

Natural Gas STAR and Methane Challenge Program Updates



Annual Implementation Workshop 2017

October 25, 2017

Overview

- ▶ Natural Gas STAR
 - ▶ Program Overview
 - ▶ Reporting Update and 2016 Accomplishments
- ▶ Methane Challenge
 - ▶ Program Overview
 - ▶ Reporting Update

Natural Gas STAR Program Overview

- ▶ Started in 1993 to increase awareness of oil and gas methane emission sources and share innovative means of reducing emissions
- ▶ Significant innovation and capacity building achieved over 20+ years
 - ▶ Now promotes over 50 mitigation best practices
- ▶ Key goals of technology transfer, training, and capacity building through technical documents and workshops
- ▶ Over 100 partners across the natural gas value chain

Natural Gas STAR New Partners

Welcome to our new partners in 2017!

- ▶ Antero Midstream
- ▶ Antero Resources
- ▶ Extraction Oil & Gas
- ▶ Tecolote Energy

Natural Gas STAR Reporting

- ▶ Reporting is an essential aspect of the program
 - ▶ Track program progress
 - ▶ Recognize partner efforts to reduce methane emissions
- ▶ Partners report through an online reporting tool
- ▶ Individual emission reductions are rolled up to calculate annual emission reductions for the entire program
- ▶ Most popular technologies in use are identified and highlighted
 - ▶ Helps us identify topics for technology transfer workshops
- ▶ Partners receive customized summary report annually
 - ▶ Partners can choose to share their accomplishments, if they wish
 - ▶ *We are interested in learning what partners find useful about these reports and what can be improved!*

Natural Gas STAR Summary Reports

Sample Company

2016 Natural Gas STAR Summary Report

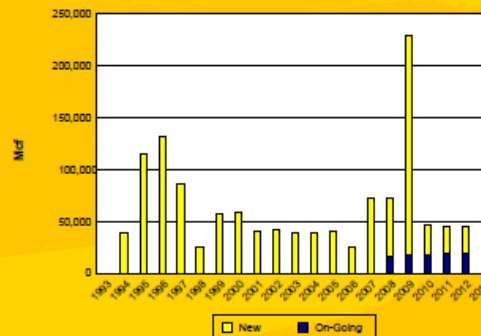
The Natural Gas STAR Program and its partners have realized more than 1,000 billion cubic feet (Bcf) of domestic methane emissions reductions.

Report Summary

Joined Natural Gas STAR - Distribution Sector: 1993
2016 Methane Emissions Reductions: 40,000 Mcf

Since joining the Natural Gas STAR Distribution Sector in 1993, Sample Company has achieved cumulative methane emissions reductions of 1,000,000 Mcf.

Sample Company's Historical Reductions



2016 Reductions:² 40,000 Mcf



- ☐ Identify and rehabilitate leaky distribution pipe 50 %
- ☐ Install excess flow valves 30 %
- ☐ DI&M: surface facilities 20 %
- Total: 100.0%**

Cumulative Reductions: 1,000,000 Mcf



- ☐ Identify and rehabilitate leaky distribution pipe 49.5%
- ☐ DI&M: surface facilities 41.4%
- ☐ Install excess flow valves 8.9%
- ☐ Redesign blowdown/alter ESD practices 0.1%
- Total: 100.0%**

To achieve these results, Sample Company has employed these Natural Gas STAR methane emission reduction technologies and practices.

Sample Company's methane emissions reductions are approximately equivalent to:



Tonnes CO₂ equivalent:
50,000 (cumulative)
2,000 (2016)



Carbon sequestered annually by this many acres of pine or fir forests:
85,000 (cumulative)
3,000 (2016)



CO₂ emissions from the electricity use of this many homes for one year:
50,000 (cumulative)
2,000 (2016)



Value of methane saved (at \$4 per Mcf):
\$4,000,000 (cumulative)
\$140.0 (2016)

¹Partners may retroactively report methane emissions reductions to EPA back to 1993.
²Annual methane emissions reductions include new reductions plus on-going reductions.

Note: this is all sample data!

