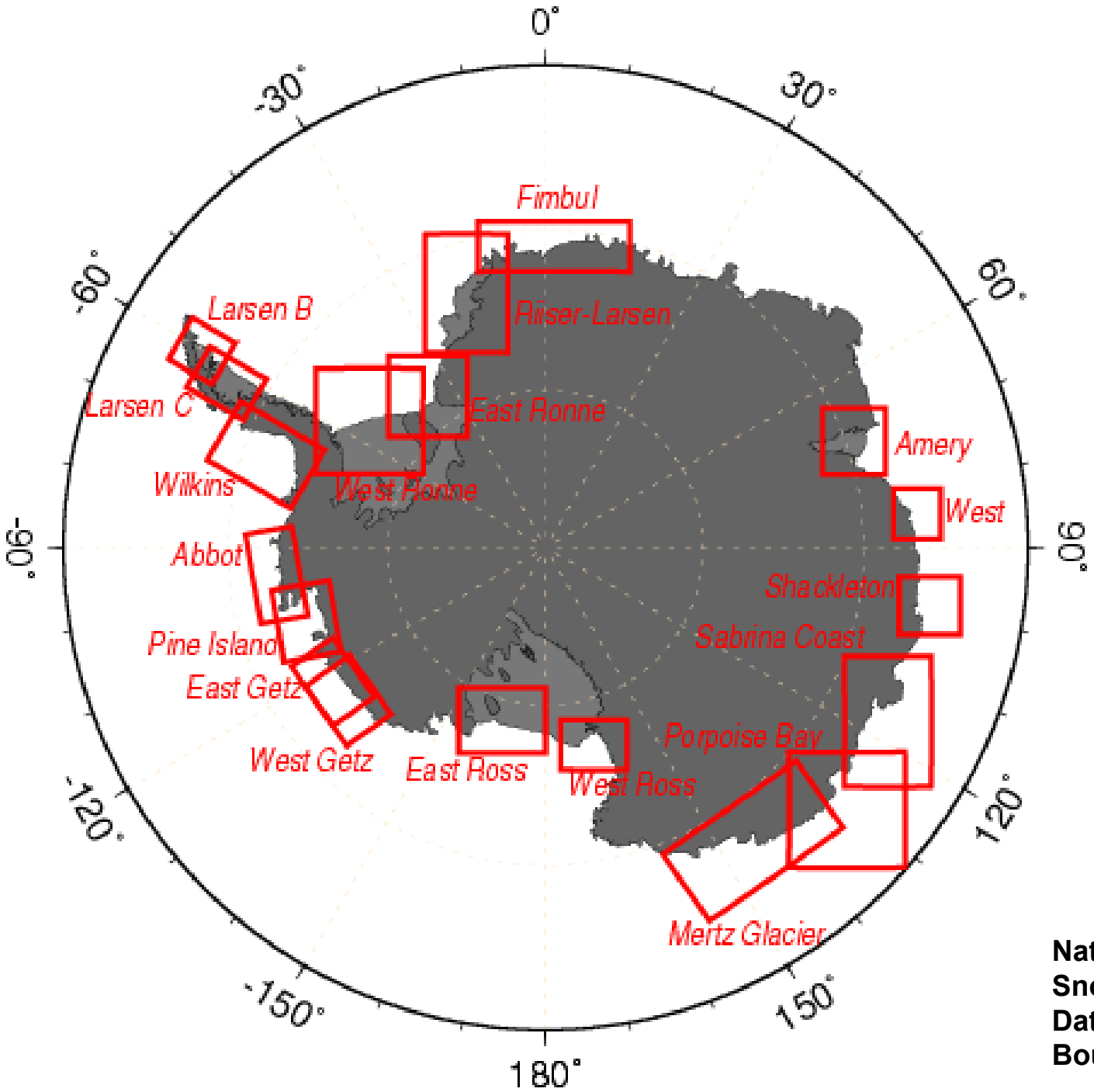
