

## “THE PUBLIC HEALTH CONSEQUENCES OF AIR EMISSIONS FROM COAL-FIRED POWER PLANTS IN THE ST. LOUIS AREA”

*Two Gradient Corporation<sup>i</sup> health effects experts — Christopher Long, Sc.D. and Peter Valberg, Ph.D. — have written a report that examines the health effects of air emissions from four coal-fired power plants in the St. Louis, Missouri area.<sup>ii</sup> The plants are owned and operated by Ameren Missouri. The report was commissioned because of claims that emissions from these coal-fired power plants are causing health problems.*

*Dr. Long received his doctorate from the Harvard School of Public Health and is an expert in the area of exposure and risk assessment, indoor and outdoor air pollution, inhalation toxicology, air pollution epidemiology, air sampling and measurement, and air modeling. Dr. Valberg is an expert in human health risk assessment, inhalation toxicology, and modeling of human exposure to environmental chemicals. He was a member of the faculty of the Harvard School of Public Health and has provided expertise to the National Academy of Sciences and others.*

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### A FEW TAKEAWAYS FROM THE REPORT

**St. Louis has clean air.** Ambient levels of fine particles, nitrogen dioxide, and sulfur dioxide in St. Louis are lower than (better than) required by EPA’s national ambient air quality standards (NAAQS). The Clean Air Act requires EPA to set NAAQS at levels stringent enough to protect people who are the most sensitive to the effects of air pollution (for example, the elderly and children). Moreover, EPA is required to include a margin of safety when it sets these standards in order to provide an additional level of health protection.

**Exposure to fine particles from St. Louis power plants is insignificant compared to other sources.** Some environmental groups

claim that fine particles resulting from specific power plants are causing adverse health effects. However, people are exposed to fine particles from many outdoor and indoor sources during their normal daily activities. The levels of exposure to fine particles from sources other than power plants are tens to hundreds of times *greater* than the exposure caused by St. Louis-area power plants. For example, fine particle levels in the St. Louis area due to the Ameren power plants are conservatively estimated to be only 6% to 7% of total fine particle concentrations at two St. Louis air quality monitors in 2013.

**Air pollution does not cause asthma.** While air pollution has *decreased* substantially over the past few decades, the percentage of people diagnosed with asthma has *increased*. If air pollution causes asthma as some claim, asthma would be decreasing, not increasing, as air quality improves. The reason asthma has not decreased is that asthma and asthma symptoms are attributed more to lifestyle factors (such as obesity and lack of exercise), allergens (such as dust mites, molds, insects, and animal dander), and other indoor exposures (such as tobacco smoke and nitrogen dioxide from cooking) than to outdoor air pollution.

**Claims about other adverse health effects are not reliable.** Claims that premature mortality is caused by particulate emissions from specific power plants are based on computer models that are oversimplified and assume that adverse health effects occur at particulate levels that are in compliance with EPA's health protective air quality standards. These computer models also ignore scientific research that shows no association between ambient levels of particulate matter and adverse health effects.

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## POSTSCRIPT

*The coal-fired electric generating fleet nationwide will have spent almost \$150 billion by 2018 to achieve a 90% reduction in emissions per kilowatt-hour of sulfur dioxide, nitrogen oxides, and particulate matter. Of this total, \$83 billion has been spent over the past ten years (2006 – 2015). Some \$3.5 billion has been invested in emission controls for Missouri's coal-fired fleet, the fifteenth largest investment of any state. <sup>iii</sup>*

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<sup>i</sup> Gradient Corporation is an environmental and risk sciences consulting firm known for its work in the fields of toxicology, epidemiology, risk assessment, product safety, contaminant fate and transport, and environmental/forensic chemistry.

<sup>ii</sup> Long, Christopher M. and Peter A. Valberg, *A Case Study: The Public Health Consequences of Air Emissions from Coal-Fired Power Plants in the St. Louis Area*, Gradient, September 1, 2015.

<sup>iii</sup> EIA, Monthly Energy Review, March 2015; U.S. EPA, *National Emissions Inventory*, Air Pollutant Emissions Trends Data, 1970-2014, Fuel Combustion Electric Utilities (for PM); and (for SO<sub>2</sub> and NO<sub>x</sub>) EPA Air Markets Program data. Energy Ventures Analysis, Inc., *Capital Investments in Emission Control Retrofits in the U.S. Coal-fired Generating Fleet through the Years*, May 12, 2015.