

Consolidated Edison, Inc.

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ESG: Committed to Reducing Methane Emissions
December 2017



Con Edison – Select Highlights for Reducing Methane Emissions

Accomplishments

53%

Reduction in average days to repair gas leaks since 2014

62%

Reduction in year-end leak backlog since 2014

Goals

100 miles

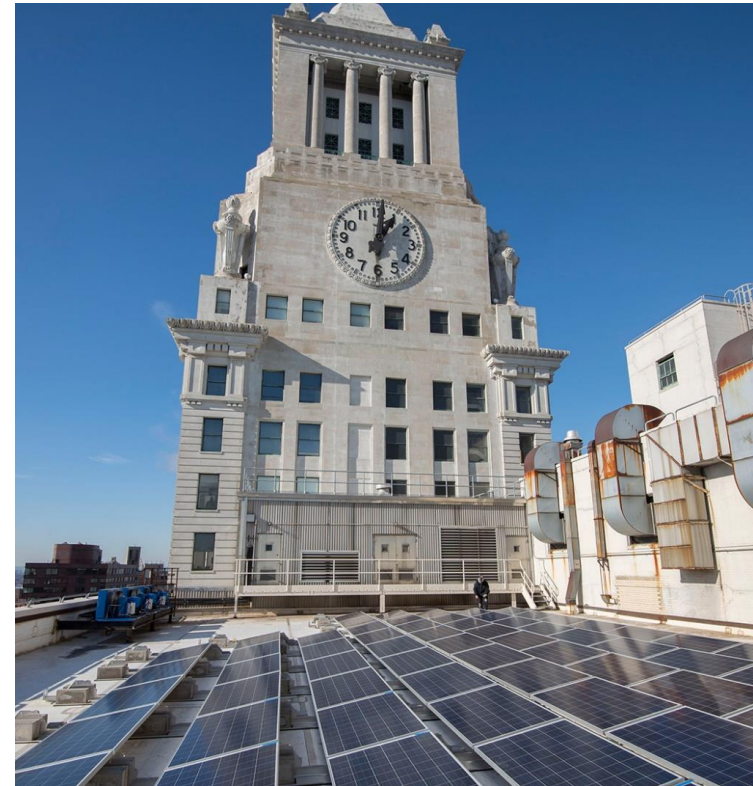
Target annual miles of priority pipe replacement by 2021

82%

Target reduction in methane emissions by 2036

GHG Emissions Reductions

- Con Edison has been a leader in emissions reduction for over a generation; **we converted all of our plants from coal to cleaner fuels in 1972**
- Essentially all of CECONY's heavy-duty fleet is **fueled by biodiesel**
- The reduction of our carbon footprint since 2005 is the **equivalent of taking 500,000 cars off the road**
- We have avoided an aggregate of **24.5 million metric tons** of CO₂e emissions from 2006 to 2016
- In 2016, Con Edison released **96% less SF₆** than 1996
- **More than 520 tons of fine particulate matter have been avoided through oil-to-gas conversions**, which is equivalent to taking 1.7 million cars off the road for one year



Link to Sustainability Report: <https://www.conedison.com/ehs/2016-sustainability-report/safety-and-environment/gng-emissions-reductions-introduction/>

