United States Environmental Protection Agency
Air and Radiation 6202J
EPA-430-N-02-005 Fall 2002

NATURAL GAS STAR

October 2002

PARTNER UPDATE

Natural Gas Industry Saves $126 Million While Reducing Greenhouse Gas Emissions

WASHINGTON, DC—The Natural Gas STAR Program's recently announced annual results for 2001 show that industry partners reduced methane emissions from unit operations and equipment leaks by 42 billion cubic feet (Bcf), surpassing the 2001 program goal of 40 Bcf. At a gas value of $3.00 per thousand cubic feet (mcf), these gas savings are worth approximately $126 million.

Since the program's inception in 1993, Gas STAR partners have reported total methane emission reductions of 218 Bcf, worth over $650 million. These reductions are the carbon equivalent of eliminating the emissions from more than 19 million cars for one year.

"Gas STAR continues to grow and to exceed the ambitious methane reduction goals we've set for ourselves," states Kevin Tingley, a Gas STAR Program Manager. "Our success in 2001 is a testament to industry innovation and the voluntary program approach."

Methane is second only to carbon dioxide (CO_2) as a contributor to global warming. On a unit-by-unit basis, however, methane is 21 times more potent than CO_2 in terms of its global warming potential (its ability to trap heat in the atmosphere). Because of this potency, relatively small reductions in methane emissions can have significant climate benefits.

In the United States, natural gas operations are one of the leading sources of human-related (anthropogenic) methane emissions. EPA estimates that reductions of about 10 percent in worldwide emissions from anthropogenic sources would halt the annual rise in methane concentrations.

Greg Odegard, Vice President of Environmental Health and Safety at El Paso Energy Corporation, says, "Participation in Gas STAR helps El Paso Energy achieve our corporate goal of combining outstanding business performance with outstanding environmental performance." Odegard adds that his company's participation in Gas STAR "makes perfect environmental and business sense.

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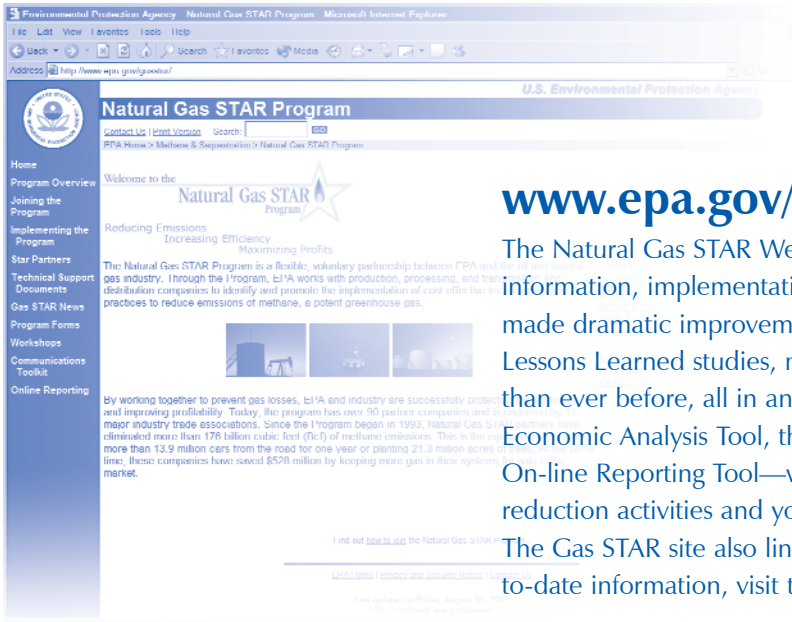
And the program offers unique opportunities for technology transfer within the industry."

According to EPA's latest published inventory of greenhouse gas emissions, U.S. natural gas systems emitted a total of 288 Bcf of methane in 2000. That same year, Natural Gas STAR partners reported methane emission reductions of 34 Bcf, meaning that the industry's methane emissions would have been almost 12 percent higher without the reductions achieved by Gas STAR partners.

Promoting near-term opportunities for reducing methane emissions is an important part of the President's proposed new global climate change initiative (see article on p. 6). Methane emission reductions can often be achieved profitably with existing technology. Companies participating in EPA's Natural Gas STAR Program, for example, generally increase their profit margins by reducing gas losses because the gas saved can usually be sold.

