

# **Crestwood's Approach to Managing Methane Emissions**

Natural gas presents a transformative opportunity for North American energy security and economic growth as an abundant energy source that's affordable, clean burning and versatile. In addition, the abundance of proven, low-cost natural gas resources in the United States is also aiding with the expansion of the global LNG supply chain as significant natural gas reservoirs are strategically located in close proximity to export terminals along the east and gulf coast regions. Ultimately, natural gas will play an integral role in the global transition to a lower carbon future.

As the most environmentally friendly fossil fuel, the use of natural gas, as opposed to other fossil fuels, is making a major contribution toward reducing global greenhouse gas emissions and improving air quality. The combustion of natural gas produces less than half the carbon dioxide of that produced by coal usage, as well as generates fewer emissions of nitrogen oxide, sulfur dioxide and virtually no particulate matter or mercury. In addition, the benefits of natural gas relative to other alternatives include, enhanced power generation safety versus nuclear reactors and increased 24-hour reliability over current renewable alternatives, such as wind and solar.

As the growth of electric vehicles increases with over 500 models expected to be in production by 2022 and over 116 million on the road by 2030, natural gas is the only available fuel source to power this movement. Electric cars, while powered by electricity is a secondary energy source that is mostly generated by the combustion of natural gas.

Given the dramatic increase in domestic production of natural gas in recent years, ensuring the responsible development of natural gas is a focus of many stakeholders. Some have raised questions about emissions from the natural gas value chain, including releases of methane from natural gas systems.

The energy industry continues to develop and promote key methane reduction strategies. Of note, methane emissions from production, processing, transmission and distribution of natural gas account for less than three percent of greenhouse gas emissions in the United States and have remained virtually unchanged over the past two decades, even though oil and gas production has doubled.

### **Methane Emissions from Natural Gas Systems**

According to a recent National Oceanic and Atmospheric Administration ("NOAA") study, the energy sector is a minor contributor compared to the agriculture and landfill sectors. In fact, the largest anthropogenic methane emissions sources in the NOAA study were agriculture, landfills and coal mining. While methane is an energy source, feedstock and, when emitted into the atmosphere, a greenhouse gas, both



naturally occurring and generated through human activities, it is not the largest contributor to global emissions.



\*Includes enteric fermentation, manure management, rice cultivation and field burning of agricultural residues

## Methane emissions from natural gas and oil operations constitute approximately 3 percent of total U.S. greenhouse gas emissions

When methane is combusted, the principal by-products are carbon dioxide and water vapor. Crestwood sees that reducing methane emissions not only improves the performance and economic value of natural gas systems, but also is beneficial to the environment.

Methane emissions from the natural gas value chain are typically categorized as either vented or fugitive. Venting is the intentional release of gases as part of normal operating procedures and fugitive emissions are small leaks or releases of gases or vapors from piping, pressurized equipment and various other components. Fugitive emissions from natural gas systems have decreased 24 percent since 2005 and flaring in the U.S. has dropped 70 percent over the past year, due to improved technology, increased infrastructure planning and investment in best practices. These are clear indications that methane emissions are being addressed by the industry with tangible results.

### **Crestwood's Strategies for Managing Methane Emissions**

Through safe, reliable and efficient operations, we strive to reduce methane emissions and capture marketable methane. Crestwood is committed to continuously improving the way we manage emissions generated by our facilities as we remain steadfast in working towards a better future for our industry and



environment. Our goal is to reduce fugitive emissions from our assets and work with our producer customers to appropriately manage vented and flared emissions.

As society evolves through the energy transition, Crestwood expects that its natural gas focused assets will continue to provide necessary energy supply to meet longterm energy demand while balancing reduced carbon emissions. Therefore, we will continue to understand, assess and improve our management and approach to methane emissions.

Where feasible we use various types of controls and equipment at our facilities to minimize methane emissions, such as:

- Electric compressor drivers in place of natural gas engines
- Vapor recovery units designed to recover viable natural gas
- Perform optical gas imaging and methane leak detection surveys beyond regulatory requirements
- Replace existing high-bleed gas pneumatic controllers with low-bleed or nobleed gas or air operated controllers and factor these controllers in new facility design
- Improving our methane management approach by providing training to our field employees and communicating procedures

Our operating program minimizes the potential for fugitive leaks, enables a reduction in flaring and ensures appropriate action is taken towards emission reduction, such as:

- Increase the replacement frequency of our rod packing compressor systems or replace with low emission rod packing
- Upgrading older infrastructure with improved technology
- Improve coordination with our producer customers to ensure pipeline infrastructure is in place to reduce flaring upstream and at our assets

### **Collaboration is Key to Advancing Industry Emissions Reductions**

Our commitment to continuous improvement extends to partnerships that foster innovation and promote methane emission reduction solutions. In 2020, we joined The Environmental Partnership, a group of like-minded companies within the energy industry intended to accelerate improvements to environmental performance in operations across the country. One of the partnership's goals is to accelerate emissions reductions. Crestwood will be participating in the following initiatives that members have committed to implementing within their organizations:

- A program to replace, remove or retrofit high-bleed pneumatic controllers
- A leak detection program for natural gas and oil production sources
- A compressor program to reduce emissions in any capacity for facilities utilizing reciprocating or centrifugal compressors



• A pipeline blowdown program to reduce emissions for pipeline blowdowns throughout an asset

To continue to apply methane emission reduction strategies and report on voluntary methane emissions reductions, Crestwood also joined the ONE Future Coalition in November 2020. ONE Future members aspire to enhance the delivery efficiency of natural gas by achieving a cumulative methane emission intensity target for member companies of 1% or less of total natural gas production across the natural gas value chain by 2025.

Crestwood's commitment to best practices and continuing improvement of our methane emissions strategies, combined with our external outreach and collaboration with industry partners, ensures that we will play an important role in minimizing the energy industry's impact to the environment.

For more information on Crestwood's approach to emissions reductions and sustainability, please visit <u>https://esg.crestwoodlp.com</u>.