

# NATURAL GAS AND AIR POLLUTION

ARMED  
WITH THE  
FACTS

## AIR POLLUTION

Air pollution from natural gas development is a growing problem.

There is a great deal of uncertainty about exactly how much hazardous pollution is being emitted into our air during the development and processing of natural gas. But scientists know enough to be very concerned about how natural gas development is harming the air quality of our communities—and jeopardizing children's health.

The entire process of gas development—from the drilling of the well, to the processing of the gas, to its transportation—is contributing to potentially hazardous levels of air pollution.

## WHAT'S GETTING INTO OUR AIR?

**Methane. CH<sub>4</sub>. The principle component of gas itself.**

Methane is a potent greenhouse gas, far more warming than carbon dioxide. Methane also adds to ozone levels. Some methane—it is unclear exactly how much—leaks out of natural gas pipelines and fracking equipment. This is unintentional and can happen at many points along the system. These kinds of leaks are called "fugitive emissions."

Gas developers have not been required to locate, measure, or plug leaks. That must change.

### Volatile Organic Compounds and Oxides of Nitrogen

Ozone is formed through the reaction of volatile organic compounds (VOCs), such as methane, and nitrogen oxides (NO<sub>x</sub>) in the presence of sunlight.

That's why NO<sub>x</sub> and VOCs are often referred to as "ozone precursors"—their presence helps set the stage for the formation of ozone.

Ground level ozone—O<sub>3</sub>—is the main component of smog.

Ozone can travel hundreds of miles carried by the wind. It is a powerful oxidant that can irritate the airways, causing a burning sensation, coughing, wheezing, and shortness of breath. Ozone has been linked to a host of maladies, including premature mortality, heart failure, increased hospital admissions and emergency room visits for asthma sufferers, and possible long-term damage to the lungs.

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## HAZARDOUS AIR POLLUTANTS

These are some of the other pollutants associated with gas development:

### BENZENE

Exposure to benzene can cause skin and respiratory irritation, and long-term exposure can lead to cancer and blood, developmental, and reproductive disorders.

### TOLUENE

Long-term exposure to toluene can cause skin and respiratory irritation, headaches, dizziness, birth defects, and damage the nervous system.

### ETHYLBENZENE

Ethylbenzene can cause irritation of the throat and eyes, along with dizziness, and long-term exposure can cause blood disorders.

### XYLENE

High levels of xylene exposure have numerous short-term impacts, including nausea and gastric irritation and neurological effects, and long-term exposure can negatively impact the nervous system.

### N-HEXANE

Exposure to n-hexane can cause dizziness, nausea, and headaches, while long-term exposure can lead to numbness, muscular atrophy, blurred vision, and fatigue.

## WHO'S AT RISK?

Children, the elderly, and people with existing respiratory conditions are the most at risk from ozone pollution. Children are more vulnerable to the damaging effects of ozone because their lungs are still developing—and children tend to be more active outdoors, even when ozone levels are high.

The EPA notes that areas with natural gas development can have increased levels of volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). The air quality impacts of these emissions vary based on local conditions, but they can be significant, even in rural areas.

## WHAT CAN MOMS DO?

Organize to fight for strong regulatory standards in your state and on the federal level—standards that cover all phases of natural gas development, wherever it is already occurring.

Demand ozone monitoring and information about other hazardous air pollutants so you can find out whether the air you are breathing is safe.

If your community wants to ban fracking, make sure you are armed with the facts to be a more effective spokesperson. In places where fracking has not yet started, demand that your state take full account of the public health implications for air, water, and climate before permitting natural gas development.

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