United States Environmental Protection Agency
Air and Radiation 6202J
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NATURAL GAS STAR

January 2002

PARTNER UPDATE

Gas STAR Partner Accomplishments

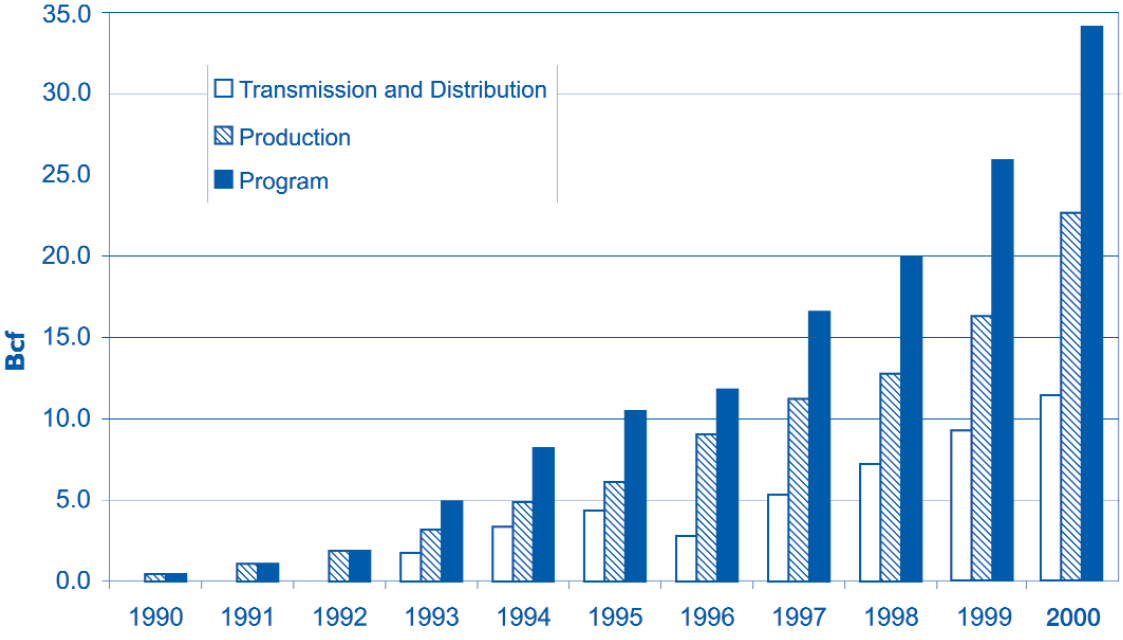
Overview

2001 was another strong year for the Natural Gas STAR Program, with partners reporting record emissions reductions and several new companies joining the program. Natural Gas STAR partners reported methane emissions reductions of 34 billion cubic feet (Bcf) in 2000. This outpaces 1999's accomplishments by more than 9 Bcf and, consistent with past years, was largely a result of the aggressive implementation of best management practices (BMPs) and partner reported opportunities (PROs). In 2001, the Natural Gas STAR Program welcomed 11 new partner companies, including 2 more gas processing companies. Gas processing is the most recent industry sector to join the program, partnering with Gas STAR in October 2000.

Methane Recovery and Emissions Reductions

More than 90 Natural Gas STAR partners are voluntarily reducing methane emissions using various mitigation technologies and practices that have proven cost effective in their operations. In 2000, production partners reported 22.3 Bcf in reductions, while transmission and distribution partners reported 11.7 Bcf in reductions. These achievements bring total reductions reported since 1990 to more than 176 Bcf of methane, valued at an estimated $528 million at $3/Mcf. Methane emissions reductions reported for 2000 represent an estimated 12 percent of total annual industry-wide losses. This significant accomplishment is a strong indicator that voluntary programs, such as Natural Gas STAR, can play an important role in addressing climate change.

Annual Methane Emissions Reductions



Gas STAR Partner Accomplishments

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Partner Reported Opportunities

As an integral part of Natural Gas STAR, PROs offer great potential for reducing partner company emissions. PROs help fuel the program's technology transfer process by providing information that implementation managers can evaluate, summarize, and share with other interested partners.

As in prior years, PROs were a key contributor to the program's emissions reduction accomplishments in 2000. Nearly 70 of these technologies and practices have been identified and implemented by Natural Gas STAR partners. PROs were responsible for 84 percent of production sector reductions and 44 percent of transmission and distribution sector reductions.

