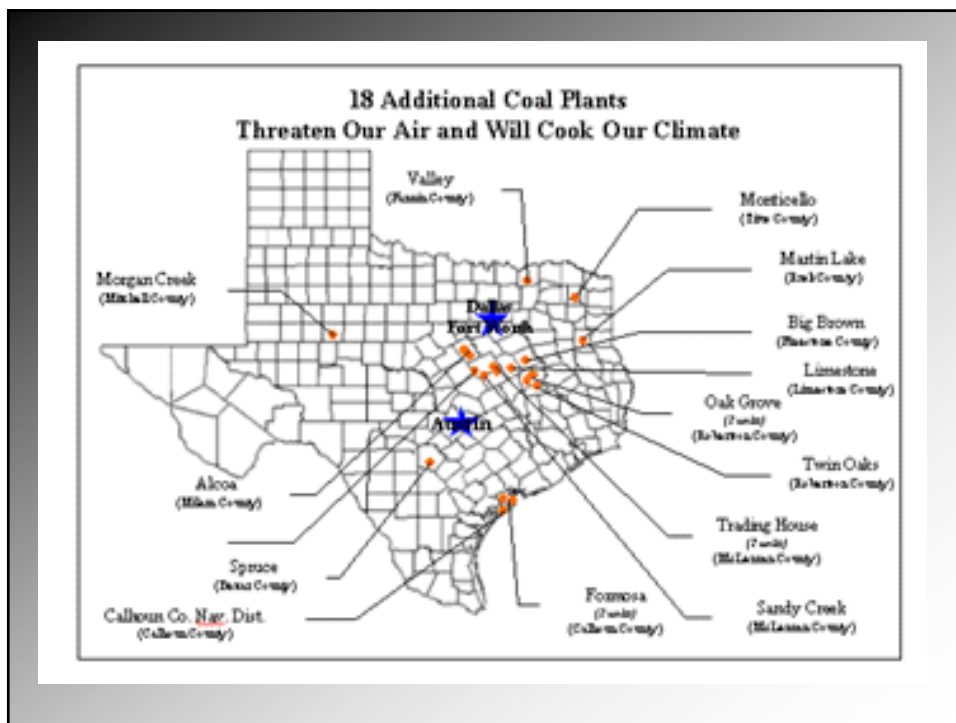


Texas Coal Plants

Prisma Garcia
March 6th, 2007



Coal: Environmental Enemy Number 1?

- Abundance of coal: US, Russian Federation, China, India
- Cheap to mine and transport
- Estimated to last another 200 years at current consumption
- Produces soot in a domestic situations such as stoves or furnaces
- Emissions of CO₂, H₂O, Sulfur dioxide SO₂, nitrogen oxides NO_x, fluorides, uranium, and other radioactive metals
- Expensive and sophisticated processes remove sulfur dioxide and other pollutants
- Sulfur dioxide reacts with oxygen to form sulfur trioxide (SO₃), which then reacts with water to form sulfuric acid. The sulfuric acid is returned to the Earth as acid rain.
- Global Warming → coal has the highest emission rate of CO₂

“Dirty Fuel”

Coal is primarily used as a solid fuel to produce electricity and heat through combustion.

- USA: 1,100 million short tons each year
 - 90% used for generation of electricity
- 40% of world coal is used for electricity



Coal = Energy

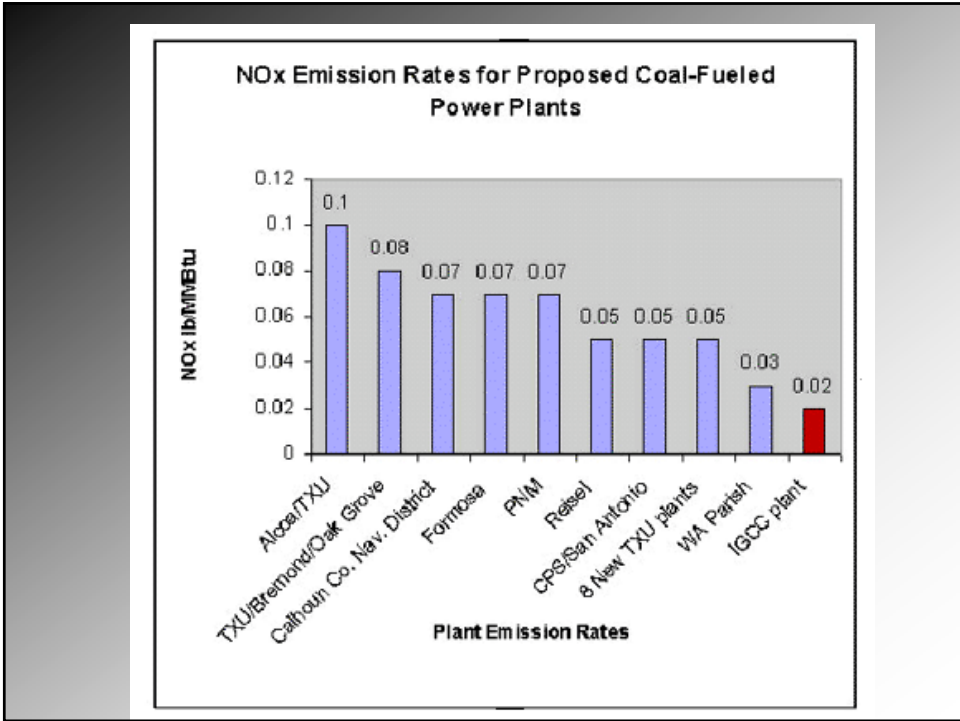
- Energy Density
 - Roughly 24 Megajoules per kilogram; kilowatt-hours
 - Coal: 6.67 kW-h/kg
- Thermodynamic Efficiency
 - 30% for coal power plants
 - 2.0 kW-h/kg achieved by coal plants
- Relative Carbon Cost
 - Coal 50% Carbon by mass
 - Produces CO₂ at a rate of 0.915 kg(CO₂) / kW-h, or about 0.254 kg(CO₂) / MJ