Gas STAR is one of several voluntary EPA programs that promote profitable opportunities for reducing emissions of methane. Other programs target emissions from landfills, coal mines, and agricultural industries.



www.epa.gov/gasstar

The Natural Gas STAR Web site is your on-line source for STAR program information, implementation tools, and emission reduction technologies. EPA has made dramatic improvements to the site in the past 6 months! You'll find more Lessons Learned studies, more PRO Fact Sheets, and more Partner Case Studies than ever before, all in an easier-to-use format. Three new on-line tools—the Economic Analysis Tool, the Data Collection and Management Tool, and the On-line Reporting Tool—will help facilitate your decisions to implement emission reduction activities and your efforts to track and record emission reduction data. The Gas STAR site also links to Web sites of STAR partners and endorsers. For up-to-date information, visit the STAR Web site at www.epa.gov/gasstar.

TECHNOLOGY TRANSFER WORKSHOPS

Upcoming Producer Technology Transfer Workshops

In cooperation with the Texas Independent Producers and Royalty Owners Association (TIPRO), EPA is co-sponsoring two technology transfer workshops for the production sector later this year and next year. Workshop participants will receive up-to-date information on methane reduction technologies and practices, as well as information about the Gas STAR program.

The first workshop will be in Amarillo, Texas, on Wednesday, November 6, and the second will be in Corpus Christi, Texas, sometime next spring.

For more information, contact Kevin Tingley at EPA at 202/564-0374 or tingley.kevin@epa.gov. To confirm your attendance, contact Steve Beach of TIPRO at 281/873-5070 or sbeach@tipro.org.

First Processors Technology Transfer Workshop A Success

The Gas Processors Association (GPA) and EPA's Natural Gas STAR Program co-sponsored the first processors technology transfer workshop on June 25, 2002, in Houston, Texas. The day-long workshop drew one of the largest turn-outs of any of the 13 previous workshops Gas STAR has co-sponsored. Partners, non-partners, service providers, and trade association representatives participated actively in the discussions. Participants also included visitors from the Ukraine and Venezuela.

Kevin Tingley, a Gas STAR Program Manager, kicked off the workshop by welcoming everyone and providing an overview of the Natural Gas STAR Program. He discussed how the Gas STAR processing sector program was developed and introduced the Best Management Practices (BMPs) and Partner Reported Opportunities (PROs) that have been identified as promising for this sector. He also highlighted the three new on-line tools that are making partner participation in Gas STAR easier (see article on p. 5).

The workshop featured a series of detailed technical presentations on the processing sector's BMPs (Convert Gas Pneumatic Controllers to Instrument Air, Using Desiccant Dehydration Instead of Glycol Dehydration, and Directed Inspection and Maintenance at Gas Plants and Booster Stations) and PROs.

The presentations focused on the economic and technical issues of implementing these emission reduction technologies and practices. In addition, spreadsheet-based analytical tools were introduced to help workshop participants assess the economic benefits of these projects.

A highlight of the workshop was a presentation by Reid Smith of BP on greenhouse gas reductions and business opportunities. BP has made a commitment to achieve a 10-percent reduction in greenhouse gas emissions using 1990 as the baseline. Mr. Smith described the process of identifying opportunities and implementing reductions as straightforward and simple, pointing out that good emission reduction opportunities exist in the natural gas industry. One of his key points was that the kind of cost-effective greenhouse gas emission projects endorsed by the Natural Gas STAR Program ***can*** compete economically with other projects a gas company might plan, such as exploration.

Participants had ample time between sessions to network and share experiences. Because of the positive feedback and requests for future workshops, EPA plans to co-host another gas processors technology transfer workshop in the summer of 2003. If you would like to suggest a location for a technology transfer workshop or would like to get a copy of the presentation materials, contact Kevin Tingley at tingley.kevin@epa.gov.

