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Natural Gas STAR Methane Challenge Program
Implementation Plan

Partner Name

Consolidated Edison Company of New York

Current as of (date)

Apr 19, 2019

Partner Implementation Manager

Name: _____

Title: _____

Address: _____

City/State/Zip: _____

Telephone/Fax: _____ E-mail: _____

Partner Methane Challenge Commitments[1]

BMP Commitment Option

	Source	Start Date	Achievement Year
	Onshore Production		
☐	Pneumatic Controllers		
☐	Fixed Roof, Atmospheric Pressure Hydrocarbon Liquid Storage Tanks		
	Gathering and Boosting		
☐	Pneumatic Controllers		
☐	Fixed Roof, Atmospheric Pressure Hydrocarbon Liquid Storage Tanks		
☐	Reciprocating Compressors - Rod Packing Vent		
☐	Centrifugal Compressors - Venting		
	Natural Gas (NG) Processing		
☐	Reciprocating Compressors - Rod Packing Vent		
☐	Centrifugal Compressors - Venting		
	NG Transmission & Underground Storage		
☐	Reciprocating Compressors - Rod Packing Vent		
☐	Centrifugal Compressors - Venting		
☐	Transmission Pipeline Blowdowns between Compressor Stations		
☐	Pneumatic Controllers		
	NG Distribution		
■	Mains – Cast Iron and Unprotected Steel *(Commitment Rate:* 4.0% *)*	Sep 30, 2016	2018
■	Services – Cast Iron and Unprotected Steel	Sep 30, 2016	2018
☐	Distribution Pipeline Blowdowns *(Commitment Rate:)*		
☐	Excavation Damages		

Partner Methane Challenge Commitments

ONE Future Emissions Intensity Commitment Option

Segment:		Intensity Target:		Target Year:	

[1] Partners may delete unused rows within the table, and may duplicate rows and add relevant details as needed (e.g., a corporate parent partner that has different commitments for each LDC can duplicate relevant rows to list the commitments for each LDC).

Natural Gas STAR Methane Challenge

Implementation Plan

September 2016

Updated April 2019

Submitted by:

Consolidated Edison Company of New York
4 Irving Place
New York, New York 10003

Original report submitted September 2016, this update completed April 2019

Table of Contents

Introduction

Con Edison is a subsidiary of Consolidated Edison, Inc., one of the nation's largest investor-owned energy companies, with approximately $13 billion in annual revenues and $45 billion in assets. The utility provides electric, gas and steam service to more than three million customers in New York City and Westchester County, New York. Con Edison distributes natural gas to 1.1 million customers in Manhattan, the Bronx, Queens, and Westchester County, making it one of the largest gas distribution companies in the United States with 4,348 miles of gas mains and 369,791 service lines.[1]

On March 21, 2016, the Consolidated Edison Company of New York ("Con Edison" or "the Company") filed its Partnership Agreement for the Natural Gas STAR Methane Challenge Program ("Methane Challenge"). This document is the Company's implementation plan that describes how the Company has met and will meet its Partnership goal: to replace each year four-percent of its cast iron and steel mains (without cathodic protection) by the end of 2018. As an additional goal, the Company will replace all leak-prone Company-owned services whenever a main is replaced.

This implementation plan outlines how the Company intends to continue to meet this commitment, describes annual progress reporting mechanisms, and provides a short description of other actions that the Company has undertaken, and will undertake, to reduce methane emissions.

The U.S. Environmental Protection Agency (EPA) Partnership Agreement form showing the Con Edison commitments and identifying the contact information for the Methane Challenge Implementation Manager is included as Exhibit 1.

[1] Mileage and services data as of December 31, 2015

Meeting Commitments

Distribution Mains Replacement

As noted in Exhibit 1, the Company has committed to replace annually 4% of its 12 inch-and-under cast iron and unprotected steel distribution mains. For the remainder of this implementation plan, cast iron and unprotected steel distribution mains, as described above, will be referred to as "leak-prone pipe".

