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

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

Testimony and Exhibits of:

Kenneth D. Daly
Elizabeth D. Arangio

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January 29, 2016

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Case 16-G-____
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The Brooklyn Union Gas Company and
KeySpan Gas East Corporation

nationalgrid

Testimony of
Kenneth D. Daly

Before the Public Service Commission

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

Direct Testimony

of

Kenneth D. Daly, CFA

January 29, 2016

Q. Please state your name and business address.

A. My name is Kenneth D. Daly, and my business address is One MetroTech Center, Brooklyn, New York 11201.

Q. Please explain your role and principal responsibilities at National Grid.

A. I am the Jurisdictional President and Chief Operating Officer for National Grid's New York business. I am responsible for the performance of The Brooklyn Union Gas Company d/b/a National Grid NY (KEDNY), KeySpan Gas East Corporation d/b/a National Grid (KEDLI) (together, the "Companies") and Niagara Mohawk Power Corporation d/b/a National Grid (Niagara Mohawk). I oversee all aspects of KEDNY, KEDLI and Niagara Mohawk's business, including gas and electric distribution operations, financial performance, customer interactions, regulatory affairs and community involvement. I also serve on the Boards of Directors for KEDNY, KEDLI and Niagara Mohawk.

Q. Please describe your educational background and business experience.

A. I received a Bachelor of Arts in English from St. Francis College in 1988. I received a Master of Business Administration degree from St. John's

University in 1992 and a Master of Science degree in Human Resource Management from NYU-Polytechnic University in 1999. I achieved the Chartered Financial Analyst designation in 2002. In 2014, I completed the Advanced Management Program at Harvard Business School. I am an Adjunct Professor of Business and Finance at St. Francis College and I serve on the Boards of Directors for a number of New York energy, business, academic and non-profit organizations.

I joined KEDNY in 1988 as a Management Trainee in the Meter Reading area in Brooklyn, and spent my early career in various roles in Customer Relations and Human Resources. In 1997-1998, I served on the integration team supporting the merger of KeySpan Corporation and the Long Island Lighting Company. In 2005, I was named Vice President, Financial and Employee Related Services, responsible for human resources, customer relations, collections and accounting. I served as a Merger Coordination Officer in the National Grid-KeySpan merger and was named the Chief Financial Officer for Global Gas Distribution in 2007. In 2009, I was named the Global Financial Controller of National Grid plc. I was named President of the New York Jurisdiction in 2011, a role I have held for five years.

Q. How have you organized your testimony?

A. First, I present an overview of the Companies' rate filings. I then provide background on KEDNY and KEDLI, including their accomplishments since their last base rate cases and a review of their recent ratemaking history. Next, I address the factors driving the Companies' need for rate relief, describe the steps we took to prepare for these filings and introduce the witnesses. I highlight the important issues in these cases and, finally, I explain how the Commission's granting the relief we seek will further the objectives shared by the Companies, our customers and the State of New York.

Q. Please provide an overview of the Companies' rate filings.

A. These rate filings present comprehensive proposals for modernizing the Companies' infrastructure, enhancing safety and reliability, delivering economic and environmental benefits from gas expansion, improving our customer service capabilities, assisting our most vulnerable customers, and promoting new technology and efficiency programs that support New York State's energy vision. There is a large discrepancy between our current rate allowances and our cost of providing safe and reliable service and, as a consequence, our requested rate increases are sizable. These rate filings outline the Companies' plans to advance the important objectives

we share with our customers and the Commission while mitigating customer bill impacts in a period of low commodity costs.

Over the last several years, increased customer demand for natural gas, an industry-wide focus on gas safety, and severe weather events have highlighted the need to modernize our energy infrastructure. A cornerstone of our capital investment proposals is a very significant acceleration of leak prone pipe removal, with KEDNY proposing to eliminate at least 50 miles per year, a 100 percent increase over its 2012 target and KEDLI proposing to eliminate at least 115 miles per year, a 130 percent increase over its 2014 target. The Companies' proposed capital investment programs also include implementing pipeline safety programs to identify and address system risks, deploying system automation to improve our ability to monitor the performance of our gas networks and hardening the systems to enhance resiliency. We propose the deployment of new technology to efficiently address system leaks and to detect excess methane levels in customer homes.

In addition to improving safety and reliability performance, our proposed infrastructure investments will allow for the expansion of our gas networks to serve new customers and deliver the economic benefits of

natural gas, including lower energy costs, enhanced economic development and job creation in previously unserved areas. The Companies' filings offer several gas growth initiatives, including a proposal to extend the successful Neighborhood Expansion Program on Long Island that uses advanced data modeling to identify prospective customers and new gas conversion incentives to offset customers' upfront equipment and installation costs.

These rate filings advance our commitments to improve the economic vitality of the communities where we live and work. We propose increasing investment in our economic development programs to promote business, job growth and clean energy technology in our service territories. To increase customer engagement, we are transforming the MetroTech Customer Office into a sustainability hub that will promote gas safety and clean energy. On Long Island, KEDLI proposes creating a customer outreach center in Brentwood to provide one-stop customer service to customers, with a focus on supporting low income and other vulnerable customers. To further support our low income customers, KEDNY and KEDLI seek to increase funding for our most effective assistance programs. In addition to low income customer conversion rebates proposed by both Companies, KEDLI seeks to offer low income

customers smart, programmable thermostats at no cost to them. In these filings, we discuss our efforts to support education in our communities, particularly in the area of science, technology, engineering and math (STEM) to prepare the energy workforce of the future.

The Companies are proposing demonstration programs that support the objectives of the Commission's Reforming the Energy Vision (REV) proceeding. These include advanced metering technology for flood-prone areas in our service territories, a micro CHP program and a commercial demand response program.

Q. Please provide the background of the Companies.

A. KEDNY serves 1.2 million customers in the Boroughs of Brooklyn, Staten Island and Queens in New York City with 4,100 miles of gas distribution main. KEDLI serves 567,000 customers in Nassau and Suffolk Counties in Long Island and the Rockaways with 8,000 miles of gas distribution main. Combined, KEDNY and KEDLI have $4.4 billion in rate base. Both Companies (and their predecessors) have served customers in these territories for over 100 years and operate gas distribution systems that are among the oldest in the United States.

While our first priority has always been the safe and reliable delivery of natural gas, we take great pride in our long history of community engagement. We have demonstrated our commitment to improving the quality of life in the communities we serve through our support for economic development, charitable and educational programs. Our legacy Cinderella program has awarded millions of dollars in grants to non-profits, community groups and developers in KEDNY's service territory and helped to spur economic revitalization in distressed areas. By investing and maintaining a strong presence in the MetroTech/Downtown Brooklyn area for decades, KEDNY has been an anchor of this now thriving area of Brooklyn. Our employees are engaged in numerous volunteer activities in communities throughout our New York service territories with the support of National Grid's "Power to Serve" program.

In 2013-2014, our New York gas business underwent a comprehensive management audit conducted by NorthStar Consulting. We found this audit very constructive and appreciated NorthStar's finding that "National Grid generally operates a safe and reliable gas business in New York." One of NorthStar's recommendations was to strengthen our jurisdictional model to enhance accountability to the Jurisdictional President. We agreed and, as a result, more than 2,600 electric and gas

operations personnel supporting the New York utilities, including the vice presidents of New York electric and gas operations, now report directly to the New York Jurisdiction. The addition of these personnel to the New York Jurisdiction provided me with enhanced oversight over the operational performance of the New York operating companies.

NorthStar made recommendations for improvement on a number of other issues, including load forecasting, gas procurement, the composition of our boards of directors and our service level agreements, among others. I am confident that NorthStar's recommendations, once fully implemented, will help make the performance of our New York operating companies even stronger.

Q. Please provide the recent ratemaking history for KEDNY and KEDLI.

A. KEDLI and KEDNY last filed for base rate increases in 2006 in the context of the National Grid/KeySpan merger. The joint proposal that was adopted in 2007 provided for five-year rate plans for the Companies that commenced in calendar year (CY) 2008. Under the rate plans approved by the Commission, KEDNY received no base rate increase and KEDLI received a base rate increase of $60 million in the first year of its rate plan

only, followed by a base rate freeze. Further increases in the Companies' base rates were avoided because of ongoing operating efficiencies and $200 million in synergy savings from the merger that were credited to customers before they were achieved. For a decade prior to the 2006 merger case, both KEDNY and KEDLI customers had base rate decreases only.

Base Rate Changes From 1996-2007

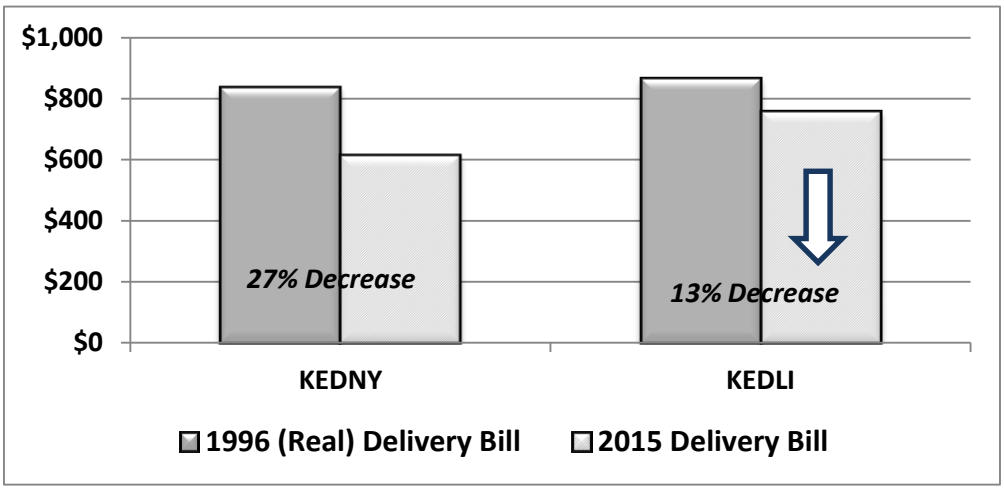
KEDNY	9/25/96	($3.8m)
	4/14/98	($23.87m)
KEDLI	2/5/98	($12.18m)
	5/29/98	($6.25m)

Thus, except for the one-time increase in KEDLI's base rates in 2008, our downstate customers have had two decades of decreasing or stable base delivery rates.

KEDNY agreed to a two-year extension of its rate plan in 2012, and the result was to update the capital investment plan, the allowed return and capital structure and certain gas safety metrics, but customer rates remained flat.

As shown in Table 1, in real terms, base delivery rates for KEDNY and KEDLI's residential heating customers have declined since 1996.

Table 1: 1996 v. 2015 Delivery Bills



Q. Please describe the recent progress the Companies have made in enhancing the quality of service provided to customers.

A. While our customers have had a long period of rate stability, we have made significant strides to enhance the quality of service to them. Since 2008, KEDNY and KEDLI have invested $4.5 billion to modernize their downstate New York gas networks. These investments, along with our talented and dedicated work force, have allowed us to maintain strong operational performance through increasingly severe weather events. During the Polar Vortex of 2014 and 2015, the Companies safely and reliably delivered unprecedented volumes of gas to our customers, establishing nine of the top ten daily delivery records for KEDNY and all ten of KEDLI's daily delivery records and setting peak throughput records

of 1,355,442 dekatherms and 1,104,278 dekatherms, respectively, on February 15, 2015. The Companies have consistently met their regulatory reliability metrics since 2008. We accelerated the rate of leak prone pipe replacement and deployed state of the art technology to address leaks in a more cost effective and efficient fashion.

In 2015, we completed a major infrastructure project that will significantly improve the reliability of our system and support future growth. The Brooklyn Queens Interconnect is the first new gas supply delivery point in KEDNY's territory in more than 50 years and will permit both KEDNY and KEDLI to further diversify their supply sources by creating opportunities to secure additional supply from emerging gas supply basins. On Long Island, National Grid just completed construction of a state-of-the-art gas control center that will monitor and control the gas system for all of National Grid's New York gas networks. The new gas control center is connected to National Grid's New England Control Room to ensure business continuity during emergency operations.

In 2014, the Long Island Power Authority (LIPA) selected a new manager for its electric transmission and distribution business and we worked together to transition services so that both gas and electric

customers on Long Island would continue to receive safe and reliable service and have the support they need. LIPA's decision required that KEDLI develop a new customer service platform for its customers, but presented opportunities to upgrade and enhance KEDLI's customer service capabilities. KEDLI advanced several significant customer service initiatives as part of the LIPA transition, including a $30 million customer information system to replace its 40-year old legacy system, a consolidation of downstate call center operations in the high performing MetroTech Call Center and an automated meter reading (AMR) program. We have invested nearly $50 million to install approximately 570,000 AMR devices on Long Island that will eliminate three million estimated bills per year, improve meter reading accuracy, and enhance storm response. We are already seeing the benefits of these customer service initiatives, as KEDLI achieved a 2015 Customer Satisfaction score of 87.5 percent (over its target of 83.4 percent). We mitigated the costs resulting from LIPA's decision to transition to a new electric system manager as much as we could, and we used it as an opportunity to improve the services we provide to our gas customers on Long Island.

We have prioritized the growth of gas service in our service territories. Expanding gas service in our service territories can bring significant

economic benefits to customers given that the cost to heat a home with natural gas is currently 47-48 percent lower than the cost of competing fuels, as well as the regional economy through job creation and increased local tax revenue. Gas growth also creates significant environmental benefits from lower emissions. Over the past five years, the Companies have converted over 53,000 customers from oil to natural gas. These conversions displaced over 130 million gallons of heating oil annually and reduced carbon emissions by more than 400,000 tons a year – the equivalent of removing over 750,000 cars from the road for a year. With a 45 percent heating saturation rate, KEDLI's service territory in particular presents significant opportunity for growth. In 2013, KEDLI achieved its largest oil to natural gas conversion, saving the Northport VA Hospital approximately $2.5 million a year on energy costs and displacing 1.5 million gallons of oil annually. KEDLI has used its Neighborhood Expansion Program successfully to bring gas service to more than 1,000 potential customers in the Village of East Hills. We are partnering with New York City in its Clean Heat Initiative to accelerate the phase-out of heavy oils in approximately 800 multifamily buildings, and are close to creating New York City's first "Green Borough" on Staten Island by converting all buildings using heavy oil to natural gas.

The Companies have also dealt with a number of challenges since their last rate filings. We have seen increasingly frequent and severe weather events, including Hurricane Irene (2011), Superstorm Sandy (2012) and the Polar Vortex (2014 and 2015), which stressed our distribution systems and emphasized the need for more reliability and resiliency investments. An enormous challenge was presented by Superstorm Sandy, which tested not only the resiliency of our distribution system but our ability to coordinate resources to meet the specific needs of our customers. In October 2012, Superstorm Sandy brought record flooding that devastated many communities and caused extensive damage to our downstate gas infrastructure, resulting in the loss of gas service to thousands of customers. At peak, approximately 83,000 KEDLI and 57,000 KEDNY customers were without gas service. The Companies incurred more than $200 million to repair damaged infrastructure and restore service, which was absorbed by the Companies and their insurance coverage. Immediately after the storm, National Grid established a presence in the hardest hit neighborhoods by setting up community centers staffed with more than 100 community liaisons. We coordinated with the City of New York to replace flood damaged gas equipment and reconnect gas service to thousands of customers, and partnered with local community groups to provide food and shelter to

customers displaced by the storm. Having witnessed firsthand the devastating effects of the storm on our customers, National Grid launched a $30 million Emergency Economic and Community Redevelopment Program to provide financial assistance to our customers affected by the storm. In addition to assisting more than 300 businesses and 20,000 residential customers, this program provided grants to businesses struggling to recover from the storm and helped maintain approximately 10,000 jobs on Long Island and in New York City. We appreciated the Commission's support for this emergency economic development program that provided timely and much needed assistance to our hardest hit customers and communities to recover from the storm.

While we were challenged by the difficult implementation of a new back office system – SAP, we committed that our customers would be held harmless from the very significant costs National Grid incurred to stabilize the SAP system. Today, much of the difficulty we experienced with the implementation of the SAP system is behind us and we are confident in the cost data underlying these filings. As part of our SAP training, we reinforced with employees the importance of accurately charging costs to the appropriate companies.

To provide assurance that the costs charged to KEDNY and KEDLI are accurately reflected in these filings, the Companies retained PricewaterhouseCoopers LLC (PwC) to review the Historic Test Year costs to supplement a detailed internal review. The results of PwC's review indicate that our continuing training to employees on cost allocations has been successful.

High profile incidents in the industry have appropriately focused attention on gas safety, and we have undertaken to improve our safety performance. National Grid is proud of our long history of safe and reliable operations in New York, but our recent compliance performance, as demonstrated by the results of the Department of Public Service Staff's (Staff) gas field and records audits, is not acceptable. We fully understand that we must do more to improve our compliance performance. The bar has been raised on safety and compliance for all gas utilities and as a leader in the industry we will do everything we can to meet the heightened expectations of our regulators and customers. Further, while our transition to new customer billing and meter reading systems on Long Island resulted in billing issues, particularly for our commercial customers, we have addressed the system issues and have worked with Staff and our customers to restore confidence in our bills.

KEDLI's new billing system enables it to provide enhanced bill presentation and functionality.

Q. What has driven the timing of the Companies' rate filings?

A. Our success in achieving $200 million in synergy savings from the National Grid/KeySpan merger and another $200 million in savings from our US Restructuring initiative and in expanding our customer base helped to defer the need for rate relief and allowed the Companies to maintain strong performance even after their five-year rate plans ended. But the current rate allowances are inadequate to cover our cost of providing safe and reliable service and this discrepancy has increasingly overshadowed KEDNY and KEDLI's continuous efforts to operate as efficiently as possible. We wanted to complete the post-Superstorm Sandy restoration of our gas networks and have the LIPA transition and the data issues from the challenging SAP implementation behind us before we developed our filings. Following consultation with Staff, we decided to wait until SAP was fully stabilized before the Historic Test Year began, which also followed the completion of our Sandy rebuild and the LIPA transition. To meet our fiduciary obligations to our investors until we could file for new rates, we implemented a number of cost efficiency measures. Some of those efficiency measures are not sustainable. Others, however, such

as our efforts in the Historic Test Year to negotiate new collective bargaining agreements with each of our three labor unions, as well as the renegotiation of agreements with our large paving and construction contractors, will allow us to continue to deliver high quality work in a cost-effective manner.

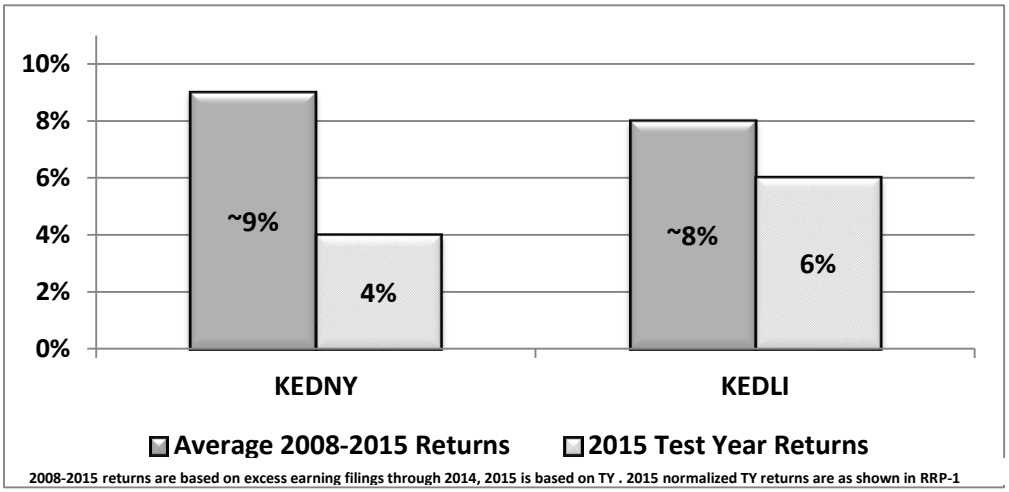
During this period, the Commission provided significant support to the Companies. In December 2014, the Commission authorized KEDLI to recover the costs associated with its capital investment program for CY 2015 and CY 2016. These investments will enhance the safety, reliability and resiliency of KEDLI's gas network on Long Island, including accelerated leak prone pipe replacement. KEDLI's approved capital plan also allowed for significant expansion of our system on Long Island to facilitate growth. In October 2015, the Commission authorized KEDNY to extend its capital investment reconciliation mechanism for two years (CY 2015 and CY 2016), which also funded capital investments to accelerate the replacement of leak prone pipe, enable growth, and improve system reliability and resiliency. Also in October 2015, the Commission authorized KEDNY to increase its annual SIR surcharge to mitigate future rate impacts for KEDNY customers. While all three of these orders aligned with the Commission's policies and promoted the best interests of

our customers, they also provided much needed support to the Companies on a timely basis. We are appreciative of the Commission's support and consideration of the important issues underlying these orders.