2002 Natural Gas STAR Implementation Workshop

Join us at the 9th Annual Natural Gas STAR Implementation Workshop scheduled for October 28 – 30, 2002 at the Inter-Continental Hotel in Houston, Texas. EPA will update attendees on the program's accomplishments to date and present awards to outstanding partners. On the agenda as keynote addresses are "Applying Gas STAR Practices Internationally" and "Emissions Markets." Partner presenters will discuss their companies' successes with implementing various emission reduction technologies and practices. Service Representatives will demonstrate the three new on-line tools designed to make planning, data tracking, and reporting easier. Planned roundtable discussion topics include "Streamlining Gas STAR Implementation in Your Company" and "Default Value Analysis." We look forward to seeing all Gas STAR partners at the October workshop!

A registration form is provided on page 10.

NATURAL GAS STAR NEWS

Gas STAR Welcomes New Partners

Williams Production RMT Company

One of the largest natural gas producers in the United States, Williams Production RMT produces 580 million cubic feet of natural gas per day and has reserves totalling 3.2 trillion cubic feet. Based in Tulsa, Oklahoma, Williams' production has been growing at a compound rate of 44 percent per year since 1996.

Houston Pipeline Company and Louisiana Intrastate Gas

American Electric Power (AEP) has assembled a strong natural gas asset base in Texas, Louisiana, and the Gulf Coast through the addition of Houston Pipe Line Company (HPL) in 2001 and Louisiana Intrastate Gas (LIG) in 1998. HPL operates 4,200 miles of natural gas pipeline with a capacity of approximately 2.4 billion cubic feet per day (Bcf/d). Its storage facilities interconnect with 9 interstate and 19 intrastate pipelines in Texas. LIG operates 2,000 miles of pipeline with a capacity of approximately 0.80 Bcf/d. LIG's liquids processing facility at Plaquemine, Louisiana, is well situated to serve the Mississippi River corridor. LIG pipeline and storage facilities have interconnections with 15 interstate and 25 intrastate pipelines in Louisiana. The storage capacity of AEP's facilities in Texas and Louisiana now totals 128 Bcf.

On-line Tools Update

All three of Natural Gas STAR's new on-line tools are now ready and available on the Gas STAR Web site at www.epa.gov/gasstar.

- The Economic Analysis Tool allows users to enter company-specific and project-specific data and receive estimates of the projected benefit of implementing some of the most popular BMPs and PROs.
- The Data Collection and Management Tool allows implementation managers to delegate collection of emission reduction activities to remote users (such as plant managers); to run a variety of facility, activity, and date-delimited reports; and to export their companies' historic Gas STAR data to other software packages.
- The On-line Reporting Tool has already become a popular alternative to filling in forms by hand—about half of the reporting partners used it in 2002, its first year of availability.

Through the Service Representative Program, Gas STAR is performing onsite demonstrations of these new tools. Demonstrations have already been conducted for three partners (Duke, Williams, and Conoco). Traci Laudry-Huey, Senior Environmental Engineer at Conoco Inc., says, "Conoco greatly benefited by the onsite implementation assistance EPA provided. This meeting gave us the opportunity to review our specific goals with EPA and learn how their electronic tools could be utilized in meeting those goals."

For information about onsite demonstrations of the new on-line tools, contact Kevin Tingley at 202/564-0374, or tingley.kevin@epa.gov, or your Service Representative.

Natural Gas STAR in the News

From *AEP Press Release*

Houston Pipe Line and Louisiana Intrastate Gas Become Partners in EPA's Natural Gas STAR Program

HOUSTON, Texas, and PINEVILLE, La., Sept. 3, 2002 - American Electric Power (NYSE: AEP) subsidiaries Houston Pipe Line Co. and Louisiana Intrastate Gas Co. have become partners in the U.S. Environmental Protection Agency's Natural Gas STAR Program.

The voluntary program between EPA and the natural gas industry works to reduce methane emissions by encouraging the use of cost-effective technologies and practices. Methane, a primary component of natural gas, is considered to be a greenhouse gas. In partnering with the agency, HPL and LIG are committed to minimizing methane emissions and protecting the environment. Natural Gas STAR partners agree to evaluate the program's recommended Best Management Practices for reducing methane emissions and implement them when cost effective for the company. The program also encourages partners to identify, implement and report on other technologies and practices to reduce methane emissions, referred to as Partner Reported Opportunities.

"Our participation in the Natural Gas STAR Program is part of AEP's commitment to protecting and enhancing the quality of the environment as we conduct our business," said Steve Schneider, AEP vice president, natural gas operations. "We look forward to being a part of the program, which demonstrates what can be achieved when government and industry work together to find solutions to environmental challenges. By participating, we will enhance our ability to eliminate or prevent methane emissions while improving our efficiency," Schneider said.

