

# IADC Briefing Book

## Environment – Emissions

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Methane is the second most prevalent greenhouse gas emitted in the US from human activities, accounting for 11% of all US greenhouse gas emissions. Carbon dioxide is the most prevalent greenhouse gas emitted from human activities. Natural gas and petroleum systems are the largest source of methane emissions in the US. Methane is the primary component of natural gas. Some is emitted to the atmosphere during the production, processing, storage, transmission and distribution of natural gas. Because gas is often found alongside petroleum, the production, refinement, transportation and storage of crude oil is also a source of methane emissions. [1]

With the advent of hydraulic fracturing, the public and environmentalists have focused on methane emissions to debate the environmental impacts of hydraulic fracturing operations.

### Key Messages

- A major contributor to the decline in US greenhouse gas emissions has been the displacement of coal with natural gas that is extracted from shale rock formations through hydraulic fracturing and horizontal drilling.
  - Specifically, methane decreased 8% between 1990 and 2011. During this time period, emissions decreased from sources associated with the exploration and production of natural gas and petroleum, according to EPA studies. [2]
- The US oil and natural gas industry has invested \$81 billion to lower greenhouse gas emissions from 2010 through 2012. These numbers are helping the US decrease its carbon footprint while increasing the nation's supply of affordable domestic energy. [3]
- Since 2000, the oil and gas industry has invested more in emissions reducing technologies than the federal government, according to a 2015 study by T2 and Associates commissioned by API. [3]
- According to the US State Department, production of shale gas has grown rapidly. In 1996 it represented 0.3 trillion cubic feet of natural gas, representing 1.6 percent of US gas production. By 2011, production of shale gas increased to 8.5 trillion cubic feet of natural gas – 30 percent of US gas production, and this number is expected to grow. [4]
- US carbon dioxide emissions have declined by 706 million metric tons between 2005-2012. [5]
- Methane leaks from natural gas wells is of interest to the public. Several studies are underway to determine the amount and severity, if any, of methane gas leaks to provide further information to the public and industry alike.

### Resources

1. EPA overview of greenhouse gases: <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>
2. Energy in Depth: <https://energyindepth.org/national/new-epa-data-show-methane-emissions-continue-to-plummet/>

3. API Study [www.api.org/~media/files/ehs/climate-change/2015-t2-key-investments-in-ghg-mitigation.pdf](http://www.api.org/~media/files/ehs/climate-change/2015-t2-key-investments-in-ghg-mitigation.pdf)
4. US State department Climate Action Report: <http://www.state.gov/documents/organization/219038.pdf>
5. EPA Greenhouse Gas Reporting Program: <https://www.epa.gov/ghgreporting/ghgrp-reported-data>