As a regulated utility, Con Edison is required to file comprehensive rate filings with the New York State Public Service Commission (PSC). In a rate filing submitted in 2015, Con Edison laid out a program, with the requisite funding, to replace 80 miles of leak-prone pipe in 2017, 85 miles in 2018, and 96 miles in 2019. The Company's current plan, subject to subsequent PSC approval of funding, is to replace 90 miles of such pipe annually so as to eliminate this inventory of leak-prone pipe by the end of 2036.

With these targets set forth in its rate filings, and expenditures approved by the PSC, the chart below highlights how these targets will allow the Company to meet its Methane Challenge Goal:

Table 1: Main replacement targets (in miles) as percentage of remaining leak-prone pipe

2015 YE Inventory per 2015 DOT Report	1938	
2016 Actual Abandoned	79	4.08%
2016 YE Inventory	1871	
2017 Actual Abandoned	86	4.60%
2017 YE Inventory	1814	
2018 Actual Abandoned	92	5.07%
2018 YE Inventory	1743	
Planned 2019 Replacement	96	5.51%
Remaining Inventory at YE 2019	1647	
Planned 2020 Replacement	90	5.46%
Remaining Inventory at YE 2020	1557	
Planned 2021 Replacement	90	5.78%
Remaining Inventory at YE 2021	1467	
Planned 2022 Replacement	90	6.13%
Remaining Inventory at YE 2022	1377	

The Company is required to report its progress towards these goals to the PSC on an annual basis. The Company is also required to report the number of miles of each type of pipe in its distribution system to the U.S. Department of Transportation Pipeline and Hazardous Materials Administration (PHMSA). The PHMSA requirements dictate that the annual report be filed no later than March 15th of each year reporting on the status as of the end of the previous year. The Company files a copy of the annual PHMSA report (report form PHMSA F 71000.1-1) concurrently with the PSC in order to demonstrate its

compliance with the rate filing commitments. The Company will use the data gathered for the PHMSA report to demonstrate that it has met its Methane Challenge Commitment and will use the website developed by EPA to make its annual filing.

The use of the PHMSA data for reporting under the Methane Challenge yields a result that may appear to be inconsistent, but is readily explained. As an example, note the following three entries in Table 1:

2016 YE Inventory:	1871
2017 Actual Abandoned:	86
2017 YE Inventory:	1814

One would expect that deducting the number of miles installed from the previous year's ending inventory would yield the inventory at the end of the current year. However, note above that 1871 minus 86 equals 1785, not 1814 as shown. This apparent arithmetic error is not an error at all, but stems from the fact that PHMSA requires that the Company submit the number of miles of mains mapped on the Company's geographical records, not just the number of miles of main replaced. Given the large size of the Company's system and the large amount of miles of main replaced during a calendar year, there is a timing gap between when a new main is installed and when the new main appears in the Company's geographic record system. Similarly, this gap applies to when an existing main is retired and subsequently removed from the Company geographic record system.