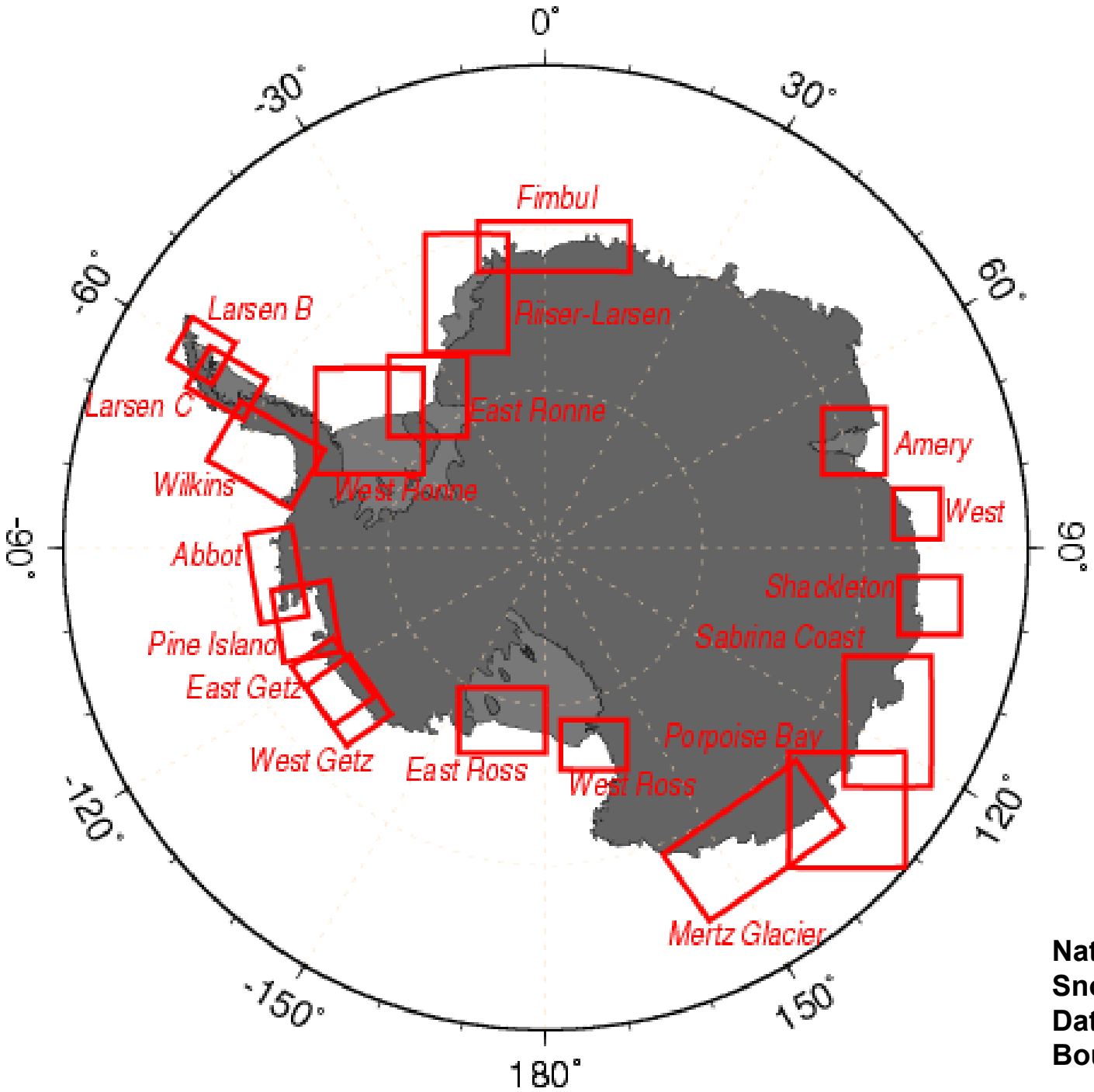
