

Seneca Resources Corporation

Joined Natural Gas STAR in 2015

2018 Natural Gas STAR Summary Report

Segment: Production

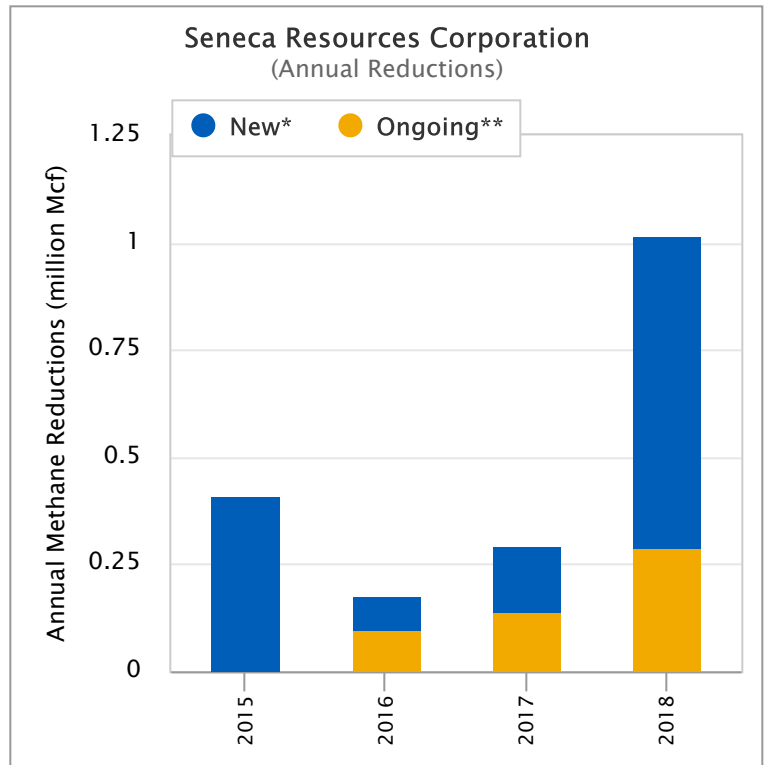
Since the inception of the program in 1993, domestic Natural Gas STAR partners have eliminated more than 1,634,488,310 thousand cubic feet (Mcf) of methane emissions.

1,185,262,833 Mcf of methane emissions have been reduced in the Production Segment.

This report summarizes the voluntary methane emissions reductions achieved by Seneca Resources Corporation in the Production Segment under the EPA Natural Gas STAR Program.





Reductions for Seneca Resources Corporation

| 2018 | Cumulative |
|----------------------|----------------------|
| 1,014,607 Mcf | 1,895,075 Mcf |
| New: 723,119 Mcf | |
| Ongoing: 291,488 Mcf | |



Methane Emission Reduction Equivalencies

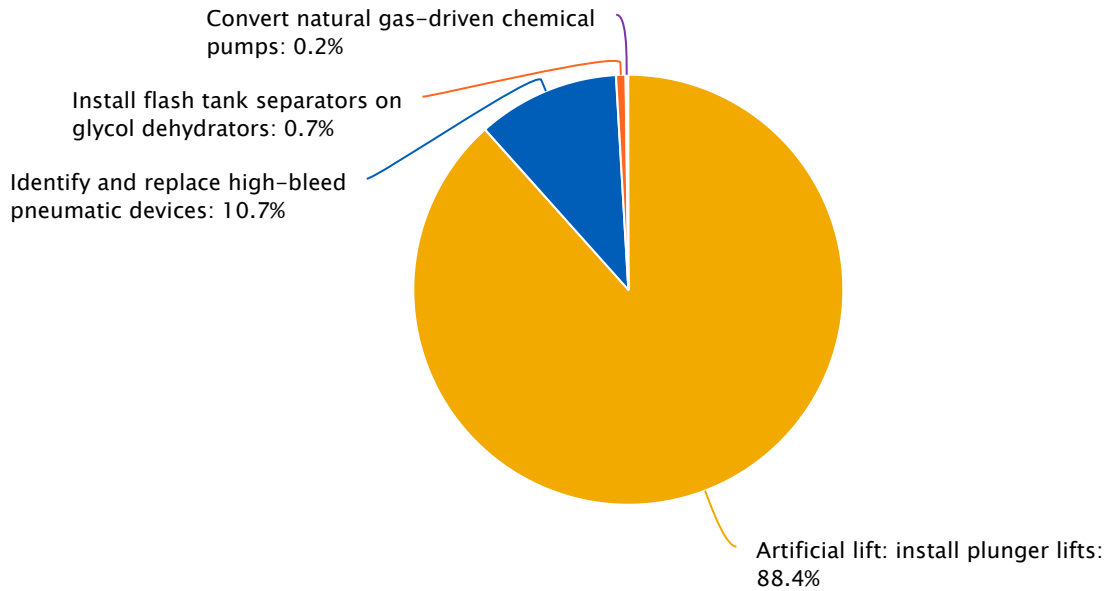
See [EPA's Greenhouse Gas Equivalencies Calculator](#) for additional equivalencies and details about the [conversion units](#).

