissions by 2040.⁸ In
13 addition, the CLCPA requires load-serving entities to procure certain amounts of
14 renewable generation. Significantly, the CLCPA also requires that clean energy
15 programs be designed to provide substantial benefits to disadvantaged communities,
16 including low to moderate income customers.⁹ The Low Income Clean Generation
17 Program will result in an 8% increase to the Companies’ existing installed capacity and
18 would benefit low-income customers in the Companies’ service territories.

19 Q. Please provide further detail on the Low Income Clean Generation Program.

20 A. The program will include development of two or more solar PV facilities amounting to as
21 much as 50 MW of installed capacity, with 35 MW allocated to NYSEG and 15 MW

⁸ Public Service Law § 66-p (2), as added by the CLCPA.

⁹ Id. at (7), as added by the CLCPA.

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1 allocated to RG&E. Site acquisition, design, engineering, and construction will be
2 procured through a competitive request for proposals issued and administered by the
3 Companies. Revenue generated by the facilities, net of maintenance cost, will be
4 allocated to designated low-income customers for the life of the assets. Inclusion of
5 energy storage will be analyzed and considered to the extent that it will result in
6 increased revenue.

7 Q. What is the estimated annual program revenue?

8 A. Revenue in the first year of operation, 2026, net of maintenance cost, is expected to be
9 \$3.6 million. It is assumed that due to inflation, gross revenue and maintenance cost will
10 increase by 3% each year.

11 Q. How will program revenue be allocated to low-income customers?

12 A. Revenues will be allocated evenly on a monthly basis to all designated low-income
13 customers.

14 Q. What are the benefits of the Low Income Clean Generation Program?

15 A. The program will generate an estimated annual bill credit of \$27 for each designated low-
16 income customer. Existing programs meant to support renewable generation, including
17 Remote Crediting and Community Distributed Generation, allocate credits to
18 participating customers based on revenues generated through those programs.
19 Participants benefit by reducing what they would otherwise pay for electricity, with part
20 of the value shared with solar PV developers. The Low Income Clean Generation
21 Program has a distinct advantage by allocating all market-based revenue directly to the
22 customers who will benefit the most, making their electricity more affordable. The
23 program will also help increase the proportion of renewable generation in New York.

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1 Q. What is the proposed cost for the program?

2 A. The program cost is \$35 million for NYSEG and \$15 million for RG&E.

3 Q. How will the program expenditures be recovered?

4 A. The solar PV facilities will be treated as utility plant and recovered through base rates.

5 Q. Why are the Companies proposing to own the solar PV generation facilities that are part
6 of this program?

7 A. The Companies are proposing to own the solar PV generation so that revenue can be
8 allocated directly to low-income customers and, because the Companies are regulated,
9 the process can be directly overseen by the Commission. The Commission has
10 recognized that utility ownership of renewable energy facilities is appropriate in instances
11 where a project will enable low- or moderate-income residential customers to benefit
12 from distributed energy resources (“DER”) where markets are not likely to satisfy the
13 need.¹⁰

14 Q. How will the Companies alleviate vertical market power concerns?

15 A. These facilities will follow all approved New York Independent System Operator
16 (“NYISO”) requirements for participation in NYISO markets as a price taker, as these
17 facilities will have low or no variable cost. The NYISO has operational control of the
18 transmission and any dispatch of these intermittent resources would be by the NYISO.

¹⁰ See Case 14-M-0101 - Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting Regulatory Policy Framework and Implementation Plan (“REV Framework Order”) at 70 (issued February 26, 2015).

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1 Q. Are there incremental resources required to manage the Low Income Clean Generation
2 Program?

3 A. Yes, the program will require one incremental FTE (split between NYSEG and RG&E).
4 During the development and construction phase, the FTE will be responsible for all
5 aspects of project development, procurement, and overseeing construction. During the
6 operations and program implementation phase, the FTE will be responsible for managing
7 facility operations, overseeing maintenance contracts, forecasting and tracking cashflows,
8 customer enrollment, and distribution of credits. Additional details for the Low Income
9 Clean Generation Program are included in Exhibit __ (ISE-7).

10 **D. Energy Storage**

11 Q. What are the Companies' initiatives in the energy storage area and how do they advance
12 CLCPA efforts?

13 A. The Companies provide updates on two energy storage procurements and propose three
14 energy storage projects that will enable a minimum of 29 MW of new energy storage,
15 which represents an approximate increase of 47% to existing installed energy storage
16 capacity in the Companies' service territories. These initiatives support New York
17 State's energy storage target of 3,000 MW of storage by 2030.¹¹ These projects will help
18 further the Companies' ability to integrate additional intermittent clean generation into
19 the distribution grid, which supports the clean energy goals of the CLCPA.

¹¹ See Public Service Law § 66-p (5), as added by the CLCPA. Since the original target was established, the Commission is exploring a revised target of at least 6,000 MW by 2030, at a minimum doubling the State's energy storage goal over the same period.

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1 Q. Can the Companies provide a brief update on the status of the existing energy storage
2 competitive solicitations¹² released by the Companies?

3 A. The Companies completed their first competitive procurement for bulk energy storage in
4 July 2020 with no viable projects to award. The Companies have issued a second RFP
5 for each utility and are currently in the process of evaluating responses with a target to
6 award any viable projects by the end of Q3 2022.

7 Q. How do the Companies intend to treat costs associated with viable competitively-
8 procured energy storage projects?

9 A. Any associated tariff amendments to effectuate cost recovery for the direct competitive
10 procurement will be filed as directed in the Energy Storage Order. In addition, the
11 Companies propose to create an intangible capital asset equivalent to all the energy
12 storage project costs. Examples of these costs include, but are not limited to, internal
13 and/or external labor costs, outside services specific to the payments made to third-parties
14 for storage procurement solutions, and/or system upgrade costs associated with
15 interconnecting these projects. The Companies will defer the revenue requirement
16 impact of these costs and establish intangible capital assets with this deferral being
17 eligible for recovery through the Companies rate adjustment mechanism (“RAM”).

¹² The NYSEG and RG&E energy storage solicitations are intended to procure a minimum of 10 MW of energy storage assets at each utility to participate in the NYISO wholesale markets with an in-service date by the end of 2025 in accordance with the Commission’s Order Establishing Energy Storage Goal and Deployment Policy in Case 18-E-0130 (issued December 13, 2018) (the “Energy Storage Order”).

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1 Q. Do the Companies currently have projects in development that will advance the use and
2 deployment of energy storage?

3 A. Yes, the Companies have multiple energy storage projects in various stages of
4 development or in service.¹³

5 Q. Have the Companies included any proposed costs for the existing energy storage projects
6 in this rate plan?

7 A. Yes, the Companies propose a total of \$91,305 in RY1, and \$92,821 and \$93,347 in the
8 two subsequent years, respectively, to cover the operations and maintenance (“O&M”)
9 expenditures for the Companies’ current energy storage pilots and demonstrations.
10 Exhibit __ (ISE-8) includes a project by project breakdown.

11 Q. Are the Companies proposing any new energy storage projects?

12 A. Yes, the Companies are proposing two projects for NYSEG and one project for RG&E.
13 The projects collectively represent 9 MW and 43 MWh of new energy storage.

14 Q. Please describe the first energy storage project proposed for NYSEG.

15 A. The first project proposed for NYSEG is a 1 MW, 4 MWh BESS, located at NYSEG’s
16 Stephentown substation.

17 Q. Please describe the Stephentown substation and the proposed use case for the BESS.

18 A. The Stephentown substation is an electric substation located in NYSEG’s Mechanicville
19 division. Currently, the substation is comprised of three 34.5-4.8 kV, .833 MVA

¹³ Existing NYSEG storage projects include the Java Energy Storage, Stillwater Energy Storage NWA, Distribution Circuit Deployed Battery Energy Storage System (“BESS”) and Aggregated Behind-the-Meter projects. RG&E storage projects deployed include the Integrated EV Charging, and Peak Shaving BESS projects. Further details of the NYSEG Java Substation Energy Storage Microgrid and Stillwater NWA projects may be found in the Direct Testimony of the Non-Wires and Non-Pipes Alternatives Panel. Additional details on the other existing NYSEG and RG&E energy storage projects along with key lessons learned based on operational energy storage pilots, demonstrations, and other storage efforts can be found in Exhibit __ (ISE-8).

