

### Top Petroleum Net Exporters, 1999

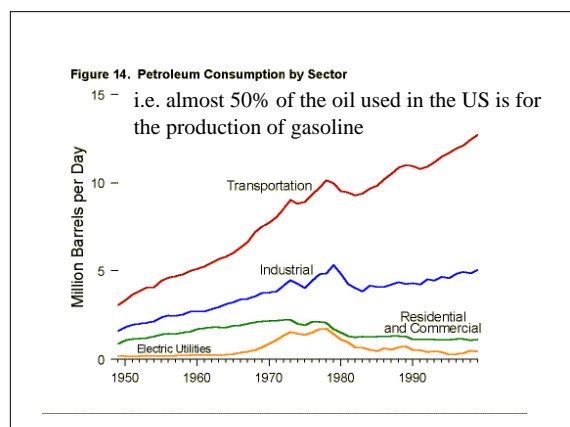
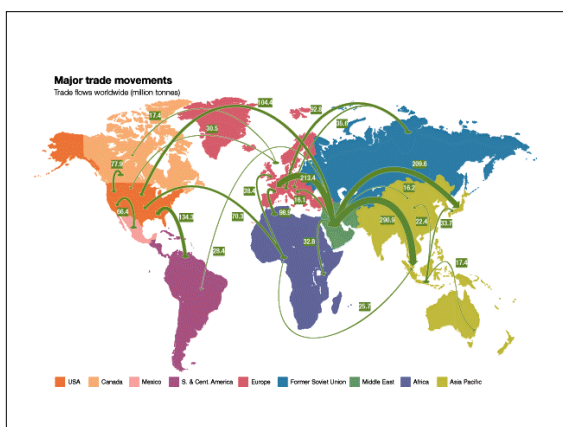
(Million Barrels per Day)

| Rank | Country              | Production | Consumption | Net Exports |
|------|----------------------|------------|-------------|-------------|
| 1    | Saudi Arabia         | 8.5        | 1.3         | 7.2         |
| 2    | Russia               | 6.3        | 2.3         | 3.9         |
| 3    | Norway               | 3.1        | 0.2         | 2.9         |
| 4    | Venezuela            | 3.0        | 0.5         | 2.5         |
| 5    | Iran                 | 3.6        | 1.2         | 2.4         |
| 6    | Iraq                 | 2.5        | 0.5         | 2.1         |
| 7    | United Arab Emirates | 2.3        | 0.3         | 2.0         |
| 8    | Kuwait               | 2.0        | 0.2         | 1.8         |
| 9    | Nigeria              | 2.1        | 0.3         | 1.8         |
| 10   | Mexico               | 3.4        | 2.0         | 1.4         |
| 11   | United Kingdom       | 3.0        | 1.7         | 1.2         |
| 12   | Libya                | 1.4        | 0.2         | 1.2         |
| 13   | Algeria              | 1.4        | 0.2         | 1.1         |

### Top Petroleum Net Importers, 1999

(Million Barrels per Day)

| Rank | Country       | Consumption | Production | Net Imports |
|------|---------------|-------------|------------|-------------|
| 1    | United States | 19.5        | 9.0        | 9.8         |
| 2    | Japan         | 5.5         | 0.1        | 5.5         |
| 3    | Germany       | 2.8         | 0.1        | 2.7         |
| 4    | South Korea   | 2.0         | 0.0        | 2.0         |
| 5    | France        | 2.0         | 0.1        | 1.9         |
| 6    | Italy         | 2.0         | 0.2        | 1.9         |
| 7    | Spain         | 1.4         | 0.0        | 1.4         |
| 8    | India         | 1.9         | 0.7        | 1.2         |
| 9    | China         | 4.3         | 3.2        | 1.1         |
| 10   | Taiwan        | 0.8         | 0.0        | 0.8         |