Natural Gas STAR Summary Reports

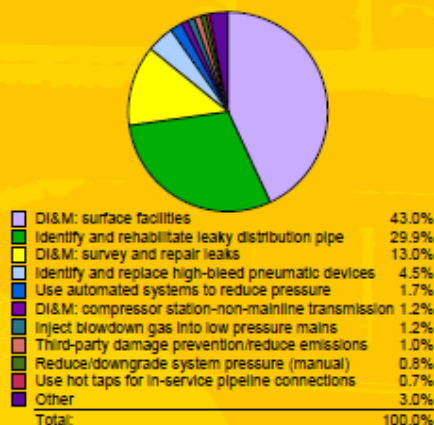


Methane Emissions Reductions: Distribution Sector

The Natural Gas STAR Program endeavors to assist partners in achieving the full benefits of participation by raising awareness about activities that other partners have undertaken to achieve cost-effective methane emissions reductions.

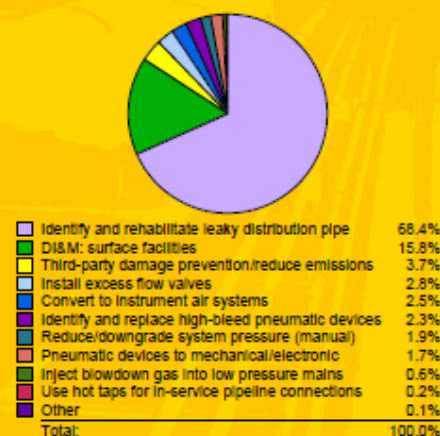
Distribution Sector

Technologies and practices employed in the Distribution Sector over the past 10 years.



Top Activities for 2016

Technologies and practices employed in the Distribution Sector in 2016.



Suggested Methane Emission Reduction Technologies and Practices

Based on commonly reported technologies and practices employed by Distribution Sector partners, below is a list of other activities Sample Company might consider.

- DI&M: survey and repair leaks
- Identify and replace high-bleed pneumatic devices
- Third-party damage prevention/reduce emissions
- Inject blowdown gas into low pressure mains
- Use pipeline pumpdown techniques to lower pressure

Additional information on these technologies and practices is available on the Natural Gas STAR website at epa.gov/gasstar/tools/recommended.html.

Note: this is all sample data!

Natural Gas STAR 2016 Accomplishments*

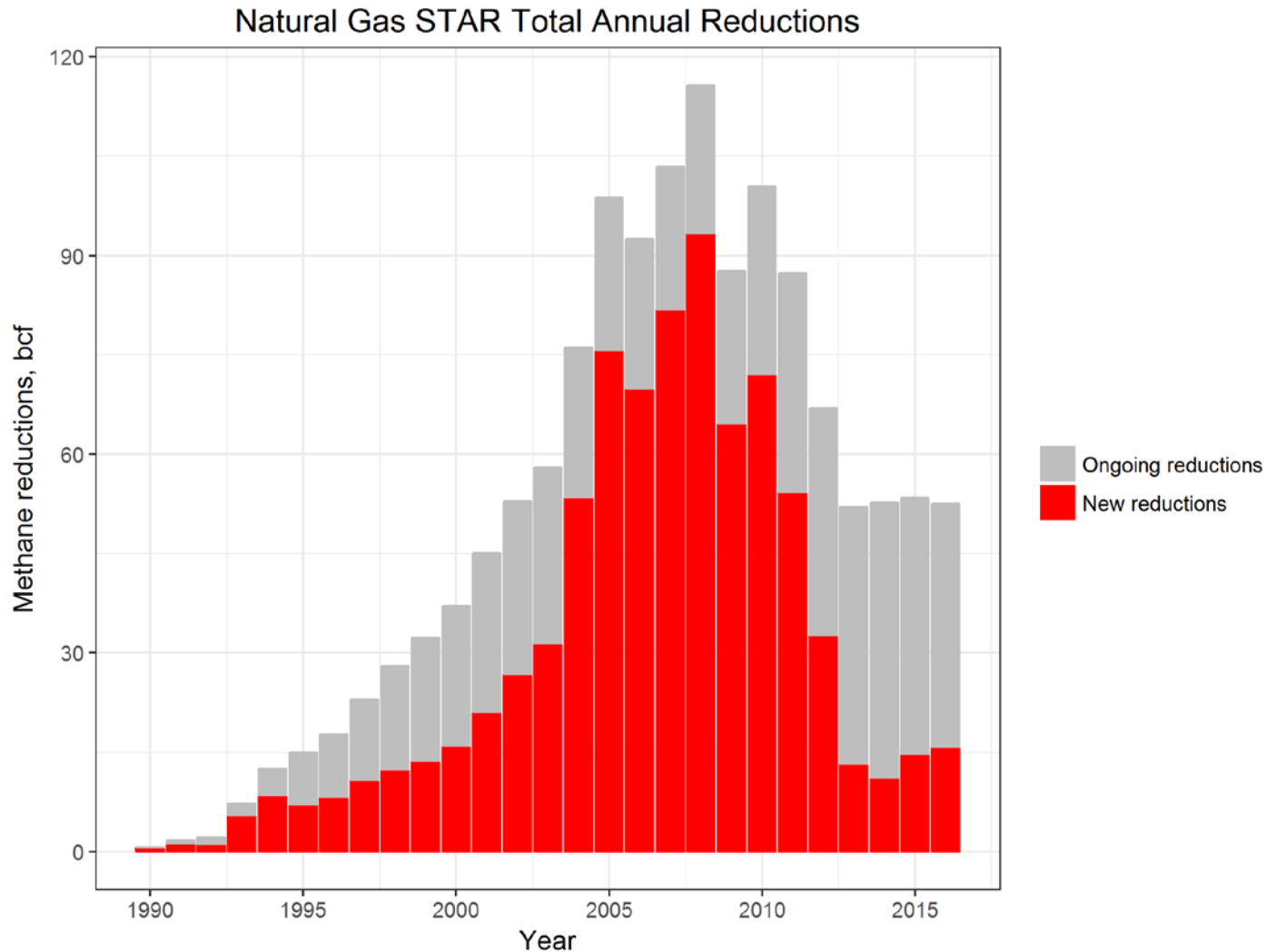
- ▶ Total reductions in 2016 - *52.5 bcf methane*
 - ▶ 15.8 bcf from new activities
 - ▶ 36.7 bcf from ongoing activities

