Natural Gas STAR Program

Transmission Technology Transfer Workshop

Sponsors - Duke Energy Gas Transmission and Interstate Natural Gas Association of America (INGAA)

September 22, 2004

epa.gov/gasstar
The Natural Gas STAR Program

The Natural Gas STAR Program is a flexible, voluntary partnership between EPA and the oil and natural gas industry designed to cost-effectively reduce methane emissions from natural gas operations.
U.S. Industry Participation

★ 109 Program Partners:
★ 56% of transmission
★ 23 Partners
★ 44% of distribution
★ 45 Partners
★ 62% of production
★ 29 Partners
★ 62% of processing
★ 12 Partners

[Bar chart showing participation of program partners in different sectors: Transmission (Trans), Distribution (Dist), Production (Prod), and Processing (Proc). The chart compares data for 2002 and 2003.]
Natural Gas STAR Program
Endorsers

- American Gas Association (AGA)
- American Petroleum Institute (API)
- Domestic Petroleum Council (DPC)
- Gas Processors Association (GPA)
- Gas Technology Institute (GTI)
- Gulf Coast Environmental Affairs Group (GCEAG)
- Interstate Natural Gas Association of America (INGAA)
- Independent Producers Association of Mountain States (IPAMS)
- National Association of Regulatory Utility Commissioners (NARUC)
- Natural Gas Supply Association (NGSA)
- New York State Energy Research and Development Authority (NYSERDA)
- Southern Gas Association (SGA)
Methane Emissions in the Oil and Gas Industry
U.S. Greenhouse Gas Emissions
All Sources

- CO₂: 83%
- CH₄: 9%
- N₂O: 6%
- HFCs, PCs, & SF₆: 2%

Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 - 2002
U.S. Greenhouse Gas Emissions
Methane

Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 - 2002
U.S. Oil and Gas Industry Methane Emissions (Annual)

360 Bcf (billion cubic feet)

- Gas Production: 89 Bcf (25%)
- Trans & Storage: 96 Bcf (27%)
- Distribution: 77 Bcf (21%)
- Processing: 36 Bcf (10%)
- Petroleum Systems: 62 Bcf (17%)

U.S. oil and natural gas industry methane emissions account for 2% of total U.S. greenhouse gas emissions.

Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 - 2002
Methane Emissions Reduction Successes
Natural Gas STAR Partner Accomplishments

★ ~ 350 Bcf in methane emissions reductions since 1993!
Natural Gas STAR Partner Accomplishments
Years 1990 - 2002

Units in Teragrams of CO$_2$ equivalent (TgCO$_2$E)

Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 - 2002
2003 Gas STAR Transmission Partner Reductions

- **BMP 1 - DI&M at Gate Stations**
  - 1,920 MMcf

- **BMP 2 - Identify and Replace Leaky Distribution Pipe**
  - 44 MMcf

- **BMP 3 - DI&M at Compressor Stations**
  - 2,619 MMcf

- **BMP 4 - Replace Reciprocating Engines with Turbines**
  - 3,481 MMcf

- **BMP 5 - Replace High-bleed Pneumatics**
  - 210 MMcf

- **BMP 6 - PROs**
  - 11,565 MMcf
Natural Gas Industry Emissions

Methane emissions (solid) and reductions (*italics*) in each sector of the U.S. natural gas industry

Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2002

- **Production**: 89 Bcf
- **Trans & Storage**: 96 Bcf
- **Distribution**: 77 Bcf
- **Processing**: 36 Bcf
- **20 Bcf**
- **5 Bcf**
- **1 Bcf**

*Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 - 2002*
Top Transmission Sector PROs

★ Replace Wet Seals with Dry Seals
★ Use Compressors for Pipeline Pumpdown
★ Install Vapor Recovery Units
★ Use Composite Wrap
★ Monitor / Replace Compressor Rod Packing
Workshops

Annual Conference

October 26 - 27, 2004 - Houston, TX
White House “Methane to Markets” Initiative

★ Five year activity to develop verifiable methane emissions reduction projects at landfills, coal mines and natural gas systems

★ Goal is to build long-term capacity within developing countries and economies in transition

★ Countries include:
  Australia, China, India, Italy, Japan, Mexico, Ukraine and UK

★ Gas STAR will lead natural gas system-related activities. The Program welcomes Gas STAR Partner participation
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