

PARTNER UPDATE

WINTER 2005



12th Annual Natural Gas STAR Workshop a Success!

From October 24-26, 2005, the U.S. Environmental Protection Agency (EPA) held its 12th Annual Natural Gas STAR Implementation Workshop in Houston, Texas. With a record number of participants, this year's workshop was quite a success and highlighted the increasingly important role methane emission reductions are playing in the domestic oil and gas sector. Not only were Natural Gas STAR partners and other interested parties able to come together to exchange ideas and facilitate the technology transfer process, but EPA also recognized those partners who have successfully implemented Natural Gas STAR during the past year.

Roger Fernandez, EPA Natural Gas STAR Team Leader, opened the workshop by welcoming all participants

and briefly discussing 2005 accomplishments and the future of the Program. He presented several ideas for expanding the Program in the

2005 Gas STAR Award Winners

Production Partner of the Year—
Devon Energy Corporation

Processing Partner of the Year—
Enbridge Energy Partners, L.P.

Transmission Partner of the Year—
Northern Natural Gas

Distribution Partner of the Year—
DTE Energy-MichCon

International Partner of the Year—
Occidental Oil and Gas Corporation

Rookie of the Year—
Newfield Exploration Company

Implementation Manager of the Year—
Steven O'Connell (Devon Energy)

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Partner Profile

EPA Recognizes Natural Gas STAR Award Winners

During the Natural Gas STAR annual awards luncheon, Roger Fernandez and Carey Bylin of EPA recognized several partners for their outstanding commitment

and contributions to the Program. Following is a list of award winners and a brief description of their program contributions.

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Technology Spotlight

Natural Gas Excess Flow Valves

Excess flow valves (EFVs) are natural gas flow limiting devices that can be thought of as circuit breakers installed on natural gas service lines. They are usually located before the gas meter at a residence or business. Similar to a circuit breaker, an EFV shuts off natural gas flow when the flow rate in the service line exceeds a predetermined level. A properly sized EFV will shut off natural gas flow when an earthquake, trenching, or other event causes damage to the service line. However, an EFV will not shut off flows resulting from a slow leak caused by corrosion or loose fittings.

An EFV can also be installed downstream of the gas meter. Here, the EFV would prevent natural gas leaks if an earthquake or other event moves natural gas powered devices (e.g., water heaters, stoves, furnaces) and ruptures service lines inside a residence or business, resulting in natural gas leaks. An illustration on EFV installation is available online at umac.com/street.htm.

An EFV is primarily a safety device used to prevent the uncontrolled release of natural gas when a service line is damaged. When a residential service line is installed or replaced, the natural gas distribution company is required by federal regulation (49 CFR 192.383) to either install an EFV, or notify the residential service line customer that an EFV is available for installation at their cost.

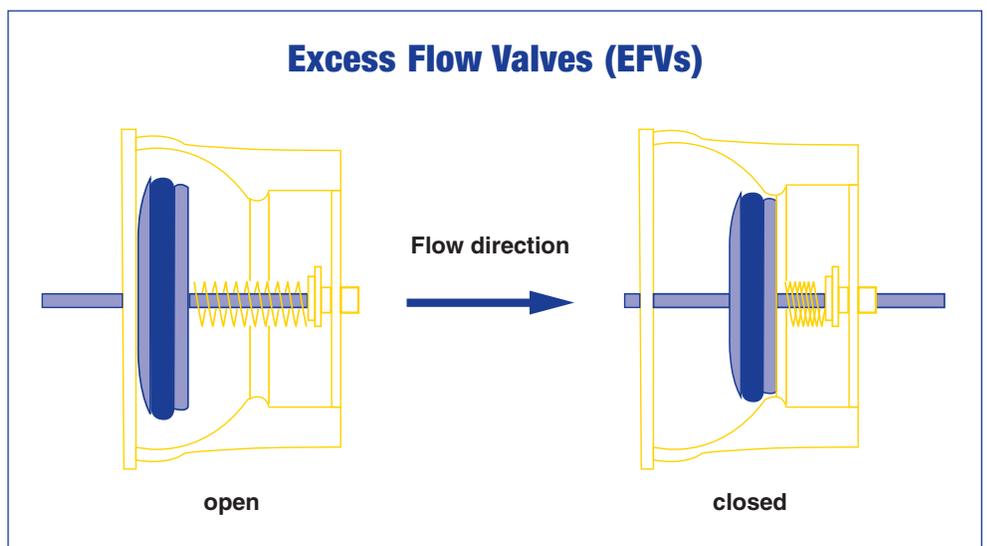
A secondary benefit of an EFV is the reduction of methane emissions. It is estimated that 16,000 standard cubic feet (scf) of methane per hour are released from a ruptured half-inch service line operated at 50 pounds per square inch (psig).