- ▶ Cumulative reductions through 2016 – *1,373 bcf*

- ▶ Total reductions by segment in 2016
 - ▶ Production : *38.5 bcf*
 - ▶ Gathering & Processing : *0.9 bcf*
 - ▶ Transmission : *12.1 bcf*
 - ▶ Distribution : *1.0 bcf*

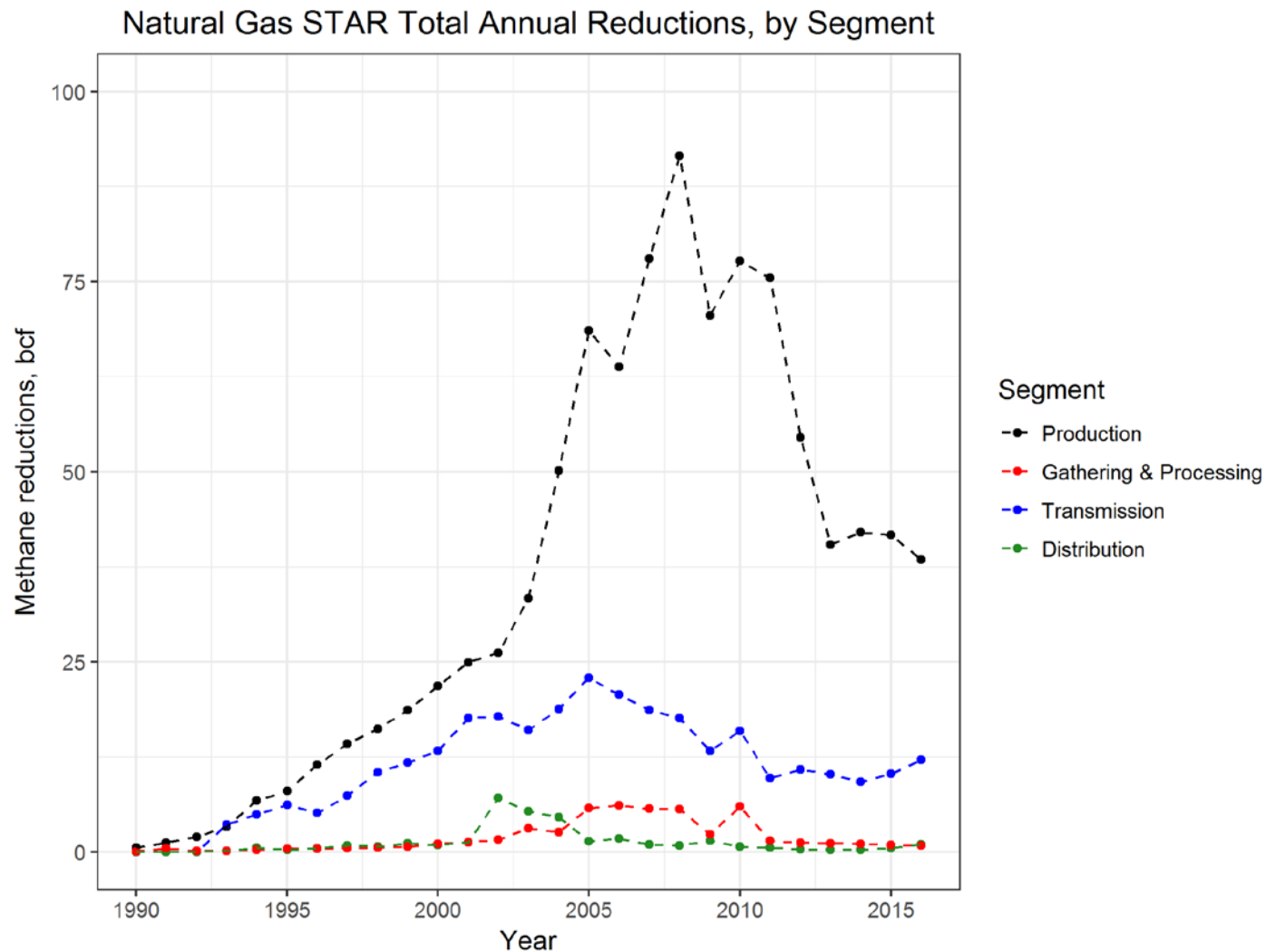
**These figures reflect data received to date; the Program occasionally receives late submissions*

