

PARTNER UPDATE

FALL 2006



Continuing Excellence —Another Record Year!

Natural Gas STAR is in its 14th successful year and our partners continue to demonstrate their strong commitment to reducing methane emissions. The 2006 reporting season was the Program's most impressive yet. Natural Gas STAR partners achieved a record 68 billion cubic feet (Bcf) of methane emission reductions—compared with 60 Bcf in 2005. Since the Program began in 1993, partners have reduced nearly 462 Bcf of methane emissions through the implementation of more than 80 technologies and practices.

the number of partners that reported in each industry sector.

Partner reports continued to include a wide variety of innovative technologies and practices, including several never before reported to EPA. Some of the new technologies and practices reported by Natural Gas STAR partners include:

- ★ Improving measurement systems to allow losses to be identified more quickly (see article on page 4)
- ★ Repairing/replacing safety pop-offs
- ★ Reinjecting main absorber sweet gas for enhanced oil recovery

As partners continue to report new technologies and practices each year, the top emission reduction opportunities for each industry sector have shifted. The top technologies and practices

13th Annual Natural Gas STAR Implementation Workshop

**October 23–25, 2006
InterContinental Houston
Houston, Texas
See page 7 for
more information**

Reporting is an integral part of the Natural Gas STAR Program. In 2006, approximately 86 percent of existing partners submitted annual reports, compared with 75 percent in 2005. Additionally, 2005 saw an increase in

In This Issue:

Program Accomplishments	1
In the News	2
Technology Spotlight.....	3
Partner Profile	4
Calendar	5

Gas Star Successes

- ★ 2006 was a record year for Natural Gas STAR with more than 68 Bcf of methane emissions reductions achieved.
- ★ The production and transmission sectors are responsible for the greatest emissions reductions, achieving 35.2 Bcf and 25.6 Bcf respectively.

Continued on page 5 ★ ★ ★

Upcoming Methane to Markets Workshops



Methane to Markets

- ★ **Natural Gas as a Climate Change Solution: Breaking Down the Barriers to Methane's Expanding Role**
September 26, 2006
Key Bridge Marriott Hotel
Washington, DC, USA

Hosted By: Methane to Markets Partnership, U.S. EPA Natural Gas STAR International Program, and the International Petroleum Industry Environmental Conservation Association (IPIECA)

This one-day workshop, part of a three-day event focusing on climate change solutions in the oil and gas industry, will look into the factors influencing the pace of methane development and delivery, including:

- Barriers to bringing methane to market
- Current strategies for overcoming these barriers, with attention to both increasing supply and decreasing fugitive and vented methane emissions
- Case studies that highlight successful implementation of these strategies.

For more information, please see ipieca.org/downloads/climate_change/washington2006/workshop.html.

- ★ **Natural Gas STAR International Program Launch and Signing Ceremony**
September 26, 2006
Key Bridge Marriott Hotel
Washington, DC, USA

The U.S. EPA will also launch the new Natural Gas STAR International Program at this event. Building on the successful domestic Natural Gas STAR Program, Natural Gas STAR International is a partnership with oil and gas companies to provide an international framework for identifying, implementing, and tracking cost-effective methane emission reduction projects in the global oil and natural gas sector. Founding Partners of Natural Gas STAR International will be recognized with a lunchtime signing ceremony. The Administrator of the U.S. Environmental Protection Agency is invited to attend this very special event.

- ★ **Increasing the Pace of Technology Innovation and Application: Enabling Climate Change Solutions**
September 27–28, 2006
Key Bridge Marriott Hotel
Washington, DC, USA

Hosted By: International Petroleum Industry Environmental Conservation Association (IPIECA)

This workshop will focus on various topics surrounding technology within the climate change context. It will be held just after the Methane to

Save the Date!

The Natural Gas STAR International Program commencement will take place on September 26, 2006, in Washington, DC, at the Key Bridge Marriott Hotel. The charter international partners will participate in a signing ceremony in conjunction with an International Petroleum Industry Environmental Conservation Association (IPIECA)/Methane to Markets Technology Transfer Workshop.



Markets: Natural Gas as a Climate Change Solution Workshop, which will be held at the same location on September 26, 2006.

For more information, please see ipieca.org/downloads/climate_change/washington2006/workshop.html.