The top PROs for 2000, by Mcf of methane reduced, were:

Production

1. Install Vapor Recovery Units
2. Install Plunger Lifts
3. Install Flares

Transmission

1. Install Vapor Recovery Units
2. Replace Wet Gas Seals with Dry Seals
3. Use Pipeline Pumpdown Techniques Prior to Performing Maintenance

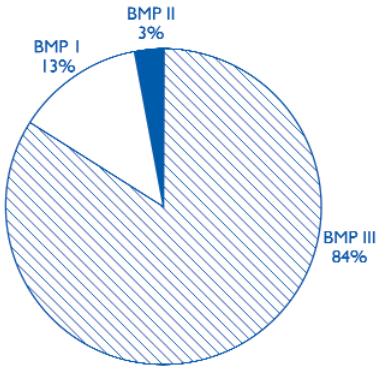
Distribution

1. Install Excess Flow Valves
2. Optimize High-Pressure System Operation
3. Use Smart Regulators/Clocking Solenoids

Best Management Practices

The ongoing implementation of core BMPs supplements the methane reduction successes of PROs. Producer partners achieved 13 percent of their reductions by replacing pneumatics and 3 percent of their reductions from installing flash tanks. BMPs also played a significant role in the methane emissions reductions achieved by transmission and distribution partners: 36 percent of the reductions came from directed inspection and maintenance programs and 13 percent from turbine installations.

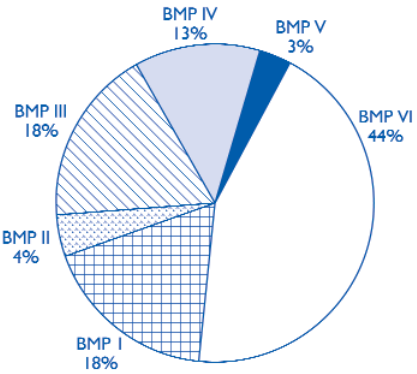
Production Reductions – 2000



Best Management Practices

PROD BMP I Replace high bleed pneumatic devices
PROD BMP II Install flash tank separators
PROD BMP III Other - PROs

T & D Reductions – 2000



Best Management Practices

T&D BMP I DI&M at gate stations, surface facilities
T&D BMP II Repair/replacement of distribution pipe
T&D BMP III DI&M at compressor stations
T&D BMP IV Replace recip. engines w/ turbines
T&D BMP V Replace high bleed pneumatic devices
T&D BMP VI Other - PROs

IN THIS ISSUE

Increased Participation

With 11 new partners, Gas STAR increased participation in all industry sectors. Gas STAR partners now represent 58 percent of the domestic gas processing sector with 11 companies in total, 77 percent of pipeline mileage in the transmission sector with 19 companies in total, 51 percent of service connections in the distribution sector with 44 companies in total, and 40 percent of the domestic production sector with 18 companies in total.

New Gas STAR partners in 2000 included: **Western Gas Resources** and **Duke Energy Field Services** in the gas processing sector; **North Carolina Natural Gas, Reliant Energy Arkla/Entex, Cinergy Corporation, Northern Indiana Fuel and Light Company,** and **Kokomo Gas and Fuel Company** in the distribution sector; and **Columbia Natural Resources, Williams Production RMT Company,** and **Murphy Exploration and Production** in the production sector. Newly consolidated **El Paso Energy Pipeline Group** comprises five subsidiaries, all of which are transmission sector partners.

Program Accomplishments

New Program Tools

Helping partners achieve future emissions reductions continues to be a key focus of the Gas STAR Program. Ten new PROs have been added to the list of reduction opportunities available as PRO fact sheets. These 10 will appear soon in PDF and HTML formats on the Gas STAR Web site. Additionally, the format of the fact sheets has been enhanced. Three new Lessons Learned studies will also be added to the Web site, featuring analyses of desiccant dehydration, directed inspection and maintenance at gas plants and booster stations, and composite sleeve repair. Six partner case studies that feature successful program implementation are also available on the Web. Additionally, new online tools under development will help Natural Gas STAR partners better evaluate, organize, track, and record data for emissions reduction activities.

GTI Study Results Being Published

Directed inspection and maintenance at gas processing plants is among several BMPs and PROs recommended by the Gas STAR Program for reducing methane emissions. The Gas Technology Institute (GTI), in cooperation with EPA's Natural Gas STAR Program and industry participants, conducted a leak detection and repair study at four gas processing facilities in late 2000. The objective of the study was to demonstrate with field data that a comprehensive leak detection and repair program could reduce gas losses while enhancing profits. The selected facilities offered significant opportunities for cost-effective reductions of natural gas losses. Results indicate that up to 80 percent of plant methane emissions may be eliminated cost-effectively. For more information on the study results, see the Summer 2001 Natural Gas STAR *Partner Update*.

The final paper on this study is being published by GTI. For more information, contact Jeff Panek at 847-768-0884 or via e-mail at Jeffrey.panek@gastechnology.org.

WORKSHOP SUMMARY

With generous co-sponsorship from the American Gas Association, Indaco Air Quality Services, and Sealweld Corporation, EPA held the 8th Annual Natural Gas STAR Workshop in Houston, Texas, in October 2001. More than 60 participants gathered to:

- Discuss emerging technologies and practices
- Note the accomplishments of the STAR Program and program partners
- Learn what other companies are doing to profitably reduce emissions
- Present new program tools and documents

The workshop focused on how partners have maximized gas savings and efficiency gains, and introduced partners to the new tools developed over the past year. These include implementation tools such as Lessons Learned studies and PRO Fact Sheets, as well as new Web-based tools for BMP and PRO analysis, data collection and management, and electronic reporting.