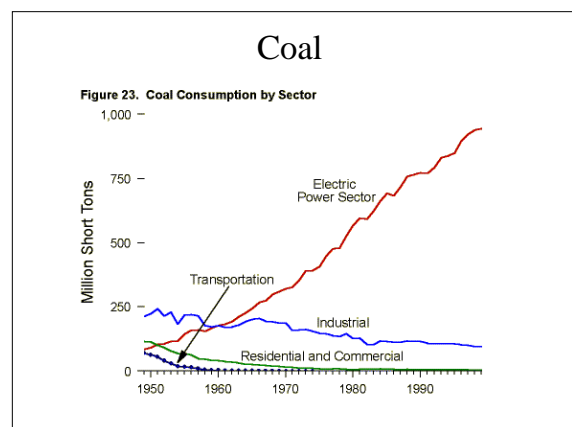
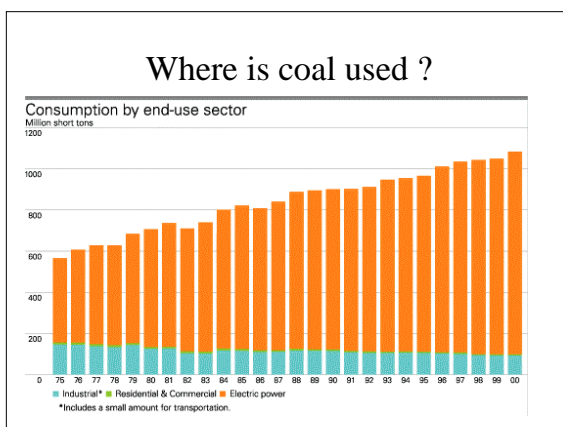
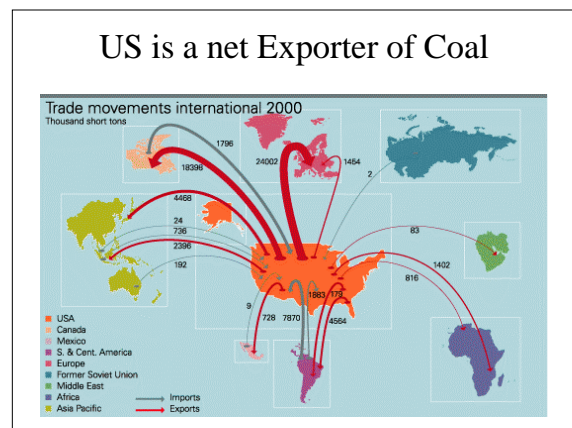
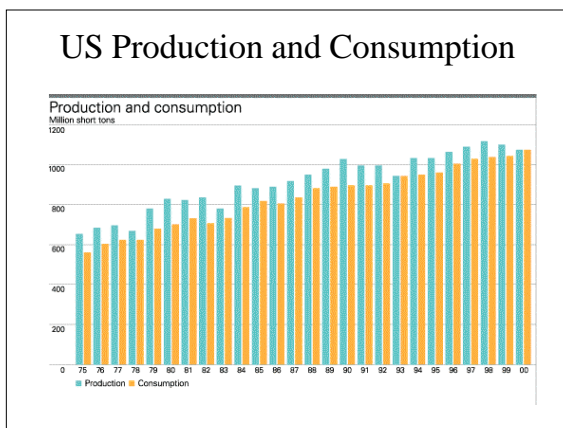