Q. Please explain the Companies' need for rate relief.

A. Notwithstanding our significant and continuing efforts to control costs, cost increases that are not reflected in our rates have eroded returns in our downstate gas business, as shown in Table 2.

Table 2: Five Year Average v. Historic Test Year Returns



These equity returns in the Historic Test Year of four and six percent were below what investors expect from companies of comparable risk. Standard & Poor's and Fitch recently downgraded KEDNY and KEDLI's credit ratings, citing the Companies' pressing need for rate relief and their

significant capital programs. Absent rate relief, returns in the Rate Year will decline further.

For a number of reasons, including the long overdue updating of our cost of service allowances and the very substantial investments the Companies have made and must continue to make to support the reliability and resiliency of their gas distribution systems, KEDNY and KEDLI have large revenue deficiencies and these rate filings seek significant base rate increases. As set forth in the testimony of the Revenue Requirements Panel, the Companies propose to adjust their current base delivery rates to eliminate an annual revenue deficiency of $245 million for KEDNY and of $142 million for KEDLI in the Rate Year. These are the revenues we need to provide safe and reliable service prospectively. We recognize that these increases mean significant bill impacts for a typical residential heating customer on the delivery bill. Offsetting these increases to some extent will be natural gas prices, which are at a 14-year low. Based on the total bill, the increase for a typical residential heating customer would be 14 percent (or $13.98 per month) for KEDNY customers and 12 percent (or $13.40 per month) for KEDLI customers compared to the Historic Test Year. As I discuss later, this comparison captures favorable commodity prices

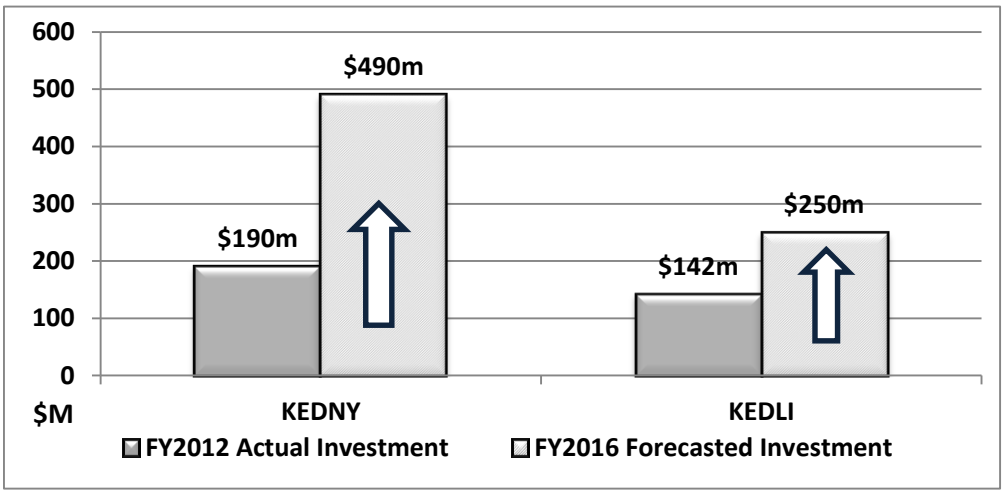
and normalizes KEDNY's Historic Test Year to reflect what customers are paying today.

It is our preference, as well as the preference of our customers, that these increases be phased in over the course of a multi-year rate plan. To facilitate the negotiation of a multi-year rate plan that would mitigate bill impacts for our customers, we are filing cost of service data for two data years beyond the Rate Year.

Q. What are the principal factors contributing to the revenue deficiencies that the Companies seek to recover in these filings?

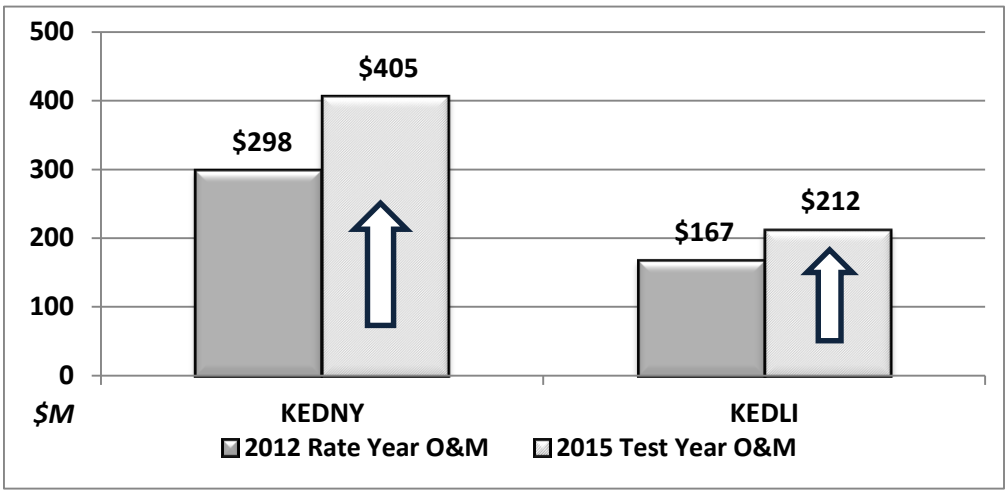
A. The key factor is that KEDNY and KEDLI's base rate allowances are out of date and inadequate to compensate their cost of service. As mentioned earlier, the Companies' capital expenditures have increased very significantly as the Companies have maintained and modernized their aging gas infrastructure even as customers' base delivery rates remained flat. The increased capital expenditures and operation and maintenance expense (O&M) are the principal drivers of the revenue deficiencies. Table 3 illustrates the steep increases in capital investments the Companies have made between 2012 (CY 2012 being the last year of their five-year rate plans) and 2016.

Table 3: Capital Expenditures



Similarly, O&M has increased significantly since 2012. The O&M increases are driven primarily by O&M associated with increased capital spending, increased workload, revised procedures on inactive accounts and new safety requirements from state and federal regulators. Table 4 shows KEDNY and KEDLI's increased O&M spending from 2012 to the Test Year.

Table 4: O&M Expenditures



Q. What are the overall objectives of the Companies' filing?

A. We have several objectives that are also important to our customers. First and foremost, we must adjust KEDNY and KEDLI's base rates to compensate their cost of providing service, to fund necessary investment in gas infrastructure, to modernize our networks and enhance service to customers and to provide the Companies' investors reasonable returns with a balanced rate plan that mitigates the impact on customer bills. Compensatory rate plans will enable the Companies to meet our important objectives of enhancing our safety and compliance performance and supporting the growth and environmental goals we share with the Commission and New York State. A balanced rate plan will allow us to continue to support our customers, including helping

them manage their energy usage, making it easier for them to communicate with us, assisting our neediest customers and facilitating economic vitality in the communities we serve. The opportunity for the Companies to earn reasonable returns will allow them to attract, on favorable terms, the necessary capital to finance operations, which will lower costs for customers in the long run.

In recognition of the impacts of these cases on our customers, we undertook significant outreach to our customers and communities to educate them about the Companies' need for rate relief and to hear from them as to their priorities and expectations of us. We found that our overall objectives align with those of our customers. In developing these cases, we have reflected much of the feedback we received from customers as to what they want from us.

Q. Please describe the efforts the Companies made to hear their customers' priorities and what you learned.

A. We had more than 300 outreach meetings, many of which I attended personally, with customers, various state agencies, local governments, school districts, hospitals, economic and community partners and elected officials throughout KEDNY and KEDLI's service territories. Our

outreach was welcomed. I heard directly our customers' expectations of us, what they believe we do well and where we need to improve.

Overwhelmingly, the top priorities are the reliability, safety and expansion of our gas distribution systems and the affordability of gas service. Our customers want us to "just keep the heat on" and are particularly concerned about gas safety following serious industry incidents. Gas expansion and incentives for gas conversions were mentioned frequently.

All constituents are very concerned about bill impacts. While customers appreciate the long period of rate stability and the continued price advantage of natural gas relative to other fuels, the affordability of gas service is important to all of our customers: residential, commercial and non-profits. A number of these stakeholders raised phasing in increases over multiple years to soften rate impacts for customers. We heard that we must do what we can to assist customers who struggle to pay their bills, and to help these and other customers wishing to convert to natural gas. We heard praise for the hard work of our consumer advocates, and were asked to add resources in this area.

We confirmed that customers want us to play a lead role in educating them on gas safety and helping them manage their energy costs. Customers want to be able to communicate with the Companies more easily. While many praised the contacts they had with the Companies, they seek more direct communications with us on issues impacting their energy usage and gas safety. From our educational partners, we heard strong support for our STEM grants, mentoring, career panels and pipeline training programs that are helping to create the engineers of tomorrow and supporting the Companies' workforce development needs.

We heard fair criticism and frustration on issues such as billing accuracy, estimated meter reads and the frequency of planned interruptions to our Temperature Controlled service customers over the past two winters. Municipalities in the Companies' service territories are eager to coordinate with us on road repairs and on conversions from oil to natural gas.

There was high praise for the Companies' emergency response, and our response to Superstorm Sandy in particular. Our communities remember that when their citizens and small businesses really needed help, we were there. While we heard appreciation for our economic development

program directed at the communities most affected by Superstorm Sandy, our communities are looking for more economic development support from us. Our economic development program for KEDNY and KEDLI's affiliate Niagara Mohawk was noted by some constituents who said they wanted a similar program downstate. There was praise for our legacy Cinderella program, and a request for more assistance in the revitalization and beautification of neighborhoods in the communities we serve.

This feedback from our customers and constituents was very valuable to us and has guided our development of these filings.

Q. Please introduce the other witnesses who provide testimony in the Companies' filings.

A. In addition to my testimony, the Companies' rate case filings are supported by the testimony of 14 witnesses or witness panels. Below I summarize the issues they address:

- The Gas Infrastructure and Operations Panel consists of Ross Turrini, Senior Vice President – Gas Process and Engineering, Johnny Johnston, Senior Vice President, Gas Enablement Project, and Laurie T. Brown, Director - Network Strategy Gas. The panel's testimony

discusses the Companies' plans to deliver necessary investments in gas infrastructure, including the replacement of hundreds of miles of leak prone main, programs to enhance network reliability and support gas expansion, and investments to promote the safe and reliable operation of our gas networks. The panel also discusses the Companies' operations and maintenance costs to provide service to customers.

- The Gas Safety and Reliability Panel consists of Robert De Marinis, Vice President – Maintenance & Construction New York Gas, Susan Fleck, Vice President – Gas Pipeline Safety & Compliance, and Annette Saxman, Director – Gas Pipeline Safety Analysis New York. The panel presents the Companies' gas safety programs, as well as our proposal on Gas Safety Performance metrics.
- Ann E. Bulkley of Concentric Advisors addresses the Companies' cost of equity capital.
- Stephen Caldwell, Director Regulatory Strategy & Integrated Analytics, addresses the the Companies' overall cost of capital and capital structure.
- Maureen Heaphy, Vice President of US Compensation, Benefits and Pensions, describes the Companies' compensation and benefits program and our efforts to control the costs of those programs.

- Keri Sweet Zavaglia, Vice President of New York Performance and Strategy, addresses the Companies' implementation of the recommendations in the recent New York gas management audit.
- Paul Normand of Management Applications Consulting, Inc. presents the Companies' gas depreciation studies and proposed gas depreciation rates for ratemaking purposes;
- Charles F. Willard, Director, Site Investigation and Remediation (SIR), discusses the Companies' SIR programs, the Companies' efforts to control and mitigate SIR expense and the Companies' forecast SIR costs.
- The Shared Services Panel consists of Vivienne Bracken, Chief Procurement Officer, Larry Frye, Director - Credit & Collections Strategy, Paula Leaverton, Manager – Real Estate and Property Tax and David Campbell, Vice President – US Corporate Finance. The panel's testimony sets forth our proposals relating to property tax, uncollectible expense, customer service quality metrics and low income programs.
- Sean P. Mongan, Vice President of Customer Process and Performance, presents the Companies' proposals on economic development, outreach and education, gas conversion rebates, natural gas vehicles and gas-related research and development. Mr. Mongan

also presents demonstration programs to deploy new technologies that will promote more resilient, safe and efficient gas networks that would facilitate the Commission's REV goals.

- Theodore E. Poe, Manager, Gas Load Forecasting and Analysis, presents the Companies' gas sales forecasts.
- Elizabeth D. Arangio, Director, Gas Supply Planning, discusses the Companies' efforts to purchase natural gas supplies on a reliable, cost-efficient basis.
- The Revenue Requirements Panel consists of David B. Doxsee, Vice President & Chief Financial Officer – New York, James M. Molloy, Director Downstate New York Revenue Requirement, and Stephanie Briggs, Lead Specialist, Downstate New York Revenue Requirement. The panel's testimony sets forth the revenue requirements for the Rate Year, and describes the Companies' efforts to review the historic test year costs to ensure they were accurately charged. The historic test year is the twelve months ended September 30, 2015 (Historic Test Year or Test Year).
- The Rate Design Panel consists of Dawn M. Herrity, Principal Analyst, Gas Pricing New York, Pamela Dise, Director – New York Pricing, and Howard Gorman of HSG Group Inc. The panel's testimony addresses the marginal and embedded cost of service

studies, the revenue forecast, revenue allocation, rate design and bill impacts.

Q. Please address the review and presentation of the cost of service data in the Historic Test Year and the Rate Year.

A. The Revenue Requirements Panel describes how we reviewed and prepared the cost data. To facilitate Staff's review of Historic Test Year costs, National Grid engaged PwC to review the accounting for costs charged to the Companies in the Historic Test Year. This detailed review included a comprehensive review of service company and operating company costs in the Test Year, including labor allocations, vendor charges and employee expenses, among other items. PwC's review was focused on verifying that the Historic Test Year costs were charged correctly in accordance with National Grid's cost allocation methodologies, and were appropriate to include in KEDNY and KEDLI's cost of service. In addition, the Historic Test Year and the forecast Rate Year underwent significant internal reviews. Together, these internal and external reviews should facilitate Staff's timely audit of costs included in KEDNY and KEDLI's revenue requirements.

In addition to the sustainable savings from various initiatives that are reflected in the Historic Test Year, we are proposing a productivity factor of one percent of payroll and payroll taxes to encourage the Companies to continue to seek cost efficiency measures. The Revenue Requirements Panel presents the cost data for the two additional data years that we hope will facilitate a multi-year rate settlement. This Panel also addresses cost tracker and recovery mechanisms to protect both the Companies and our customers from costs that deviate from the rate allowances.

Q. Please explain the Companies' objectives and proposals with respect to gas infrastructure investment.

A. While KEDNY and KEDLI operate systems with differing challenges, their common objectives with respect to their capital investment programs are maintaining safe and reliable delivery service, including improving system resiliency through extreme weather events, accelerating the removal of leak prone pipe and reinforcing their systems to maintain reliability and enable growth.

Our capital programs reflected in these filings are $610 million for KEDNY and $340 million for KEDLI in the Rate Year. To deliver these

programs and to meet increased O&M workload, KEDNY and KEDLI need an additional 199 and 110 full time equivalent ("FTE") positions in the Rate Year, respectively. These FTEs include positions in field operations, meter services, engineering, project management, resource planning, instrumentation and regulation, damage prevention, LNG and gas control.

These additional positions necessitated by our increasing infrastructure investments and higher volume workload will benefit the communities we serve. In the coming months, National Grid will look to recruit and train more than 300 employees needed to support our capital and O&M programs, including jobs in gas engineering, project management and field operations. These positions will provide the opportunity to develop coveted STEM work skills and experience, and offer the prospect of long term careers in the energy industry. As I discuss below, given the immediate need to hire highly skilled gas field and customer service employees and to plan for the future retirements and transition of a deeply experienced workforce, we are playing a leadership role in the industry and launching new natural gas and customer service academies and building on our school partnerships and STEM programs.

We share the Commission's objective of accelerating the removal of leak prone pipe to maximize the safety of New York's gas distribution networks. Accordingly, the Companies' filings reflect a significant acceleration of leak prone pipe replacement, with KEDNY replacing at least 50 miles of leak prone pipe per year in each year of the rate plan (a 25 percent increase over its CY 2015 target and a 100 percent increase over its CY 2012 target) and KEDLI replacing at least 115 miles (a 48 percent increase over its CY 2015 target and a 130 percent increase over its CY 2014 target). As discussed in the Gas Infrastructure and Operations Panel's testimony, the cost of removing leak prone pipe has increased significantly since KEDNY and KEDLI's five-year rate plans were established. The Panel enumerates the ways the Companies leverage opportunities to mitigate these and other operations costs.

Our desire to remove all leak prone pipe from our systems must be balanced with customer bill impacts. To extend the life of leak prone mains and to enhance public safety, the Companies are utilizing technology to extend the life of leak prone mains and to protect the public until they can be replaced. KEDNY (which has more cast iron main than KEDLI) is deploying an innovative robotic joint sealing technology to improve the safety of these mains until they are replaced. The CISBOT

robot seals joints in large diameter leak prone mains at less than one-third of the cost of traditional joint sealing, largely because the CISBOT is able to traverse the main and access joints without requiring a pit excavation at each joint. The CISBOT seals joints while the pipe remains in service, thereby eliminating the need to interrupt service to customers.

Both KEDNY and KEDLI are utilizing pipe lining technology that lines and seals large diameter pipe and, like CISBOT, it is a cost effective means of extending the life of the main and protecting the public until it can be replaced. Both the CISBOT and pipe lining technologies are especially efficient in congested metropolitan areas where it can be difficult to locate sufficient subsurface space to install large diameter main. Because they involve less excavation than traditional pipe replacement, they reduce construction costs, avoid damage to roads and vegetation, minimize disruptions to the public and provide environmental benefits in the form of reduced gas emissions and construction debris.

Learning lessons from Superstorm Sandy, the Companies are proposing to invest in making their systems more resilient by installing in their service territories' flood zones automated shut-off valves with sensors that stop the flow of gas as soon as flooding is detected. These valves prevent over-

pressurization and stop gas from flowing to premises with damaged equipment and/or extinguished pilot lights, mitigating the risk of a potential incident. Automated valves would also provide a real-time count of services impacted by flooding to inform our storm response. The Companies also propose programs that target the retirement of leak prone mains that are susceptible to water intrusion, but would otherwise not be prioritized for replacement under the main replacement program. These storm hardening investments will protect our customers and our systems in severe weather events.

To maintain the Companies' ability to serve peak day demand, we are upgrading our LNG facilities. The Companies' LNG facilities in Greenpoint (KEDNY) and Holtsville (KEDLI) play a critical role in maintaining system reliability by providing gas supply to meet peak demand. These facilities were placed in service in the 1970s and now require significant investment to ensure continued safe operation, including major tank upgrades at both plants. In the Rate Year, KEDNY plans to invest $30 million and KEDLI plans to invest $16 million to upgrade their LNG facilities and these investments will ramp up in CY 2018 to assure the continued safety and reliability of these on-system supply assets.

The Companies are also investing in reinforcements to maintain reliable delivery and to increase capacity to meet customer demand. Below are key reinforcement projects from KEDNY and KEDLI's capital investment plans.

KEDNY

- The Metropolitan Reliability Infrastructure (MRI) project will reinforce the backbone of the Brooklyn gas system through the installation of approximately 34,000 feet of 30-inch transmission main. This $189 million project will add 850,000 dekatherms of daily capacity and increase system reliability and operational flexibility.
- The Northern Queens Project, a $100 million reinforcement and reliability project in one of the most constrained areas of KEDNY's system, will provide needed capacity to meet increasing customer demand, interruptible or Temperature Controlled to firm service requests, and additional multifamily conversions resulting from the New York City Clean Heat Initiative.

