



# Accelerated Main Renewal Program (AMRP)

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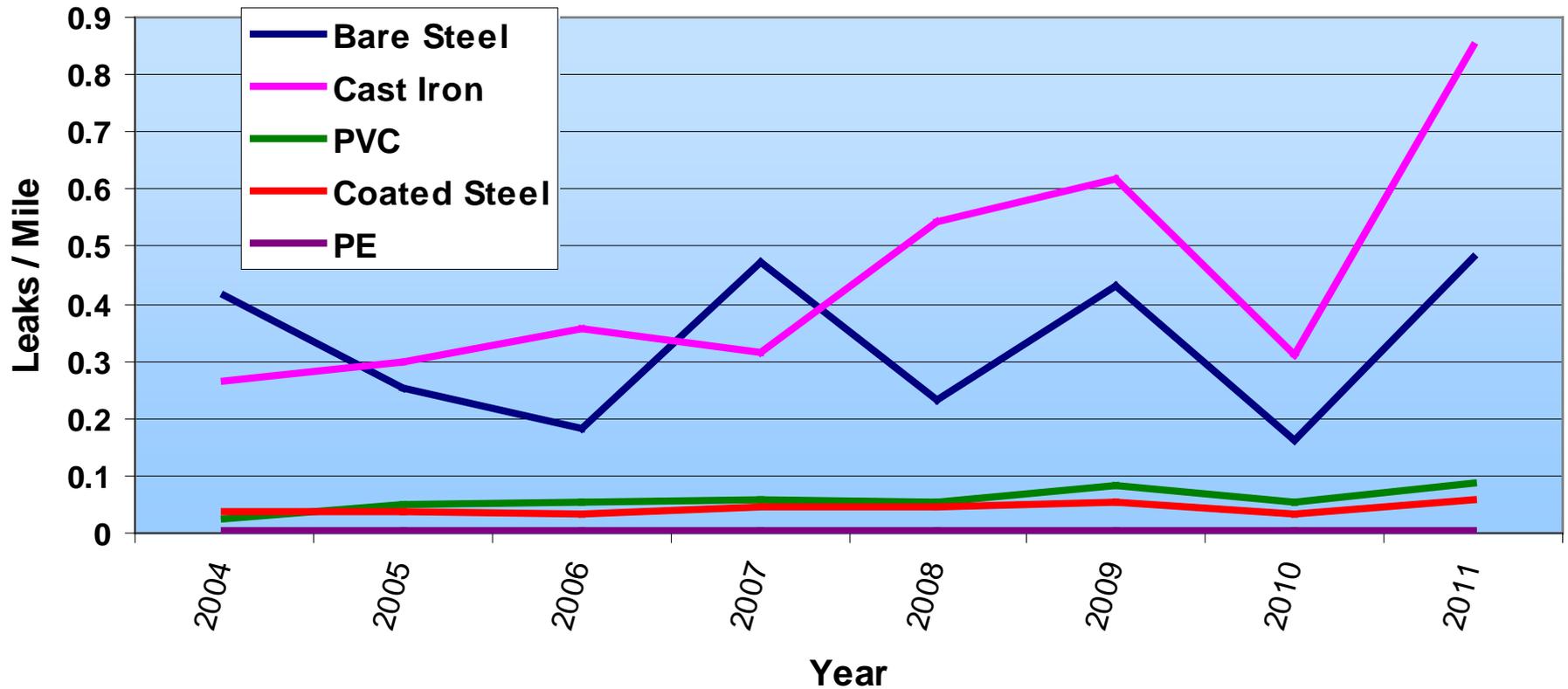
# Scope

- ◆ **Accelerated Main Renewal Program (AMRP) is a proactive program to renew aging main in Xcel Energy's Colorado territory**
- ◆ **Focusing on distribution main below 150 pounds per square inch (psi)**

# Scope

- ◆ **Total Mileage**
  - ◆ **Cast Iron (CI) – 120 Miles**
  - ◆ **Bare Steel (BS) – 99 Miles**
  - ◆ **Polyvinyl Chloride (PVC) – 455 Miles**
- ◆ **Started 2008 – Expected finish date 2029**