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transformers (2.5 MVA total) serving approximately 1,116 residential and small commercial customers via one 4.8 kV distribution circuit. The transformer has an average summer peak load of 97% of its nameplate with the load at the station exceeding its nameplate rating in 2019 and 2021. There is also .34 MW of interconnected residential DER on the substation transformer which are factored into the peak load requirements of the proposed battery size as the station peak occurs between 5:00 PM and 9:00 PM after the contribution of the station's DER. The BESS will be used to reduce the substation transformer overload for up to 10 years and enhance the substation's ability to host additional DER. Further details of this project can be found in Exhibit ____ (ISE-9).

Q. Please describe the second energy storage project proposed for NYSEG.

A. The second project proposed for the NYSEG territory is a 1 MW, 4 MWh BESS, located at the Wales Center substation.

Q. Please describe the Wales Center substation and the proposed use case for the BESS.

A. The Wales Center substation is an electric substation located in the eastern portion of the Lancaster Division. Currently, this substation is comprised of three 34.5-4.8 kV, 1.67 MVA transformers (5 MVA total) serving approximately 1,773 residential and small commercial customers via two 4.8 kV distribution circuits. The Wales Center substation transformer has an average summer peak load of 92% of its nameplate. In addition to the substation beginning to exceed its nameplate rating in the 2011-2014 timeframe, NYSEG has also seen significant penetration (2.3 MW) of intermittent DER interconnected to the station with over 2.5 MW of DER in the current interconnection queue. The combination of these drivers, including the large amount of intermittent DER, introduces future

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concerns with providing quality of supply to customers (e.g., voltage flicker and regulation) as well as the ability of the Wales Center substation to host additional DER cost-effectively. This BESS will be used to reduce the transformer overload need, address potential quality of supply issues, and increase DER hosting capacity. Further details of this project can be found in Exhibit __ (ISE-10).

Q. Please describe the energy storage project proposed for RG&E.

A. RG&E proposes a 7 MW, 35 MWh battery storage system located at Station 125, an electric substation located in the Canandaigua Division.

Q. Please describe Station 125 and the proposed use case for the BESS.

A. Station 125 is comprised of two 34.5-12.47 kV, 22.4 MVA transformers serving approximately 2,176 customers via six 12.47 kV distribution circuits. Substation Transformer Bank #2 (“Bank #2”) is a 22.4 MVA transformer that has a five-year average loading at 89% of its capacity and peaks between the hours of 10:00 AM to 7:00 PM. In 2020, the load at the station reached 94% of its nameplate rating. Based on current load projections and forecasted and queued new loads, Bank #2 will begin to reach its nameplate rating in 2022 and is expected to exceed its nameplate rating in 2023. RG&E is proposing the BESS to help reduce the transformer overload need and increase the transformer loading efficiency. There is also approximately .853 MW of interconnected residential and commercial DER on the transformer with expected additional DER to be added in the future. The peak period of the station is conducive to utilizing the BESS to increase the hosting capacity of Bank #2 as another use case to be explored. Further details of this project can be found in Exhibit __ (ISE-11).

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1 Q. What are the proposed capital and O&M expenditures for these proposed energy storage
2 projects?

3 A. The Companies propose a total capital budget for Stephentown, Wales Center and Station
4 125 projects of approximately \$23.85 million dollars with \$7.16 million and \$16.7
5 million in the two years subsequent to the Rate Year, respectively. In addition, to cover
6 the operational and maintenance expenditures for the proposed energy storage projects,
7 the Companies estimate total O&M expense of approximately \$290,200 subsequent to the
8 Rate Year. Project by project breakdown of costs may be found in Exhibit __ (ISE-9),
9 Exhibit __ (ISE-10), and Exhibit __ (ISE-11).

10 Q. Are the Companies proposing to bid these energy storage systems into the NYISO
11 market, and if so, what do the Companies propose to do with the revenues?

12 A. Yes, consistent with the Commission's September 9, 2021 Order in Cases 18-E-0130 and
13 16-M-0411, the Companies propose to provide the output from the utility-owned energy
14 storage systems into the NYISO wholesale markets. The Companies propose to use the
15 net market revenues from these energy storage projects to provide credits to low-income
16 customers. Revenues will be allocated evenly on a monthly basis to each of the
17 designated low-income customers.

18 Q. Are the Companies proposing to own these new energy storage projects?

19 A. Yes, the Companies believe there is intrinsic value to utility ownership of these specific
20 energy storage projects that cannot be gained by third-party ownership.

21 Q. Please explain the benefits of utility ownership of these projects.

22 A. The Companies believe that energy storage projects supporting the reliability and
23 resiliency of the electric distribution system are appropriate and provide the greatest

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value from utility ownership. Specifically, each of these projects are solving multiple substation needs that will require significant integration into utility operations and processes while ensuring the safety and reliability of the distribution system. Each proposed project will provide solutions to reduce a capacity or thermal overload issue at a substation transformer, help shift existing DER resource output, increase the ability of the substation to host more DER, and in some cases address potential quality of supply concerns. The Companies will be securing the BESS systems via a competitive procurement process which serves to continue to develop the storage market in New York. Lastly, the Companies will gain valuable experience bidding these projects into the NYISO markets to generate market revenue to help offset project operational costs, directly reducing costs to customers.

Q. Please explain why these projects are not being proposed as Non-Wires Alternatives.

A. Each of the new projects discussed above has an immediate need that is best suited to be resolved with energy storage. Based on the Companies Non-Wires Alternative suitability criteria, these projects have an N-0 system capacity overload that need to be resolved in less than 36 months making these projects exempt from NWA consideration.

Q. How do the Companies propose recovery for the energy storage project costs?

A. The Companies propose to recover all development and implementation costs of these energy storage systems as utility-owned assets.

Q. Are the Companies working on any other energy storage collaborations?

A. Yes, the Companies are aware of Binghamton University's New Energy New York Project ("NENY"), which has been selected as one of the country's first awardees for Phase 1 of the American Rescue Plan's Build Back Better Regional Challenge. This

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1 award opens up two opportunities to the University: first, it provides \$500,000 in
2 technical assistance funding for the University to develop its proposal to turn the
3 Southern Tier region into an energy technology hub; and second, it allows the University
4 to compete in Phase 2 of the challenge for up to \$100 million to create a hub for battery
5 manufacturing with national and global impacts. Additional detail can be found in
6 Exhibit __ (ISE-12).

7 Q. How do the Companies anticipate collaborating with Binghamton University on the
8 NENY project?

9 A. The Companies provided a letter of support for the NENY project that details our
10 recognition of the importance of the NENY vision and our excitement to collaborate with
11 the initiative's stakeholders. To support the NENY's Energy Storage Acceleration aimed
12 at establishing New York as the premier destination for realizing energy storage
13 technologies and startups from prototyping to scale-up to manufacturing, NYSEG will
14 provide competitive annual research grants of up to \$500,000 to collaborate with third-
15 parties on new programs for proof-of-concept support, acceleration of nascent and mature
16 startups, and the development of new incubation models and facilities.

17 Q. What will be the cost of the NENY collaboration and how do the Companies propose
18 recovery of the cost?

19 A. The total proposed cost of the NYSEG program is \$500,000 in the Rate Year, and
20 annually thereafter, to support the funding of these competitive research grants. These
21 costs will be recovered in base rates.

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1 Q. Are the Companies pursuing any federal funding to help support the costs of these energy
2 storage projects?

3 A. Yes, the Companies are reviewing the recently announced Infrastructure Investment and
4 Jobs Act (“IIJA”) for potential energy storage projects, and initiatives under the Electric
5 Grid Reliability and Resilience, Development, and Demonstration provisions.¹⁴ Any
6 federal funds the Companies receive will be used to offset project costs to customers.