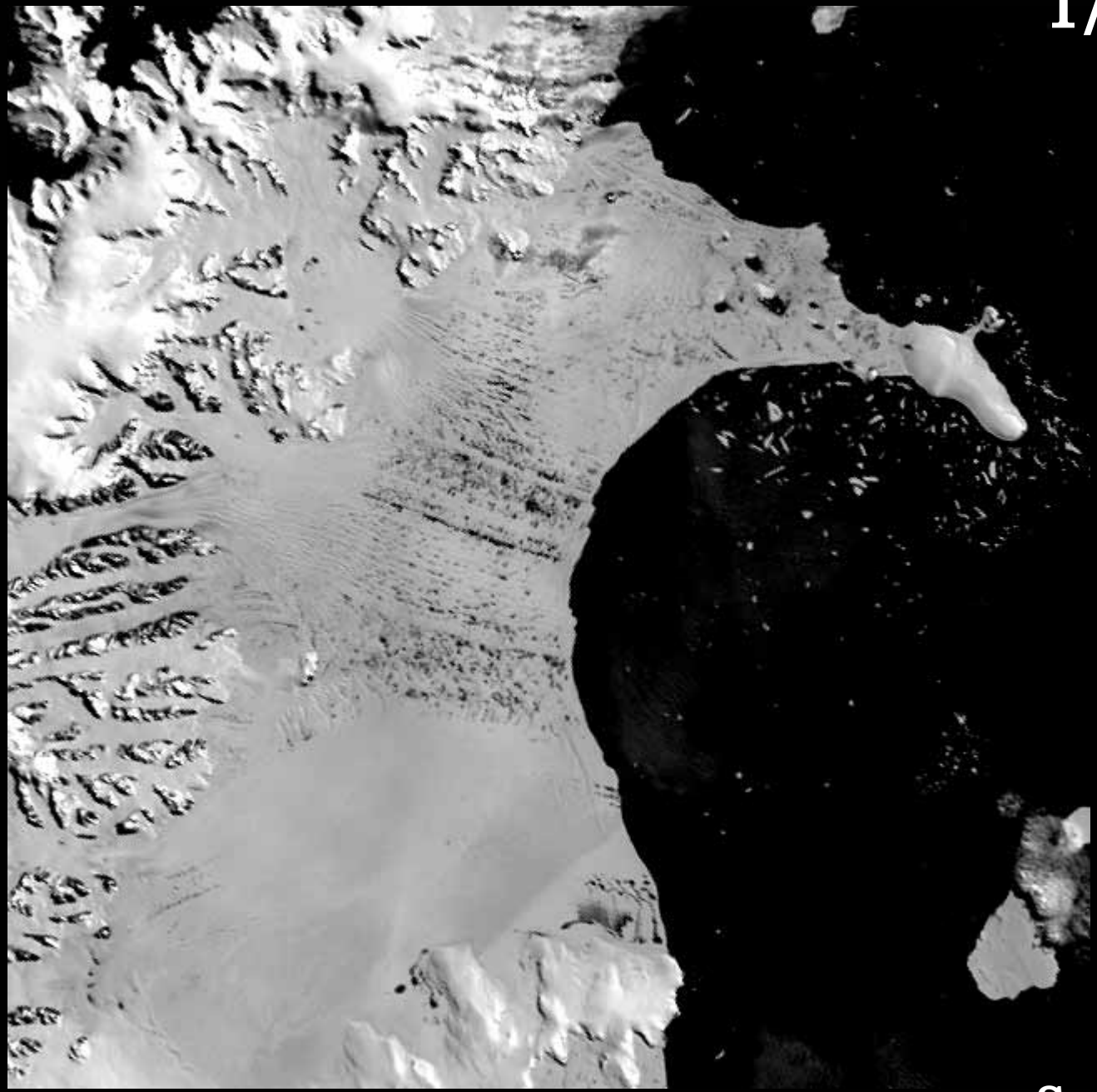