# Identifying Emission Sources



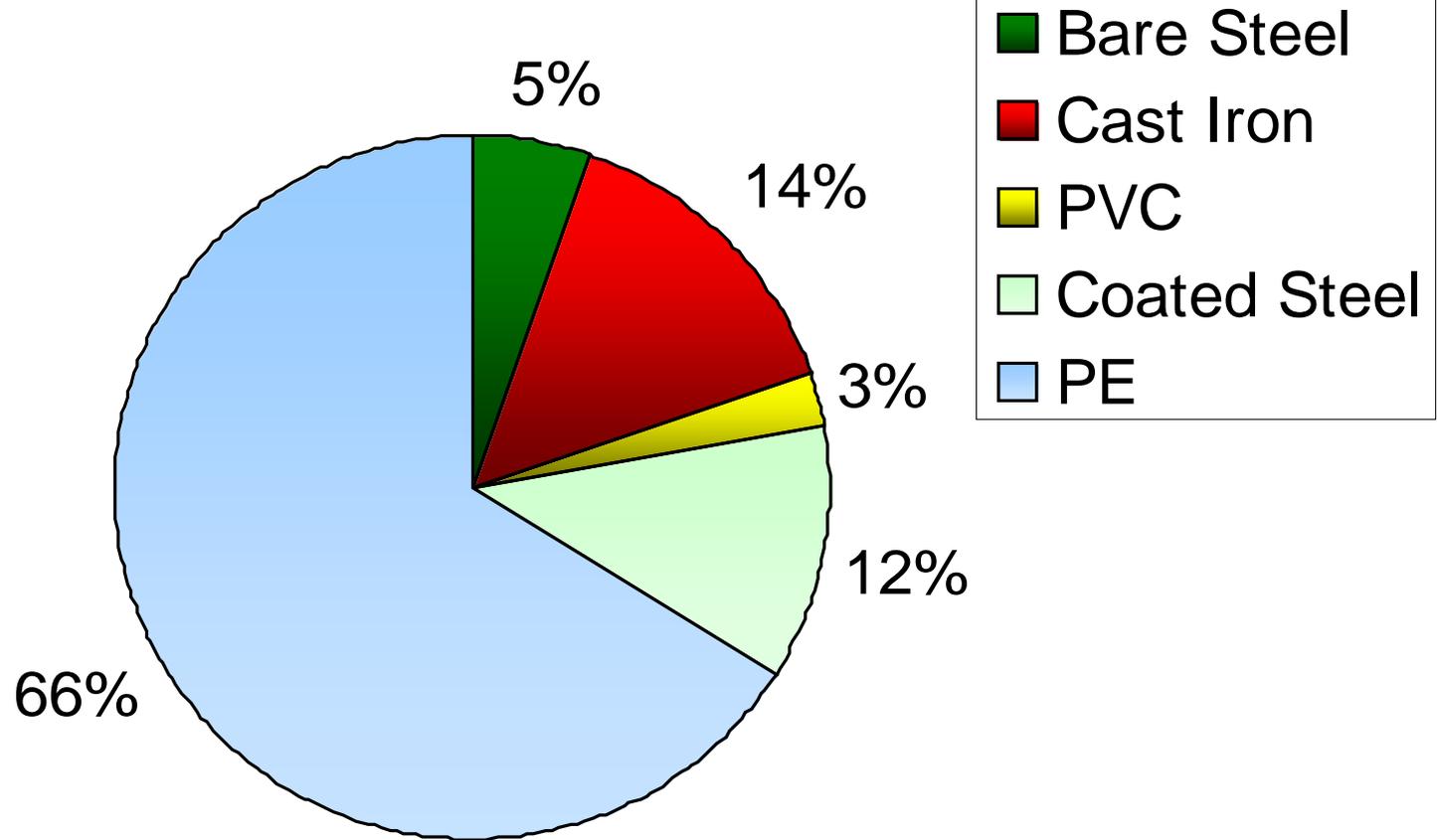
Doesn't contain third party damages, service leakage, or meter leakage

# Emissions by Pipe Type

| <u>Type</u>  | <u>MCF/Mi/Yr</u> |
|--------------|------------------|
| Bare Steel   | 110              |
| Cast Iron    | 239              |
| PVC          | 12               |
| Coated Steel | 3                |
| PE           | 12               |

From the Xcel Energy Natural GasSTAR filing for 2010

# Total Leakage Emissions



# Top Offenders

- ◆ **Three pipe types (CI, BS, and PVC) account for 24% of the yearly leakage emissions**
- ◆ **They represent only 3.4% of Xcel Energy's distribution main**

