



Health & Environmental Impacts

Given that one utility held the entire state of Kansas hostage to its financial problems and political ambitions through two legislative sessions, **it is important to remember that the many adverse environmental and health impacts from the proposed coal-fired power plant will not just affect Sunflower customer-owners. Those impacts will be shared with all Kansans for generations to come.**

When safer and more effective options are immediately available to meet our energy and economic needs, this proposed coal plant creates completely unnecessary risks to our health.

It cannot be disputed that there are serious, widespread, and lingering health and environmental impacts from the operation of coal-fired power plants.

- **We know that coal combustion emissions cause environmental degradation and health risks.ⁱ**
- **Coal-fired power plants significantly deplete finite water resources.ⁱⁱ**
- **Mercury contamination of fish in almost every body of surface water in the nation has been linked to coal plant emissions.ⁱⁱⁱ**
- **And there is overwhelming scientific evidence that climate change is occurring, that it will have serious environmental consequences, and that coal-fired power plants are a leading cause.^{iv}**

Coal pollutants affect all major body organ systems and contribute to four of the five leading causes of death in the United States: heart disease, cancer, stroke, and chronic lower respiratory diseases.^v

Mercury, particulate matter, coal ash, ozone - all are dangerous to Kansans, especially children and senior citizens. All will be dumped into our air by this coal plant.

- Classrooms - even entire schools - must be evacuated if a single thermometer containing mercury is broken. This coal plant will emit thousands of times that amount of mercury every year, and the mercury plume from the plant will drift over almost the entire state.
- Even at low levels, exposure to mercury is linked to numerous neurodevelopment issues in fetuses, infants and children.^{vi}
- Increases in environmentally released mercury have also been linked to a significant increase in the rates of autism.^{vii}
- Neither natural gas-fired power plants nor wind energy produce mercury emissions and therefore pose none of these health risks.^{viii}



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Coal-fired power plants emit huge amounts of substances (especially nitrogen oxides) that create ozone, blanketing large areas with this harmful substance.

- Nitrogen oxide emissions cause an increased number of asthma attacks (especially in children) resulting in coughing, wheezing, shortness of breath, and breathlessness.^{ix}
- These emissions are also believed in to be a cause of the development of asthma in the first place.^x
- In 2006, 444,000 people were given inpatient care at a hospital with asthma listed as their first diagnosis.^{xi}

Emissions of particulate matter from the proposed coal plant at 92% capacity factor equal 471 tons per year.^{xii}

- Proximity to sources of particulate matter, like coal-fired power plants, is linked with increased blood pressure, cardiovascular effects and death, and likely has negative respiratory effects, as well.^{xiii xiv}
- Exposure to particulate matter contributes to increased rates of lung cancer, which is the leading cause of cancer mortality in the U.S.^{xv}
- Several studies have shown a correlation between coal-related air pollutants (especially particulate matter) and stroke.^{xvi}

According to Sunflower Electric's permit application, this plant has the potential to create enough coal ash to cover a standard football field in 100 yards of coal ash every year for 31 years.^{xvii}

- Coal ash contains many elements that can be harmful to human health including nickel, silver, thallium, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, selenium, lead, and mercury.^{xviii}
- Using new, more accurate leach tests, coal ash leachate can exceed by many times the hazardous waste thresholds (according to the National Research Council). For example:
 - Coal ash leached arsenic at up to 18,000 parts per billion (ppb), which is 1,800 times the federal drinking water standard and over 3 times the hazardous waste threshold.^{xix}
 - Selenium leached from one coal ash site at up to 29,000 ppb, which is 580 times the drinking water standard and 29 times the hazardous waste threshold.^{xx}

Kansans have fought for generations for the water we use to sustain our agricultural systems and communities across the state. Why forfeit that water we've worked so hard for - to produce energy for other states?