7 Q. Are there incremental resources required to manage and support the portfolio of energy
8 storage projects and initiatives?

9 A. Yes, in anticipation of significant energy storage market growth over the upcoming years
10 it is important for the Companies to develop proactively the resources and processes to
11 help optimize storage value for our customers' benefit. Project implementation will
12 require three incremental FTEs to directly support development and deployment of the
13 existing and new energy storage projects and related activity. All three FTEs will split
14 their time between NYSEG and RG&E. The Manager will be dedicated to the
15 development of internal and external processes to help facilitate energy storage
16 development in the Companies' service territories, the management of storage-related
17 stakeholder engagement, and the management of current and future energy storage RFPs
18 and procurements. The Lead Engineer will be responsible for the technical aspects of
19 energy storage including the viability of current and future technologies, storage related

¹⁴ The IIJA was signed into law on November 15, 2021. IIJA programs have different timelines for implementation and will help guide prioritization and various stakeholder outreach. Section 40103 provides \$5 billion may be available for the Department of Energy to provide funding assistance to states, Public Utility Commissions, local governments, or Tribes to demonstrate innovative approaches to transmission, storage, and distribution infrastructure to harden and enhance resilience and reliability.

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1 local and national industry standards, interconnection, and assist internal and external
2 projects on technical matters related to storage. The Project Manager will be utilized to
3 help manage internal and external storage-related projects and technology
4 demonstrations, assist with the development of identifying beneficial storage locations
5 within the Companies' service territories, and help with operational oversight of the
6 current and future storage assets.

E. Innovative Collaborations, Partnerships, and Pilot Projects

8 Q. What projects are the Companies proposing related to innovative collaborations,
9 partnerships, and pilot projects?

10 A. In this subsection, the Companies: 1) provide updates on existing REV demonstrations;
11 2) propose new pilots including a Rochester Hydrogen Blending Pilot, which will allow a
12 major customer to reduce natural gas consumption and decarbonize operations, while
13 providing a valuable learning experience for RG&E; 3) propose the Ithaca Electrification
14 Program, which includes a comprehensive and collaborative effort to support the City of
15 Ithaca's goal to achieve carbon neutrality by 2030; and 4) discuss innovative partnerships
16 and collaborations, which will leverage the expertise of the institutions in our
17 communities, and global opportunities.

18 Q. How do the proposed innovation projects support the goals of the CLCPA?

19 A. Collectively, the innovation proposals and efforts enable the Companies to test their
20 programs and technologies under highly controlled settings to evaluate performance, sort
21 through any emergent issues, identify opportunities for additional research and
22 development, and compile lessons learned. These innovative collaborations, initiatives,
23 and pilots allow the Companies to efficiently identify energy innovations that can be

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scaled to advance important programs including DER integrations, beneficial electrification programs, and customer engagement programs critical to achieving CLCPA goals.

Q. Have past demonstration projects impacted current and future planning?

A. Yes. These projects have helped to identify and build understanding of technology along with customer and market needs related to various DERs. Furthermore, these projects have helped inform and develop current program plans in several areas including energy efficiency programs, demand response programs, interactions with DER service providers, distribution system management, customer engagement, and energy storage.

1. Existing Innovative Pilots

Q. What are the Companies' current pilots and how do you propose to treat their costs?

A. The Companies are implementing several energy storage pilots and demonstrations as well as a Flexible Interconnection Capacity System ("FICS") pilot. The Companies will continue to follow the guidance provided in the REV Framework Order. The REV demonstration program incremental costs and fees not otherwise included in base delivery rates would be deferred as a regulatory asset, which would be recovered in the Companies' next rate case filing.

2. New Pilots: Rochester Hydrogen Blending and Smart Meter - Smart Inverter

Q. Do the Companies propose to launch any hydrogen pilots?

A. Yes. RG&E proposes to launch a Hydrogen Blending Pilot Project in the City of Rochester.

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1 Q. Please provide a summary of the Hydrogen Blending Pilot Project.

2 A. RG&E is partnering with RED Rochester, LLC (“RED”) to blend up to 20% hydrogen
3 into RED’s power and heat generation units that run on natural gas. The goal of the
4 project is to reduce RED’s greenhouse gas (“GHG”) emissions and evaluate the ability of
5 existing natural gas fired technologies to blend and combust hydrogen in an efficient
6 manner. The results will inform RG&E on potential opportunities for its industrial gas
7 customers in sectors that are difficult and costly to electrify to decarbonize their
8 operations cost-effectively.

9 Q. Please describe RED and its relationship with RG&E.

10 A. RED¹⁵ is RG&E’s single largest customer, a small utility which provides heat, power,
11 and steam through a combined heat and power plant, and a variety of additional utility
12 services to more than 114 industrial customers located within Eastman Business Park in
13 Rochester. RED is pursuing carbon dioxide emission reduction strategies while
14 leveraging its considerable natural gas infrastructure. As part of this pilot project, RED
15 will allow for blending equipment to be installed in their facilities and will provide the
16 internal combustion equipment for hydrogen blending trials. RED will work closely with
17 RG&E to develop a project design that has minimal impact on their operations and their
18 customers, while still ensuring essential data gathering.

¹⁵ In 2018, RED converted their on-site energy generation facility from coal to natural gas, retrofitting existing boilers and adding new equipment; at that time RG&E constructed a dedicated natural gas pipeline serving RED’s processes with approximately 1,800 mcfh of natural gas at a pressure of 120 psig MAOP, regulated to 40 psig for their fuel lines.

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1 Q. Please elaborate on the scope envisioned for the hydrogen pilot.

2 A. The scope of the pilot would include multiple phases; the initial three phases allow for
3 testing the impact of hydrogen concentrations on end-use industrial equipment. During
4 the testing stage, hydrogen would be delivered to the site or produced with a small scale
5 electrolyzer coupled with storage to perform short-duration tests lasting a few hours.
6 Test results will be used to determine the appropriate concentration of hydrogen blend for
7 the fourth phase of the project and determine an optimally-sized electrolyzer, which will
8 be installed on-site to provide continuous supply of clean hydrogen to RED. RG&E will
9 own, operate and maintain the electrolyzer.

10 Q. Why is RG&E proposing to implement this pilot project in phases?

11 A. By phasing the project to include isolated testing first, followed by larger-scale hydrogen
12 blending to the entire facility, RG&E can ensure that all impacted equipment, appliances,
13 and system operators are appropriately prepared for hydrogen blending. Each phase will
14 be individually evaluated for impact to RED and ratepayers, and will be designed to
15 maintain the highest level of safety, efficiency, and reliability with minimal impact to
16 customers.

17 Q. What is the status of the pilot development?

18 A. Currently, RG&E is working with RED, FuelCell Energy (“FCE”) and the Electric Power
19 Research Institute (“EPRI”) to execute a memorandum of understanding that outlines
20 each partner’s responsibility and financial and resource commitments. The parties are
21 also working on details related to the execution of the testing phases (Phases 1, 2 and 3),
22 including but not limited to testing timeline, safety procedure, blending skid design,
23 engineering and procurement, and hydrogen supply.

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1 Q. Has RG&E identified any other end-use applications once Phase 4 of the pilot project is
2 commissioned?

3 A. RG&E aims to leverage the 20 MW electrolyzer that will be installed in this pilot project
4 to deliver hydrogen to multiple off takers, as part of a larger hydrogen hub in the area.
5 RG&E is working closely with NYSERDA to identify additional hydrogen demand
6 across New York. RG&E is currently in early discussion with RTS about converting
7 some of their city transit buses to hydrogen fuel cell buses, as well as the Rochester
8 Airport with regard to retrofitting their ground vehicles to hydrogen fuel cells.

9 Q. How does the hydrogen pilot benefit the Companies' ability to enable a clean energy
10 future and in turn, benefit customers?