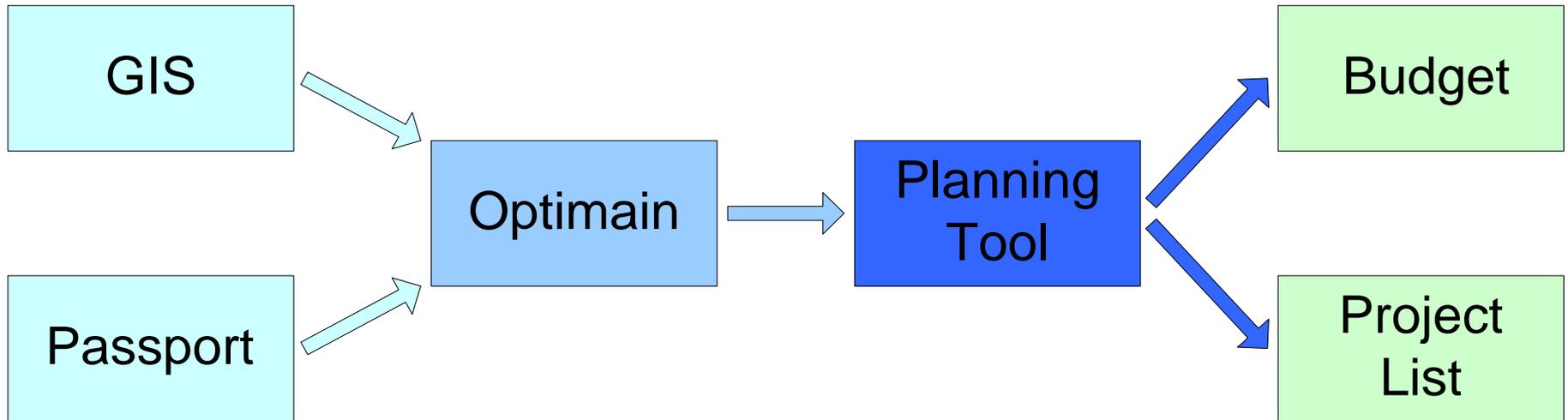
# Top Offenders

- ◆ **The AMRP project targeted these three pipe types**
  - ◆ **Total Mileage (2008)**
    - ◆ **Cast Iron – 120 Miles**
    - ◆ **Bare Steel – 99 Miles**
    - ◆ **PVC – 455 Miles**