| | 2018 (1,014,607 Mcf) | Cumulative (1,895,075 Mcf) |
|---|-----------------------------|-------------------------------|
|  Metric tons (MT) CO ₂ equivalent | 487,010 MTCO ₂ e | 909,633 MTCO ₂ e |
|  CO ₂ emissions from the energy used by this many homes in one year | 56,198 homes | 104,966 homes |
|  Carbon sequestered from this many acres of U.S. forests in one year | 636,012 acres | 1,187,938 acres |
|  Value of methane saved (at \$3 per Mcf) | \$3,043,822 | \$5,685,226 |

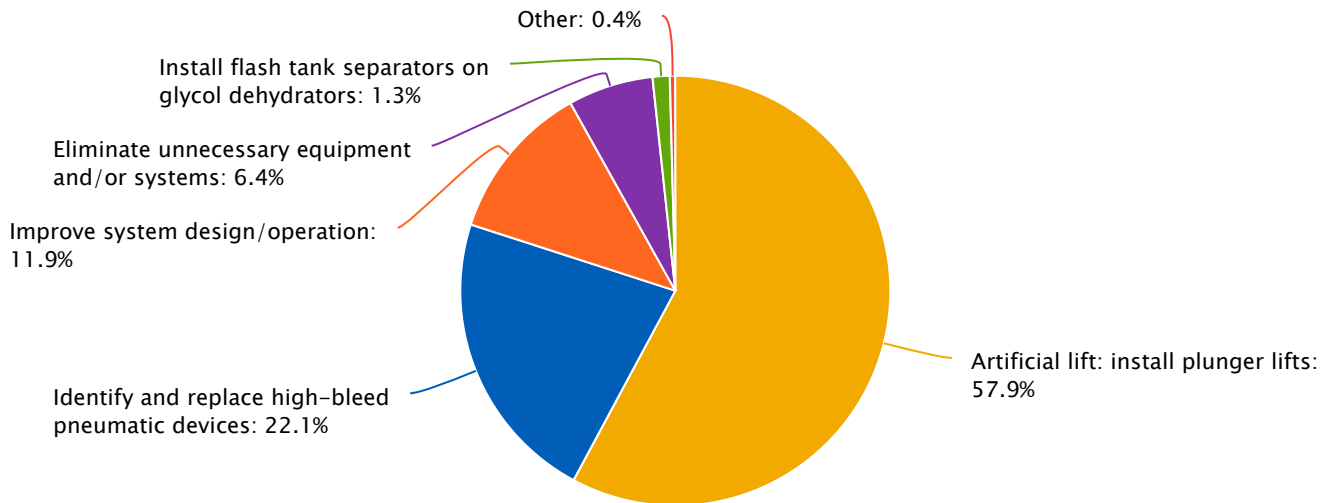
* "New" reductions refer to reductions realized the first year an activity is implemented.

** "Ongoing" reductions come from activities that are eligible to accrue methane reductions after the first year the activity is implemented. The length of time these activities can continue to accrue reductions or "[sunset date](#)" is specified for each activity.

