



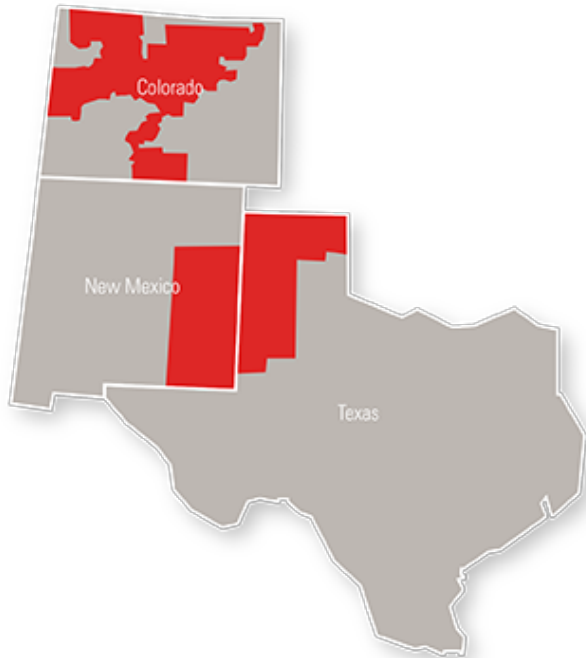
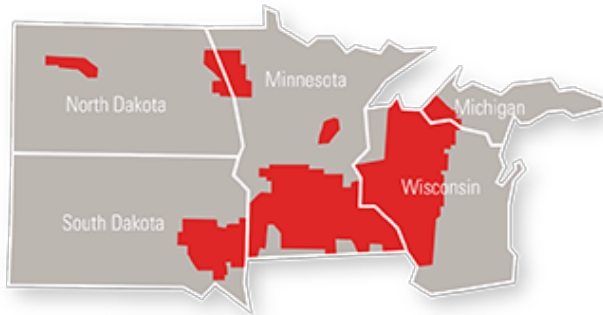
Methane Challenge Program

Four Corners Air Quality Group

December 1, 2016

Lauren Wilson, Environmental Policy Manager

About Xcel Energy



3.5 million electricity and 2 million natural gas customers in 8 states

- **5th Largest provider of natural gas service**
- **No. 1 utility wind provider for 12 years (AWEA)**
- **No. 1 renewable energy sales, outside California (Ceres)**
- **Climate Leadership Award for GHG reductions (EPA)**