- Holcomb 2 would use 3.9 trillion gallons of water, per year, from the Ogallala Aquifer. This is equivalent to 6,000 Olympic-sized swimming pools.^{xxi}
- Kansas is already producing 75% of our electricity from coal-fired power plants requiring an incredible amount of water to produce steam and cool the plants.
- Any increase in water use for another new coal-fired power plant would be at the expense of our long-term agricultural productivity (which currently accounts for 15% of Kansas' gross domestic product).
- If local land and water is transferred from agricultural to industrial use, agricultural revenue streams will be displaced, potentially damaging local communities and economies.
- Aquifer depletion related to the coal plant will also be in direct competition for municipal drinking water sources, in a region already characterized by



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- Assertions have been made that the water rights acquired for the Holcomb Station expansion are currently owned by irrigated agricultural interests. However, this cannot be verified since the details have not been made public. Local sources affirm that some of the project land is not irrigated, suggesting that in some instances there will be no ag-to-industrial water use reductions.

Coal-fired power plants draw ground water in a very different way than agricultural users, who will encounter economic barriers to water withdrawal long before an aquifer or well is depleted. Industrial users can make that water draw pay for a much longer time, and may actually be inclined or incited to deplete the aquifer or a well.

Emissions of carbon dioxide - which contribute to climate change – from the proposed coal plant at 92% capacity factor equal 6.7 million ton per year.^{xxii} In Kansas, 90% of our land area is used for agriculture – either farming or ranching. Therefore, the effects of climate change, including increased temperatures and changes in the water cycle, will have significant impacts upon the culture and economy of Kansas.

- Due to the effects of climate change, temperatures in Kansas are expected to rise by an average of 2-4 degrees by the middle of the century. However, temperatures in Southwest Kansas are expected to rise by as much as 8 degrees by the end of the century.^{xxiii}
- These temperature increases can lead to increased rates of heart disease, respiratory illnesses, and the spread of epidemic diseases.^{xxiv}
- Heat waves will also become more frequent and more intense, leading to heat-related morbidity and mortality.^{xxv}
- Scientists predict that areas such as Western Kansas that already experiences times of drought will experience a higher number and more extreme droughts as a result of climate change.^{xxvi}
- Increased temperatures will also lengthen the time between the last spring freeze and the first fall freeze allowing agricultural pests to survive longer.^{xxvii}
Sustained temperature increases will also increase the evapotranspiration rate, causing significant reductions in available surface water (even if precipitation increases) and significant reductions in the recharge rate of ground water sources.^{xxviii}
- High temperatures will cause heat stress in plants. Pair that with pest and water issues, and the future Kansas agriculture sector will likely become unstable, and therefore, unprofitable.

ⁱ <http://www.epa.gov/cleanenergy/energy-and-you/affect/coal.html>

ⁱⁱ http://www.catf.us/resources/publications/files/The_Last_Straw.pdf

ⁱⁱⁱ <http://water.usgs.gov/nawqa/mercury/>

^{iv} <http://www.ipcc.ch/>

^v <http://www.psr.org/resources/coals-assault-on-human-health.html>

^{vi} *ibid.*

^{vii} <http://www.generationrescue.org/pdf/seed.pdf>



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- viii <http://epa.gov/cleanenergy/energy-and-you/affect/natural-gas.html>
- ix <http://www.psr.org/resources/coals-assault-on-human-health.html>
- x *ibid.*
- xi <http://www.cdc.gov/nchs/fastats/asthma.htm>
- xii <http://www.kdheks.gov/bar/sunflower/sunflower.html>
- xiii <http://jech.bmj.com/content/early/2009/10/15/jech.2008.081836>
- xiv <http://www.epa.gov/EPA-RESEARCH/2007/June/Day-28/r12569.htm>
- xv <http://www.psr.org/resources/coals-assault-on-human-health.html>
- xvi *ibid.*
- xvii <http://www.kdheks.gov/bar/sunflower/sunflower.html>
- xviii <http://westvirginia.sierraclub.org/announcements/CoalAshMythFactSheetMay10finalfinal.pdf>
- xix *ibid.*
- xx *ibid.*
- xxi <http://www.kdheks.gov/bar/sunflower/sunflower.html>
- xxii *ibid.*
- xxiii <http://www.climateandenergy.org/LearnMore/InTheNews/ClimateStudy.htm>
- xxiv <http://www.psr.org/resources/coals-assault-on-human-health.html>
- xxv *ibid.*
- xxvi <http://www.climateandenergy.org/LearnMore/InTheNews/ClimateStudy.htm>
- xxvii *ibid.*
- xxviii *ibid.*