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## From Wikipedia encyclopedia:

As of 2007 in the United States, there are 104 (69 pressurized water reactors and 35 boiling water reactors) commercial nuclear generating units licensed to operate, producing a total of 97,400 megawatts (electric), which is approximately 20% of the nation's total electric energy consumption. The United States is the world's largest supplier of commercial nuclear power. As of 2004, nuclear power provided 6.5% of the world's energy and 15.7% of the world's electricity, with the U.S., France, and Japan together accounting for 57% of nuclear generated electricity.<sup>[1]</sup> As of 2007, the **International Atomic Energy Agency (IAEA)** reported there are 439 nuclear power reactors in operation in the world,<sup>[2]</sup> operating in 31 countries.<sup>[3]</sup>

Why did the US public opinion changed about nuclear power?

The **Three Mile Island accident** was the most significant accident in the history of the American commercial nuclear power generating industry. The accident began on Wednesday, March 28, 1979, and ultimately resulted in a partial core meltdown in Unit 2 of the nuclear power plant. The accident began when the plant's main feedwater pumps in the secondary non-nuclear cooling system failed. Because water was no longer flowing through the secondary loop, the steam generators no longer removed heat from the reactor thus causing it to melt down. The scientific community is largely agreed on the effects of the Three Mile Island accident. The consensus is that no member of the public was injured by the accident. "The average radiation dose to people living within ten miles of the plant was eight millirem, and no more than 100 millirem to any single individual. Eight millirem is about equal to a chest X-ray, and 100 millirem is about a third of the average background level of radiation received by US residents in a year." Although 25,000 people lived within five miles (8 km) of the site at the time of the accident,<sup>[5]</sup> no identifiable injuries due to radiation occurred, and a government report concluded that "There will either be no case of cancer or the number of cases will be so small that it will never be possible to detect them. The same conclusion applies to the other possible health effects."

Public Opinion is Changing:

The accident was followed by essentially a 100% cessation of nuclear construction in the US. The impact of news stories about the accident was no doubt a factor, but other factors were the availability of cheap natural gas, a transition away from manufacturing and toward importation of consumer products, and federal policies that tolerated air pollution in the interest of keeping coal-fired electricity cheap. The TMI accident also had a psychological effect on the nation. Before the accident, 70 percent of the general public approved of nuclear power. After it, support for nuclear power across the country fell to about 50 percent, where it remained for decades. Recently, public support for nuclear power has been on the rise, and the George W. Bush administration has been particularly supportive of nuclear power, encouraging power companies to begin considering plans for the first new nuclear reactors in the United States in decades. The results of a poll

conducted in the United States (february 2005, Bisconti Research Inc.): According to the poll, 67% of Americans favor nuclear energy, while 26% oppose it.

**Electricity - production by source:**

- *fossil fuel*: 71.6%
- *hydro*: 5.6%
- *nuclear*: 20.6%
- *other*: 2.3% (2001)

A **fossil fuel power plant** burns fossil fuels such as coal, natural gas or oil to produce electricity.

