U.S. Coal

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The Significance of Coal In The U.S.

- Coal accounts for 39% of US electricity production (2014).
- More than 90% of coal mined in the United States is used by the electric power industry.
- Coal fired power impacts land use, water pollution, waste management, and air pollution.
  - Largest Contributor to human caused increase of CO_2 in the atmosphere.
- Coal produces solid waste products that contain mercury, methane, uranium, thorium, and arsenic.
- Estimated to shorten 1,000,000 lives annually worldwide, and 24,000 lives annually in the US.

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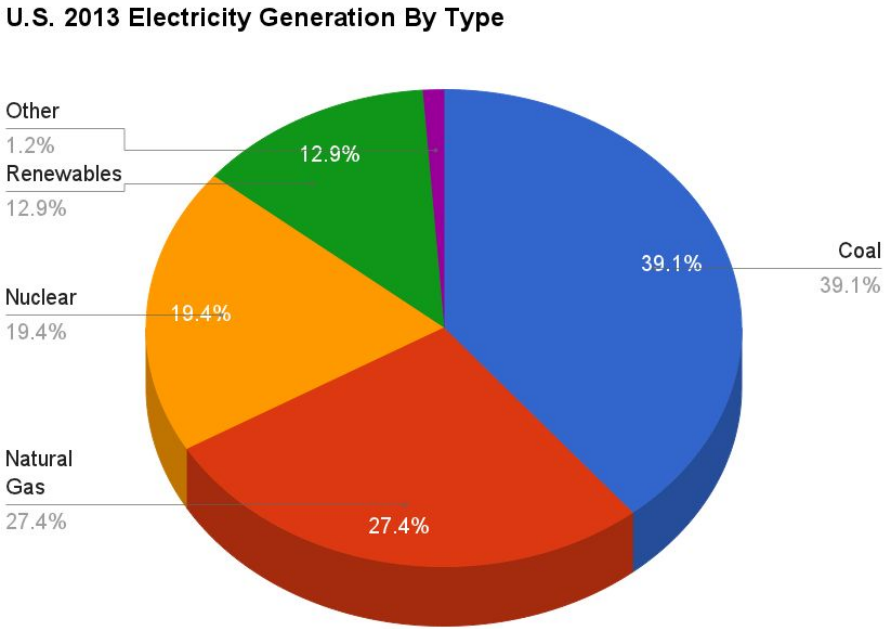
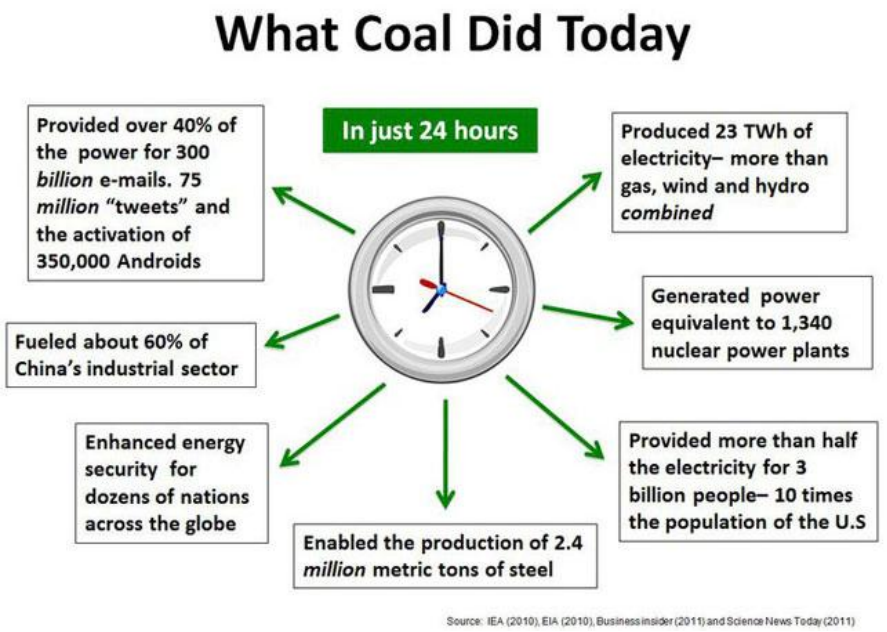