Emissions Reduction Targets

82%

Target reduction in methane (CH_4) emissions by 2036⁽¹⁾

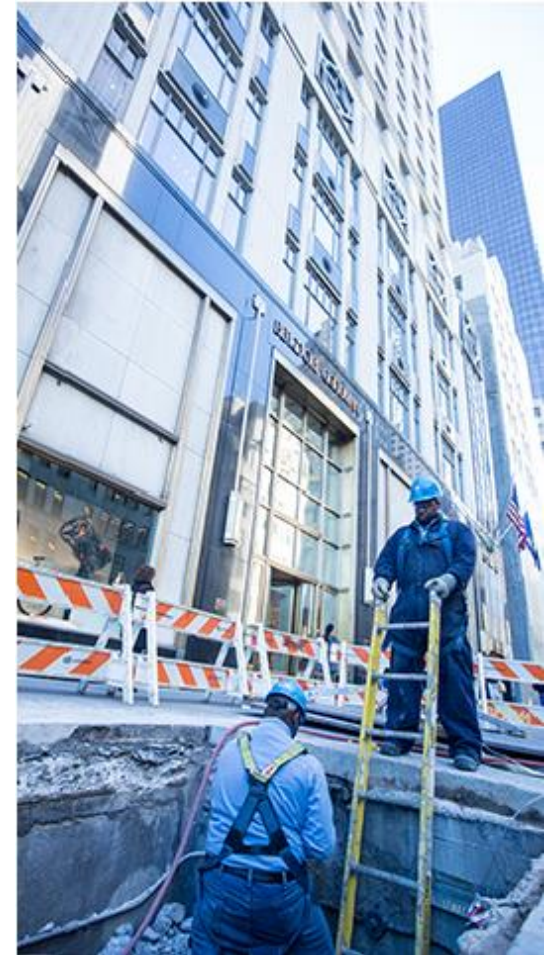
26%

Target reduction of sulfur hexafluoride emissions (SF_6) by 2021⁽²⁾

1. Targeting reduction of fugitive CH_4 emitted by CECONY natural gas distribution system from 244,808 in 2016 to 43,414 in 2036 (Metric Tons of CO_2 Equivalent)
2. Targeting reduction of CECONY SF_6 fugitive emissions from 106,604 in 2016 to 78,599 in 2021 (Metric Tons of CO_2 Equivalent)

CECONY's Continued Focus on Customer Safety

- We plan to **invest ~\$3.0 billion between 2018 and 2020** to fortify our gas infrastructure, underscoring our commitment to safety and the environment
- Our **“Smell Gas, Act Fast”** campaign has increased customer awareness about potential gas leaks and helped drive an 80% increase in gas odor calls since the campaign began in 2014
- Our distribution system pipes are **surveyed 13 times per year**, far exceeding U.S. standard of once a year
- **Continue to coordinate with local agencies** regarding public safety, including the NYC Department of Transportation, Department of Environmental Protection and the NYC and Westchester fire departments



Link to Con Edison Sustainability Report: <https://www.conedison.com/ehs/2016-sustainability-report/safety-and-environment/public-safety/>

System Upgrades

Investing in upgrades that will improve the reliability of our system and enhance safety and the customer experience

- **Core System Updates**
 - Launched smart meter initiative; first meters were installed in July 2017 and targeting 5.4 million installations in NYC and Westchester area by 2022
 - New website and digital customer experience leverage smart-meter data to give customers more control over their energy usage
- **2017 Gas Main Replacement**
 - CECONY replaced over 86 miles of cast-iron and unprotected steel pipe, exceeding our target by more than six miles
 - O&R replaced 24 miles of leak-prone pipes and eliminated all cast-iron pipes in Rockland County

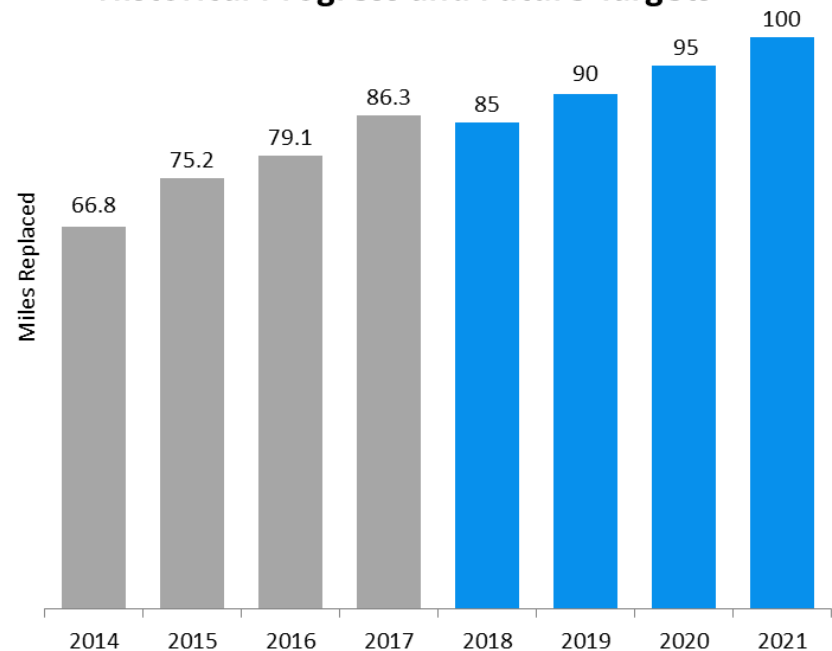
Link to Sustainability Report: <https://www.conedison.com/ehs/2016-sustainability-report/operational-excellence/core-system-upgrades/>

