

Annual Report 2007



Transmission Sector

Company Information

Company Name: _____

Gas STAR Contact: _____

Title: _____

Address: _____

City, State, Zip Code: _____

Telephone: _____

Fax: _____

E-mail: _____

Business Units/
Locations Reporting: _____

Annual Report Summary

Please mark the activities your company executed and submit a report page for each facility/location it was implemented

- ☐ BMP 1: Directed inspection and maintenance at compressor stations
- ☐ BMP 2: Use of turbines at compressor stations
- ☐ BMP 3: Identify and replace high-bleed pneumatic devices
- ☐ Partner Reported Opportunities (*please specify*):

Period covered by report: From: _____ To: _____

Signature: _____ Date: _____

- Gas STAR allows certain technologies/practices to count towards a company's emission reductions beyond the year they were initially implemented. For example, a technology implemented in 2007 can accrue emission reductions in future years. Gas STAR designates the length of time that these reductions accrue as "sunset dates." The Appendix lists these sunset dates. Companies can choose to allow EPA to apply the sunset dates or choose to report each technology/practice on an annual basis (i.e. not using sunset dates).
- In addition to reporting methane emissions reductions, you are welcome to include other information about your company's participation in Natural Gas STAR in the "Additional Program Accomplishments" section of this form. The Natural Gas STAR Program will use any information entered in this section to recognize the efforts and accomplishments of outstanding partners.



Transmission Sector Annual Report

OMB Control No. 2060-0328 Approval Expires 3/31/2008

BMP 1: Directed inspection and maintenance at compressor stations

Current Year Activities

A. Facility/location identifier information:

(Note: Each facility requires its own reporting form) _____

B. Leak summary:

Total number of leaks found: _____

Total number of leaks repaired: _____

C. Cost summary:

Total cost of surveys conducted: \$ _____

Total cost of leak repairs: \$ _____

D. Methane emissions reduction: _____ Mcf

* BMP 1 must be reported on an annual basis.

Please identify the basis for the emissions reduction estimate, using the space provided to show any calculations

☐ Actual field measurement

☐ Other (please specify): _____

☐ Calculation using default*

*Methane emissions reduction = Average annual leak rate per facility
(1,700 Mcf) × Reduction efficiency (70%) × Number of facilities at
which leaking components were repaired*

** Important note: The default value is to be used only for aboveground,
high-pressure (>300 psig) inlet facilities at which the guidelines
outlined in EPA's Lessons Learned: Directed Inspection and
Maintenance at Gate Stations and Surface Facilities have been
applied. In addition, partners should only report reductions once per
year per facility **and** should verify that the default value is used only at
facilities where leak repairs were performed.*

E. Total value of gas saved: \$ _____

*Total value of gas saved = Methane emissions reduction (in Mcf) × Gas
value (in \$/Mcf) [If not known, use default of \$7.00/Mcf]*

**F. Do you plan to survey this
facility/location next year?** _____

(Yes/No)

Previous Years' Activities

Use the table below to report any past activities implemented, but not previously reported to the Natural Gas STAR Program

Year	Total Cost of Surveys (\$)	Total Cost of Repairs (\$)	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

BMP 1 Comments: Please use the back of the page for additional space if needed.



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BMP 2: Use of turbines at compressor stations

Current Year Activities

A. Facility/location identifier information:

(Note: Each facility requires its own reporting form)

B. Replacement summary:

Miles of distribution pipe replaced: _____ miles

Total cost of pipe replacement: \$ _____

C. Leak summary:

Total number of leaks repaired
(excluding pipe replacement): _____ leaks repaired

Total cost of leak repairs: \$ _____

D. Methane emissions reduction:

_____ Mcf

E. Are these emissions reductions a one-year reduction or a multi-year reduction? ☐ One-year ☐ Multi-year

If Multi-year:

☐ Partner will report this activity once and let EPA automatically calculate future emission reductions based on sunset date duration (BMP 2 has a sunset period of 20 years).

☐ Partner will report this activity annually.

