

Breaking the Coal Habit, Fulfilling Our Energy Needs



“Today...we in human civilization will put up into the atmosphere of the Earth more than 70 million tons of CO₂...*in one day.*”

-Al Gore, “Last Days on Earth,” ABC 20/20 Special, 2006.

Why the Coal Rush?

- Current Use

Almost 50% of electric power in US is generated by coal.

- Availability

Coal is our most abundant fossil fuel, enough underground in the US to provide energy for the next 200 to 300 years.

- Cost

Availability and abundance keep coal cheap.

Source: Energy Information Administration/Electric Power Annual, 2005

The electric power industry is rushing to build conventional coal plants before federal global warming legislation is enacted, in the hope that their plants will be “grandfathered” and exempt from mandatory federal carbon regulations.

Conventional Pulverized Coal (PC) Plants

Crushed coal is burned in a boiler to produce steam, which powers a turbine to create electricity

- *90% of the world's coal power (including majority of US plants) is produced by the dirtiest, least efficient, "sub-critical" plants.*
- *New "supercritical" plants are more efficient, but they still emit large amounts of soot, smog-forming pollutants, toxic mercury, and greenhouse gases like CO₂.*

No technology on the market today can remove CO₂ from coal plant emissions.

Conventional Coal Alternatives

IGCC (Integrated Gasification Carbon Cycle)

Coal is converted to a synthetic gas, which can then be cleaned of pollutants before it is burned

- *IGCC is 10-20% more efficient than conventional coal and has lower emissions of soot- and smog-forming pollutants.*
- *IGCC allows the “capture” of CO₂ for future storage underground when technology is available.*
- *IGCC costs more to build today, but could be less expensive in the future.*
- *IGCC is a viable alternative to conventional coal plants.*

The Problem with Coal Air Emissions

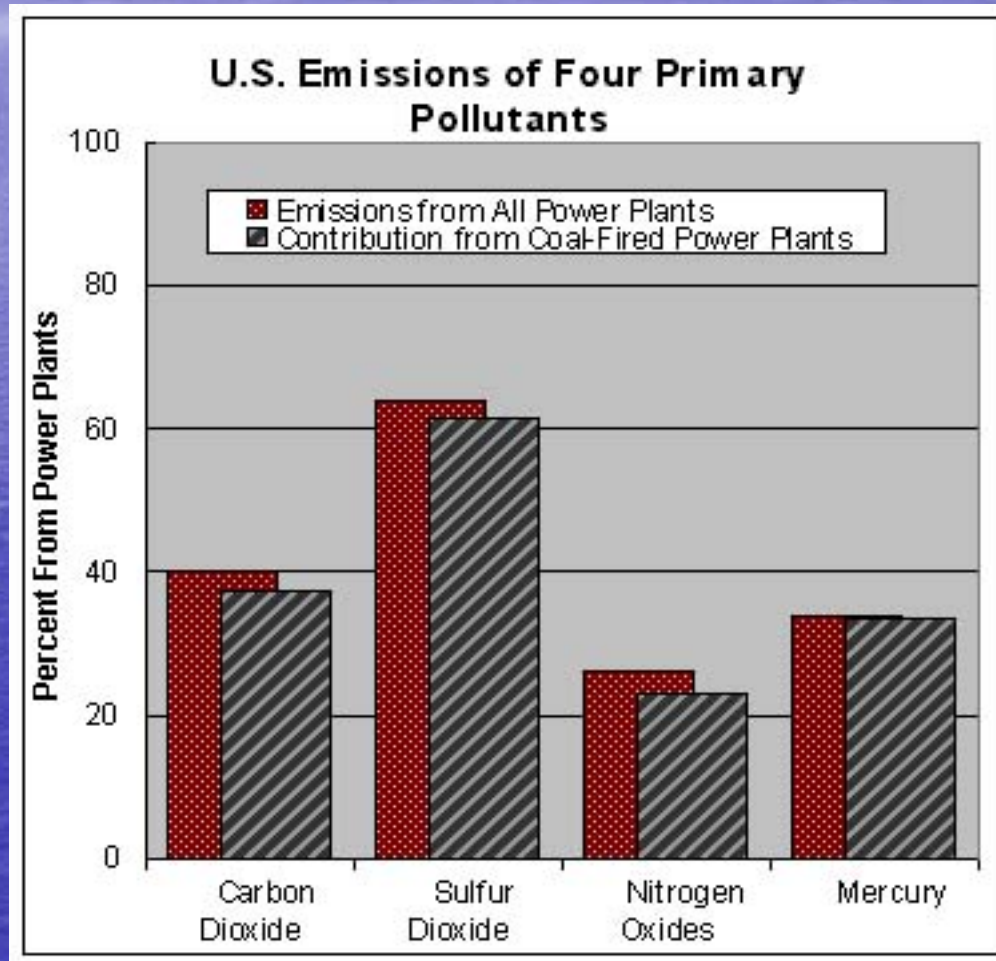
- Coal-fired plants produce 36% of US CO₂ emissions, the main culprit in global warming.
- Emissions from coal-fired plants contribute to at least 24,000 premature deaths a year in this country alone.