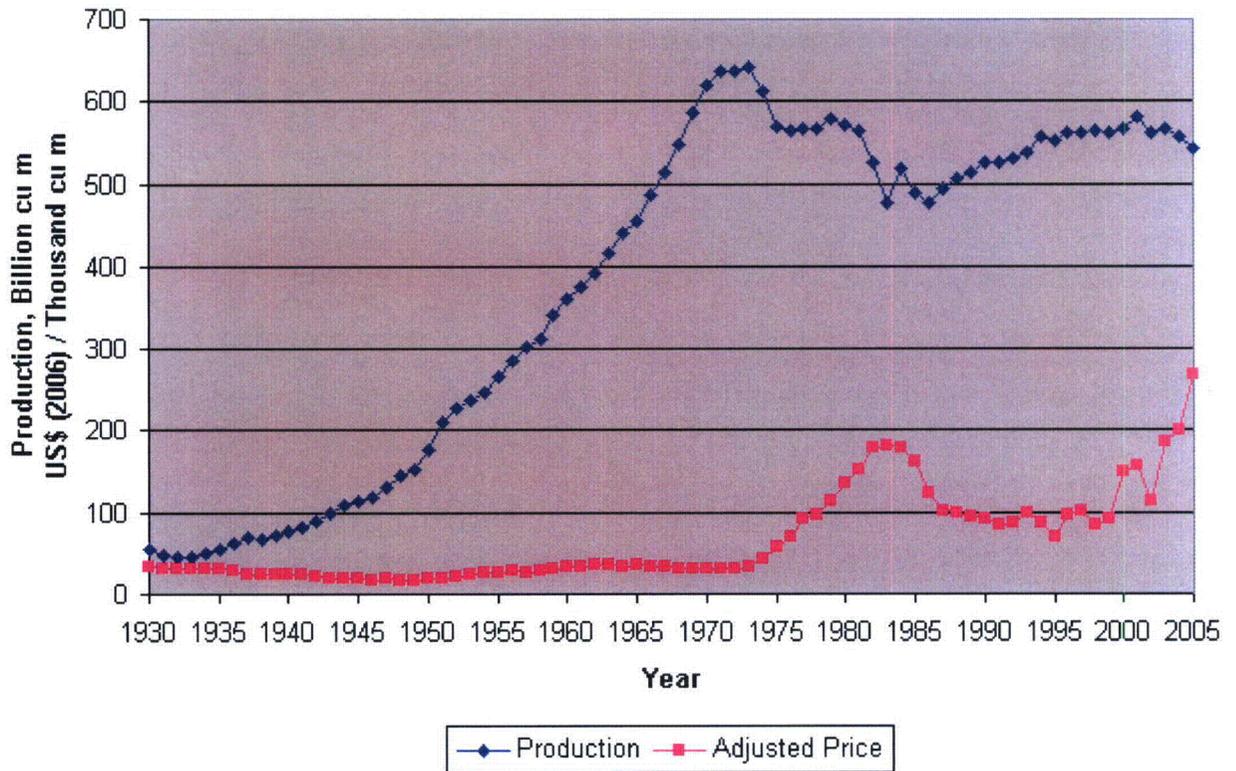
**Coal**

It is composed primarily of carbon along with assorted other elements, including sulfur. It is the largest single source of fuel for the generation of electricity world-wide, as well as the largest world-wide source of carbon dioxide emissions, slightly ahead of petroleum and about double that of natural gas

The price of coal has gone up from around \$30 a tonne in 2000 to around \$130 a tonne in 2008. This is over 400% increase in price just over the last 8 years.

## Natural Gas

U.S. Natural Gas Production and Average Wellhead Price



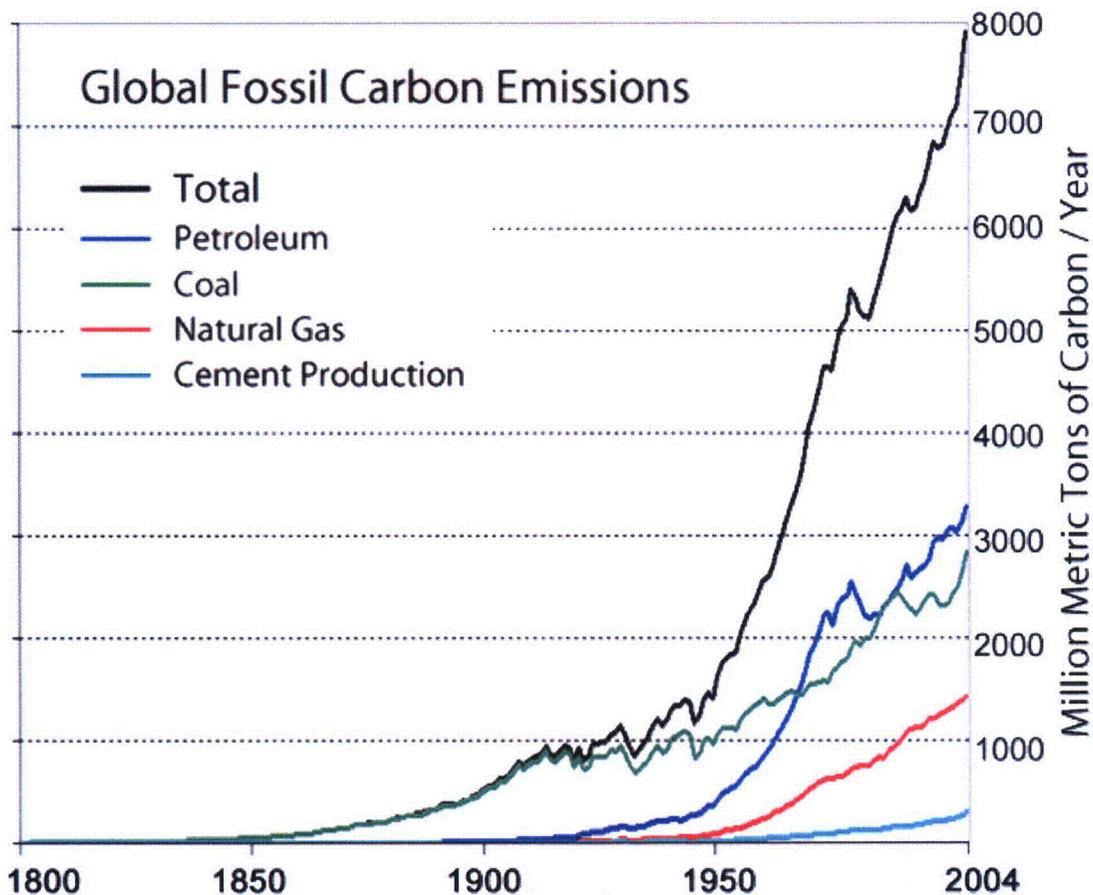
Natural gas cost in 1970's under \$50/thousand cubic meter