11 A. The benefits of the hydrogen pilot project include: 1) alignment with CLCPA goals; 2)
12 investigation of decarbonization of natural gas infrastructure; 3) advancing the
13 Companies' capabilities; and 4) investigation of natural gas peak consumption reduction.
14 More detail can be found in Exhibit __ (ISE-13).

15 Q. What proposed capital and O&M expenditures has RG&E included for the hydrogen
16 blending pilot in this rate proceeding?

17 A. For this rate proceeding, RG&E proposes a capital budget of \$2 million in the Rate Year,
18 with \$6 million and \$12 million required in the subsequent two years, respectively. In
19 addition, to cover the operational and maintenance expenditures for the proposed
20 hydrogen pilot, RG&E estimates total O&M expense of approximately \$1 million total
21 with \$200,000 and \$800,000 required in the two years subsequent to the Rate Year,
22 respectively. RG&E is still working with RED, FCE and EPRI to determine the detailed
23 bill of quantity for equipment, engineering, construction, and commissioning costs. In

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1 addition, while RG&E is actively investigating opportunities to secure state and federal
2 funding for this project, the prospects of success of those efforts are uncertain.

3 Q. Is RG&E proposing any incremental positions to manage the hydrogen blending pilot
4 efforts?

5 A. Yes, RG&E is proposing one incremental FTE, a Program Manager - Green Hydrogen, to
6 support the development, construction, and ongoing management of the pilot project.
7 The FTE will coordinate all activities between RG&E's subject matter experts, as well as
8 the RED, FCE, and EPRI teams. The FTE will lead the team in drafting any future
9 proposals that aim to secure federal and/or other external funding sources. In addition,
10 the FTE will be responsible for facilitating meetings and communication with Staff
11 regarding the results and analysis of each phase of the project. The FTE will lead the
12 development of internal and external processes to help facilitate future hydrogen
13 development in the Companies' territories and manage hydrogen-related stakeholder
14 engagement.

15 Q. Does New York State have goals and/or policies related to hydrogen?

16 A. Yes, the CLCPA's Draft Scoping Plan recognizes that hydrogen will play a role in the
17 State's comprehensive decarbonization strategy.

18 Q. Are the Companies proposing any other pilots?

19 A. Yes. The Companies are proposing to execute a Smart Meter – Smart Inverter (“SMSI”)
20 Interface Pilot. This pilot would leverage the Companies' collaboration and research
21 with Rochester Institute of Technology (“RIT”) and two vendors to deploy a low-cost
22 monitoring and control DER gateway in the field. The previous research was performed
23 within a controlled lab environment. This project takes the next step with a field

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1 deployment. The monitoring and control signals would be passed through the
2 Companies' AMI network to reduce the need for additional communications equipment.
3 The scope of the project includes the deployment of the technology at 15 sites throughout
4 the Companies' service territories. Additional details may be found in Exhibit __ (ISE-
5 14).

6 Q. What is the proposed cost of the SMSI Interface Pilot and how do the Companies propose
7 cost recovery?

8 A. The proposed cost of the SMSI Interface Pilot is \$932,500 in capital cost to cover the
9 deployment of 15 Smart Meter - Smart Inverter interface technology prototypes in the
10 field and \$120,000 for O&M. These costs are included in the revenue requirements and
11 proposed to be recovered in base rates.

12 Q. Are the Companies proposing incremental positions to execute the Companies' SMSI
13 Interface Pilot?

14 A. Yes, the Companies require just over six incremental FTEs across the business areas to
15 design, deploy, install, and commission the various installations. Specifically, the FTEs
16 will be responsible for designing the end-to-end telecommunications infrastructure,
17 architecting, and assessing cybersecurity, interfacing the smart inverter with the smart
18 meter, overall project management, and monitoring performance after installation. Once
19 the installations are complete, the Companies require slightly over one FTE to support the
20 ongoing operation and maintenance of the installations.

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3. Ithaca Electrification Program and Other Pilots

Q. What other pilot projects do the Companies propose to launch in this rate plan?

A. The Companies are proposing to launch several pilot projects as part of the Ithaca Electrification Program collaboration, and several other pilots outside of Ithaca to advance innovation. The Ithaca Electrification Program and Other Pilots include: 1) Demand Side LMI HVAC Management; 2) Geothermal District Energy System Pilot; and 3) Community Heat Pump System Studies. In addition, other pilot projects include REV Connect pilots, academic institution collaborations, and global innovation challenge pilots.

Q. Please describe the Companies' Ithaca Electrification Program.

A. The Companies are closely collaborating with the City of Ithaca and are taking steps to align long-term system planning with Ithaca's needs, assessing opportunities to leverage non-ratepayer funds, and proposing to launch projects all with the intent to support the City of Ithaca's Green New Deal¹⁶ and Energy Efficiency Retrofit and Thermal Load Electrification Program goals.

Q. What is the objective of the City of Ithaca's Energy Efficiency Retrofit and Thermal Load Electrification Program?

A. The objective is to promote energy efficiency retrofits and elimination of fossil fuel combustion for building energy. Further, the program aims to gradually improve the overall energy performance of the city's building stock by assessing each individual

¹⁶ The Ithaca Green New Deal goals include the following: 1) Achieve carbon neutrality community-wide by 2030; 2) Meet the electricity needs of City government operations with 100% renewable energy by 2025; 3) Reduce emissions from City vehicle fleet by 50% by 2025; 4) Ensure the benefits are shared among all local communities to reduce historical social and economic inequities; and 5) Facilitate a comprehensive public engagement process.

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1 building and determining potential energy efficiency improvements, through energy
2 retrofitting and the substitution of non-electric thermal loads and air conditioning systems
3 with air-source and ground-source heat pumps, and the installation of efficient lighting,
4 photovoltaic and solar thermal systems, onsite storage, smart thermostats and smart
5 meters.

6 Q. How are the Companies aligning long-term system planning with Ithaca's needs?

7 A. In collaboration with the City of Ithaca, the Companies have developed an initial
8 electrification load model that assesses expected loads and system impacts with timing
9 aligned with Ithaca's electrification targets. The initial electrification load model will be
10 enhanced over the next year through the Future Grid Project, where the Companies,
11 Ithaca, Siemens PTI, and Cornell University will work collaboratively to forecast and
12 assess system impacts from building and vehicle electrification and distributed
13 generation.

14 Q. Does the distribution and transmission system have enough available capacity to
15 accommodate the expected increased load?

16 A. There are system constraints associated with both the existing system load and the
17 projected future load. Projects are planned to resolve these constraints, and they have
18 been scheduled with the specific intent to prevent impediments to Ithaca's electrification
19 targets. These projects ("Phase 1 Projects") were planned before the recent electrification
20 load model was developed (see Direct Testimony of the Electric and Common Capital
21 Expenditures Panel). The projects have the added benefit of creating sufficient system
22 capacity to accommodate the electrification load increases over the next three to five
23 years. Beyond the three- to five-year time frame, additional constraints are expected.

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1 The Companies are coordinating with the City of Ithaca to improve the electrification
2 load forecast and to plan future investments (“Phase 2 Projects”) as required to prevent
3 electrical system constraints from inhibiting the electrification targets.

4 Q. How will the Companies leverage non-ratepayer funds?

5 A. The Companies are already leveraging non-ratepayer funds through the Future Grid
6 Challenge, which is funded by NYSERDA. The Companies, working collaboratively
7 with Ithaca, are evaluating opportunities to jointly apply for federal funding that will help
8 pay for end use technologies and the grid infrastructure requirements to support these
9 new loads. The shared efforts between Ithaca and the Companies will create a national
10 example of what is possible for community decarbonization.