National Snow and Ice Data Center Boulder, CO

Break up of Ross Ice Shelf, March 2000

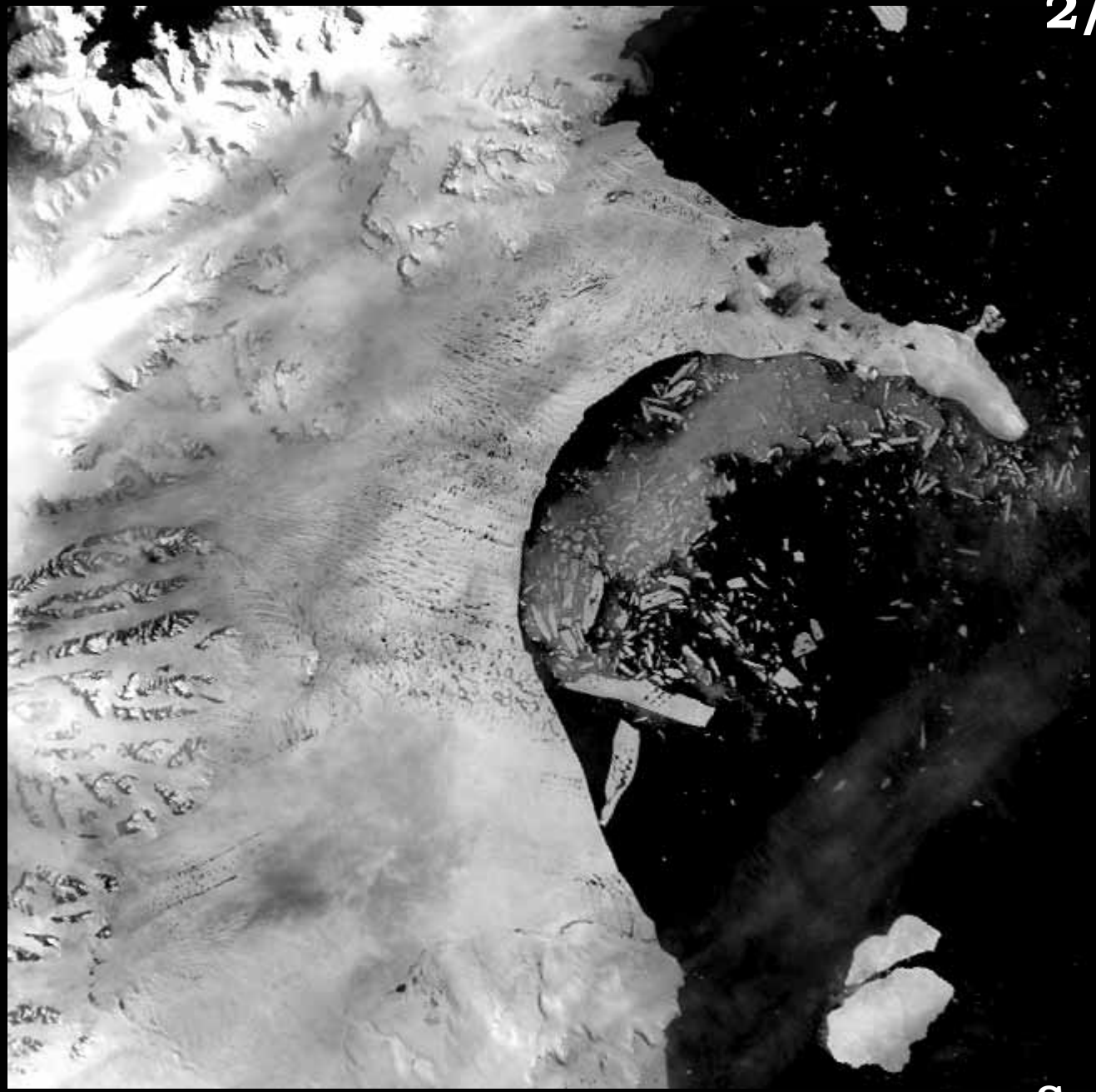


National Snow and Ice Data Center Boulder, CO



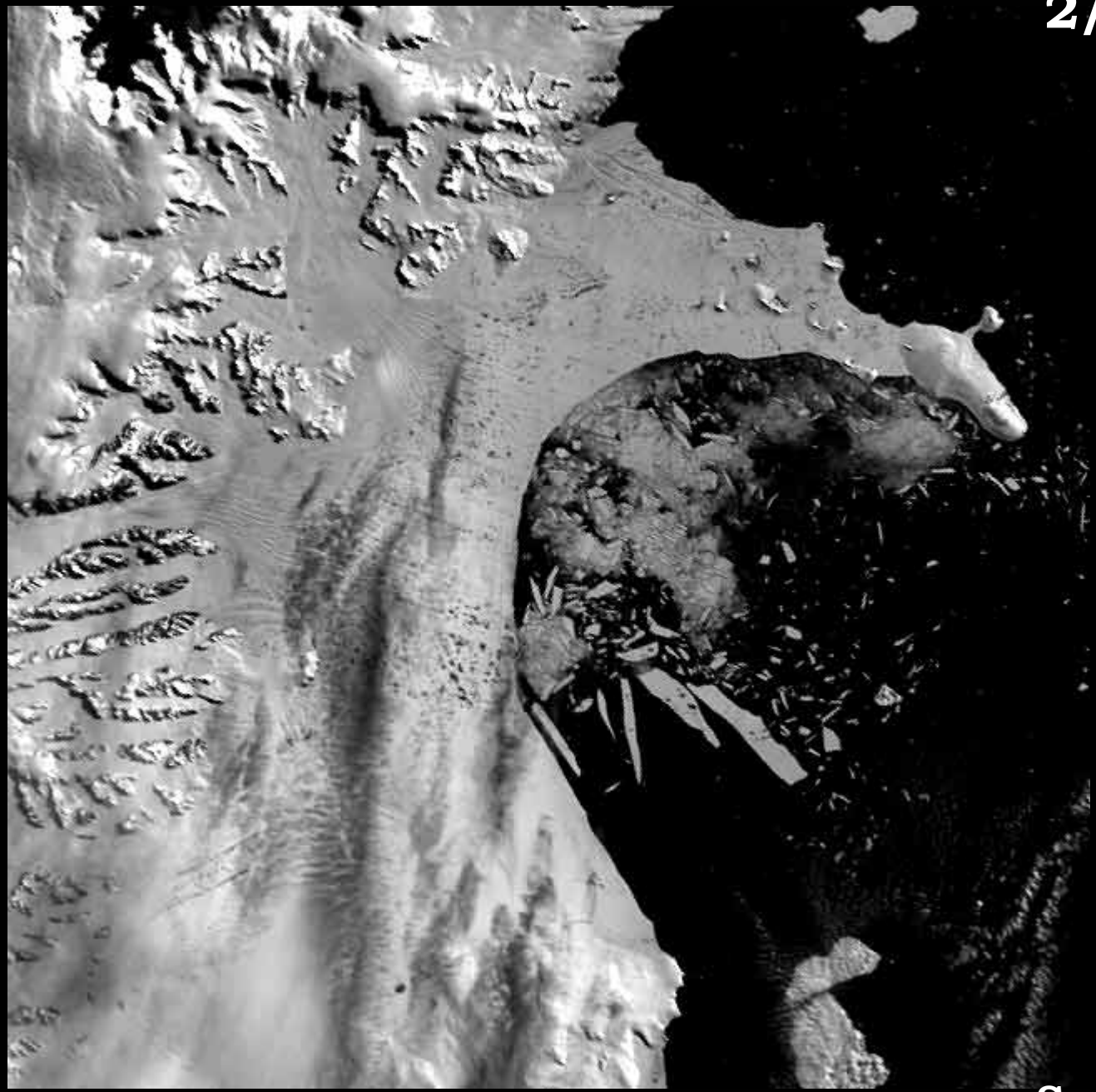
Source: NASA

2/17/02



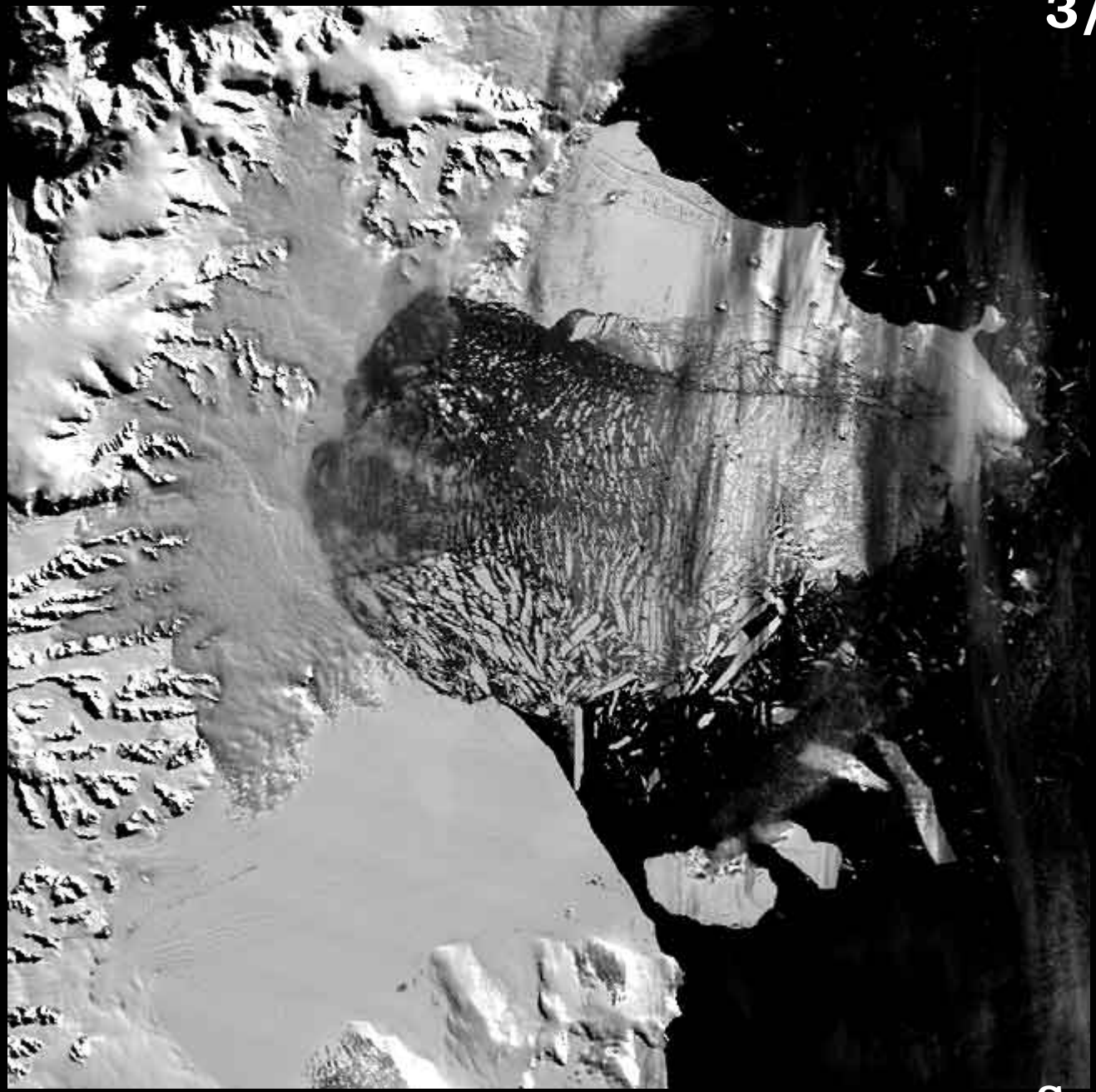