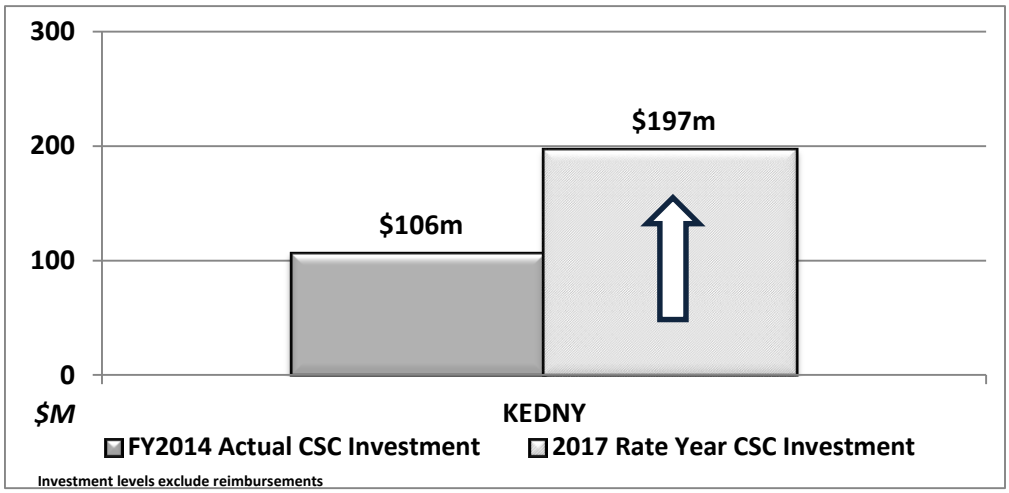
KEDLI

- The Northwest Nassau Transmission Project will improve safety and reliability, resolve low pressure issues and position the gas transmission system to accommodate a future supply point in Nassau County. This $148 million project involves the installation of over five miles of 24-inch transmission main and the construction of two new regulator stations.
- Forecast customer growth on Long Island will require the installation of 307,000 feet of new main in the Rate Year, as well as new services and meters.
- Significant system reinforcement projects to serve growing demand for gas on Eastern Long Island and on the Rockaway Peninsula.

While investments to meet regulatory requirements, to remove leak prone pipe and to support reliability and growth can generally be planned and executed on our timeline, City/State Construction presents a significant variable in the Companies' forecasts of their capital expenditures. Mandatory investments to comply with current and emerging pipeline safety regulations, the accelerated removal of leak prone pipe and City/State Construction account for 55 percent of KEDNY's capital program and 49 percent of KEDLI's. Of these mandatory investments,

City/State Construction represents 56 percent for KEDNY and six percent for KEDLI in the Rate Year. With the scope of mandatory investments expanding, the Companies have little room for unexpected projects. As shown in Table 5, City/State construction projects are on the rise in KEDNY's service territory in particular, and may reach unprecedented levels in the Rate Year.

Table 5: KEDNY City/State Construction



While KEDNY coordinates with New York City to forecast these projects as accurately as possible, recent experience indicates that there will be large, unanticipated City projects that will require KEDNY to move its facilities. While some of these projects allow KEDNY to replace leak prone pipe slated for replacement, others lack these synergies. For these reasons, we propose a mechanism to reconcile the

cost of City/State construction that exceeds (or falls below) the Companies' rate allowances.

The Panel also addresses our proposed information technology investments, including investment to enhance the cybersecurity of the Companies' networks.

Q. What do the Companies propose with respect to replacement of leak prone pipe?

A. To promote public safety and system reliability and to support the Commission's goal of accelerating the elimination of leak prone pipe, KEDNY and KEDLI propose to significantly increase their removal of leak prone pipe in the Rate Year and Data Years. KEDNY will replace at least 50 miles per year and KEDLI will replace at least 115 miles per year. In addition, we propose an incentive mechanism to fund increases in leak prone pipe replacements over these ambitious baseline targets by more than five miles and 20 miles per year, respectively. If achieved, these incentive targets would allow the Companies to eliminate all leak prone pipe on their systems in approximately 20 years. Under the Companies' proposal for a Gas Safety and Reliability Surcharge, KEDNY and KEDLI would recover the cost of additional leak prone pipe

replacement (capped at average replacement costs) over the baseline target levels of 50 miles and 115 miles, and would earn an incentive for each mile replaced above the incentive targets. The Gas Safety and Revenue Requirements Panel addresses this mechanism and the Gas Infrastructure and Operations Panel discusses the challenges presented. As discussed by the Gas Infrastructure and Operations Panel, it will be challenging in the short term to summon the contractor resources to do this amount of work, particularly when other utilities are competing for the same resources. However, we are committed to doing all we can to meet our incentive targets for replacement of leak prone pipe in a cost-effective way.

Q. What do the Companies propose with respect to leak repairs?

A. KEDNY and KEDLI propose to reduce their backlogs of non-hazardous leaks by 100 and 500 leaks, respectively, each year. While these leaks do not present safety risks, we recognize that eliminating additional non-hazardous leaks will enhance system performance and reduce methane emissions. The Companies propose to use the Gas Reliability and Safety Surcharge to fund the repair of leaks above the base targets (100/500 leaks) based on their respective average leak repair costs, capped at 50 additional leaks per year. At the same time, both KEDNY and KEDLI are proposing targets for reducing their hazardous leaks that will require them

to improve on their strong performance in this area to assure that the non-hazardous leak metrics do not divert resources from repairing hazardous leaks.

Q. Please address the operation and maintenance expense presented in the Companies' filings.

A. A much larger capital program, increased volume of leak repairs, added costs to lock inactive meters and address plastic fusions, higher materials and labor costs, expanded paving requirements and higher permitting fees have driven the Companies' O&M costs overall far above the 2012 costs underlying their five-year rate plans.

In addition, Local Law 30 of the New York City Building Code, which requires gas utilities serving New York City to install external valves on service lines, is driving $15 million of increased O&M for KEDNY to install 6,800 valves in the Rate Year. Local Law 30 requires that external shut off valves be installed on multifamily, commercial, governmental and industrial customer service lines prior to January 1, 2010 and at service lines to one and two family homes by January 1, 2020. We met the target for 2010 and have been installing the required valves at one and two family homes in a cost-efficient manner, largely when opportunities arose to install them in connection with another street repair or City/State

construction. While we believed that the approach we took was in the best interest of our customers, we now have to install the remaining valves in a fairly short timeframe. KEDNY will invest more than $22 million in calendar year 2016 to install over 8,500 valves.

Q. What do the Companies propose relative to recovery of their SIR costs?

A. Our objective is to mitigate the growth of large deferral balances that could create undesirable rate impacts in the future. We propose to move most of KEDNY and KEDLI's forecast SIR costs for the Rate Year into base rates. KEDNY and KEDLI's existing surcharge mechanisms will be used to amortize their respective deferral balances and to reconcile their annual costs with their base rate allowances. For KEDNY, the reconciliation of annual costs will include the prospective costs of remediating the Gowanus Canal and Newtown Creek, two large and complex sites. While the current surcharge modified by the Commission as of November 2015 is helping to mitigate the current SIR deferral balance, KEDNY anticipates incurring significant costs relative to the remediation of the Gowanus Canal and Newtown Creek over the next several years. Our SIR recovery proposal would help to avoid a large deferral balance that would have to be reckoned with in future cases.

Company Witness Charles Willard addresses our SIR programs, including our cost control measures, and the status of the Gowanus Canal and Newtown Creek sites; the Revenue Requirements Panel discusses our proposals on the recovery of SIR costs.

Q. What are the Companies' proposals with respect to gas safety and compliance?

A. We are committed to improving our compliance performance and are undertaking a series of measures to improve our compliance with gas safety regulations, as measured by Staff's audits. In these cases, the Companies are proposing to add seven compliance analysts and two quality assurance/quality control ("QA/QC") inspectors. These additional personnel will supplement resources in our Gas Pipeline Safety & Compliance Department. As discussed by the Gas Safety Panel, the Compliance Analysts will monitor the Companies' compliance with the Commission's safety regulations and our internal work procedures. We believe this function has already improved our safety performance and the additional personnel will drive further improvements. The QA/QC personnel will inspect field work performed by in-house crews and contractors and dig up construction jobs to assure they were performed safely and in compliance with the gas safety regulations, effectively acting

as an internal operations auditor. As we increase our construction workload over the next several years, these additional QA/QC resources will allow us to conduct hundreds of additional safety inspections.

We are implementing a process safety program that adopts the American Petroleum Institute's recommended pipeline safety management system standards (Recommended Practice 1173). These standards provide a framework for identifying hazards, controlling potential risks and addressing safety and maintenance requirements throughout a pipeline's life cycle to reduce the likelihood of safety incidents. The Companies will also engage pipeline safety experts to conduct an independent assessment of our gas operations to identify any compliance gaps and to help us develop remediation plans.

Longer term, systems and automation are required to improve our performance, particularly on the records audits. We are in the process of designing this framework.

We propose to modify our gas safety performance metrics to provide more stringent performance targets in areas such as damage prevention and leak management and to adjust the safety violations metric to focus more attention on addressing compliance deficiencies going forward.

We are also implementing enhancements to our gas safety outreach program to better educate the public on the importance of recognizing and reporting gas odors, improving our training and coordination with first responders, and deploying additional damage prevention resources to protect our underground facilities. Finally, to advance residential methane detection technology, we are proposing to install up to 10,000 residential methane detectors in apartments with inside meters over a three-year period.

Q. What rate of return on equity and capital structure do the Companies propose?

A. We are proposing a return on equity of 9.94 percent for the Rate Year and a capital structure with a 48 percent equity component. While the Companies' actual capital structure is higher than 48 percent equity, we are proposing a 48 percent equity structure consistent with the Commission's recent precedent, as discussed in the testimony of Company Witnesses Ann E. Bulkley of Concentric Advisors and Stephen Caldwell. The Companies' and our customers' interests will be served if the result of these rate filings are rates that compensate KEDNY and KEDLI's cost of providing service to customers and afford the Companies a reasonable opportunity to earn allowed returns on equity that are commensurate with

enterprises of similar risk. The Companies' ability to retain access to capital markets on terms favorable to our customers will be directly affected by the rates authorized by the Commission in this proceeding.

Investors use the return on equity as a key benchmark in assessing investment opportunities in public utilities. A return on equity that is below what investors believe they can earn on investments in companies with similar risk would impair our ability to attract capital, both debt and equity, on reasonable terms. Over the past two years, KEDNY and KEDLI have had credit ratings downgrades from Standard & Poor's and Fitch. Both cited the Companies' continued capital investments, the fact that rates have remained unchanged for such an extended period and lower earned returns. Further downgrades could impact the Companies' credit quality and raise costs for customers as the cost of borrowing increases.

Q. What are the rate impacts of the Companies' filing?

A. Because the Companies' revenue deficiencies are so large, the rate impacts are very significant. Table 6 shows the rate impacts of the Companies' filings on a typical residential heating customer based on a comparison of total bills in the Historic Test Year and the Rate Year.

Table 6: Bill Impacts

	KEDNY		KEDLI	
Total Bill Impact	**Monthly $**	**% Increase**	**Monthly $**	**% Increase**
Residential Heat	13.98	14%	13.40	12%
Residential Heat Reduced Rate	10.32	11%	10.01	12%
Non Residential Heat	27.94	12%	36.86	12%
Multi Family	106.33	8%	115.52	7%

For KEDNY, the incremental SIR surcharge approved by the Commission in October 2015 was added to the Historic Test Year rates to compare what KEDNY customers are paying today with KEDNY's proposed rates in the Rate Year. The total bill comparison of the Historic Test Year to the Rate Year includes the impact of the change in gas commodity prices between the Historic Test Year and the Rate Year. An analysis of rate impacts is discussed in the testimony of the Rate Design Panel. Even with gas commodity prices at near historic lows, these significant bill impacts should be phased in over a multi-year rate plan to ease the impact on our customers. The Revenue Requirements Panel and the Rate Design Panel discuss and illustrate how KEDNY and KEDLI's rate increases could be spread over a three-year rate plan. The testimony of these Panels demonstrates that distributing the revenue increases over multiple years would help to mitigate the impacts on our customers. We look forward to

working with Staff and the other parties to arrive at a multi-year rate plan that compensates the Companies' cost of service and mitigates the impacts for our customers.

Q. Please explain the Companies' low income proposals.

A. We recognize that many of our customers struggle to make ends meet. The Shared Services Panel presents the Companies' proposals to enhance our low income programs and provide additional assistance to our customers most in need. KEDLI is proposing to add two consumer advocates and both Companies propose to increase the monthly discount for customers participating in their Reduced Residential Rate programs by five percent. We are working with New York City's Human Resource Administration and the Office of Temporary Disability to explore automatic enrollment for the Reduced Residential Rate, which we expect would significantly increase the pool of participating customers. We propose a collaborative to arrive at a consensus on how these automated enrollments can be prioritized to avoid burdening our other customers with a large deferral while making sure that our neediest customers have access to the reduced rates.

To assist low-income customers who wish to convert to natural gas from an alternate fuel, the Companies are proposing a new low-income

conversion rebate program. Up to 100 customers participating in KEDNY or KEDLI's Reduced Residential Rate programs would be entitled to receive a rebate of up to $7,500 if they convert their homes to natural gas and install efficient heating equipment. In addition, to assist low income customers in managing their energy usage, KEDLI proposes to supply them with smart, programmable thermostats at no cost to them. These programs would enable low income customers to realize ongoing fuel savings that are associated with converting to natural gas heat and provide them more control in managing their energy usage.

We are also proposing several new initiatives to assist our customers, particularly our customers with low or fixed incomes. We propose a stand-alone customer assistance and outreach center in Brentwood (Suffolk County) to provide one-stop service for all customers, with a focus on low-income and vulnerable customers. In addition, we propose to implement expos in coordination with our consumer advocates and community partners to provide our customers facing challenges with a means of connecting immediately with the resources they need under one roof. Finally, we propose to transform a portion of our high-traffic MetroTech customer office into a sustainability hub where we can educate customers on gas safety and energy efficiency. Our Downtown Brooklyn

office is an ideal location because it is very accessible through public transportation, will support significant walk-in visitors, and is located in close proximity to colleges and schools that can partner with us to support the project.

The Shared Services Panel describes our low income customer initiatives and the planned sustainability hub at MetroTech.

Q. Please explain the Companies' economic development proposals.

A. Since 1966, KEDNY, later joined by KEDLI, has helped to revitalize local communities through the award winning Cinderella community development program. Through this program, we have provided awards for rehabilitation of abandoned buildings, new affordable housing and retail stores on commercial strips. The original concept for the Cinderella program was to demonstrate that by making a modest investment, good housing stock could be refurbished into attractive, affordable living space. We recognized that a critical component to the restoration of our service territories was the commercial strips that adjoined the housing areas. We worked with local shopping districts, encouraging owners to improve the facades of their stores with the help of Cinderella grants. Cinderella became a model that has been copied by other cities throughout the United States, and in other countries as well. In 2003, we expanded the

Cinderella program to award grants to encourage the innovative use of green technology and the development of the next generation of building technologies. We extended this legacy with our emergency economic development program following Superstorm Sandy to support residential and commercial customers in their recovery. We are extremely proud of this legacy and wish to build on it to continue the revitalization of the communities we serve.

We are proposing economic development funding of $2 million for both KEDNY and KEDLI. As part of our stakeholder engagement, we solicited feedback from customers and other stakeholders to identify areas where enhanced economic development programs would be most effective. Based on this feedback, the Companies developed a comprehensive suite of economic development programs that will support urban revitalization, infrastructure assistance, Brownfield and industrial building redevelopment, sustainable gas, manufacturing productivity and attraction of new businesses to our service territories. These programs are addressed in the testimony of Company Witness Sean Mongan. Collectively, these programs will help offset customer costs for natural gas infrastructure upgrades to accommodate business expansion and economic growth, conversion to gas from an alternate fuel or new construction, and

promote regional economic growth through the development, demonstration and deployment of new sustainable gas technologies.

Q. What are the Companies proposing to promote growth in their service territories?

A. The Gas Infrastructure and Operations Panel addresses the capital investments the Companies plan to reinforce their systems and enable growth. Company Witness Sean Mongan discusses a new program to assist KEDLI customers with upfront conversion costs by offering a rebate of $1,000 to each new customer who agrees to take service along the route of a planned main replacement. By coordinating gas connections with main replacements, this program will encourage more efficient growth by reducing the number of road openings, repaving and permitting costs and traffic disruptions compared to typical service installations. We also propose the extension of KEDLI's successful Neighborhood Expansion Program, which allows customers in neighborhoods with promising growth potential to have KEDLI expand its network to serve them without requiring contributions in aid of construction. KEDNY proposes an incentive for customers to buy natural gas vehicles to make more efficient use of existing infrastructure. Further, the Companies' proposed conversion rebate programs and KEDLI's smart, programmable

thermostat program for low income customers will help these customers access the benefits of conversion to natural gas and provide them a means of managing their energy use.

Q. How do the Companies propose to address Temperature Controlled Service?

A. While the Temperature Controlled (TC) Service Classification has been an important tool for the Companies to leverage non-peaking capacity on their distribution systems and make incremental sales of gas in off-peak periods, we understand that TC customers are not satisfied with their service and rates. We propose a collaborative where we can discuss with TC customers and Staff how the service can be structured in a manner that meets the needs of all stakeholders. As of the date of the Commission's order resolving these rate filings, we will not add new TC customers until the collaborative has completed its work and the Commission has made a determination on the recommendations submitted by the collaborative.

Q. What are the Companies' proposals with respect to customer service?

A. We propose various investments and programs that are needed to enhance our customers' experience. The Companies propose to improve their call center operations by utilizing new technology to increase the capabilities

of remote customer agents and by fully utilizing the resources of our New York contact centers to improve service levels. We will install an additional 528,000 AMR devices in KEDNY's service territory, which will complete the deployment of this important customer program downstate.

In addition to our proposed new customer assistance and outreach office in Brentwood and the sustainability hub at our MetroTech Office, we propose to expand the availability of third-party payment processing agents so customers can pay their bill in person more easily.

To measure our performance in delivering customer service, the Companies are proposing an innovative service quality program that includes the current service quality metrics (requiring a five percent improvement in the calls answered metric for KEDNY and the same stringent target for KEDLI, which is currently not subject to this metric) together with new metrics that drive customer satisfaction, including payment processing, interactive voice response system self-service rate, and percent of appointments kept. The Companies are also proposing two new incentive-only metrics on payments made through the web and mobile devices and low income outreach and assistance program engagement. We designed the proposal to target metrics over which the Companies have better control, to capture new customer communication

channels and to standardize the metrics across our downstate service territories. The proposed program would allow superior performance in one area to offset below-target performance in another and is designed to provide continuous opportunities for improvement.

To assure accurate billing, the Companies' billing systems must have the requisite functionality. The Commission is aware that KEDNY had contemplated converting its CRIS system to the CSS system used by Niagara Mohawk and KEDLI. Given the complexities of KEDNY's customer billing, we questioned whether the CSS system was best suited for accurate management of these complexities, and the conversion is now paused as we consider whether CSS or another application would be the best choice for KEDNY. This pause will allow KEDNY to complete its AMR deployment before attempting to implement a new customer system, incorporating lessons learned from KEDLI's CSS conversion. We will keep Staff informed of our progress and will seek cost recovery at the appropriate time.

Q. Please describe the Companies' proposals for demonstration programs that support the objectives of the REV proceeding.

A. Consistent with the goals of the REV proceeding, the Company is committed to testing technologies designed to create a more resilient gas system and enabling greater customer engagement and choice. The Companies each propose three demonstration programs that will permit them to test new technologies. Company Witness Sean Mongan discusses the flood zone protection packages, the micro CHP home energy management solutions and commercial demand response demonstration programs for KEDNY and KEDLI. Under these programs, both Companies will deploy 500 flood zone protection packages, install 10 micro CHP electric generating units and implement a commercial demand response program for up to 20 commercial customers. The flood zone protection packages include equipment to detect excessive methane levels and enable automatic shut off if unsafe conditions are detected, and would identify opportunities for customers to install energy efficiency measures. The micro CHP units would provide heat and hot water as well as supplemental electric power to customers in low income areas. This demonstration project has the potential to both reduce the need for future investments to serve electric load and allow customers to benefit from the price advantage of using natural gas to generate electricity. The commercial demand response program would call for voluntary participants to reduce their gas use by 10-20 percent in exchange for a

market-based credit for their usage reductions. As discussed by Mr. Mongan, we hope to learn valuable lessons from these demonstration programs that will help us build larger programs to assist customers in managing their energy usage and to effectively manage peak demand for the benefit of all our customers.

Q. What are the Companies doing to hire and train the next generation of utility workers?

A. We have more than 4,000 highly skilled, dedicated National Grid employees that support our business in New York. But National Grid, and the broader utility industry, is facing a challenge in the aging demographic of its workforce. In the coming years, many of our most experienced and skilled utility professionals will be eligible for retirement. Therefore, we must attract and retain the next generation of utility workers to support our business and operate and maintain our gas infrastructure. We are partnering with vocational schools, community colleges and veterans' associations to create a job "pipeline" into the Companies. National Grid is committed to supporting STEM education, and Engineering Our Future is our long-term plan to attract students to STEM careers. National Grid works with educators and students, from kindergarten to college, to promote STEM education. In New York City, we are collaborating with

education and business leaders to support the Energy Tech High School that is training students to fill the next generation of STEM and energy jobs. Students from Energy Tech have the opportunity to prepare for careers in the utility industry through unique opportunities like field visits, job shadowing, mentoring, and internships at National Grid and Consolidated Edison. Other programs in this area include a partnership with Brooklyn Tech Middle School to develop a four-year program that will support STEM education for middle school students in Brooklyn, an associate's degree program we designed with Kingsborough Community College to prepare students to enter the workforce in the customer care field (the Customer Service Academy) and the creation of a natural gas technician program at Farmingdale Community College (the Natural Gas Academy). Our efforts in this area are discussed by Company Witness Maureen P. Heaphy.