Accelerating Gas Main Replacement and Leak Repair

These initiatives will improve safety and are beneficial for the environment by reducing methane emissions

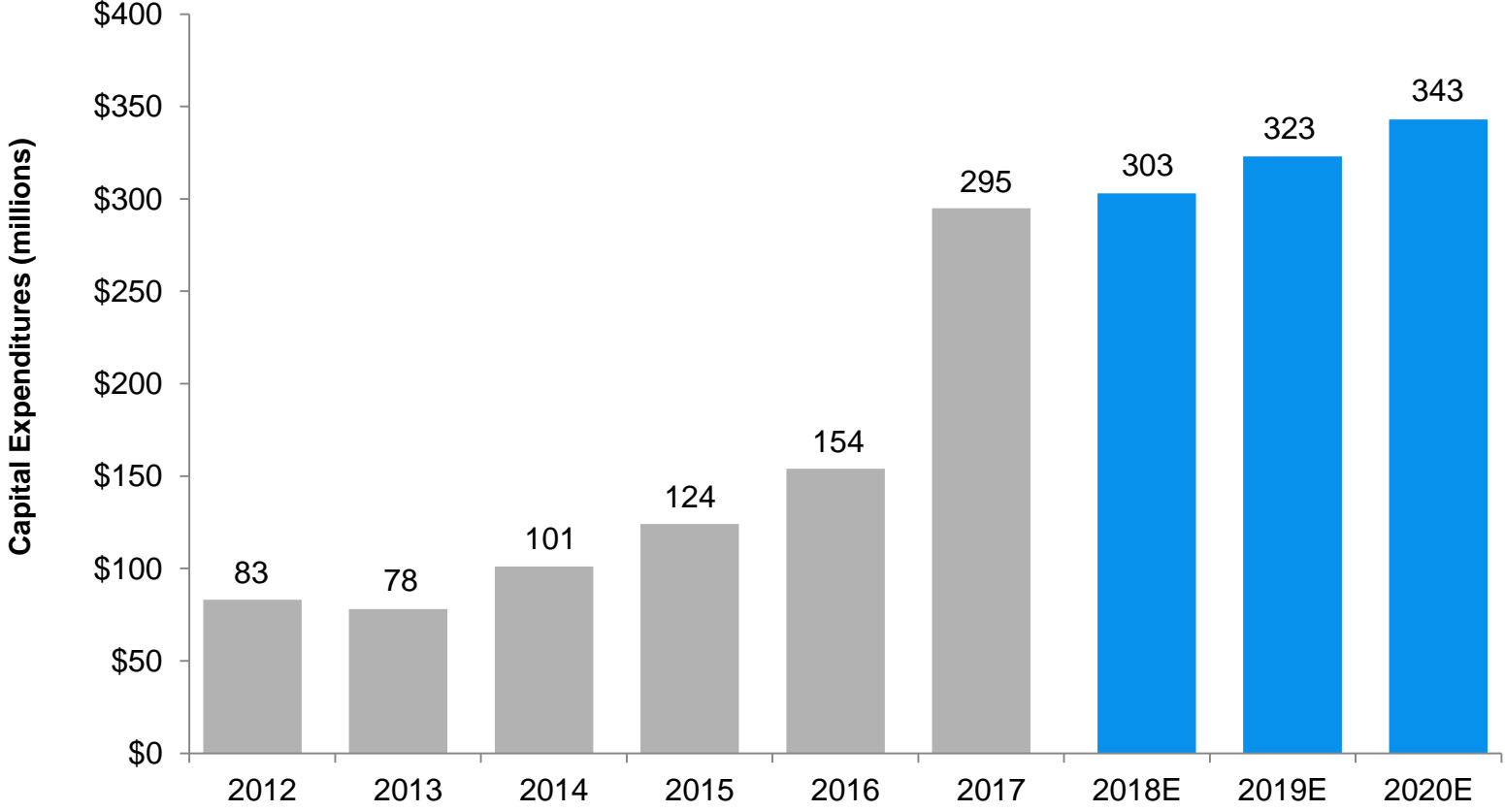
- We are **accelerating CECONY's gas main replacement** targets from 85 miles in 2018 to 100 miles by 2021
- We are also helping curb emissions by focusing on leak repair, and our **year-end leak backlog has fallen by 62%** since 2014
- **Incentives** for the gas business in current rate plan:
 - Complete six additional replacement miles above annual target
Maximum Annual Incentive: \$4 million
 - Reduce Type 3 leaks by additional 140 based on emissions ranking
Maximum annual incentive: \$2 million

**CECONY Gas Main Replacement:
Historical Progress and Future Targets**



Source: Consolidated Edison internal data sources.