President Announces New Policy for Addressing Global Climate Change

In February 2002, President Bush announced a new approach to the challenge of global climate change. The goal of the approach is to reduce the greenhouse gas intensity of the U.S. economy by 18 percent in the next 10 years. (Greenhouse gas intensity is the ratio of greenhouse gas emissions to economic output.) This approach is based on the tenet that sustained economic growth is needed to finance investment in new, clean energy technologies.

Domestic initiatives associated with this approach include tax incentives for renewable energy, promotion of fuel efficient vehicles, and increased spending on carbon sequestration projects. The President also challenged American businesses to voluntarily reduce their emissions, as Gas STAR partners have been doing for years.

New and expanded international policies associated with this approach include increased funding for "debt for nature" programs, investment in climate observation systems in developing countries, expanding technology transfer in the developing world, and building on international cooperative agreements.

The President's policy also includes a pledge to increase support for America's commitment to climate science and technology initiatives. Of special note to Gas STAR Partners is the policy's recognition that methane-focused efforts are an important element in greenhouse gas mitigation, because methane is such a potent greenhouse gas relative to carbon dioxide and many profitable reductions exist.

The President's Global Climate Change Policy Book is available on-line at www.whitehouse.gov/news/releases/2002/02/climatechange.html

NEW EPA VOLUNTARY PARTNERSHIPS

Climate Leaders

Climate Leaders, a new voluntary EPA industry-government partnership, encourages companies to develop long-term comprehensive climate change strategies. Many corporations have already made great progress in reducing their greenhouse gas (GHG) emissions through participation in EPA's voluntary programs such as Natural Gas STAR. Gas STAR partners BP and Cinergy Corporation have joined the Climate Leaders partnership.

For corporations already working with multiple EPA voluntary programs, Climate Leaders can serve as a coordinating umbrella to comprehensively manage their voluntary climate change activities.

Through Climate Leaders, these companies and others take their climate commitment one step further. Partners in Climate Leaders set an aggressive corporate-wide GHG reduction goal to be achieved over the next 5 to 10 years and develop a GHG emissions inventory using the Climate Leaders' GHG Emissions Inventory Protocol. This Protocol is based on an existing corporate protocol for inventorying GHGs, developed by the World Resources Institute and the World Business Council for Sustainable Development.

Each company's inventory includes emissions of the six major GHGs [carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydro-fluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)] from (1) onsite energy use, (2) industrial processes, (3) onsite waste disposal, (4) onsite air conditioning/refrigeration, (5) purchased electricity, and (6) mobile sources. Climate Leaders also offers partners flexibility in meeting their reduction goal. They may include emissions and reductions from other activities that are not part of their core emissions—for example, investments in offset projects.

Partners commit to annually reporting inventory data and documenting progress toward the reduction goal, as well as publicizing their participation, reduction pledge, and accomplishments achieved through the program. Gas STAR partners participating in Climate Leaders should continue to submit annual reports summarizing their emission reductions to the Gas STAR program.

EPA provides the partners in Climate Leaders with opportunities for high-level public recognition, such as press events, media briefings, articles in business and trade publications, and speaking engagements at industry conferences; technical assistance to set the reduction goal and conduct the GHG inventory; a credible, transparent GHG reporting mechanism that will develop with the science; and guidance for partners interested in third-party verification.

For more information, please contact Cynthia Cummis at 202/564-3480 or at cummis.cynthia@epa.gov.

New Technology Recovers Methane

Teaming with COMM Engineering USA, Gas STAR Partner TotalFinaElf E&P USA is not only helping improve the environment, but also turning what was once vented gas into a marketable product.