Q. Are the Companies' filings consistent with the New York State Energy Plan and the Commission's REV policies?

A. Yes. We support New York State's energy policies and the policy objectives stated in the Commission's REV proceeding. As demonstrated throughout these filings, we are committed to modernizing our gas infrastructure to promote resiliency, reliability and growth, to deploying

new technologies to enhance gas safety and customer engagement and to assisting our customers with managing their energy usage. We look forward to working with all stakeholders to promote these policies in a manner that benefits our customers and communities.

Q. Please summarize your testimony.

With the exception of a one-time increase for KEDLI's customers in 2008, KEDNY and KEDLI customers have had two decades of base rate decreases and stability. Over this period, the Companies have invested billions of dollars in their gas infrastructure to maintain safe and reliable delivery service to customers and have also invested in the revitalization of the communities we serve. Driven by critical infrastructure investments and the fact that their rate allowances are not aligned with the cost of serving customers, KEDNY and KEDLI have very large revenue deficiencies that need to be addressed. It is our responsibility to our customers, our investors and creditors to seek base rates that fund the cost of providing safe and reliable service to our customers. The Companies need new delivery rates that compensate their cost of service to customers, maintain their financial stability by supporting advantageous access to debt capital and provide a fair opportunity to earn a reasonable return on the equity invested to improve the resiliency, safety and reliability of their

gas networks. The combination of gas commodity costs forecast to remain at or near historic lows and our desire, shared by our customers, to mitigate delivery rate impacts by spreading the revenue increases over multiple years should result in KEDNY and KEDLI rate plans that allows us to meet the expectations of our customers and the Commission.

We have listened to our customers, Staff and other stakeholders and their input informed our development of these cases. We propose necessary investment in our downstate distribution systems to accelerate removal of leak prone pipe, to make sure our customers can count on us to "just keep the heat on," to comply with existing and emerging regulations, to make our gas networks more resilient to extreme weather events and to enable growth. As the energy provider to over two million customers in New York, we are advancing clean energy solutions that further our commitment to environmental stewardship. Increasing the availability of natural gas will provide energy savings to customers and direct environmental benefits from reduced emissions of greenhouse gases as customers convert from dirtier fuels.

To facilitate growth in a cost-effective manner, we propose rebates to offset the initial cost of conversion to gas equipment to KEDLI customers on the path of mains scheduled for replacement and seek to extend the

successful Neighborhood Expansion Program that is bringing gas service to previously unserved areas.

We are proposing increased financial assistance and conversion rebates to our low income customers, as well as a sustainability hub at our MetroTech office and a customer outreach center in Brentwood to educate customers about gas safety and energy efficiency and to make it easier for them to talk to us. We present Rev-like demonstration programs that would equip customers in flood zones with technology that can detect excess methane levels and inform our emergency storm response, a micro CHP program and a commercial demand response program that would credit customers for not using natural gas during peak periods. We propose economic development funding to revitalize distressed communities in our service territory, to allow for business expansion that will create jobs and to promote clean energy technology.

We are working with educational partners to promote STEM skills and creating educational opportunities for the workforce of the future to learn the critical math, engineering and customer service skills needed in the energy industry.

I am confident that, with fully compensatory rates, the Companies can deliver all of these important initiatives, enhance safety and reliability, and achieve the priorities we share with our customers and the Commission to

create a sustainable energy future for the next generation of customers in New York.

Q. Does that conclude your testimony?

A. Yes.

Testimony of
Elizabeth D. Arangio

Before the Public Service Commission

THE BROOKLYN UNION GAS COMPANY D/B/A NATIONAL GRID NY and KEYSPAN GAS EAST CORPORATION D/B/A NATIONAL GRID

Direct Testimony

of

Elizabeth D. Arangio

Dated: January 29, 2016

Testimony of Elizabeth D. Arangio

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I. Introductions and Qualifications

Q. Please state your name and business address.

A. My name is Elizabeth D. Arangio. My business address is 40 Sylvan Road, Waltham, Massachusetts 02451.

Q. Please describe your business position and responsibilities.

A. I am the Director of Gas Supply Planning with responsibility for the gas supply resource portfolios of National Grid USA's ("National Grid") local gas distribution companies ("LDCs") in New York, including The Brooklyn Union Gas Company d/b/a National Grid NY ("KEDNY") and KeySpan Gas East Corporation d/b/a National Grid ("KEDLI") (collectively the "Companies"). In addition to the New York portfolios, I am also responsible for planning the gas resource portfolios of National Grid's New England subsidiaries.

Q. Please summarize your educational background and your professional experience.

A. I graduated from the University of Massachusetts in 1991 with a Bachelor of Business Administration. In 1995, I graduated from Bentley College with a Master of Business Administration. From 1991 to 1994, I worked as a Gas Accounting Analyst in the Marketing Operations Department at

Algonquin Gas Transmission Company. In 1994, I joined Boston Gas Company as a Gas Supply Analyst. In 1997, I was promoted to Group Leader Transportation Services, with responsibility for managing all activities associated with the customer choice program. In 1998, I was promoted to Director of Gas Acquisition and Transportation Services and assumed responsibility for the administration of Boston Gas's gas resource portfolio and customer choice program in Massachusetts and, in 2000, the resource portfolio of EnergyNorth Natural Gas, Inc. in New Hampshire. In February 2004, I assumed the additional responsibility for gas supply planning for the Companies' resource portfolios. Following the acquisition of KeySpan Corporation by National Grid, I was named to my current position and assumed added responsibility for National Grid's gas resource portfolios in Upstate New York and Rhode Island.

II. Purpose of Testimony

Q. What is the purpose of your testimony?

A. My testimony has several purposes. First, I describe the Companies' efforts to purchase gas supply and pipeline transportation and storage services on a reliable, least-cost basis in the twelve months ended September 30, 2015 ("Historic Test Year"), the twelve months ending December 31, 2017 ("Rate Year"), and the twelve months ending

December 31, 2018 and December 31, 2019 ("Data Years"). Second, I present the Companies' forecast of gas costs for the Rate Year. Third, I present the results of the Companies' marginal gas cost studies. Fourth, I discuss the Companies' Customer Choice Program. Fifth, I discuss the Companies' Gas Cost Volatility Management Program. Sixth, I discuss certain modifications that the Companies propose to make with respect to the treatment of revenues derived by KEDLI under a Fuel Management Agreement with the Brooklyn Navy Yard Cogeneration Partners ("BNYCP"). Finally, I discuss the status of the recommendations set forth in the Companies' most recent management audit concerning gas supply planning and procurement.

Pursuant to the New York State Public Service Commission's ("Commission") Order dated October 28, 2005 in Case 05-G-0903, as of November 2005, the Companies have combined the planning and implemented a joint dispatch of their gas supply portfolios to permit the customers of both KEDNY and KEDLI to enjoy enhanced reliability of supply and lower costs. Therefore, my testimony addresses the combined portfolios of the Companies and the material I present is identical for KEDNY and KEDLI.

Q. Does your testimony include any exhibits?

A. Yes. My testimony includes the following exhibits that were prepared under my supervision and direction:

Exhibit __ (EDA-1)	KEDNY & KEDLI Portfolio Schematics;
Exhibit __ (EDA-2)	KEDNY & KEDLI Pipeline Transportation Contracts;
Exhibit __ (EDA-3)	KEDNY & KEDLI Storage Contracts;
Exhibit __ (EDA-4)	KEDNY/KEDLI Projected Monthly Gas Stored Volumes and Dollars for the Rate Year and Data Years Summarized by Market Area, Gulf Coast and LNG storage;
Exhibit __ (EDA-5)	KEDNY/KEDLI Purchased Gas Expense for the Twelve Months Ending ("TME") September 30, 2015;
Exhibit __ (EDA-6)	KEDNY/KEDLI Forecast of Variable Gas Expense for the TME December 31, 2017, 2018 and 2019;
Exhibit __ (EDA-7)	KEDNY/KEDLI Forecast of Purchased Gas Expense for the TME December 31, 2017, 2018 and 2019;
Exhibit __ (EDA-8)	KEDNY & KEDLI Estimated Marginal Commodity Cost of Gas; and
Exhibit __ (EDA-9)	KEDNY & KEDLI Estimated Annualized Marginal Capacity Cost of Gas.

III. Gas Supply Portfolio

Q. Please describe the Companies' gas distribution systems.

A. KEDNY's gas distribution system serves Brooklyn, Staten Island and portions of the Borough of Queens, all located within the City of New York. KEDLI's gas distribution system serves the portion of Queens not served by KEDNY, as well as Nassau and Suffolk counties on Long Island. KEDNY and KEDLI are parties to an agreement with Consolidated Edison Company of New York, Inc. concerning the ownership and operation of the New York Facilities System ("NYFS"). This agreement permits the parties to contract with interstate pipelines for the transportation and receipt of gas from various interstate pipelines that interconnect with the NYFS. The NYFS has interconnections with Transcontinental Gas Pipe Line LLC ("Transco"), Texas Eastern Transmission LLC, Iroquois Gas Transmission L.P. ("Iroquois") and Tennessee Gas Pipeline LLC. KEDNY and KEDLI contract for service from each of these pipelines as well as various other upstream pipelines and storage service providers.

Q. Please describe the Companies' gas supply planning process.

A. Typically, in the spring of each year, the Gas Supply Department develops plans to meet the Companies' gas supply obligation for the annual period

from November 1 of that year through October 31 of the following year. This planning process begins with an updated ten-year demand forecast that provides the foundation for customer requirements that ultimately determine incremental pipeline, storage or peaking needs.

Q. You mentioned that the Companies have combined the planning and dispatch of their supply portfolios. How does this benefit the Companies' customers?

A. The Companies have been able to leverage the complementary nature of their demand portfolios, the geographic proximity of their service territories and their aligned capacity contracts to realize supply synergies. With a combined portfolio, the Companies have been able to plan gas capacity additions to meet firm customer growth in an efficient and cost-effective manner. In addition, by implementing combined gas dispatching, KEDNY and KEDLI have been able to achieve efficiencies and variable cost savings.

Q. Are the Companies' supply portfolios combined for the purpose of determining the Gas Adjustment Charge ("GAC") that is assessed to customers?

A. The Companies currently assess separate GACs. In determining the individual GACs, the Companies assess the same commodity costs to both KEDNY and KEDLI; however, the fixed costs of the capacity are handled differently. The Companies assess separately to their respective customers the cost of capacity contracts that they had in their individual supply portfolios prior to April 2004. All costs associated with capacity contracts entered after that date are allocated to both Companies. In advance of each GAC year, a unitized fixed cost is calculated for each Company by taking its respective total demand charges, dividing them by its projected annual firm sales and transportation volumes, and applying its total annual fixed cost credits. The unitized fixed cost is then added to the commodity cost of gas each month and charged to customers for KEDNY and KEDLI, respectively. The Companies are proposing to combine their fixed costs and fixed cost credits to eliminate these separate cost assessments. Based on current costs, this proposal, which is discussed in more detail by the Rate Design Panel, would result in a 0.64 percent decrease in costs for KEDNY's customers and a 0.85 percent increase in costs for KEDLI's customers.

Q. What is the basis for the Companies' city gate requirements?

A. The primary firm demand (*i.e.*, core customer load forecast) forms the basis for the Companies' gas supply portfolio. The primary firm demand is the demand imposed on the Companies by their firm customers. Pipeline and storage capacity, along with peaking assets, are used to satisfy the primary firm demand. An annual load duration curve or similar approach is utilized to structure capacity contracts to best meet the shape and frequency of the anticipated loads and to assure the Companies' ability to meet those loads. The Companies do not incorporate any reserve margin assumptions when developing their design weather forecasts and capacity requirement determinations.

Q. Does the primary firm demand include the requirements of customers who purchase gas commodity from retail marketers?

A. Yes. The Companies determine their total primary firm demand for their core customers regardless of whether they purchase gas commodity from the Companies or from retail marketers ("Retail Marketers" or "Marketers").

Q. What contracts or assets are included in the Companies' existing portfolio?

A. Exhibits __ (EDA-1) sets forth schematics of the Companies' gas portfolios and provides their maximum delivery entitlements from various sources of supply, including underground storage contracts.

Q. Please describe Exhibit __ (EDA-2) – Pipeline Transportation Contracts.

A. Exhibit __ (EDA-2) summarizes the firm pipeline transportation capacity and bundled peaking assets in the portfolio for the 2015-2016 winter season (November 1, 2015 to March 31, 2016). Listed for each contract is information concerning the service provider (pipeline or supplier), tariff rate schedule, contract volume and contract expiration date.

Q. Please describe Exhibit __ (EDA-3) – Storage Contracts.

A. Exhibit __ (EDA-3) summarizes the Companies' firm storage contracts and the transportation contracts used to deliver storage withdrawal volumes to the city gate for the 2015-2016 winter season. Listed for each contract is information concerning the name of the storage service provider or pipeline, tariff rate schedule, contract volume and contract expiration date.

Q. What are the sources of gas supply purchased by the Companies for their distribution customers?

A. KEDNY and KEDLI purchase gas supplies from the Northeast producing region, which includes the Marcellus and Utica shale supply basins, from the onshore and offshore Gulf of Mexico region, and from suppliers located along Canadian transportation paths originating at Dawn, in Ontario, Canada and also including the Vector Pipeline, which originates near Chicago, Illinois. During the 2014-2015 winter period, the Companies purchased approximately 79 billion cubic feet ("Bcf") of gas from the Northeast region, approximately 20 Bcf from the Gulf Coast region and approximately 11 Bcf from suppliers along the Canadian transportation paths.

Q. What is the role of underground storage in satisfying customer requirements?

A. Approximately 37 percent of the Companies' normal winter supply obligation and 31 percent of their design day demand requirement are met by deliveries of gas withdrawn from storage. Under the Companies' storage contracts, storage deliverability typically declines as inventory decreases. The provisions of the contracts or tariffs that provide for these declines are known as withdrawal ratchets. Once reached, these ratchets

cannot be reversed until the following year. The Companies' storage withdrawal plan (a/k/a storage rule curve) is established prior to the winter season to maintain inventories at levels that allow sufficient storage deliverability to meet forecast winter peak conditions.

Market area storage provides the Companies with services that cannot be easily duplicated with other assets. The most important attribute these assets provide is flexibility, which is vital to meet fluctuating customer requirements. KEDLI and KEDNY's Transco storage service contracts provide end-of-day balancing that minimizes the risk of balancing penalties. Storage allows enhanced flexibility for customer load changes on weekends and holidays. In contrast, typical supply purchases are ratable, meaning they must be called on at the same volume for each day of a weekend or holiday. Most of the Companies' storage contracts can be turned off and on intraday to meet changing conditions. In addition, storage improves the load factor of flowing pipeline assets and is critical to the Companies' efforts to meet design weather conditions. The Companies use a least cost dispatch to fill storage. Where Northeast region supplies present an opportunity to displace long haul supplies for storage refill, the Companies will take advantage of this economically priced supply.

KEDNY and KEDLI also have contracted for approximately 21.4 Bcf of Gulf Coast storage that is used to (1) maintain supply reliability during *force majeure* supply outages in the Gulf of Mexico producing region, (2) balance on-system loads, (3) support the Companies' price volatility management program, and (4) make off-system Gulf Coast area sales.

Q. What is the role of liquefied natural gas in the Companies' portfolio?

A. The Companies maintain two on-system liquefied natural gas ("LNG") facilities that are located in Greenpoint, Brooklyn and Holtsville, Long Island. The Greenpoint LNG facility allows KEDNY to store approximately 1.6 Bcf of gas and has a peak day vaporization capacity of approximately 291,000 dt/d. The Holtsville LNG facility allows KEDLI to store approximately 0.6 Bcf of gas and has a vaporization capacity of 103,000 dt/d. Collectively, the Greenpoint and Holtsville LNG facilities provide the Companies with approximately 15 percent of their peak day gas supplies.

LNG provides the Companies with services that cannot be easily duplicated with other assets. Because these resources can be brought on line quickly, these plants can be used to meet hourly fluctuations in demand, maintain deliveries to customers and balance pressures across

portions of the distribution system during periods of high demand. Most importantly, these resources are vital in preserving delivery pressures in the event that an off-system resource becomes unavailable.

Q. What are the projected monthly beginning and ending volumes and dollar balances for gas stored through the end of the Rate Year and Data Years summarized by Market Area, Gulf Coast and LNG storage?

A. Exhibit __ (EDA-4) provides the projected monthly volume and cost of injections and withdrawals for the Companies' underground and LNG storage facilities for the Rate Year and Data Years.

Q. Do the Companies have plans to add any incremental pipeline capacity to meet forecast design day load requirements?

A. The Companies have entered into the following precedent agreements for new pipeline capacity:

- An agreement with Dominion Transmission, Inc. ("DTI") for 82,000 dt/day from Leidy, Pennsylvania ("PA") to an interconnection with Iroquois at Canajoharie, New York. This capacity will replace a like quantity of existing capacity from Union Gas Pipeline and TransCanada Pipeline from Dawn, Ontario into Iroquois at Waddington, New York. Service is expected to commence on November 1, 2016.

- An agreement with Transco for 115,000 dekatherms ("dt")/day of incremental firm capacity from Transco's station 195 in Southeast, PA. The agreement will provide for deliveries of up to 50,000 dt/day to the existing Narrows Delivery Point on Staten Island and up to 65,000 dt/day to the inlet of the existing Rockaway Lateral. Service is expected to commence on November 1, 2017.

In addition to the 115,000 dt/day Transco expansion, the Companies are currently evaluating an expansion of up to 400,000 dt/day of incremental firm capacity from Transco's station 195 to the Rockaway transfer point. If the Companies move forward with this expansion, it will include a fully looped pipeline segment from the discharge side of Transco's station 207 to a sub-sea interconnect with the existing delivery lateral in New York Bay, further enhancing reliability of the system. This expansion could be in service as early as November 1, 2019.

Until incremental projects come on line, the Companies will continue to purchase available citygate supplies to meet design day and design season customer requirements.

IV. <u>Portfolio Management</u>

Q. Please describe the Companies' gas supply planning goals.

A. The Companies' primary gas supply planning goals are to:

1) ensure gas supplies are adequate to reliably meet projected primary firm demand;

2) maintain a flexible, diversified portfolio of firm pipeline transportation capacity, storage, gas supply, and peaking assets; and

3) minimize gas costs to the extent possible without compromising reliability.

In addition to the development of a reliable, least cost portfolio, the Companies also seek to minimize price volatility in accordance with the Commission's policy statement regarding gas purchasing practices that was issued in Case 97-G-0600 and updated by letter issued March 31, 2011.

Q. What is the Companies' strategy for achieving these goals?

A. The Companies' strategy for achieving these goals is to contract only for that capacity needed to maintain reliability to firm customers consistent with the Commission's Policy Statement in Case 97-G-1380, and to meet the price diversity and volatility mitigation guidelines set forth in the Commission's Policy Statement in Case 97-G-0600, as updated by letter issued on March 31, 2011.

Q. Please describe how that strategy is put into practice.

A. Reliability is maintained by contracting for pipeline capacity that enables the Companies to arrange for the delivery of gas from reliable and diverse supply points to the Companies' city gates in quantities sufficient to meet forecast design day and design hour primary firm load and near term growth in that load.

Q. Please describe the Companies' gas purchasing process.

A. The Companies contract for a quantity of gas to ensure sufficient supply to reliably meet the primary firm demand under design conditions, as well as to account for daily and seasonal variation in loads caused by weather. A combination of term and spot contracts provides pricing diversity and necessary flexibility with respect to volume so that the Companies are able to respond to fluctuations in demand. Both term and spot contracts are firm (not interruptible) to ensure reliability.

Term contracts have durations of more than one month and, in general, have a specified fixed daily baseload quantity. Most term contracts have base load quantities necessary to satisfy requirements under a "warm winter" scenario. Contract durations are generally limited to one year or less, typically a winter season.