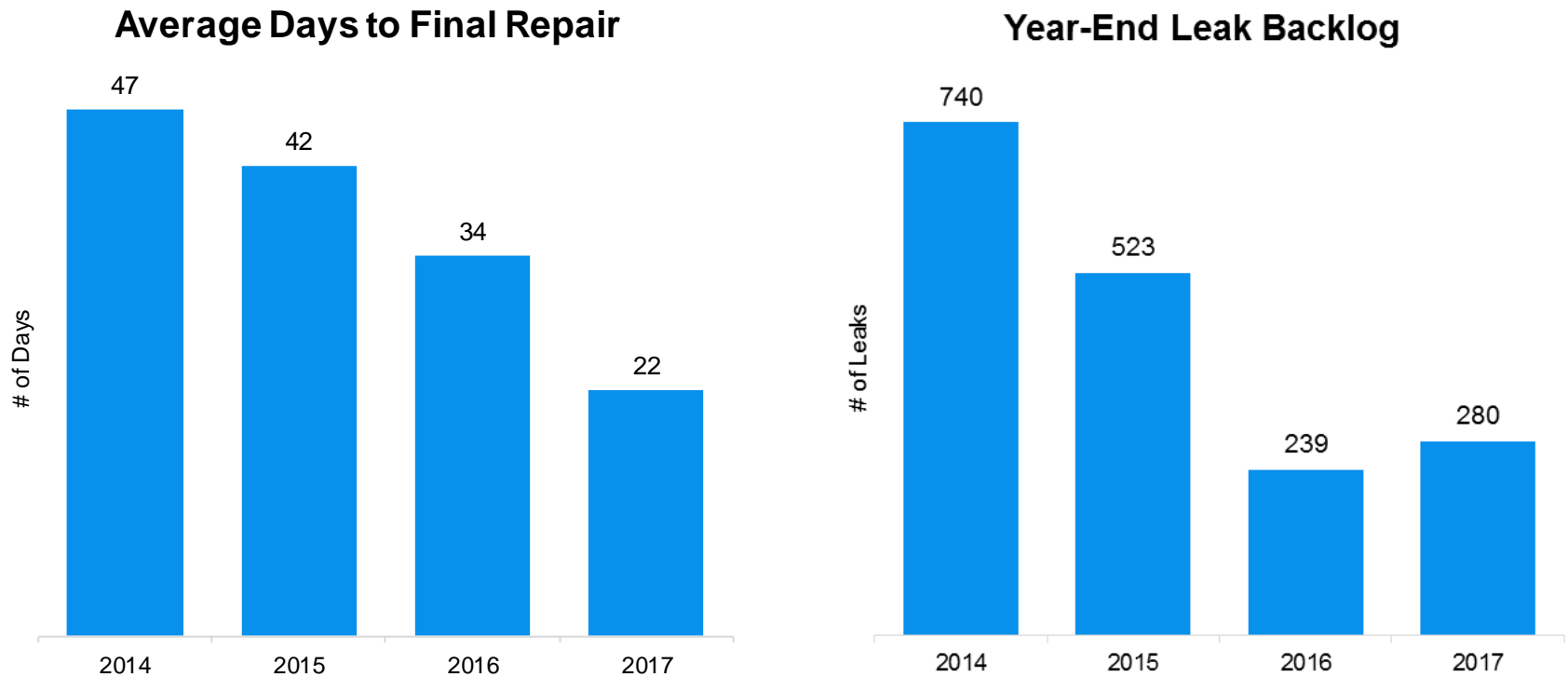
Committing Capital to CECONY's Gas Main Replacement



Curbing Emissions by Reducing Gas Leaks

We are committed to reducing emissions associated with gas leaks by improving our average repair time and backlog

