



# Natural Gas STAR Recommended Technologies and Practices— Distribution Sector

**N**atural Gas STAR is a voluntary partnership program between the U.S. Environmental Protection Agency (EPA) and the oil and natural gas industry to cost-effectively reduce methane emissions from oil and natural gas operations both domestically and abroad. Partners implement a variety of voluntary cost-effective technologies and practices to reduce methane emissions each year. By reporting these activities in their Natural Gas STAR annual reports, partners share valuable technical information with EPA and other partners who may benefit from the voluntary implementation of similar technologies and practices.

## Distribution Accomplishments

Since 1993, Distribution sector partners have achieved 43.7 billion cubic feet (Bcf) of methane emissions reductions, or 17.67 million tonnes of carbon dioxide equivalent.

The bar chart below shows the top seven technologies/practices with the largest emissions reductions reported by domestic distribution sector partners since the beginning of the Natural Gas STAR Program. Natural Gas STAR encourages partners to consider additional ways to reduce gas losses, such as these technologies and practices, to ultimately save money and protect the environment.

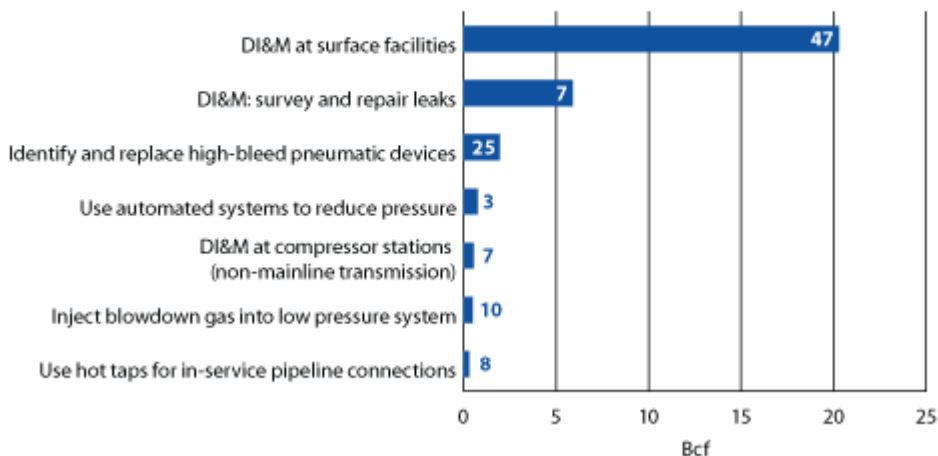
### **Already implementing these technologies and practices?**

Partners performing any of these activities are encouraged to tell EPA about it by including this information in their annual reports.

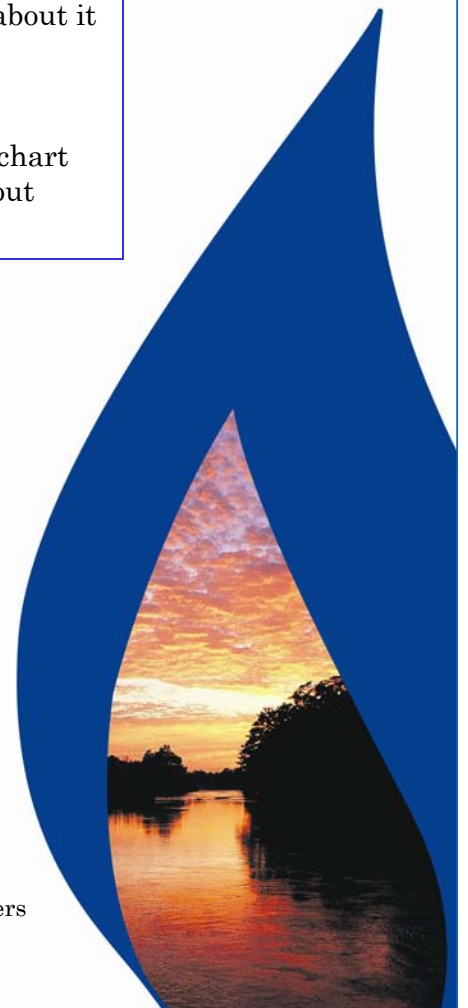
### **Interested in trying new technologies and practices?**

Detailed descriptions of the technologies/practices presented in the bar chart below can be found on the following page, in addition to information about technical tools and resources available to partners.

## **Technologies/Practices with the Largest Reported Methane Emissions Reductions (Distribution Sector)\***



\*Note: The numbers noted on each bar indicate the number of distribution sector partners that have reported these activities since 1993.



## [Technologies/Practices with the Largest Reported Methane Emission Reductions \(Distribution Sector\)](#)

### **Directed Inspection and Maintenance (DI&M) at Surface Facilities**

Fugitive emissions from leaking meters and regulating equipment at gate stations and surface facilities are a significant source of methane emissions. Implementing a directed inspection and maintenance (DI&M) program is a proven, cost-effective way to detect, measure, prioritize, and repair equipment leaks to reduce methane emissions. **For more information, see “Directed Inspection and Maintenance at Gate Stations and Surface Facilities”** at [epa.gov/gasstar/documents/ll\\_dimgatestat.pdf](http://epa.gov/gasstar/documents/ll_dimgatestat.pdf).