Natural gas cost today just under \$300/thousand cubic meter

This is over 600% increase in Natural Gas Cost.

- *imports*: 120.6 billion cu m (2004 est.)

Enough about costs what about the Environment?



Since the early 1900's, the Carbon Emissions from Fossil fuels have exponentially increased.

Petroleum just over 3000 million metric tons of carbon/year

Coal just under 3000 million metric tons of carbon/year

Natural Gas at approximately 1500 million metric tons of carbon/year

For a total of over 8000 million metric tons of carbon/year.

In addition, the combustion of fossil fuels contributes to [acid rain](#), [global warming](#), and [air pollution](#).

The [world's power demands](#) are expected to rise 60% by 2030.<sup>[8]</sup> With the world-wide total of active coal plants over 50,000 and rising,<sup>[9]</sup> the **International Energy Agency (IEA)** estimates that fossil fuels will still account for 85% of the energy market by 2030.<sup>[8]</sup> World organizations, and international agencies like the IEA are concerned about the environmental impact of burning fossil fuels. Are you?

Why the Need for Nuclear Power?

The United States continues to grow:

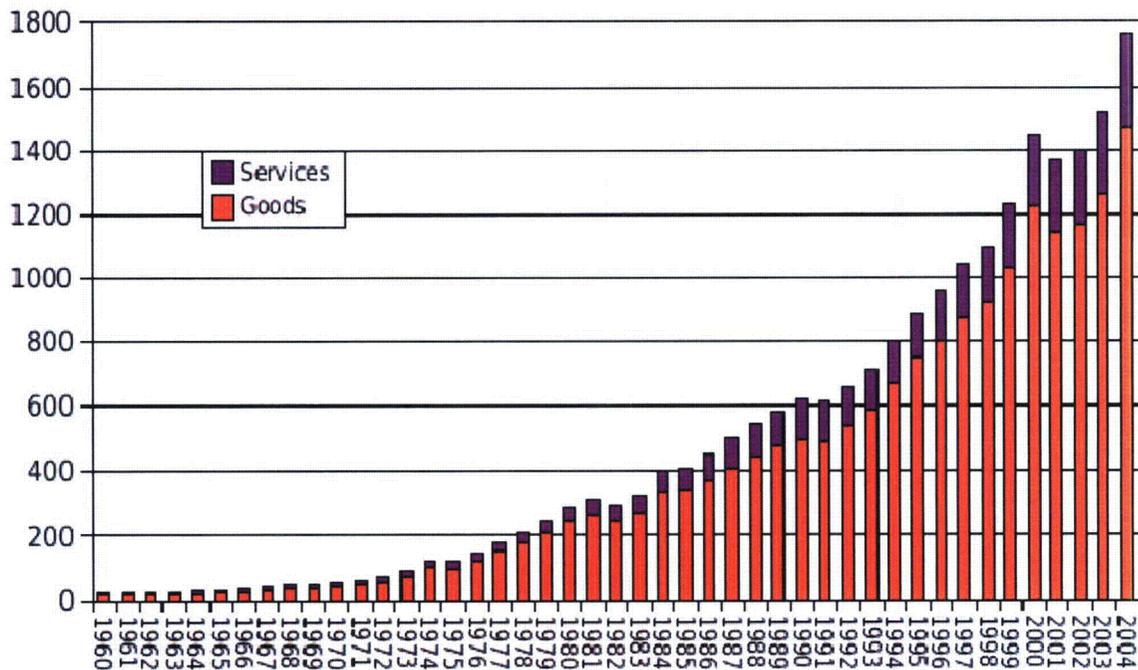
The **Nineteenth (1970's) United States Census**, conducted by the [Census Bureau](#), determined the resident population of the [United States](#) to be 203,302,031.

