

US oil and gas pollution inflicts health costs far from wells – study

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Market Intelligence

Efforts to limit methane emissions from oil and gas production will also reduce the amount of non-methane pollutants — nitrogen dioxide, ozone and particulate matter — that cost US society an estimated \$77 billion in 2016, according to a study of health impacts from oil and gas operations.

The potential savings to society was more than twice the amount of the benefits estimated by the US Environmental Protection Agency under its proposed methane emissions regulations.

The bulk of the health-related costs resulted from 7,500 premature deaths directly attributed to oil and gas pollution in 2016, the study's authors said.

A team of researchers, led by Boston University environmental health professor Jonathan Buonocore, overlaid EPA geographic air quality data on a separate set of EPA data that mapped health impacts and costs to see where non-methane pollutants have the most impact.

States with significant oil and gas activity — Texas, Oklahoma, Louisiana, Pennsylvania and Ohio — were the most impacted by non-methane pollutants, but states with little direct exposure to oil and gas were also affected by migrating pollution, the researchers said.

Methane emissions and non-methane pollutants come from the same sources.

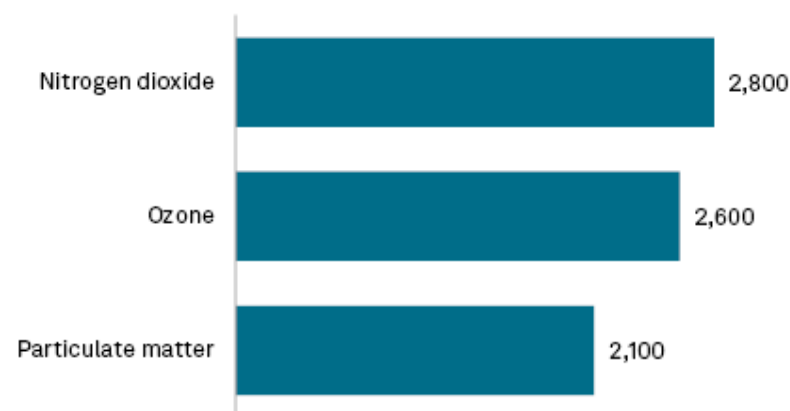
Study may underestimate emissions

According to Jon Goldstein, senior director of regulatory and legislative affairs for the Environmental Defense Fund, the study likely underestimated the effects of non-methane emissions because of the growth of US oil and gas production since 2016. Several researchers associated with the Environmental Defense Fund were on the team that produced the study, released May 8.

Venting and flaring — releasing or burning off natural gas and pollutants from an oil well before moving crude to market — is the chief source of non-methane emissions. The study recommended tighter restrictions on flaring to immediately reduce the amount of pollutants in oil and gas producing regions and, later, in cities and states further downwind, Goldstein said.

"Some forms of oil and gas pollution are more localized in a certain area," Goldstein said. "Things like benzene, which is a carcinogen. Other forms of oil and gas pollution can have more regional impacts — things like particulate matter, the

Deaths due to oil and gas pollution in 2016 – study



Data accessed May 10, 2023.

The study authors used an integrated geospatial model framework linking emissions from oil and gas production to changes in air quality and health in exposed populations. Production emissions were based on the National Emission Inventory from the US Environmental Protection Agency and linked to air quality and geospatial health impact models.

Source: Jonathan J. Buonocore, et al., 2023 Environmental Research: Health study published by IOP Publishing Ltd.

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oxides of nitrogen. That pollution doesn't stop at the state line."

Alan Krupnick, an economist who is the director of the Center on Energy Economics and Policy at Resources for the Future, a nonpartisan Washington think tank for energy issues, did not contribute to the study. Krupnick was not surprised by the study's conclusions, but he had recommendations to improve future studies.

"Since we are not eliminating the oil and gas sector any time soon, the work would have been more helpful for policy if it talked about the benefits of reductions in emissions tied to particular policy initiatives," Krupnick said in an email. "It also mostly discussed and showed results for oil and gas together. It would have been more helpful to split them up, as the future of oil is very different than that for gas."

Industry points to emissions efforts

The American Petroleum Institute said it appreciated the efforts by researchers to address community health concerns. The group was in the process of evaluating the study's findings.

"Protecting public health and the environment is our highest priority," an API spokesperson said. "As an industry, we rely on data and science that we put into practice every day, striving to follow strict industry-led standards and a robust federal and state regulatory system, to safely produce and deliver abundant, affordable energy in cleaner ways."

The spokesperson said US methane emissions relative to production fell 60% from 2011 to 2021. Industry-led initiatives, such as the Environmental Partnership, have helped contribute to this progress in every major US basin, the spokesperson said.

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