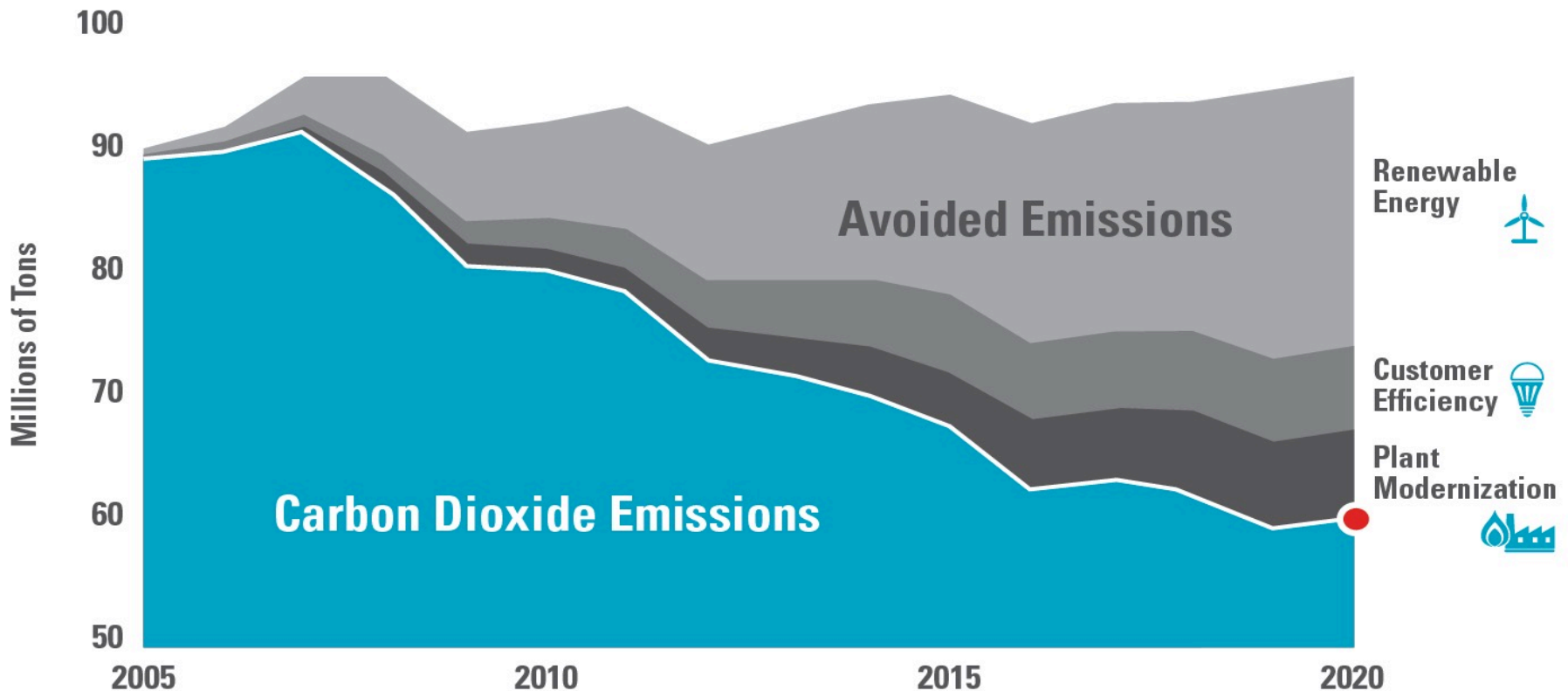
Clean Energy Leadership - Electric



Carbon reductions at a reasonable cost:

24% reduction in CO₂ since 2005

30% reduction expected by 2020



Clean Energy Leadership- Gas Distribution



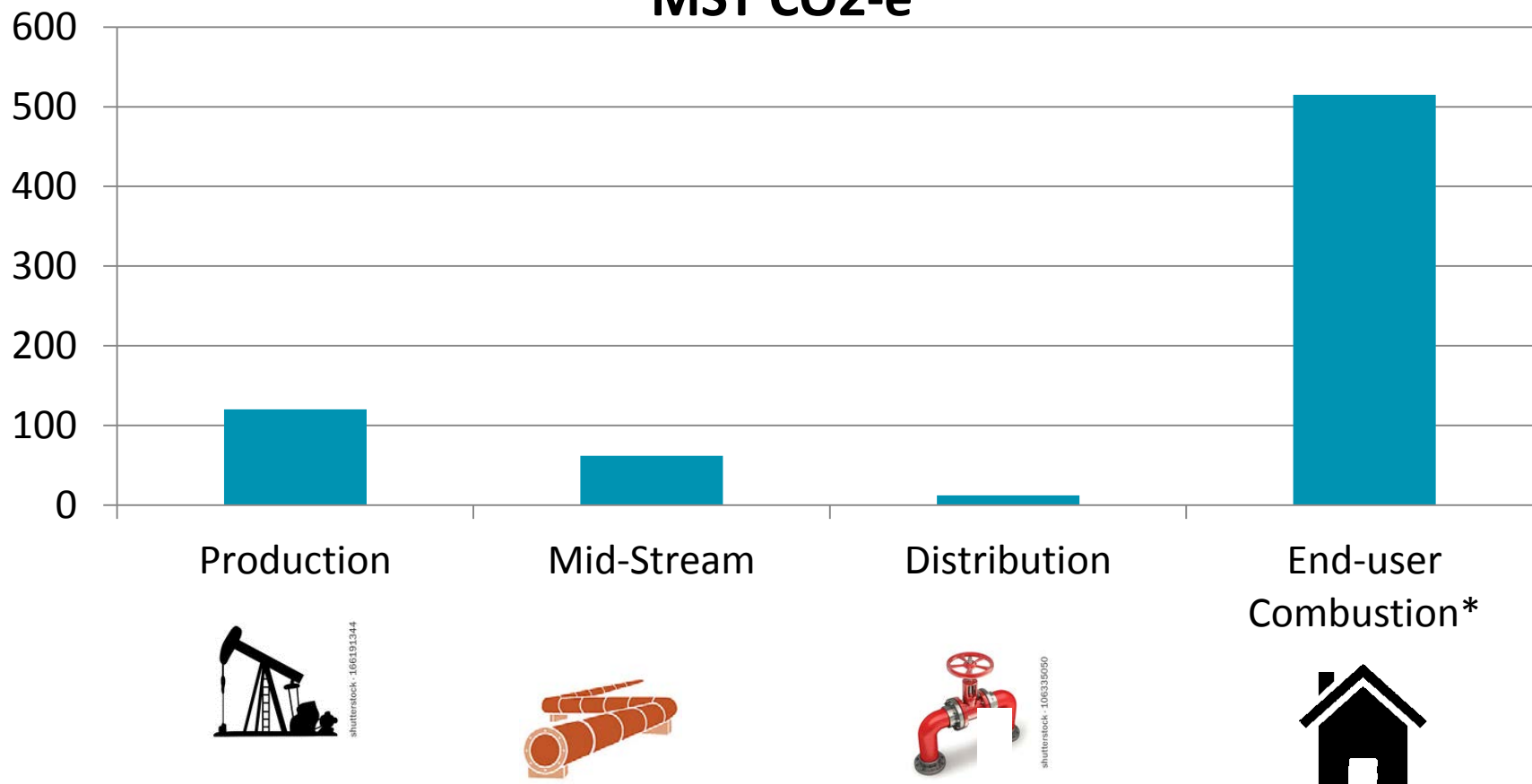
- Access to low-cost gas driven by unconventional production is critical for growth of the gas sector.
- Clean Energy leadership required to keep doing business
- Methane emissions starting to come under more scrutiny
- Value proposition of the natural gas value chain increasingly requires a low-carbon future.
- Potential climate policy at local, state or Federal level may more strongly affect the gas LDC sector