Purpose of Investigation

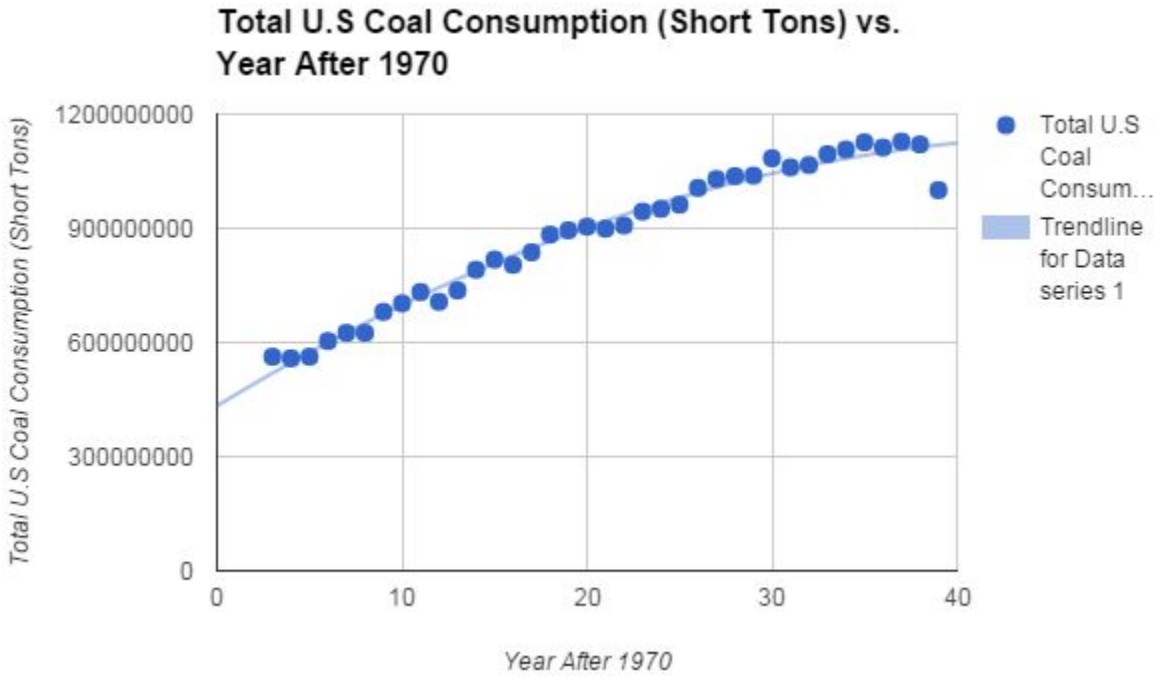
- Largest toxic air releases
- 44 coal-fired power plants have been classified as hazardous
- See how the production, consumption, exportation, and importation of coal has changed.
- We wanted to identify whether the United States has made successful efforts to lower the use of coal.

Scientific and Social Concepts/Terms

- Pollution
- Net exporter
- Net importer
- Production
- Consumption

Data

Year	Years after 1970	Total US Coal Consumption (Short Tons)	Total US Coal Production (Short Tons)	Production - Consumption (Short Tons)
1973	3	562583603	598568000	35984397
1974	4	558401800	610023000	51621200
1975	5	562640432	654641000	92000568
1976	6	603789974	684913000	81123026
1977	7	625290963	697205000	71914037
1978	8	625224827	670164000	44939173
1979	9	680524248	781134000	100609752
1980	10	702729735	829700000	126970265
1981	11	732626833	823775000	91148167
1982	12	706910644	838112000	131201356
1983	13	736672312	782091000	45418688
etc. up to 2009				



Trendline Equation:

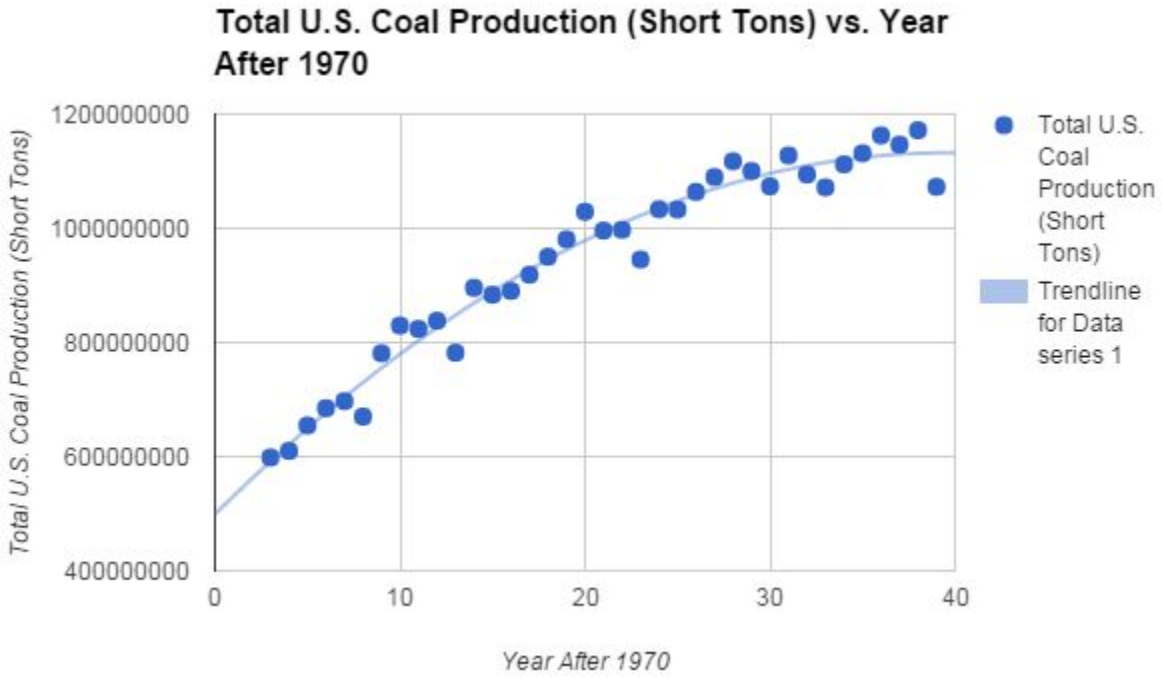
$y = -308682x^2 + 3(10^7) + 7x + 8$

Derivative:

$y' = 2.9628(10^7) - 617400x$

Rate of Change at 2006

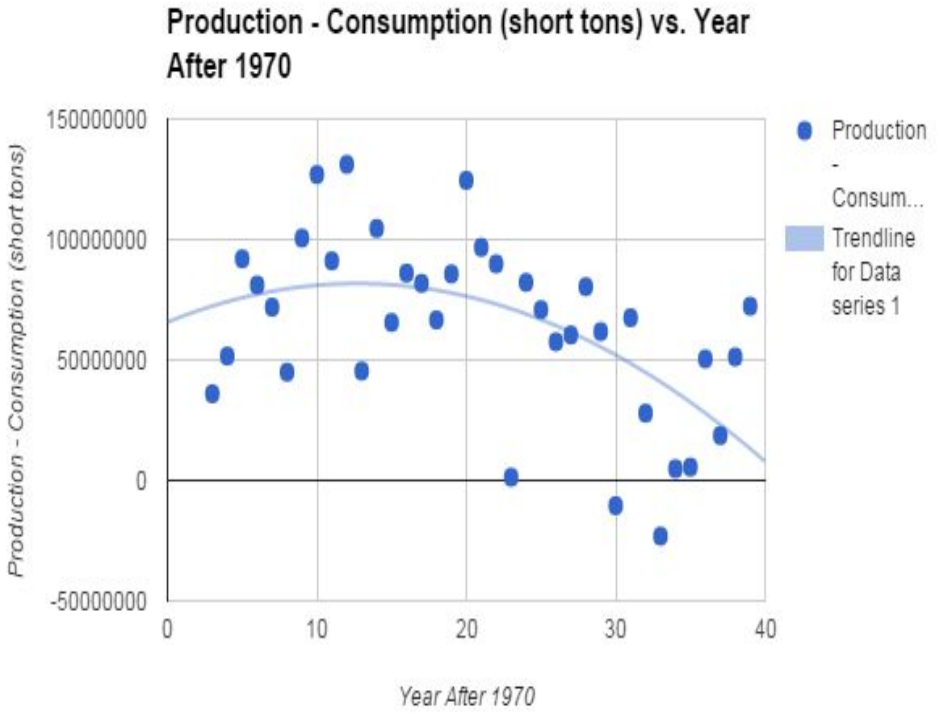
$2.9628(10^7) - 617400(36) = 7393600$



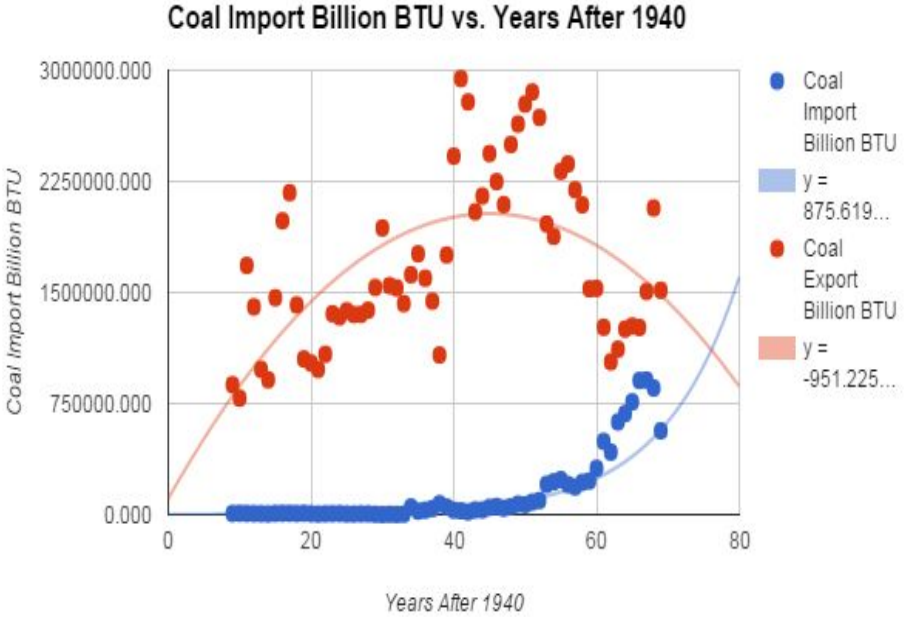
Trend Line Equation:
y=-4.079(10^5)x^2+3.214(20^7)x+4.99(10^8)

Derivative
y'= 32140000 - 815800x

Rate of Change at 2006:
32140000-815800(36)=52771200



Trend Line Equation:
y=-99195.002x^2+2.522(10^6)X+6.571(10^7)

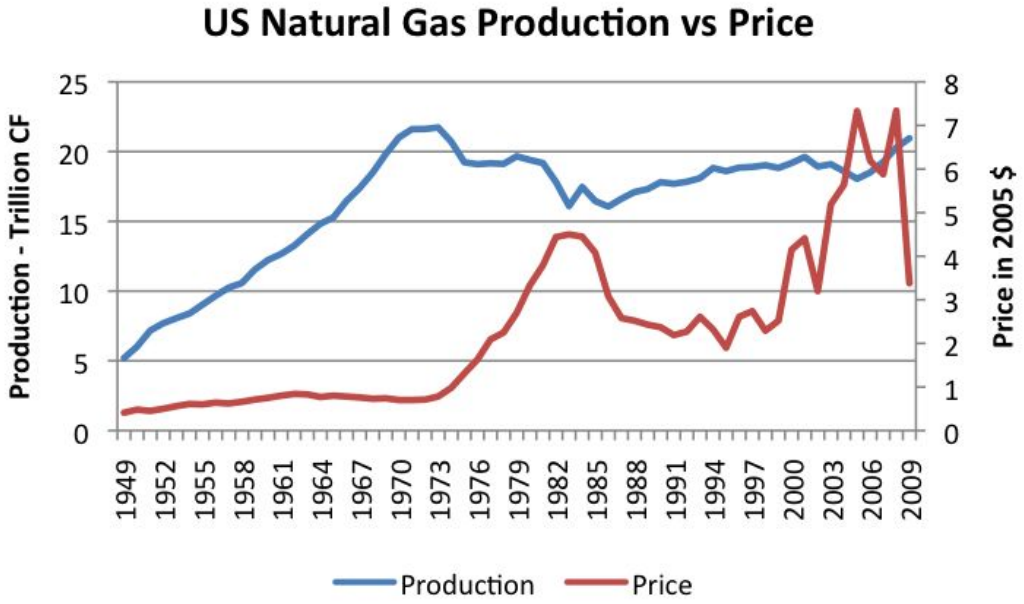


Coal Import
y= -951.225x^2 + 85569.224x + 1.082(10^5)

Coal Export
y= 875.619e^(0.094x)

Patterns and Analyses

- It is predicted that in 2016, the United States will become a net importer of coal.