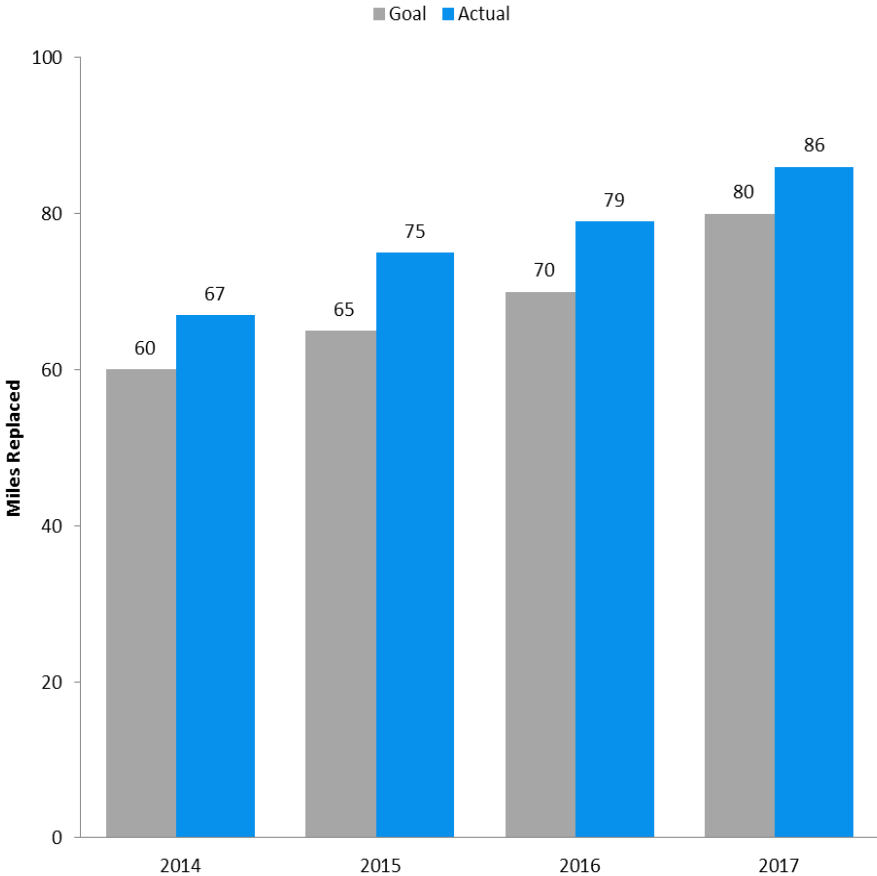
- Since 2014, CECONY has **reduced the average time** to repair leaks **by more than 50%**
- CECONY's **year-end leak backlog dropped to historically low levels** in 2016 - 2017



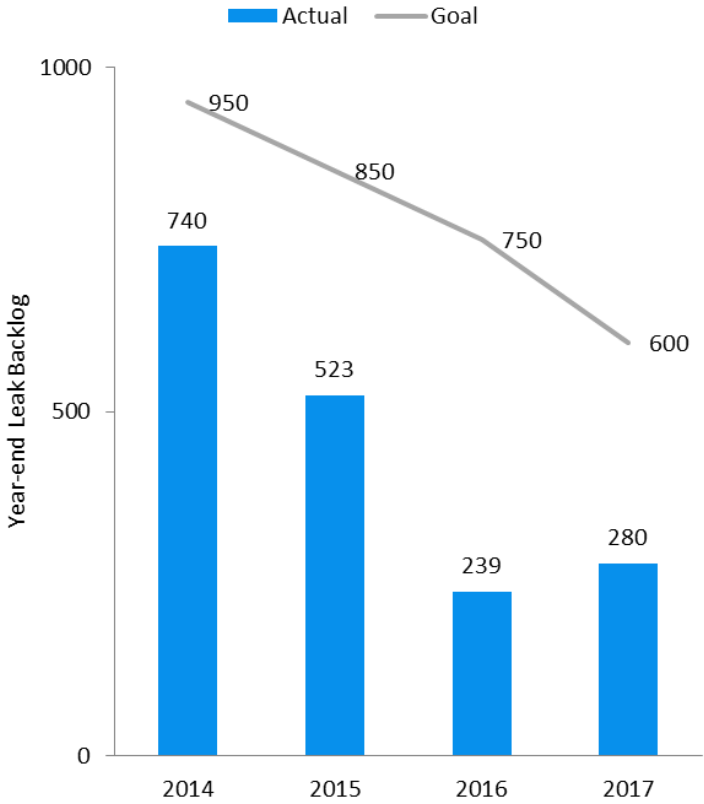
Source: Consolidated Edison internal data sources.