Term contracts are generally priced monthly. Although First-of-the-Month indices are published for locations at which the Companies buy term gas supplies, monthly prices for term contracts also consist of the NYMEX (Henry Hub) settlement price for each delivery month plus a competitively bid location basis differential. Monthly pricing ensures the effectiveness of the NYMEX futures contracts entered as a part of the Companies' hedging strategy.

Spot purchases of gas supplies for a term of one month or less are made throughout the year to supplement term contract supplies, to manage demand variations and to maintain storage inventory targets. North American Energy Standards Board form standard contracts have been established with a number of qualified and reliable gas suppliers. In this way, the Companies are able to spread acquisition and performance risk among many counterparties, thus improving reliability. Soliciting bids from multiple counterparties also produces more competitive pricing. Spot purchases are priced at reliable, daily published indices or at a negotiated short-term (daily) fixed price.

Q. Do the Companies' supply purchasing strategy enable them to benefit from the increased production from the Marcellus and Utica shale regions?

A. Yes. As I mentioned previously, the Companies purchased approximately 79 Bcf of gas from the Northeast producing region in the 2014-2015 winter and will follow a similar purchasing strategy in the 2015-2016 winter. In addition, as I also mentioned previously, the Companies are planning to replace a portion of their current Canadian capacity contracts with capacity purchased from DTI. This will enable the Companies to purchase even greater quantities of supplies from the Northeast producing regions. Based on the Companies' initial analysis, the substitution of the DTI capacity for the Canadian capacity could save customers as much as $10 million per year.

Q. Do the Companies engage in off-system sales, capacity release and other arrangements to reduce their total gas costs?

A. Yes. The Companies constantly monitor their gas resource portfolio to ensure that the appropriate mix of pipeline transportation capacity, market area storage, bundled city gate supply, and peaking resources are available to serve projected firm design requirements. To further minimize costs, the Companies seek to optimize portfolio assets when they are not being

utilized for the benefit of firm customers. Except with respect to Gulf Coast storage, for the Rate Year and beyond, the Companies have no plans to enter any pre-arranged off-system sales, capacity release, or streaming arrangements that would encumber its upstream assets. As in years past, once the winter heating season begins, the Companies will actively pursue opportunities to sell available supply and/or capacity in a manner that does not diminish overall supply adequacy, reliability or operational flexibility to firm customers. For example, on warm days in shoulder months when pipeline capacity is not fully utilized, the Companies will seek to sell excess capacity to off-system customers. Under this type of transaction, the Companies will purchase supply and transport gas on available pipeline capacity and then assess the associated variable costs plus a negotiated margin to the off-system customers. The Companies will also look for opportunities to execute physical pipeline trades where available. Under such trades, the Companies would purchase firm supply delivered to the citygate on one interstate pipeline and sell a like amount of supply to another third party at a higher price on a different interstate pipeline.

With respect to Gulf Coast storage services, the Companies plan to use approximately 15 Bcf of that capacity for prearranged off-system sales transactions in the Rate Year.

Q. Do the Companies enter asset management agreements to assist them in maximizing the value of their supply portfolio and reducing their overall supply costs?

A. Yes. The Companies currently have seven such agreements in place for the 2015/16 period. These arrangements permit the Companies to benefit from the expertise of marketers/suppliers who are more familiar with market conditions and opportunities in particular regions or on particular pipeline systems while still maintaining access to essential firm supply sources. The terms of these arrangements do not exceed one year. The Companies will explore beneficial opportunities to enter asset optimization agreements in the future as current agreements expire.

Q. Do the Companies have any plans to make significant changes to their off-system sales practices?

A. No. However, KEDLI proposes a change in the treatment of revenues received under the BNYCP Fuel Management Agreement. Under this Agreement, KEDLI acts as BNYCP's asset manager and fuel purchasing agent. This Agreement has been in place since October 1, 1996 and the initial term will expire on September 30, 2017. Although BNYCP has the contractual right to extend the Agreement through September 30, 2026, it is not clear at this time whether the Agreement will remain in place.

While revenue from the BNYCP Agreement is presently reflected in KEDLI's base rates, the first $3.0 million of net revenue derived from the Agreement is applied to the recovery of Site Investigation and Remediation Costs and the remaining net revenue is accounted for as Other Gas Revenue.

KEDLI's proposed revenue requirement does not reflect the BNYCP Agreement revenue. Instead, KEDLI proposes to simplify the accounting and flow 100 percent of the revenue from the BNYCP Agreement through the off-system sales/capacity release mechanism under the GAC and share it with customers on an 85 percent/15 percent basis as it does other off-system sales. This change is appropriate for two reasons. First, the BNYCP Agreement is an off-system transaction and all revenue from the Agreement should be treated as such. Second, it is not clear at this time whether this Agreement will continue through the Rate Year.

Q. What are the revenues received over the last five fiscal years (April 2010 –March 2015) from releases to shippers other than on-system customers that have migrated from bundled sales to transportation service?

A. Over the five year period (April 2010 – March 2015), the revenues received from such capacity releases totaled $26.4 million, of which $22.5 million (85%) was credited to customers and the remaining $4.0 million (15%) was retained by the Companies.

Q. What are the revenues received over the last five fiscal years (April 2010 –March 2015) from off-system sales transactions, Washington Storage Service ("WSS") transactions and Asset Management Arrangements ("AMAs")?

A. Over the five year period (April 2010 – March 2015), the revenues received from off-system sales transactions, WSS transactions and AMAs totaled $358.8 million, of which $306.5 million (85%) was credited to customers and the remaining $52.4 million (15%) was retained by the Companies.

Q. Please describe Exhibit __ (EDA-5) – Purchased Gas Expense.

A. Exhibit __ (EDA-5) shows the Companies' purchased gas expense for the Historic Test Year. This expense includes the purchased cost of gas minus the cost of storage injections plus the cost of storage withdrawals, and all pipeline fixed and variable charges.

Q. Please describe Exhibit __ (EDA-6) – Forecast of Variable Gas Expense TME December 31, 2017, 2018 and 2019.

A. Exhibit __ (EDA-6) shows the projected commodity prices of the various natural gas supplies that are forecast to be purchased and delivered to the Companies for the Rate Year and the Data Years to serve the estimated requirements of the Companies' firm customers under the assumption of normal weather. This commodity price projection serves as the basis for the forecast of purchased gas expense developed for these periods. A least cost dispatch analysis was performed to determine the mix of flowing supplies and storage withdrawals that would be dispatched to the city gate each month to serve estimated normal firm customer demand.

Q. Please describe Exhibit __ (EDA-7) – Forecast of Purchased Gas Expense TME December 31, 2017, 2018 and 2019.

A. Exhibit __ (EDA-7) shows a forecast of purchased gas expense for the Rate Year and Data Years. This expense includes the purchased cost of gas minus the cost of storage injections plus the cost of storage withdrawals, and all pipeline fixed and variable charges.

V. Marginal Cost Studies

Q. Please describe Exhibit __ (EDA-8) – Estimated Marginal Commodity Cost of Gas For Period: November 1, 2016 through March 31, 2017.

A. Exhibit __ (EDA-8) shows the projected marginal gas commodity costs for the period beginning November 1, 2016 and ending March 31, 2017. By running two dispatch simulations, the marginal gas supply sources that would be dispatched to serve an incremental increase in customer demand were identified. A base line dispatch on the simulation model was prepared first to establish the least-cost mix of gas supplies that would be dispatched to serve firm sales customer demand under normal weather. The simulation model was then rerun with an increased customer demand of 1,000 Dt per day over the winter months (November through March) to identify those marginal supplies that would be dispatched to serve the increased demand. The exhibit reflects the average monthly commodity cost of the marginal supplies that were dispatched.

Q. Please describe Exhibit __ (EDA-9) – Estimated Annualized Marginal Capacity Cost of Gas for Period November 1, 2016 through March 31, 2017.

A. Exhibit __ (EDA-9) shows the projected annualized marginal gas capacity cost for the period beginning November 1, 2016 and ending March 31,

2017. This study incorporates the fixed costs of new capacity that the Companies would acquire for the Rate Year to reliably meet projected design demand growth. Based on this calculation, the annualized marginal capacity cost was determined to be $1.12 per dt, as set forth on Exhibit __ (EDA-9).

VI. Customer Choice Program

Q. Describe the Companies' Customer Choice Program.

A. The Companies' Customer Choice Program provides customers the option to purchase their supplies from Marketers. There are two service options, Daily and Monthly Balancing. The Companies currently assign to Marketers at maximum rates such interstate pipeline transportation and storage capacity as is necessary to meet migrating firm customers' load. This practice is consistent with the Commission's August 30, 2007 Order in Case 07-G-0299. City gate pipeline and storage capacity contracted for core customers is assigned to Retail Marketers for migrating customers in proportion to the anticipated design day load of the customers. All migrating firm customers are required to participate in the Companies' mandatory assignment program.

Q. Are the Companies proposing any changes to their Customer Choice Program?

A. Not in these proceedings. While the Companies are proposing to make certain changes to the Customer Choice Program as of May 1, 2016, those changes are being examined in Cases 14-G-0330 and 14-G-0331. No further changes are planned.

VII. Gas Cost Volatility Management

Q. What steps do the Companies take to mitigate the impact of gas cost volatility on their customers?

A. The Companies mitigate volatility in the gas commodity markets in several ways. First, they maintain a balanced portfolio that includes contract storage. This allows the Companies to inject gas during the summer for withdrawal during the winter, which enables the Companies to mitigate price volatility during the winter when demand is greatest. Second, the Companies maintain a geographically diverse gas supply portfolio that helps to reduce exposure to volatility in any single supply region. Third, the portfolio incorporates pricing diversity that minimizes exposure to volatility at a single pricing point or market index. Finally, the Companies mitigate price volatility with a formal hedging program.

Q. Please describe the Companies' hedging program.

A. The Companies' overall pricing diversity and volatility mitigation plan is to protect prices for approximately 50%, but no more than 60%, of forecast winter firm sales and to allow prices to float with the market for the remaining forecast winter sales. For this purpose, the "winter period" is defined as November through March. Prices are fixed through a combination of planned storage withdrawals, which provide a natural hedge at the average price of summer period injections, and financial hedging using NYMEX gas futures contracts or NYMEX Over the Counter ("OTC") financial settled swaps and options using bilateral master agreements. Beginning in the 2015-2016 winter, the Companies are also using basis hedges for forecast purchases in the Northeast producing region. Locational basis swaps in conjunction with NYMEX hedges are being used because of an observed disconnect between prices in the Marcellus and Utica supply basins and NYMEX prices. The use of these locational basis swaps ensures that the Companies are mitigating volatility in the markets where they purchase supplies.

To determine the quantity to be hedged, the Companies forecast firm sales for each month November through March, assuming normal winter weather conditions, and multiply the results by 50% (Step 1). Next,

monthly storage withdrawals to meet system operational needs are forecast and subtracted from the result obtained in Step 1 (Step 2). The results from Step 2 equal the quantity of gas to be financially hedged to achieve the 50% target in each month.

Once the volume of gas to be financially hedged each month is known, a monthly hedging plan is created. The purchases are spread evenly over 16 months starting 18 months prior to the start of each November. Each financial transaction is settled against the expiring month's last day settlement price and the applicable Inside FERC "First of the Month" index price. The gross settlement payout or gain is included in the gas cost for that month.

Q. Have the Companies' hedging practices changed in the past year?

A. Yes. As I discussed above, the Companies have begun incorporating basis hedges for forecast production in the Northeast producing region, which encompasses the Marcellus and Utica supply basins. The Companies will continue to monitor the effectiveness of hedging at NYMEX prices at various receipt points to determine the most appropriate hedging location.

Q. Please explain how the Companies calculate gas price volatility.

A. Gas price volatility is measured as the standard deviation of the lognormal of the ratio of the monthly hedged price change through the winter, November through March. This standard deviation is compared against a similar calculation for the NYMEX Natural Gas monthly settlement prices for the same November through March period.

Q. Discuss how the Companies determine the success or failure of their gas price mitigation program.

A. The success of the mitigation program is assessed based on its proper execution and the more subjective reduction in volatility. A hedging schedule is established based on the forecast normal sales. The hedging schedule is then documented and approved and monitored by the Companies' middle office. Weekly reports on the planned hedging schedule and actual hedge transactions are generated to ensure compliance with the plan. The goal of the hedging plan is to have the hedging plan noticeably reduce volatility in periods of high volatility. The goal of the hedging plan is to reduce the volatility of the hedged portfolio more than a portfolio with an unhedged portfolio in periods of high volatility.

Q. Please discuss internal reporting, oversight, and the audit structure of the Companies' gas price mitigation program.

A. The Companies have in place formalized hedging strategy internal authorization and oversight requirements. Each hedging strategy is documented and authorized prior to implementation. Prior to execution, a hedging strategy must be documented, explaining the risks to be hedged, volume, timing and types of instruments to be used. The documentation is then reviewed and approved by National Grid's Commodity Management Committee ("CMC") prior to going to National Grid's Energy Procurement Risk Management Committee ("EPRMC") for approval and authorization. The CMC, which consists of the senior members of various departments such as accounting, legal, credit, regulatory, marketing services and risk management, ensures that the strategy meets all internal and external requirements. The EPRMC, which consists of senior executives of National Grid, gives ultimate authorization for any hedging activities. National Grid's internal auditing department has performed audits on the gas price mitigation program. National Grid employs the industry standard best practice of a three office model. The front office develops and executes the strategy, the middle office confirms and monitors the risk of the deals, as well as compliance with the approved strategy, and the back office is responsible for invoicing and reporting on financial statements. Weekly reports are used to help monitor execution of the strategy; monthly reports are used to ensure proper allocation of the

hedging gains and losses; and quarterly reports are used to prepare the Companies' financial statements on any forward positions on behalf of customers.

Q. Please provide the actual price hedging performance versus planned price hedging performance for the 2014-2015 winter season.

A. For the 2014-2015 winter, the table below shows the Companies' planned price hedging performance and actual price hedging performance:

	Planned		Actual	
Hedge Portfolio	**Amount (dt)**	**Price Commodity Only**	**Amount (dt)**	**Price Commodity Only**
Physical Hedges				
Northeast Storage	43,650,000	$3.09	25,281,000	$3.12
Gulf Coast Storage	1,500,000	$3.09	1,500,000	$3.12
Financial Hedges				
NYMEX Futures or Swaps	8,200,000	$4.38	8,200,000	$3.31
Collars	240,000	$4.35	240,000	$3.06
Calls	9,680,000	$4.47	9,680,000	$2.73
Puts				
Flowing or Floating Price Gas				
Monthly Index	50,485,000	$3.81	25,633,000	$2.69
Spot/Daily Price			59,880,000	$3.73

Q. What percentage of the Companies' gas supply is physically hedged?

A. As a result of planned storage withdrawals, which are based on normal weather, 33% of the forecast November through March firm sales demand is physically hedged. The Companies do not hedge storage injections. The Companies do not have any physical supply contracts with fixed price terms.

Q. How do the Companies use swaps/futures?

A. The Companies use OTC swaps to execute fixed price hedged transactions. OTC swaps do not have any execution, transaction or commission fees. The Companies rely on credit thresholds in their bilateral master agreements to limit the amount and frequency of margin calls associated with the daily mark-to-market valuation of each hedge transaction. When the mark-to-market with each OTC counterparty exceeds the credit threshold, the Companies use their various credit facilities to meet the cash collateral margin calls.

Q. What types of options do the Companies use?

A. The Companies use calls, puts and collars.

Q. Describe how the Companies decide which types of options to use.

A. When the underlying futures price is expected to fall, then call options are preferred over swaps. Collars may be purchased instead to reduce the premiums paid or when the underlying futures prices are expected to be stable.

Q. Do the Companies place a limit on what they spend on options in any year?

A. The Companies cap their option premiums at $13 million per year.

Q. Do the Companies participate before FERC to minimize the cost of upstream pipeline capacity?

A. Yes. The Companies participate actively before FERC in pipeline rate and certificate proceedings and generic rulemaking proceedings. The Companies' efforts are directed at managing their cost of capacity and obtaining the best possible terms of service.

VIII. Management Audit

Q. Did the Management Audit report prepared by NorthStar Consulting Group in Case 13-G-0009 contain any recommendations concerning supply procurement?

A. Yes. The Management Audit report contained six recommendations that related to supply procurement.

Q. What is the status of these recommendations?

A. The status of these recommendations is discussed by Company Witness Keri Sweet Zavaglia**.**

IX. Conclusion

Q. Does this conclude your testimony?

A. Yes it does.

Exhibits of
Elizabeth D. Arangio

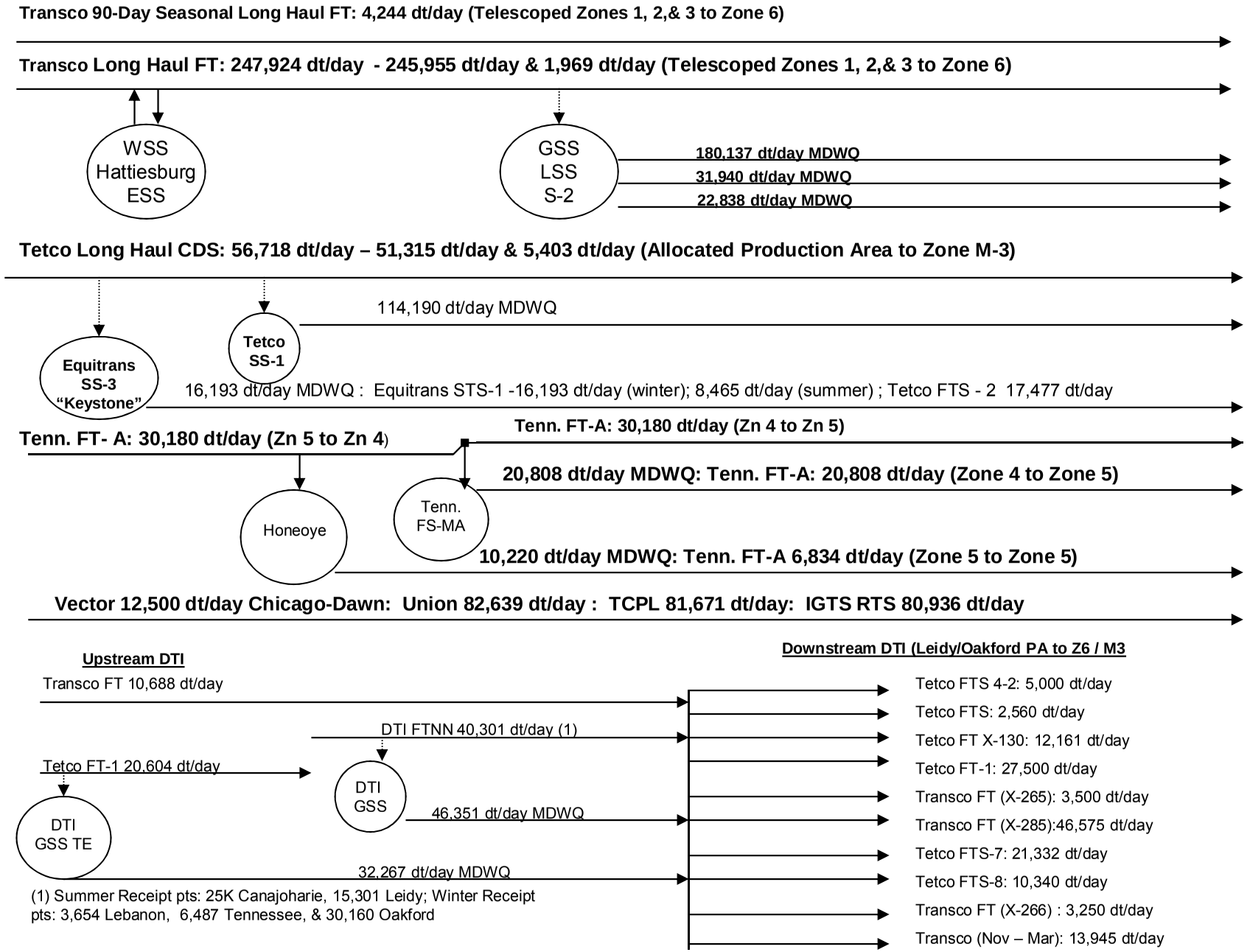
Index of Exhibits

Exhibit __ (EDA-1)