Please identify the basis for the emissions reduction estimate, using the space provided to show any calculations

☐ Actual field measurement

☐ Calculation using default—see chart below (Miles replaced x Leak rate conversion factor (Mcf/mi) = Methane emissions reduction)

Type of Pipe Replaced	Main Replacement			Services Replacement		
	Miles Replaced	Leak Rate Conversion (Mcf/mi)	Emissions Reduction	Miles Replaced	Leak Rate Conversion (Mcf/mi)	Emissions Reduction
Cast Iron	_____ miles	239	_____ Mcf			
Protected Steel	_____ miles	3	_____ Mcf	_____ miles	0.2	_____ Mcf
Unprotected Steel	_____ miles	110	_____ Mcf	_____ miles	1.7	_____ Mcf
Plastic	_____ miles	12	_____ Mcf	_____ miles	0.1	_____ Mcf
Copper				_____ miles	0.3	_____ Mcf
Not Available (Average)	_____ miles	29	_____ Mcf	_____ miles	0.3	_____ Mcf
Totals:	_____ miles		_____ Mcf	_____ miles		_____ Mcf

☐ Other (please specify): _____

F. Total value of gas saved:

\$ _____

Total value of gas saved = Methane emissions reduction (in Mcf) x Gas value (in \$/Mcf) [If not known, use default of \$7.00/Mcf]

G. How many miles of pipe do you plan to replace next year?

_____ miles

Previous Years' Activities

Use the table below to report any past activities implemented, but not previously reported to the Natural Gas STAR Program

Year	# Miles of Pipe Replaced	Total Cost of Replacements (\$)	# of Leaks Repaired	Total Cost of Repairs (\$)	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

BMP 2 Comments: Please use the back of the page for additional space if needed.



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BMP 3: Identify and replace high-bleed pneumatic devices

Current Year Activities

A. Facility/location identifier information:

(Note: Each facility requires its own reporting form) _____

B. Leak summary:

Total number of leaks found: _____

Total number of leaks repaired: _____

C. Cost summary:

Total cost of surveys conducted: \$ _____

Total cost of leak repairs: \$ _____

D. Methane emissions reduction: _____ Mcf

E. Are these emissions reductions a one-year reduction or a multi-year reduction? ☐ One-year ☐ Multi-year

If Multi-year:

☐ Partner will report this activity once and let EPA automatically calculate future emission reductions based on sunset date duration (BMP 2 has a sunset period of 10 years).

☐ Partner will report this activity annually.

Please identify the basis for the emissions reduction estimate, using the space provided to show any calculations

☐ Actual field measurement

☐ Other (please specify): _____

☐ Calculation using default

*Methane emissions reduction = Average annual leak rate per facility
(12,200 Mcf) × Reduction efficiency (70%) × Number of facilities at
which leaking components were repaired*

F. Total value of gas saved: \$ _____

*Total value of gas saved = Methane emissions reduction (in Mcf)
× Gas value (in \$/Mcf) [If not known, use default of \$7.00/Mcf]*

**G. How many facilities do you
plan to survey next year?** _____ facilities

Previous Years' Activities

Use the table below to report any past activities implemented, but not previously reported to the Natural Gas STAR Program

Year	Total Cost of Surveys (\$)	Total Cost of Repairs (\$)	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

BMP 3 Comments: Please use the back of the page for additional space if needed.



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Partner Reported Opportunities (PROs) (For more details on PROs, visit epa.gov/gasstar/techprac.htm)

Current Year Activities

A. Facility/location identifier information:

(Note: Each facility requires its own reporting form) _____

B. Activity description: Please provide a separate PRO reporting form for each activity and facility reported

Please specify the technology or practice that was implemented (choose from the list in the appendix or describe your own):

Please describe how your company implemented this activity:

C. Level of Implementation (check one):

- ☐ Number of units installed: _____ units
☐ Frequency of practice: _____ times/year

E. Are emissions reductions a one-year reduction or a multi-year reduction? ☐ One-year ☐ Multi-year

If Multi-year:

- ☐ Partner will report this activity once and let EPA automatically calculate future emission reductions based on sunset date duration*.
☐ Partner will report this activity annually.

E. Methane emissions reduction: _____ Mcf

F. Cost summary: Estimated cost of implementing this practice/activity (including equipment and labor): \$ _____

Please identify the basis for the emissions reduction estimate, using the space provided to show any calculations

- ☐ Actual field measurement ☐ Other (please specify): _____
☐ Calculation using manufacturer specifications/other source

G. Total value of gas saved: \$ _____

Total value of gas saved = Methane emissions reduction (in Mcf) x Gas value (in \$/Mcf) [If not known, use default of \$7.00/Mcf]

H. To what extent do you expect to implement this practice next year?

Previous Years' Activities

Use the table below to report any past implementation of this PRO, but not previously reported to Natural Gas STAR

Year	Frequency of Practice/Activity or # of Installations	Total Cost of Practice/Activity (incl. equipment and labor) (\$)	Estimated Reductions (Mcf/yr)	Value of Gas Saved (\$)

PRO Comments: Please use the back of the page for additional space if needed.