Keynote Speakers

Highlights from the workshop included two keynote presentations. Arthur Smith, Senior Vice President and Environmental Counsel for NiSource, Inc., described environmental initiatives being pursued by NiSource. He emphasized that all eligible NiSource business units are participating in Natural Gas STAR, and they have collectively achieved methane emissions reductions of over 11 Bcf. Carl Edlund, Division Director of the Multimedia Planning and Permitting Division of EPA Region 6, shared information on efforts in Texas to reduce ozone and other air pollutants. He discussed Houston's 5-year plan to reach target emissions reductions by 2007, using enforceable commitments such as the Texas Emissions Reduction Plan (TERP).

Awards for Excellence

As always, the awards ceremony was a high point of the annual workshop. Partner of the Year Awards were presented to four companies that have shown superior performance in the Natural Gas STAR Program in the areas of emissions reductions, support of program initiatives and activities, and involvement in program outreach (see p. 7 for details.) The 2001 winners are:

- BP, Production Partner of the Year
- Columbia Gas Transmission Corp. and Columbia Gulf Transmission Co., Transmission Partners of the Year
- PECO Energy Company, Distribution Partner of the Year

EPA also presented two new achievement awards:

- Enron Transportation Services, the Continuing Excellence Award
- James Frederick of Unocal Corporation, Implementation Manager of the Year

For the first time, three first-year partners were also recognized for their strong start in implementing Natural Gas STAR. These "Rookies of the Year" are:

- Pioneer Natural Resources (gas processing sector)
- PG&E National Energy Group (transmission sector)
- Ocean Energy, Inc. (production sector)

EPA Administrator Christine Todd Whitman congratulated the award winners via a videotaped statement shown during the ceremony. She recognized the hard work and accomplishments of all Natural Gas STAR partners, remarking on the Bush Administration's strong support of voluntary initiatives such as Natural Gas STAR.

Technology Transfer through Industry Experience

Jeff Panek of the Gas Technology Institute described results from a study of cost-effective directed inspection and maintenance practices at gas processing plants. The workshop also included presentations from partner companies BP, Dynegy Midstream Services, and Phillips Petroleum on methane reduction projects and tips for successful program implementation. The three presentations are summarized below.

Partner Presentations

Phillips Petroleum Company. Robert Wirtanen presented an overview of the Natural Gas STAR Program at Phillips Petroleum Company, which became a Gas STAR partner in 1999. Highlighting the implementation plan for Phillips from 2001 to 2003, Mr. Wirtanen discussed the seven management practices that Phillips implemented in 2000. These included installing low-bleed controls and actuators, removing dehydrators from service, reviewing condensate storage tanks for vapor recovery, performing directed inspection and maintenance, and installing plunger lifts and pumping units. He also discussed the emissions reduction activities implemented at the San Juan Basin, which included compressor starters, plunger lifts, screw compressors, shutting-in dehydrators, and pump-jacks on coal-bed methane wells. Phillips 2000 reductions totaled 98,000 Mcf.

Dynegy Midstream Services, L.P. Ananthakrishna Shankar presented Dynegy's experiences with the Natural Gas STAR Program. He first discussed Dynegy's participation in GTI's gas plant study for which Dynegy contributed two host testing facilities. The study results helped direct Dynegy's implementation of Gas STAR. Mr. Shankar recommended gathering emissions reduction information from monthly field meetings, requesting information through e-mail, incorporating the data into an emissions inventory, and requesting assistance from environmental safety and health advisors. Mr. Shankar highlighted plans to conduct directed inspection and maintenance at six upstream compressor stations. He also mentioned Dynegy's future plans, which include four Natural Gas STAR training sessions/meetings in 2002 and increased involvement of management and the media relations department.

BP. Reid Smith gave an overview of the "Green Completions" program at BP. This program aims to reduce flaring and venting at the well site, through steps taken during drilling and well completion. Venting and flaring are prevented by directing initial flow to specially designed surface equipment, and by using a sand separator. The sale of recovered hydrocarbons then offsets the equipment costs. Mr. Smith highlighted a field pilot in Wyoming's Green River Basin. In the pilot, green completion techniques avoided the release of an estimated annual 600 Mmcf of natural gas. The project had an internal rate of return of 100 percent. Mr. Smith noted that a key benefit of implementing green completion techniques is increased production without the expense of drilling new wells.

"Your voluntary efforts to reduce methane emissions while delivering dependable energy to American homes show that good stewardship of the environment can also mean good business. This Administration believes strongly that we can harness the creativity and innovation of industry—through programs such as Natural Gas STAR—and put it to work for the environment. You have shown that this approach can be very successful."