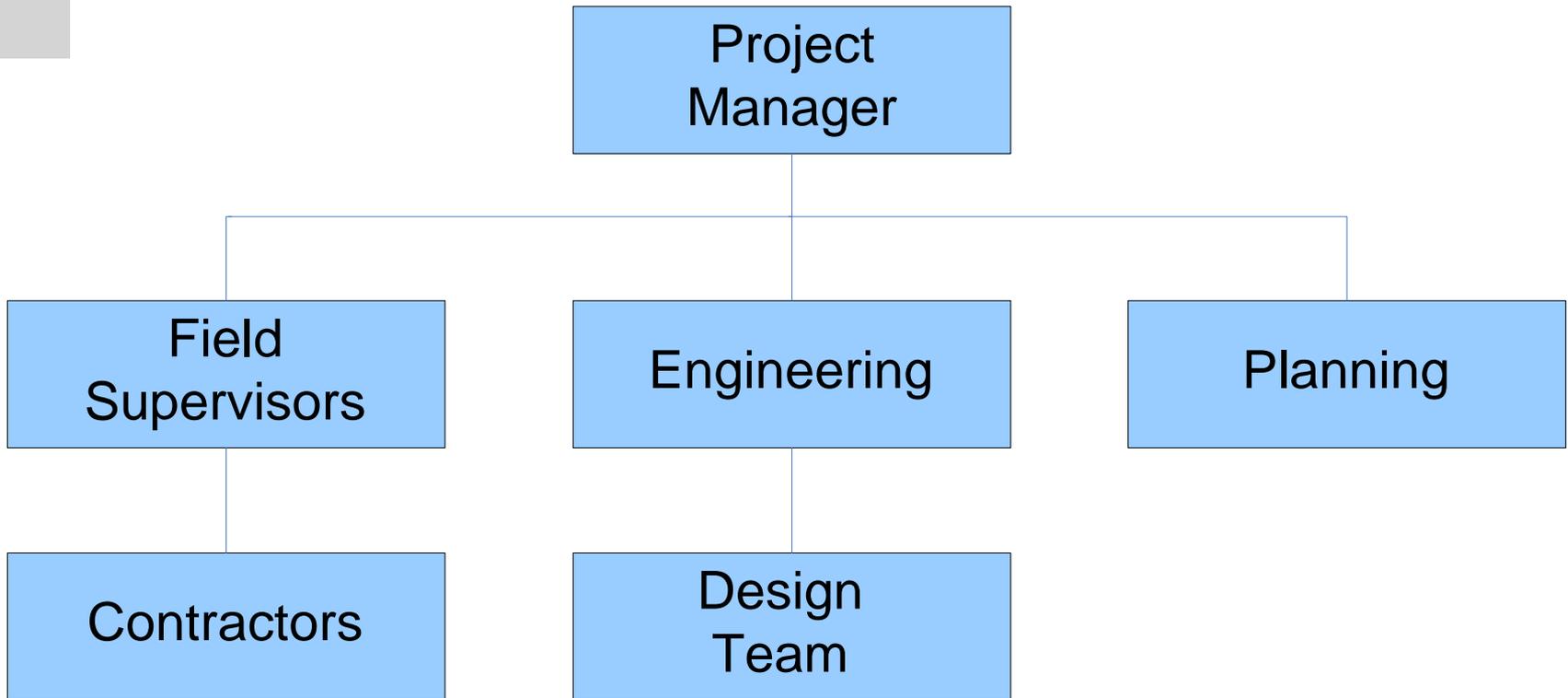
# Project Risk Ranking

- ◆ Leakage History
- ◆ Corrosion Issues
- ◆ Emissions
- ◆ Pressure
- ◆ Class Location

# Project Planning



# Project Team



# Regulatory Environment

- ◆ **Xcel Energy proactively approached the Colorado Public Utilities Commission (CPUC) about the project**
- ◆ **As a result:**
  - ◆ **Xcel Energy has committed to renewal all cast iron, bare steel, and PVC main**
