Implementation of a Methane Reduction & Reporting Program for a ONE Future Company

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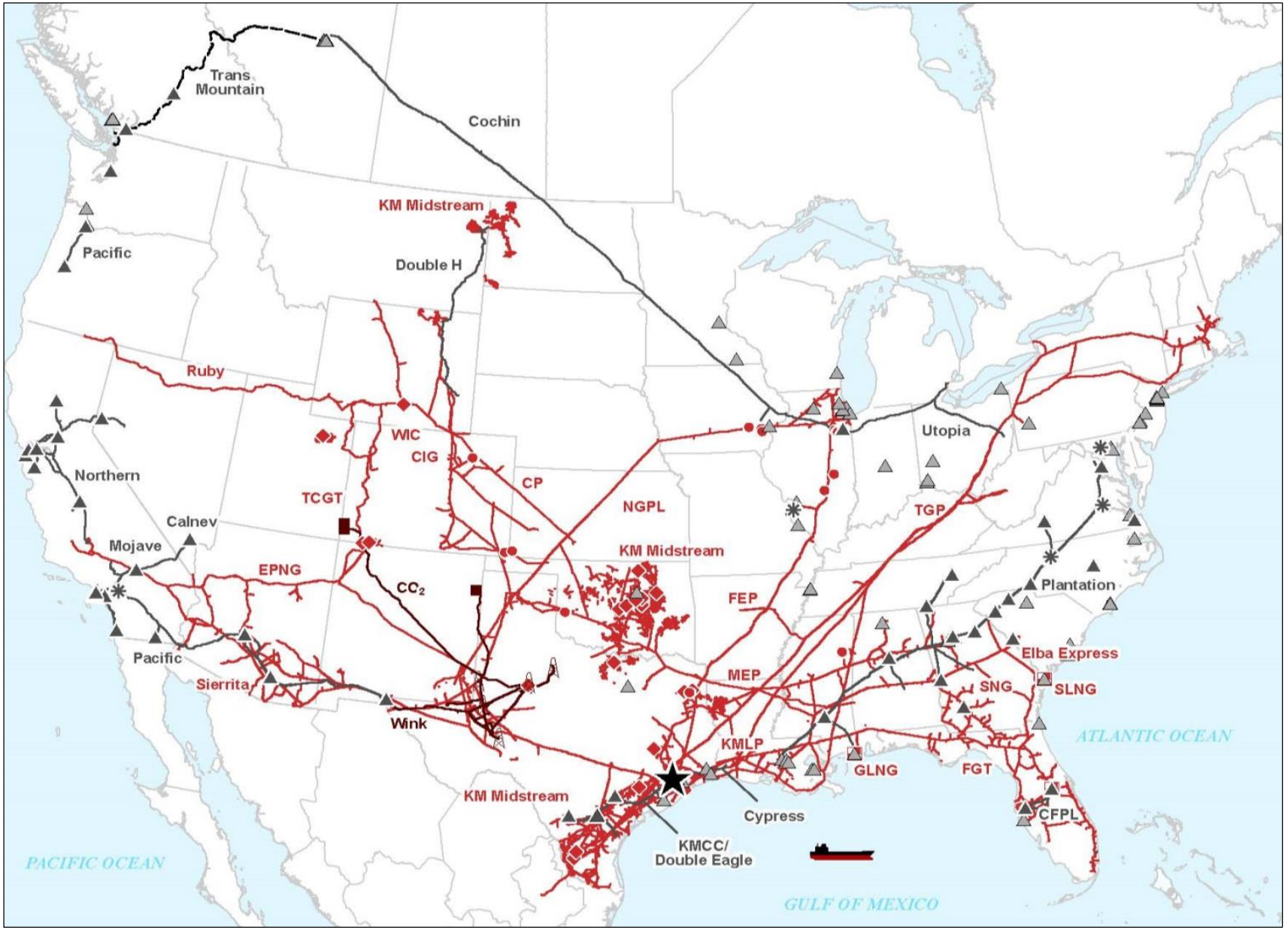
Jim Tangeman, Kinder Morgan EHS Manager – GHG & Methane Program