Gasification (IGCC)

Gasification (with carbon capture) offers the ability to create green power source



— Gasification is a technology that is used on a variety of solid fuels, including coal, lignite, high-sulfur fuel oil, refinery tars, petroleum coke, and biomass. A gasifier performs the gasification of these fuels, and this process creates a synthesis gas stream comprising primarily hydrogen and carbon monoxide. The ability to capture and store that emission stream is the key to long-term environmental protection.



Building Texas' Energy Future

- TXU is a Dallas-based company. It is the state's largest utility company



Coal plants, Perry argued, would drive down costs and give a much-needed boost to the state's power grid. Earlier this fall, a report by the North American Electric Reliability Council buttressed at least part of Perry's argument, saying Texas is among regions most at risk for grid failure because future demands are expected to exceed capacity. "We need to make sure Texas stays ahead of the demand for energy," says Perry spokesperson Kathy Walt.



Texas Coal Plants Can Harm Your Health and the Health of Your Family

Pollution from coal plants shortens the lives of 1,160 Texans each year. It also causes 196,149 lost work days, 1,105 hospitalizations and 33,987 asthma attacks every year.

Each year, 144 lung cancer deaths and 1,791 heart attacks in Texas are attributable to power plant pollution.

A UT Health Science Center San Antonio study found that autism increases by 17% for every 1,000 pounds of mercury that is emitted locally in Texas.

Women and children are warned to not eat fish from 12 bodies of water near power plants in Texas because of high levels of mercury

Adults also have increased cardiovascular risk from Mercury exposure.



Should Texas build more plants?

18 additional coal-burning power plants would add:

- more than 30,000 tons of smog-forming pollution into the air in East Texas (as much as 1 million cars)
- over 115 million tons of CO₂ (as much as 20 million cars)
- nearly 4,000 pounds of toxic mercury every year (the goal for the entire US is to get down to 15 tons per year by 2018, so adding 2 tons makes no sense)

Dallas Skies



The Dallas-Fort Worth area, one of the ten largest metropolitan areas in the country, has struggled for more than a decade to find a way to reduce its ozone emissions in order to comply with standards set by the federal Clean Air Act.

18 Proposed Coal Plants Would Drastically Impact Air Quality in DFW Areas

- Air pollution in East Texas is so bad that the incoming air pollution in DFW is often more of a contributor to air pollution violations than local emissions.
- The EPA has determined that air is safe to breathe if smog pollution is less than 85 parts per billion (ppb) over an 8 hour period, referred to as the 8-hr standard.
- Any community in violation of the 8-hr standard must develop a plan to reduce pollution that will put them in "attainment" of the 8-hr standard. The DFW area must reach attainment by 2010 or face penalties.

What is being done?

- Governor Perry has issued an executive order to fast-track power plant permits and the Texas Commission on Environmental Quality (TCEQ) is not requiring analysis of the **cumulative pollution impact of these proposed plants on cities downwind.**
- Over 1000 ideas have been evaluated by North Texas Council Of Governments.
- Over 100 strategies have been modeled but they would only reduce NOx by 1/3 of what is needed
- TCEQ says we need to cut NOx emissions by 166 tons per day (tpd) in DFW and we've only come up with 40-60 tpd of reductions
- Yet, the state at this point does not require new technologies.

Stop The Coal Plant Petition

March 3, 2007

Clean Air, Clean Energy and Health Protection...
Not More Dirty Coal-Burning Power Plants!

Proposed coal-burning power plants threaten the health of Texans. Smog pollution burns our lungs, and toxic mercury leads to permanent brain damage in children and increased risks for cardiac patients. Currently proposed plants would emit the smog equivalent of a million cars, and as much global warming gas as 20 million cars. Hurricanes are intensifying, and we must act to reduce carbon dioxide emissions, instead of making the problem worse.

We urge action to:

- End fast-track permitting of coal plants that resulted from Gov. Perry's Oct. 2005 executive order, to clean up existing coal plants and to enact a moratorium until permit standards are improved and a real plan for clean air is developed by the Texas Commission on Environmental Quality, and
- Use energy efficiency and renewable energy as first choices in meeting our energy needs, since these approaches are clean, safe, affordable, and easily implemented.

<http://www.stopthecoalplant.org/takeaction/petition/>

What does TXU have to say?

- TXU says the plants are needed to keep pace with increased energy demands due to projected population growth in the state. The company also claims the plants would provide jobs, foster economic growth and lower electricity prices.
- TXU spokesperson Chris Schein admitted to *The NewStandard* that the carbon-dioxide emissions in Texas would "probably" double if the state built the plants as proposed, at a total price tag of \$10 billion.

Electricity Costs Have Risen 84% Since Deregulation!