Natural Gas STAR 2016 Accomplishments*



**These figures reflect data received to date; the Program occasionally receives late submissions*

Natural Gas STAR 2016 Accomplishments*



**These figures reflect data received to date; the Program occasionally receives late submissions*

Methane Challenge Program Overview

- ▶ Methane Challenge expands the Natural Gas STAR Program
 - ▶ Specific, ambitious commitments
 - ▶ Transparent reporting
 - ▶ Company-level recognition of commitments and progress
- ▶ Two commitment options for enhanced flexibility:
 - ▶ Best Management Practice (BMP) Commitment
 - ▶ ONE Future Emissions Intensity Commitment
- ▶ Covers onshore oil production and the entire natural gas value chain from onshore production through distribution
- ▶ Program launched with 41 founding partners in March 2016
 - ▶ Currently has 52 BMP partners and 4 ONE Future partners
 - ▶ Distribution: 48 partners
 - ▶ Transmission and Storage: 9 partners
 - ▶ Gathering and Boosting: 1 partner



Methane Challenge New Partner

Welcome to our new partner in 2017!

▶ Liberty Utilities

Methane Challenge - BMP Commitment Emission Sources

Onshore Production	Gathering and Boosting	Natural Gas Processing	Transmission and Storage	Distribution
Pneumatic Controllers	Pneumatic Controllers	Reciprocating Compressors - Rod Packing Vent	Reciprocating Compressors - Rod Packing Vent	Mains – Cast Iron and Unprotected Steel
Fixed Roof, Atmospheric Pressure Hydrocarbon Liquid Storage Tanks	Pneumatic Pumps	Centrifugal Compressors - Venting	Centrifugal Compressors - Venting	Services – Cast Iron and Unprotected Steel
Pneumatic Pumps	Fixed Roof, Atmospheric Pressure Hydrocarbon Liquid Storage Tanks		Equipment Leaks/Fugitive Emissions	Distribution Pipeline Blowdowns
	Reciprocating Compressors - Rod Packing Vent		Pipeline Blowdowns between Compressor Stations	Excavation Damages
	Centrifugal Compressors - Venting		Pneumatic Controllers	