Christine Todd Whitman

New Online Program Tools

The Natural Gas STAR team presented three new Web-based program tools—a BMP/PRO analysis tool, a data collection and management tool, and an online reporting tool—all of which will help facilitate partners' decisions to implement emissions reduction activities and their efforts to track and record emissions reduction data. Available in

2002, the tools will be accessible with a password via the Natural Gas STAR Web site. Following is a brief description of each tool:

- The **BMP/PRO Analysis Tool** will allow partners to generate estimates of the economic and environmental benefits of methane reduction activities on a site-specific basis. The tool will calculate capital costs and operation and maintenance (O&M) costs; provide default values for critical capital and annual cost factors, methane emissions reduction factors, and other operating assumptions; and project cash flows during the first 5 years of operation. Users will be prompted to enter site-specific values where available, or use the default values provided. The tool will be ready for beta-testing by partners in spring 2002.

- The **Data Collection and Management Tool** will streamline data collection and the annual reporting process. This tool will help partners collect and manage information about methane emissions reduction activities occurring at various locations across their companies by allowing remote users to record site-specific data. Users can enter, save, and view data for all BMP and PRO activities. The tool performs calculations, generates several printable reports, including the annual Natural Gas STAR Report, and allows partners to export data for expanded use. Implementation managers will control and approve remote user access.

- The **Online Reporting System** is an option for partners who wish to submit their annual report via the Natural Gas STAR Web site. The online forms mirror the hard copy report forms, allowing partners to enter both current and historical data for all BMPs and PROs within their sectors. Unlike the online data collection tool, a comprehensive data management tool that stores historical emissions reduction data, the online reporting system temporarily stores data for the current reporting year. The online forms will facilitate data entry for partners by performing calculations and providing default values. Partners can access the forms for the spring 2002 reporting period at www.epa.gov/gasstar.

New Lessons Learned Studies

Participants reviewed and commented on drafts of three new Lessons Learned studies covering (1) composite sleeve repair of pipelines; (2) directed inspection and maintenance at gas processing plants and booster compressor stations; and (3) replacing glycol dehydrators with desiccant dehydration systems. EPA thanks the many Natural Gas STAR partners who provided feedback and contributed data and other information to the development of these documents. These 3 new Lessons Learned studies will bring the total available to 17. The new studies will be posted on the Natural Gas STAR Web site by mid-2002.

Keeping Up with Emerging Technologies – the Partner Roundtable

The annual partner roundtable discussion centered on two presentations. Jeff Panek of GTI discussed new and emerging leak detection devices. He queried partners as to their interest in holding a special hands-on workshop to learn more about these technologies. EPA is collaborating with GTI to sponsor such a workshop this year.

Sushma Masemore of the Southern Research Institute (SRI) described the Environmental Technology Verification Program (ETV), a joint initiative by EPA and SRI. ETV provides independent, objective performance verification of commercially ready technologies with strong environmental benefit, such as technologies with the potential for greenhouse gas emissions reductions. Currently, Natural Gas STAR is working with ETV to sponsor the verification of Comm Engineering's eductor vapor recovery unit.

PARTNERS OF THE YEAR

Producer Partner of the Year: BP

BP received the 2001 Natural Gas STAR Producer Partner of the Year award during ceremonies at the 8th Annual Implementation Workshop in Houston. The company was honored for achieving a cumulative program reduction of 3.3 Bcf of methane emissions and for outstanding support of the goals of the Natural Gas STAR Program. In its 2000 Annual Report, BP reported 616 million cubic feet (Mmcf) of new methane emissions reductions and a total of 1.7 Bcf of methane emissions reductions (for both new and ongoing projects).

BP produces on average 1.9 million barrels of crude oil and 7.6 Bcf of natural gas daily. It has 29,000 service stations and production activities in 23 countries.

BP joined the Natural Gas STAR Program in 1998, upon its merger with Amoco, a charter Gas STAR Partner. Since joining Gas STAR, BP has implemented many PROs. These include the elimination of unnecessary dehydrators, installation of desiccant dehydration systems, implementation of green completion procedures, and installation of pressure regulators on well sites.

As part of an ad hoc working group, BP helped launch the gas processing program for Gas STAR and participated in an EPA-sponsored study of emissions reduction opportunities at gas processing plants. This Partner of the Year has supported numerous regional Natural Gas STAR Producer Technology Transfer Workshops by providing technical presentations about their ongoing emissions reductions activities. BP has also assisted the STAR Program in developing articles for *The Oil and Gas Journal* and contributed to the development of Lessons Learned studies and PRO Fact Sheets.

BP accepts the Production Partner of the Year award. From left to right, Paul Gunning, EPA; G. Reid Smith, BP; Rhone Resch, Natural Gas Supply Association; and Kathleen Meier, Natural Gas STAR Program manager.

Transmission Partners of the Year: Columbia Gas Transmission and Columbia Gulf Transmission

Columbia Gas Transmission Corp. and Columbia Gulf Transmission Co., subsidiaries of NiSource, Inc., were named 2001 Transmission Partners of the Year. EPA honored the companies for excellent program implementation, outreach efforts, and contributions in the area of technology transfer. In the 2000 Annual Report, Columbia Gas Transmission and Columbia Gulf Transmission reported cumulative program reductions of over 13.2 Bcf of methane. Nearly 3.3 Bcf were new reductions, contributing to total reductions of 3.5 Bcf (including new and ongoing projects) for the year.

