STATE OF NEW JERSEY BOARD OF PUBLIC UTILITIES

ocket Nos. GO18101112 and 1113

DIRECT TESTIMONY OF DANTE MUGRACE ON BEHALF OF THE DIVISION OF RATE COUNSEL

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I. INTRODUCTION – STATEMENT OF QUALIFICATIONS

- 2 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.
- A. My name is Dante Mugrace. My business address is 22 Brooks Avenue, Gaithersburg,
 MD 20877.

5 Q. WHAT IS YOUR PRESENT OCCUPATION?

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A. I am a Senior Consultant with the Economic and Management Consulting Firm of PCMG
and Associates, LLC. ("PCMG"). In my capacity as a Senior Consultant, I am
responsible for evaluating and examining rate and rate- related proceedings before
various governmental entities, preparing expert testimony and reviewing and making
recommendations concerning revenue requirement proposals, as well as offering opinions
on economic policy and policy issues and methodologies used to set a value on a utility's
rate base and cost of service components of revenue requirement.

13 Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.

PCMG is an association of experts in utility regulation and policy, economics, accounting and finance. PCMG's members have over 75 years' collective experience providing assistance to counsel and expert testimony regarding the regulation of electric, gas, water and wastewater utilities that operate under local, state and federal jurisdictions. PCMG brings to client engagements a consultative and collaborative approach to the identification of issues and the development of positions with strict adherence to client procedures and deadlines. PCMG focuses on areas regarding revenue requirement, cost of service, rate design, cost of capital and rate of return. We provide overall analyses on various ratemaking concepts, as well as a review of public utility accounting methods

used by various public utilities and State Public Service Commissions. We also evaluate the reasonableness of costs and investments that are used to set rates, and measure the value of rate base, whether those costs are prudent in nature, used and useful and known and measurable in utility operations. Prior to my association with PCMG, I was employed as a Senior Consultant with the consulting firm of Snavely-King Majoros and Associates ("SKM") from 2013 to 2015, in the same capacity as PCMG. Prior to SKM I was employed by the New Jersey Board of Public Utilities ("NJBPU") from 1983 to my retirement in 2011. During my tenure at the NJBPU, I held various Accounting, Rate Analyst, Supervisory and Management Positions. My last position was Bureau Chief of Rates in the Agency's Water Division ("Bureau Chief of Rates"). I held this position for nearly 10 years. My CV is attached as Appendix A.

A.

Q. WHAT EXPERIENCE DO YOU HAVE IN THE AREA OF UTILITY RATE SETTING PROCEEDINGS AND OTHER UTILITY MATTERS?

In my capacity as Bureau Chief of Rates, I was responsible for managing, directing and overseeing the rate process regarding the administrative, financial, and managerial functions of the Rates Bureau. My primary duties were to ensure that the utilities had sufficient revenues to cover their operating expenses, while insuring that those expenses were reasonable in nature, provided benefits to customers and were in accordance with Board policies, standards and prior rate Orders. I also ensured that the utilities had the opportunity to earn a reasonable rate of return on reasonable and prudent plant investments, and that they were providing safe, adequate and proper service at reasonable rates. During my time at the NJBPU, I was involved in hundreds of rate and rate-related proceedings that were resolved through settlement and litigated proceedings.

In my capacity as a Senior Consultant, I was involved in and am currently involved in rate and rate-related proceedings before the Commissions in the Commonwealth of Massachusetts and Pennsylvania and the States of Maine, Maryland, New Jersey, New York, North Dakota, and Ohio. In addition. I was involved in the Generic Proceedings to Establish Parameters for the Next Generation Performance Based Rate Plans before the Alberta Utilities Commission. I am also currently involved in a matter before the Federal Energy Regulatory Commission ("FERC") regarding a Transmission Formula Rate Plan.

9 Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

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I hold a Master of Business Administration ("MBA") degree with a concentration in

Strategic Management from Pace University-Lubin School of Business in New York,

New York. I hold a Master of Public Administration ("MPA") degree from Kean

University in Union, New Jersey. I hold a Bachelor of Science ("BS") degree in

Accounting from Saint Peter's University in Jersey City, New Jersey.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

16 A. I am testifying on behalf of the New Jersey Division of Rate Counsel ("Rate Counsel").

II. SCOPE AND PURPOSE OF TESTIMONY

18 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

On October 11, 2018, the Public Service Electric and Gas Company ("PSE&G" or the "Company") filed a petition ("Petition") with the Board of Public Utilities ("BPU" or "Board") requesting approval of a Clean Energy Future – Energy Efficiency Program on a Regulated Basis (the "CEF-EE Program" or the "Program") (BPU Docket Nos.

GO18101112 and EO18101113). I have been retained by the Rate Counsel to review the Company's filing and provide recommendations on issues relating to the reasonableness on the proposed revenue requirements and cost recovery mechanism. My focus is on the Company's proposed overall recovery mechanism that is used to set rates in this proceeding, and the impact of the Company's proposal with respect to the rates to be charged to electric and gas utility customers.

III. SUMMARY AND RECOMMENDATIONS

Q, PLEASE SUMMARIZE THE PROPOSED CEF-EE PROGRAM.

The Company filed its CEF-EE Program with the Board on October 11, 2018, under BPU Docket Nos. GO18101112 and EO18101113. The Company, in this filing, stated that the CEF-EE Program supports the State's vision of achieving 100% clean energy by 2050 through a new clean energy paradigm. According to the Company, the CEF-EE Program will further the State's goals by lowering energy consumption and customer bills, reduce greenhouse gas emission and create "green jobs." The Company is proposing that, following a transition period, the PSE&G will be the exclusive provider of regulated energy efficiency programs in its service territory. (Petition, page 2). The Company's filing is submitted pursuant to Section 13 of the RGGI law¹ and the Board's May 2008 Order² which allot the Board 180 days from the date of an energy efficiency filing to

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¹ N.J.S.A. 48:3-98.1.