  - ◆ **Xcel Energy has committed to renew all of the cast iron in Colorado by 2015**

# Regulatory Environment

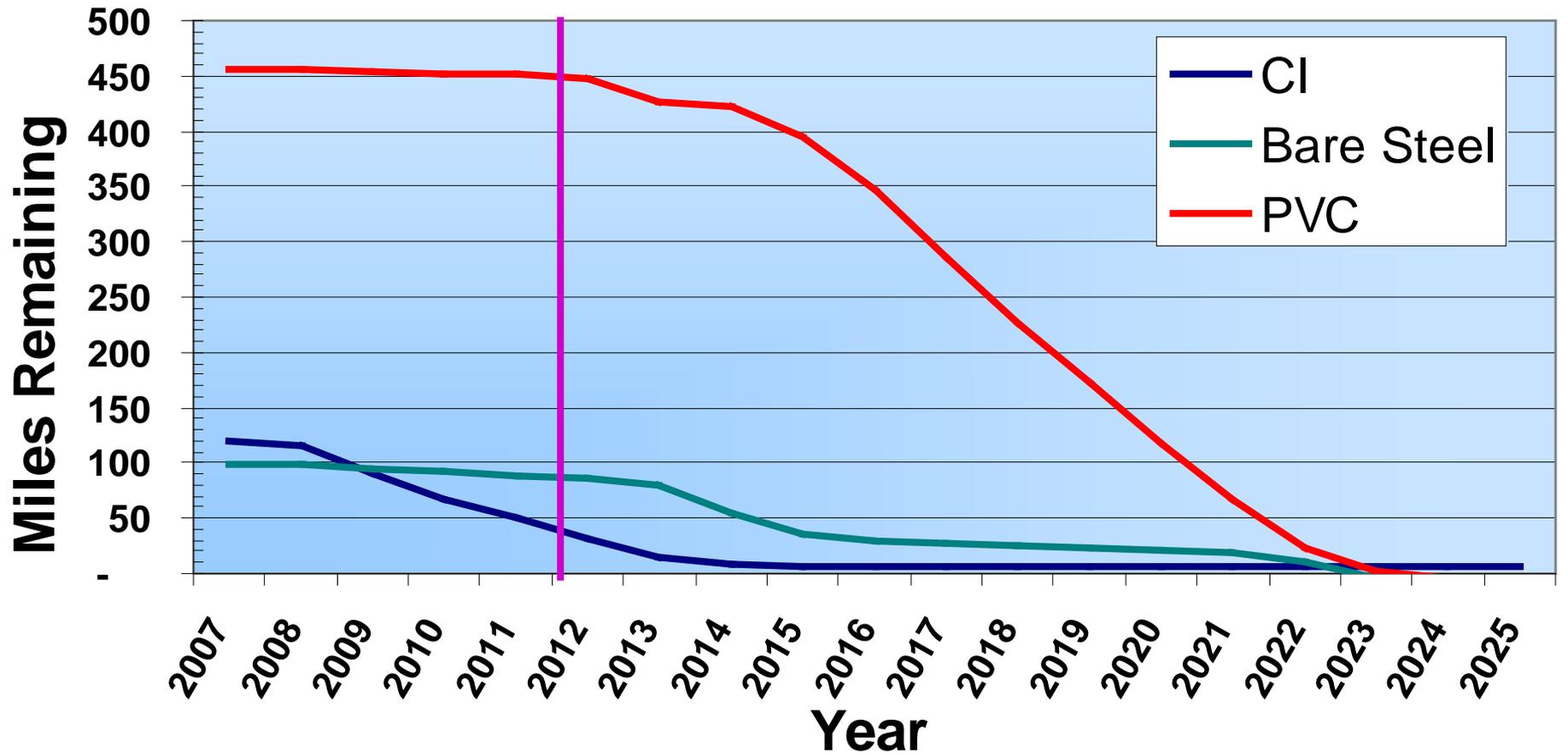
- ◆ **As a result:**
  - ◆ **3 Year Deal with annual reset**
  - ◆ **Annual Filing Requirement**
  - ◆ **Annual True Up Mechanism**
  - ◆ **Annual filing of results compared to plan**
  - ◆ **PUC can deny recovery**