The companies' transmission facilities consist of 12,750 miles of pipeline and 130 compressor stations. Columbia Gas Transmission and Columbia Gulf Transmission deliver on average 1.3 trillion cubic feet of gas per year to 72 local distribution companies and several hundred end-users in the northeastern, midwestern, and mid-Atlantic states.

Columbia Gulf Transmission and Columbia Gas Transmission accept the Transmission Partners of the Year award. From left to right, Paul Gunning, EPA; Wayne Crocker, Columbia Gulf Transmission Co.; Arthur Smith, Jr., NiSource Inc.; Kathleen Meier, Natural Gas STAR Program manager; Warren Bird, NiSource Inc.; and Jason Baker, Columbia Gulf Transmission Co.

Since joining the Natural Gas STAR Program in 1999, Columbia Gas Transmission and Columbia Gulf Transmission have implemented numerous Partner Reported Opportunities, such as the installation of electric motor-driven compressors, installation of compressors with dry seals instead of wet seals, use of composite sleeve repair, installation of flares at dehydration plants, replacement of bi-directional orifice runs with ultrasonic meters, redesign of the emergency shutdown system, modification of compressor shutdown to maintain pressure, relocation of fire gate valves, replacement of gas starters with electric starters, and the capturing of releases from pipeline liquid tanks.

Columbia Gas Transmission and Columbia Gulf Transmission are committed to internal and external communications about Natural Gas STAR and continue to contribute to the development of PRO Fact Sheets and partner case studies.

Distribution Partner of the Year: PECO Energy

PECO Energy received the 2001 Natural Gas STAR Distribution Partner of the Year award. Since joining the Natural Gas STAR Program in 1995, the company has reported cumulative reductions of approximately 46 Mmcf of methane. Total reductions in 2000 (including new and ongoing projects) were 9 Mmcf.

Located in southeastern Pennsylvania, PECO Energy has 1.5 million electricity customers and 430,000 natural gas customers. PECO Energy recently merged with Unicom of Chicago to create Exelon Corporation. With a joint customer base of 5 million, Exelon is also the largest nuclear operator in the United States.

PECO has implemented many Partner Reported Opportunities since joining the Gas STAR Program. These include optimizing the operation of high-pressure distribution systems, minimizing the number of nitrogen compressor starts per year at LNG plants, retightening seals on LNG pumps after cool down in preparation for pumping operations, implementing a random meter calibration program that covers 1000 meters per year, and testing gate station pressure relief valves with nitrogen instead of methane.

William Nuss (c), PECO Energy Company, accepts the Distribution Partner of the Year award from Paul Gunning (l), EPA, and Kathleen Meier (r), Natural Gas STAR Program manager.

After 6 strong years in the program, PECO continues to report detailed, innovative PROs each year. PECO also participates regularly in Natural Gas STAR activities such as the annual implementation workshop.

Enron Transportation Services: Continuing Excellence Award

Enron Transportation Services, formerly Enron Gas Pipeline Group, was recognized by the Natural Gas STAR Program in 2001 for continuing excellence in the areas of emissions reductions, program outreach, and significant contributions to technology transfer. Since joining Natural Gas STAR as a charter partner in 1993, Enron has realized cumulative program reductions of approximately 9.1 Bcf. Enron reported 844 Mmcf of new methane emissions reductions and 2.6 Bcf of total reductions (both new and ongoing projects) in its 2000 Annual Report.

Ruth Jensen (c), Enron Corporation, accepts the Continuing Excellence award from Paul Gunning (l), EPA, and Kathleen Meier (r), Natural Gas STAR Program manager.

As an active partner, Enron has implemented Partner Reported Opportunities such as the installation of yale closure cups; component testing to eliminate gas loss in ESD testing; lowering of pipeline pressure prior to maintenance and, whenever feasible, use of portable compressors during maintenance and/or repair; modification of turbine purge and/or blowdown; installation of electric motors; and replacement of glycol dehydrators with separators and in-line heaters.

Enron has been a generous supporter of outreach activities, notably as a sponsor of the annual implementation workshop. Enron has also furthered the Natural Gas STAR Program's goals through extensive work with the Hi-Flow™ Sampler.

Implementation Manager of the Year: James Frederick, Unocal

James Frederick received the Implementation Manager of the Year Award in 2001 for outstanding performance as implementation manager for Unocal. Unocal joined Natural Gas STAR in 1998 as Spirit Energy '76—Unocal's domestic gas production subsidiary—then broadened its participation by signing on to Gas STAR as Unocal in 2000. Unocal has achieved cumulative program reductions of 4.1 Bcf of methane. In 2000 alone, Unocal attained total reductions of more than 650 Mmcf (includes new and on-going projects).

