



# **Petroleum and Natural Gas Systems in the Greenhouse Gas Reporting Program Processing Segment**

U.S. Environmental Protection Agency  
Office of Atmospheric Programs, Climate Change Division

# Description of Onshore Natural Gas Processing Segment



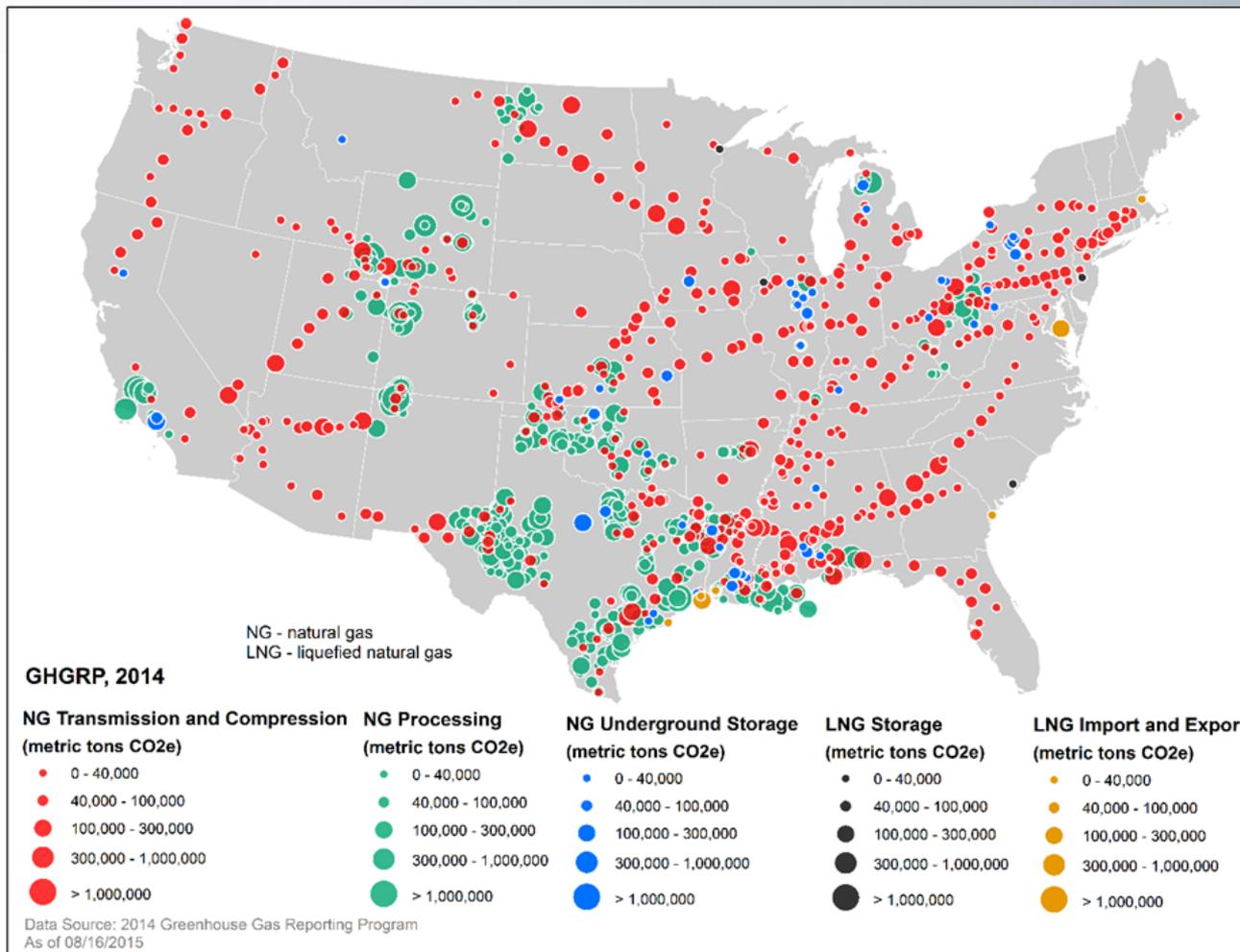
- Natural gas processing generally includes processing plants that separate natural gas liquids (NGLs) or non-methane gases from produced natural gas using one or more of the following:
  - Forced extraction of natural gas liquids,
  - Sulfur and carbon dioxide removal,
  - Fractionation of NGLs, or
  - Capture of CO<sub>2</sub> separated from natural gas streams.
- This industry segment also includes processing plants that do not fractionate gas liquids but have an annual average throughput of 25 MMscf per day or greater.
- In general, a “facility” for purposes of this segment means all co-located emission sources that are commonly owned or operated (i.e. one processing plant)

# Emission Sources



- Acid gas removal units
- Blowdown vent stacks
- Centrifugal compressors
- Combustion equipment (reported under subpart C)
- Dehydrators
- Equipment leaks
- Flare stacks
- Reciprocating compressors