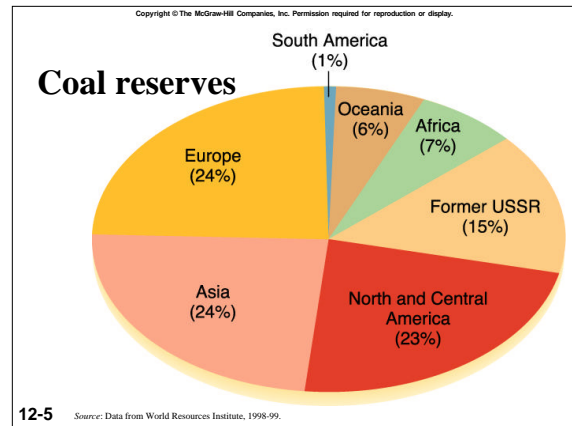
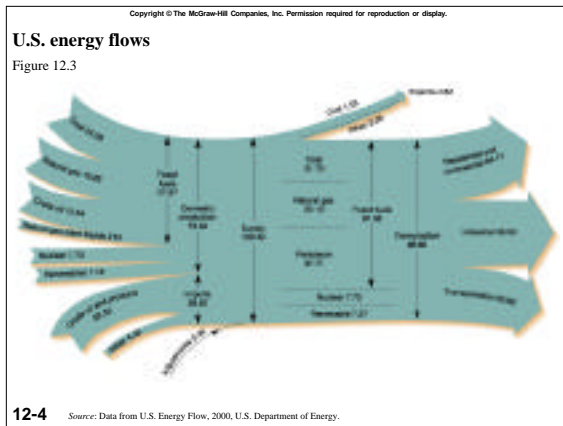
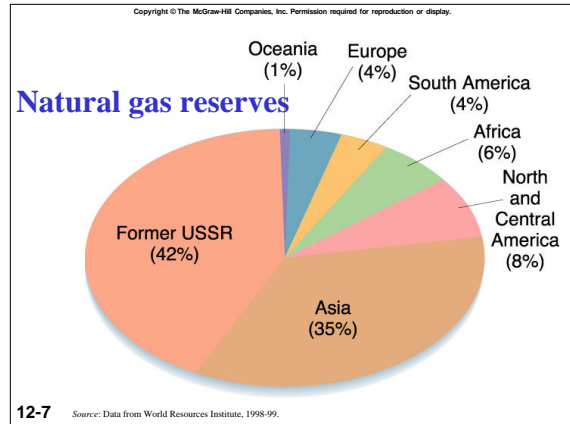
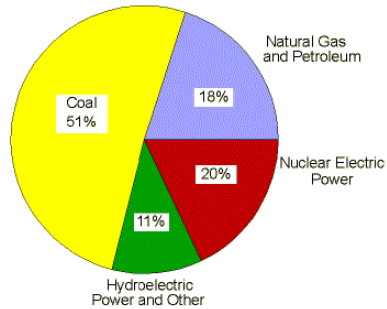


