

Air emissions and impacts on health source and method.
Tom Patterson, Nodaway County Health Center

The goal here is to provide estimated impacts on public health of increased air emissions.

Please contact Missouri Department of Natural Resources (DNR) Air Permitting Program for expertise on air emissions and regulations.

Potential site emissions for three similar sized natural gas power generating facilities with diesel backup generators were utilized for this scenario. The emissions data was gathered from applications and operating permits on MO DNR Air-related Permit Site website. MO DNR Air-related Permit Site website at: <https://dnr.mo.gov/air/business-industry/permits> .

Estimated impacts on public health were generated on the EPA's CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA). The COBRA tool utilizes numerous publicly available data sources for estimations. The tool can run scenarios down to county level. The web version of the tool utilizes available data available for year 2023. The website is located at: <https://www.epa.gov/cobra> .

EPA's CO–Benefits Risk Assessment (COBRA) screening model is a free tool that helps state and local governments:

- Explore how changes in air pollution from clean energy policies and programs, including energy efficiency and renewable energy, can affect human health at the county, state, regional, or national levels.
- Estimate the economic value of the health benefits associated with clean energy policies and programs to compare against program costs.
- Map and visually represent the air quality, human health, and health-related economic benefits from reductions in emissions of particulate matter (PM_{2.5}), sulfur dioxide (SO₂), nitrogen oxides (NO_x), and volatile organic compounds (VOCs) that result from clean energy policies and programs.

The EPA COBRA was built to estimate the benefits of reductions in air emissions, but can also be used to estimate changes in health incidents by increasing air emissions. The results will show negative health incidents and costs, which mean increases. It is best to view what the information is relaying in general rather than focus on specific numbers. For example, 0.001 would be a very minimal effect compared to 1.

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Four major pollutants appear to be used as standard inputs when estimating air emissions. These are commonly used in permit applications, calculations and estimates.

The four pollutants are:

Particle Matter	PM 2.5 (2.5 micrometers diameter)
Sulfur Oxides	SOx
Nitrogen Oxides	Nox
Volatile Organic Compounds	VOC

Links:

MO DNR Air-related Permit Site website at: <https://dnr.mo.gov/air/business-industry/permits>

EPAs CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA):
<https://www.epa.gov/cobra>

EPA COBRA User Guide: <https://www.epa.gov/cobra/users-manual-co-benefits-risk-assessment-cobra-screening-model>

EPA COBRA Frequently Asked Questions: <https://www.epa.gov/cobra/cobra-questions-and-answers>

EPA COBRA Support: <https://www.epa.gov/cobra/forms/contact-epa-about-cobra>