GHG Footprint of Natural Gas Sector



2016 EPA GHG Inventory


MST CO₂-e



*Residential and Commercial

Clean Energy Strategies in NG Distribution



- Improve Industry understanding of emissions
 4. Methane detection technology improvements
 5. Emissions quantification methods
- Reduce emissions across value chain
 1. Supply
 2. Distribution system emissions reductions 
 3. End-user carbon profile & relative benefits

Methane Challenge Overview



- The Methane Challenge is a voluntary emissions reductions program for the oil and gas industry.
- Follow on to the Natural Gas STAR Program
- Companies sign-on to specific and transparent commitments to reduce methane emissions on their systems.
 - Select Best Management Practices
 - Develop Plan
 - Report progress
- Opportunity for leadership, recognition, operational efficiencies, build on reporting programs, and achieve emissions reductions


Methane Challenge Commitments



54 Methane Challenge Participants - strong LDC involvement

Flexibility to build your own pledge - Companies choose 1-5 commitments

Distribution Commitment options:

- Excavation Damages
- Mains – Cast Iron & Unprotected Steel
- Services– Cast Iron & Unprotected Steel
- Distribution Blowdowns 
- Metering and Regulating (M&R) Stations/City Gates (TBD)

Xcel Energy Historic Performance



- Through EPA Natural Gas STAR, we reduced emissions associated with blowdowns and low-bleed devices ~41%/yr.