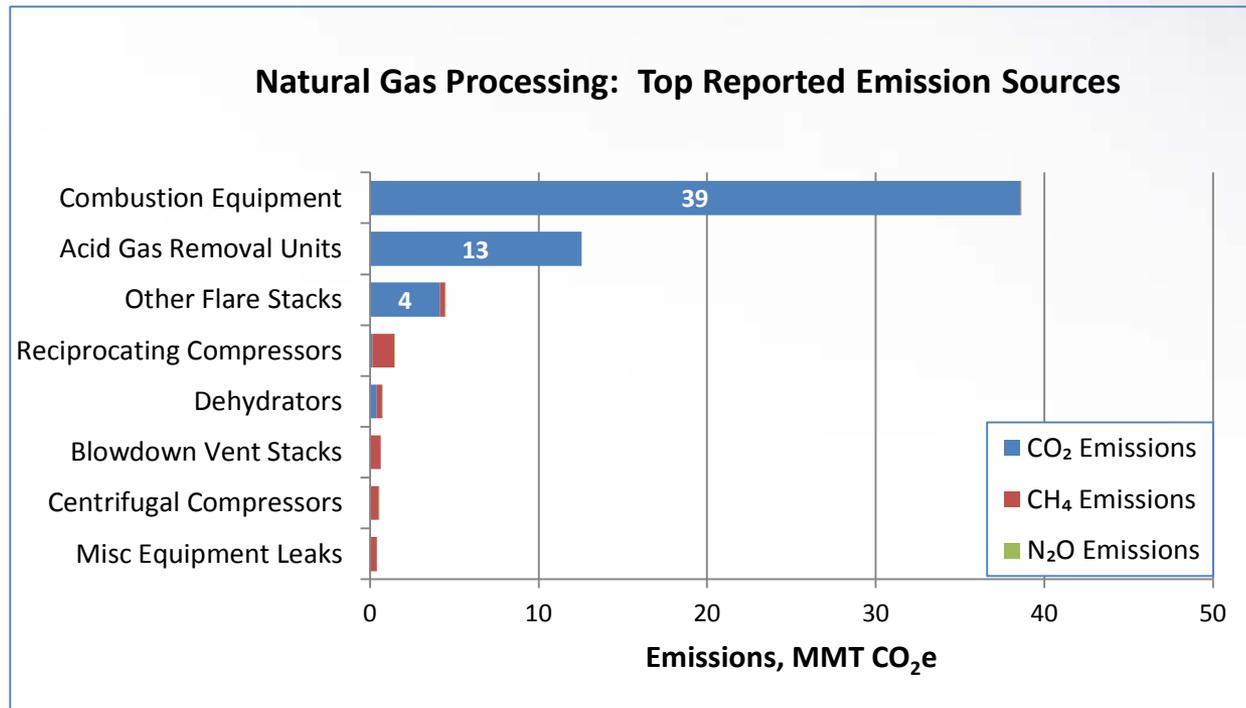
# 2014 GHGRP Emissions by Segment



# 2014 Natural Gas Processing Emissions by Emission Source



- Reported emissions in gas processing totaled 59 MMT CO<sub>2</sub>e
- 464 facilities reported under this sector
- Methane emissions totaled 3.4 MMT CO<sub>2</sub>e and carbon dioxide emissions totaled 55.9 MMT CO<sub>2</sub>e



# Select Newly Reported Activity Data



- Total throughput off the Acid Gas Removal unit
- Annual quantity of CO<sub>2</sub> recovered from AGR and transferred offsite
- Dehydrator feed natural gas flow rate
- Dehydrator total operating time
- Volume of gas sent to each flare
- Total time a centrifugal / reciprocating compressor was in operating mode / shutdown mode
- Compressor reporter emission factor for wet seal oil degassing vents / blowdown vents / isolation valve vents

# Reported Activity Counts: 2011-2014



Industry Segment	Source Type	2011 Count	2012 Count	2013 Count	2014 Count
Natural Gas Processing	Reporting Facilities	373	403	437	464
	Centrifugal Compressors	457	458	489	489
	Reciprocating Compressors	2,039	2,197	2,514	2,635

# Considerations for Future Reporting Years



- Select changes for 2015 reporting year:
  - Volumetric emissions from manifolded compressors can be measured at the common vent stack instead of measuring at each compressor.
  - Vented compressor emissions routed to a flare will be reported in the flared emissions total rather than in the compressor emissions total.
  - Facilities have the option to directly measure blowdown emissions.
  - Modified list of “equipment or event types” for categorizing blowdowns
- Select changes for 2016 reporting year:
  - A new industry segment, Onshore Petroleum and Natural Gas Gathering and Boosting, was added to Subpart W on October 22, 2015 (80 FR 64262).