Methane Challenge - BMP Partner Commitments

Onshore Production	Gathering and Boosting	Natural Gas Processing	Transmission and Storage	Distribution
Pneumatic Controllers	Pneumatic Controllers	Reciprocating Compressors - Rod Packing Vent	Reciprocating Compressors - Rod Packing Vent <i>5 Partners</i>	Mains – Cast Iron and Unprotected Steel <i>30 Partners</i>
Fixed Roof, Atmospheric Pressure Hydrocarbon Liquid Storage Tanks	Pneumatic Pumps	Centrifugal Compressors - Venting	Centrifugal Compressors - Venting <i>2 Partners</i>	Services – Cast Iron and Unprotected Steel <i>14 Partners</i>
Pneumatic Pumps	Fixed Roof, Atmospheric Pressure Hydrocarbon Liquid Storage Tanks		Equipment Leaks/Fugitive Emissions	Distribution Pipeline Blowdowns <i>3 Partners</i>
	Reciprocating Compressors - Rod Packing Vent <i>1 Partners</i>		Pipeline Blowdowns between Compressor Stations <i>4 Partners</i>	Excavation Damages <i>22 Partners</i>
	Centrifugal Compressors - Venting		Pneumatic Controllers <i>1 Partner</i>	

	20+ Partners
	10 – 19 Partners
	1 – 9 Partners

Methane Challenge - ONE Future Commitments

- ▶ ONE Future is an industry-led partnership
- ▶ Partners commit to segment-specific emissions intensity targets
- ▶ Segment-specific targets inform collective goal to reduce methane emissions associated with the U.S. onshore natural gas value chain to 1% or less by 2025

Emission intensity targets, by segment

Industry Segment	2020	2025
Gas Production and Gathering	0.46%	0.36%
Gas Processing	0.15%	0.11%
Gas Transmission and Storage	0.37%	0.30%
Gas Distribution	0.24%	0.22%
Total	1.22%	1.00%

Methane Challenge Reporting

▶ **Data elements:**

- ▶ Select Subpart W data collected through Greenhouse Gas Reporting Program
- ▶ Additional voluntary data elements reported directly to Methane Challenge
 - BMP partners: quantify voluntary reductions, verify commitments
 - ONE Future partners: provide complete picture of emissions and activities; highlight emission reductions achieved through voluntary action
- ▶ Collected at facility-level

▶ **Goals of new reporting system:**

- ▶ Leverage existing EPA data and/or systems, as applicable
 - ▶ Streamline reporting and reduce burden to participants and EPA
 - ▶ Provide credible, consistent, and transparent protocols across all partners
-
- ▶ Partners start collecting data within six months of joining Program
 - ▶ Partners report after first full calendar year in Program

Methane Challenge Reporting - *continued*

- ▶ **Tracking progress toward achievement of partner commitments**
 - ▶ Recognize partner accomplishments
 - ▶ Maintain Program transparency

- ▶ **Partner data will be made publicly available**

- ▶ **Partner recognition through Partner Profile Pages (*in development*)**
 - ▶ Partner-specific recognition for historical and current actions
 - ▶ Each Partner's custom page will include:
 - Company summary and link to its website
 - Links to Implementation Plan and Historical Actions Fact Sheet
 - Segments and Sources committed to
 - Progress on commitments

Methane Challenge - A Sneak Peek at the Reporting Module

- ▶ Methane Challenge reporting will be done through *e-GGRT* (EPA's *electronic Greenhouse Gas Reporting Tool*)
- ▶ The Program has its own voluntary reporting module in e-GGRT
- ▶ Program partners were invited to test the module's functionality during the *Sandbox Stakeholder Preview* in September 2017
- ▶ Reporting pilot for partial year 2016 data
- ▶ Program-wide reporting scheduled to begin in 2018

Methane Challenge - A Sneak Peek at the Reporting Module



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Example Partner Record

[Home](#) » [Partner Summary](#)

METHANE CHALLENGE PARTNER SUMMARY

The list below contains your Methane Challenge facilities. Those facilities with the status "EPA Suggested" are Part 98 facilities that may be related to your Methane Challenge commitment(s); they were selected based on a search of company name. Please click "Confirm" for those facilities that are associated with your Methane Challenge commitment(s) and for facilities that are not, please delete them from the list using the red X to the far right of the facility's row. If there are additional facilities that should be associated with your commitment(s), please use the "+ ADD a facility" button to register and add them to your Partner Facilities list.

Partner Representatives

Implementation Manager Sarah Menassian

Partner Profile

Partner Information

MC040
Example Partner Record
123 Main St
Washington DC 20001
BMP

[EDIT](#)

Delegates (for this partner)

none appointed

[+ Add Delegate](#)

[✗ Remove selected](#)

The below list of Part 98 facilities, potentially related to your Methane Challenge commitment(s), were selected based on a search by company name. Please select those facilities that are associated with your specific Methane Challenge commitment(s). If there are additional facilities that should be associated with your commitment(s), please use the "+" button to register and add them to your Partner Facilities list.

