

# The Natural Gas STAR Program

**Reducing Methane Emissions  
Increasing Efficiency  
Maximizing Profits**





## Program Overview

The Natural Gas STAR Program is one of many voluntary programs established by the U.S. Environmental Protection Agency (EPA) to promote government/industry partnerships that encourage cost-effective, market-based approaches to reducing greenhouse gas (GHG) emissions. Natural Gas STAR engages all sectors of the natural gas industry—production, gathering, processing, transmission, and distribution—to identify and implement technologies and practices to reduce emissions of methane, a potent GHG. In developing the Program, EPA worked closely with the natural gas industry to create a flexible, technically sound program that is easy to administer. The Program's Best Management Practices (BMPs), which were selected through a collaborative process involving EPA and natural gas industry advisers, are widely applicable to the industry and cost-effective for most operations.

### Why Decrease Emissions?

Through use of cost-effective technologies and procedures, companies can reduce methane emissions and therefore:

- **Increase efficiency.** The use of improved technologies and procedures helps improve operational efficiency in all sectors of the natural gas industry.
- **Maximize profits.** Reducing methane loss and improving efficiency saves money that can be reinvested or credited directly to the bottom line.
- **Protect the environment.** Methane, the primary component of natural gas, is a potent greenhouse gas—21 times stronger than carbon dioxide. Methane reduction helps reduce climate change impacts.

Today, the Natural Gas STAR Program is recognized for its many successes. Since the Program's launch in 1993, Natural Gas STAR partners have eliminated more than 220 billion cubic feet (Bcf) of methane emissions, resulting in approximately \$660 million in increased revenues. Membership in the Program has grown to include nearly 100 companies, and the Program has received endorsements from almost a dozen major industry trade associations.

Natural Gas STAR provides an opportunity for companies to take their corporate climate commitment one step further. By reporting methane emissions reductions to EPA, partners help build a sustainable future and create a lasting record of their accomplishments. They also identify themselves as environmental leaders and strategically position themselves as climate change issues continue to unfold.



### **How Much is 220 Bcf?**

That's enough natural gas to heat more than 3 million homes for 1 year, and the carbon equivalent of removing almost 20 million cars from the nation's highways or planting 26 million acres of trees.

***“Our goal is to have 100 percent of our members participate in cost-effective programs like Natural Gas STAR. They'll help improve our energy efficiency and reduce methane and other greenhouse gas emissions while keeping the economy growing.”***

—Red Cavaney, American Petroleum Institute President and CEO

# Join the Program in Three Easy Steps

## STEP 1. Sign Up.

To become a partner, you simply review and sign the Program's Memorandum of Understanding (MOU). By signing the MOU, your company and EPA agree to undertake the activities outlined in steps 2 & 3.

### Gas STAR is Your Program

- *You* determine which activities and technologies are applicable and cost-effective for your operations.
- *You* commit to participating at a level that best suits your company and operations.
- *You* understand that implementation of specific practices is not mandatory, and implementation plans are not binding.
- *You* can terminate the partnership at any time with no penalties, further obligation, or publicity.

## STEP 2. Develop an Implementation Plan.

Once EPA receives your MOU, you will be contacted by a program manager who can assist you in planning your company's participation and implementation strategy. Natural Gas STAR can also provide a variety of tools to assist you in implementing the Program in your operations. The first step is developing an implementation plan—based on corporate business objectives, available resources, and potential methane reduction possibilities—that outlines BMPs, Partner Reported Opportunities (PROs), and other emissions reductions activities your company plans to implement.

EPA has developed *A Hands-on Guide to Implementing the Natural Gas STAR Program* to guide you through the program's milestones and support your company's efforts to initiate projects that reduce methane emissions. Also, EPA staff are always willing to personally assist in the development of your implementation plan.





## Natural Gas STAR Key Components

**Best Management Practices (BMPs)**—a set of cost-effective, widely applicable methane emissions reductions opportunities/options, aimed at reducing leaks and process venting from the largest sources, which were jointly identified by EPA and gas industry representatives.

**Partner Reported Opportunities (PROs)**—unique activities (e.g., practices, process changes, or technologies) that companies have identified and implemented—in addition to the core set of BMPs—to cost-effectively reduce methane emissions.

*“The Program fit into our methane reduction program in that it showed us how to do the things we were already doing a little bit better. It showed us what some of the partners were doing; some of the equipment that they were using, rather than equipment that we used in the past; and it showed us that we could take account of methane emissions.”*

—James Frederick, Unocal Gulf Region USA

### STEP 3. Submit Annual Progress Reports.

Following implementation, your company submits annual reports documenting the previous year’s emissions reductions activities.

In addition to annual emissions reductions reports, Natural Gas STAR partners are encouraged to report historical emissions reductions actions back to 1990. Companies that account for these historical reductions and submit them to EPA create a permanent record of a company’s methane emissions reductions efforts. Although all data submitted to EPA remain confidential, partners often use emissions reductions data to identify themselves as environmental leaders and position themselves to meet new climate challenges head-on.

Online data collection tools and Web-enabled annual reporting forms allow Natural Gas STAR partners to quickly and easily submit their emissions reduction data to EPA. You are also free to devise your own reporting format (e.g., tracking databases, spreadsheets).

*“The Natural Gas STAR Program allows partners to be recognized for their methane emissions programs, and to share with other partners information on cutting edge technology for reducing emissions.”*

—David Davidowitz, Consolidated Edison Company of New York, Inc.

## Natural Gas STAR Best Management Practices

### Production

- BMP I: Identify and replace high-bleed pneumatic devices.
- BMP II: Install flash tank separators on glycol dehydrators.
- BMP III: Identify and implement additional activities or PROs that can reduce methane emissions profitably.