KINDER MORGAN

A. Kinder Morgan Overview

Kinder Morgan Overview



Kinder Morgan Overview

- Kinder Morgan is one of the largest energy infrastructure companies in North America.
  - **Over 85,000 miles** of pipelines and **152 terminals**.
  - **Over 12,000 employees** in U.S. and Canada.
- Kinder Morgan is the largest natural gas transporter and storage operator in the United States
  - **Approximately 68,000 miles** of pipelines.
  - We transport nearly **40 percent** of the natural gas consumed in the United States.
- Kinder Morgan is the largest independent transporter of petroleum products in the United States, transporting **approximately 2.4 million barrels** of product per day.
- Kinder Morgan is the largest transporter of carbon dioxide (CO2), transporting **approximately 1.3 billion cubic feet** per day.
- Kinder Morgan is the largest independent Terminal operator in the U.S.
  - Our liquids terminals store refined petroleum products, chemicals, ethanol and more, and have the capacity of **125 million barrels**.
  - Our bulk terminals store and handle such materials as coal, petroleum coke and steel and we handle **over 100 million tons** per year.

Kinder Morgan-- Natural Gas Pipelines

Kinder Morgan-- Natural Gas Pipelines

- More than 20 different natural gas pipeline companies to all major markets in the United States

- Kinder Morgan is also the largest supplier of contracted natural gas treating services.

- Key assets in this business segment include:
  - **El Paso Natural Gas Pipeline (EPNG)** serving the entire southwest United States.
  - **Tennessee Gas Pipeline (TGP)** that services New York City and Boston.
  - **Natural Gas Pipeline Company of America (NGPL)** which serves the high-demand Chicago market.
  - **Southern Natural Gas (SNG)** serving major metro areas in the Southeast United States

B. Kinder Morgan Methane Challenge-ONE Future Commitment

Kinder Morgan & Natural Gas STAR

- Member of EPA's Natural Gas Star program since 1993
  - Historical Methane Reductions: 94,370,446 MCF (see next page)

- Charter Member of EPA's Methane Challenge-ONE Future Option
  - **Methane Intensity Target: 0.31% by RY2025 for T&S assets**
  - **KM: 21 pipelines, 68,000 miles, and ≈300 T&S stations**
- Commitments include (chosen by KM):
  - **Leak Inspection & Maintenance at T&S facilities**
  - **Reduction of Transmission Pipeline Blowdown volumes**
  - **Other technologies & work practices on case-by-case basis**

- 1st Methane Challenge Report to EPA: Later in 2018 for RY2017
- EPA's Mandatory Programs: Federal NSPS, State, and GHGRP

Kinder Morgan – Historical Methane Reductions

3/22/2018 Natural Gas STAR Summary Report

EPA United States Environmental Protection Agency | Natural Gas

Natural Gas STAR Summary Report (Filtered)

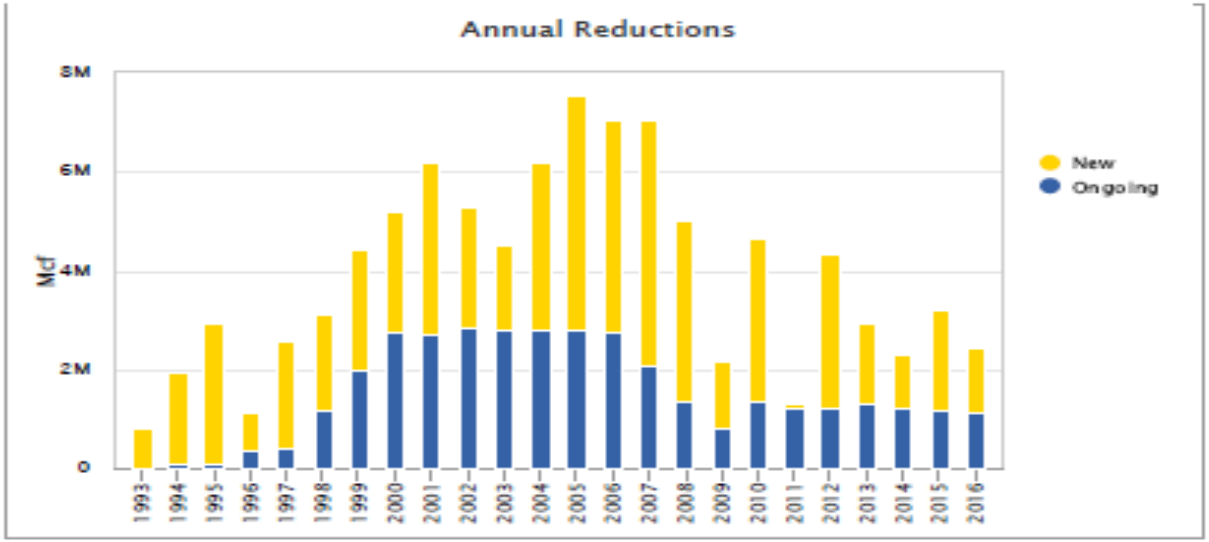
Partner(s)
Colorado Interstate Gas Company, El Paso Natural Gas Company, Kinder Morgan, Natural Gas Pipeline Company of America, Southern Natural Gas Company, Tennessee Gas Pipeline Company