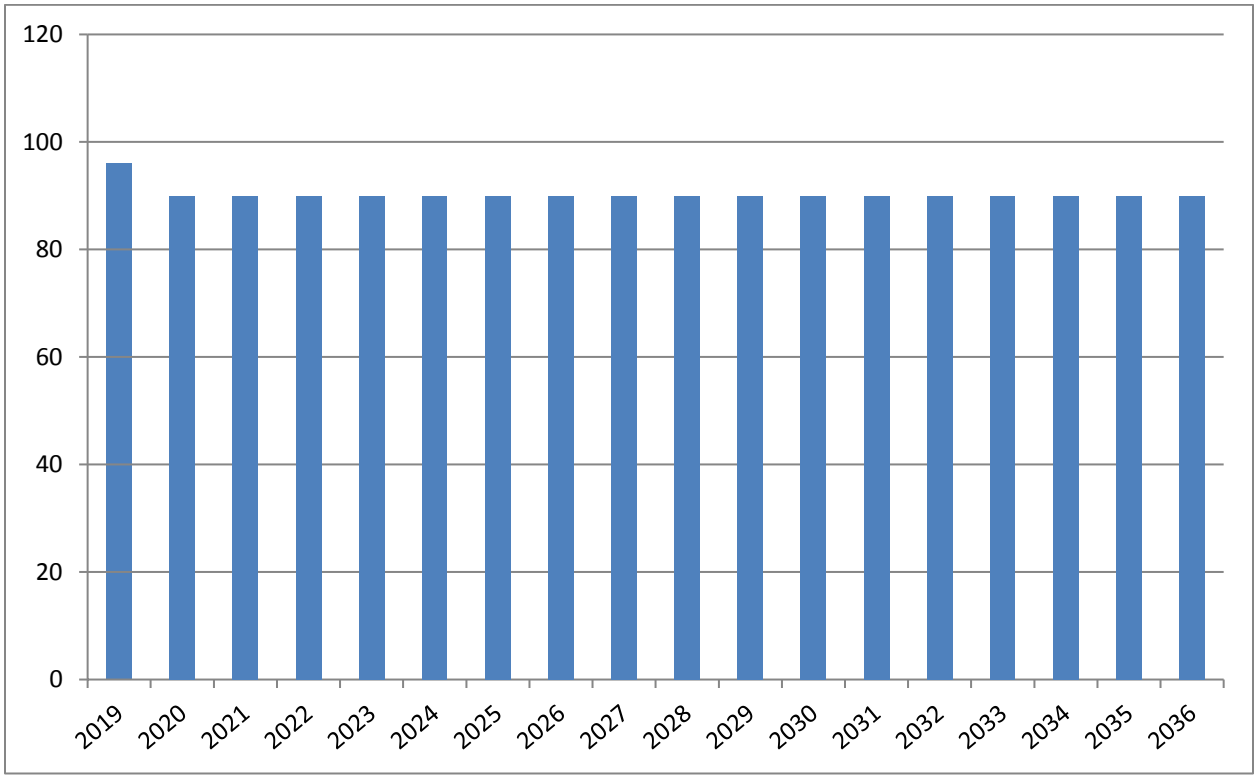
When the original Methane Challenge Implementation Plan was filed, the Company indicated that it expected to demonstrate no later than March 15, 2019, that it had met its Methane Challenge commitment of replacing at least 4% of its existing leak-prone pipe by the end of 2018. Updated Table 1 indicates that the Company met that threshold by the end of 2016, and has continued to meet that goal in subsequent years.

The Methane Challenge agreement asks participating companies to seek ways to increase their commitments over time. Table 1 suggests that the Company may very well be positioned to upgrade its commitment to a 6% replacement rate by the end of 2021; at this point, Con Edison commits to review its progress toward the 6% replacement goal in each annual report to the Methane Challenge.

The figure below lays out the long-range plan that reinforces the Company's intent to continue the accelerated rate of replacement over time[2]:

[2] Subject to Public Service Commission approval

Figure 1: Main Replacement Projection – miles replaced per year through 2036



It is also important to note that the Company has negotiated incentive mechanisms that will allow the Company to recover any costs associated with main replacement in excess of the targeted amount through a surcharge mechanism; similarly, there are financial penalties if the Company fails to meet the targeted amounts.

Service Line Replacements

It is Company policy to replace all unprotected steel services whenever a leak-prone pipe is replaced. Based on historical data from previous main replacement projects, there is approximately one such service for every 150 feet of gas main replaced. Applying this historical rate, the Company expects to replace approximately 2800 unprotected steel services annually for the foreseeable future as part of its replacements of leak-prone pipe.

The company also replaces approximately 2,000 leaking services on an annual basis.

In addition to these replacements, the Company has a program to replace steel services that historically were installed without a curb valve. The New York City Fuel Gas Code requires outdoor shut-off valves

on all gas services by 2020, and the Company is committed to replacing the remaining 426[3] such services prior to the City-imposed deadline.