Figure 24. Electricity Net Generation by Source, 1999

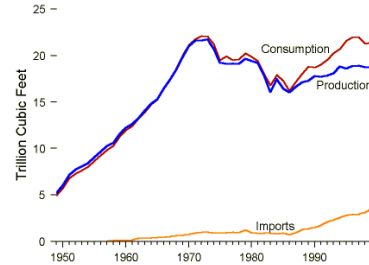


## Natural Gas

- Natural gas is mostly a mixture of methane, ethane, and propane, with methane making up 73 to 95 percent of the total. Often encountered when drilling for oil, natural gas was once considered mainly a nuisance. When either uses or—more likely today—accessible markets were lacking, it was simply flared (burned off) at the wellhead. Major flaring sites were sometimes the brightest areas visible in nighttime satellite images. Today, however, the gas is mostly re-injected for later use and to encourage greater oil production

The United States had large natural-gas reserves and was essentially self-sufficient in natural gas until the late 1980s, when consumption began to significantly outpace production.

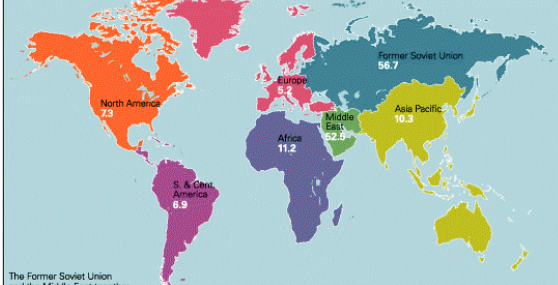
Figure 17. Natural Gas Overview



## Natural Gas Reserves

Proved reserves at end 2000

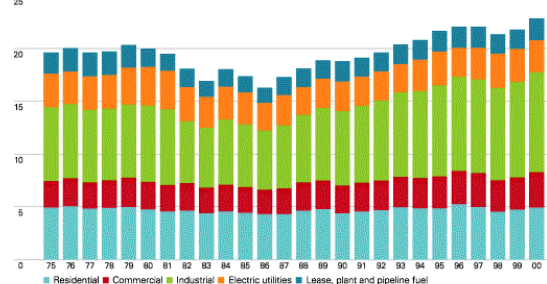
Trillion cubic metres



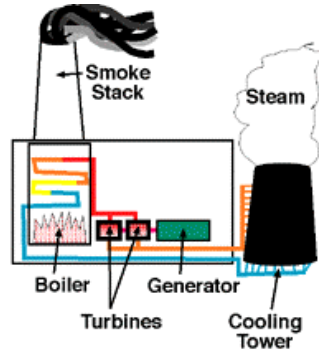
## Natural Gas Consumption in US

Consumption by end-use sector

Trillion cubic feet



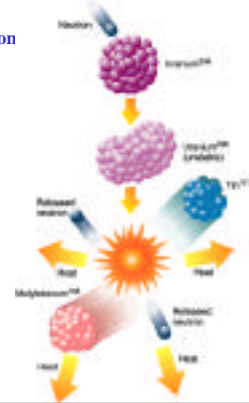
## How do power plants work ?



The other non-renewable option

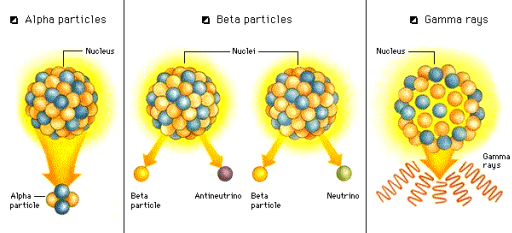
## Nuclear fission

$$E = mc^2$$

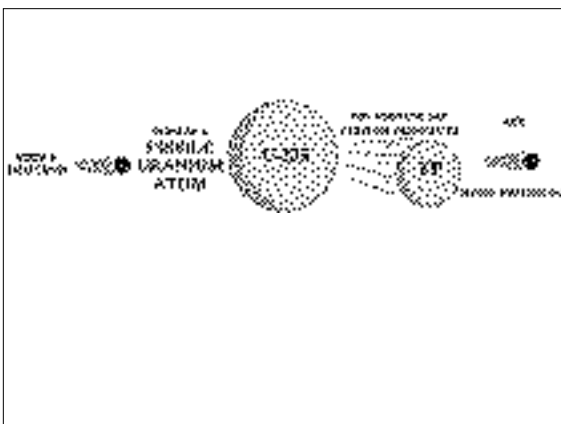
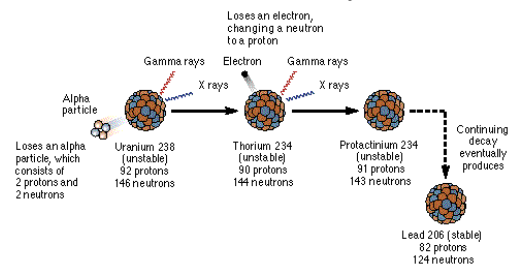


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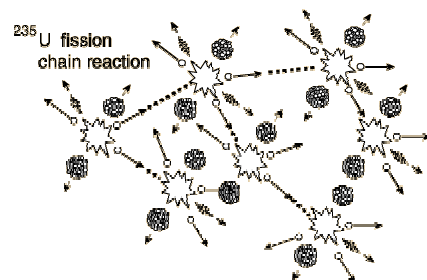
## Radioactive Decay



