

# Natural Gas STAR Program



## Natural Gas STAR 13<sup>th</sup> Annual Implementation Workshop

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October 24, 2006





# Agenda

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- 🔥 2005/2006 Overview & Program Highlights
- 🔥 Program Evolution & Future Initiatives
- 🔥 Introduction to 13<sup>th</sup> Annual Workshop



# 2005/2006 Overview & Program Highlights

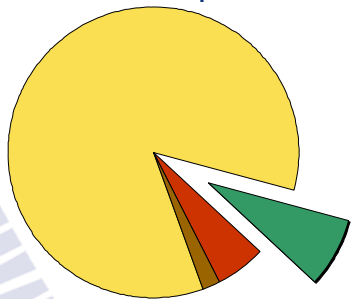




# U.S. Methane Emissions

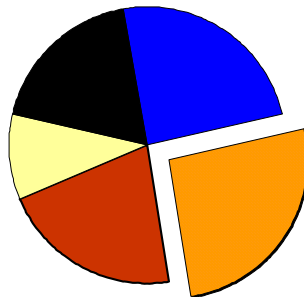
## U.S. GHG Emissions

CH<sub>4</sub>: 8%



## U.S. CH<sub>4</sub> Emissions

Oil & Gas: 27%

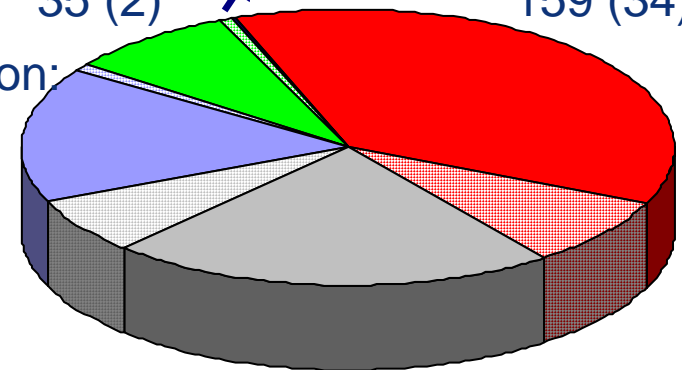


## U.S. O&G CH<sub>4</sub> Emissions

Bcf (Bcf saved)

Oil: 2 (0)  
Processing: 35 (2)      Production: 159 (34)

Distribution: 67 (4)



Transmission / Storage: 95 (28)

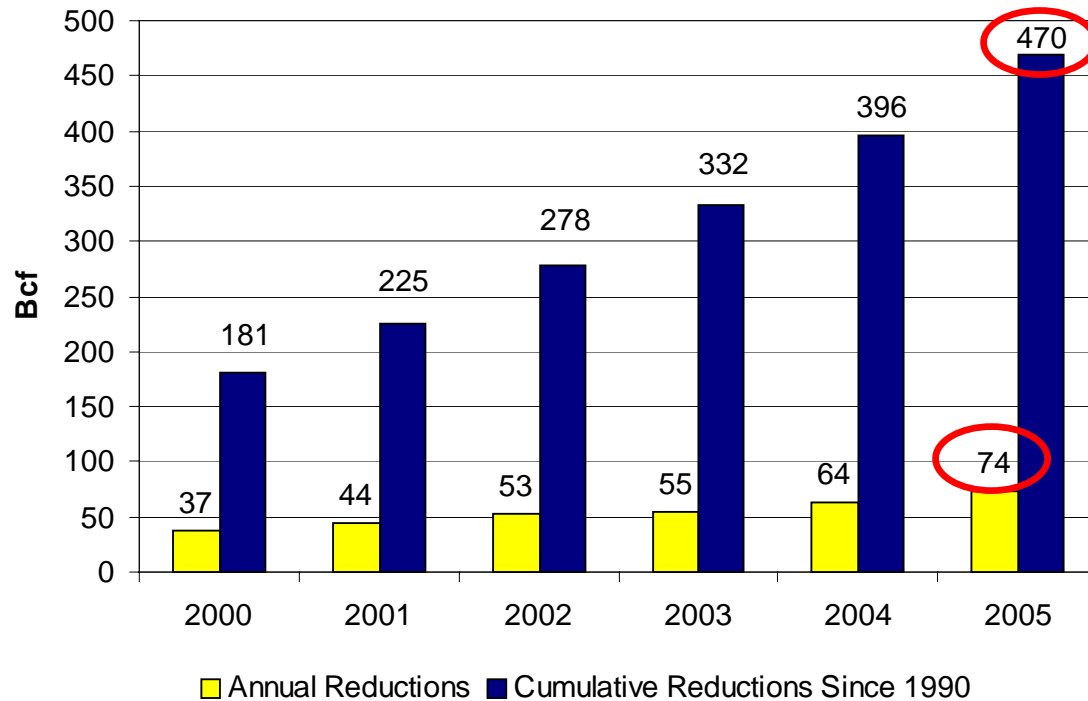


# Another Record Year for Emission Reductions

Gas STAR Partners reduced methane emissions by 74 Bcf in 2005

470 Bcf in cumulative reductions since 1990

Natural Gas STAR Emissions Reductions





# Natural Gas STAR Program Continues to Grow

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## 🔥 New Partners

- 🔥 CDX Gas - *Production*
- 🔥 Enbridge, Inc. - *Transmission*
- 🔥 Panhandle Eastern Pipeline (a Southern Union Gas Company) - *Transmission*
- 🔥 Sea Robin Pipeline (a Southern Union Gas Company) - *Transmission*
- 🔥 Targa Resources - *Processing*
- 🔥 Trunkline Gas (a Southern Union Gas Company) - *Transmission*