The cost to install an EFV ranges from \$100 to more than \$1,000. An EFV is usually installed in the natural gas service line at the “tee” fitting from the main natural gas line. The most cost-effective opportunity to install an EFV is when a new natural gas service line is installed or when an existing line is replaced. The cost for new installation can be as low as \$100 to \$200.

However, the cost to retrofit an EFV on an existing buried natural gas service line includes locating and excavating the gas line and hot tapping, with the total cost exceeding \$1,000.

Two types of EFVs are available: “By-Pass” (Bleed By) or “Non-By-Pass” (Positive Shut Off). A By-Pass EFV allows about 5 scf per hour of natural gas to flow through the valve after it closes. It allows for the downstream portion of the natural gas service line to repressurize after the damage is repaired. Once the pressure equalizes in the natural gas service line, a By-Pass EFV opens and natural gas flow resumes. The Non-By-Pass EFV shuts off natural gas flow when the natural gas service line is damaged. After the service line is repaired, a service technician must manually repressurize the downstream service line to reset the EFV.

Further information on EFVs is available in a Gas STAR PRO Fact Sheet, “Install Excess Flow Valves,” which is online at epa.gov/gasstar/pdf/pro_pdfs_eng/installexcessflowvalves.pdf.



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future, including the following:

- ★ Introducing more partner challenges
- ★ Expanding outreach to industry associations
- ★ Increasing partner participation in workshops
- ★ Expanding Gas STAR internationally

Mr. Fernandez made two important announcements. He introduced a new addition to the Gas STAR team—Carey Bylin. Then he recognized new Natural Gas STAR partners and endorsers who joined the Program in 2005. The following new partners were recognized:

- ★ Alliance Pipeline
- ★ EnCana Oil and Gas (USA) Inc.
- ★ Enterprise Products Operating, L.P.
- ★ Noble Energy
- ★ Northern Plains Natural Gas
- ★ PNM
- ★ Southwestern Energy Company
- ★ Venoco

In addition to new partners, the following new endorsers were recognized:

- ★ AIChE Institute for Sustainability
- ★ Colorado Oil and Gas Association
- ★ Interstate Oil and Gas Compact Commission
- ★ Petroleum Association of Wyoming

Following Mr. Fernandez's recognition of new partners and endorsers, Ms. Bylin discussed the importance of leadership among Natural Gas STAR partners. She highlighted several examples in which partners have utilized unique approaches to further the success of the Gas STAR Program within their

companies. The examples encompassed ways to streamline reporting and data collection, motivate employees to seek out and implement emission reduction opportunities, gain upper management buy-in and integrate emission reduction practices into standard operating procedures. EPA is finalizing a packet of sample leadership materials for the first quarter of 2006. With this information, partners can learn from leadership examples and apply this knowledge to further advance their participation in Natural Gas STAR.

Workshop sessions included a wide variety of partner presentations on implementing Natural Gas STAR within their companies. Partners discussed how they successfully launched their programs and incorporated critical elements of success such as gaining management support and accessing technology.