KEDNY & KEDLI Portfolio Schematics

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

KEDNY Portfolio Schematic



Exhibit_(EDA-1)
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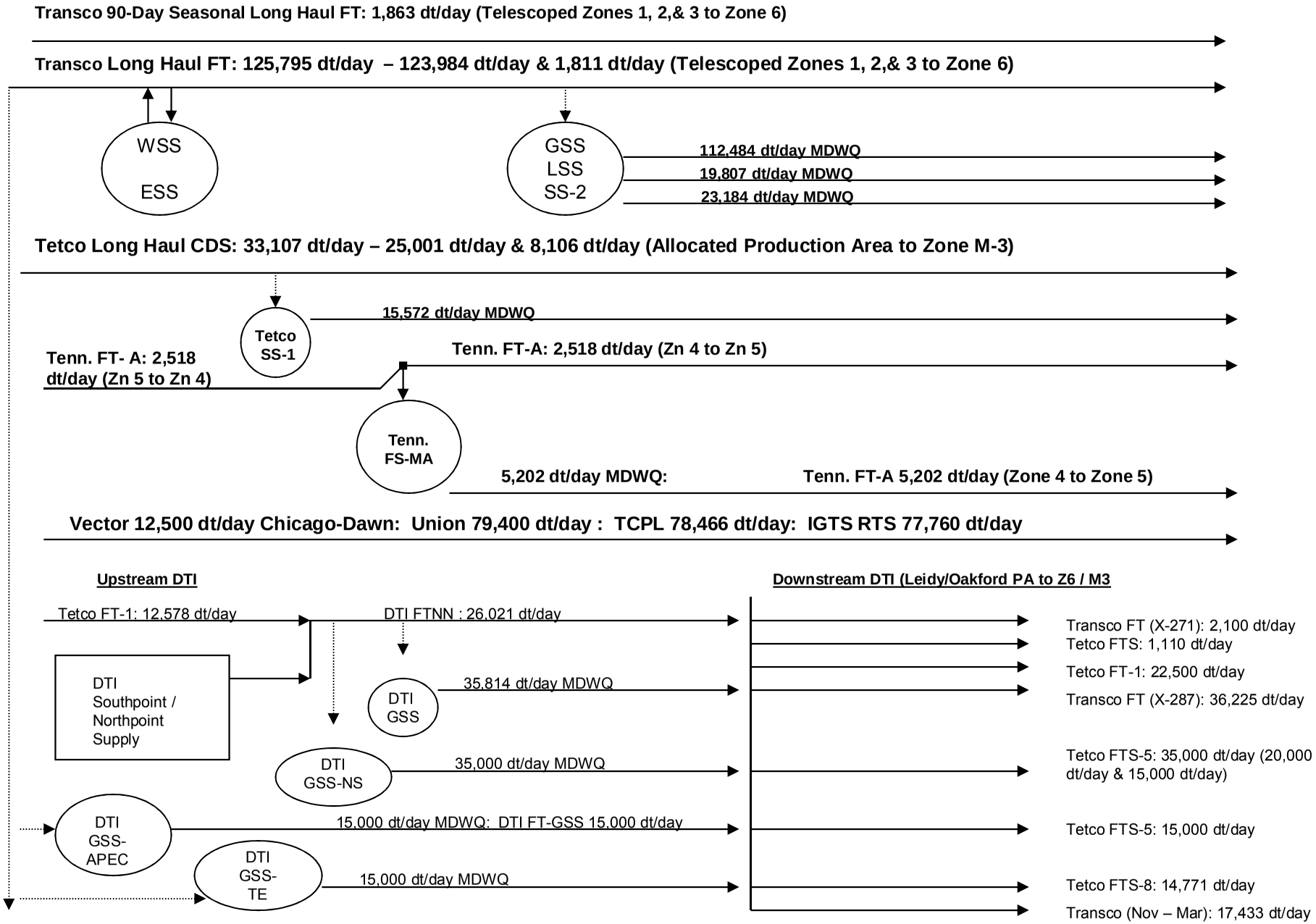
KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID

KEDLI Portfolio Schematic



Exhibit_(EDA-1)
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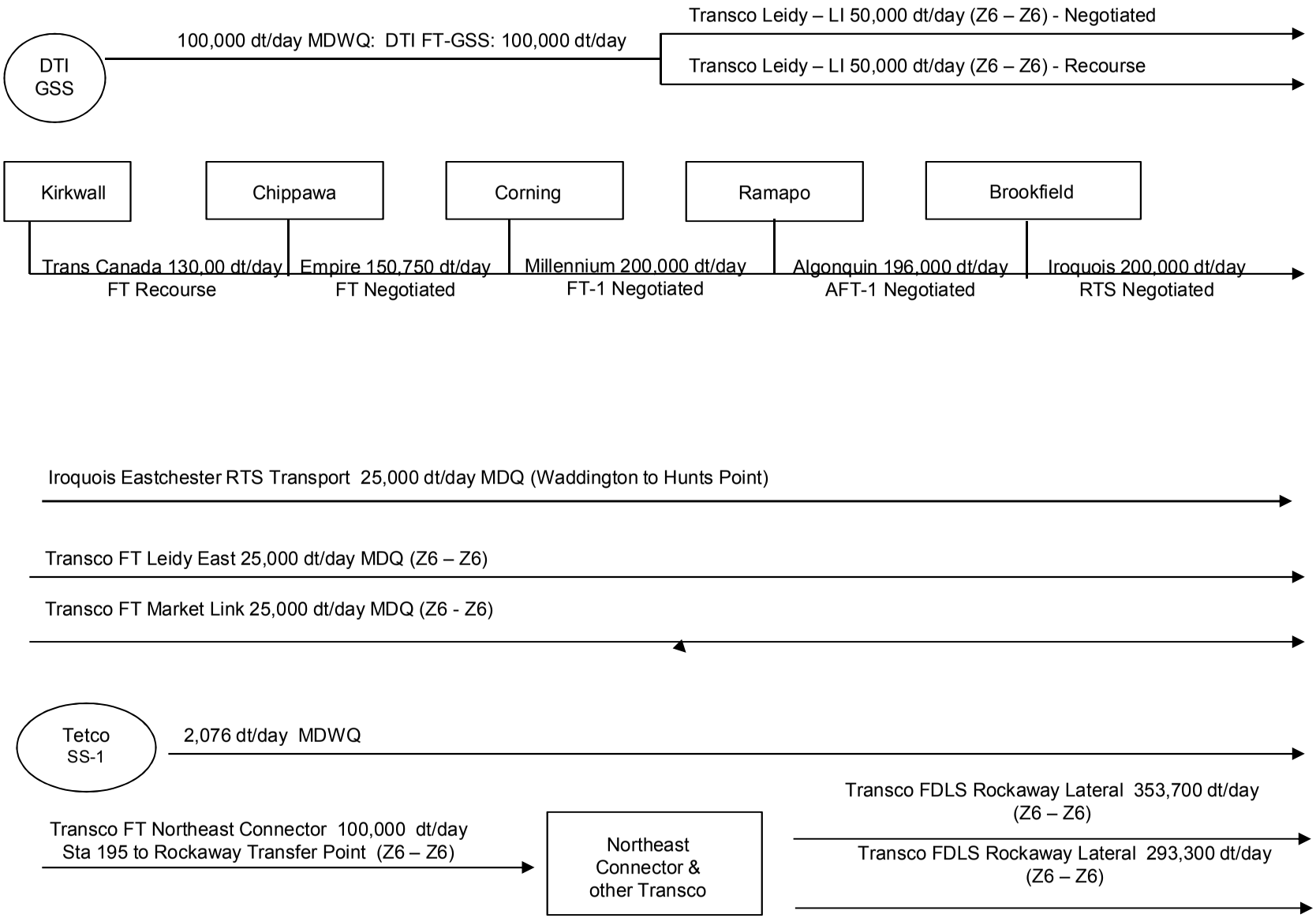
THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY and

KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID

KEDNY & KEDLI (Shared Assets) Portfolio Schematic



Exhibit_(EDA-1)
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Exhibit __ (EDA-2)

KEDNY & KEDLI Pipeline Transportation Contracts

THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY
KEDNY Pipeline Transportation Contracts

Pipeline Company Name	Rate Schedule	MDQ Dth/day	Expiration Date	Shared Asset
Flowing Gas To Citygate				
Transco Year-Round *	FT	245,955	6/1/2016	
Transco Year-Round *	FT	1,969	3/20/1998	
Transco Seasonal - 90 Day*	FT	4,244	7/31/2011	
Texas Eastern	CDS	51,315	10/31/2017	
Texas Eastern	CDS	5,403	10/31/2017	
Tennessee	FT-A	30,180	5/31/2017	
Iroquois	RTS	80,936	11/1/2017	
Transco*	FT (X-265)	3,500	1/1/2014	
Transco*	FT (X-266)	3,250	1/1/2014	
Texas Eastern *	FTS	2,560	10/31/2014	
Texas Eastern	FT-1	27,500	11/30/2015	
Texas Eastern *	FTS-4-2	5,000	12/1/2008	
Texas Eastern *	X-130	12,161	10/31/2009	
Transco (avail Nov - Mar)*	FT	13,945	4/1/2013	
Transco 2/	FDLS	353,700	5/14/2030	Yes
Transco 2/	FT	100,000	5/14/2030	Yes
Upstream Pipeline Support [1]				
Transco*	FT	10,688	10/31/2012	
Texas Eastern *	FT-1	20,604	10/31/2008	
Dominion	FTNN	40,301	3/31/2018	
Vector US (Alliance to St. Clair)	FT-1	12,500	10/31/2017	
Vector Canada (St. Clair to Dawn)	FT-1	12,500	10/31/2017	
TransCanada (Dawn to Wad)	FT	12,142	10/31/2022	
TransCanada (Dawn to Wad)	FT	28,326	10/31/2022	
TransCanada (Parkway to Wad)	FT	33,831	10/31/2022	
TransCanada (Parkway to Wad)	FT	7,372	10/31/2022	
Union (Dawn to Parkway)	M12	28,640	10/31/2018	
Union (Dawn to Parkway)	M12	12,277	10/31/2017	
Union (Dawn to Parkway)	M12	41,722	10/31/2017	
Tennessee	FT-A	30,180	5/31/2017	
Equitrans Keystone SS-3 Storage, Winter * 3/	STS-1	16,193	4/1/2002	
Equitrans Keystone SS-3 Storage, Summer * 3/	STS-1	8,465	4/1/2002	
Deliveries from Storage				
Dominion GSS Storage*	FT (X-285)	46,575	12/14/2009	
Transco GSS Market Area Storage 4/	GSS	180,137	3/31/2023	
Transco LSS Market Area Storage 4/	LSS	31,940	3/31/2023	
Transco S-2 Market Area Storage* 4/	S-2	22,838	4/16/2001	
Equitrans Keystone SS-3 Storage *	FTS-2	17,477	3/31/2014	
Texas Eastern SS-1 Market Area Storage* 4/	SS-1	114,190	4/30/2012	
Dominion GSS-TE Storage*	FTS-7	21,332	4/15/2015	
Dominion GSS-TE Storage *	FTS-8	10,340	3/31/2006	
Tennessee FT-A Transport - Honeoye Storage 5/	FT-A	6,834	10/31/2019	
Tennessee FT-A Transport - Tenn FS-MA Storage	FT-A	20,808	10/31/2019	
Total (Flowing Gas to City Gate, Deliveries from Storage)				
		1,060,389		

[1] Capacity used to deliver gas to pipelines that deliver to the citygate.

* Contract in evergreen.

1/ Capacity used to deliver gas to pipelines that deliver to the citygate.
2/ Transco Rockaway Lateral & Northeast Connector Projects, in service date is 05/15/2015.
3/ Transportation associated with Keystone Storage.
4/ Bundled Transportation and Storage contracts.
5/ Transportation associated with Honeoye Storage does not allow max withdrawals from Honeoye Storage.

THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY
KEDNY 2015 - 2016 Winter Peaking, Co Gen, & Miscellaneous Services

Supplier Transporter	Daily Quantity (DT)	Expiration Date	Shared Supply
Winter Peaking Service			
Emera - Iroquois	10,000	2/29/2016	Yes
Emera - Iroquois	10,000	2/29/2016	Yes
Freepoint - Iroquois	25,548	2/29/2016	Yes
Freepoint - Iroquois	5,468	2/29/2016	Yes
Mercuria - Iroquois	15,000	2/29/2016	Yes
EQT - Tetco	5,000	2/29/2016	Yes
NJR - Tetco	10,000	2/29/2016	Yes
NJR - Tetco	10,000	2/29/2016	Yes
NJR - Tetco	20,000	2/29/2016	Yes
BNP Paribas - Transco	15,000	2/29/2016	Yes
MMGS - Transco	16,000	2/29/2016	Yes
Direct Energy - Transco	15,000	2/29/2016	Yes
Direct Energy - Transco	15,000	2/29/2016	Yes
Pacific Summit Energy - Transco	25,000	2/29/2016	Yes
Co Gen Peaking Service			
BNY (1)	25,253	9/30/2016	
Miscellaneous			
City of New York Landfill Plant (2)	6,500	6/30/2008	
Total	**228,769**		

(1) After 8th year and prior to 14th year, may be extended for 5 years.
(2) 6,500 is the max capabiliity of the Landfill Plant

KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID
KEDLI Pipeline Transportation Contracts

Pipeline Company Name	Rate Schedule	MDQ Dth/day	Expiration Date	Shared Asset
Flowing Gas To Citygate				
Transco Year-Round 2/	FT	123,984	6/1/2016	
Transco Year-Round *	FT	1,811	2/25/1998	
Transco Seasonal - 90 Day *	FT	1,863	7/31/2006	
Texas Eastern	CDS	8,106	10/31/2017	
Texas Eastern	CDS	25,001	10/31/2017	
Tennessee	FT-A	2,518	5/31/2017	
Iroquois	RTS	65,760	11/1/2018	
Iroquois	RTS	12,000	11/1/2018	Yes
Iroquois to Hunts Point	RTS	25,000	11/1/2018	Yes
Iroquois NE07	RTS	200,000	10/31/2019	Yes
Transco*	FT (X-271)	2,100	2/1/2014	
Transco * 3/	FT (X-287)	526	10/31/2007	
Texas Eastern*	FTS	1,110	10/31/2014	
Texas Eastern	FT-1	22,500	11/30/2015	
Transco (avail Nov - Mar)*	FT	17,433	4/1/2013	
Transco Leidy East*	FT	25,000	11/1/2012	Yes
Transco Market Link*	FT	25,000	12/1/2011	Yes
Transco 4/	FDLS	293,300	5/14/2030	Yes
Upstream Pipeline Support [1]				
Texas Eastern*	FT-1	12,578	10/31/2008	
Dominion	FTNN	26,021	3/31/2018	
Vector US (Alliance to St. Clair)	FT-1	12,500	10/31/2017	
Vector Canada (St. Clair to Dawn)	FT-1	12,500	10/31/2017	
TransCanada (Dawn to Wad)	FT	16,086	10/31/2022	
TransCanada (Dawn to Wad)	FT	21,347	10/31/2022	
TransCanada (Parkway to Wad)	FT	7,202	10/31/2022	
TransCanada (Parkway to Wad)	FT	33,831	10/31/2022	
Union (Dawn to Parkway)	M12	21,584	10/31/2018	
Union (Dawn to Parkway)	M12	16,266	10/31/2017	
Union (Dawn to Parkway)	M12	41,550	10/31/2017	
Transcanada	FT	130,000	10/31/2018	Yes
Empire	FT	150,750	1/1/2019	Yes
Millennium	FT-1	150,000	12/31/2023	Yes
Millennium 5/	FT-1	50,000	12/31/2023	Yes
Millennium	FT-1	50,000	12/31/2023	Yes
Algonquin	AFT-1	196,000	11/1/2023	Yes
Tennessee	FT-A	2,518	5/31/2017	
Deliveries from Storage				
Dominion GSS Storage * 3/	FT (X-287)	35,699	10/31/2007	
Leidy to Long Island for Dominion DTI GSS	FT	50,000	12/12/2027	Yes
Leidy to Long Island for Dominion DTI GSS	FT	50,000	12/12/2027	Yes
Transco GSS Market Area Storage 6/	GSS	112,484	3/31/2023	
Transco LSS Market Area Storage 6/	LSS	19,807	3/31/2023	
Transco SS-2 Market Area Storage* 6/	SS-2	23,184	3/31/2009	
Texas Eastern SS-1 Market Area Storage 6/	SS-1	2,076	4/30/2017	
Texas Eastern SS-1 Market Area Storage* 6/	SS-1	15,572	4/30/2000	
Dominion GSS N. Summit*	FTS-5	20,000	3/31/2012	
Dominion GSS N. Summit*	FTS-5	15,000	3/31/2012	
Dominion GSS Apec*	FTS-5	15,000	3/31/2012	
Dominion GSS-TE Storage *	FTS-8	14,771	3/31/2006	
Tennessee FT-A Transport - Tenn FS-MA Storage	FT-A	5,202	10/31/2019	
GSS "Apec"	FT-GSS	15,000	3/31/2017	
DTI GSS	FT-GSS	100,000	10/31/2017	
Total (Flowing Gas to City Gate, Deliveries from Storage)				
		1,231,807		

[1] Capacity used to deliver gas to pipelines that deliver to the citygate.

* Contract in evergreen.
1/ Capacity used to deliver gas to pipelines that deliver to the citygate.
2/ The actual max daily contract volume is 154,287 dth per day, 30,303 dt per day is released to the Brooklyn Navy Yard.
3/ MDQ is 36,225 Dth/day
4/ Transco Rockaway Latera Project, in service date is 05/15/2015.
5/ This contract replaced the back haul contract, and is technically a back haul contract.
6/ Bundled Transportation and Storage contracts.

KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID
KEDLI 2015 - 2016 Winter Peaking, Co Gen, & Miscellaneous Services

Supplier Transporter	Daily Quantity (DT)	Expiration Date	Shared Supply
Winter Peaking Service			
Direct - Iroquois	20,000	2/29/2016	Yes
Direct - Iroquois	10,000	2/29/2016	Yes
NJR - Iroqouis	10,000	2/29/2016	Yes
Co Gen Peaking Service			
Nissequogue (NCP) (1)	9,500	4/5/2015	
NYPA	30,840	3/31/2017	
BNY	30,303	10/1/2017	
Miscellaneous			
	110,643		

(1) 5-year periods, upon 12 months notice and per Article III of Agreement.