- In 2014, the United States imported 8.3 million short tons of coal from Colombia.
- The U.S. should be a net coal exporter between 2020 and 2030.

Alternatives to Coal Energy

Since coal is a fossil fuel it increases the amount of greenhouse gases in the atmosphere when burned. It is not a sustainable source of energy as we are running out of the resource in America.

Multi Billion dollar oil companies such as British Petroleum and Royal Dutch Shell acknowledge the need for renewable energy, saying by 2050, ⅓ of the world's energy will need to be renewable. Even though scientists disagree with this percentage of renewable energy even the oil companies are acknowledging the problems fossil fuels such as coal are causing. In Ameirca coal makes up 39 percent of our current energy use.

Most Popular Renewable Energy Resources

Solar Power:

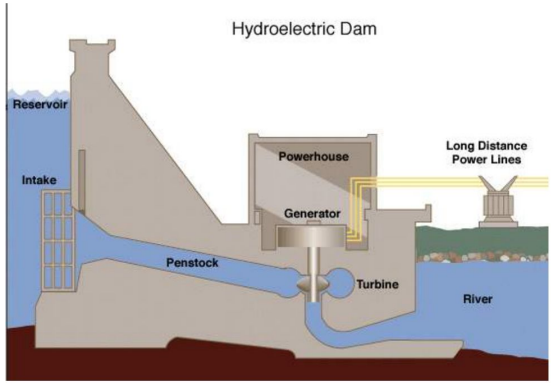
- The technology used to turn the sun’s energy into electricity
- Through the use of solar panels and solar farms we can begin to replace a portion of coal energy with solar energy

- Only .2% of the United States total energy is from solar energy

Most Popular Renewable Energy Resources (cont.)

Hydroelectric power:

- Source of energy that uses to force of moving water to generate electricity
- Makes up 6.5% of the United States electricity needs
- The largest hydroelectricity producer in America is the Hoover Dam
- It is most used in California, New York, Washington, Oregon, and Alabama



-http://www.tva.gov/power/hydroart.htm

Most Popular Renewable Energy Resources (cont.)

Wind Energy:

- Converts energy from wind into electricity
- They depend on wind direction and require large amount of money. They make noise and threaten birds.
- 4.4% of the electricity generated in America is from wind.

Position and Trade Offs

We think that the world needs to begin using sustainable energies instead of coal. because of its negative impact on the environment.