The workshop also included a discussion of the Program and its applicability in the international arena. Because

of the growing importance of global greenhouse gas emissions reductions and the development of the Methane to Markets Partnership, Gas STAR can play a strong role internationally in advancing methane recovery and use in the oil and gas sector. EPA will be expanding the Natural Gas STAR Program to work with partners to identify international methane emission reduction opportunities, in addition to current domestic efforts. Building on the international theme, Krish Ravishankar from Occidental Oil and Gas Corporation discussed his company's involvement in both Natural Gas STAR and Methane to Markets and other efforts to reduce the company's methane emissions around the world.

Additional themes throughout the workshop included:

- ★ Gaining management support for Program activities and methane emissions reductions projects.

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GAS STAR WEB CAST/ TELECONFERENCE

- ★ **Topic: Compressors**
Date: January 18, 2006
Time: Noon, Eastern Standard Time

GAS STAR PRODUCTION AND PROCESSING TECHNOLOGY TRANSFER WORKSHOPS

- ★ **Farmington, New Mexico**
Date: TBD, Spring 2006
- ★ **Rock Springs, Wyoming**
Date: TBD, Spring 2006
- ★ **Gillette, Wyoming**
Date: TBD, Spring 2006

For further information, contact Roger Fernandez at fernandez.roger@epa.gov.

Award Winners

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Production Partner of the Year



Devon Energy Corporation—Devon joined the Natural Gas STAR Program in 2003, and received the Rookie of the Year Award in 2004 as a result of their active Gas STAR Program. Devon submitted its first annual report this year that included the highest emissions reductions of all the production partners for 2004—6.3 billion cubic feet (Bcf). These emissions reductions resulted from the implementation of the core BMPs as well as six Partner Reported Opportunities (PROs), bringing the company's cumulative methane emissions reductions to 10.6 Bcf. In addition, Devon has supported Gas STAR in many ways, including contributions to the Partner Update and sponsorship of two technology transfer workshops. Devon has done an excellent job of building both field and management support for the Gas STAR Program. Based on its firsthand knowledge, Devon developed a presentation on how to replicate its success and delivered it at three out of the four most recent technical workshops. Devon also generously made that presentation available to all Natural Gas STAR partners.

Processing Partner of the Year



Enbridge Energy Partners L.P.—Enbridge joined the Natural Gas STAR Program in December 2003. In its first annual report to Gas STAR, the company reported the highest emissions reductions of all processing partners for 2004—nearly 850,000 thousand cubic feet (Mcf), which includes implementing five PROs. Enbridge has also contributed to the Natural Gas STAR Partner Update. Additionally, in 2004, Enbridge participated in the Dallas processing workshop that highlighted the company's optical imaging work with Leak Survey, Inc.

Transmission Partner of the Year



Northern Natural Gas—Northern Natural Gas joined the Natural Gas STAR Program in February 2003. In 2005, Northern Natural Gas reported methane emissions reductions of 1.6 Bcf for 2004, which brought the company's cumulative emissions reductions to 10.6 Bcf. Northern Natural Gas has consistently given strong support to

Gas STAR workshops, including sponsorship of the June 2005 technology transfer workshop in Midland, Texas. This workshop—which included a half-day classroom session followed by a hands-on demonstration of leak detection equipment—was quite a success.

Distribution Partner of the Year



DTE Energy-MichCon—DTE Energy-MichCon has been a partner in the Natural Gas STAR Program since 1996. In 2004, the company reported the second highest emissions reductions in the distribution sector, with a methane savings of 0.4 Bcf. To date, DTE's cumulative emissions reductions total 1.3 Bcf.

International Partner of the Year



Occidental Oil and Gas Corporation—Occidental joined the Natural Gas STAR Program in 2004. Occidental has concentrated its Gas STAR efforts to provide assistance in moving the Program into the international arena. Occidental was the first company to sponsor an international Natural Gas STAR workshop under the Methane to Markets Initiative.