* Gas STAR allows certain technologies/practices to count towards a company's emission reductions beyond the year they were initially implemented. For example, a technology implemented in 2007 can accrue emission reductions in future years. Gas STAR designates the length of time that these reductions accrue as "sunset dates." The Appendix lists these sunset dates. Companies can choose to allow EPA to apply the sunset dates or choose to report each technology/practice on an annual basis (i.e. not using sunset dates).



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Additional Program Accomplishments

The Natural Gas STAR Program will use any information entered here to recognize the efforts and achievements of outstanding partners.

Please include any additional information you would like to share about your company's participation in Natural Gas STAR. Examples may include:

- Activities to strengthen your program (e.g., training/education, innovative technologies or activities, pilot projects, employee incentive programs).
- Efforts to communicate your participation and successes (e.g., internal newsletters, press releases, company Web site).
- Participation in Natural Gas STAR program activities (e.g., contributions to case studies, presentation at annual workshop).

Additional Accomplishments:

Additional Accomplishments Comments: *Please use the back of the page for additional space if needed.*



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Appendix

Methane Emission Reduction Technologies & Practices— Transmission Sector

The list below describes a variety of methane emission reduction technologies that Natural Gas STAR partners in the transmission sector have implemented and reported to Natural Gas STAR. You may use this list as a guide when completing your annual report. Sunset dates (i.e. the length of time a technology or practice can continue to accrue emission reductions after implemented) are one year in duration unless otherwise noted in parentheses. An asterisk (*) indicates that a technical document related to the technology or practice is available online at epa.gov/gasstar/techprac.htm.

Compressors/Engines

- Automate systems operation to reduce venting*
- Automated air/fuel ratio controls (10 years)*
- Eliminate unnecessary equipment and/or systems*
- Install electric compressors (10 years)*
- Install electric motors (10 years)
- Install electric starters (10 years)*
- Lower purge pressure for shutdown*
- Redesign blowdown systems and alter ESD practices*
- Reduce the frequency of engine starts with gas*
- Reducing emissions when taking compressors off-line*
- Reducing methane emissions from compressor rod packing systems*
- Replace compressor cylinder unloaders*
- Replace gas starters with air (10 years)*
- Replace ignition - reduce false starts*
- Replacing wet seals with dry seals in centrifugal compressors (10 years)*

Dehydrators

- Install condensers on glycol dehydrators (10 years)
- Install flares (10 years)*
- Optimize glycol circulation and install of flash tank separators in dehydrators (10 years)*
- Replace glycol dehydrator with separators & in-line heaters (10 years)*
- Replacing gas-assisted glycol pumps with electric pumps (10 years)*
- Reroute glycol skimmer gas*

Directed Inspection and Maintenance

- Conduct DI&M at remote sites*
- DI&M: aerial leak detection using laser and/or infrared technology
- DI&M: leak detection using IR camera/optical imaging
- DI&M: survey and repair leaks
- Inspect and repair compressor station blowdown valves*
- Use ultrasound to identify leaks*

Pipelines

- Composite wrap for non-leaking pipeline defects*
- Inject blowdown gas into low pressure mains*
- Perform leak repair during pipeline replacement*
- Pipeline replacement and repair
- Recover gas from pipeline pigging operations*
- Use inert gases and pigs to perform pipeline purges*
- Using hot taps for in-service pipeline connections*
- Using pipeline pumpdown techniques to lower gas line pressure before maintenance*

Tanks

- Capture methane released from pipeline liquid storage tanks (10 years)*
- Install flash gas compressors (10 years)

Pneumatics/Controls

- Convert gas pneumatic controls to instrument air (10 years)*
- Convert gas-driven chemical pumps to instrument air (10 years)*
- Reduce meter run blowdowns
- Replace bi-directional orifice metering with ultrasonic meters*

Valves

- Close main and unit valves prior to blowdown*
- Design isolation valves to minimize gas blowdown volumes (10 years)*
- Move fire gates in to reduce venting at compressor stations (10 years)*
- Test and repair pressure safety valves*
- Use of YALE closures for ESD testing*

Wells

- Switch from underbalanced to overbalanced drilling in gas storage field

Other

- Improve system design/operation
- Install flares (10 years)*
- Require improvements in quality of gas received*

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