² I/M/O Electric Public Utilities and Gas Public Utilities Offering Energy Efficiency and Conservation Programs, Investing in Class I Renewable Energy Resources, and Offering Class I Renewable Energy Programs in Their Respective Service Territories on a Regulated Basis Pursuant to N.J.S.A. 48:3-98.1, BPU Dkt. No. EO08030164 (May 12, 2008). The MFRs were modified in October 2017. I/M/O Electric Public Utilities and Gas Public Utilities Offering Energy Efficiency and Conservation Programs, Investing in Class I Renewable Energy Resources, and Offering Class I Renewable Energy Programs in Their Respective Service Territories on a Regulated Basis Pursuant to N.J.S.A. 48:3-98. – Minimum Filing Requirements, BPU Dkt. No. QO17091004 (Oct. 20, 2017).

review and approve any such filing submitted thereunder once the Board determines that
the filing has met the minimum filing requirements ("MFR").

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The proposed CEF-EE Program consists of 22 subprograms, which include seven residential subprograms, seven commercial and industrial programs and eight pilot subprograms. The Company has stated that customers in its service territories who meet the criteria for the respective CEF-EE subprogram offerings will be eligible to participate. The CEF-EE Program has an emphasis on the low income, multi-family, small business and local government sector. (Petition, page 6).

9 Q. HOW IS THE COMPANY PROPOSING TO RECOVER THE COSTS OF THE 10 PROGRAM?

The Company proposes to invest up to \$2.5 billion in capital costs and incur \$283 million of expenses over a six-year term. (Petition, page 13). The Company proposes to recover these CEF-EE Program costs through a new component of its currently approved Green Programs Recovery Charge (GPRC) entitled "CEF-EEC." (Petition page 14). According to Company witness, Mr. Stephen Swetz, the Company proposes to implement the CEF-EE Program and the gas and electric CEF-EE charges simultaneously with Board approval based upon forecasted expenditures and usage. The Company anticipates a rate effective date of April 1, 2019, with the initial period to end on September 30, 2020, consistent with the rate recovery period end date for similar GPRC programs. (Swetz direct testimony pages 10-11). After the initial period, the CEF-EE rates would be updated in annual filings. (Petition, page 14.) According to Mr. Swetz, each annual filing would incorporate a true-up for actual costs and an estimate of the revenue requirements for the upcoming recovery period. (Swetz direct testimony page 11).

1 The Electric CEF-EEC would be applicable to all electric rate schedules on an equal 2 dollar per kilowatt-hour, and the Gas CEF-EE would apply to all gas rate schedules on an equal dollar per therm.

> The Company has computed its projected revenue requirement for each of its electric and gas CEF-EE Program Investments based on monthly capital expenditures, allowance for funds used during construction, information technology (IT) costs and operations and maintenance expenses including the administrative costs of running the program (Swetz direct testimony, page 2). The Company calculated its revenue requirement based upon the following formula:

Figure 1: PSEG's Revenue Requirement Calculation

Revenue Requirements = (Pre-tax Cost of Capital * Net Investment) + Amortization and / or Depreciation + Expenses Program Investment Repayments + Revenue Offsets + Tax Flow-thru + $Tax Adjustments^3$

The Company computed its Pre-tax Cost of Capital based upon the most recent Board authorized return on equity (9.60%) and capital structure in its base rate case proceeding. resulting in an overall Rate of Return of 6.99%. (WP-SS-CEF-EE-1 Revised, Schedule SS-CEF-EE-1).

WHAT WOULD BE THE IMPACT OF THE PROGRAM ON THE COMPANY'S Q. RATEPAYERS?

Α. As noted above, the Company proposes to establish an initial rate for the proposed new rate components for both its electric and gas customers, to be effective from April 1, 2019 through September 30, 2020. The proposed initial rates are designed to recover

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³ Swetz Testimony page 2

\$33,036,260 annually from the Company's electric customers and \$1,413,334 annually from the Company's gas customers. (WP-SS-CEF-EE-1 Revised, Schedule SS-CEF-EE-3).

According to Company witness Mr. Swetz, in the sixth year of the program, 2025, the final Electric revenue requirement is projected to be \$120.888 million, and the final Gas revenue requirement is projected to be \$37.900 million,⁴ a total of \$158.788 million. In Year 12, 2030, the Company has projected a final Electric revenue requirement of approximately \$231.055 million, and a final Gas revenue requirement of approximately \$52.954 million, a total of \$284.009 million.⁵ Below is a Table that reflects the Company's projected revenue requirements during the above periods:

Table 1: PSEG's Projected Revenue Requirement

12		Electric	Gas	<u>Total</u>
13 14	Initial Period Year 6 (2025)	\$ 33,036,260 \$120,888,000	\$ 1,413,334 \$37,900,000	\$ 34,449,594 \$158,788,000
15 16	Year 12 (2030)	\$231,055,000	\$52,954,000	\$284,009,000

Under the Company's proposal, cost recoveries would continue for a 25-year period.