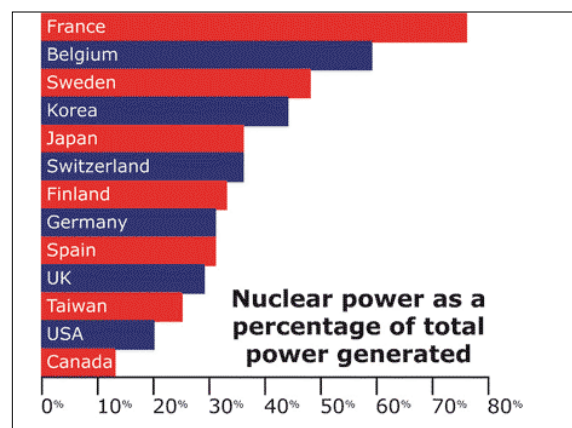
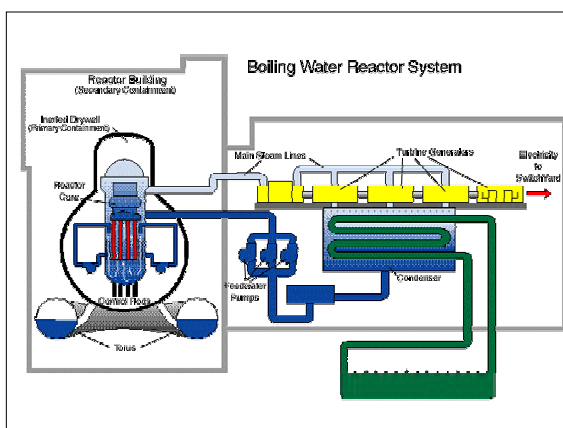
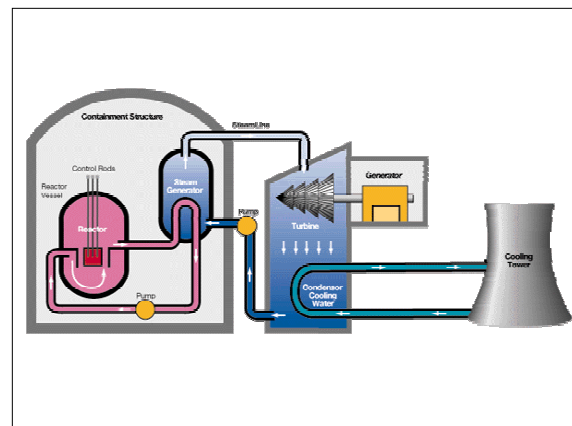
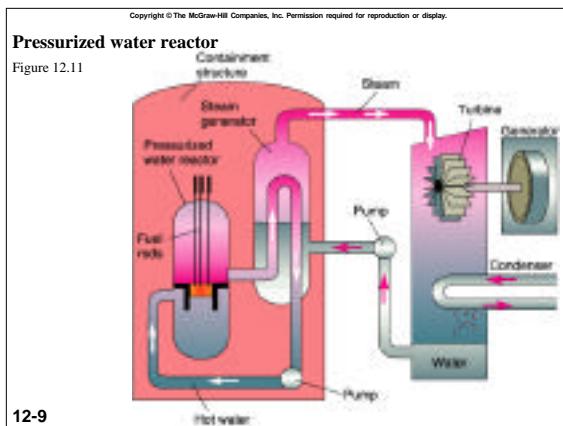
## Uranium Decay



## <sup>235</sup>U fission chain reaction



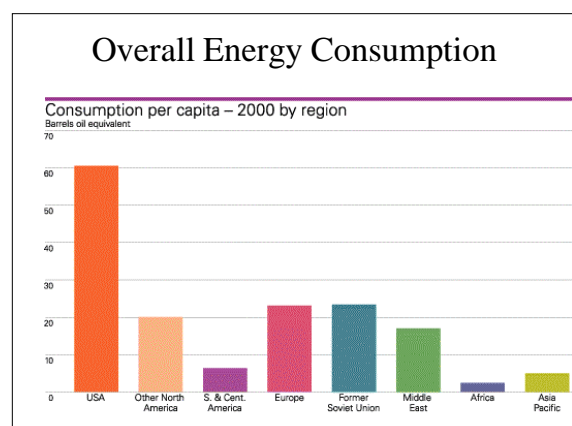




Number of nuclear units: 6

- FitzPatrick, Oswego, NY
- Ginna, Rochester, NY
- Indian Point 2-3, Buchanan, NY
- Nine Mile Point 1-2, Oswego, NY

Nuclear energy supplies 23.1 percent of the electricity generated in New York.



Energy consumption is increasing much faster than population !

As the “standard of living” improves people use more and more of the world's resources