Mr. Frederick has focused Unocal's methane emissions reduction activities on the installation of instrument air systems and contributed to a Lessons Learned study on instrument air. He has assisted the STAR Program in developing articles for *The Oil and Gas Journal*, supported numerous regional Technology Transfer Workshops by providing technical presentations on Unocal's activities, and encouraged prospective partners to join the Natural Gas STAR Program.

James "Bubba" Frederick (c), Unocal Corporation, accepts the Implementation Manager of the Year award from from Paul Gunning (l), EPA, and Kathleen Meier (r), Natural Gas STAR Program manager.

NATURAL GAS STAR NEWS

STAR Welcomes New Partners

Cinergy Corporation

Cincinnati-based Cinergy Corporation is a diversified energy marketer and supplier. The company was created in October 1994 through the merger of Cincinnati Gas & Electric Company and PSI Energy, Inc. It is the largest non-nuclear energy supplier in the United States, with more than 21,000 megawatts of electrical and combined heat and power plant generation. The eighth largest electricity trading organization in the United States, Cinergy has a natural gas trading capacity of 35 billion cubic feet (Bcf) of natural gas per day. Through its subsidiaries Cincinnati Gas & Electric Company and PSI Energy, Cinergy serves 1.5 million electricity customers and 500,000 natural gas customers in Ohio, Indiana, and Kentucky.

Duke Energy Field Services

Duke Energy Field Services (DEFS), headquartered in Denver, Colorado, is one of the nation' s largest natural gas gatherers and is the largest natural gas liquids producer and marketer. The company was formed in March 2000 when Duke Energy and Phillips Petroleum Company combined their natural gas gathering and processing businesses. DEFS produces on average 400,000 barrels of liquid natural gas and gathers and transports approximately 7.3 Bcf daily, with operations based in Denver, Houston, Midland, Tulsa, and Calgary, Canada.

Kokomo Gas and Fuel Company

Kokomo Gas and Fuel Company, a NiSource Company, is located in Kokomo, Indiana. It serves the natural gas needs of over 34,000 customers in Carroll, Cass, Clinton, Howard, Miami, and Tipton counties, storing up to 12 Mmcf of natural gas. Kokomo Gas and Fuel Company has received the International Standards Organization's 14001 Certification for implementing an effective environmental management system. Participation in the Natural Gas STAR Program was one element of its ISO certification plan.

Northern Indiana Fuel and Light

Serving over 35,000 customers, Northern Indiana Fuel & Light Co., Inc., (NIF&L) is a wholly owned subsidiary of NiSource, Inc. Headquartered in Auburn, Indiana, NIF&L delivers gas from Panhandle Eastern Pipeline Co., ANR Pipeline Co., and Crossroads Pipeline Co. to northeastern Indiana counties through 835 miles of transmission and distribution mains.

Western Gas Resources

Based in Denver, Colorado, Western Gas Resources is a full-service energy company operating four principal business segments: Gas Gathering and Processing, Production, Marketing, and Transportation. The company's 18 gas processing facilities are located in the Rocky Mountain, mid-continent, southwest, and Gulf Coast regions of the United States. Western Gas has 9,000 miles of gathering lines and transfers 1.4 Bcf/day of natural gas. Also active in coalbed methane development, Western Gas is the largest gatherer, transporter, and producer of coalbed methane gas in the Powder River Basin in northeastern Wyoming.

El Paso Energy Corporation

El Paso Energy Corporation has become Natural Gas STAR's largest transmission partner. With the recent acquisition of The Coastal Corporation's holdings, including ANR Pipeline and Colorado Interstate Gas, El Paso's pipeline group holdings now include five subsidiaries, all of which were Natural Gas STAR partners in their own right prior to being combined under the El Paso umbrella. In addition to the Coastal holdings, the subsidiaries include El Paso Natural

Gas, Southern Natural Gas, and Tennessee Gas Pipeline. El Paso's interstate transmission system now spans the nation, with 60,000 miles of transmission pipeline. Natural Gas STAR is pleased to recognize El Paso's pipeline group as a new partner, acknowledging the company's commitment to developing a unified Natural Gas STAR Program that takes advantage of the impressive work already underway at each subsidiary.

Based in Houston, El Paso Corporation has core businesses in natural gas production, gathering and processing, and transmission, as well as in international project development, energy financing, power generation, liquified natural gas transport and receiving, and merchant energy services. The company is committed to developing new energy sources and technology to supply energy to communities around the world. El Paso shows its commitment to the environment through strong environmental, health, and safety performance.

John Cordaway (c), El Paso Corporation, accepts the New Partner certificate from Paul Gunning (l), EPA, and Kathleen Meier (r), Natural Gas STAR Program manager.

Natural Gas STAR in the News

From *The Oil and Gas Journal*

Gas STAR Claims Methane Emissions Reductions of 34 bcf in 2000

By the OGJ Online Staff

Houston, Jan. 11 2000 – The US Environmental Protection Agency said industry participants in its Natural Gas STAR Program reduced methane emissions by 34 Bcf in 2000.