During this period, recoveries from the Company's ratepayers (excluding contributions from Program participants) would total approximately \$3.494 billion. Of this amount, approximately \$2.8 billion would be recovered from the Company's electric ratepayers and \$694 million would be recovered from gas ratepayers. ((WP-SS-CEF-1- Revised,

⁴ WP-SS-CEF-1 Revised, Schedule SS-CEF-EE-2E RevReqE Column Y lines 73-90 and Schedule SS-CEF-EE-2G Rev ReqG, Column Y lines 73-90, respectively.

⁵ Ibid Electric - Column Y lines 151-162 and Gas Column Y lines 151-162.

1		Schedules SS-CEF-EE-2E RevReqE (Column Y Line 351) and 2G RevReqG (Column Y
2		Line 351)).
3	Q.	HAVE YOU REVIEWED AND EXAMINED THE COMPANY'S TESTIMONY
4		AND EXHIBITS IN THIS PROCEEDING?
5	A.	Yes, I have reviewed the testimony, exhibits and schedules of Company witnesses Mr.
6		Swetz, Ms. Karen Reif, and the Company's responses to data requests propounded by
7		the parties to the proceeding. I also reviewed and analyzed the Company's electronic
8		Excel spreadsheets that I received in responses to RCR-A-0001 and RCR-A-0003.
9	Q.	PLEASE SUMMARIZE YOUR RECOMMENDATIONS.
10	A.	As discussed in detail in the testimony of Rate Counsel witnesses Ezra Hausman, PhD,
11		and David E. Dismukes, PhD, Rate Counsel is recommending that the Board reject the
12		proposed CEF-EE Program. However, if Board decides to approve all or part of the
13		Program, I recommend the following:
14 15 16 17 18 19 20		 A. The Company's proposed budget for Capitalized IT costs is not properly supported and should not be approved. B. The Amortization period for certain investments should be shortened to a period of 7 years rather than 15 years. C. The Administrative Costs should be capped at 10 % of the total Investment Cost and should be reviewed in future annual filings. D. The Rate of Return on investment should be updated upon Board approval of rates in future base rate proceedings.
22		My recommendations are discussed in detail below.
23	IV.	PROPOSED COST RECOVERY MECHANISM RECOMMENDATIONS
24 25 26		A. The Company's Proposed Budget for Capitalized Information Technology ("IT") Costs is Not Properly Supported and Should Not Be Approved.

Q. WHAT IS THE LEVEL OF IT CAPITAL COSTS THAT ARE INCLUDED IN

2 THE COMPANY'S PROPOSAL?

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A. The Company's proposals includes an estimated \$81.227 million in IT capital investments, most of which are projected to be incurred in the first eighteen months of the program, with the remaining costs projected to be incurred in the sixth and twelfth year of the program. The Company's estimated Capitalized IT Costs are summarized below:

Table 2: Capitalized IT Costs

8		Electric	Gas	Total
10 11 12 13	Initial Period (4/19-9/20) Year 6 (10/24-9/25) Year 12 (10/29-9/30)	\$69,018,654 \$ 655,603 \$ 3,571,661	\$12,209,616 \$ 526,713 \$ 246,023	\$81,228,270 \$ 1,182,316 \$ 3,817,684
14	Total			\$86,228,269 ⁶

These Capitalized IT costs represent investments in IT infrastructure that the Company claims are necessary to address market barriers impacting existing energy efficiency subprograms, as well as potential barriers limiting participation in the Company's proposed program. These Capitalized IT costs are for an energy efficiency services platform, integration platform, security and streetlight – OMS/CAD interface (S-PSEG-EE-ENE-0010).

Q. ARE THESE CAPITALIZED ELECTRIC AND GAS IT INVESTMENT COSTS

22 REASONABLE?

⁶ WP-SS-CEF-1-Revised Schedule SS-CEF-EE-2E Rev ReqE Column D lines 30, 42, 49-84; SS-CEF-EE 2G Rev ReqG Column D lines 42, 49-84.

⁷ Response to S-PSEG-EE-ENE-0019

А.	No. The Company has not fully demonstrated why additional II costs and upgrades of
	\$86.2 million are needed to support the CEF-EE Program. The Company did not provide
	any details related to these IT costs, but rather provided estimated costs with no
	breakdown or description of costs. In response to S-PSEG-EE-ENE-0010, where Staff
	requested a breakdown of IT costs included in the filing, the Company pointed to page
	100 of its Program Plan (Schedule KR-CEF-EE-2, Section 4.5) which shows estimated
	yearly budgets with no detailed description. Based on my review of the Petition and the
	Company's discovery responses, it appears that at this time the company has no vendors,
	outside contractors or licensing agreements in place and has not taken any other concrete
	steps to implement the IT investments.

The sparse information that the Company provided does not justify or support these large IT expenditures. The Company has spent and recovered millions of dollars in IT investments in prior energy efficiency programs. Without more detailed explanation, this level of IT costs is not justifiable nor reasonable.

B. The Amortization Period For Certain Program Investments Should be Shortened From 15 Years to 7 Years.

Q. WHAT IS THE AMORTIZATION PERIOD THE COMPANY IS USING WITH RESPECT TO ITS INVESTMENT, AND ITS IT CAPITAL COSTS?

As shown in the response to RCR-A-0007, the Company has proposed the following

Amortization periods for certain of its CEF-EE Investments:⁸

⁸ Rate Counsel witness Ezra Housman addresses the HPS Regulatory Assets, LED Installation, Smart Controller and Smart Cities investments.

Table 3: Amortization Period

2	Residential/C&I Investments	15 Years
3	C&I Streetlight Program Investments	
4	HPS Regulatory Assets	5 Years
5	LED Installation	22 Years
6	Smart Controller	10 Years
7	Smart Cities	7 Years
8	IT Software	5 years
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Q. WHAT ADJUSTMENT ARE YOU RECOMMENDING WITH RESPECT TO

THE AMORTIZATION PERIODS USED ABOVE?