Exhibit__ (EDA-3)

Exhibit __ (EDA-3)

KEDNY & KEDLI Storage Contracts

THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY
KEDNY Storage Contracts

Storage Company Name	Rate Schedule	MDQ or MDWQ Dth/Day	Expiration Date	Shared Asset
Market Area Storage				
Transco	GSS	180,137	3/31/2023	
Transco	LSS(1)	31,940	3/31/2023	
Transco**	S-2	22,838	4/16/2001	
Texas Eastern	SS-1	114,190	4/30/2012	
Equitrans-Keystone**	SS-3/STS-1	16,193	4/1/2002	
Tennessee	FS-MA (6)	20,808	10/31/2019	
Honeoye** (8)	SS-NY	10,220	4/1/1995	
Dominion	GSS(3)	46,351	3/31/2018	
Dominion**	GSS-TE(4)	32,267	3/31/2013	
Total		**474,944**		
Gulf Coast Storage				
Transco**	WSS (2)	162,680	8/31/2006	
Transco** (7)	ESS	32,884	10/31/2013	
Transco** (7)	ESS	54,855	4/11/2010	
Hattiesburg (5)	FSS	20,000	2/28/2016	
Total		**270,419**		

** Deliveries do not reflect fuel losses at the Citygate

(1) Extended term of LSS from March 31, 1994 to March 31, 2013 by amendment dated March 31, 2008.
(2) Quantity reduced to 162,680 from 181,819 by amendment dated 5/1/2011.
(3) Extended term of GSS to March 31, 2013 by amendment dated July 20, 2006.
(4) Extended term of GSS-TE from March 31, 2006 to March 31, 2013 by amendment dated July 20, 2006.
(5) Contract volumes and expiration dates reflect the merger of Hattiesburg into Petal Gas Storage, effective 5/1/2013. As of 6/4/2014, only 1 contract remains.
(6) Extended term of FS-MA to October 31, 2014 by amendment dated August 1, 2008.
(7) Contract volumes reduced to reflect the abandonment of ESS caverns 1-4
(8) The Company cannot withdraw maximum amount from Honeoye Storage due to transportation MDQ

KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID
KEDLI Storage Contracts

Storage Company Name	Rate Schedule	MDQ or MDWQ Dth/Day	Expiration Date	Shared Asset
Market Area Storage				
Transco	GSS	112,484	3/31/2023	
Transco	LSS(1)	19,807	3/31/2023	
Transco**	SS-2	23,184	3/31/2009	
Texas Eastern	SS-1	15,572	4/30/2000	
Texas Eastern	SS-1	2,076	4/30/2017	Yes
Tennessee	FS-MA	5,202	10/31/2019	
Dominion	GSS	35,814	3/31/2018	
Dominion**	GSS-TE(3)	15,000	3/31/2011	
Dominion	GSS-N Sumr	35,000	3/31/2017	
Dominion	GSS-APEC	15,000	3/31/2017	
Dominion	GSS	100,000	3/31/2017	Yes
Total		**379,139**		
Gulf Coast Storage				
Transco**	WSS(2)	46,939	8/31/2006	
Transco** (4)	ESS	35,934	10/31/2013	
Transco** (4)	ESS	33,074	3/4/2015	
Total		**115,947**		

** Deliveries do not reflect fuel loss at the Citygate
(1) Extended term of LSS from March 31, 1994 to March 31, 2013 by amendment dated March 31, 2008.
(2) Quantity reduced to 46,939 from 52,461 by amendment dated 5/1/2011.
(3) Extended term of GSS-TE from March 31, 2006 to March 31, 2011 by amendment dated August 20, 2004.
(4) Contract volumes reduced to reflect the abandonment of ESS caverns 1-4

Exhibit__ (EDA-4)

Exhibit __ (EDA-4)

KEDNY/KEDLI Projected Monthly Gas Stored Volumes and Dollars
for the Rate Year and Data Years Summarized by Market Area,
Gulf Coast and LNG storage

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

KEDNY / KEDLI

Projected Gas Storage Inventory

Twelve Months Ended December 2017

Market Area	Forecast Jan-2017	Forecast Feb-2017	Forecast Mar-2017	Forecast Apr-2017	Forecast May-2017	Forecast Jun-2017	Forecast Jul-2017	Forecast Aug-2017	Forecast Sep-2017	Forecast Oct-2017	Forecast Nov-2017	Forecast Dec-2017
Dth												
Beginning Inventory	43,168,693	26,470,116	9,865,353	7,298,884	9,608,454	18,226,036	27,128,314	35,523,595	44,156,476	52,550,573	58,724,533	55,281,303
Injections	-	16,594	259,350	4,076,132	8,617,582	8,902,278	8,395,280	8,632,882	8,394,096	6,173,960	760,370	-
Withdrawals	16,698,578	16,621,357	2,825,820	1,766,562	-	-	-	-	-	-	4,203,599	12,373,825
EndingBalance	26,470,116	9,865,353	7,298,884	9,608,454	18,226,036	27,128,314	35,523,595	44,156,476	52,550,573	58,724,533	55,281,303	42,907,478
$												
Beginning Inventory	$ 75,229,577	$ 46,583,509	$ 17,865,789	$ 13,325,463	$ 18,921,780	$ 36,178,164	$ 54,063,283	$ 71,611,715	$ 88,821,185	$ 104,025,343	$ 115,533,937	$ 109,004,327
Injections	$ -	$ 28,204	$ 603,143	$ 8,774,056	$ 17,256,384	$ 17,885,120	$ 17,548,431	$ 17,209,471	$ 15,204,156	$ 11,508,596	$ 1,546,556	$ -
Withdrawals	$ 28,646,069	$ 28,745,923	$ 5,143,469	$ 3,177,739	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,076,166	$ 24,283,851
EndingBalance	$ 46,583,509	$ 17,865,789	$ 13,325,463	$ 18,921,780	$ 36,178,164	$ 54,063,283	$ 71,611,715	$ 88,821,185	$ 104,025,343	$ 115,533,937	$ 109,004,327	$ 84,720,476
Average Rate	$ 1.7599	$ 1.8110	$ 1.8257	$ 1.9693	$ 1.9850	$ 1.9929	$ 2.0159	$ 2.0115	$ 1.9795	$ 1.9674	$ 1.9718	$ 1.9745

Gulf Coast	Forecast Jan-2017	Forecast Feb-2017	Forecast Mar-2017	Forecast Apr-2017	Forecast May-2017	Forecast Jun-2017	Forecast Jul-2017	Forecast Aug-2017	Forecast Sep-2017	Forecast Oct-2017	Forecast Nov-2017	Forecast Dec-2017
Dth												
Beginning Inventory	5,518,106	5,518,106	5,518,106	4,128,687	4,743,427	5,378,657	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106
Injections	-	-	-	614,739	635,231	139,449	-	-	-	-	-	-
Withdrawals	-	-	1,389,419	-	-	-	-	-	-	-	-	-
EndingBalance	5,518,106	5,518,106	4,128,687	4,743,427	5,378,657	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106
$												
Beginning Inventory	$ 13,057,819	$ 13,057,819	$ 13,057,819	$ 9,695,092	$ 11,524,602	$ 13,381,644	$ 13,798,206	$ 13,798,206	$ 13,798,206	$ 13,798,206	$ 13,798,206	$ 13,798,206
Injections	$ -	$ -	$ -	$ 1,829,510	$ 1,857,041	$ 416,563	$ -	$ -	$ -	$ -	$ -	$ -
Withdrawals	$ -	$ -	$ 3,362,727	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
EndingBalance	$ 13,057,819	$ 13,057,819	$ 9,695,092	$ 11,524,602	$ 13,381,644	$ 13,798,206	$ 13,798,206	$ 13,798,206	$ 13,798,206	$ 13,798,206	$ 13,798,206	$ 13,798,206
Average Rate	$ 2.3664	$ 2.3664	$ 2.3482	$ 2.4296	$ 2.4879	$ 2.5005	$ 2.5005	$ 2.5005	$ 2.5005	$ 2.5005	$ 2.5005	$ 2.5005

LNG	Forecast Jan-2017	Forecast Feb-2017	Forecast Mar-2017	Forecast Apr-2017	Forecast May-2017	Forecast Jun-2017	Forecast Jul-2017	Forecast Aug-2017	Forecast Sep-2017	Forecast Oct-2017	Forecast Nov-2017	Forecast Dec-2017
Dth												
Beginning Inventory	2,016,312	1,979,623	1,946,485	1,909,797	1,874,292	1,850,921	1,820,953	1,791,406	1,763,922	2,051,816	2,051,816	2,025,918
Injections	-	-	-	-	13,318	5,537	7,141	9,205	323,400	36,689	9,607	-
Withdrawals	36,689	33,138	36,689	35,505	36,689	35,505	36,689	36,689	35,505	36,689	35,505	36,689
EndingBalance	1,979,623	1,946,485	1,909,797	1,874,292	1,850,921	1,820,953	1,791,406	1,763,922	2,051,816	2,051,816	2,025,918	1,989,230
$												
Beginning Inventory	$ 3,766,988	$ 3,698,370	$ 3,636,391	$ 3,567,773	$ 3,501,368	$ 3,458,773	$ 3,403,008	$ 3,348,875	$ 3,298,083	$ 3,803,991	$ 3,803,595	$ 3,755,555
Injections	$ -	$ -	$ -	$ -	$ 26,033	$ 10,653	$ 14,508	$ 17,866	$ 572,046	$ 67,682	$ 17,844	$ -
Withdrawals	$ 68,619	$ 61,978	$ 68,619	$ 66,405	$ 68,628	$ 66,418	$ 68,641	$ 68,658	$ 66,138	$ 68,078	$ 65,884	$ 68,088
EndingBalance	$ 3,698,370	$ 3,636,391	$ 3,567,773	$ 3,501,368	$ 3,458,773	$ 3,403,008	$ 3,348,875	$ 3,298,083	$ 3,803,991	$ 3,803,595	$ 3,755,555	$ 3,687,467
Average Rate	$ 1.8682	$ 1.8682	$ 1.8681	$ 1.8681	$ 1.8687	$ 1.8688	$ 1.8694	$ 1.8697	$ 1.8540	$ 1.8538	$ 1.8538	$ 1.8537

Exhibit_(EDA-4)
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THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY and KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID

KEDNY / KEDLI

Projected Gas Storage Inventory

Twelve Months Ended December 2018

Market Area	Forecast Jan-2018	Forecast Feb-2018	Forecast Mar-2018	Forecast Apr-2018	Forecast May-2018	Forecast Jun-2018	Forecast Jul-2018	Forecast Aug-2018	Forecast Sep-2018	Forecast Oct-2018	Forecast Nov-2018	Forecast Dec-2018
Dth												
Beginning Inventory	42,907,478	26,182,790	8,697,502	5,027,793	8,696,377	17,700,337	26,604,178	34,600,813	43,016,283	51,481,388	58,865,667	55,546,221
Injections	-	-	142,447	4,438,675	9,003,959	8,903,842	7,996,635	8,415,470	8,465,105	7,384,278	678,946	-
Withdrawals	16,724,688	17,485,287	3,812,156	770,090	-	-	-	-	-	-	3,998,392	12,574,693
EndingBalance	26,182,790	8,697,502	5,027,793	8,696,377	17,700,337	26,604,178	34,600,813	43,016,283	51,481,388	58,865,667	55,546,221	42,971,528
$												
Beginning Inventory	$ 84,720,476	$ 51,970,898	$ 17,712,335	$ 10,510,326	$ 19,763,844	$ 40,631,854	$ 61,310,536	$ 80,290,380	$ 99,421,361	$ 117,112,254	$ 132,822,998	$ 125,448,367
Injections	$ -	$ -	$ 367,346	$ 10,820,497	$ 20,868,009	$ 20,678,683	$ 18,979,842	$ 19,130,982	$ 17,690,892	$ 15,710,744	$ 1,444,216	$ -
Withdrawals	$ 32,749,578	$ 34,258,564	$ 7,569,355	$ 1,566,978	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,818,845	$ 28,339,558
EndingBalance	$ 51,970,898	$ 17,712,335	$ 10,510,326	$ 19,763,844	$ 40,631,854	$ 61,310,536	$ 80,290,380	$ 99,421,361	$ 117,112,254	$ 132,822,998	$ 125,448,367	$ 97,108,809
Average Rate	$ 1.9849	$ 2.0365	$ 2.0904	$ 2.2727	$ 2.2955	$ 2.3045	$ 2.3205	$ 2.3112	$ 2.2748	$ 2.2564	$ 2.2585	$ 2.2598

Gulf Coast	Forecast Jan-2018	Forecast Feb-2018	Forecast Mar-2018	Forecast Apr-2018	Forecast May-2018	Forecast Jun-2018	Forecast Jul-2018	Forecast Aug-2018	Forecast Sep-2018	Forecast Oct-2018	Forecast Nov-2018	Forecast Dec-2018
Dth												
Beginning Inventory	5,518,106	5,518,106	5,518,106	4,128,687	4,743,427	5,378,657	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106
Injections	-	-	-	614,739	635,231	139,449	-	-	-	-	-	-
Withdrawals	-	-	1,389,419	-	-	-	-	-	-	-	-	-
EndingBalance	5,518,106	5,518,106	4,128,687	4,743,427	5,378,657	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106
$												
Beginning Inventory	$ 13,798,206	$ 13,798,206	$ 13,798,206	$ 10,191,502	$ 12,049,027	$ 13,940,164	$ 14,365,624	$ 14,365,624	$ 14,365,624	$ 14,365,624	$ 14,365,624	$ 14,365,624
Injections	$ -	$ -	$ -	$ 1,857,525	$ 1,891,137	$ 425,460	$ -	$ -	$ -	$ -	$ -	$ -
Withdrawals	$ -	$ -	$ 3,606,704	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
EndingBalance	$ 13,798,206	$ 13,798,206	$ 10,191,502	$ 12,049,027	$ 13,940,164	$ 14,365,624	$ 14,365,624	$ 14,365,624	$ 14,365,624	$ 14,365,624	$ 14,365,624	$ 14,365,624
Average Rate	$ 2.5005	$ 2.5005	$ 2.4685	$ 2.5402	$ 2.5918	$ 2.6034	$ 2.6034	$ 2.6034	$ 2.6034	$ 2.6034	$ 2.6034	$ 2.6034

LNG	Forecast Jan-2018	Forecast Feb-2018	Forecast Mar-2018	Forecast Apr-2018	Forecast May-2018	Forecast Jun-2018	Forecast Jul-2018	Forecast Aug-2018	Forecast Sep-2018	Forecast Oct-2018	Forecast Nov-2018	Forecast Dec-2018
Dth												
Beginning Inventory	1,989,230	1,952,541	1,919,403	1,882,715	1,847,210	1,810,521	1,775,016	1,738,328	1,701,639	2,006,844	2,051,816	2,025,918
Injections	-	-	-	-	-	-	-	-	340,710	81,661	9,607	-
Withdrawals	36,689	33,138	36,689	35,505	36,689	35,505	36,689	36,689	35,505	36,689	35,505	36,689
EndingBalance	1,952,541	1,919,403	1,882,715	1,847,210	1,810,521	1,775,016	1,738,328	1,701,639	2,006,844	2,051,816	2,025,918	1,989,230
$												
Beginning Inventory	$ 3,687,467	$ 3,619,379	$ 3,557,880	$ 3,489,792	$ 3,423,901	$ 3,355,813	$ 3,289,921	$ 3,221,833	$ 3,153,745	$ 3,784,380	$ 3,886,028	$ 3,837,262
Injections	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 697,152	$ 171,023	$ 18,536	$ -
Withdrawals	$ 68,088	$ 61,499	$ 68,088	$ 65,892	$ 68,088	$ 65,892	$ 68,088	$ 68,088	$ 66,517	$ 69,375	$ 67,303	$ 69,557
EndingBalance	$ 3,619,379	$ 3,557,880	$ 3,489,792	$ 3,423,901	$ 3,355,813	$ 3,289,921	$ 3,221,833	$ 3,153,745	$ 3,784,380	$ 3,886,028	$ 3,837,262	$ 3,767,705
Average Rate	$ 1.8537	$ 1.8536	$ 1.8536	$ 1.8536	$ 1.8535	$ 1.8535	$ 1.8534	$ 1.8534	$ 1.8857	$ 1.8939	$ 1.8941	$ 1.8941

Exhibit_(EDA-4)
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THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY and KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID

KEDNY / KEDLI

Projected Gas Storage Inventory

Twelve Months Ended December 2019

Market Area	Forecast Jan-2019	Forecast Feb-2019	Forecast Mar-2019	Forecast Apr-2019	Forecast May-2019	Forecast Jun-2019	Forecast Jul-2019	Forecast Aug-2019	Forecast Sep-2019	Forecast Oct-2019	Forecast Nov-2019	Forecast Dec-2019
Dth												
Beginning Inventory	42,971,528	25,329,970	8,984,299	7,246,482	8,852,000	17,807,099	26,706,424	34,618,840	42,872,377	51,337,962	58,639,236	55,918,574
Injections	-	-	206,816	2,819,665	8,955,099	8,899,325	7,912,416	8,253,537	8,465,586	7,301,272	478,930	-
Withdrawals	17,641,558	16,345,670	1,944,634	1,214,147	-	-	-	-	-	-	3,199,590	12,752,369
EndingBalance	25,329,970	8,984,299	7,246,482	8,852,000	17,807,099	26,706,424	34,618,840	42,872,377	51,337,962	58,639,236	55,918,574	43,166,205
$												
Beginning Inventory	$ 97,108,809	$ 57,466,283	$ 20,835,816	$ 16,924,230	$ 21,569,323	$ 44,786,408	$ 67,438,224	$ 87,303,661	$ 107,782,110	$ 127,430,023	$ 144,589,137	$ 137,941,499
Injections	$ -	$ -	$ 549,161	$ 7,458,961	$ 23,217,086	$ 22,651,815	$ 19,865,438	$ 20,478,448	$ 19,647,912	$ 17,159,113	$ 1,065,283	$ -
Withdrawals	$ 39,642,527	$ 36,630,465	$ 4,460,748	$ 2,813,868	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,712,918	$ 31,416,251
EndingBalance	$ 57,466,283	$ 20,835,816	$ 16,924,230	$ 21,569,323	$ 44,786,408	$ 67,438,224	$ 87,303,661	$ 107,782,110	$ 127,430,023	$ 144,589,137	$ 137,941,499	$ 106,525,252
Average Rate	$ 2.2687	$ 2.3191	$ 2.3355	$ 2.4367	$ 2.5151	$ 2.5252	$ 2.5219	$ 2.5140	$ 2.4822	$ 2.4657	$ 2.4668	$ 2.4678

Gulf Coast	Forecast Jan-2019	Forecast Feb-2019	Forecast Mar-2019	Forecast Apr-2019	Forecast May-2019	Forecast Jun-2019	Forecast Jul-2019	Forecast Aug-2019	Forecast Sep-2019	Forecast Oct-2019	Forecast Nov-2019	Forecast Dec-2019
Dth												
Beginning Inventory	5,518,106	5,518,106	5,518,106	4,128,687	4,743,427	5,378,657	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106
Injections	-	-	-	614,739	635,231	139,449	-	-	-	-	-	-
Withdrawals	-	-	1,389,419	-	-	-	-	-	-	-	-	-
EndingBalance	5,518,106	5,518,106	4,128,687	4,743,427	5,378,657	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106	5,518,106
$												
Beginning Inventory	$ 14,365,624	$ 14,365,624	$ 14,365,624	$ 10,571,941	$ 12,468,065	$ 14,399,087	$ 14,833,021	$ 14,833,021	$ 14,833,021	$ 14,833,021	$ 14,833,021	$ 14,833,021
Injections	$ -	$ -	$ -	$ 1,896,124	$ 1,931,022	$ 433,933	$ -	$ -	$ -	$ -	$ -	$ -
Withdrawals	$ -	$ -	$ 3,793,683	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
EndingBalance	$ 14,365,624	$ 14,365,624	$ 10,571,941	$ 12,468,065	$ 14,399,087	$ 14,833,021	$ 14,833,021	$ 14,833,021	$ 14,833,021	$ 14,833,021	$ 14,833,021	$ 14,833,021
Average Rate	$ 2.6034	$ 2.6034	$ 2.5606	$ 2.6285	$ 2.6771	$ 2.6881	$ 2.6881	$ 2.6881	$ 2.6881	$ 2.6881	$ 2.6881	$ 2.6881

LNG	Forecast Jan-2019	Forecast Feb-2019	Forecast Mar-2019	Forecast Apr-2019	Forecast May-2019	Forecast Jun-2019	Forecast Jul-2019	Forecast Aug-2019	Forecast Sep-2019	Forecast Oct-2019	Forecast Nov-2019	Forecast Dec-2019
Dth												
Beginning Inventory	1,989,230	1,952,541	1,919,403	1,882,715	1,847,210	1,810,521	1,775,016	1,740,406	1,703,717	2,008,922	2,036,249	2,010,351
Injections	-	-	-	-	-	-	2,078	-	340,710	64,016	9,607	-
Withdrawals	36,689	33,138	36,689	35,505	36,689	35,505	36,689	36,689	35,505	36,689	35,505	36,689
EndingBalance	1,952,541	1,919,403	1,882,715	1,847,210	1,810,521	1,775,016	1,740,406	1,703,717	2,008,922	2,036,249	2,010,351	1,973,663
$												
Beginning Inventory	$ 3,767,705	$ 3,698,148	$ 3,635,322	$ 3,565,765	$ 3,498,452	$ 3,428,895	$ 3,361,581	$ 3,296,400	$ 3,226,835	$ 3,928,896	$ 4,002,611	$ 3,952,125
Injections	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,379	$ -	$ 770,561	$ 145,674	$ 19,364	$ -
Withdrawals	$ 69,557	$ 62,826	$ 69,557	$ 67,313	$ 69,557	$ 67,313	$ 69,560	$ 69,565	$ 68,500	$ 71,958	$ 69,850	$ 72,190
EndingBalance	$ 3,698,148	$ 3,635,322	$ 3,565,765	$ 3,498,452	$ 3,428,895	$ 3,361,581	$ 3,296,400	$ 3,226,835	$ 3,928,896	$ 4,002,611	$ 3,952,125	$ 3,879,935
Average Rate	$ 1.8940	$ 1.8940	$ 1.8939	$ 1.8939	$ 1.8939	$ 1.8938	$ 1.8940	$ 1.8940	$ 1.9557	$ 1.9657	$ 1.9659	$ 1.9659

Exhibit_(EDA-4)
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Exhibit__ (EDA-5)

Exhibit __ (EDA-5)

KEDNY/KEDLI Purchased Gas Expense for the Twelve Months Ending ("TME") September 30, 2015

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

KEDNY / KEDLI

Purchased Gas Expense

Twelve Months Ended September 30, 2015
(in thousands of dollars)

	Oct-2014	Nov-2014	Dec-2014	Jan-2015	Feb-2015	Mar-2015	Apr-2015	May-2015	Jun-2015	Jul-2015	Aug-2015	Sep-2015	Total TME Sep 2015
Purchased Take - MDT	13,673	16,587	20,624	25,514	26,304	24,120	19,324	16,244	15,693	14,575	12,902	11,238	216,797
Variable Cost	$ 32,713	$ 49,150	$ 59,098	$ 73,028	$ 140,325	$ 53,029	$ 31,807	$ 25,696	$ 24,630	$ 21,688	$ 18,409	$ 12,673	$ 542,245
Fixed Costs	$ 23,049	$ 20,037	$ 22,965	$ 22,142	$ 21,023	$ 20,445	$ 19,923	$ 23,335	$ 26,382	$ 26,088	$ 25,717	$ 25,213	$ 276,320
Total Invoice Cost	$ 55,762	$ 69,188	$ 82,063	$ 95,170	$ 161,348	$ 73,474	$ 51,730	$ 49,031	$ 51,012	$ 47,777	$ 44,126	$ 37,886	$ 818,566
Minus Injections to Storage & LNG	$ (19,972)	$ (4,037)	$ (2,568)	$ (329)	$ (836)	$ (3,072)	$ (11,443)	$ (18,867)	$ (17,510)	$ (15,620)	$ (12,648)	$ (7,378)	$ (114,279)
Plus Withdrawls from Storage & LNG	$ 42	$ 16,486	$ 37,068	$ 57,176	$ 45,864	$ 25,429	$ 415	$ 194	$ 118	$ 168	$ 161	$ 1,183	$ 184,306
Total Purchased Gas Expense	$ 35,832	$ 81,637	$ 116,563	$ 152,018	$ 206,376	$ 95,831	$ 40,702	$ 30,358	$ 33,620	$ 32,324	$ 31,639	$ 31,691	$ 888,592
WACOG per Dth													
Unitized Variable Gas Cost	$ 2.39	$ 2.96	$ 2.87	$ 2.86	$ 5.33	$ 2.20	$ 1.65	$ 1.58	$ 1.57	$ 1.49	$ 1.43	$ 1.13	
Underground Storage "In Ground" WACOG	$ 3.09	$ 3.08	$ 3.08	$ 3.08	$ 3.09	$ 3.08	$ 2.88	$ 2.46	$ 2.24	$ 2.07	$ 1.97	$ 1.88	
LNG WACOG	$ 3.59	$ 3.53	$ 3.49	$ 3.48	$ 3.48	$ 3.48	$ 3.36	$ 3.36	$ 3.14	$ 3.06	$ 2.94	$ 2.64	

Note: No hedging costs/credits included.