EPA said at $3/Mcf, the savings are worth $102 million. The voluntary STAR program, designed to reduce greenhouse gas emissions, has 90 industry participants across all sectors of the gas industry.

EPA said since the program began in 1993, it has reduced methane emissions from field operations and equipment leaks by 176 Bcf, worth more than $500 million and equivalent to eliminating the emissions from more than 14.2 million cars or planting 21 million acres of trees.

From *The Financial Times*

Natural Gas Industry Saves $100 Million While Reducing Greenhouse Gas Emissions

PR Newswire – USA, Jan 31, 2002

The U.S. Environmental Protection Agency's Natural Gas STAR Program recently announced that its industry partners saved over $100 million in 2000 by reducing emissions of methane, a potent greenhouse gas that is the primary component of natural gas.

EPA Admininstrator Christie Todd Whitman praised the program's partners, saying that their "voluntary efforts to reduce methane emissions while delivering dependable energy to American homes show that good stewardship of the environment can also mean good business."

From *GreenBiz.com*

Voluntary Methane Reductions Net $100M

WASHINGTON, Jan. 15, 2002 – Industry partners of the U.S. Environmental Protection Agency's (EPA's) Natural Gas STAR Program report they saved more than $100 million in 2000 by reducing methane emissions from unit operations and equipment leaks. EPA Administrator Christie Todd Whitman praised the program's industry partners, saying that their "voluntary efforts to reduce methane emissions while delivering dependable energy to American homes show that good stewardship of the environment can also mean good business." The Natural Gas STAR Program is a voluntary partnership between EPA and the natural gas industry, focused on identifying and implementing

GAS STAR ACHIEVERS

Thank You, One and All

Natural Gas STAR Partner List

Production Partners

Amerada Hess Corporation, U.S. Exploration and Production
Belco Energy Corporation
BP
Burlington Resources, Inc.
ChevronTexaco Corp.
Columbia Natural Resources, Inc.
ExxonMobil Production Company
Kerr-McGee Corporation
Marathon Oil Company
Murphy Exploration and Production Company
Ocean Energy, Inc.
Phillips Petroleum Company
Pioneer Natural Resources Company
Shell Exploration and Production Company
TotalFinaElf
Unocal Corporation
Williams Production RMT Company

Gas Processing Partners

BP
ChevronTexaco Corporation
Conoco, Inc.
Duke Energy Field Services
Dynegy Midstream Services L.P.
El Paso Field Services
ExxonMobil Production Company
ONEOK Field Services
Pioneer Natural Resources, Gas Processing
UtiliCorp United, Inc.
Western Gas Resources

On behalf of the U.S. Environmental Protection Agency, Natural Gas STAR would like to thank all of you for your continuing commitment to making the Natural Gas STAR Program a highly successful industry-government partnership. As Natural Gas STAR partners, you are not only helping reduce the risk of climate change by reducing methane emissions, but also proving that profitability and environmental performance go hand-in-hand in the natural gas industry. And that is a powerful message!

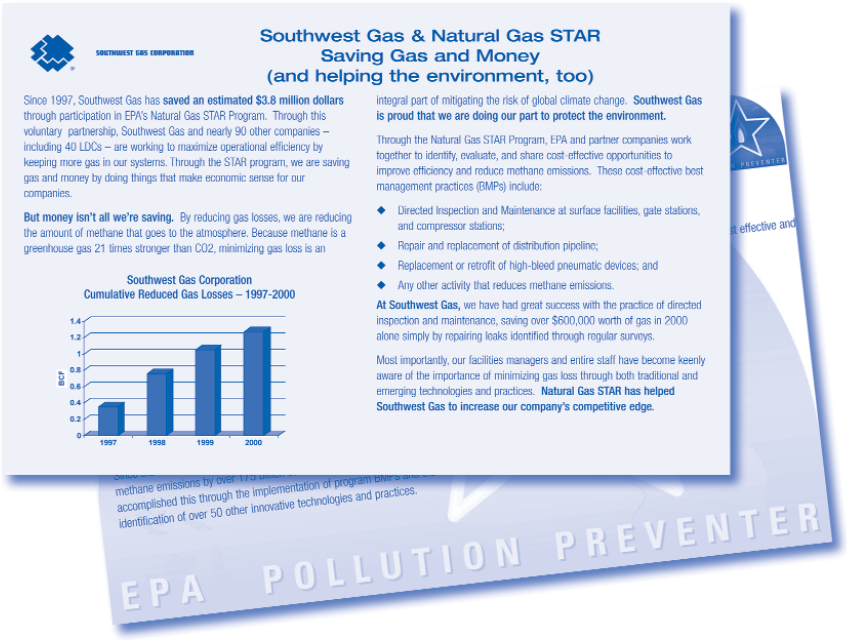
Trade Association Endorsers

American Gas Association (AGA)
American Petroleum Institute (API)
Domestic Petroleum Council (DPC)
Gas Processors Association (GPA)
Gas Technology Institute (GTI)
International Centre for Gas Technology Information (ICGTI)
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)