11 Q. Please describe the Demand Side LMI HVAC Management Pilot.

12 A. This project will partner with NYSERDA and their award recipient¹⁷ to pilot HVAC
13 management device implementation in the low- to moderate-income (“LMI”) community
14 to enable and evaluate energy and cost savings, carbon reduction, smart control, and
15 energy usage insights. The HVAC management device uses innovative Automatic
16 Energy Reduction (“AER”) algorithms, which make it the only heating and cooling
17 controls device proven to deliver residential energy use reduction without the need for
18 consumer intervention. Using tailored Application Programming Interfaces (“APIs”), the
19 device will share data and provide the Companies with a level of visibility and control to

¹⁷ NYSERDA made the award to the device manufacturer Hub Controls with the intent to pilot the devices and produce a final report on the benefits of the device for the customers, the Companies, and municipal and state carbon reduction goals. The deliverables from the NYSERDA-funded independently verified report include HVAC energy use and greenhouse gas reductions, market/consumer behavior, market insights and validation, and benefits for all stakeholders.

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1 enable identification of beneficial energy efficiency programs for customers. The HVAC
2 management device collects 97,000 energy use data points per home per year and can tell
3 if the home is poorly insulated, could use a heating system upgrade, or if the temperature
4 is changed inefficiently. The AER algorithms, data gathering, and energy management
5 capabilities are all wrapped up in an easy to navigate device resembling a smart
6 thermostat. Additional project information for the Demand Side LMI HVAC
7 Management Pilot may be found in Exhibit __ (ISE-15).

8 Q. What is the proposed cost of the Demand Side LMI HVAC Management Pilot and how
9 do the Companies propose recovery of the cost?

10 A. The total cost of the program is \$340,000 in capital expenditures to cover 500 HVAC
11 management devices and approximately \$140,000 in O&M expenditures to support
12 device integration and monitoring. These costs are included in the revenue requirements
13 and recovered in base rates.

14 Q. Will these pilot projects aimed at supporting the City of Ithaca's electrification goals be
15 scalable to other New York municipalities?

16 A. Yes. While Ithaca is one of the leading U.S. cities to begin to fully decarbonize all its
17 buildings, it cannot be the last New York urban area if New York is to achieve the goals
18 of the CLCPA. A close collaboration with the City of Ithaca and energy stakeholders
19 will provide a guiding model for other urban regions in the Companies' service
20 territories.

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1 Q. Do the Companies propose to pilot any projects not directly related to Ithaca's Green
2 New Deal goals?

3 A. Yes, per the Joint Proposal approved by the Commission in the 2019 Rate Case ("2020
4 Joint Proposal"), NYSEG and RG&E retained a vendor with experience in geothermal
5 district energy systems and heat pump heating and cooling solutions to assist in
6 developing a study to examine the feasibility of deploying geothermal district energy
7 systems in its respective service territory, and to develop plans for subsequent pilot
8 projects where feasible. The geothermal district energy feasibility study was completed
9 in Q1 2022 and, as required in the 2020 Joint Proposal, NYSEG is proposing this pilot
10 project which will be located in its Ithaca division. Further details regarding the selected
11 pilot project can be found in the Non-Wires and Non-Pipes Alternatives Panel testimony.

12 Q. Beyond the District Geothermal Heat Pump pilots authorized by the 2020 Joint Proposal,
13 will the Companies launch additional pilots evaluating Community Heat Pump Systems?

14 A. Yes. Currently, the Companies are supporting three Community Heat Pump System
15 Studies for the City of Oneonta, SUNY Oneonta, and the Oneonta Railyards. These were
16 awarded funding through NYSERDA's Program Opportunity Notice ("PON") 4614 for
17 Community Heat Pump Systems. For these projects, the Companies are providing
18 subject matter expertise, project review, and data including natural gas and electricity
19 consumption data. At present, the Companies have provided letters of support for two
20 additional Community Heat Pump System studies and anticipate providing similar levels
21 of support for the funded projects.

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1 Q. What is the incremental funding required to support the Geothermal Pilot Evaluation
2 Support?

3 A. Incremental funding to support the Geothermal Pilot evaluation is estimated at a total
4 annual O&M spend of approximately \$66,500 (NYSEG) and \$33,500 (RG&E) in the
5 Rate Year and thereafter to support this effort. This estimate has been included as part of
6 the Companies' revenue requirements calculations.

7 Q. What do the NYSERDA funded Community Heat Pump System Studies seek to achieve?

8 A. The objective of the NYSERDA-funded projects is to advance community thermal
9 networks that harness geothermal and waste energy to heat and cool buildings and reduce
10 carbon emissions. The studies will provide recommendations for the most appropriate
11 type of cost-effective district geothermal solution for each of the three areas.

12 *4. Innovative Partnerships and Collaborations*

13 Q. Are the Companies proposing to fund REV Connect innovation initiatives?

14 A. Yes. The Companies propose funding to continue participating in the REV Connect
15 initiative that encourages partnerships between New York's utilities and companies to
16 accelerate innovation and the development of new business models. The REV Connect
17 online portal provides vendors and solution providers with a single place to review the
18 Companies' postings of areas of interest. The postings draw proposals from the market
19 using a one-page submission. The submissions go to Guidehouse consultants who shape,
20 improve and structure proposals and then present the proposal to the appropriate utility.

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1 The utility and vendor/solution provider will collaborate through REV Connect
2 Innovation Sprints.¹⁸

3 Q. What is the incremental funding required to support the REV Connect initiative?

4 A. Incremental funding to support the REV Connect initiative is estimated at a total O&M
5 spend of approximately \$160,000 (NYSEG) and \$80,000 (RG&E) in the Rate Year and
6 (escalated at 2%) thereafter to support the REV Connect effort. This estimate has been
7 included as part of the Companies' revenue requirements calculations.

8 Q. Beyond the REV Connect initiative, are the Companies proposing other innovation
9 activities?

10 A. Yes. The Companies have been collaborating with academic institutions in their service
11 territories including Cornell, Binghamton University, and RIT to explore and develop
12 new concepts and approaches related to more sustainable generation, distribution, and
13 usage of energy.

14 Q. How do the Companies propose to collaborate on this effort?

15 A. The Companies have shared resources to provide subject matter expertise and energy
16 related data. As appropriate, the Companies and the academic institutions jointly explore
17 and seek financial and institutional support for projects from federal, state, and other
18 sources.

¹⁸ REV Connect Innovation Sprints focus attention on timely and specific utility needs. For each innovation sprint, solution providers are invited to submit ideas within a specific theme and timeframe. Qualified proposals receive feedback and may be invited to an in-person meeting to pursue innovative partnerships. Through 2022 and future innovation sprints, the Companies are seeking to develop mutually beneficial partnerships that may include energy service providers, researchers, municipalities, and others to develop solutions intended to support New York's and other municipalities' carbon reduction goals. These solutions may utilize DER to shape load curves, modulate resources, and support grid needs, to cost-effectively realize the goals laid out in the CLCPA, and achieve solutions aimed at decarbonizing the natural gas system and end-uses, such as heating and industrial applications, to meet CLCPA targets.

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1 Q. What is the proposed spend for academic collaborations and how do the Companies
2 propose to treat the recovery of those costs?

3 A. The Companies propose to provide research grants of \$150,000 (Capital) and \$150,000
4 (O&M) in the Rate Year and every year thereafter to support these efforts. The grants
5 would enable education, research, and development by faculty and graduate level
6 research focused on smart grid research and development and overcoming challenges
7 related to planning and deploying electricity generation, transmission, and distribution
8 technologies. The Companies propose to include these costs in base rates. Additional
9 project information is included in Exhibit __ (ISE-16).

10 Q. Please provide examples of initiatives and/or pilot projects that have resulted from
11 academic institution collaborations in the past.

12 A. In 2019, the Companies collaborated with Cornell University on the Smart Home Rate
13 pilot, renamed OptimizEV. This pilot explored a novel approach to coordinated
14 residential EV charging. Cornell researchers designed and delivered the scheduling and
15 charging control algorithm critical to the success of the pilot. Additionally, to support
16 pilots funded by NYSERDA, the Companies collaborated with RIT to test the feasibility
17 of utilizing Smart Meter Infrastructure to interface to a Smart Inverter for monitoring and
18 control purposes and collaborated with Binghamton University to identify optimal
19 location of power distribution system reclosers.