# Progress to Date

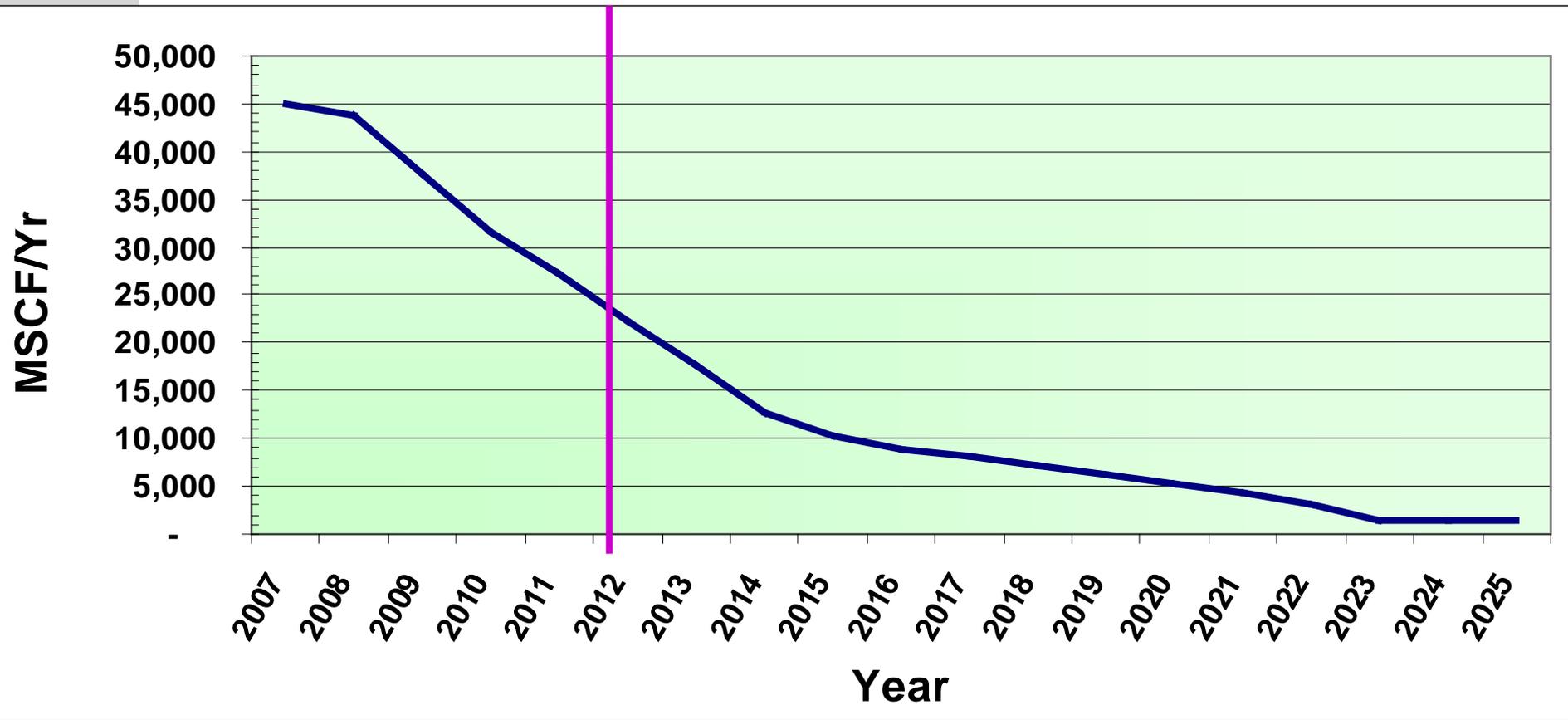
## ◆ Miles Renewed

- ◆ Cast Iron – 89.1 Miles
- ◆ Bare Steel – 12.7 Miles
- ◆ PVC – 8.1 Miles
- ◆ Total – 109.9 Miles

# Miles Remaining By Year



# Leakage Emissions



# Current Reduction Methods

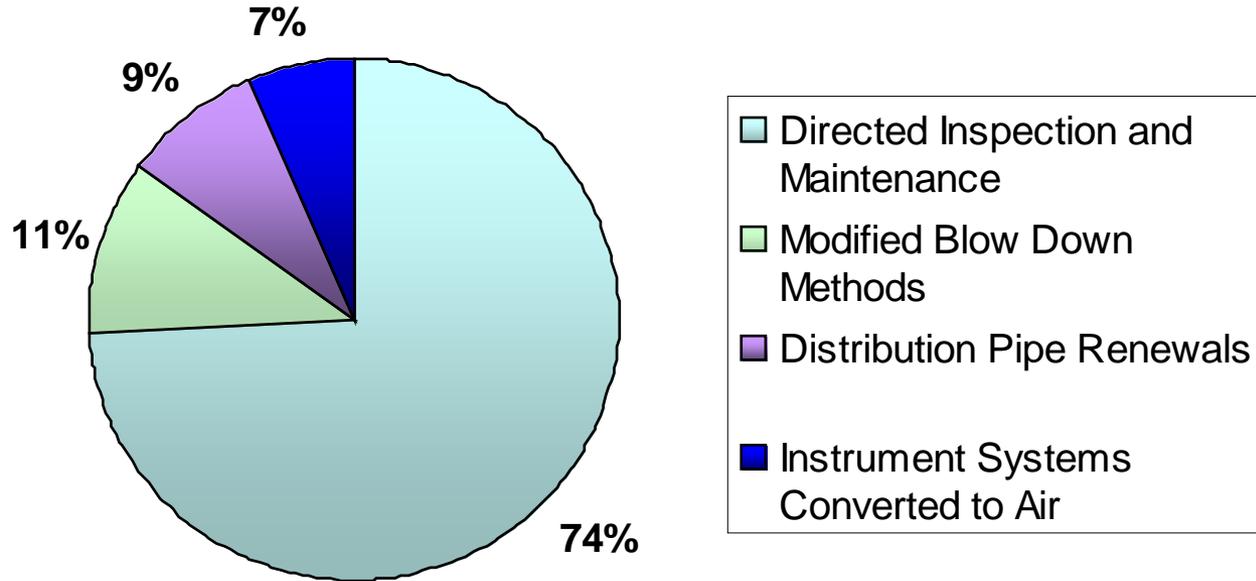
- ◆ **System Pressure Reductions for tie ins and blow downs**
- ◆ **Renewal of leaking main**
- ◆ **Flaring**

# Future Reductions Methods

- ◆ **Mobile Compression Unit**
  - ◆ **Allows us to pump the gas out of a main into the surrounding gas system instead of releasing it into the atmosphere**
- ◆ **Focused procedures designed to lower the amount of gas vented to the atmosphere during these projects**

# Xcel Energy 2010 GasSTAR Reductions

113,659 MSCF



# Xcel Energy Cumulative Reductions

Cumulative Reductions  
181,618 MSCF