I am recommending that the investments under any Residential or Commercial and Industrial sub-programs that may be approved by the Board be amortized over a 7-year period rather than a 15-year period as the Company proposed. I am recommending a 7-year period, which is the same period used for the Company's prior Board approved energy efficiency programs (Docket Nos. EO11010030, Order dated July 14, 2011, EO14080897, Order dated April 16, 2015, and EO17030196, Order date August 23, 2017).

O. WHY DO YOU RECOMMEND A 7-YEAR AMORTIZATION PERIOD?

The use of a 15-year amortization period for the Company's CEF-EE investments would result in ratepayers paying more in debt service costs, equity returns and taxes over the long run and over the entire Program period. It is similar to a mortgage payment. As the mortgage amortization period is extended, ratepayers pay more for interest costs and debt service on the principle amount. Longer amortization periods typically involve smaller monthly payments and higher total interest costs over the life of the loan. Shorter amortization periods generally entail larger monthly payments and overall lower interest

costs over the life of the loan. Therefore, a shorter amortization period will allow customers to save on interest costs over the life of the loan. Interest rates are also typically lower on shorter amortization periods. In this case, the use of a 15-year amortization period will allow the Company to earn a return on its Program Investments, to recover its debt costs, to earn a return on equity, and to recover taxes over a longer period of time, all from ratepayers.

Q. WHY IS THE COMPANY PROPOSING TO USE A 15 YEAR AMORTIZATION PERIOD FOR THESE INVESTMENTS, WHEN THE CURRENT EE PROGRAM

USES A 7-YEAR AMORTIZATION FOR SIMILAR INVESTMENTS?

A. According to Company witness Ms. Reif, a 15-year amortization period better aligns rate recoveries with program benefits. (Reif direct Testimony, page 17). Ms.Reif states that the prior EE programs were much smaller in scale so the rate impacts of an acceleration of the costs were not material. (S-PSEG-EE-ENE-003).

Q. WHAT IS YOUR RESPONSE?

A. Ms. Reif's explanation does not consider that energy efficiency is a long-term State goal, and it is probable that the Company will continue its EE efforts in the future. While there may be a better matching of costs, rates and benefits if this filing is viewed in isolation, it is important to consider the combined impact of this and future programs. As future additional EE programs are introduced, rate recoveries for these programs will become "pancaked," and ratepayers will be paying for multiple energy efficiency programs simultaneously. While I understand some overlap is necessary, a 15-year amortization period will intensify the effect and the costs for ratepayers.

- 1 Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE COMPANY'S 2 USE OF A FIVE-YEAR AMORTIZATION PERIOD FOR ITS IT SOFTWARE 3 COSTS? 4 Á. As discussed above, I recommend that the Board not approve the Company's proposed IT 5 budget. However, if the Board decides to approve some level of IT costs, a five-year 6 amortization period would be appropriate. Given the rapidly changing technology 7 environment, changes in capabilities, behavior, new developing apps for mobile devices 8 and computers, as well as, the fact that new technologies are being developed at a much 9 quicker pace, a five-year amortization for software costs is reasonable. 10 Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE COMPANY'S 11 PROPOSED AMORTIZATION OF INVESTMENTS UNDER ITS PROPOSED 12 **C&I STREETLIGHTING SUB-PROGRAM?** 13 Α. For the reasons explained in the testimony of Rate Counsel witness Ezra Hausman, Rate 14 Counsel is recommending rejection of this program. Therefore, I am not addressing the 15 proposed amortization periods for this program. 16 C. Administrative Costs Should be Capped. 17 Q. WHAT HAS THE COMPANY PROPOSED WITH RESPECT TO ITS 18 ADMINISTRATIVE COSTS FOR ITS ELECTRIC AND GAS PROGRAM 19 **INVESTMENTS?**
- A. As shown on Ms. Reif's Schedule KR-CEF-EE-2 (CEF-EEP Program Plan, Cost
 Estimates Electric and Natural Gas page 130, Table 51), the Company proposes total
 Administrative and Subprogram Development costs for Electric and Gas of at an initial

level of \$9,051,293 (2019) and a final cumulative level of \$233,027,253. On Table 57 of the Program Plan, page 137, the total estimated expenditures for Electric and Natural Gas was an initial level of \$139,289,072 and a final cumulative level of \$2,781,380,668. An analysis of these Administrative and Subprogram Development costs in relation to the total costs are as follows:

Table 4: Administrative and Subprogram Development Cost

7		Percent to Total
8	2019	6.40%
9	2020	6.80%
10	2021	8.60%
11	2022	8.75%
12	2023	8.75%
13	2024	8.29%
14	2025	10.68%
15	Average	8.30%

As shown above, these Administrative and Subprogram Development costs are gradually increasing over the 2019-2025 periods. I am of the opinion that the level of Administrative and Subprogram costs should be capped. The Company should have acquired a familiarity in administering the CEF-EE program, and therefore should be able to manage its Administrative and Subprogram Development Costs within a cap. Further, I recommend that the Company support its administrative costs in future filings with detailed breakdowns and descriptions of the costs required to administer the CEF-EE program.