Exhibit_(EDA-5)
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Exhibit __ (EDA-6)

KEDNY/KEDLI Forecast of Variable Gas Expense
for the TME December 31, 2017, 2018 and 2019

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

KEDNY / KEDLI

Forecast of Variable Gas Expense

Twelve Months Ended December 2017
(in thousands of dollars)

	Jan-2017	Feb-2017	Mar-2017	Apr-2017	May-2017	Jun-2017	Jul-2017	Aug-2017	Sep-2017	Oct-2017	Nov-2017	Dec-2017	Total TME Dec 2017
Purchased "Wellhead" Volume - MDT	40,224	35,220	27,636	20,829	19,489	17,011	15,401	15,854	17,315	19,195	22,237	34,879	285,290
Delivered Volume - MDT	39,514	34,618	27,226	20,428	19,032	16,588	14,985	15,429	16,869	18,748	21,860	34,219	279,514
HH NYMEX (8/27/15)	$ 3.27	$ 3.26	$ 3.20	$ 2.97	$ 2.96	$ 2.98	$ 3.01	$ 3.03	$ 3.02	$ 3.04	$ 3.12	$ 3.28	
Total "Wellhead" Cost of Purchased Gas	$ 70,809	$ 52,517	$ 60,100	$ 41,473	$ 38,538	$ 32,777	$ 30,681	$ 30,129	$ 30,163	$ 35,392	$ 42,195	$ 61,897	$526,673
Total Pipeline Variable Cost	$ 7,402	$ 6,696	$ 6,566	$ 6,450	$ 760	$ 6,420	$ 6,635	$ 6,634	$ 6,408	$ 6,605	$ 6,433	$ 7,182	$ 74,192
Total Variable Cost	$ 78,211	$ 59,213	$ 66,666	$ 47,923	$ 39,299	$ 39,197	$ 37,317	$ 36,764	$ 36,572	$ 41,997	$ 48,628	$ 69,079	$600,865
"Wellhead" WACOG per Dth	$ 1.76	$ 1.49	$ 2.17	$ 1.99	$ 1.98	$ 1.93	$ 1.99	$ 1.90	$ 1.74	$ 1.84	$ 1.90	$ 1.77	
Delivered Unit Cost of Total Flowing Supply Purchases	$ 1.98	$ 1.71	$ 2.45	$ 2.35	$ 2.06	$ 2.36	$ 2.49	$ 2.38	$ 2.17	$ 2.24	$ 2.22	$ 2.02	

Exhibit_(EDA-6)
Page 1 of 3

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

KEDNY / KEDLI

Forecast of Variable Gas Expense

Twelve Months Ended December 2018
(in thousands of dollars)

	Jan-2018	Feb-2018	Mar-2018	Apr-2018	May-2018	Jun-2018	Jul-2018	Aug-2018	Sep-2018	Oct-2018	Nov-2018	Dec-2018	Total TME Dec 2018
Purchased "Wellhead" Volume - MDT	41,062	35,888	28,046	21,436	19,991	17,107	15,075	15,714	17,512	20,669	22,473	35,397	290,369
Delivered Volume - MDT	40,331	35,310	27,709	21,044	19,553	16,685	14,668	15,294	17,066	20,207	22,110	34,735	284,711
HH NYMEX (8/27/15)	$ 3.40	$ 3.38	$ 3.33	$ 3.02	$ 3.01	$ 3.05	$ 3.08	$ 3.10	$ 3.09	$ 3.11	$ 3.19	$ 3.34	
Total "Wellhead" Cost of Purchased Gas	*$ 79,440*	*$ 56,786*	*$ 62,585*	*$ 50,923*	*$ 46,020*	*$ 38,468*	*$ 34,233*	*$ 34,074*	*$ 35,357*	*$ 43,768*	*$ 45,432*	*$ 65,111*	$592,197
Total Pipeline Variable Cost	$ 7,425	$ 6,679	$ 6,402	$ 6,360	$ 701	$ 6,418	$ 6,599	$ 6,618	$ 6,403	$ 6,633	$ 6,411	$ 7,191	$ 73,839
Total Variable Cost	$ 86,865	$ 63,465	$ 68,987	$ 57,283	$ 46,721	$ 44,886	$ 40,832	$ 40,691	$ 41,760	$ 50,401	$ 51,843	$ 72,301	$666,036
"Wellhead" WACOG per Dth	$ 1.93	$ 1.58	$ 2.23	$ 2.38	$ 2.30	$ 2.25	$ 2.27	$ 2.17	$ 2.02	$ 2.12	$ 2.02	$ 1.84	
Delivered Unit Cost of Total Flowing Supply Purchases	$ 2.15	$ 1.80	$ 2.49	$ 2.72	$ 2.39	$ 2.69	$ 2.78	$ 2.66	$ 2.45	$ 2.49	$ 2.34	$ 2.08	

Exhibit_(EDA-6)
Page 2 of 3

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

KEDNY / KEDLI

Forecast of Variable Gas Expense

Twelve Months Ended December 2019
(in thousands of dollars)

	Jan-2019	Feb-2019	Mar-2019	Apr-2019	May-2019	Jun-2019	Jul-2019	Aug-2019	Sep-2019	Oct-2019	Nov-2019	Dec-2019	Total TME Dec 2019
Purchased "Wellhead" Volume - MDT	41,681	36,433	28,521	19,969	19,996	17,186	15,088	15,644	17,601	20,764	22,582	35,928	291,392
Delivered Volume - MDT	40,941	35,834	28,210	19,683	19,657	16,787	14,679	15,228	17,180	20,314	22,247	35,255	286,014
HH NYMEX (8/27/15)	$ 3.46	$ 3.44	$ 3.38	$ 3.07	$ 3.07	$ 3.10	$ 3.14	$ 3.15	$ 3.15	$ 3.17	$ 3.24	$ 3.41	
Total "Wellhead" Cost of Purchased Gas	*$ 82,573*	*$ 63,460*	*$ 70,245*	*$ 51,206*	*$ 50,977*	*$ 42,236*	*$ 35,470*	*$ 36,737*	*$ 39,419*	*$ 47,918*	*$ 49,824*	*$ 68,682*	$638,747
Total Pipeline Variable Cost	$ 7,427	$ 6,676	$ 6,303	$ 6,180	$ 668	$ 6,363	$ 6,598	$ 6,594	$ 6,346	$ 6,616	$ 6,340	$ 7,207	$ 73,319
Total Variable Cost	$ 90,000	$ 70,136	$ 76,548	$ 57,386	$ 51,645	$ 48,599	$ 42,068	$ 43,331	$ 45,765	$ 54,534	$ 56,164	$ 75,889	$712,066
"Wellhead" WACOG per Dth	$ 1.98	$ 1.74	$ 2.46	$ 2.56	$ 2.55	$ 2.46	$ 2.35	$ 2.35	$ 2.24	$ 2.31	$ 2.21	$ 1.91	
Delivered Unit Cost of Total Flowing Supply Purchases	$ 2.20	$ 1.96	$ 2.71	$ 2.92	$ 2.63	$ 2.90	$ 2.87	$ 2.85	$ 2.66	$ 2.68	$ 2.52	$ 2.15	

Exhibit_(EDA-6)
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Exhibit __ (EDA-7)

KEDNY/KEDLI Forecast of Purchased Gas Expense
for the TME December 31, 2017, 2018 and 2019

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

KEDNY / KEDLI

Forecast of Purchased Gas Expense

Twelve Months Ended December 2017
(in thousands of dollars)

	Jan-2017	Feb-2017	Mar-2017	Apr-2017	May-2017	Jun-2017	Jul-2017	Aug-2017	Sep-2017	Oct-2017	Nov-2017	Dec-2017	Total TME Dec 2017
Delivered Volume - MDT	39,514	34,618	27,226	20,428	19,032	16,588	14,985	15,429	16,869	18,748	21,860	34,219	279,514
Variable Cost	$ 78,211	$ 59,213	$ 66,666	$ 47,923	$ 39,299	$ 39,197	$ 37,317	$ 36,764	$ 36,572	$ 41,997	$ 48,628	$ 69,079	$ 600,865
Fixed Costs	$ 43,340	$ 41,101	$ 43,152	$ 40,858	$ 41,594	$ 40,858	$ 41,594	$ 41,594	$ 40,858	$ 41,594	$ 44,259	$ 52,789	$ 513,591
Total Invoice Cost	$ 121,551	$ 100,314	$ 109,818	$ 88,781	$ 80,893	$ 80,055	$ 78,911	$ 78,358	$ 77,430	$ 83,592	$ 92,886	$ 121,868	$ 1,114,456
Minus Injections to Storage	$ -	$ (28)	$ (603)	$ (10,604)	$ (19,139)	$ (18,312)	$ (17,563)	$ (17,227)	$ (15,776)	$ (11,576)	$ (1,564)	$ -	$ (112,394)
Plus Withdrawls from Storage	$ 28,715	$ 28,808	$ 8,575	$ 3,244	$ 69	$ 66	$ 69	$ 69	$ 66	$ 68	$ 8,142	$ 24,352	$ 102,242
Total Purchased Gas Expense	$ 150,266	$ 129,094	$ 117,790	$ 81,422	$ 61,822	$ 61,809	$ 61,416	$ 61,199	$ 61,719	$ 72,083	$ 99,464	$ 146,220	$ 1,104,304
WACOG per Dth													
Delivered Unit Cost of Total Flowing Supply Purchases	$ 1.98	$ 1.71	$ 2.45	$ 2.35	$ 2.06	$ 2.36	$ 2.49	$ 2.38	$ 2.17	$ 2.24	$ 2.22	$ 2.02	
Underground Storage "In Ground" WACOG	$ 1.86	$ 2.01	$ 2.01	$ 2.12	$ 2.10	$ 2.08	$ 2.08	$ 2.07	$ 2.03	$ 2.01	$ 2.02	$ 2.03	
LNG WACOG	$ 1.87	$ 1.87	$ 1.87	$ 1.87	$ 1.87	$ 1.87	$ 1.87	$ 1.87	$ 1.85	$ 1.85	$ 1.85	$ 1.85	

Exhibit_(EDA-7)
Page 1 of 3

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

KEDNY / KEDLI

Forecast of Purchased Gas Expense
Twelve Months Ended December 2018
(in thousands of dollars)

	Jan-2018	Feb-2018	Mar-2018	Apr-2018	May-2018	Jun-2018	Jul-2018	Aug-2018	Sep-2018	Oct-2018	Nov-2018	Dec-2018	Total TME Dec 2018
Delivered Volume - MDT	40,331	35,310	27,709	21,044	19,553	16,685	14,668	15,294	17,066	20,207	22,110	34,735	284,711
Variable Cost	$ 86,865	$ 63,465	$ 68,987	$ 57,283	$ 46,721	$ 44,886	$ 40,832	$ 40,691	$ 41,760	$ 50,401	$ 51,843	$ 72,301	$ 666,036
Fixed Costs	$ 45,317	$ 42,872	$ 45,129	$ 42,766	$ 43,571	$ 42,766	$ 43,571	$ 43,571	$ 42,766	$ 43,571	$ 43,334	$ 53,408	$ 532,642
Total Invoice Cost	$ 132,182	$ 106,337	$ 114,115	$ 100,050	$ 90,292	$ 87,653	$ 84,403	$ 84,262	$ 84,526	$ 93,972	$ 95,177	$ 125,710	$ 1,198,678
Minus Injections to Storage	$ -	$ -	$ (367)	$ (12,678)	$ (22,759)	$ (21,104)	$ (18,980)	$ (19,131)	$ (18,388)	$ (15,882)	$ (1,463)	$ -	$ (130,752)
Plus Withdrawls from Storage	$ 32,818	$ 34,320	$ 11,244	$ 1,633	$ 68	$ 66	$ 68	$ 68	$ 67	$ 69	$ 8,886	$ 28,409	$ 117,716
Total Purchased Gas Expense	$ 165,000	$ 140,657	$ 124,992	$ 89,004	$ 67,601	$ 66,614	$ 65,491	$ 65,199	$ 66,205	$ 78,160	$ 102,601	$ 154,119	$ 1,185,642
WACOG per Dth													
Delivered Unit Cost of Total Flowing Supply Purchases	$ 2.15	$ 1.80	$ 2.49	$ 2.72	$ 2.39	$ 2.69	$ 2.78	$ 2.66	$ 2.45	$ 2.49	$ 2.34	$ 2.08	
Underground Storage "In Ground" WACOG	$ 2.07	$ 2.22	$ 2.26	$ 2.37	$ 2.36	$ 2.36	$ 2.36	$ 2.34	$ 2.31	$ 2.29	$ 2.29	$ 2.30	
LNG WACOG	$ 1.85	$ 1.85	$ 1.85	$ 1.85	$ 1.85	$ 1.85	$ 1.85	$ 1.85	$ 1.89	$ 1.89	$ 1.89	$ 1.89	

Exhibit_(EDA-7)
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THE BROOKLYN UNION GAS COMPANY d/b/a NATIONAL GRID NY and KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID

KEDNY / KEDLI

Forecast of Purchased Gas Expense
Twelve Months Ended December 2019
(in thousands of dollars)

	Jan-2019	Feb-2019	Mar-2019	Apr-2019	May-2019	Jun-2019	Jul-2019	Aug-2019	Sep-2019	Oct-2019	Nov-2019	Dec-2019	Total TME Dec 2019
Delivered Volume - MDT	40,941	35,834	28,210	19,683	19,657	16,787	14,679	15,228	17,180	20,314	22,247	35,255	286,014
Variable Cost	$ 90,000	$ 70,136	$ 76,548	$ 57,386	$ 51,645	$ 48,599	$ 42,068	$ 43,331	$ 45,765	$ 54,534	$ 56,164	$ 75,889	$ 712,066
Fixed Costs	$ 44,331	$ 39,823	$ 42,080	$ 40,543	$ 41,347	$ 40,543	$ 41,347	$ 41,347	$ 40,543	$ 41,347	$ 40,543	$ 41,347	$ 495,141
Total Invoice Cost	$ 134,331	$ 109,959	$ 118,628	$ 97,929	$ 92,993	$ 89,142	$ 83,416	$ 84,678	$ 86,308	$ 95,881	$ 96,707	$ 117,236	$ 1,207,207
Minus Injections to Storage	$ -	$ -	$ (549)	$ (9,355)	$ (25,148)	$ (23,086)	$ (19,870)	$ (20,478)	$ (20,418)	$ (17,305)	$ (1,085)	$ -	$ (137,294)
Plus Withdrawls from Storage	$ 39,712	$ 36,693	$ 8,324	$ 2,881	$ 70	$ 67	$ 70	$ 70	$ 68	$ 72	$ 7,783	$ 31,488	$ 127,298
Total Purchased Gas Expense	$ 174,043	$ 146,652	$ 126,403	$ 91,455	$ 67,914	$ 66,123	$ 63,615	$ 64,269	$ 65,958	$ 78,648	$ 103,405	$ 148,724	$ 1,197,211
WACOG per Dth													
Delivered Unit Cost of Total Flowing Supply Purchases	$ 2.20	$ 1.96	$ 2.71	$ 2.92	$ 2.63	$ 2.90	$ 2.87	$ 2.85	$ 2.66	$ 2.68	$ 2.52	$ 2.15	
Underground Storage "In Ground" WACOG	$ 2.33	$ 2.43	$ 2.42	$ 2.50	$ 2.55	$ 2.55	$ 2.54	$ 2.53	$ 2.50	$ 2.48	$ 2.49	$ 2.49	
LNG WACOG	$ 1.89	$ 1.89	$ 1.89	$ 1.89	$ 1.89	$ 1.89	$ 1.89	$ 1.89	$ 1.96	$ 1.97	$ 1.97	$ 1.97	

Exhibit_(EDA-7)
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Exhibit__ (EDA-8)

Exhibit __ (EDA-8)

KEDNY & KEDLI Estimated Marginal Commodity Cost of Gas

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

KEDNY
Estimated Marginal Commodity Cost of Gas
For Period: November 1, 2016 through March 31, 2017
($ / dt)

Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Winter (Nov-Mar) Average
$ 3.50	$ 3.65	$ 6.56	$ 5.75	$ 3.69	$4.63

KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID

KEDLI
Estimated Marginal Commodity Cost of Gas
For Period: November 1, 2016 through March 31, 2017
($ / dt)

Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Winter (Nov-Mar) Average
$ 3.50	$ 3.65	$ 6.56	$ 5.75	$ 3.69	$4.63

Exhibit__ (EDA-9)

Exhibit __ (EDA-9)

KEDNY & KEDLI Estimated Annualized Marginal Capacity Cost of Gas

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

KEDNY
Estimated Annualized Marginal Capacity Cost of Gas
For Period: November 1, 2016 through March 31, 2017

Units ($ per dt)

Marginal Supplies	Peak Day Quantity dt/day	Annual Capacity Costs Cost $	Quantity dt	Unitized $/dt	Peak Day Capacity Costs $/dt
DTI New Market Project	82,000	$ 18,855,900	29,930,000	$0.63	$229.95
15 Day City Gate Peaking Supplies	263,000	$ 9,665,250	3,945,000	$2.45	$36.75
Grand Total	345,000	28,521,150	33,875,000	$0.84	$82.67

Annualized Marginal Capacity Cost of Gas

Peak Day Capacity Cost	$82.67	per dt
Ratio: Peak Day Requirements to Annual Normalized Firm Sales	1 to 74	dt
Annual Marginal Capacity Cost	$1.12	per dt

Exhibit_(EDA-9)
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KEYSPAN GAS EAST CORPORATION d/b/a NATIONAL GRID

KEDLI
Estimated Annualized Marginal Capacity Cost of Gas
For Period: November 1, 2016 through March 31, 2017
Units ($ per dt)

Marginal Supplies	Peak Day Quantity dt/day	Annual Capacity Costs Cost $	Quantity dt	Unitized $/dt	Peak Day Capacity Costs $/dt
DTI New Market Project	82,000	$ 18,855,900	29,930,000	$0.63	$229.95
15 Day City Gate Peaking Supplies	263,000	$ 9,665,250	3,945,000	$2.45	$36.75
Grand Total	345,000	28,521,150	33,875,000	$0.84	$82.67

Annualized Marginal Capacity Cost of Gas

Peak Day Capacity Cost	$82.67	per dt
Ratio: Peak Day Requirements to Annual Normalized Firm Sales	1 to 74	dt
Annual Marginal Capacity Cost	$1.12	per dt

Exhibit_(EDA-9)
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