Fracking and Pennsylvania's Methane Emergency

With every day that the status quo continues, the chance of keeping global temperature rise below the 1.5-degree Celsius tipping point slips further and further away.[1] Much focus remains on cutting carbon dioxide (CO_2) emissions, the largest source of greenhouse gas emissions and warming.[2] But reducing its more insidious counterpart, methane, is even more essential in stabilizing global climate and reducing short-term warming. Banning the largest source of methane emissions — fracking — is the quickest and only way to secure Pennsylvania's future.

Methane's Importance

Since the Industrial Revolution, greenhouse gas emissions have skyrocketed, filling the air with an overabundance of gases and amplifying the Earth's natural warming effect.[3] Methane is responsible for a third of total warming since then,[4] with a warming effect 86 times stronger than CO_2 on a 20-year timescale.[5] A short-term pollutant, methane stays in the atmosphere for only around 12 years.[6] Despite this shorter lifespan, it traps significantly more atmospheric heat than CO_2 and contributes to the formation of other greenhouse gases, giving it a higher global warming potential than CO_2.[7] This means that reducing the rate of emissions is essential to stabilizing long-term temperature rises,[8] while providing more immediate climate-cooling effects.[9]

Fracking

Pennsylvania produced over 20 percent of the nation's natural gas supply in 2022.[10] The industrial sector, which includes fossil fuel combustion and production, is the largest contributor to the state's greenhouse gas emissions, accounting for over a third of total emissions in 2020.[11] Similarly, natural gas and oil systems are the largest source of methane emissions in Pennsylvania.[12] Food & Water Watch (FWW) estimates that hydraulic fracturing (fracking) produced about 6 million metric tons of methane in 2022, a continuing trend of rising emissions.[13] This is equivalent to 121.8 million cars driven for a year.[14]

Natural gas production in Pennsylvania concentrates around the Marcellus Shale, the largest shale basin in the U.S.[15] Research has shown that unconventional fracking wells are disproportionately sited near low-income or elderly communities in Pennsylvania,[16] making fracking an environmental justice issue. For these communities, nearby fracking can be a matter of life and death.

Fracking Imperils Health and Safety

Health-threatening air pollutants released during fracking include hydrocarbons and volatile organic compounds (VOCs), like benzene and toluene, which impair breathing and irritate the nose and throat.[17] In addition to toxic air emissions, over 75 percent of disclosed fracking fluid chemicals have

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documented effects on the skin, eyes, and other organ systems. These chemicals can also have detrimental impacts on the brain and nervous, renal, and cardiovascular systems.[18] Many chemicals used in fracking are also known or suspected carcinogens.[19]

In addition to driving perilous increases in global temperatures, methane accelerates the formation of ozone, a hazardous pollutant.[20] At fracking sites, VOCs can mix with nitrogen oxide emissions from diesel-fueled vehicles and stationary equipment to form ground-level ozone.[21] Prolonged contact with ground-level ozone is linked to asthma and chronic obstructive pulmonary disease. When mixed with particulate matter, which has been linked to various cancers, smog can form.[22] In addition to asthma, long-term exposure to smog has been connected to premature deaths in adults and to low birthweight in babies.[23]

Despite these risks, Pennsylvania continues to approve an average of 87 gas drilling permits every month,[24] further endangering residents and the climate.

To protect its citizens and the climate, Food & Water Watch recommends Pennsylvania:

- Stop issuing new permits for all fossil fuel production, including fracked wells.
- End all existing drilling in the state and transition off fossil fuels.

Endnotes

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