The Company reports the number of services of each type to PHMSA and concurrently to the PSC no later than March 15th of each year, reflecting the system status as of the end of the previous year. The Company will report the number of services replaced as part of the main replacement efforts as well as a total number of services of all types replaced as part of its annual filing with the Methane Challenge, no later than March 15th of each year.

Program Management

Con Edison selects leak-prone pipe segments for replacement using a risk-based main replacement prioritization model, followed by replacement of emergent leaking mains, and replacement of a targeted number of feet of flood prone pipe. In addition, some miles of leak-prone pipe are replaced as a secondary benefit of other programs such as public improvement work, new business, and oil-to-gas conversions.

As the Company replaces unprotected steel pipe, it also installs cathodic protection on the remaining unprotected steel pipe that will remain in service until it is prioritized for replacement. Installation of cathodic protection involves the installation of sacrificial anodes which extends the useful life of the steel main by helping to prevent and slow corrosion.

[3] Number of such services as of December 31, 2015.

Additional Con Edison Efforts and Initiatives

As part of its commitment to the Methane Challenge, Con Edison has agreed to implement two Best Management Practices (BMPs): replacement of unprotected steel and cast iron mains at a rate in excess of the EPA-suggested rate, and the replacement of unprotected steel services concomitantly with main replacements. However, these efforts should be viewed in the context of a wide variety of efforts that the Company has undertaken, and will undertake in the future, to reduce methane emissions from its natural gas distribution system. This section provides a short description of representative programs.

Enhanced monitoring for leaks

The Company historically conducted a complete leak survey of its entire system once per year, which exceeds both PHMSA and NYS Public Service Commission requirements. Beginning in 2015, the Company began surveying its entire system once each month to increase public safety and identify emerging leaks in a more timely manner.

Coupled with this increased monitoring, the Company is evaluating the use of the Picarro Surveyor system, a state-of-the-art mobile methane leak detection technology. Based on its sensitivity, and use propriety algorithms incorporating weather data, the Picarro Surveyor system is able to detect methane leaks much farther from the source when compared to traditional leak survey equipment. In 2016, the Company will tested the equipment to gain experience with the new technology, with the intent of proving its viability for more widespread use in the future. The use of this tool is still under evaluation.