Segment(s)
Distribution, Transmission

Year(s)
2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993, 1992, 1991, 1990

This report summarizes the voluntary methane emissions reductions achieved under the EPA Natural Gas STAR Program.

Annual Reductions



2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993, 1992, 1991, 1990	Cumulative
New: 57,825,236 Mcf Ongoing: 36,545,210 Mcf	94,370,446 Mcf

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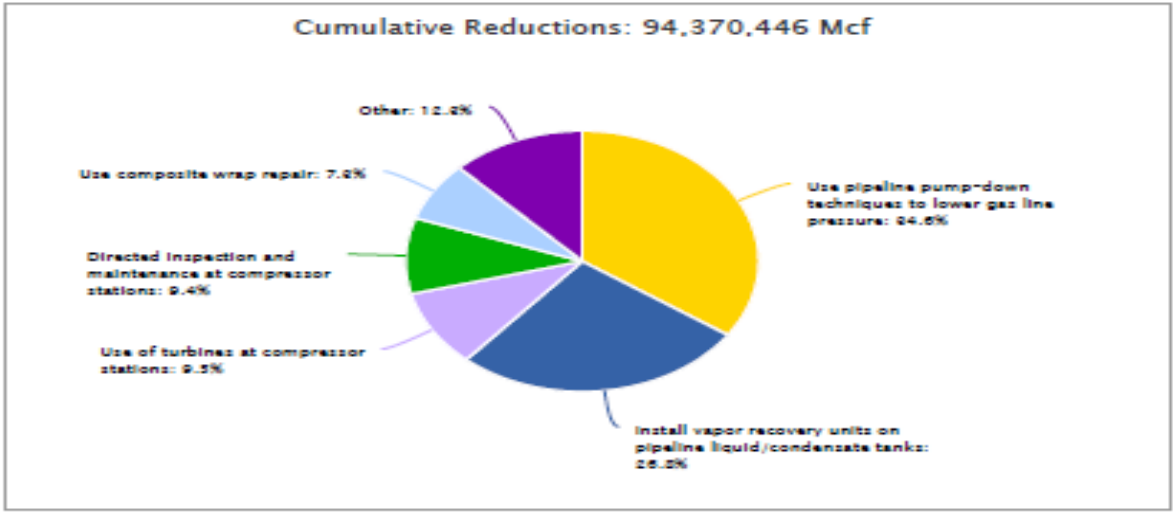
ONE OUR NATION'S ENERGY FUTURE

Equivalency Summary for Methane Reductions

3/22/2018 Natural Gas STAR Summary Report

Methane Emission Reduction Equivalencies as of December 2017 See EPA's Greenhouse Gas Equivalencies Calculator for additional equivalencies and details about the conversion units.	Cumulative (94,370,446 Mcf)
Tonnes CO_2 equivalent	45,297,633 $MTCO_2e$
CO_2 emissions from the energy used by this many homes in one year	4,891,753 homes
Carbon sequestered from this many acres of U.S. forests in one year	53,291,332 acres
Value of methane saved (at $3 per Mcf)	$283,111,338

* This total includes the identification and rehabilitation of leaky distribution pipe.