- D. The Rate of Return on Investment Should be Updated Upon Board Approval of Rates in Future Rate Case Proceedings.
- Q. WHAT ARE YOUR RECOMMENDATIONS REGARDING THE COMPANY'S
 USE OF A PROPOSED 6.99% PERCENT RATE OF RETURN?
- 5 A. The Company's proposed an overall 6.99% rate of return, ("WACC") after taxes which 6 is consistent with the rate of return established in the Company's most recent base rate 7 case (BPU Docket No. ER18010029 and GR18010030). This is an appropriate rate of 8 return if the Board decides to adopt some or all of the proposed Program. However, the 9 cost of capital can change substantially over time. Given that market conditions changes 10 over time, and capital costs appear to be on the decline, and may further decline in the 11 future, the Company's rate of return should be reviewed and reset prospectively. Market 12 conditions are typically volatile and change over time as well as the associated market 13 risks. Changing the overall rate of return in future proceedings will reflect current market 14 conditions and volatility. Therefore, I am recommending, if the CEF-EE Program is 15 approved in any form, that the Board require the Company to update the rate of return, 16 including return on equity, debt costs, and capital structure if and when the Company's authorized rate of return is adjusted in future base rate proceedings. 17

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

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Yes, it does at this time. Rate Counsel reserves its right to present supplemental testimony based on any updated and/or new information.

APPENDIX A

DANTE MUGRACE

Education

Master Business Administration, MBA Strategic Management, Pace University, Lubin School of Business, New York, NY, 2010

Master Public Administration, MPA, Kean University, Union, NJ, 2001

Bachelor of Science, BS. Accounting, St. Peter's University, Jersey City, NJ, 1983

Position

Senior Consultant – PCMG and Associates	2014 - present
Senior Consultant – Snavely King Majoros and Associates	2013 - 2014
Independent Consultant	2012 - 2013
Bureau Chief/Administrative Analyst/Accountant – New Jersey Board of	
Public Utilities	1983 - 2011

Professional Experience

Mr. Mugrace has 34 years' experience in all aspects of regulatory accounting and policy including processing, analyzing and evaluating utility rate case petitions before Public Service Commissions. Mr. Mugrace examines and evaluates rate filings, contracts, agreements and rate matters regarding utility operations and provides recommendations as to best course of action. Additionally, Mr. Mugrace analyzes and reviews utility regulatory matters and sets forth recommendations for resolution of issues, calculates total revenue requirement needed to cover operating expenses and rate of return, and researches, and evaluates regulatory utility matters to assess impact on various classes of customers, regarding rates, service, compliance and cost of service provisions, as well as annual true-up and tracking mechanisms.

Prior to undertaking consulting assignments, Mr. Mugrace was the Bureau Chief Utility Rate Manager for the New Jersey Board of Public Utilities, in which role he managed and assigned tasks to a staff of 12 professionals and supervisory personal in the daily administrative, financial and managerial functions of the Division. Mr. Mugrace's primary duties were to determine whether the utility had sufficient revenues to cover its operating expenses and earn a return on its plant investment and to ensure that the utility provided safe, reliable and continuing utility service to its customers. Mr. Mugrace set rates and charges for utility companies, which had revenues of up to \$500 million, and ensured that the revenue requirement provided for recovery of all operating expenses, return on investment and depreciation. Mr. Mugrace was also responsible for reviewing and verifying that the companies' property, plant and equipment (up to \$2.5 billion) were used and useful in providing service to its customers. Mr. Mugrace coordinated and met with the New Jersey State Department of Environmental Protection to determine whether water and wastewater utilities were complying with state regulations and

were adhering to any regulatory agency directives or orders. Mr. Mugrace developed ways to minimize the rising costs of water utility services by investigating alternative rate structures, analyzing engineering mechanisms and techniques, looking into the feasibility of mergers and acquisitions within the water industry and reviewing financing, and rate alternatives to minimize the impact on ratepayers. Mr. Mugrace was responsible for ensuring that the rate-case process adhered the statutory timeframe for preparing, reviewing and recommending findings to the Board Commissioners on financial operations, costs, revenues and operating expenses, prior to the litigation proceedings. Mr. Mugrace also examined alternative rate recovery mechanisms and clauses, phase-ins of revenue requirements, deferral mechanisms and pass-through of rate charges. Mr. Mugrace assumed the role of Director during transition periods and Administrative changes. Finally, Mr. Mugrace conducted the recruitment and hiring of employees for placement within the Division and the Board.

Professional and Business Affiliations

• Institute of Public Utilities (IPU) Michigan State University (MSU), National Association of Regulatory Utility Commissioners (NARUC), National Association of State Utility Consumer Advocates (NASUCA)

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Regulatory Projects and Appearances

1. In Re: Petition of Peoples Natural Gas Company for Approval of an Increase in Rates for Natural Gas Distribution Service.

(Appearance: Revenue Requirement and Other Accounting Issues on behalf of the Pennsylvania Office of Consumer Advocate)

Pennsylvania Public Utility Commission - Docket No. R-2018-3006818

2. In Re: Petition of Aqua New Jersey, Inc. for Approval of an Increase in Rates for Water Service and other Tariff Changes.

(Appearance: Revenue Requirement and other Accounting Issues on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities - BPU Docket No. WR18121351

3. In Re: Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future – Energy Efficiency (CEF-EE) Program on a Regulated Basis. (Appearance: Revenue Requirement and other Accounting Issues on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities – BPU Docket Nos. GO18101112 and EO18101113.

4. In Re: Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future – Energy Vehicle and Energy Storage (CEF-EVES) Program on a Regulated Basis. (Appearance – Revenue Requirement and other Accounting Issues on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities – BPU Docket No. EO18101111.