# Natural Gas STAR Program Continues to Grow

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## 🔥 New Endorsers

- 🔥 The Air & Waste Management Association (A&WMA)
- 🔥 American Institute of Chemical Engineers (AIChE)  
Institute for Sustainability
- 🔥 Colorado Oil and Gas Association (COGA)
- 🔥 Independent Petroleum Association of America (IPAA)
- 🔥 Northeast Gas Association (NGA)
- 🔥 Petroleum Association of Wyoming (PAW)
- 🔥 Petroleum Technology Transfer Council (PTTC)
- 🔥 Texas Alliance of Energy Producers



# Technology Transfer

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## 🔥 Technology Transfer Workshops

### 🔥 Production

- Midland, TX – June 8
- Fort Worth, TX – June 6
- Kenai, AK - May 25
- Rock Springs, WY – May 11
- Gillette, WY – May 9
- Houston, TX – October 26, 2005

### 🔥 Processing

- Hobbs, NM – July 27
- Farmington, NM – February 21

### 🔥 Compressor-focused

- Webcast – January 18





# Technology Transfer - 2007

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## 🔥 **Distribution**

- 🔥 Webcast - December 6, 2006

## 🔥 **Production**

- 🔥 Elk Hills, CA – March 20 & 21, 2007
  - 🔥 Oxy
- 🔥 College Station, TX - May 17, 2007
  - 🔥 Anadarko
- 🔥 Grand Junction, CO - September 12, 2007
  - 🔥 Williams

## 🔥 **Processing**

- 🔥 Calgary, AB, CANADA - January 18, 2007
  - 🔥 CETAC-West
- 🔥 Houston, TX - April 24, 2007
  - 🔥 Duke Energy Field Services

## 🔥 **Multi-sector International Workshop**

- 🔥 New Delhi, INDIA - February 22-23, 2007



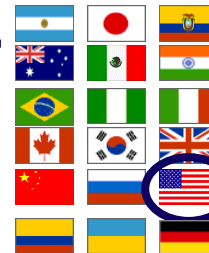
# Natural Gas STAR International

- Under the Methane to Markets Partnership, U.S. EPA is expanding Natural Gas STAR internationally
- EPA is encouraging existing partners to engage their international operations to voluntarily reduce methane emissions
- Companies world-wide are welcome to join Gas STAR International



## Methane to Markets

Oil and Gas Subcommittee





# Natural Gas STAR International

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🔥 Natural Gas STAR International launched September 26, 2006 with seven charter partners

  
**ConocoPhillips**

*devon*<sup>®</sup>

  
**ENBRIDGE™**

**ExxonMobil**

  
**Marathon  
Oil Company**

  
**OXY**

  
**TransCanada**  
*In business to deliver*



# Natural Gas STAR International

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- 🔥 Expands domestic program to promote emission reduction activities and project tracking globally
- 🔥 Participation involves:
  - 🔥 Developing an implementation plan
  - 🔥 Identifying and implementing cost-effective projects
  - 🔥 Reporting your success
- 🔥 Support from Gas STAR International is available:
  - 🔥 Identify top cost-effective methane reduction project opportunities
  - 🔥 Conduct project pre-feasibility analysis
  - 🔥 On-site training and workshop development
  - 🔥 \$2.5M grant opportunity



# Program Evolution & Future Initiatives





# Natural Gas STAR Awards

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## 🔥 Awards categories

- 🔥 Partner of the Year (by sector)
- 🔥 Rookie of the Year
- 🔥 Implementation Manager of the Year
- 🔥 Continuing Excellence 5, 7, 10, 12, 15, 17, 20 Years

## 🔥 Award Criteria

- 🔥 Normalized emission reductions
- 🔥 Reduction trends
- 🔥 New technologies and practices
- 🔥 Support of Program activities
- 🔥 Other/internal corporate activities





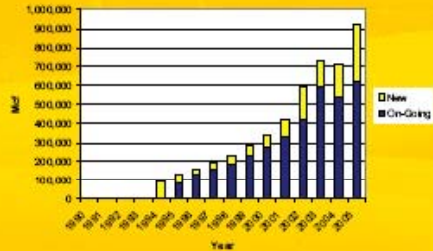
# Post-Reporting Benchmarking

## 2005 Reporting Summary & Benchmarking Report

### Report Summary

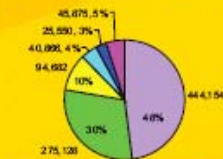
Joined Natural Gas STAR  
Annual  
2005 Annual methane emissions reductions

Since joining the Natural Gas STAR Program in 2004, we have achieved cumulative emission reductions of 2,405,564 Mcf.