(www.epa.org)



The Problem with Coal

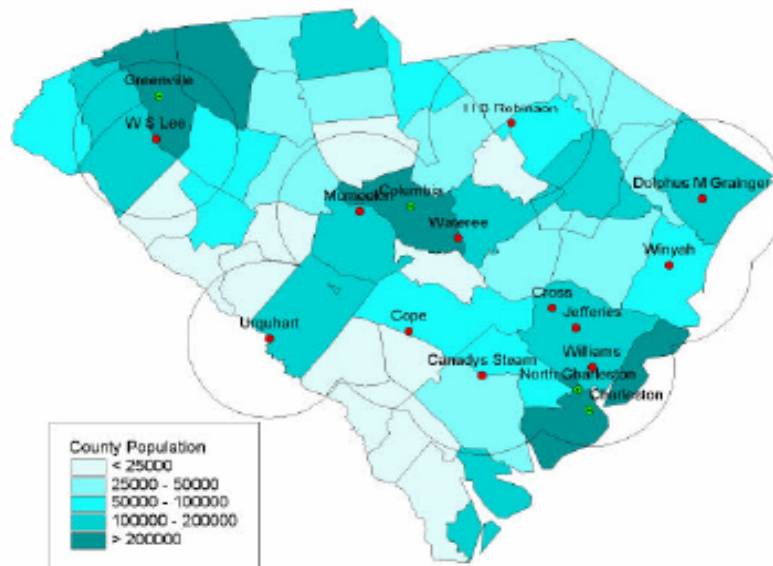
Air Emissions



The Problem with Coal Air Emissions

In SC 50 thousand children living within 30 miles of a coal plant have
asthma.

South Carolina State Profile of Exposure to Coal-Fired Power Plants



Map Legend

Circles Represent a Thirty Mile Radius around Power Plants

Major Cities are Shown

State Profile

Total Number of Power Plants	12
Total Reported Releases	
Air	41,015,630
Land	1,215
Water	1

Total Lake Acres/River Miles under Mercury Fish Advisory	574 / 1,550
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Total Ozone Non-Attainment Areas	0
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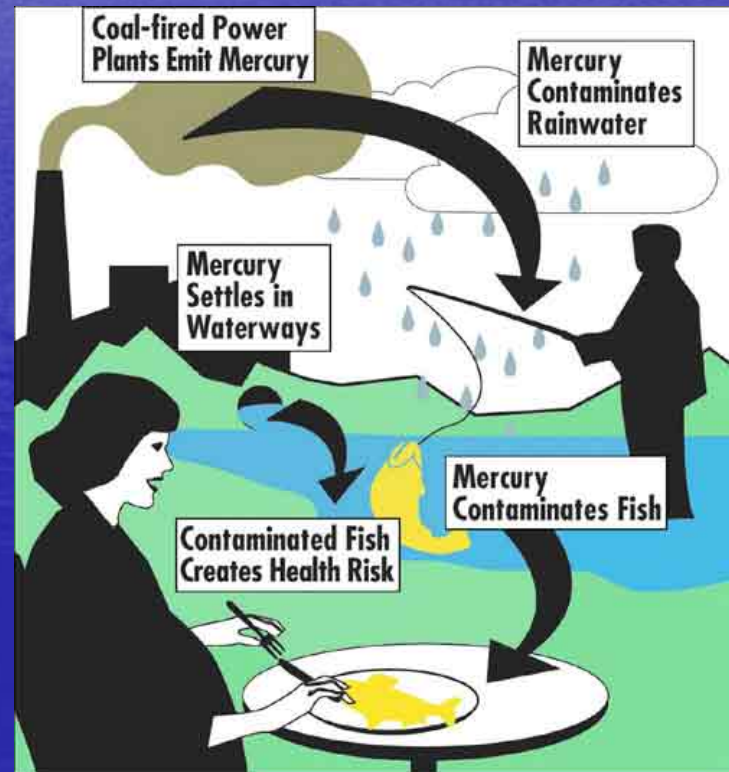
Exposure Within 30 Mile Radius