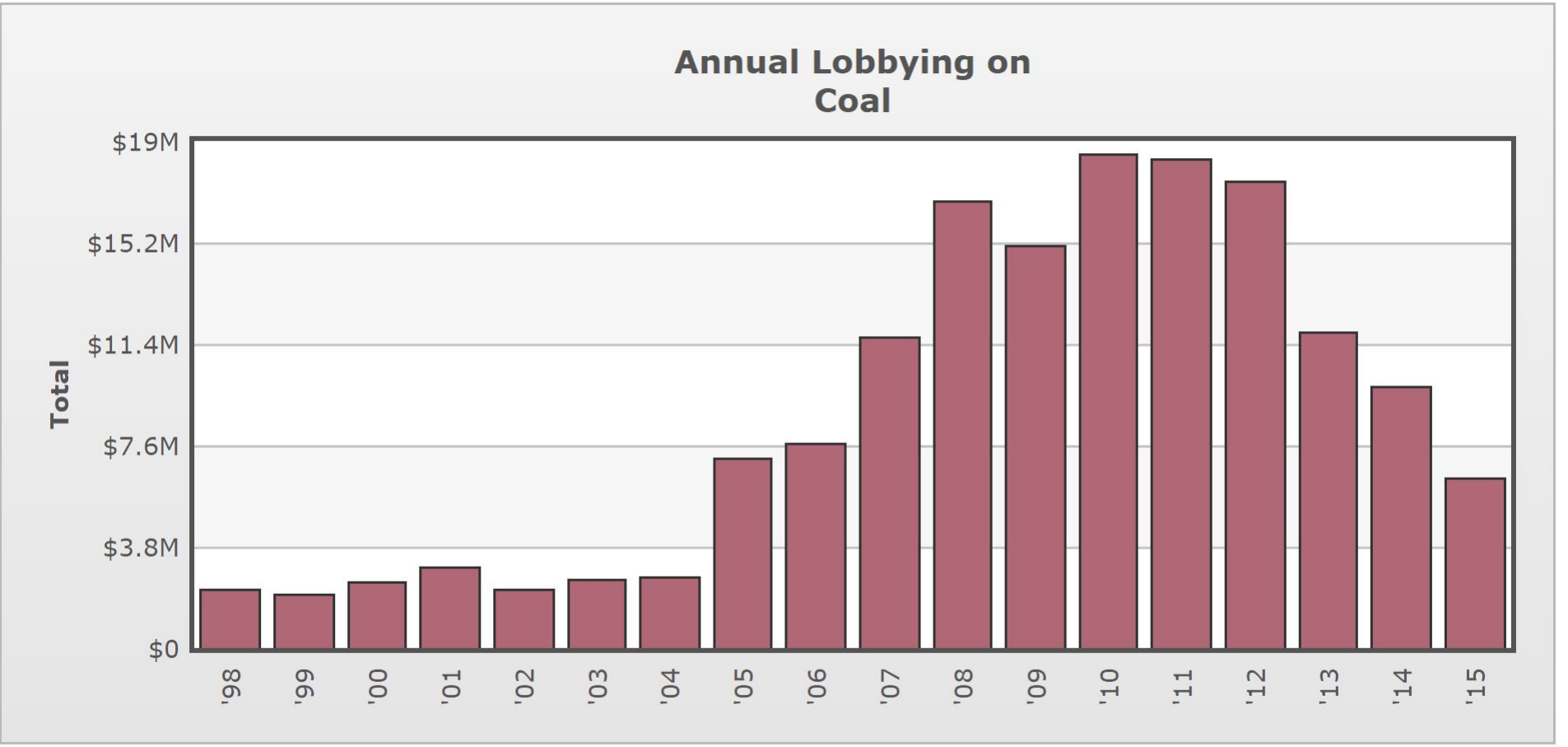
Renewable energies are fighting a fight that

lawmakers are not paying attention to.

This is a consequence of lobbying and

politicians that will not take action against

Global Warming.



In 2014 the Coal Industry has spent $9,817,063.

cont.

Some politicians don’t need to be persuaded to vote against renewable energies.

Marco Rubio

“I believe the climate is changing because there’s never been a moment where the climate is not changing. The question is, what percentage of that … is due to human activity? … Scientists can’t tell us what impact it would have on reversing these changes.”

Interviewed by Bob Schieffer of “Face the Nation” on April 19th, 2015

Marco Rubio Doesn’t Make Sense

Per Capita, America emits the most Carbon Dioxide into the environment at 16.6 tons.

China emits 7.4 tons per capita

The EU emits 7.3 tons per capita

According to the Netherlands Environmental Protection Agency

SUBSIDIZE THIS

THE PRICE THAT YOU PAY FOR ENERGY—WHETHER ELECTRICITY AT YOUR HOUSE OR GAS AT THE PUMP—ISN'T ACTUALLY THE PRICE THAT THE MARKET WOULD SET FOR THAT ENERGY.

The government spends billions of dollars to support the energy industry, which allows it to make energy cheaper than it should cost on the open market. These subsidies—either in the form of tax breaks or direct funding—favor some types of energy over others, giving our country a skewed sense of what each gallon of gas or wind-powered electron costs. This is a look at where the government directed its subsidy dollars from 2002 to 2008.

SOURCE "Estimating U.S. Government Subsidies to Energy Sources" by the Environmental Law Institute

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Conclusion

Coal is a fossil fuel that emits greenhouse gases into the atmosphere. In 2016, the United States will become dependent on foreign coal because we have exercised the coal resources in America. We can reduce the impact of coal energy by using renewable energies such as Wind, Solar, and Water. Politicians choose not to accelerate the use of renewable energies because of lobbying and lack of respect for science. As a consequence 72 billion dollars were spent on tax breaks towards the coal industry in 2007. America needs to support renewable energies if we want to promote meaningful change in greenhouse gas emissions in America.

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