5. In Re: Petition of New Jersey Natural Gas Company- Request for Deferred Accounting Authority for Costs Related to New Information Technology Systems. (Appearance: Impact on Revenues, prudency of costs on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities - BPU Docket No. GR18101096

6. In Re: Petition for Approval of An Indirect Change in Control of the New Jersey Public Utilities Subsidiaries of SUEZ Water Resources, Inc. and Other Related Approvals.

(Appearance: Impact on Rates, Service, Employees, Positive Benefits on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities - BPU Docket No. WM18090982

7. In Re: The Matter of the Merger of Roxbury Water Company into New Jersey American Water Company (Appearance: Impact on Rates, Service and Employees, Positive Benefits on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities - BPU Docket No. WM18080904

8. In Re: The Matter of the Application of Maryland-American Water Company for Authorization to Adjust its Existing Schedule of Tariffs and Rates.

(Appearance: Revenue Requirement on behalf of the Maryland Office of People's Counsel)

Maryland Public Service Commission - Case No. 9487

9. In Re: The Matter of the Joint Petition for Approval of an Increase in Rates for Water and Wastewater Service and Other Tariff Changes for SUEZ Water NJ, Inc., Toms River, Inc., Arlington Hill, Inc., West Milford, Inc., Matchaponix, Inc., and Princeton Meadows, Inc. (Appearance: Revenue Requirement and the development of Consolidated Income Taxes on behalf of the NJ Division of Rate Counsel)

New Jersey Board of Public Utilities – BPU Docket No. WR18050593

10. In Re: The Matter of the Application of Atlantic City Electric Company to Adjust the Level of its Rider RGGI Rate Associated with its Solar Renewable Energy Certificate Financing Program 2018 (Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)

New Jersey Board of Public Utilities – BPU Docket No. ER18050543

- 11. In Re: The Matter of the Petition of New Jersey Natural Gas Company's Approval of the Cost Recovery Associated with Energy Efficiency Programs (Appearance; Revenue Requirement on behalf of the NJ Division of Rate Counsel)

 New Jersey Board of Public Utilities BPU Docket No. GR18050585
- 12. In Re: The Matter of Bay States Gas Company d/b/a Columbia Gas of Massachusetts, 2017 Gas System Enhancement Reconciliation Filing (Appearance: Revenue Requirement on behalf of the Massachusetts Attorney General's Office of Ratepayer Advocacy)

 Commonwealth of Massachusetts Department of Public Utilities Docket No. D.P.U. 18-GREC-05.
- 13. In Re; The Matter of NSTAR Gas Company d/b/a Eversource Energy, Gas System Enhancement Program Reconciliation Filing (Appearance: Revenue Requirement on behalf of the Massachusetts Attorney General's Office of Ratepayer Advocacy)

 Commonwealth of Massachusetts Department of Public Utilities Docket No. D.P.U. 18-GREC-06.
- 14. In Re: The Matter of the Merger of SUEZ Water NJ, SUEZ Water Toms River, SUEZ Water Arlington Hills, SUEZ Water West Milford, SUEZ Water Princeton Meadows and SUEZ Water Matchaponix (Appearance: Positive Benefits related to the Merger on behalf of the NJ Division of Rate Counsel)

New Jersey Board of Public Utilities – BPU Docket No. WR18030266

15. In Re: The Matter of the Columbia Gas of Pennsylvania for a General Rate Increase in Distribution Gas Service (Appearance; Accounting Issues and Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)

Pennsylvania Public Utility Commission – Docket No. R-2018-2647577

16. In Re: The Matter of the New Jersey Board of Public Utilities Consideration of the Tax Cuts and Jobs Act of 2017 – Generic Proceeding (Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)

New Jersey Board of Public Utilities - BPU Docket No. AX18010001

17. In Re: Acquisition of Elizabethtown Gas, a Division of Pivotal Utilities Holdings, Inc. by ETG Acquisition Corp., a Division of South Jersey Industries, Inc., and Related Transactions. (Appearance: Customer Service Issues/Employee and Labor Relations on behalf of the NJ Division of Rate Counsel)

New Jersey Board of Public Utilities – BPU Docket No. GM17121309.

- In Re: Middlesex Water Company Base Rate Case Proceeding for Water Service.
 (Appearance: revenue requirement on behalf of the NJ Division of Rate Counsel).
 New Jersey Board of Public Utilities BPU Docket No. WR17101049.
- 19. In Re: Township of East Brunswick Sewer Rate Study (Evaluation of the existing sewer rate structure and examining and quantify costs for future expansion).
- 20. In Re: Montana-Dakota Utilities Base Rate Case Proceeding for Gas Service. (Appearance: revenue requirement on behalf of the North Dakota Public Service Commission). NDPSC Docket No. PU-17-295.
- 21. In Re: Andover Utility Company Base Rate Case Proceeding for Wastewater Services. (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel). New Jersey Board of Public Utilities BPU Docket No. WR17070726.
- 22. In Re: Public Service Electric and Gas Company- Approval of Changes in its Electric and Gas Green Programs Recovery Charges "2017 Public Service Electric & Gas Green Programs Cost Recovery Filing. (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel).

New Jersey Board of Public Utilities – BPU Docket Nos. ER17070724 and GR17070725.

23. In Re: Bay States Gas Company d/b/a Columbia Gas of Massachusetts, 2016 Gas System Enhancement Program Reconciliation Filing, (Appearance: revenue requirement on behalf of the Massachusetts Attorney General's Office of Ratepayer Advocacy).

Commonwealth of Massachusetts Department of Public Utilities – Docket No. D.P.U. 17-GREC-05.