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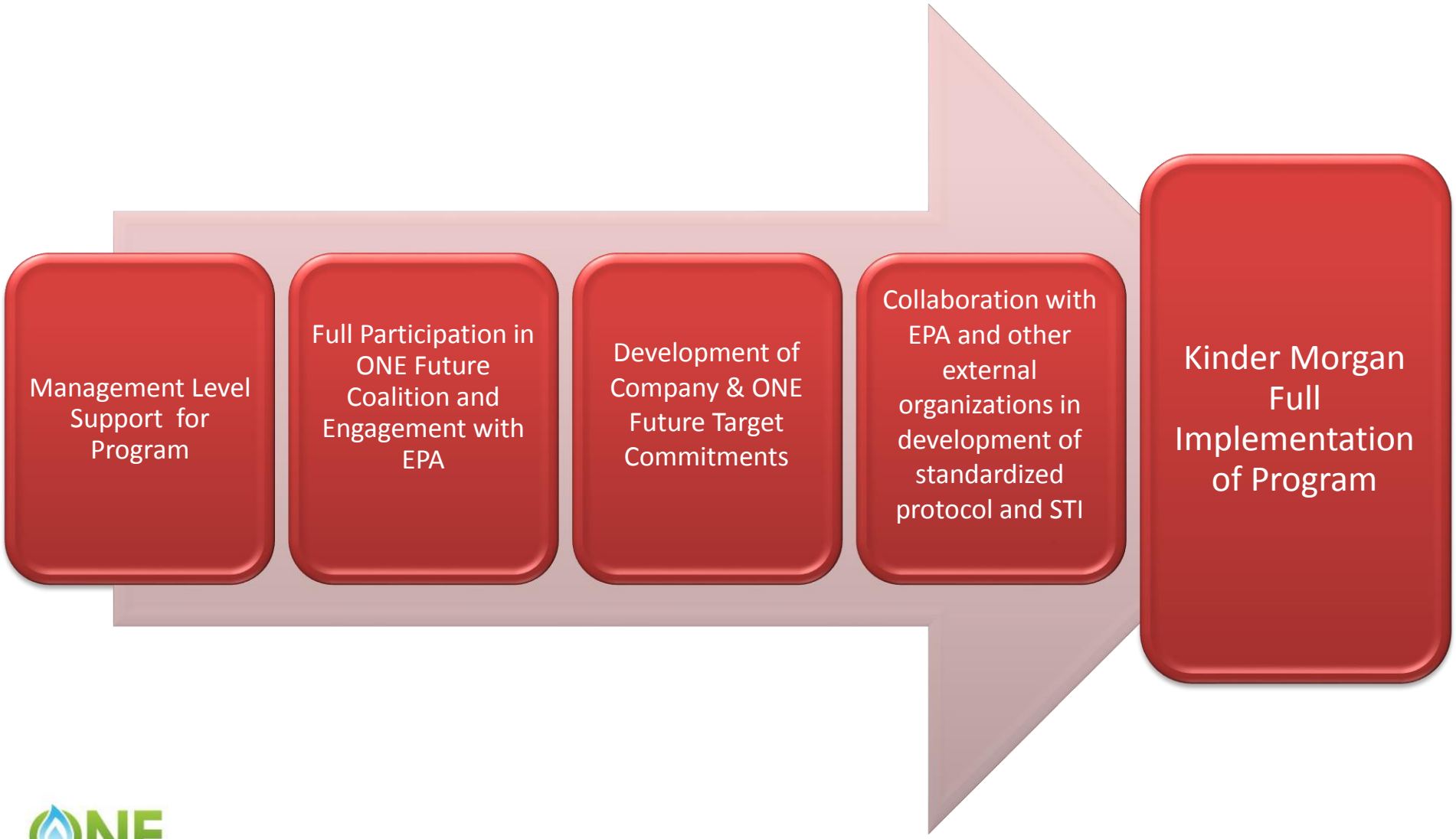
C. Kinder Morgan Methane Challenge-ONE Future Program Implementation

Kinder Morgan Program Implementation Steps



ONE Future Option under Methane Challenge?