20 Q. Are the Companies able to leverage experience within the Iberdrola Group companies
21 relative to pilot projects?

22 A. Yes, as a member of the Iberdrola Group, the Companies plan to leverage global
23 expertise to bring forward additional learnings and insights that may not be available via

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1 local engagement. We anticipate that these global interactions will allow the Companies
2 to broaden its innovative reach and learnings, have access to global thinking in the form
3 of start-up proposals, and potentially apply beneficial solutions to our own approaches
4 and processes, ultimately leading to lower cost and better service for our customers.

5 Q. What are the Companies proposing and how does it benefit customers?

6 A. The Companies propose to participate in a Global Innovation Challenge (“GIC”). In
7 collaboration with Iberdrola’s Global Smart Grids Innovation Hub,¹⁹ the Companies
8 propose to launch and implement a global start-up challenge which would result in a
9 potential pilot project or development of a prototype aimed at meeting an opportunity
10 identified by the Companies’ modernization roadmaps. Participating in the GIC provides
11 the opportunity for the Companies to present their challenge to a global network of
12 innovators looking to solve challenges arising when modernizing the electric grid to meet
13 future needs while maintaining safety and reliability.

14 Q. Please provide a brief description of the recent Global Innovation Challenges.

15 A. In 2021, Avangrid launched an EV Fleet Web Assessment. The challenge sought to
16 define a tool, available for customer use on utility websites, that could help fleet
17 operators assess feasibility, costs, and benefits of converting their fleets to electric
18 vehicles. In 2019, Avangrid launched a challenge to support our resiliency strategy and
19 piloted drone technology to gather images and detect any risk to the transmission and
20 distribution powerlines both manually and through artificial intelligence (“AI”).

¹⁹ Iberdrola’s Global Smart Grids Innovation Hub is a global innovation and knowledge center that is a world reference in smart grids and able to quickly assemble collaborators to respond to the challenges of the energy transition. The center acts as a driving platform for innovation, combining world class technological capacity with that of collaborators, suppliers, universities, technology centers and startups. Costs for the GIC are split among Avangrid’s electric distribution networks.

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Q. What are the proposed innovation budgets for the GIC initiatives and how are the Companies proposing to treat these costs?

A. For this rate plan, the Companies propose a budget of \$50,000 (O&M) split evenly between NYSEG and RG&E for the Rate Year, and every year thereafter to support these efforts with additional project information included in Exhibit __ (ISE-17). The Companies propose to include these costs in base rates.

F. Advanced Data Analytics - IEDR

Q. What are the programs in the Advanced Data Analytics area and how do they advance CLCPA goals?

A. The Advanced Data Analytics programs support efforts related to the IEDR platform, the Data Access Framework (“DAF”), and the Utility Energy Registry (“UER”). The programs would enable effective access to useful energy data, unleashing the power of integrated energy customer data and energy system data to speed the deployment of clean energy solutions. This will attract investment, enable analytics, help identify operational efficiencies, promote innovation, and encourage new business models, which will in-turn create value for customers and support the CLCPA’s clean energy goals.

Q. Has the Commission issued any new directives or policy guidance related to Advanced Data Analytics since the Companies’ last rate filing?

A. Yes. The Companies note several directives related to Advanced Data Analytics. In a February 11, 2021 Order in Case 20-M-0082 (“IEDR Order”), the Commission directed the implementation of an IEDR that securely collects, integrates, and provides useful access to a large and diverse set of energy-related information on one statewide data platform. In an April 15, 2021 Order in Case 20-M-0082, the Commission adopted a

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1 DAF²⁰ that serves as a single source for statewide data access requirements and provides
2 uniform and consistent guidance on what is needed for access to energy-related data,
3 including the availability of such data. In an August 12, 2021 Order in Case 20-M-0082,
4 the Commission established a UER working group, identified refinements and additions
5 to the structure of UER reported data fields, and rebalanced the application of UER use
6 case specific privacy screens in an effort to increase access to energy-related data as that
7 data is a key component for more efficient and engaged energy planning and markets.

8 Q. What is the status of the Companies' implementation of the IEDR?

9 A. In the IEDR Order, the Commission established a two-phase schedule for implementing
10 the IEDR, with Phase 1 implementation expected to be operational on or about August
11 11, 2023. Currently, the Companies are working towards supporting the NYSERDA
12 Project Implementation Plan for Phase 1. Additional detail around the Companies' IEDR
13 project status and plan has been included as Exhibit__ (ISE-18).

14 Q. What have the Companies included in this rate filing for the IEDR project?

15 A. The IEDR Order established maximum budget levels for each utility's Phase 1 IEDR
16 implementation, setting the Companies' estimated budgets at \$12 million.²¹ Budget
17 estimates include costs associated with external services and capitalization of internal

²⁰ The DAF incorporates the existing Commission-established data access requirements to date, including cybersecurity and privacy requirements, and establishes data quality and integrity standards criterion to be met by the utility, or data custodian, for application or use case specific purposes. Releasing readily available energy-related data by means of useful access mechanisms will support New York in meeting its clean energy goals and facilitate the objectives of the CLCPA. The ability of market participants to deliver smart, economically sound energy solutions and the ability of customers to share their energy usage data, will animate markets, facilitate customer choice, and provide systemic benefits to all New Yorkers.

²¹ The Joint Utilities filed a Petition for Clarification on March 15, 2021, regarding the allowance for allocations between multiple companies under the same corporate umbrella. To date, the Commission has not ruled on this petition. Resolution of the matters raised in the petition will facilitate cost allocation between NYSEG and RG&E.

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labor. To date, incremental expenditures have been minimal and represent internal labor hours to accomplish initial activities. The expectation is that expenditures will ramp up during implementation until Phase 1 is completed. A detailed breakdown of the estimated Phase 1 capital requirements is set forth in Exhibit __ (ISE-18).²²

The total capital expenditures for the three years totals \$12.19 million and the estimated in-service date for the investments is December 31, 2023.

Q. Have the Companies proposed O&M cost requirements for IEDR in this rate proceeding?

A. Yes. Total O&M is estimated at \$1.056 million, which is required for data storage and data transfer in the Rate Year and the two subsequent years. Additional IEDR O&M requirements are set forth in Exhibit __ (ISE-18).

Q. Do the Advanced Data Analytics (IEDR, DAF, UER) projects require additional FTEs?

A. Yes. The Companies have been working to establish an IEDR and DAF Implementation Team to support implementation of a successful program, which will necessitate extensive utility engagement. Therefore, the Companies are proposing to hire three incremental FTE resources: a Project Manager, a Principal Data Scientist and a Senior Data Engineer. The project manager, an RG&E FTE, will manage all aspects of the Business Project Management Office and serve as the Business Technical lead, i.e., working with the data and system owners across the enterprise to build the IEDR platform. The Principal Data Scientist, a NYSEG FTE, will be responsible for performing necessary analytics with the data. The Senior Data Engineer (allocated 67%

²² Funding for Phase 2 of the IEDR will be the subject of future Commission action. The capital expenses needed for Phase 2 are expected to have an in-service date of December 31, 2026, which is beyond the timeline of this rate case.

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(NYSEG) / 33% (RG&E)) will be focused on creating the necessary connections between the systems for data flow.

Q. How are the Companies' intending to split the costs between the two operating Companies in New York?

A. The Joint Utilities filed a Petition for Clarification on March 15, 2021, regarding the allowance for allocations between multiple companies under the same corporate umbrella. To date, the Commission has not ruled on this petition. However, the Companies approach to the cost split between NYSEG and RG&E is 65% and 35%, respectively, according to the number of customers in each service territory.

Q. How are the Companies proposing to account for and recover the costs associated with the Data Access Framework ("DAF")?

A. The Companies propose that incremental DAF costs incurred during the rate period, which will include implementation, or start-up, and ongoing operation and maintenance costs, be deferred as a regulatory asset with carrying charges applied on the net of tax balance at each utility's pretax overall cost of capital until fully recovered. The Companies propose that the incremental costs incurred, and associated carrying charges, continue to be deferred for future recovery as determined by the Commission.