Updated January 2002

Transmission and Distribution Partners

ANR Pipeline Company
Atlanta Gas Light Company
Atmos Energy Corporation
Baltimore Gas and Electric Company
Bay State Gas Company
Central Hudson Gas & Electric Company
Cinergy Corporation
Citizens Gas & Coke Company
Colorado Interstate Gas Company
Columbia Gas of KY, MD, OH, PA, VA (NiSource Companies)
Columbia Gulf Transmission Company (a NiSource Company)
Columbia Gas Transmission Corporation (a NiSource Company)
Conectiv Power Delivery
Consolidated Edison Company of New York
Consumers Energy
Duke Energy Gas Transmission
El Paso Natural Gas Company
Enron Transportation Services
Equitable Resources, Inc.
Granite State Gas Transmission, Inc.
Great Lakes Gas Transmission Company
Gulf South Pipeline Company
Iroquois Gas Transmission System
Kansas Pipeline Operating Company
KeySpan Energy Delivery
KM Interstate Gas Transmission
KM Texas Pipeline
Kokomo Gas and Fuel Co. (a NiSource Company)
Louisville Gas & Electric Company
Michigan Consolidated Gas Company
New York State Electric & Gas Corporation
Niagara Mohawk Power Corporation
North Carolina Natural Gas
Northern Indiana Fuel and Light Co. (a NiSource Company)
Northern Indiana Public Service Company (a NiSource Company)
Northern Utilities, Inc. (a NiSource Company)
NW Natural
Orange and Rockland Utilities, Inc.
Pacific Gas and Electric Company
PECO Energy Company
PG&E National Energy Group
PSNC Energy
Public Service Electric and Gas Company
Questar Pipeline Company
Reliant Energy Arkla/Entex
Reliant Energy Minnegasco
Rochester Gas & Electric Corporation
South Carolina Electric & Gas Company (a SCANA subsidiary)
South Carolina Pipeline Corporation (a SCANA subsidiary)
Southern California Gas Company
Southern Natural Gas Company
Southwest Gas Corporation
Superior Water, Light and Power Co.
Tennessee Gas Pipeline Company
TXU Lone Star Pipeline
TXU Electric and Gas
UGI Utilities, Inc.
UtiliCorp United, Inc.
Washington Gas
Williams Gas Pipeline - Central
Williams Gas Pipeline - Texas Gas
Williams Gas Pipeline - Transco
Williston Basin Interstate Pipeline Co.
Wisconsin Public Service Corporation



In October, 2001, Southwest Gas and EPA teamed up at the American Gas Association Operations Conference to promote the Natural Gas STAR Program to AGA's membership. EPA developed the card on the left, which was distributed by Jim Wunderlin, VP of Operations at Southwest Gas.

Technology Transfer Workshops Continue To Provide Value to Producers

Over the past year, the Natural Gas STAR Program held four successful Producer Technology Transfer Workshops in Hobbs, New Mexico; Denver, Colorado; Gaylord, Michigan; and New Orleans, Louisiana. These free workshops offer in-depth information on relevant technologies and a forum to discuss emerging technologies or issues of regional importance. To ensure regional applicability, technical presentations are selected based on input from local operators. Topics to choose from include improving dehydrator efficiency, installing vapor recovery units, using plunger lifts in gas wells, replacing high-bleed pneumatics, and reducing compressor emissions. A new interactive component allows participants to walk through a cost-benefit analysis for a selected project, using company-specific information.

In 2002, Gas STAR will again hold producer workshops; sites being considered include Wyoming, Texas, and Louisiana. In addition, EPA plans to expand the program in 2002 to offer a technology transfer workshop for gas processors. All of the workshops are free and open to both current and prospective partners.

Please visit the Natural Gas STAR Web site, or call your STAR Service Representative for more information on upcoming workshops. If you are interested in co-hosting a workshop in your area, please contact the Natural Gas STAR Program manager at (202) 564-2318.

The Natural Gas STAR Program would like to thank the organizations and partner companies that helped make the four technology transfer workshops held in 2001 a success. Thank you,

Barrett Resources

BP

Gulf Coast Environmental Affairs Group

Independent Petroleum Association of the Mountain States

Michigan Oil and Gas Association

New Mexico Oil and Gas Association

Ocean Energy

Unocal Corporation

DOCUMENT REQUEST FORM

Name & Title: _____

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Telephone #: _____ FAX #: _____

Date Requested: _____

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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 henderson.carolyn@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 Pipeline Pressure Before Maintenance
_____ 13. Convert Gas Pneumatic Controls to Instrument Air
_____ 14. Using Hot Taps for In Service Repair
_____ 15. Using Desiccant Dehydration Instead of Glycol Dehydration (mid-2002)
_____ 16. Using Composite Sleeve Repair Techniques (mid-2002)
_____ 17. Directed Inspection and Maintenance at Gas Plants and Booster Stations (mid-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

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

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Air and Radiation (6202J)
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