KINDER MORGAN

- **Why ONE Future?**
  - Joined ONE Future Coalition prior to development of Methane Challenge
  - Right thing to do and just good business to keep product in the pipe
  - Collaborated with EPA over year and half to develop Methane Challenge-ONE Future Option
  - Performance-based rather than technology based program: flexibility to choose mitigation options to meet a single methane emissions target
  - Methane Emission Intensity: What it that and how do you determine for transmission and storage?
    - **Methane emissions (MCF) divided by annual throughput (MCF)**
    - Leak rate: GHGRP reported methane emissions + non-GHGRP emissions using accepted EPA methodologies under Subpart W and EPA GHGI factors
    - Throughput: Annual throughput reported through PHMSA
- **EPA Methane Challenge: Performance and data driven, real & quantifiable reductions included in the ONE Future target and transparent reporting through EPA.**

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Kinder Morgan Full Implementation Steps

1. **Management acceptance**
2. **Leverage existing voluntary and regulatory programs to the extent possible to minimize implementation schedule and impact on operations personnel**
3. **Evaluate and identify methane reduction commitment options that will result in cost effective, and tangible methane reductions that will meet long-term methane emission intensity targets in a transparent manner.**
4. **Rollout and communication to stakeholders of this new program and gather feedback: Operations, Engineering, Project Management, Legal, EHS, and others as needed**
5. **Development/Improvement of tools, procedures and tracking systems to allow full implementation of this program**
    1. Kinder Morgan developed an internal procedure to assist with acceptance and implementation of this program
6. **Using the tools developed in Step 5, collect operating data, design data, cost estimates, gas volumes saved through repairs and other activities.**
7. **Using the systems developed in Step 5 and protocols finalized with EPA and ONE Future, perform the calculations needed to determine methane emissions and reductions**
8. **Report to EPA and ONE Future**

C. Kinder Morgan Methane Challenge-Status and Critical Elements for Successful Implementation

Kinder Morgan – Status of Program

- Member of ONE Future Coalition since 2014
- Started collaborating with USEPA on their Methane Challenge program in 2015 to include a ONE Future option covering methane emission intensity
- USEPA finalized the Methane Challenge-ONE Future option in August 2016
- Kinder Morgan became charter member in August 2016
- January 1, 2017: Official start date of Kinder Morgan's commitments
  - Leak Inspection & Maintenance at T&S facilities
  - Reduction of Transmission Pipeline Blowdown volumes
  - Other technologies & work practices on case-by-case basis
- 2017: Rollout of Methane Challenge tools and tracking systems to be used by stakeholders within Kinder Morgan
  - Leak Survey report template
  - Methane leak database
  - Leak tags
  - Drawdown/Gas Loss Minimization Form
  - Training
- 2017: Updating emission reporting tools for tracking and reporting methane reductions
- 2017/2018: Development & finalization of company-wide policy and procedure implementing program
- 2018: Continue successful collaboration with EPA for first year of reporting and beyond

Kinder Morgan – Critical Elements for Successful Implementation

- **Communication , Communication, Communication (3Cs) to all affected internal customers, getting input as the program is being developed and rolled out**
  - Sharepoint sites for data collection and wide access to internal stakeholders
  - Methane Leak Dashboard
- **Data, Data, Data (3Ds): heavy reliance on data collected and reported**
- **Development of tools that are readily available to the front-line stakeholders (i.e., Operations). For KM, that is the use of user-friendly spreadsheets and databases**
- **Company-wide procedures that outlines the program, responsible parties, methodology, clear and specific guidance and training requirements.**
- **Collaboration and engagement with EPA throughout program development and beyond**
- **Continuous training and guidance to our internal customers**
- **Always seeking other cost effective opportunities to reduce methane**
- **Second year of program so this continues to be a work in progress**
- **Look more closely at other activities already being done within Kinder Morgan**

Questions

Jim Tangeman

Lakewood, CO: 303-914-7788

Colorado Springs, CO: 719-520-4769

Cell: 719-425-6601

James_tangeman@kindermorgan.com