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G. Grid Model Enhancement Project

Q. What is the Grid Model Enhancement Project's ("GMEP") purpose and why is it foundational to the Companies clean energy efforts?

A. The GMEP²³ is the Companies' response to the urgent and critical need for increased access to accurate data pertaining to their electric distribution infrastructure. It is aimed at enabling a data driven improved analysis, monitoring, control, planning and forecasting of the electric distribution system. GMEP is foundational to the Companies' DSIP. The result of the GMEP will be a complete distribution model including network load and DER characteristics. The information in the GMEP will feed the Distribution Planning Tools to support effective planning (including NWA analysis), calculate hosting capacity, and analyze interconnection requests. The data will also feed the ADMS as the basis for power flow calculations for optimization and congestion management.

Q. What is the status of the GMEP?

A. The Companies are following the guidance set forth in the 2020 Joint Proposal. The project has kicked-off a dedicated project team in June 2021. Key project management plan deliverables have been produced, presented and governance has been established for the project. A Request for Information including a Pilot Field Survey on a selected circuit is underway with the engagement of several qualified and experienced vendors, in preparation of the large-scale comprehensive field survey planned. Additional GMEP status and plan details have been included as Exhibit __ (ISE-19).

²³ The scope of the GMEP entails two intertwined efforts which include a comprehensive field survey of the entire distribution network from substations to customer service connections, the development and implementation of streamlined processes covering the whole life cycle of the distribution assets, and the capture and storage of their data in the system of record.

DIRECT TESTIMONY OF INNOVATION, SMARTGRIDS AND EV PANEL**H. Distributed System Platform (“DSP”) Roadmap**

Q. What is the DSP and how are the initiatives organized?

A. The DSP is the platform of tools, technologies, and services that the Companies are implementing to integrate DER more fully into electric distribution system planning and operations. The Companies have organized the technology²⁴ initiatives in five categories which include: 1) Advanced Metering; 2) Grid Automation and Management; 3) Integrated Planning Tools; 4) Enterprise Data and Analytics; and 5) Clean Energy Integration. The initiatives are further described in Figure 1.

Figure 1: Distributed System Platform Technology Initiatives

Technology Initiative	Purpose
Advanced Metering	• More detailed measurement of electricity consumption and production to provide better information to customers to manage their energy • Operational information such as outage notifications, delivered voltage quality and meter tampering to help provide enhanced service for customers • Faster reconnection and disconnection services for customers
Grid Automation and Management	• Monitoring, control and management of the distribution network to achieve reliability, efficiency, and cost effective integration of DERs • Decision support system to assist the control room and field operating personnel • Remote/automatic control of switching and voltage control equipment
Integrated Planning Tools	• Improve forecasting of electricity consumption and DER production and advanced distribution system planning • Increase the precision and speed of hosting capacity and DER integration studies • Facilitate coordination between local (utility) and bulk (ISO/RTO) system planning
Enterprise Data and Analytics	• Turn “big data” into actionable information • Help create valuable energy information for customers • Help better visualize, optimize, and operate the grid
Clean Energy Integration	• Support integration, coordination, and optimization of energy storage, small scale solar, and EVs • Develop automated mechanism for DER connection requests • Improve management and visibility of DERs on the system

²⁴ The technology projects presented in the NYSEG and RG&E Roadmap seek to enable and enhance customer facing initiatives (e.g. electric vehicles, distributed generation, and energy storage, etc.) with utility facing initiatives (AMI, OMS, GIS, etc.). The five Platform Technologies rely on telecommunications and cybersecurity systems to securely transfer data and/or commands. More details regarding the underlying telecommunications and cybersecurity platforms can be found in the Electric and Common Capital Expenditures Panel.

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1 Q. How does the DSP aid in the clean energy transition?

2 A. The CLCPA's clean energy targets require that 70% of statewide electric generation
3 come from renewable resources by 2030. In addition, the CLCPA set renewable resource
4 procurement targets. The Companies' DSP will help New York State achieve these goals
5 as it will provide customers with greater control over their energy usage and total energy
6 bills, and aid developers and other market participations with the necessary information
7 to make investment decisions. Through the DSP, the Companies will facilitate the
8 integration of DER resources, including solar and wind, into the Companies' distribution
9 system. The Companies' DSP actions and initiatives have been documented since 2016
10 in its bi-annual filings, most recently detailed in the 2020 DSIP with an update planned to
11 be filed by December 31, 2022.

12 Q. Is this Panel supporting any of the Companies' proposed DSP technology investments?

13 A. Yes, we address investments in: 1) Integrated System Planning; and 2) Clean Energy
14 Integration.

15 Q. What projects are the Companies proposing in the Integrated System Planning category
16 for this rate proceeding?

17 A. The Companies are proposing the following projects in the Integrated Planning Tools
18 category²⁵ for this rate proceeding: 1) CYME Server; 2) Advanced Load and DER
19 Forecasting; and 3) Interconnection Tools Enhancements.

²⁵ In aggregate, the Integrated Planning Tools are expected to deliver the following benefits: Deferral or avoidance of T&D capacity investments; improvement of network efficiency; and reduction in GHG emissions by informing clean energy integration.

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1 Q. Please describe the CYME Server project.

2 A. The CYME Server project includes procurement and commissioning of hardware and the
3 real-time capabilities of the Companies' distribution engineering analysis software. The
4 software is designed to interface with other systems and automate the engineering
5 analysis related to load and DER capacity planning. It also interfaces with the
6 Interconnection Portal to provide automating interconnection technical screens and with
7 the Geographical Information System ("GIS") to facilitate more timely updating of
8 Hosting Capacity Maps. Additional details may be found in Exhibit __ (ISE-20).

9 Q. What is the proposed budget for the CYME Server and how do the Companies propose to
10 treat the recovery of those costs?

11 A. The proposed budget for the CYME Server project is \$325,000 in the Rate Year. The
12 Companies have included these costs in revenue requirements and propose recovery
13 through base rates.

14 Q. Please describe the Advanced Load and DER Forecasting effort.

15 A. The Advanced Load and DER Forecasting effort is designed to improve the granularity
16 of load and DER forecasting in terms of time and location. The scope of the project
17 entails evaluating commercially available forecasting applications in terms of
18 functionality and ease of use in terms of load and DER forecasting. In addition, one
19 incremental staffing resource is required to enable granular forecasting for both NYSEG
20 and RG&E load and DER forecasting activities. The role of the additional FTE will
21 include not only developing the forecasts, but also performing loading research to inform
22 the forecasts. Additional details may be found in Exhibit __ (ISE-21).

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Q. What is the proposed cost for the Advanced Load and DER Forecasting effort and how do the Companies propose to treat the recovery of those costs?

A. The proposed cost for the Advanced load and DER Forecasting project is \$264,500 (Capital) and \$27,000 (O&M). The Companies have included these costs in revenue requirements and propose recovery through base rates.

Q. Please describe the Interconnection Tools Enhancements effort.

A. The Interconnection Tools Enhancements include: 1) Interconnection Portal Enhancements; and 2) Interconnection Screening Automation. The effort is designed to validate data entry upon interconnection application submission, improve the stakeholder experience, and automate the processing of technical screens. Additional details may be found in Exhibit __ (ISE-22) and Exhibit __ (ISE-23).

Q. What is the proposed budget for the Interconnection Tools Enhancements effort and how do the Companies propose to treat the recovery of those costs?

A. The proposed cost for the interconnection tools enhancement is approximated at \$75,000, subsequent to RY1, for O&M expenditures split equally among NYSEG and RG&E. The Companies have included these costs in revenue requirements and propose recovery through base rates.

Q. What projects are the Companies proposing in the Clean Energy Integration category within the rate period?

A. The Companies have included: 1) Flexible Interconnection Capacity Solution ("FICS") Scalability project; and 2) EPRI membership.

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1 Q. Please describe the FICS Scalability project.