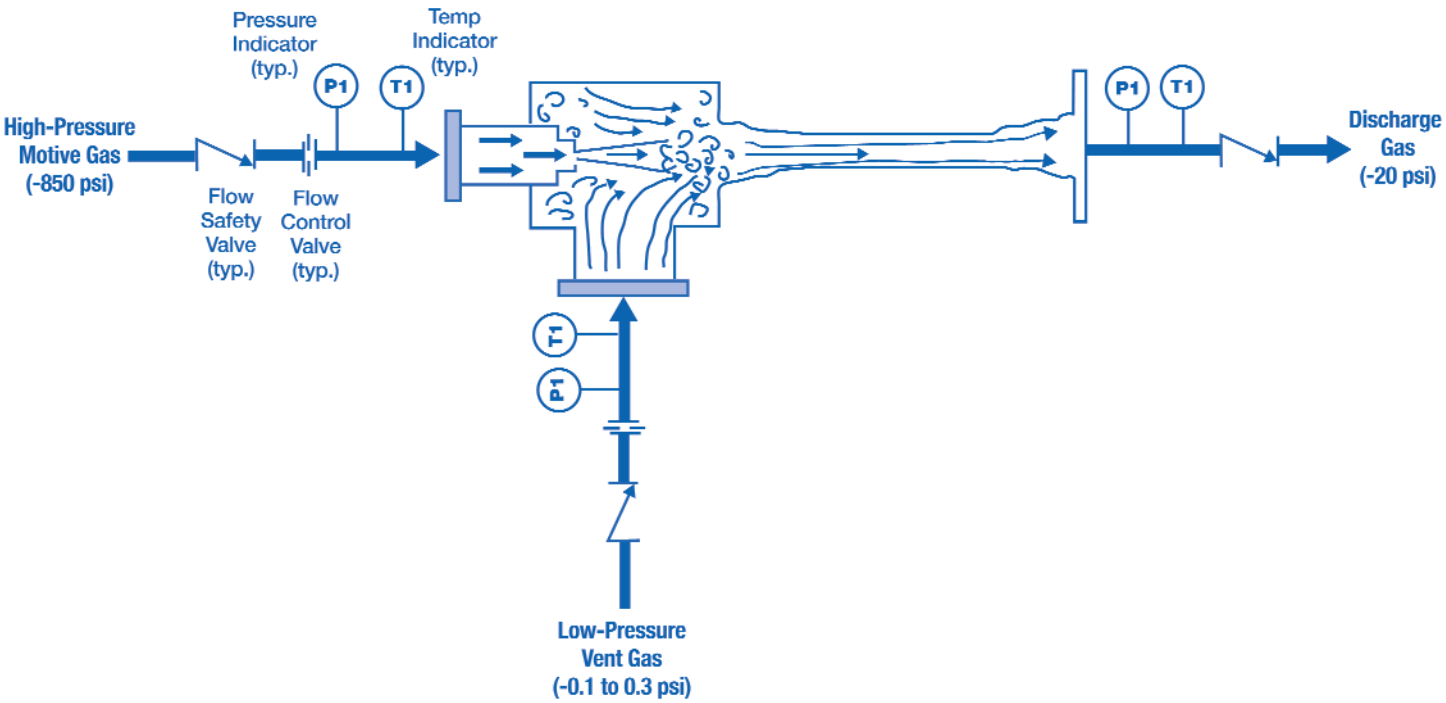
In May 2002, at its El Ebanito facility near McAllen, Texas, TotalFinaElf installed and brought on line COMM's Environmental Vapor Recovery Unit (EVRU). Since then, 150,000 to 250,000 standard cubic feet (scf) of natural gas per day with a BTU value of 1,836 BTU/scf has been put back into the sales pipeline, according to COMM Engineering. At that rate, the amount of gas recovered by the EVRU is valued at $301,563 to $502,605 per year at $3/MMBTU. The greenhouse gas emission reductions are estimated at nearly 20,239 tonnes per year of CO_2 equivalent.

The EVRU compresses vapors and sends gas into the suction of onsite compressors for eventual injection into the sales pipeline. This technology uses a Venturi jet ejector to collect low-pressure vent gases, boost gas to a low-to-medium pressure, and inject the gas back into the process system to be used or sold. The EVRU replaces traditional processes such as flaring, venting, and mechanical vapor recovery compressors. It allows users to collect low-pressure gas from a wide range of sources such as storage tanks, low-pressure cold vents and flares, glycol dehydration units, and heater treaters.

