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

★ 117 Program Partners
★ 62% of transmission
★ 26 partners
★ 60% of distribution
★ 48 partners
★ 51% of production
★ 31 partners
★ 63% of processing
★ 12 partners
# Processing Sector Gas STAR Partners

<table>
<thead>
<tr>
<th>Company</th>
<th>U.S. Gas Throughput MMcfd</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP plc.</td>
<td>11730.0</td>
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<tr>
<td>Duke Energy Field Services</td>
<td>5972.9</td>
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<tr>
<td>Gulf Terra Energy Partners</td>
<td>3784.5</td>
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<tr>
<td>Dynegy Midstream Services</td>
<td>2712.8</td>
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<tr>
<td>Enterprise Products</td>
<td>2265.4</td>
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<tr>
<td>Williams</td>
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<td>ExxonMobil</td>
<td>1806.0</td>
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<tr>
<td>Aux Sable Liquid Products</td>
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<td>ONEOK Field Services</td>
<td>1200.1</td>
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<td>Venice Energy Services</td>
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<tr>
<td>Western Gas Resources</td>
<td>709.0</td>
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<td>Kinder Morgan Energy Partners</td>
<td>678.6</td>
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<td>Devon Gas Services</td>
<td>590.1</td>
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<td>Amerada Hess Corp</td>
<td>571.8</td>
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<tr>
<td>Enbridge Energy Partners</td>
<td>564.5</td>
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<tr>
<td>ChevronTexaco</td>
<td>534.1</td>
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</tbody>
</table>
## Processing Sector Gas STAR Partners

<table>
<thead>
<tr>
<th>Company</th>
<th>U.S. Gas Throughput MMcfd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norcen Explorer</td>
<td>500.0</td>
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<tr>
<td>Copano Energy</td>
<td>488.0</td>
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<tr>
<td>Marathon Oil</td>
<td>456.9</td>
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<tr>
<td>Shell Western E &amp; P</td>
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<tr>
<td>Enogex</td>
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<tr>
<td>Michigan Consolidated Gas</td>
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<tr>
<td>AEP Resources</td>
<td>399.0</td>
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<tr>
<td>Occidental of Elk Hills</td>
<td>398.0</td>
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<tr>
<td>ConocoPhillips</td>
<td>378.8</td>
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<tr>
<td>Occidental Petroleum</td>
<td>341.3</td>
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<td>Colorado Interstate Gas</td>
<td>340.0</td>
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<tr>
<td>Energy Transfer</td>
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<td>Unocal</td>
<td>320.7</td>
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<td>Sid Richardson Energy Services</td>
<td>311.4</td>
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<tr>
<td>Pioneer Natural Resources</td>
<td>275.0</td>
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</tbody>
</table>

Oil & Gas Journal, June 28, 2004
Natural Gas STAR Program
Endorsers

- American Gas Association (AGA)
- American Petroleum Institute (API)
- Domestic Petroleum Council (DPC)
- Gas Processors Association (GPA)
- Gulf Coast Environmental Affairs Group (GCEAG)
- Independent Producers Association of Mountain States (IPAMS)
- Interstate Natural Gas Association of America (INGAA)
- 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 Industries
U.S. Greenhouse Gas Emissions
All Sources

CO₂ 83%

CH₄ 9%

N₂O 6%

HFCs, PCs, & SF₆ 2%

U.S. Greenhouse Gas Emissions

Methane

- Landfills: 32%
- Oil & Natural Gas Systems: 24%
- Enteric Fermentation: 19%
- Coal Mining: 9%
- Other: 16%

U.S. Oil and Gas Industry Methane Emissions (Annual)

- **Transmission & Storage**: 98 Bcf (27%)
- **Processing**: 36 Bcf (10%)
- **Distribution**: 73 Bcf (21%)
- **Oil & Gas Production**: 150 Bcf (42%)

*Bcf (billion cubic feet)*

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

Methane
Emissions
Reduction
Successes
Natural Gas STAR Partner Accomplishments

★ 338 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)

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

- **Transmission / Storage**: 98 Bcf
- **Distribution**: 73 Bcf
- **Production**: 150 Bcf
- **Processing**: 36 Bcf
- **Reduction (prod)**: 18 Bcf
- **Reduction (dist)**: 10 Bcf

2003 Processing Sector Emissions Reductions

★ BMP 1: Replace pneumatic devices with instrument air - 87 MMcf
★ BMP 2: Install flash tank separators on glycol dehydrators - 15 MMcf
★ BMP 3: Implement DI&M programs - 15 MMcf
★ BMP 4: Partner Reported Opportunities (PROs) – 1,067 MMcf
Top Processing Sector PROs

★ Eliminate Unnecessary Equipment
★ Use Hot Taps
★ Reroute Glycol Skimmer Gas
★ Install VRUs
★ Replace Gas Pumps with Electric Pumps
Workshops

Annual Conference
October 25 - 26, 2005
Houston, TX
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.

Counties include: Argentina, Australia, Brazil, China, Colombia, India, Italy, Japan, Mexico, Nigeria, Russia, Ukraine and UK.

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