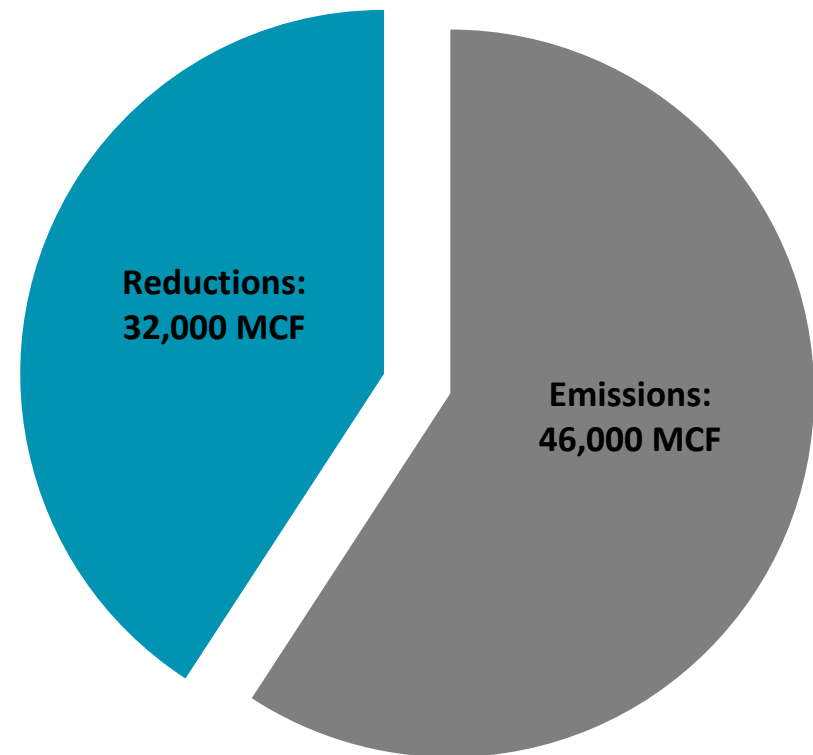
Year	# of Planned Events	Total Reduced Methane Emissions (MCF)	Total Methane Emissions Vented to Atmosphere (MCF)	Percent Reduced of Total Gas Volume
2010	50	6956	11982	37%
2011	70	7294	5669	56%
2012	129	2806	3708	43%
2013	19	2229	9944	18%
2014	17	8356	6414	57%
2015	14	4426	8696	34%
Total	299	32,067	46,413	41%

Xcel Energy Commitment - Pipeline Blowdown



- **Goal: Reduce total potential emissions by 50% each year**
- **Distribution Blowdown BMP:**
 - Pipelines operating greater than 60 psi
 - Non-emergency pipeline blowdown events
- **Ability to leverage existing processes to track blowdown events**
- **Build on past performance**

Historical Blowdown Emissions



Implementation Plan



	2016					2017						2018		
	Mar	May	Jul	Sep	Nov	Jan	Mar	May	Jul	Sep	Nov	Jan	Mar	May
Join EPA CH4 Challenge	█													
Develop Implementation Plan		█	█	█										
Stakeholder Outreach & Communication				█	★									
Develop Blowdown Evaluation Tool				█	★	█								
Develop BMP & Gas Standard					█	█	█							
Pilot Flaring Equipment								█	█	█				
Pilot Mechanical Capture Equipment									█	█	█			
Gather Test Data										█	█			
BMP Report Out											█	█		
Final Report Filing												█	█	█

Blowdown Planning Strategies

- **Recommended Reduction Strategies:**
 1. Primary options of pressure reduction through system use
 2. Use flaring equipment to further reduce emissions
 3. Mechanically capture through portable compressors
 4. Use line stop fittings to reduce the pipeline segment length
 - Only if fittings are necessary for other issues (e.g. bypass, downstream impacts)
- **Tipping point analysis indicates that past blowdown events could have achieved 50% goal through use of flaring**



Flaring Lessons Learned



- **Xcel Energy piloted a flaring trailer operation in multiple locations in Colorado**
- **Public interest and concern ranged from low to high**
 - Some residents and fire department extremely concerned
 - Other areas were surprisingly less concerned
- **Certain service operating bases were more comfortable than others**
- **Primary advantages:**
 - Ability to choose where to locate flame and heat
 - More control over burn and safer to operate
 - Less noisy
- **Disadvantages:**
 - Costly compared with traditional methods
 - More set up time
 - Requires approximately 40 feet of clear space to set up
 - Flame draws attention





Xcel Energy Gas Distribution

By the numbers



2015	Revenue (\$M)	Customers (Thousands)	Transmission Miles	Distribution Miles	Annual Throughput (Mmcf)
NSPM	\$537	503	90	10,165	97,955
NSPW	\$117	112	3	2,410	20,009
PSCO	\$936	1,354	2,128	22,090	233,509
TOTAL	\$1,590	1,969	2,221	34,665	351,473

Xcel Energy Leadership areas



Similar to our approach on the electric side, we seek to be a leader in emissions reductions for our gas distribution service.

We have initiatives across each leadership area.

1. Supply: Reporting Initiative
2. Distribution emissions: Methane Challenge
3. Direct-use Carbon: AGA, internal analysis
4. Detection technology: demonstration projects, research on rapid detection technology
5. Emissions Quantification: EPA's Greenhouse Gas Reporting Program, Downstream Initiative