CECONY's Sustained Performance on Main Replacement and Leak Backlog

CECONY Gas Main Replacement



Year - end Leak Backlog: Goals vs. Actual



Source: Consolidated Edison internal data sources.

Orange & Rockland's Efforts to Curb Emissions

Although it services a much smaller customer base, O&R is equally focused on reducing gas leaks and gas main replacement

- In 2017, O&R replaced 24 miles of leak prone pipe; **on pace to eliminate all cast iron pipes in the O&R system by 2020**
- Over the course of the past 20 years, the O&R team has **replaced more than 370 miles of leak prone pipe**
- O&R spends **\$25 million annually on gas main replacement**
- O&R **tracks workable and total gas leak backlogs daily** and are on target to meet the year-end goal of less than 40 per month on average



Source: Consolidated Edison internal data sources.

Methane Challenge

In 2016, we joined 40 other local distribution companies as a founding partner in the EPA's Natural Gas STAR Methane Challenge program

- Methane Challenge Program is a flexible, voluntary partnership that allows the EPA to collaborate with partners to promote and track **ambitious, transparent commitments to voluntarily reduce methane emissions** beyond regulatory requirements
- CECONY continues to increase the pace of replacing cast iron and unprotected steel mains, and we exceeded our goal of **replacing an average of 72 miles of main per year** from 2015 to 2017 (reaching 86 miles replaced in 2017)
- With Methane Challenge Partnership Agreement, we have **committed to increase main replacement** over the next two years
- CECONY's goal is to **replace 85 miles in 2018, 90 miles in 2019**, and ultimately reach a replacement rate of **100 miles per year by 2021**

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Commitment to Research & Development

Our R&D teams find solutions that make the workplace safer and improve the quality of life for our customers

- **Residential Methane Detector (RMD) Pilot**
 - Pursuing a new technology that performs better than commercially available alternatives and planning a pilot to evaluate new RMDs
 - The new RMD can alarm at 10% of the lower explosive limit, consistent with New York State odor detection threshold requirements, which are more stringent than federal requirements
 - Supportive of NYC legislation promoting wide scale adoption of RMDs
- **Pilot Project with Environmental Defense Fund (EDF) on Non-Hazardous Gas Leaks**
 - Con Edison partnered with EDF on pilot program aimed at reducing GHG emissions from the company's non-hazardous (Type 3) gas leaks
 - EDF utilized Colorado State University (CSU) to characterize the emissions from Con Edison's 2015 year-end Type 3 gas leak backlog
 - CSU used Google cars equipped with methane detection instrumentation to perform survey to convert each leak location to a geospatial coordinate
- **Advanced Leak Detection Pilot**
 - Pursuing a new technology to enhance leak detection in our dense, urban service area

Link to Sustainability Report: <https://www.conedison.com/ehs/2016-sustainability-report/operational-excellence/core-system-upgrades/>

Smart Solutions for Natural Gas Customers Proposals

Proposed program to help put New York on a path toward a cleaner energy future

1. Enhanced Gas Energy Efficiency

- Aim to double gas efficiency gains with additional funding to existing programs
- Annual cost: incremental ~\$14.5 million per year in 2018 and 2019
- Peak day demand reduction: up to 1.6% by Winter 2023 – 2024

2. Gas Demand Response

- Developing new gas demand response programs for peak winter days, modelled after our successful efforts to reduce electric demand during peak summer days
- Annual cost: ~\$3 million (administration), customer incentive costs to be determined
- Peak day demand reduction: up to 1% by Winter 2023 – 2024

3. Gas Innovation Program

- Developing program for renewable alternatives to natural gas heating, including efficient electric heating systems
- Total cost: \$10 million
- Peak day demand reduction: initially nominal, but potential for substantial long-term savings

4. Non-Pipeline RFI

- Market solicitation seeking innovative demand and alternative supply-side solutions
- Annual cost: To be determined
- Peak day demand reduction: To be determined