Technology Spotlight

Producers Technology Transfer Workshop And Infrared Leak Detection and Measurement Site Visit



converting pipeline condensate traps to instrument air. Josh McDowell from Texas A&M in Corpus Christi, Texas, also shared his experience facilitating aerial leak imaging testing and other technologies and practices that help identify and eliminate fugitive gas losses. Other presentations covered a variety of topics, including:

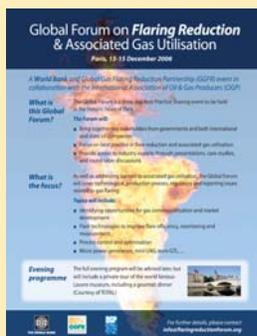
- ★ Sizing and implementing vapor recovery systems to capture flash gases from storage tanks
- ★ Directed inspection and maintenance (DI&M) and infrared (IR) leak detection



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At the June 8, 2006 Technology Transfer workshop, hosted by Occidental Oil and Gas Corporation in Midland, Texas, more than 30 representatives from 16 different oil and gas companies gathered to learn about opportunities to reduce methane emissions while obtaining economic benefits and positive recognition. Participants engaged in a peer-based exchange of technical and economic information on a number of topics of interest to natural gas and oil producers. Highlights of the day included a presentation by Nicky Langley, from Occidental Oil and Gas, who presented the partner's experience with the Natural Gas STAR Program at its Elk Hills facility in California. Ms. Langley shared details on a number of methane saving opportunities that Occidental has implemented, such as Non-Selective Catalytic Reduction (NSCR) rich burn engines, tank removal and consolidation, and

Global Forum on Flaring Reduction & Associated Gas Utilization December 13-15, 2006 Paris, France



The Global Gas Flaring Reduction Partnership (GGFR), led by the World Bank, is collaborating with the International Association of Oil & Gas

Producers (OGP) to host the Global Forum on Flaring Reduction and Associated Gas Utilization. The two and a half day event will be held in Paris, France, from December 13-15, 2006.

The forum aims to promote the sharing and exchange of knowledge and best practices across the oil and gas industry and governments in flaring countries, by

The World Bank estimates that the global level of venting and flaring is currently more than 150 billion cubic meters per year, equivalent to 25 percent of US 2004 gas consumption!

bringing together key stakeholders from around the world in the public and private hydrocarbon sectors. There will be feature presentations from industry experts, case studies, and panel and round table discussions, as well as exhibition booths from relevant organizations and vendors. **Vendor space is available.**

The forum's flyer is located online at siteresources.worldbank.org/INTGGFR/Resources/Paris_flyer_060106_web.pdf. If you have questions or would like to register, please contact info@flaringreductionforum.org.

Partner Profile

Teamwork Has Its Benefits

Duke Energy Field Services (DEFS), one of the nation's largest natural gas gatherer and processors, recently launched a companywide BTU (British Thermal Units) Efficiency Program to reduce gas loss and operate its systems more efficiently. The program started as a pilot project in 2005 in several of the company's asset areas. By October 2005, the program had become so successful that more than 50 field operators, field supervisors, asset managers, accountants, measurement technicians, and commercial directors, as well as two operations vice presidents met for a three-day meeting, celebration, and training on expanding this activity across all of DEFS' asset areas. All in all, there are more than 1,000 DEFS employees that directly support the efforts of the BTU Efficiency Program.

"The BTU efficiency teams will continue their methane reduction practices and provide the information needed for the Natural Gas STAR Program reporting. All employees are encouraged to make suggestions on how to improve BTU efficiency. We'll use the lessons learned



Jim Tom Smith, DEFS Central OK Field Operator, with FLIR GasFindIR camera (July 2006)



to share best practices across the company," said Bob Berry, BTU Efficiency Manager.

The BTU Efficiency Program is organized by teams. Each of the company's asset areas has its own team of five to 30 staff members. Each team consists of commercial, accounting, operational, measurement, and engineering experts from their respective asset areas. As part of the program, the teams aspire to increase the BTU efficiency of their particular asset areas through improved measurement and best management practices (BMPs) for greenhouse gas emissions—which includes a large focus on methane.

To assist the teams, DEFS has developed a model for each individual team to guide their efforts. The model consists of several steps, which can be used to pinpoint the source of gas loss. The model is used in training with the BTU Efficiency team members and is available on the company intranet.