To achieve these reductions, we employed the following Natural Gas STAR methane emission reduction technologies and practices.\*

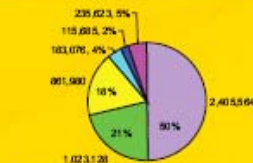
#### 2005 Reductions:



- Eliminate unnecessary equipment or systems
- Redesign blowdown systems and other ESD practices
- Replace glycol dehydrators with molecular sieves
- Use IR cameras/optical imaging for leak detection
- Use hot taps for in-service pipeline connections
- Other\*

\*Other includes: Use IR camera/optical imaging for leak detection; Replace gas-washed glycol pumps with electric pumps; Replace Glycol Stripper Gas; Hydraulic valves; Use inert gases and pigs to perform pipeline purges.

#### Cumulative Reductions:



- Eliminate unnecessary equipment or systems
- Redesign blowdown systems and other ESD practices
- Replace gas pneumatics with instrument air systems
- Replace glycol dehydrator units with molecular sieves
- Install Flare to Eliminate Venting of Pipeline Maintenance Skew to Other\*
- Other\*

\*Other includes: Use IR camera/optical imaging for leak detection; Replace gas-washed glycol pumps with electric pumps; Replace Glycol Stripper Gas; Hydraulic valves; Use inert gases and pigs to perform pipeline purges.

\*Annual emissions reductions include new reductions plus ongoing reductions.

### EMISSIONS REDUCTIONS ARE APPROXIMATELY EQUIVALENT TO:



The carbon offset equivalent of planting this many acres of trees: 585,000 (cumulative) 112,430 (annual)



Enough natural gas to heat this many homes for one year: 70,000 (cumulative) 13,425 (annual)



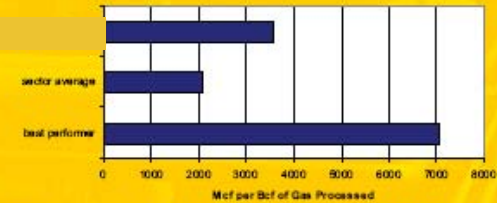
Removing this many cars from the road for one year: 430,000 (cumulative) 82,450 (annual)

### Benchmarking

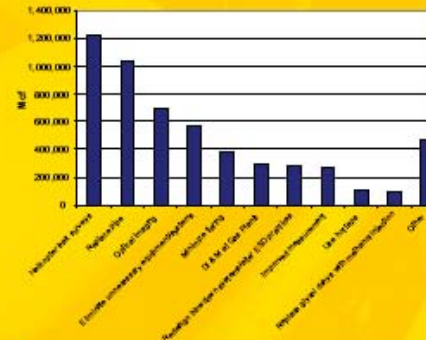
The Natural Gas STAR Program endeavors to assist partners in achieving full benefit of participation by raising awareness about activities that other partners have undertaken to achieve cost-effective emission reductions.

The following show methane emission reductions versus the Sector Average and Best Performer in the Processing Sector. Emission reductions were normalized based on each partner's annual gas processing capacity.

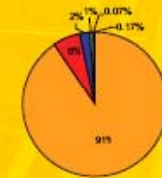
#### 2005 Methane Emissions Reductions



Top 10 technologies and practices employed in the Processing Sector in 2005. Sector reductions totaled 5,424,568 in 2005.



The Best Performer for the Processing Sector achieved emission reductions through the following activities in 2005.



- Helicopter Leak Surveys
- Use hot taps for in-service pipeline connections
- Replace gas pneumatics with instrument air systems
- Install a flare to eliminate venting of pipeline maintenance skew to other
- Eliminate unnecessary equipment or systems
- Other\*

\*Other includes: Helicopter leak surveys; Use hot taps for in-service pipeline connections; Replace gas pneumatics with instrument air systems; Use IR cameras/optical imaging for leak detection; Use inert gases and pigs to perform pipeline purges.

Based on top technologies and practices employed in the Processing Sector, other activities you might want to consider include:

- Helicopter leak surveys
- Replace pipe
- Optical imaging
- Minimize flaring
- DI&M at gas processing stations



# 2007 and Beyond

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## 🔥 Focus on partner support

- 🔥 Targeted technical assistance
- 🔥 Technology guidance documents
- 🔥 Targeted benchmarking

## 🔥 Tech Transfer Workshops

## 🔥 Technical documents

- 🔥 New documents
- 🔥 Consolidating related technologies

## 🔥 Feedback – we want to hear from you





# Introduction to 13<sup>th</sup> Annual Workshop





# Key Themes

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## More Methane to Markets in an Era of High Gas Prices

- 💧 Fugitive Emissions
  - 💧 Leak identification and measurement
- 💧 Concurrent Sessions
  - 💧 Production, processing, transmission/distribution
- 💧 Challenges to Emissions Reduction Implementation
- 💧 Corporate Governance
- 💧 Emissions Credits
- 💧 Keynote - Commissioner Victor Carrillo



# Contact Information

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