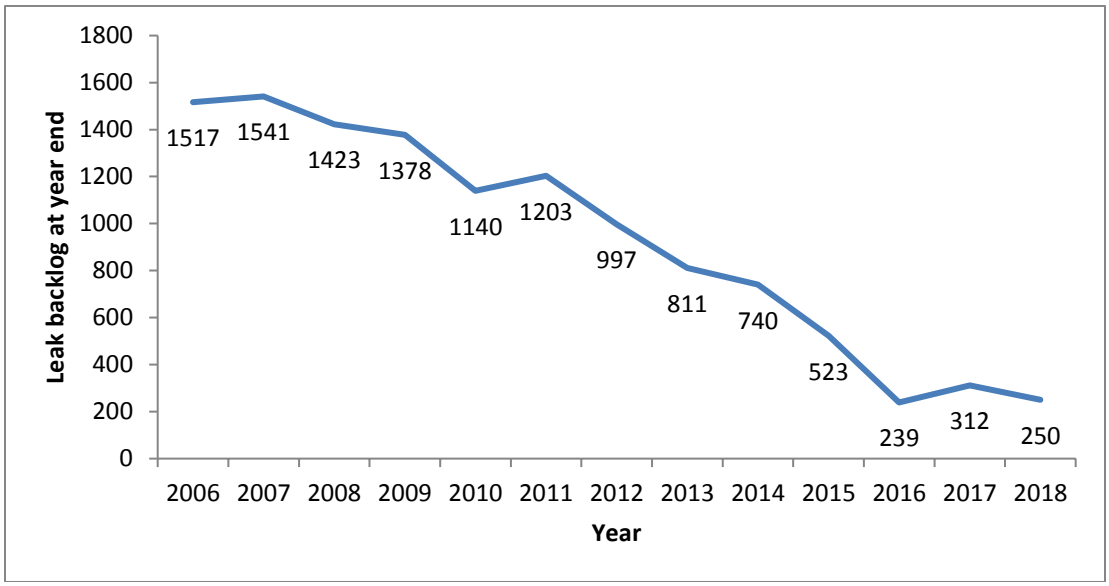
Reduction in Type 3[4] leak backlog

The Company is also committed to eliminating leaks in the shortest possible time, and in compliance with the parameters established by the PHMSA and the PSC. In keeping with industry standards, Con Edison recognizes that non-hazardous Type 3 leaks do not have a mandated repair schedule, but are monitored on a scheduled basis.

As shown on Figure 2 (below), the company's on-going commitment has led to a dramatic decrease in the year-end total leak backlog over the past thirteen years. The Company has reported the emission decreases associated with this outstanding leak reduction as part of its Natural Gas STAR reporting during the same time period.

[4]Type 1 leaks are those within the immediate area of a building or structure and are a high priority for repair. Type 2 leaks are less proximate to a building or structure but result in natural gas readings of sufficient magnitude to warrant priority repair. Type 3 leaks are leaks that are neither Type 1 not Type 2 leaks and are not a risk to the public.

Figure 2 – Annual Total Leak Backlog



Reduction in excavation damages

Con Edison's natural gas distribution system operates in one of the most congested areas of the United States, and shares underground space with a significant underground infrastructure. The New York metropolitan area has undergone a steady rate of new construction in the past fifteen years. These facts notwithstanding, the Company has aggressively pursued a program to reduce excavation damage to its gas facilities. When the location of Company facilities are marked out, a trained inspection team oversees City work whenever excavation is required near its mains and service lines. Reducing such excavation damages improves public safety and reduces fugitive methane emissions. As shown in Table 2 (below), the number of excavation damages has trended downward.

Con Edison is aware that the EPA has established a BMP for excavation damages as part of the Methane Challenge. The Company will continue to review methods (developed by other Methane Challenge Partners) to measure the magnitude of emissions associated with excavation damages and will evaluate the potential to make a commitment to the excavation damage BMP in the future.

Table 2: Damages on an annual basis, 2003 – 2018

	Damages
2003	291
2004	285
2005	291
2006	236
2007	287
2008	264
2009	218
2010	225
2011	210
2012	160
2013	161
2014	188
2015	218
2016	200
2017	225
2018	238

Workforce development

Through its membership in the American Gas Association (AGA), Con Edison is participating in an initiative to help connect military veterans with energy jobs. The Utility Industry Workforce Initiative is a multi-year effort dedicated to facilitating the recruitment, training and retention of exiting service members, veterans and their spouses into employment in the utility industry.

In addition to AGA, the Initiative is supported by government agencies including the U.S. Departments of Energy, Defense, Labor and Veterans Affairs, and the other founding members of the Center for Energy Workforce Development (CEWD), including the Edison Electric Institute, the Nuclear Energy Institute and the National Rural Electric Cooperative Association.

On a more local basis, Con Edison has developed a cooperative program with a local community college to offer natural gas industry career opportunities to students that graduate with course work that includes the skills associated with main installation techniques. The goal of the partnership is to broaden the labor pool of qualified natural gas mechanics so that the Company can reach its long-term goals for main replacement and system expansion.

Reporting

It is the Company's intention to minimize the amount of original reporting documents in demonstrating its attainment of the goals of the Methane Challenge. Towards that end, Con Edison will rely upon the data collected as part of its PHMSA and PSC reporting requirements, and will continue to report to the Greenhouse Reporting Program Subpart W website.

In light of the fact that EPA has developed a website for Methane Challenge reporting, the Company will continue to input the PHMSA/PSC-collected data into that website to ensure consistency of results across reporting platforms.