IADC Briefing Book
Ozone

In the U.S., air pollutant emissions are governed by the Clean Air Act. In 2015, the U.S. Environmental Protection Agency issued the National Ambient Air Quality Standards for Ozone, which revised the 2008 version. Based on EPA's review of the air quality criteria for ozone and related petrochemical oxidants, the EPA revised the levels and set the standard for 70 parts per billion, lowered from the previous 75 parts per billion. [1] The earth's atmosphere, when working properly, maintains a natural balance of the stratospheric ozone layer as a protective sun blocker while dissipating concentrations of ground-level ozone that can harm human health and the living environment. However, that balance is being distorted, with ground-level ozone building up, due to nitrogen oxides (NOx) and volatile organic compounds (VOC) emissions, to unhealthy levels near and around major urban areas. Environmentalists and other advocacy groups have cited the use of fossil fuels as a large contributor to this imbalance. The groups also contend that high concentrations of pollutants contribute to health concerns, mainly in children.

Key Messages

- Several studies conducted in cities with a strong concentration of oil and gas activity have not found a strong correlation between these activities and elevated ozone levels. For example:
    - The Alamo Area Council of Governments found that emissions from the Eagle Ford Shale constitute only 3% of the region's NOx and VOC emissions. It also found that completely eliminating drilling activities would have virtually no impact on ozone level in the San Antonio metro area. [2]
    - The Texas Commission on Environmental Quality, which maintains an extensive air monitoring system in the Dallas-Fort Worth region, has consistently shown that oil and natural gas is not a major contributor to North Texas ozone. It shows that the oil and gas industry account for only 10 percent of the total NOx emissions and 13% of the VOC's in the Dallas-Fort Worth area. [3]
    - Researchers at the Cooperative Institute for Research in Environmental Sciences at the University of Colorado Boulder, in collaboration with NOAA's Earth System Research Laboratory Chemical Sciences Division, found that oil and natural gas development along Colorado's northern Front Range has had only a small impact on ozone formation. [4, 5]
- Ozone levels have fallen and continue to decline under the previously existing standards. Cleaner gasoline and diesel fuels, combined with modernized equipment and facilities and more fuel efficient vehicles have helped reduce emissions of air pollutants by 32% between 1980 and 2015, even as vehicle miles traveled went up over 95%. Since 2000, ozone concentrations have dropped by 17%, according to EPA data. [6]
- NERA Economic Consulting found that a stricter ozone regulation could reduce U.S. GDP by $270 billion per year and $3.4 trillion from 2017 to 2040 and result in 2.9 million fewer jobs or job equivalents on average per year through 2040. [7]

Resources

1. https://www.epa.gov/ozone-pollution/2015-national-ambient-air-quality-standards-naaqs-ozone
2. https://www.aacog.com/DocumentCenter/View/19260
3. https://www.tceq.texas.gov/airquality/sip/dfw/dfw-ozone-history
4. http://onlinelibrary.wiley.com/doi/10.1002/2016JD025265/full
5. https://energyindepth.org/mtn-states/noaa-study-finds-small-ozone-impact-from-front-range-oil-gas-development/
6. https://www.epa.gov/air-trends/ozone-trends
7. http://www.nera.com/publications/archive/2014/assessing-economic-impacts-of-a-stricter-national-ambient-air-qu.html