The EPA Environmental Technology Verification Program's Greenhouse Gas Technology Center, in partnership with the Natural Gas STAR Program, has been conducting a series of tests to quantify gas recovery rate performance, total installed cost, and annual gas savings at the request of COMM Engineering. Results will be released in the fall of 2002. For a copy of the Test and Quality Assurance Plan for the EVRU, go to www.sri-rtp.com/Verification%20Info/comm_tp.pdf.

To learn more about vapor recovery units, see the Lessons Learned study on EPA's Natural Gas STAR Web site (www.epa.gov/gasstar/install.htm). For more information on the EVRU, contact Brian Boyer of COMM Engineering at 337/237-4373 ext. 120, or Kevin Tingley of EPA at 202/564-0374.

The COMM EVRU



RESEARCH UPDATE

Potential for DI&M Programs to Reduce Leakage from Gas Production & Processing

The Kansas State University National Gas Machinery Laboratory (NGML) and the Natural Gas STAR Program will collaborate on a study to demonstrate a cost-effective approach for reducing leakage from natural gas production and processing facilities. This study builds upon results from a recently completed project co-sponsored by EPA and the Gas Technology Institute (GTI) that investigated the effectiveness of Directed Inspection and Maintenance (DI&M) programs for reduction of methane leaks at natural gas processing plants. The primary objective of the study is to demonstrate that the gas industry can increase earnings and decrease emissions by implementing innovative approaches to DI&M, which have proven effective at natural gas transmission facilities and at gas processing plants. This study will (1) include additional gas processing facilities to improve the basis for system-wide projections of applicability, (2) document the effectiveness of repairs and leak rate growth through resurvey of facilities evaluated as part of the GTI project, and (3) complete the characterization of DI&M application to natural gas operations by initiating an investigation of DI&M effectiveness from the gas processing plant upstream to the wellhead.

The EPA/Kansas State University project team is soliciting five additional natural gas processing facilities of various types, ages, and throughput to supplement the data collected during the GTI demonstration study. Upstream gas-gathering systems, including compression and wellhead sources, will be surveyed to determine the potential for cost-effective DI&M for this source group. This study will also target process efficiency losses and wastage from flare systems. Field-testing is anticipated to occur during the third and fourth quarters of 2002.

Benefits

The potential benefits of this research to the gas industry and the environment are substantial. An estimated 730 natural gas processing plants in the United States lose more than 25 billion cubic feet each year, representing over $75 million worth of product (at $3/mcf). The value of natural gas losses at the five sites surveyed as part of the GTI study was estimated at $2,249,500 per year or $562,375 per year per plant (at $4.50/mcf, the fourth-quarter 2000 long-term contract price). The resulting savings substantially offset the cost of performing the initial survey.

For more information about this study, please contact Kirby Chapman at Kansas State University at 785/532-2319 or chapman@ksu.edu, or Kevin Tingley at EPA's Natural Gas STAR Program at 202/564-0374 or tingley.kevin@epa.gov.

Staff Changes in the Natural Gas STAR Program

- Kevin Tingley recently joined the STAR team. Kevin will continue to make the STAR Program an effective partnership between EPA and the natural gas industry.
- Carrie Henderson, Natural Gas STAR Program Manager, is on maternity leave.
- Roger Fernandez, formerly with EPA's Coalbed Methane Outreach Program, is joining the Gas STAR Program in October 2002.

9th Annual Natural Gas STAR Implementation Workshop
October 28–30, 2002
The Inter-Continental Houston
Houston, Texas

REGISTRATION

Register online at <www.epa.gov/gasstar> or complete and mail or fax this form.

Name

Nickname/First name for badge

Title

Company

Company Address

City State Zip

Work Phone Work Fax

E-mail

Check the corresponding natural gas industry sector you represent:

❑ Production ❑ Transmission
❑ Gathering and Processing ❑ Distribution
❑ Other (_____)

Indicate your participation in the following Natural Gas STAR workshop functions:

❑ Yes ❑ No Evening reception on **Monday, October 28**?
❑ Yes ❑ No Awards luncheon on **Tuesday, October 29**?
❑ Yes ❑ No Poolside BBQ on **Tuesday, October 29**?

Special dietary needs_____

Please mail or fax your completed registration form to:

Attn: Natural Gas STAR Workshop
Eastern Research Group, Inc.
110 Hartwell Avenue
Lexington, MA 02421-3136

FAX: 781 674-2906

Check one:

❑ **Workshop Fees:** $125/person (includes all workshop functions, awards luncheon, and poolside BBQ)

❑ **Awards Luncheon only**: $35/person (no admittance to technical sessions or BBQ)

If no box is checked, ERG will assume workshop registration.