The BTU Efficiency Program relates directly to DEFS' participation in EPA's Natural Gas STAR Program. Quite noticeably, the teams implement Gas STAR recommended technologies and practices, such as:



Guymon BTU Efficiency Team (July 2006)

- ★ Performing directed inspection and maintenance (DI&M) at gas plants and booster stations
- ★ Implementing pipeline replacement and repair
- ★ Conducting aerial optical imaging using laser and/or infrared technology (followed by pipeline repair)
- ★ Minimizing flaring, venting, and blowdowns using operational BMPs (improving reliability of booster stations and plant equipment, installing recycle lines to reduce blowdowns, and utilizing hot taps for pipeline repairs and tie-ins)
- ★ Improving measurement systems that allow losses to be identified more quickly
- ★ Eliminating unnecessary equipment (idle gathering lines and idle equipment)

DEFS has been delighted with the results that it has seen through the efforts of the BTU Efficiency Teams. The company calculates emission reductions from the measurement balances for each gathering system within each of its asset areas. DEFS estimates that approximately 80 percent of the reduced gas loss is due to implementation of the BMPs and PROs listed above. DEFS conservatively assumed

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Program Accomplishments

Continued from page 1 ★★

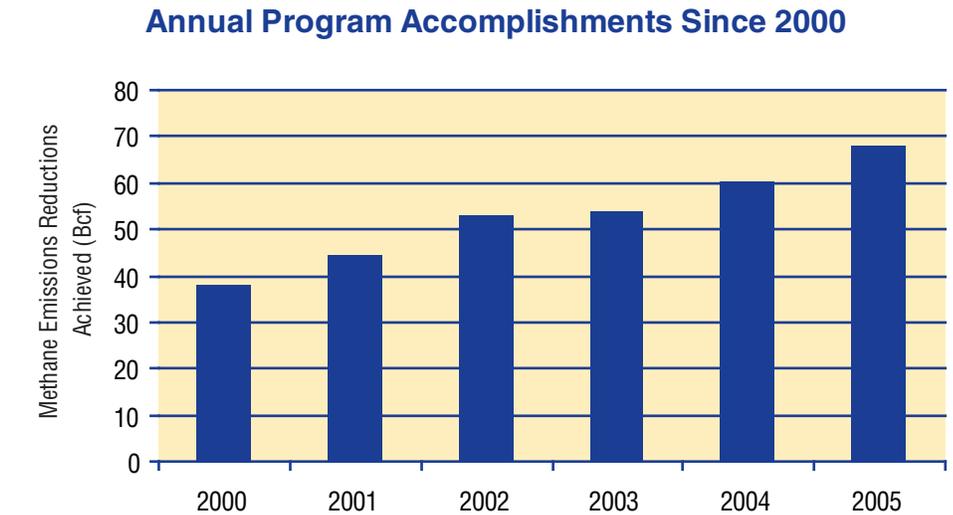
implemented in 2005 by Natural Gas STAR partners include:

Production

- ★ Perform green completions
- ★ Install plunger lifts
- ★ Install Vapor Recovery Units
- ★ Test for fugitive emissions

Processing

- ★ Replace pipe
- ★ Redesign blowdown/alter ESD practices
- ★ Eliminate unnecessary equipment and/or systems
- ★ Use hot tap



Transmission

- ★ Use fixed/portable compressors for pipeline pumpdown
- ★ Use composite wrap
- ★ Replace wet gas seals with dry seals
- ★ Use hot taps

Distribution

- ★ Conduct leak surveys
- ★ Use fixed/portable compressors for pipeline pumpdown
- ★ Reinject blowdown gas
- ★ Use hot taps

EPA congratulates all reporting partners on another record year! More information on these technologies and practices is available on the Gas STAR Web site at epa.gov/gasstar/techprac.htm.



13TH ANNUAL NATURAL GAS STAR IMPLEMENTATION WORKSHOP

- ★ October 23-25, 2006
InterContinental Houston
Houston, Texas
Workshop sponsors include: Shell, API, Duke Energy Gas Transmission, Duke Energy Field Services, Kerr McGee, Marathon, AGA, ConocoPhillips Alaska, and ITT. Further information is available on page 7 or online at epa.gov/gasstar/workshops.

METHANE TO MARKETS WORKSHOPS

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- ★ **Increasing the Pace of Technology Innovation and Application: Enabling Climate Change Solutions**
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Are you a Gas STAR Endorser and have an event you would like listed here? Please e-mail fernandez.roger@epa.gov to notify us about it.

Partner Profile

Continued from page 4 ★★

that 20 percent of the reduced gas loss was the result in improved gas measurement and not indicative of reduced emissions. DEFS also estimates that the company's emissions contain 75 mole percent of methane—the percentage based on the numbers of atoms or moles. (please see table at right).