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Award Winners

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Rookie of the Year



Newfield Exploration

Company—Newfield joined the Natural Gas STAR Program in 2004. Since joining, Newfield has submitted two annual reports. The company's implementation manager, Mike Pontiff, has consistently been very active in Gas STAR, including making presentations at two workshops. Plus, Mr. Pontiff contributed to a study and report on Process Optimization Review (PRO-OP) and presented those results at several Gas STAR workshops.

Implementation Manager of the Year



Steven O'Connell, Devon Energy Corporation—After joining Natural Gas STAR in 2003, Mr. O'Connell was instrumental in getting Devon

Energy quickly up to speed. His high level of commitment helped the company win Rookie of the Year in 2004. In addition to completing a comprehensive annual report, Mr. O'Connell contributed to multiple Partner Update articles and worked to co-sponsor two technology transfer workshops in 2005. As a result of his proactive promotion of Natural Gas STAR, Mr. O'Connell is also responsible for helping recruit a new Natural Gas STAR endorser—the Petroleum Association of Wyoming. He never fails to answer a call for assistance in furthering the goals of the Gas STAR Program.

Continuing Excellence

EPA also recognized the following six Natural Gas STAR partners as Continuing Excellence award winners,

recognizing the companies' long-standing commitment to the Program:

- ★ Columbia Gas & Columbia Gulf Transmission
- ★ Duke Energy Gas Transmission
- ★ El Paso Pipeline Group
- ★ Kerr-McGee Oil & Gas Corporation
- ★ Southwest Gas Corporation
- ★ Western Gas Resources

10-Year Partners

Finally, EPA recognized the following six partners as 10-year Natural Gas STAR partners, recognizing that they have consistently submitted annual reports for the past 10 years:

- ★ BP
- ★ Central Hudson Gas & Electric Corporation
- ★ Consolidated Edison Company of New York
- ★ Great Lakes Gas Transmission Company
- ★ PSNC Energy
- ★ Orange and Rockland Utilities, Inc.

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- ★ Considering new technologies and projects to achieve methane emissions reductions.



- ★ Facing recent increases in gas prices and the important link between pricing and Natural Gas STAR.

The 2005 awards luncheon—which included a keynote speech from John Morgan, President, Western Hemisphere, Occidental Oil and Gas Corporation—recognized nearly 20 partners for their contributions to the Program in the past year (See page 1—Partner Profile). Morgan's presentation focused on Oxy's international operations and highlighted the importance of being

a good environmental steward, seeking creative solutions to reduce methane emissions, and being involved in international efforts such as Methane to Markets.

The first afternoon of the workshop included breakout sessions to discuss sector-specific issues. The following topics were discussed:

- ★ Emerging technologies such as directed inspection and maintenance at selected processing facilities

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ties; optical imaging to detect gas leaks; and reducing methane emissions with microturbines.

- ★ Low-cost solutions for reducing methane emissions from operations in all sectors.
- ★ Introduction of data collection database developed by Devon Energy, COMM Engineering, and Louisiana State University and its applicability to other Natural Gas STAR partners. Devon has kindly donated this data collection software to the Natural Gas STAR Program and it will be available on the Program Web site in quarter one of 2006.

The final session included a new addition to the Natural Gas STAR workshop—“Crossfire: Growing the Natural

Gas STAR Program in Your Company.” A panel of Gas STAR Implementation Managers from award-winning partner companies discussed their involvement in the Program and how they successfully gained management support and implemented methane emissions reductions technologies. The session was an excellent opportunity for all partners and meeting participants to exchange information and ideas on how to successfully implement the Program and how to overcome common obstacles.

Full workshop proceedings and materials are available on the Gas STAR Web site (epa.gov/gasstar/workshops/imp_workshops.htm). EPA would again like to thank everyone for their partici-

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Gas STAR Partners in the News for Green Completions

The Casper Star Tribune reported, “Capturing Greenhouse Gas Pays Big” on August 31, 2005. In this article, Dustin Bleizeffer, energy reporter for the Casper, Wyoming newspaper, discussed green completions and announced that Gas STAR partners Devon and BP are developing green completion systems to reduce their methane emissions when completing new wells.

