

Methane Intensity

What is Methane?

Methane is a colorless, odorless and combustible gas that typically makes up 70% - 98% of the mixture known as natural gas. It is a naturally occurring hydrocarbon that can be found underground in rock formations, such as shale and coal beds, areas of decomposed organic material, and is also commonly found in groundwater. Methane is not known to be a toxic health hazard.

For additional information, please consult the MSC's [Methane](#) Fact Sheet.

What is meant by Methane Intensity?

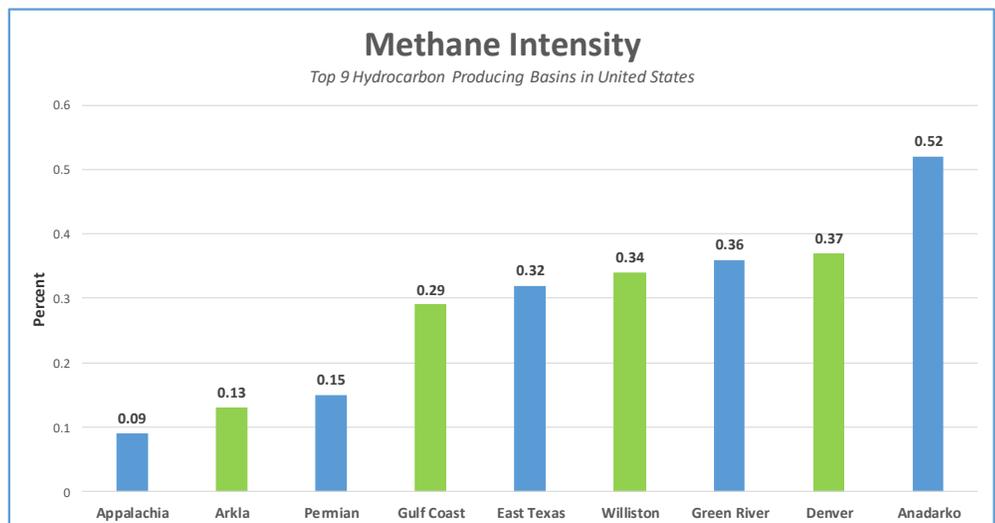
Generally speaking, methane intensity refers to the ratio of methane emitted into the atmosphere expressed as a percentage of the natural gas which is produced. A lower methane intensity means that a higher percentage of the natural gas produced is being captured and successfully delivered to market.

How do the Marcellus, Utica and other unconventional formations within Pennsylvania differ from other states?

While many basins throughout the United States produce both oil and natural gas, the Marcellus, Utica and other unconventional formations within Pennsylvania produce almost exclusively natural gas. In other basins, such as the Permian (New Mexico and Texas) and Bakken (North Dakota and Montana), oil is the primary target of producers, and natural gas is produced as a byproduct. Because natural gas is the hydrocarbon targeted for production in Pennsylvania, it is not viewed as a byproduct that needs to be managed, but rather as a valuable commodity to be captured and transported to market.

How does the Methane Intensity of Pennsylvania shale gas compare to other U.S. regions?

According to a 2021 [report](#) from the Clean Air Task Force and Ceres, natural gas production within the Appalachian Basin – which includes Pennsylvania – has the lowest methane intensity of any of the top nine hydrocarbon producing basins in the United States. The report includes an analysis of data submitted to the U.S. EPA's [Greenhouse Gas Reporting Program](#).



What are some steps operators are deploying to reduce methane emissions?



Operators in Pennsylvania adhere to strict state and federal regulatory requirements to limit methane emissions, as well as utilize a host of voluntary measures to identify and eliminate potential leaks and reduce methane from other sources.

These measures can include frequent Leak Detection and Repair (LDAR) surveys utilizing optical gas imaging cameras; vapor recovery; air driven pneumatic controllers; electric driven pumps; green completions; aerial surveillance to identify methane plumes; and continuous monitoring of emission sensors, among other measures.

Click [here](#) to learn more about these efforts.

How does U.S. Methane Intensity compare to other countries?

According to the International Energy Agency's 2020 evaluation of methane intensity, the United States has one of the lowest methane intensity rates of any major oil and natural gas producing nation. In fact, Russia's methane intensity rate is **65%** higher than the United States.

Most of these countries do not have the comprehensive regulatory and operator-led initiatives to limit methane emissions as are found in the United States.