Make checks payable to:
Eastern Research Group (ERG)

Overnight Accommodations

A block of rooms is being held at the Inter-Continental Houston for workshop participants. The group room rate is $149 for single occupancy and $159 for double occupancy, plus 17% tax. To make a reservation, please contact the hotel directly at 866 342-0831 (toll free) or 713 627-7600 and reference the "Natural Gas STAR" room block. To receive the discounted rate, you must make your reservation no later than **Monday, September 30, 2002**. After this date, reservations will be accepted on a space-and-rate-available basis only.

To pay with credit card, please complete the following information and sign the bottom:

Check one: ❑ Visa ❑ MasterCard ❑ American Express

Name as it appears on credit card: _____

Account Number: _____-_____-_____-_____ Exp. Date _ _/_ _ Amount Charged $_____**

Authorized Signature _____

**Your billing statement will show a charge from "ERG Conf. Reg Fee".

Questions about the Natural Gas STAR Workshop? Visit <www.epa.gov/gasstar> or call 888 249-8883.

DOCUMENT REQUEST FORM

Name & Title: _____

Organization: _____

E-Mail Address: _____

Telephone #: _____ FAX #: _____

Date Requested: _____

Date Info Needed: _____

FedEx/UPS # (if info needed asap): _____

Please fax to your STAR Service Representative at 703/841-1440 or directly to the Natural Gas STAR Program at 202/565-2134, or e-mail to tingley.kevin@epa.gov

PLEASE INDICATE WHICH MATERIALS YOU WOULD LIKE TO RECEIVE:

LESSONS LEARNED

_____ 1. Directed Inspection and Maintenance at Compressor Stations
_____ 2. Directed Inspection and Maintenance at Gate Stations and Surface Facilities
_____ 3. Options for Reducing Methane Emissions from Pneumatic Devices in the Natural Gas Industry
_____ 4. Installation of Flash Tank Separators
_____ 5. Reducing Methane Emissions from Compressor Rod Packing Systems
_____ 6. Reducing Emissions When Taking Compressors Off-Line
_____ 7. Installing Vapor Recovery Units on Crude Oil Storage Tanks
_____ 8. Replacing Wet Seals with Dry Seals in Centrifugal Compressors
_____ 9. Reducing the Glycol Circulation Rates in Dehydrators
_____ 10. Replacing Gas-Assisted Glycol Pumps with Electric Pumps
_____ 11. Installing Plunger Lift Systems in Gas Wells
_____ 12. Using Pipeline Pump-Down Techniques To Lower Gas Line Pressure Before Maintenance
_____ 13. Convert Gas Pneumatic Controls to Instrument Air
_____ 14. Using Hot Taps for In Service Pipeline Connections
_____ 15. Using Desiccant Dehydration Instead of Glycol Dehydration (late 2002)
_____ 16. Using Composite Sleeve Repair Techniques (late 2002)
_____ 17. Directed Inspection and Maintenance at Gas Plants and Booster Stations (late 2002)

STAR IMPLEMENTATION TOOLS

_____ Video - Production
_____ Video - Transmission/Distribution
_____ Case Study - El Paso Natural Gas
_____ Case Study - Brooklyn Union/Keyspan Energy
_____ Case Study - Texaco Exploration and Production, Inc.
_____ Case Study - Columbia Gas and Columbia Gulf Transmission
_____ Case Study - Kerr-McGee Corporation
_____ Case Study - Unocal Gulf Region USA

OUTREACH MATERIALS

_____ Natural Gas STAR Program Brochure
_____ Natural Gas STAR Marketing Package
_____ Natural Gas STAR Communications Toolkit
_____ STAR Partner Update, Summer 1998
_____ STAR Partner Update, Spring 1999
_____ STAR Partner Update, Winter 1999
_____ STAR Partner Update, Fall 2000
_____ STAR Partner Update, Winter 2001
_____ STAR Partner Update, Winter 2002
_____ STAR Partner Update, Fall 2002

Most of these materials are available on the Internet at www.epa.gov/gasstar