24. In Re; NSTAR Gas Company d/b/a Eversource Energy, 2016 Gas System Enhancement Program Reconciliation Filing (Appearance: revenue requirement on behalf of the Massachusetts Attorney General's Office of Ratepayer Advocacy.

Commonwealth of Massachusetts Department of Public Utilities – Docket No. D.P.U. 17-GREC-06.

- 25. In Re: Petition of Columbia Gas of Maryland Increase in rates for Distribution Service (Appearance: revenue requirement on behalf of the Office of People's Counsel) Public Service Commission of Maryland Case No. 9447
- 26. In re: Petition of South Jersey Gas Company Increase in base rates for gas services (Appearance: revenue requirement on behalf of the NJ Division of Rate Counsel) New Jersey Board of Public Utilities Docket No. GR17010071
- 27. In re: Petition of UGI Penn Natural Gas Increase in base rates for gas services –
 (Appearance: revenue requirement on behalf of the Pennsylvania Office of Consumer Advocate)

Pennsylvania Public Utilities Commission Docket No. R-2016-2580030

28. In re: Petition of PJM Interconnection, LLC. – Mid-Atlantic Interstate Transmission, LLC. Formula Rate Filing. (Appearance on behalf of the Pennsylvania Office of Consumer Advocate).

FERC Docket No. ER17-211-000

29. In re: Petition of Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas Company for approval of Increased Base Tariff Rates and Charges for Gas Service and Other Tariff Revisions (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities Docket No. GR16090826

- 30. In re: Petition of SUEZ Water New Jersey, et al Approval of a Management and Services Agreement pursuant to N.J.S.A 48: 3-7.1 (Appearance on the reasonableness of contract agreements on behalf of the New Jersey Division of Rate Counsel)

 New Jersey Board of Public Utilities Docket No. WO16080806
- 31. In re: Petition of SUEZ Water Arlington Hills Inc. Approval of an Increase in Rates for Wastewater Services and other Tariff Changes (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel)

 New Jersey Board of Public Utilities Docket No. WR16050510
- 32. In re: Petition of Public Service Electric and Gas Company 2016 Marginal Adjustment Clause (MAC) (Appearance; reconciliation and rate setting on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities Docket No. GR16060484

33. In re: Petition of Public Service Electric and Gas Company for Approval of Changes in its Electric Green Programs Recovery Charges and its Gas Green Program Recovery Charges 2016 PSEG Program Cost Recovery Filing (Appearance: reconciliation and rate setting on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities Docket Nos. ER16070613 and GR16070614

34. In re: Petition of the Mount Olive Village Sewer Company, Inc., for Approval of an Increase in Rates for Service (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities Docket No. WR16050391

35. In re: Petition of the Mount Olive Village Water Company, Inc. for Approval of an Increase in Rates for Service (Appearance; revenue requirement on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities Docket No. WR16050390

36. In re: Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Analysis and Advice to Counsel: computation of the revenue requirement and rate impact on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-01

37. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Appearance: computation of the revenue requirement and rate impact on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)

MA Department of Public Utilities Docket No. D.P.U. 16-GREC-05

38. In re: Petition for Approval of Gas Infrastructure Contract Between Public Service Company of New Hampshire d/b/a Eversource Energy and Algonquin Gas Transmission, LLC (2016) - (Analysis and Advice to Counsel: compliance with statutes and regulations, review of contract, and ratemaking on behalf of the New Hampshire Office of Consumer Advocate)

NH Public Utilities Commission Docket No. DE 16-241

39. In re: Central Maine Power Company, Annual Compliance Filing and Price Change (2016)
 - (Analysis and Advice to Counsel; tax normalization regulatory asset on behalf of the Maine Office of the Public Advocate)

ME Public Service Commission Docket No. 2016-00035

- 40. In re: Bulletin 2015-10 Generic Proceeding to Establish Parameters for the Next Generation PBR Plans (Appearance: productivity adjustments/performance based ratemaking on behalf of the Alberta Utilities Consumer Advocate)

 Alberta Utilities Commission Proceeding 20414
- 41. In the Matter of Request by Emera Maine for Approval of a Rate Change (2016) (Appearance: revenue requirement on behalf of the Maine Office of the Public Advocate)

 Maine Public Utilities Commission Docket No. 15-00360)
- 42. In the Matter of the Joint Application of the Southern Company, AGL Resources Inc., and Pivotal Holdings, Inc. d/b/a Elkton Gas (2015-2016) (Analysis and advice to counsel:

customer service impacts, employee impacts, supplier diversity on behalf of the Maryland Office of People's Counsel)

MD PSC Case No. 9404

43. In the Matter of the Merger of Southern Company and AGL Inc. (2015-2016) - (Appearance: customer service impacts and employee impacts on behalf of the NJ Division of Rate Counsel)

New Jersey BPU Docket No. GM15101196

44. In the Matter of the United Water New Jersey, Inc., for Approval of an Increase in Rates for Water Service and Other Tariff Changes (2015-2016) - (Appearance: revenue requirements, rate base issues and operating income on behalf of the NJ Division of Rate Counsel)

New Jersey BPU Docket No. WR15101177

- 45. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Precedent Agreements with Millennium Pipeline Company, LLC (2015) -(Analysis: review of contract and compliance of the Gas Supply Plan on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy) MA D.P.U. 15-130
- 46. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Agreements for LNG or Liquefaction Services with GDF Suez Gas NA, LLC; Northeast Energy Center, LLC; Metro LNG, L.P.; and National Grid LNG (2015) (Analysis: review of contract and compliance of the Gas Supply Plan on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
 MA D.P.U. 15-129
- 47. In re: Columbia Gas of Massachusetts CY2014 Targeted Infrastructure Reinvestment Factor (TIRF) Compliance Filing (2015) (Appearance: computation of the revenue requirement impact on the TIRF on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)