2018 Reductions in the Production Segment for Seneca Resources Corporation: 1,014,607 Mcf

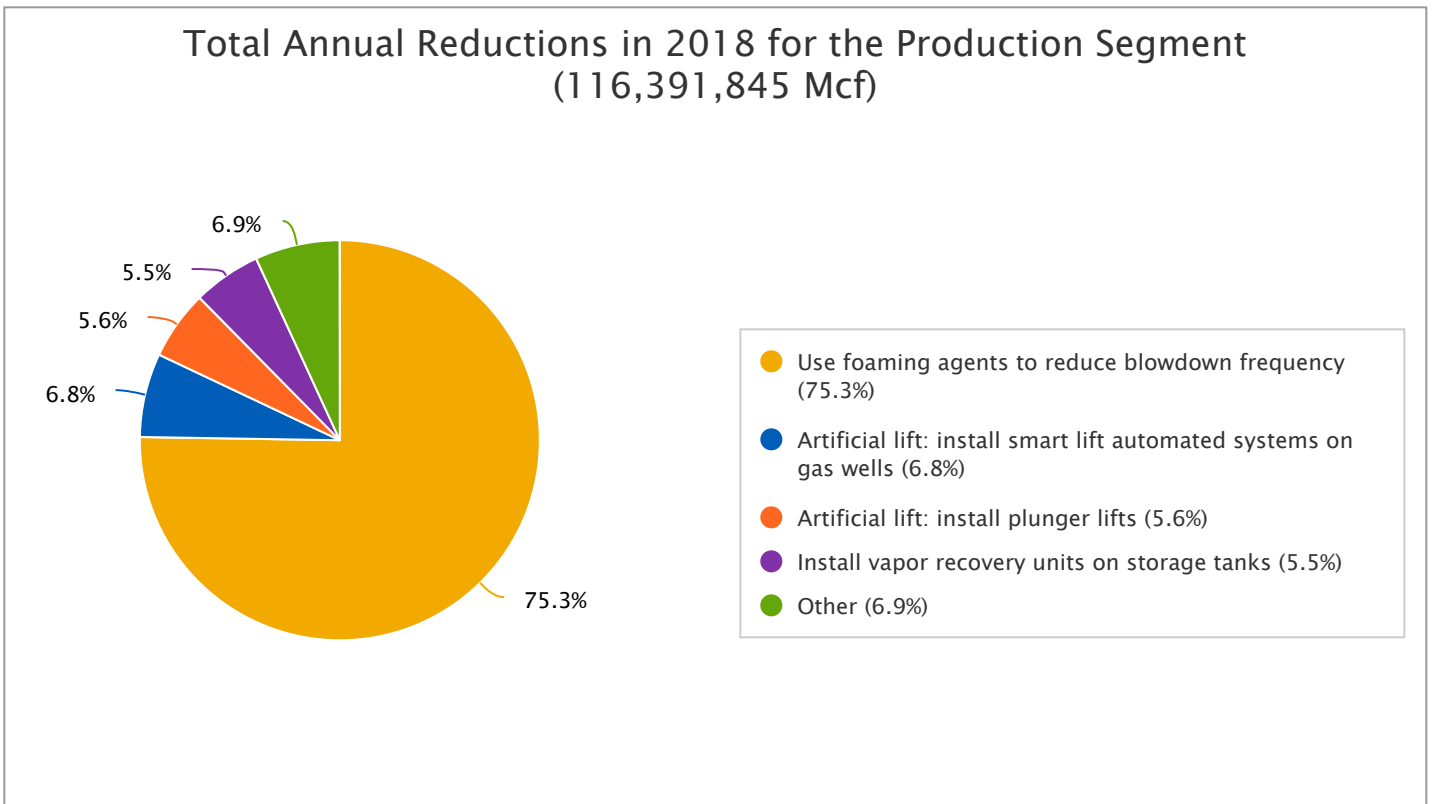
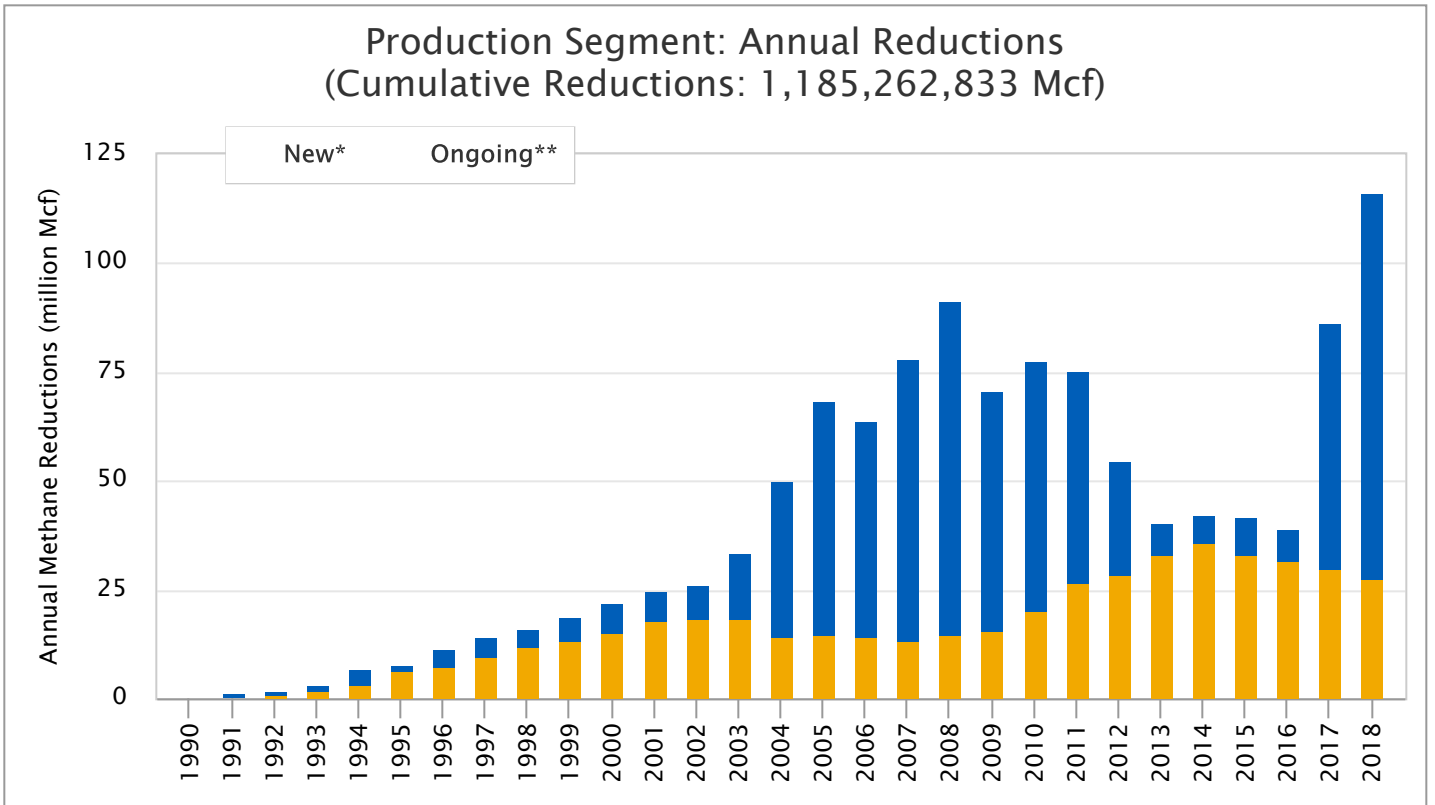