2 A. The FICS Scalability project scales the innovative flexible interconnection capacity
3 solution approach²⁶ piloted as a REV demonstration project to additional sites which will
4 allow for an alternative means of safe and reliable DER interconnections.²⁷ The project
5 entails leveraging real-time system operational data and commanding DER assets to
6 curtail as needed to ensure the electric system is operating within specified thermal,
7 voltage or other parameters. Proposed investment includes the expansion of the current
8 demonstration licensing, maintenance, and support costs to include additional substations
9 and DER sites. The project scope also includes installing grid edge devices to act as the
10 control interface between the Companies' head-end system and the DER facility.
11 Included in the project plan is on-going maintenance and support activities.

12 Q. What is the proposed budget for the FICS Scalability project and how do the Companies
13 propose to recover the costs?

14 A. The proposed budget for the FICS Scalability project is \$1 million (Capital) to cover the
15 incremental licensing costs of additional substations and DER facilities interconnected to
16 these substations. The Companies propose that costs associated with the FICS Scalability

²⁶ Flexible Interconnections supported by technology, also known as Active Network Management ("ANM"), monitors system constraints in real time and takes action to ensure electric system operating parameters are not breached. The action typically includes curtailing the DER asset to a level in which the operating parameters are maintained within pre-defined limits. Depending upon the frequency and level of curtailment, ANM Flexible Interconnections may be a cost-effective alternative when compared to certain traditional system modifications required to allow the DER asset to safely and reliably interconnect. Flexible Interconnections can provide benefits to the DER developer, as well as have the potential to increase the capacity of DER that can be cost-effectively interconnected to a circuit or substations hosting capacity by allowing additional DERs to interconnect. By increasing the amount of DER that can interconnect, Flexible Interconnections can further enable the New York's clean energy goals.

²⁷ Longer term, the Companies intend to provide Flexible Interconnection as part of their standard offering for larger constrained proposed interconnections.

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project be accounted for as follows: 1) Costs associated with the head-end system would be capitalized and included in overall rate base as the head-end system provides for additional clean, interconnected DER which benefits all of the Companies' customers; 2) Costs associated with the initial implementation of the DER interconnection (edge related costs) would be paid by the interconnecting facility owner or developer; and 3) Any ongoing maintenance costs (\$208,800 of O&M throughout the Rate Year and two subsequent years) would be reviewed for potential reimbursement from the interconnecting facility developer or owner. Additional details may be found in Exhibit __ (ISE-24).

Q. Please describe the EPRI Clean Energy Integration collaboration.

A. The Companies propose to join EPRI, an independent, non-profit organization that performs research to advance environmentally-responsible, safe, and reliable electricity for the benefit of its member utilities and the public. The Companies plan to participate in the Energy Storage and Distributed Generation, DER Integration, Electric Transportation, and Electrification research portfolios which present an opportunity for broad collaboration and learnings from leading utilities across the country on innovative, grid transformative subject matter and research. Participation in EPRI provides the Companies with access to technical expertise, training resources and industry collective experiences, which the Companies can leverage to facilitate high levels of DER integration, beneficial transportation electrification and energy storage in support of CLCPA goals. Additional details may be found in Exhibit __ (ISE-25).

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1 Q. What is the proposed cost for EPRI and how do the Companies propose to treat the
2 recovery of those costs?

3 A. The proposed cost for the EPRI membership and collaboration is \$343,000 in RY1 with
4 slight increases in the subsequent two years. The Companies have included these costs in
5 revenue requirements and propose recovery through base rates.

6 Q. Are the Companies' requesting incremental FTEs to support the DSP projects described
7 above?

8 A. Yes, the Companies are requesting one incremental FTE in total for the initiatives
9 discussed in this subsection. This incremental FTE will be responsible for both NYSEG
10 and RG&E load and DER forecasting activities and required to enable granular
11 forecasting. This FTE would develop the forecasts as well as perform load research to
12 inform the forecasts.

13 **V. SUMMARY AND CONCLUSIONS**

14 Q. Can the Panel summarize the total capital investments and operating costs it has
15 requested?

16 A. Yes. Summary tables for capital investments and operating costs are provided below.

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Table 1: Capex Summary**CAPEX - Summary Table (000's)**

Program / Project	OPCO	2023	2024	2025	2026
Transportation Electrification	NYSEG	\$785	\$8,361	\$28,735	
	RG&E	\$336	\$1,009	\$2,018	
Heating Electrification	NYSEG				
	RG&E				
Low Income Clean Generation	NYSEG		\$14,000	\$21,000	
	RG&E		\$6,000	\$9,000	
Energy Storage	NYSEG		\$1,331	\$3,106	
	RG&E		\$5,824	\$13,590	
Innovative Partnerships & Pilot Projects	NYSEG	\$75	\$622	\$489	\$75
	RG&E	\$2,075	\$6,179	\$12,282	\$75
Integrated Energy Data Resource	NYSEG	\$3,898			
	RG&E	\$2,099			
DER Automation, Integrated System Planning & Clean Energy Integration	NYSEG	\$463	\$132		
	RG&E	\$363	\$132		

Table 2: Opex Summary**OPEX - Summary Table (000's)**

Program / Project	OPCO	RY1	Additional Year 1	Additional Year 2
Transportation Electrification	NYSEG	\$700	\$700	\$700
	RG&E	\$300	\$300	\$300
Heating Electrification	NYSEG			
	RG&E			
Low Income Clean Generation	NYSEG			
	RG&E			
Energy Storage	NYSEG	\$559	\$560	\$657
	RG&E	\$32	\$33	\$330
Innovative Partnerships & Pilot Projects	NYSEG	\$417	\$512	\$469
	RG&E	\$459	\$873	\$1,449
Integrated Energy Data Resource	NYSEG	\$191	\$227	\$269
	RG&E	\$103	\$122	\$145
DER Automation, Integrated System Planning & Clean Energy Integration	NYSEG	\$236	\$272	\$379
	RG&E	\$107	\$125	\$195

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Q. Can the Panel summarize the costs proposed to be deferred as a regulatory asset?

A. Yes. The costs proposed to be deferred as a regulatory asset are summarized below.

Table 3: Regulatory Asset Summary

Regulatory Asset - Summary Table (000's)

Program / Project	OPCO	RY1	Additional Year 1	Additional Year 2
Transportation Electrification	NYSEG	\$2,924	\$8,771	\$17,542
	RG&E	\$1,253	\$3,759	\$7,518
Heating Electrification	NYSEG	\$3,881	\$6,751	\$10,305
	RG&E	\$1,648	\$2,867	\$4,375
Low Income Clean Generation	NYSEG			
	RG&E			
Energy Storage	NYSEG			
	RG&E			
Innovative Partnerships & Pilot Projects	NYSEG			
	RG&E			
Integrated Energy Data Resource	NYSEG			
	RG&E			
DER Automation, Integrated System Planning & Clean Energy Integration	NYSEG			
	RG&E			

Q. Finally, can the Panel please summarize the incremental resource needs requested by the Companies?

A. Yes. The incremental FTEs sought by this Panel are summarized below.

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Table 4: FTE Summary

FTE - Summary Table (Cumulative)

Program / Project	OPCO	RY1	Additional Year 1	Additional Year 2
Transportation Electrification	NYSEG	2.5	2.5	2.5
	RG&E	2.5	2.5	2.5
Heating Electrification	NYSEG	1.5	1.5	1.5
	RG&E	1.5	1.5	1.5
Low Income Clean Generation	NYSEG	0.5	0.5	0.5
	RG&E	0.5	0.5	0.5
Energy Storage	NYSEG	1.5	1.5	1.5
	RG&E	1.5	1.5	1.5
Innovative Partnerships & Pilot Projects	NYSEG		2.6	1.8
	RG&E	1.0	4.2	1.6
Integrated Energy Data Resource	NYSEG	1.7	1.7	1.7
	RG&E	1.3	1.3	1.3
DER Automation, Integrated System Planning & Clean Energy Integration	NYSEG	0.7	0.7	1.0
	RG&E	0.3	0.3	2.3

2

3

Q. Does this conclude the Panel's testimony at this time?

4

A. Yes, it does.