### Gathering and Processing

- BMP I: Replace gas pneumatics with instrument air systems.
- BMP II: Install flash tank separators on glycol dehydrators.
- BMP III: Implement directed inspection and maintenance (DI&M) at gas plants and booster stations.
- BMP IV: Identify and implement additional activities or PROs that can reduce methane emissions profitably.

### Transmission and Distribution

- BMP I: Implement DI&M programs at gate stations and surface facilities.\*
- BMP II: Identify and rehabilitate leaky distribution pipes.\*
- BMP III: Implement DI&M programs at compressor stations. \*\*
- BMP IV: Use turbines at compressor stations for new installations or when retiring reciprocating engines. \*\*
- BMP V: Identify and replace high-bleed pneumatic devices. \*\*
- BMP VI: Identify and implement additional activities or PROs that can reduce methane emissions profitably.

\* BMPs typically reported by distribution sector partners.

\*\* BMPs typically reported by transmission sector partners.



**Information on these technologies and practices can be found in the Natural Gas STAR Lessons Learned and the PRO Fact Sheets located on the Natural Gas STAR Web site at [www.epa.gov/gasstar](http://www.epa.gov/gasstar).**



## Benefits of Joining the Natural Gas STAR Program

### Increase Profits

Companies experience many benefits by becoming a Natural Gas STAR partner—one of the most notable is financial savings. Since the Program's launch in 1993, not only have partners reduced methane emissions, but they have saved \$660 million. In 2001 alone, the average Natural Gas STAR partner reported more than \$230,000 in savings.

### Engage in Technology Transfer: The Key to Natural Gas STAR Partnership

Natural Gas STAR partners are at the forefront of methane emissions reductions technology. Gas STAR draws upon this wealth of partner-provided information

and presents its partners with many opportunities to learn about methane emissions reductions technologies and techniques. Resources available to all Gas STAR partners include:

- Detailed Methane Reduction Technology Reports
- Partner Reported Opportunity Fact Sheets
- Partner Company Case Studies
- Technology Transfer Workshops
- Annual Implementation Workshop

EPA also analyzes emerging technologies to help identify and evaluate equipment and process changes that might lead to reduced methane emissions and improved operations for Natural Gas STAR partners.

## Address Regulatory Issues

The Natural Gas STAR Program encourages federal, state, and local officials to consider regulatory flexibility that takes into account voluntary Gas STAR partner efforts to reduce methane emissions.

## Receive National Recognition

Natural Gas STAR partners enjoy a number of public relations opportunities. EPA regularly recognizes them through:

- **Partner Updates and Bulletins.** Natural Gas STAR's quarterly *Partner Update* newsletter and periodic bulletins highlight the successes and accomplishments of partners and the Program, and offer news on PROs and emerging technologies.
- **Case Studies.** Natural Gas STAR partner case studies help companies learn how others have implemented Program activities—from a company's decision to join to evaluating its BMPs and PROs to documenting its results.

- **PRO Fact Sheets.** The Program develops fact sheets on PROs to provide partners with new ideas and basic information for evaluating the economic feasibility of implementing partner-reported methane reduction techniques and technologies.
- **Press Releases.** EPA circulates press releases on its annual recognition awards and new partners.
- **Journal Articles.** Articles featuring Natural Gas STAR partner achievements and Program activities often appear in national journals such as the *American Gas Journal*, *Oil & Gas Journal*, *Hydrocarbon Processing*, *Pipeline and Gas Journal*, and *American Oil and Gas Reporter*.
- **Public Service Announcements.** Natural Gas STAR public service announcements listing successful partners and their accomplishments have appeared in the *Harvard Business Review*, *American Gas*, and *Pipe Line & Gas Industry*, and other periodicals of the American Petroleum Institute.



## Be Recognized as an Environmental Leader

One of the most notable results of joining Natural Gas STAR, aside from the cost savings, is being recognized for making a commitment to a better environment by employing pollution prevention techniques and sound management practices to reduce methane emissions. Since 1993, Natural Gas STAR partners have prevented more than 220 billion cubic feet (Bcf) of methane emissions thereby helping to protect the environment and to create a sustainable future.

*“We have been a partner since 2000, and put forth the effort to strongly implement our program. It has paid off not only in cost savings and environmental protection, but we also received a Partner of the Year Award. This award from EPA is icing on the cake.”*

—James Meier, Pioneer Natural Resources, USA

- **Partner of the Year Award.** Each year, EPA presents a “Partner of the Year” award to one company from each sector that made exceptional progress in reducing methane emissions. Past recipients include: Atlanta Gas, Bay State Gas Company, BP, Brooklyn Union, ChevronTexaco Corporation, ConocoPhillips, Columbia Gas and Columbia Gulf Transmission, Consolidated Edison Company of New York, Duke Energy Gas Transmission, Enron Transportation Services, ExxonMobil Production Company, Kerr-McGee Oil and Gas, Marathon Oil Company, PECO Energy, Pioneer Natural Resources USA Inc., and Southwest Gas.
- **Other Awards.** In addition to the “Partner of the Year” award, EPA recognizes other partners for “Continuing Excellence,” identifies an annual “Implementation Manager of the Year,” and applauds outstanding new partners as “Rookies of the Year.”



*“It’s such a positive program and it’s a win-win situation for both the natural gas industry as well as for the environment. It’s a very strong cooperative program between the private sector and the government. It’s really the best of what we have in America.”*

—David Parker, American Gas Association

To learn more about the Natural Gas STAR Program, visit the Web site at [www.epa.gov/gasstar](http://www.epa.gov/gasstar).



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