As seen in the data table, in 2005 alone, DEFS' efforts have added up to nearly 2.6 BCF of methane emission reductions. Due to this success, the BTU Efficiency Teams will continue to improve their programs in the future, including further incorporating

Action	Methane Emission Reductions (MMCF)
Pipeline replacement and repair	1,043
Aerial optical imaging using laser and/or infrared technology	695
Minimization of flaring, venting, and blow-downs using operational best practices	378
Improved measurement systems that allow losses to be identified more quickly	275
Elimination unnecessary equipment	119
Directed inspection and maintenance (DI&M)	92
TOTAL	2,602

the Gas STAR Program into its goals. "Our renewed commitment to the EPA's Natural Gas STAR Program demonstrates that we are leaders in implementing and promoting voluntary cost-effective measures to

reduce emissions of methane," said Geoff Sands, Environment, Health and Safety Vice President for DEFS. "We are reducing our environmental footprint and being a model of corporate stewardship."

TransCanada Receives 2006 CCME Pollution Prevention Honorable Mention Award

This spring, TransCanada, one of the soon to be members of Natural Gas STAR International and parent company to Gas STAR partner Gas Transmission Northwest, received news from the Canadian Council of Ministers of the Environment (CCME) that it was chosen to receive an Honorable Mention for the 2006 CCME Pollution Prevention Awards in the greenhouse gas emission reduction category. (This includes working to reduce methane, which is the most potent greenhouse gas.) TransCanada received its award at the 2006 Pollution Prevention Awards Dinner Gala on June 14, 2006. A panel of representatives from government,



industry, and environmental non-governmental organizations selected the winners of the CCME awards.

"A recognized leader in pollution prevention, the Canadian Centre for Pollution Prevention (C2P2) encourages actions that avoid or minimize the creation of pollution and waste—pollution prevention (P2)—actions that foster a healthier environment and a sustainable society." For further information on C2P2 or TransCanada's award, go to c2p2online.com/CPFR.

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For additional information on topics in this *Update*, please contact Roger Fernandez.



Technology Spotlight

Continued from page 3 ★ ★ ★

- ★ Screening and measurement techniques that can be utilized to identify large leaks that should be repaired
- ★ Methane savings from compressors and pneumatic devices

Copies of these presentations can be found on the Gas STAR Web site at epa.gov/gasstar/workshops/hobbs72706.htm.



The workshop was followed by a field visit to the Occidental Permian MASH facility in West Odessa, Texas, early the next morning. The MASH facility's function is to separate oil, gas, and water from a number of producing wells in the area and contains a tank battery with vapor recovery, heater-treater units, and meter runs for the associated gas. Using "leaks" created for the demonstration, participants had the opportunity to see and actively experience methane detection and measurement devices under the direction of Milton Heath III from Heath Consultants. Technologies demonstrated included the Remote Methane Leak Detector (RMLD), high volume sampler, ultrasonic leak detector, and non-corrosive soap solution. Butch Gidney from El Paso Natural Gas also contributed by setting up his infrared leak imaging camera so that participants could view the simulated leaks using this technology.

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October 23-25, 2006

This workshop will provide Gas STAR partners and other interested parties with an opportunity to obtain information about the most current and cost-effective methane emissions reduction technologies and practices, and to exchange ideas with more than 150 other Natural Gas STAR partners. The theme of this year's meeting is "More Methane to Markets in an Era of High Gas Prices." The workshop will kick-off with a welcome reception Monday evening. Tuesday's agenda will include a discussion of the state of the oil and gas industry by API, sessions on advanced technologies for finding gas leaks, recommendations for measuring difficult gas leaks, as well as our partner awards ceremony and sector break-outs. Wednesday will be highlighted by the keynote presentation given by the Texas Railroad Commissioner, Mr. Victor Carrillo. Visit epa.gov/gasstar/workshops/imp_workshops.htm to find the full agenda, workshop details, and online registration.

Workshop sponsors include:



Shell Exploration and Production Company



The American Petroleum Institute



Duke Energy Gas Transmission



Duke Energy Field Services



Kerr McGee Oil and Gas Corporation



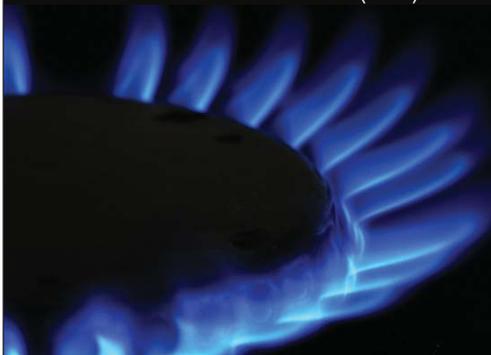
Marathon Oil Corporation



The American Gas Association (AGA)



ITT Industries



Conoco Phillips Alaska

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