PARTNER FACILITIES

MC Facility ID	GHGRP ID	Facility Name	Facility Address	Industry Segment	Approval Status		
MC040001		Test Non-GHGRP Facility	123 Main St Somewhere, CA 12345	Distribution	No Approval Needed	EDIT	✗
MC040002	533121	METHANE & EGGRT Segment 4 Transmission Compression	1710 SOLUTIONS DR McLEAN, VA 22102	Transmission and Storage	Approved	VIEW	✗
MC040003	533163	Methane & EGGRT Segment 10 Transmission Pipeline	123 Transpipeline Blvd Springfield, CA 94080	Transmission and Storage	Pending EPA Approval	VIEW	✗
MC040004	533160	Methane & EGGRT Segment 5 Underground Storage	123 Storage Way Springfield, 22122		EPA Suggested CONFIRM	VIEW	✗

[+ ADD a Facility](#)

Methane Challenge - A Sneak Peek at the Reporting Module



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Example Partner Record (2016)

Methane Challenge Reporting

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REPORTING FOR THE METHANE CHALLENGE PROGRAM

Use this page to first download the Methane Challenge reporting form for each of your facilities (FACILITY FORM DOWNLOAD and REPORTING SUMMARY section). Fill out all applicable sources on each form and then, in the FACILITY FORM UPLOAD section, browse to locate each file on your computer and UPLOAD them. You will then be able to view any validation results. When you are finished, use the REPORT SUBMISSION button to submit your Methane Challenge data.

FACILITY FORM DOWNLOAD and REPORTING SUMMARY

If a Partner Facility is missing below you can add it on the [Partner Management Summary](#)

Facility ID	Facility Name	Pre-Populated Facility Form	Uploaded File Name	Uploaded Date	Validation Messages
MC040001	Test Non-GHGRP Facility	DOWNLOAD	Methane Challenge Reporting Form_MC040001_Fri Aug 11 2017 15_50_05 GMT-05_00.xlsx	August 11, 2017	None
MC040002	METHANE & EGGRT Segment 4 Transmission Compression	DOWNLOAD	Methane Challenge Reporting Form_MC040002_Fri Aug 11 2017 15_50_26 GMT-05_00.xlsx	August 11, 2017	None
MC040003	Methane & EGGRT Segment 10 Transmission Pipeline	DOWNLOAD			
MC040004	Methane & EGGRT Segment 5 Underground Storage	DOWNLOAD			

FACILITY FORM UPLOAD

Upload the 1 or more Facility reporting forms that comprise your Methane Challenge annual report for this registered Partner. As you upload your files they will be validated and the Reporting Summary above will be updated. When finished use the REPORT SUBMISSION button below to generate, review, and submit your report.