Total Population	3,555,747
Total Number of Children	879,240
Total Number of Children in Poverty	225,941
Total Number of Children With Asthma	48,567

The Problem with Coal

Mercury Emissions Endanger Health

- Mercury emissions contaminate waterways and fish.
- Eating contaminated fish is a health risk, especially for women and unborn children.



The Problem with Coal

Coal Plant Waste Contaminates

- Coal plant ash lagoons leach heavy metals, such as arsenic and lead, into nearby water bodies.



The Problem with Coal

Coal Mines Destroy the Land

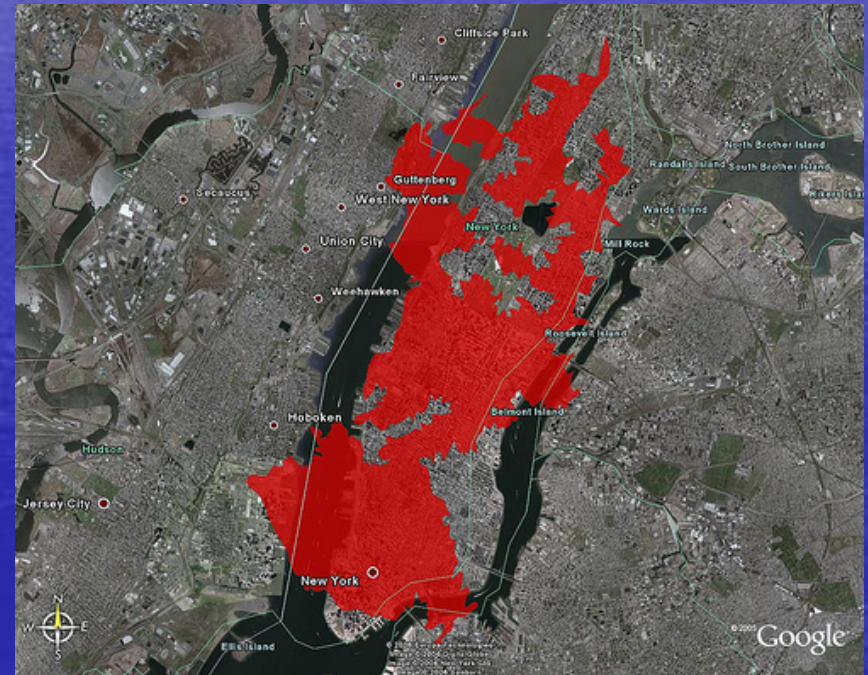
- Coal reserves in the US stand at 268 billion tons.
- 43% are surface mines in WV, WY, and KY.



The Problem with Coal

Coal Mines Destroy the Land

- The 10,000 acre Hobet mountaintop removal complex in Boone County, WV superimposed over Manhattan.
- Watch a video of the immense destruction behind mountain top removal.



SC's Clean Energy Future

Conservation and Efficiency

Conservation Starts at Home

- Energy Star lighting and appliances
- Recycle, Reduce, Reuse!

Conservation Continues in the Community

- Solar collectors or vegetated rooftops, green fleets, light rail systems, LED traffic signals, geothermal heating, condensed land use.
- Policy changes... building codes, land use regulations, transportation reform.

Energy Efficiency vs. New Power Generation

- Energy efficiency total resource cost = 3 cents per kWh
- Pulverized coal total resource cost = At least 4 cents per kWh

SC's Clean Energy Future

Renewable Energy

- Offshore Wind
 - Biomass
- Small Hydropower
 - Solar
- Tidal/Wave

