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New Colorado Methane Emissions Rules

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1 Comment

On February 23rd, Colorado's Air Quality Control Commission (AQCC) adopted the nation's first statewide limit on emissions from natural gas fracking operations, including methane. An unusual coalition of energy companies and environmentalists crafted the [regulations](#) over the last year in the hopes of raising the quality of Colorado's air, which has [failed for years to meet national standards](#).

Emissions from Colorado's booming oil and gas operations have contributed to [air pollution levels that already exceed federal ozone guidelines near Denver](#), and prompted Governor John Hickenlooper to ask the energy companies and environmentalists to write the new rules together. The participants included Encana, Anadarko, Noble Energy, and DCP Midstream Denver on the industry side; and Environmental Defense Fund (EDF), Conservation Colorado, Earthjustice, Sierra Club, Natural Resources Defense Council, WildEarth Guardians, and Earthworks Oil and Gas Accountability Project on the environmental side.

One of the most significant features of the new rules is the regulation of methane emissions, which until now have not been directly regulated, though they are indirectly controlled by the [Clean Air Act's](#) air quality standards for ozone. Ground-level ozone is caused by emissions of volatile organic compounds (VOCs), with which methane is often associated.

The Importance of Regulating Methane

The regulation of methane is critical to curbing global warming—once for ounce, methane is at least [84 times more potent as a greenhouse gas than carbon dioxide](#) over the first two decades after its release. This means continued unregulated methane emissions would make a significant impact on climate change in the near to medium term. A University of Texas methane study suggests that natural gas operations represent the [largest source of methane emissions in the U.S.](#), and the percentage of natural gas produced from shale in the U.S. is projected to grow steadily with a [56% increase between 2012 and 2040](#).

With hydraulic fracturing operations increasing nationwide, methane emissions from venting, flares, and leaks ("fugitive emissions") has also increased (although the UT study acknowledges that there is some debate as to the true level of fugitive emissions leakage from valves, flanges, etc.). Moreover, an [ICF study](#) prepared for the EDF projects that methane emissions from oil and gas activities will grow 4.5% through 2018 (even taking into account reductions from [EPA regulations adopted in 2012](#)).

So while power plants that burn natural gas are generally regarded as better for the climate because they [emit much less carbon dioxide](#) than traditional coal-fired plants, the more the upstream natural gas operations emit, the less climate benefit it has. On the other hand, if natural gas that is normally vented is captured using low-cost, currently available equipment, methane emissions could be cut by some 40%, according to the ICF study.

The New Colorado Regulations

Until recently, the practice of hydraulic fracturing was exempt from [several significant federal environmental laws](#) including the Clean Air Act. In 2012, the EPA updated its New Source Performance Standards (NSPS) to [reduce emissions from the oil and natural gas industry](#), including hydraulic fracturing (40 CFR Part 60, Subpart OOOO, "Emission Standards"—known as "NSPS Quad O"). NSPS Quad O contains *reporting* requirements for methane, but not emissions controls. The EPA claims, however, that its new VOC control measures will result in ["substantial methane reductions as a co-benefit"](#). The Colorado rules implement NSPS Quad O but go further by (i) *directly* regulating methane; and, (ii) by regulating emissions along the *entire* natural gas chain, including the well site, storage tanks, gathering lines, compression stations, and processing plants.

Colorado's new AQCC Regulation Number 6 (5 CCR 1001-8, Standards of Performance for New Stationary Sources) fully adopts NSPS Quad O without imposing additional requirements beyond the minimum required by federal law, but does make the federal rules enforceable under Colorado law. Regulation Number 3 (5 CCR 1001-5, Stationary Source Permitting and Air Pollutant Emission Notice Requirements) adopts corresponding revisions to the emissions reporting and permitting framework.

The original title of Regulation Number 7 (5 CCR 1001-9) has been changed from "Control of Ozone Via Ozone Precursors" to "Control of Ozone Via Ozone Precursors *and Control of Hydrocarbons Via Oil and Gas Emissions*" to reflect its new focus on reducing emissions from venting, flaring, and leaks in the oil and gas sector. It's meant to provide oil and gas control measures that will be complementary to the NSPS Quad O measures implemented by Regulation 6.

For example, certain components are required to control hydrocarbon emissions by 95% on different phase-in schedules: centrifugal compressors, new or recompleted wells, glycol natural gas dehydrators, and storage tanks. Certain storage tanks, moreover, have a zero tolerance requirement during normal operation, while others are expected to use Storage Tank Emission Management (STEM) plans to make sure that they eventually meet the "operate without venting" standard. When components use combustion devices, those devices must be designed to achieve 98% control.

The rule also adds requirements regarding leaks: leak detection and repair (LDAR) requires owners/operators to inspect components at compressor stations and well production facilities, the frequency of which is based on the amount of leakage found—this can be as little as once a year, or as often as once a month. Whether an emission will be considered a leak that must be repaired depends on how it was found: for example, for leaks found through infrared or AVO inspection (audio, visual and olfactory), *any* detectable emission will be considered a leak. A first attempt to repair the leak must be made within 5 days (with exceptions for unavailability of parts, shutdown, etc.) and then must be reverified within 15 days of the repair.

These new air quality rules are the strictest in the nation and are expected to remove about [93,500 tons of VOCs](#) from the air per day (or, by some estimations, enough VOCs to equal those emitted by every car and truck in the state over the course of a year). The rules are also expected to specifically cut methane leaks by about [65,000 tons](#) per year.

What the rules don't do, however, is increase in-person inspections of drilling sites, or raise fines for operators that violate the regulations. And, although infrared cameras may be able to easily spot leaks, it may be difficult to enforce the regulations because [the natural gas chain is long](#) and gas under pressure is difficult to control. The amount of components to be inspected could result in a compliance problem, but theoretically, the fewer leaks are found the fewer inspections need to be accomplished (or alternatively, the greater the number of leak repairs, the fewer subsequent inspections). The rules also don't provide for variances for smaller companies or regions of the state that are already meeting national clean air standards.

Many of the rules are aggressive (e.g., 95% control, 5 day repair cycle), but much of the technology required to meet the requirements is [already commercially available](#) and is demonstrably successful—and because the rules are descriptive rather than prescriptive, industry can select its most preferred, effective technology to meet the standards. And the phase-in schedule begins with the worst contributors (per component, by ton per year emissions), so there is a chance of "early victories." If estimates are correct, certain areas in Colorado should see an improvement in air quality; concurrently, industry may also see a positive cost-benefit outcome. Doug Hock, a spokesman for Encana, [noted](#) that capturing methane from leaking should result in a financial benefit to the industry since it will have more product to sell, a viewpoint supported by a recent [ICF report](#).

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One comment

 **Annie Craven**
March 27, 2014 5:18 pm

It is great to hear that rules are changing and adapting to the ongoing crisis of green house gases. Time will only tell if Colorado's air quality will improve. Thanks for sharing this post!

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