The article can be found online at casperstartribune.net/articles/2005/08/31/news/casper/8693d34c588c76858725706d00838235.txt and the reporter can be reached via e-mail at dbleizeffer@trib.com.



Natural Gas STAR welcomes one new partner and three new endorsers to the Program.

PARTNER:

Enterprise Products Partners L.P.

Enterprise Products Partners L.P. is one of the largest publicly traded energy partnerships and a leading North American provider of midstream energy services to producers and consumers of natural gas, natural gas liquids, and crude oil. The company transports these products through 32,500 miles of onshore and offshore pipelines.

Enterprise operates 18,368 miles of natural gas pipelines and has 23 natural gas processing plants with a net processing capacity of 6.3 billion cubic feet per day. Visit the company's Web site at epplp.com.

ENDORSERS:

American Institute of Chemical Engineers (AIChE) Institute for Sustainability



AIChE, founded in 1908, is a professional association of more than 40,000 members that provides leadership in advancing the chemical engineering profession. AIChE formed the Institute for Sustainability (IfS) to promote the societal, economic, and environmental benefits of sustainable and green engineering. IfS serves the needs of and influences the efforts of engineers and scientists in industry, academia, and government. Visit the institute's Web site at aiche.org/ifs.

Colorado Oil & Gas Association (COGA)

A nonprofit organization founded in 1984, COGA's purpose is to foster and promote beneficial,



efficient, responsible, and environmentally sound development, production, and use of Colorado oil and natural gas. Visit the organization's Web site at coga.org.

Petroleum Association of Wyoming (PAW)

PAW is Wyoming's largest and oldest petroleum industry trade association, dedicated to the betterment of the state's oil and gas industry and public welfare.



Through the association's committee network, PAW monitors and responds to critical issues in oil and gas areas, such as public lands, exploration, production, transportation, coal bed methane, the environment, taxation, laws, and legislation. PAW is recognized by politicians, regulators, and the media as a leading authority on petroleum industry issues in the state. Visit the association's Web site at pawyo.org.



In the News



Methane to Markets

Methane to Markets Partnership Meeting

Date: November 2-4, 2005

Location: Palacio San Martín, Buenos Aires, Argentina

Hosted By: Government of Argentina

Summary: This 2nd annual meeting of the Methane to Markets Partnership was held in conjunction with the technical subcommittee meetings for the Coal Mine, Landfill, and Oil and Gas Subcommittees, and the Agricultural Task Force. In addition to attending the individual subcommittee meetings, participants heard the subcommittee progress reports that were provided to the group at large. The participating countries also made their annual country statements and shared their successes, and a half-day finance workshop was held to identify funding sources and mechanisms for a range of methane recovery projects across the globe.

Key outcomes of the meeting included:

- ★ Formation of a new Agriculture Subcommittee to address methane emissions, particularly through manure-management practices.
- ★ Expansion of the Partnership to include Ecuador as the 17th member.
- ★ Announcement of a Methane to Markets Project Expo, highlighting project opportunities, successes, and methane recovery and use technologies, to be held in 2007.
- ★ Adoption of sector action plans that will serve as the basis for accelerated action



by partner countries and Project Network members.

- ★ Commitment by all participants to substantial expansion of the Project Network, with a focus on enrollment of more private companies, development banks, and other organizations from each of the partner countries.

Further information is available online at methanetomarkets.org/events/2005/all/partner-nov.htm.