The **Twenty-Second United States Census**, known as **Census 2000** and conducted by the [Census Bureau](#), determined the resident population of the [United States](#) on [April 1, 2000](#), to be 281,421,906.

This is just under a 40% increase in growth. With growth electricity is required!

**With the high cost of Energy due to the lack of supply, the USA has been required to increase imports!**

US Imports of goods and services 1960-2004 (billions of dollars)



USA imports nearly \$2 trillion worth of goods and services versus slightly over \$200 billion during the 1970's.

**Imports** \$1.987 trillion f.o.b. (2007 est.)

<b>Import goods</b>	agricultural products 5%, industrial supplies 33% (crude oil 8%), capital goods 30% (computers, telecommunications equipment, motor vehicle parts, office machines, electric power machinery), consumer goods 32% (automobiles, clothing, medicines, furniture, toys) (2003)
<b>Main import partners</b>	<u>China</u> 19%, <u>Canada</u> 16%, <u>Mexico</u> 11%, <u>Japan</u> 8%, <u>Germany</u> 5%

So what have we done as a result of not building Nuclear plants to provide power to our nation, we have supported jobs not on American soil to purchase goods and services from other countries mainly China, Canada, Mexico, Japan, and Germany. In effect, these countries are advancing more rapidly in the areas of technology putting us “behind the times”.

### ***Debate on nuclear power***

Proponents of nuclear energy aver that nuclear power is a sustainable energy source that reduces carbon emissions and increases energy security by decreasing dependence on foreign oil.<sup>[56]</sup> Proponents also claim that the risks of storing waste are small and can be further reduced by the technology in the new reactors and the operational safety record is already good when compared to the other major kinds of power plants.

Critics claim that nuclear power is an uneconomic and potentially dangerous energy source with a limited fuel supply, and dispute whether the costs and risks can be reduced through new technology. Critics also point to the problem of storing radioactive waste, the potential for possibly severe radioactive contamination by accident or sabotage, the possibility of nuclear proliferation and the disadvantages of centralized electrical production.

The issue of radioactive waste is a concern and needs to be handled diligently.

### **Comparing radioactive waste to industrial toxic waste**

In countries with nuclear power, radioactive wastes comprise less than 1% of total industrial toxic wastes, which remain hazardous indefinitely unless they decompose or are treated so that they are less toxic or, ideally, completely non-toxic.<sup>[35]</sup> Overall, nuclear power produces far less waste material than fossil-fuel based power plants. Coal-burning plants are particularly noted for producing large amounts of toxic and mildly radioactive ash due to concentrating naturally occurring metals and radioactive material from the coal. Contrary to popular belief, coal power actually results in more radioactive waste being released into the environment than nuclear power. The population effective dose equivalent from radiation from coal plants is 100 times as much as nuclear plants.<sup>1</sup>

Interesting fact:

The amount of radio active waste generated for a family of four using electricity for 20 years is a glass cylinder the size of a cigarette lighter.

### **Who regulates the Nuclear industry?**

The NRC's mission is to regulate the nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment.

The NRC's regulatory mission covers three main areas:

- *Reactors* - Commercial reactors for generating electric power and research and test reactors used for research, testing, and training
- *Materials* - Uses of nuclear materials in medical, industrial, and academic settings and facilities that produce nuclear fuel
- *Waste* - Transportation, storage, and disposal of nuclear materials and waste, and decommissioning of nuclear facilities from service

As of 2007, Watts Bar 1, which came on-line in Feb. 7, 1996, was the last U.S. commercial nuclear reactor to go on-line.

I am in support of the construction of the Bellefonte Nuclear plant 7 miles North of Scottsboro, AL. The Jackson County Area is a great location with many highly skilled professionals. The addition of the Nuclear Plant to the community will bring highly specialized jobs into the area and will be great for the local economy.

Thank you!

Terry D. Couch