

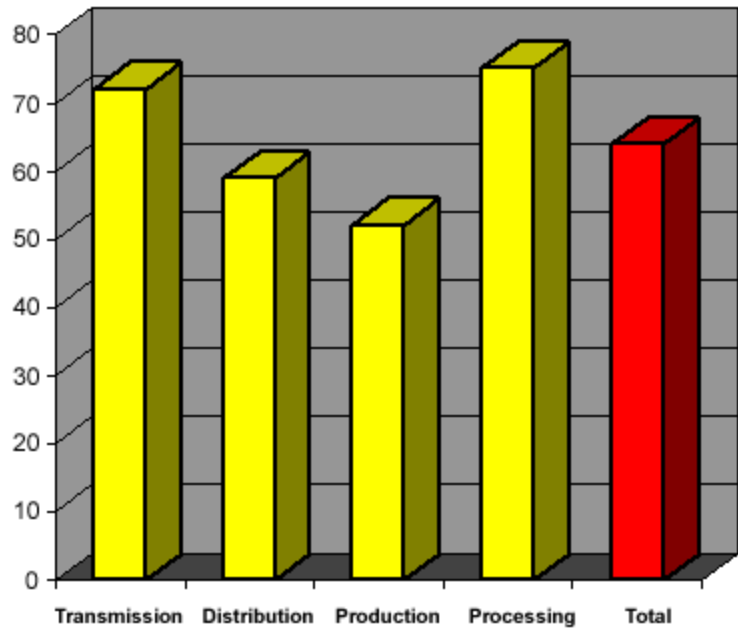


# EPA Natural Gas STAR Accomplishments 2003

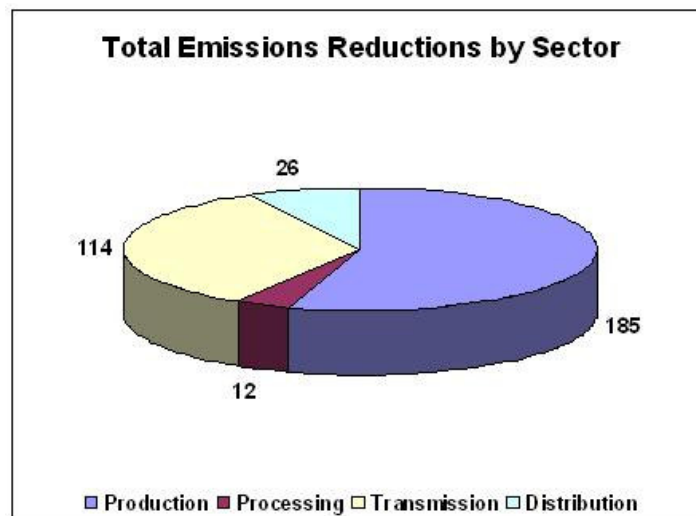
By working together to prevent gas losses, EPA and the natural gas industry are successfully protecting the environment and improving profitability. Participation in Natural Gas STAR cuts across all of the major industry sectors, including gas production, processing, transmission and distribution. As of 2003, the companies participating in Natural Gas STAR represent almost 65% of the natural gas industry in the U.S. The graph below details participation by industry sector. Today, the program has over 100 partner companies and is endorsed by 12 major industry trade associations.

Since the Program began in 1993, Natural Gas STAR partners have eliminated more than 336 billion cubic feet (Bcf) of methane emissions through the implementation of the Program's core Best Management Practices (BMPs), as well other activities identified by partner companies (referred to as Partner Reported Opportunities - or PROs) (see charts below). This is the equivalent of removing nearly 25 million cars from the road for one year or planting nearly 31 million acres of trees. At the same time, partner companies have saved more than \$1 billion by keeping more gas in their systems for sale in the market.

**% of Industry in Natural Gas STAR Program**

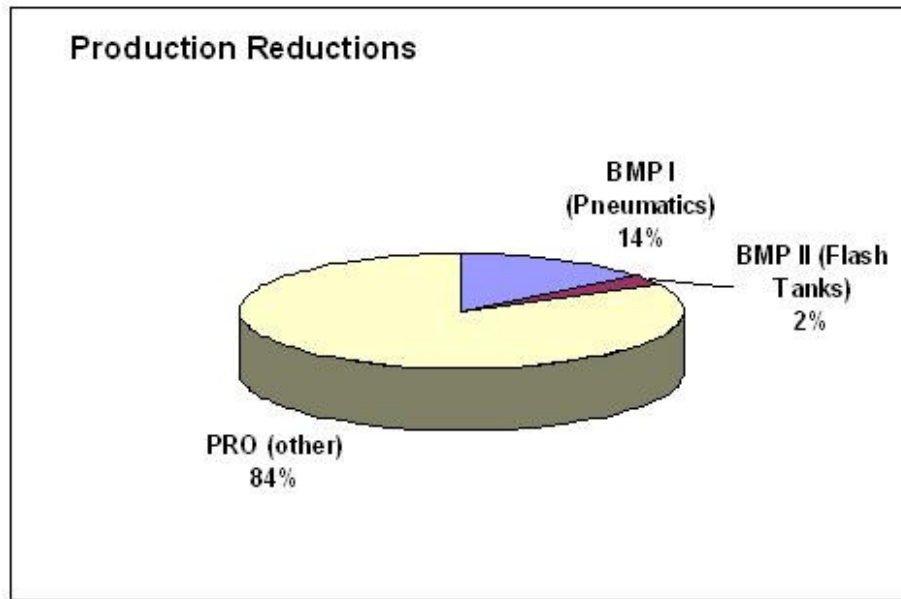


The following pie chart shows the breakdown of reported emission reductions (in Bcf) by industry sector:



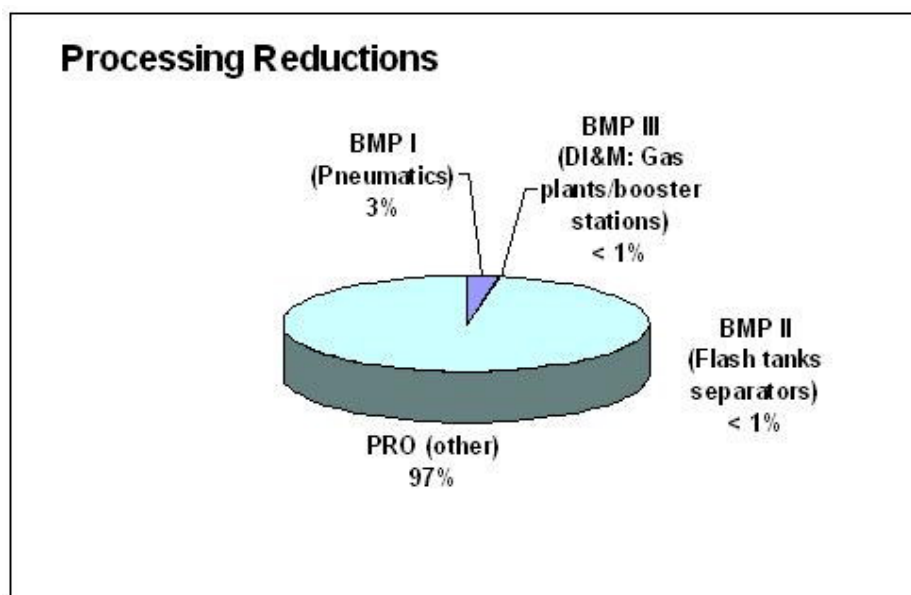
Production sector partners reported 30.9 Bcf of methane emission reductions in 2003 - and a total of 184.8 Bcf since 1990. The figure below shows that most of the reductions in this sector for 2003 were from PROs, with relatively small percentages attributable to the core BMPs: replacing high-bleed pneumatic devices and installation of flash tank separators. Top PROs reported by production sector partners in 2003 included:

- Installing vapor recovery units
- Installing plunger lifts
- Performing reduced emission completions



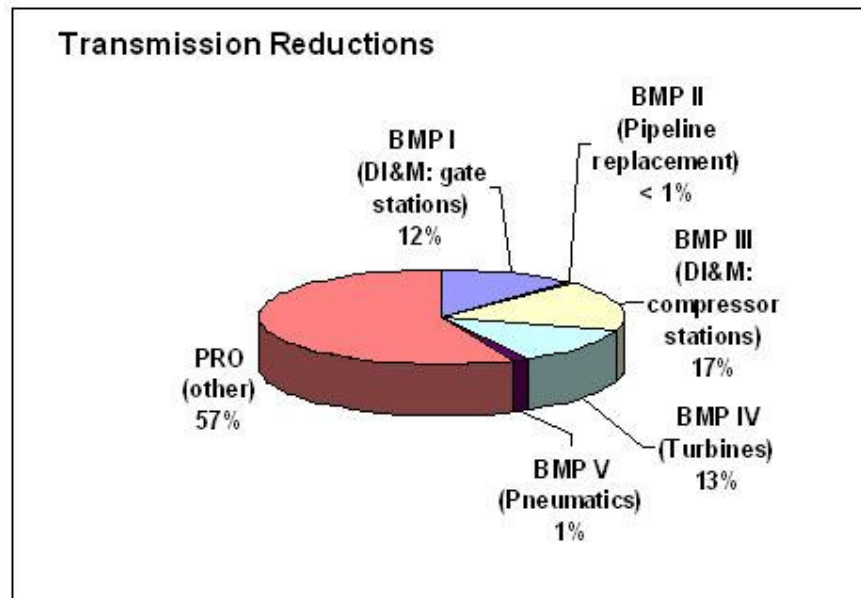
Gathering and Processing sector partners reported nearly 3 Bcf of methane reductions in 2003 - and a total of nearly 12 Bcf of reductions since 1990. Top PROs reported by gathering and processing sector partners include:

- DI&M: Leak detection using infrared camera/optical imaging
- Eliminate unnecessary equipment and/or systems
- Redesign blowdown/alter ESD practices



Transmission sector partners reported 15.6 Bcf of reductions in 2003 - and a total of nearly 114 Bcf since 1993. The figure below shows that the largest percentage of reductions are attributable to PROs, with Directed Inspection and Maintenance (DI&M) at compressor stations, installation of turbines, and DI&M at gate stations and surface facilities contributing 17, 13, and 12 percent respectively. Top PROs reported by transmission sector partners in 2003 included:

- Installing vapor recovery units on pipeline liquid/condensate tanks
- Using fixed/portable compressors for pipeline pumpdown
- Replacing wet compressor seals with dry seals
- Using composite wrap repair



Distribution sector partners reported 5.8 Bcf of reductions in 2003 - and a total of 26 Bcf since 1993. The figure below shows that the largest percentage of reductions is attributable to DI&M at gate stations. Top PROs reported by distribution sector partners in 2003 included:

- DI&M: Survey and repair leaks
- Reduce/downgrade system pressure
- Using automated systems to reduce pressure