Cumulative Reductions in the Production Segment for Seneca Resources Corporation: 1,895,075 Mcf



"Cumulative reductions" are all reductions achieved by Seneca Resources Corporation in the Production Segment since joining the program.

Summary of Technologies and Practices for the Production Segment



* "New" reductions refer to reductions realized the first year an activity is implemented.

** "Ongoing" reductions come from activities that are eligible to accrue methane reductions after the first year the activity is implemented. The length of time these activities can continue to accrue reductions or "[sunset date](#)" is specified for each activity.

Top Technologies and Practices for the Production Segment

Top 10 Technologies and Practices in the Production Segment Reported by Partners in the Last 5 Years (2014 to 2018)

| Rank | Technology/Practice | Reductions (Mcf) |
|------|--|------------------|
| 1 | Use foaming agents to reduce blowdown frequency | 141,964,125 |
| 2 | Artificial lift: install smart lift automated systems on gas wells | 43,189,891 |
| 3 | Artificial lift: install plunger lifts | 39,650,061 |
| 4 | Install vapor recovery units on storage tanks | 29,143,137 |
| 5 | Install/convert gas-driven pumps to electric, mechanical, or solar pumps | 9,551,900 |
| 6 | Install no bleed controllers | 8,154,852 |
| 7 | Artificial lift: gas lift | 7,525,128 |
| 8 | Optimize gas well unloading times | 7,448,972 |
| 9 | Install flares | 6,011,354 |
| 10 | Identify and replace high-bleed pneumatic devices | 4,901,536 |

Notes:

"Top technologies" are those that led to the greatest cumulative, partner-reported, methane reductions over the specified time period.

Visit the Natural Gas STAR's [Recommended Technologies](#) for more information.