Colombia Oil and Gas Methane Emissions Reduction Workshop

Date: October 6-7, 2005

Location: Bogotá, Colombia

Hosted by: Occidental Petroleum, Colombian Ministries of Energy and Environment, and the Methane to Markets Partnership

Summary: This workshop consisted of a series of presentations by oil and natural gas experts to help companies identify technologies and techniques to cost-effectively reduce methane emissions from their operations. Presenters included: Ministry of Mines and Energy of Columbia, Ministry of the Environment—Housing and Territorial Development of Columbia, U.S. EPA, European Commission, and the World Bank. This workshop was conducted with simultaneous Spanish and English translation. Further information is available online at methanetomarkets.org/events/2005/oil-gas/oil-gas-oct.htm.

Russia Oil and Gas Methane Emissions Reduction Workshop

Date: September 14-16, 2005

Location: Tomsk, Russia

Hosted by: The Russian Academy of Sciences and the Methane to Markets Partnership

Summary: This workshop focused on identifying and quantifying oil and gas methane emissions as well as identifying cost-effective technologies and techniques used to reduce methane emissions from the Russian and Ukrainian oil and natural gas industry. Presentations included studies conducted in Russia and Ukraine in the natural gas production, processing, and transmission sectors, and most importantly, examined proven cost-effective technologies and techniques to reduce these emissions. Further information is available online at methanetomarkets.org/events/2005/oil-gas/oil-gas-sept.htm.

Oil and Gas Subcommittee Meeting

Date: September 14, 2005

Location: Tomsk, Russia

Hosted by: The Russian Academy of Sciences and the Methane to Markets Initiative

Summary: Representatives from eight countries, seven of which are members of the Methane to Markets Partnership, and several members of the Project Network attended this first Oil and Gas Subcommittee meeting, held in conjunction with the Russia Oil and Gas Methane Emissions Reduction Workshop. During this meeting, delegates agreed on a draft action plan for presentation to the Methane to Markets Partnership

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In The News

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Steering Committee in Buenos Aires in November 2005. They further shared country profiles and agreed on the date and preliminary agenda for the upcoming Oil and Gas Subcommittee meeting to be held in Mexico. Further information is available online at methanetomarkets.org/events/2005/oil-gas/oil-gas-sub.htm.

Oxy—Sharing Good News



Occidental Petroleum Corporation (Oxy) had a successful year—winning the International Partner of the Year Award from EPA's Gas STAR Program and the

Conservation Leadership Award from the Nature Conservancy of Texas. The company accepted the awards and took the opportunity to share the news and the company's environmental accomplishments with the general public through its Web site, oxy.com. As with many Gas STAR partners, Oxy has a section of its Web site dedicated to the environment; it's within this section that Oxy has its two recent award announcements (oxy.com/Social%20Responsibility/environment/external_recog.htm).

These are samples of basic communication pieces that any Gas STAR partner could produce. For more examples and templates, please see the Gas STAR Online Communications Toolkit at epa.gov/gasstar/resources/toolkit.htm. As always, Gas STAR partners are encouraged to share their accomplishments with EPA throughout the year.

Interstate Oil and Gas Compact Commission Awards

The Interstate Oil and Gas Compact Commission (IOGCC) recently presented its 2005 Chairman's Stewardship Awards. These awards are presented in the following categories: environmental partnership, energy education, major company, and independent company. Two of the winners are Gas STAR partners:

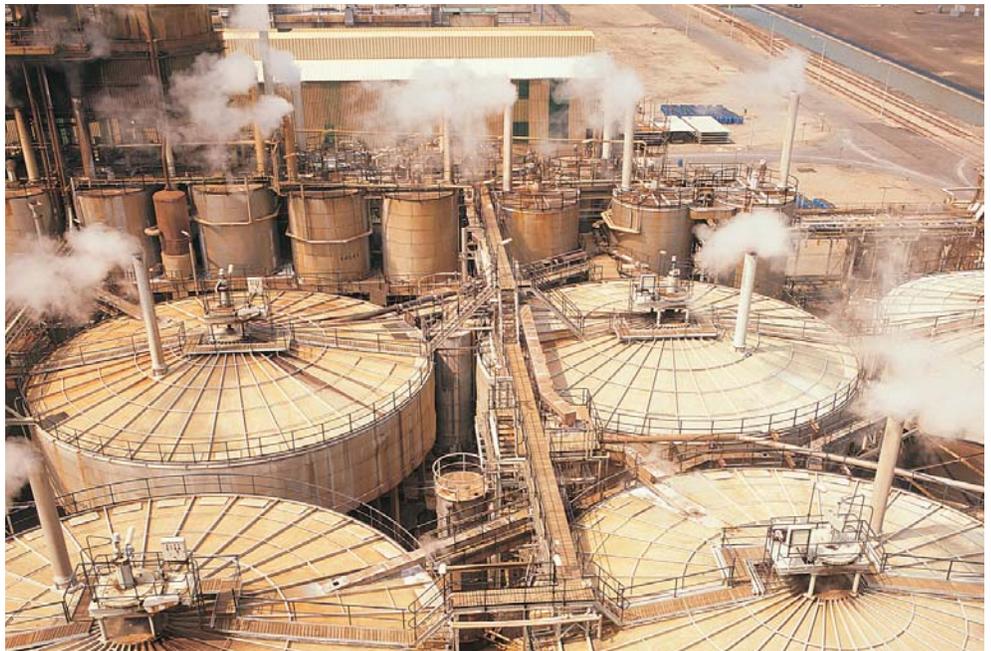
★ Energy Education: EnCana Oil and Gas Inc.

EnCana was recognized for hosting Energy Expos, which have grown significantly in size since the initial event in 2003. In 2005, approximately 1,200 attendees (compared to 500 in 2003) learned about day-to-day oil and natural gas operations.

★ Major Company: Devon Energy Corporation

Devon has a vested interest in the future of the environment. It became an active member of EPA's Natural Gas STAR Program in 2003. Since then, it has reduced its methane emissions by 12.66 billion cubic feet—enough energy to heat more than 180,000 homes for one year. Devon also initiated a plan to restore the Esperanza Ranch in 2003. By late 2004, with the assistance of a land developer, Devon had established a 300-acre riparian easement to be preserved in perpetuity.

Three partners and two endorsers received Honorable Mentions from IOGCC. Further information is available online at iogcc.state.ok.us/commpps/stewasub.htm.



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pation in the workshop, including all of the workshop sponsors: American Gas Association, American Petroleum Institute, BP, FLIR Systems, Independent Petroleum Association of Mountain States (IPAMS), IPS

Advantage, ITT Industries, Kerr-McGee, Marathon Oil Company, Pioneer Natural Resources, Solar Injection Systems, The Houston Exploration Company, and Western Gas Resources, Inc.





Excess Flow Valves

Q: What is the cost to install an EFV?

A: The cost to install an EFV on a new service line is about \$100 - \$200. The cost to retrofit an EFV on a buried service line is at least \$1,000. For about \$200 - \$300, an EFV can be installed just downstream of the natural gas meter, where it will protect only the residence or business.

Q: What are the benefits to the consumer of installing an EFV?

A: The primary benefit is safety. The EFV shuts off the flow of natural gas if the natural gas service line is damaged by trenching, an accident, or an earthquake. An EFV restricts flow of natural gas, which could be a source of fuel in a fire. A secondary benefit is the reduction in methane emissions if the natural gas service line is damaged.

Q: What problems are associated with an EFV?

A: An EFV can become clogged in the unlikely event that the natural gas contains debris.

Q: Are EFVs required by regulation?

A: The general answer is no. The federal requirement for EFVs is from 49 CFR 192.383. This regulation requires local natural gas distribution companies to either install an EFV on a new or replaced, single family residential natural gas service line, or to notify the customer in writing that an EFV is available for installation at their cost. There is no federal requirement for EFVs on multi-family or commercial natural gas service lines. In the State of California, EFVs and earthquake shut off valves are often required by local building codes. EFVs and earthquake shut off valves must be certified for use in California under the state regulation, Title 21-Division 1, Chapter 1, subchapter 6.



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