### **DI&M: Survey and Repair Leaks**

Leaks from flanges, valves, and connectors throughout gas delivery systems are a significant source of methane emissions. Implementing a DI&M program is a proven, cost-effective way to detect, measure, prioritize, and repair equipment leaks to reduce methane emissions. **For more information, see “Directed Inspection and Maintenance at Gate Stations and Surface Facilities”** at [epa.gov/gasstar/documents/ll\\_dimgatestat.pdf](http://epa.gov/gasstar/documents/ll_dimgatestat.pdf).

### **Identify and Replace High-Bleed Pneumatic Devices**

Emissions from natural gas powered pneumatic control devices are one of the largest sources of methane emissions in the natural gas industry. Replacing high-bleed devices with low-bleed devices, retrofitting high-bleed devices, and improving maintenance practices are proven approaches to cost-effectively reducing methane emissions. **For more information, see “Options for Reducing Methane Emissions from Pneumatic Devices in the Natural Gas Industry”** at [epa.gov/gasstar/documents/ll\\_pneumatics.pdf](http://epa.gov/gasstar/documents/ll_pneumatics.pdf).

### **Use Automated Systems to Reduce Pressure**

Distribution systems typically operate at pressures set to satisfy peak demand gas delivery requirements. During non-peak demand periods, these pressures can be greater than needed and can result in increased leaks and emissions. Partners use automated control systems (smart regulators and clocking solenoids) to reduce distribution system pressure during low demand periods. **For more information, see the presentations “Reducing Distribution System Pressure”** at [epa.gov/gasstar/documents/red\\_of\\_pressure\\_part1.ppt](http://epa.gov/gasstar/documents/red_of_pressure_part1.ppt) and [epa.gov/gasstar/documents/red\\_of\\_pressure\\_part2.ppt](http://epa.gov/gasstar/documents/red_of_pressure_part2.ppt).

### **DI&M at Compressor Stations (Non-mainline Transmission)**

Non-mainline transmission pipeline compressor stations are a significant source of fugitive emissions from leaking compressors and other equipment components such as valves, flanges, connections, and open-ended lines. Implementing a directed inspection and maintenance program is a proven, cost-effective way to detect, measure, prioritize, and repair equipment leaks to reduce methane emissions. **For more information, see “Directed Inspection and Maintenance at Compressor Stations”** at [epa.gov/gasstar/documents/ll\\_dimcompstat.pdf](http://epa.gov/gasstar/documents/ll_dimcompstat.pdf).

### **Inject Blowdown Gas into Low Pressure System**

When compressors and/or pipeline segments are taken out of service for operational or maintenance purposes, it is a common practice to depressurize the natural gas to the atmosphere. Partners report saving this gas and reducing methane emissions by de-pressuring to a connected or nearby low-pressure fuel or product system. **For more information, see “Inject Blowdown Gas into Low Pressure Mains”** at [epa.gov/gasstar/documents/injectblowdowngas.pdf](http://epa.gov/gasstar/documents/injectblowdowngas.pdf).

### **Use Hot Taps for In Service Pipeline Connections**

Gas distribution companies make new connections to pipelines to expand or modify their existing systems. This often necessitates shutting down a portion of the system and purging the gas to the atmosphere to ensure a safe connection. This procedure can result in methane emissions and loss of product and sales. Hot tapping is an alternative procedure that makes a new pipeline connection while the pipeline remains in service, flowing natural gas under pressure. The hot tap procedure involves attaching a branch connection and valve on the outside of an operating pipeline, and then cutting out the pipeline wall within the branch and removing the wall section through the valve. **For more information, see “Using Hot Taps for In Service Pipeline Connections”** at [epa.gov/gasstar/documents/ll\\_hottaps.pdf](http://epa.gov/gasstar/documents/ll_hottaps.pdf).

## [Technical Tools and Resources](#)

**Technical Documents** for Natural Gas STAR recommended technologies and practices can be found at [epa.gov/gasstar/tools/recommended.html](http://epa.gov/gasstar/tools/recommended.html).

**Service Provider Directory** includes information on service and technology providers that can facilitate methane emission reduction activities. The directory can be found at [epa.gov/gasstar/tools/service-provider-directory.html](http://epa.gov/gasstar/tools/service-provider-directory.html).

**EPA Program Managers and STAR Service Representatives** are available to assist in reviewing technologies and practices and for all other program-related questions at [epa.gov/gasstar/partners/service-reps.html](http://epa.gov/gasstar/partners/service-reps.html).

**For more information on the Natural Gas STAR Program, visit [epa.gov/gasstar](http://epa.gov/gasstar).**