MA D.P.U. 15-55

- 48. In the Matter of the Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its Targeted Infrastructure Reinvestment Factor (TIRF) for CY 2013 (2014) (Appearance: computation of the revenue requirement impact on the TIRF)

 MA D.P.U. 14-83
- 49. In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc. (Atlantic City Electric Company) (2014-2015) (Appearance: customer service impacts)

 New Jersey BPU Docket No. EM14060581
- 50. Public Utilities Commission of Ohio, in the Matter of the Application of Aqua Ohio, Inc. to Increase its Rates and Charges for its Waterworks Service. Revenue and Rates (2014) -

(Appearance: operating income, certain rate base issues and income taxes on behalf of the Ohio Office of Consumer Counsel)

PUCO Case No. 13-2124-WW-AIR

51. New York Public Service Commission, as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. Revenue Requirement (2013-2014) – (Appearance: revenue requirement, rate base issues and operating income on behalf of the Intervenor, the County of Westchester)

NYPSC Case Nos. 13-E-0030, 13-G-0031 and 13-S-0032, et al

52. North Dakota Public Service Commission, - Application of Northern States Power Company for Authority to Increase Rates for Electric Service in North Dakota, On-Going Revenue Requirement (2013) - (Appearance: revenue requirement and rate base, operating income, operating and maintenance expenses on behalf of the North Dakota Public Service Commission Staff)

North Dakota Case No. PU-12-813

53. In the Matter of the Petition of New Jersey American Water Company for Authorization to Implement a Distribution System Improvement Charge (DSIC) Order Denying Petition and Instituting Stakeholder Process (2008) - (Case manager on policy decision and revenue requirement impact on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WO08050358

- 54. In the Matter of the Joint Petition of the City of Trenton, New Jersey and New Jersey-American Water Company, Inc. for Authorization of the Purchase and Sale of the Assets of the Outside Water Utility System ("OWUS") of the City of Trenton, New Jersey and for Other Relief Order Adopting Initial Decision, (2008) (Case manager on the revenue requirement impact on behalf of the Staff of the NJ Board of Public Utilities)

 BPU Docket No. WM08010063
- 55. In the Matter of the Petition of United Water New Jersey, United Water Toms River, United Water Lambertville, United Water Mid-Atlantic and Gaz de France for Approval as Need for a Change in Ownership and Control (2007) (Case manager on customer impact, employee impact and impact on rates on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WM06110767

56. In the Matter of the Petition of United Water Arlington Hills Sewerage, Inc. for an Increase in Rates for Waste Water Service and Other Tariff Changes (2009) - (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR08100929

57. In the Matter of the Petition of United Water New Jersey Inc. for Approval of an Increase in Rates for Water Service and Other Tariff Changes, (2009) - (Case manager on revenue

requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR08090710

58. In the Matter of the Petition of United Water Toms River, Inc. for Approval of an Increase in Rates for Water Service and Other Tariff Changes (2008) - (Case manager on the revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR08030139

59. In the Matter of the Joint Petitioners of New Jersey-American Water Company, Inc., S.J. Services, Inc., South Jersey Water Company, Inc. and Pennsgrove Water Supply Company, Inc. for Among Other Things Approval of a Change in Control of South Jersey Water Supply Company, Inc. and Pennsgrove Water Supply Company, Inc. (2007) - (Case manager on the overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WM07020076

60. In the Matter of the Petition of Aqua, New Jersey, Inc. for Approval of an Increase in Rates for Water Service and Other Tariff Changes (2008) - (Case manager on revenue requirement and the overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR0712095

61. I/M/O the Joint Petition of Thames Water, Aqua Holdings GMBH, on Behalf of Itself and Its Parent Holdings Company, RWE Aktiengesellschaft, Thames Water Aqua US Holdings, Inc., American Water works Company Inc., Thames Water Holdings Incorporated, E'town Corporation, New Jersey-American Water Company, Inc., Elizabethtown Water Company, the Mount Holly Water Company and Applied Wastewater Management, Inc. for Confirmation that the Board of Public Utilities Does Not Have Jurisdiction Over, or, Alternatively, for Approval of a Proposed Transaction Involving, Among Other Things, the Sale by Thames Water Aqua Holdings GMBH of Up to 100% of the Shares of the Common Stock of American Waterworks Company, Inc. in One or More Public Offerings (2007) - (Case manager on revenue requirement impacts, effect on rates and effect on service on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WM06050388

- 62. In the Matter of the Petition of Elizabethtown Water Company for Approval of an Increase in Rates for Water Service (2007) (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

 BPU Docket No. WR03070510
- 63. In the Matter of the Petition of New Jersey American Water Company, Inc. for Approval of Increased Tariff Rates and Charges for Water and Sewer Service; Increased Depreciation Rates and Other Tariff Revisions (2008) (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR08010020

64. In the Matter of Middlesex Water Company for Approval of an Increase in its Rates for Water Service and Other Tariff Changes (2007) - (Case manager on overall revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR07040275

65. In the Matter of the Joint Petition of United Water New Jersey, Inc., United Water Arlington Hills, Inc., United Water Hampton, Inc., United Water Vernon Water Hills, Inc., and United Water Lambertville, Inc. for an Increase in Rates and Charges for Water Service and Other Tariff Changes and for Approval to Merge the Operations of the Joint Petitioners into and with United Water New Jersey, Inc. (2007) - (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR07020135