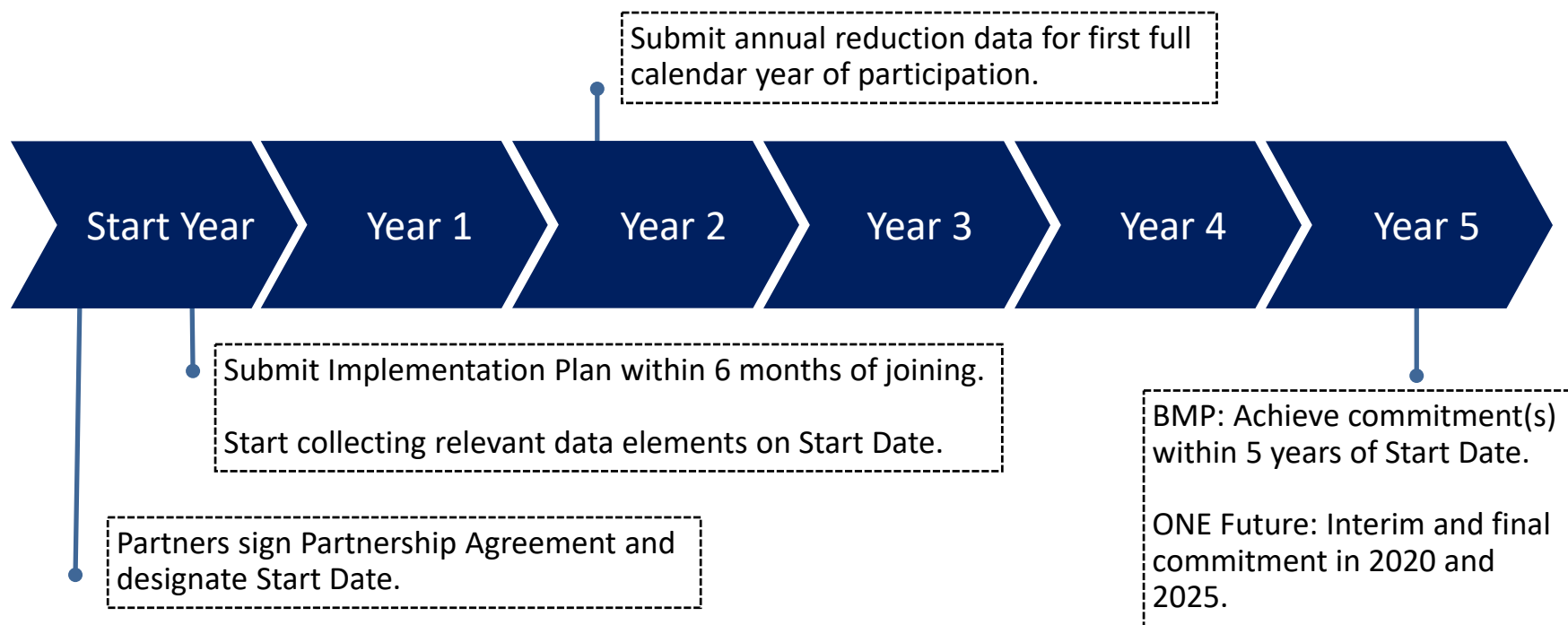
Methane Challenge - A Sneak Peek at the Reporting Module

REPORT SUBMISSION SUMMARY

Version	Status	Submitted Date	Reports
v1	Submitted	09/01/2017 1:49 PM	HTML XML Receipt DOWNLOAD ZIP
v2	Submitted	09/05/2017 4:09 PM	HTML XML Receipt DOWNLOAD ZIP
v3	Submitted	09/05/2017 4:24 PM	HTML XML Receipt DOWNLOAD ZIP

Methane Challenge Partnership Timeline

Ongoing: Partners create and implement strategies and processes for meeting commitments. As progress is made, evaluate adoption of additional commitments.



Annually: Partners collect and submit emission and reduction data each Spring. EPA posts progress of partner commitment(s) on website each Fall.

Methane Challenge - Benefits of the Program

- ▶ Opportunity for partner companies to demonstrate their commitment to improved efficiency and sustainability
- ▶ Adoption of cost-efficient best management practices and technologies that will reduce product loss as well as increase operational efficiency and safety
- ▶ Recognition for innovative approaches to reducing methane emissions
- ▶ Focus on 'continuous improvement' provides opportunity to adopt new emission sources and/or BMPs



Methane Challenge - Next Steps for New Partners

- ▶ Implementation Plans are due within six months of joining the Program
 - ▶ Implementation Plan Guidelines and Template are on the Program website:
<https://www.epa.gov/natural-gas-star-program/methane-challenge-program-implementation-plan-guidelines>
- ▶ Start collecting data on designated “Start Date”
- ▶ Partners will report after first full calendar year of participation
- ▶ Create optional Fact Sheet that provides information on historical methane reduction actions taken prior to joining Methane Challenge
- ▶ Participate in technology transfer workshops

Recent Events



- ▶ Pipeline Blowdowns in Transmission and Distribution Workshop
 - ▶ November 10, 2016 - Houston, TX
 - ▶ Host: Kinder Morgan

- ▶ Methane Challenge: Electronic Reporting Webinar
 - ▶ March 23, 2017

- ▶ Excavation Damage Prevention Workshop
 - ▶ May 17, 2017 - Springfield, VA
 - ▶ Host: Washington Gas

- ▶ Renewable Natural Gas Workshop
 - ▶ September 26, 2017 - Broomfield, CO
 - ▶ Host: American Gas Association

- ▶ Methane Challenge Reporting “Sandbox” Testing
 - ▶ September 2017

Questions?



Sarah Menassian
U.S. Environmental Protection Agency
Phone: (202) 343-9165
E-mail: menassian.sarah@epa.gov

Information on both programs can be found at
<https://www.epa.gov/natural-gas-star-program>