Source: NASA

2/23/02



Source: NASA

3/5/02



Source: NASA

Upsala Glacier, Patagonia

1928

Upsala Glacier, Patagonia

1928

2004


1922
Svalbard, Norway


1918
Blomstrandbreen, Norway


1922
Svalbard, Norway


today


1918
Blomstrandbreen, Norway


today

Franz Josef Glacier, New Zealand

Franz Josef Glacier, New Zealand

Franz Josef Glacier, New Zealand

Franz Josef Glacier, New Zealand

Franz Josef Glacier, New Zealand

Franz Josef Glacier, New Zealand

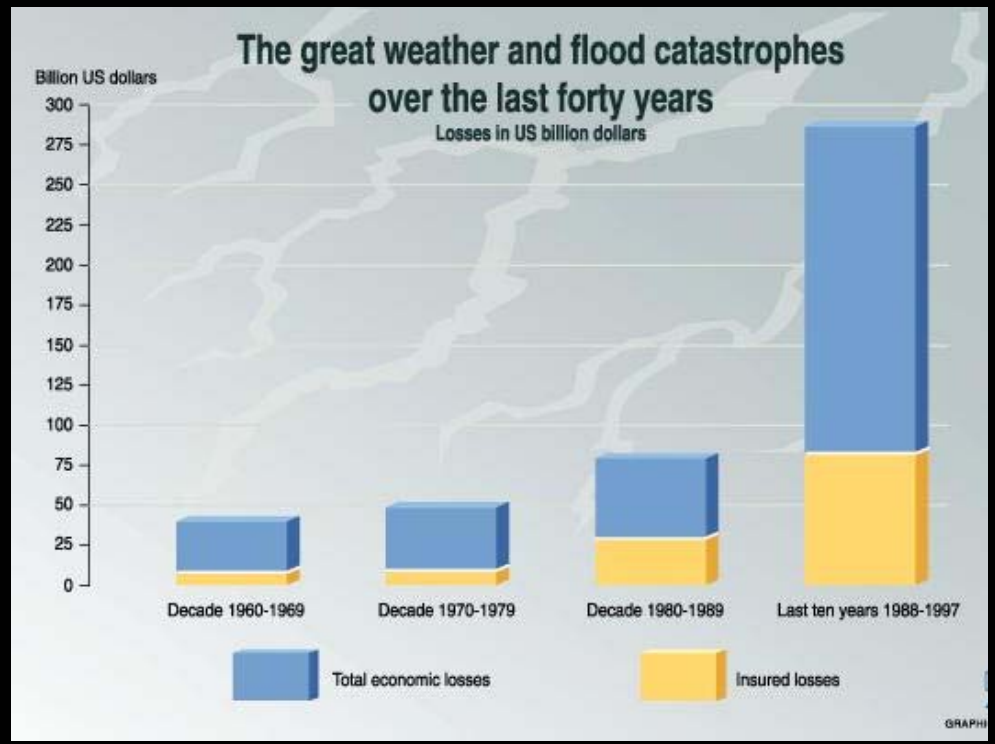
Global average temperature 1856-1999 and projection estimates to 2100

Other consequences of global climate change

Cyclone Catherine
March 29, 2004

Utica, IL
April 21, 2004

Increased intensity and costs of severe weather.



2004 Hurricane Season:

- Jeanne
- Ivan
- Frances
- Charley

2004 Hurricane Season:

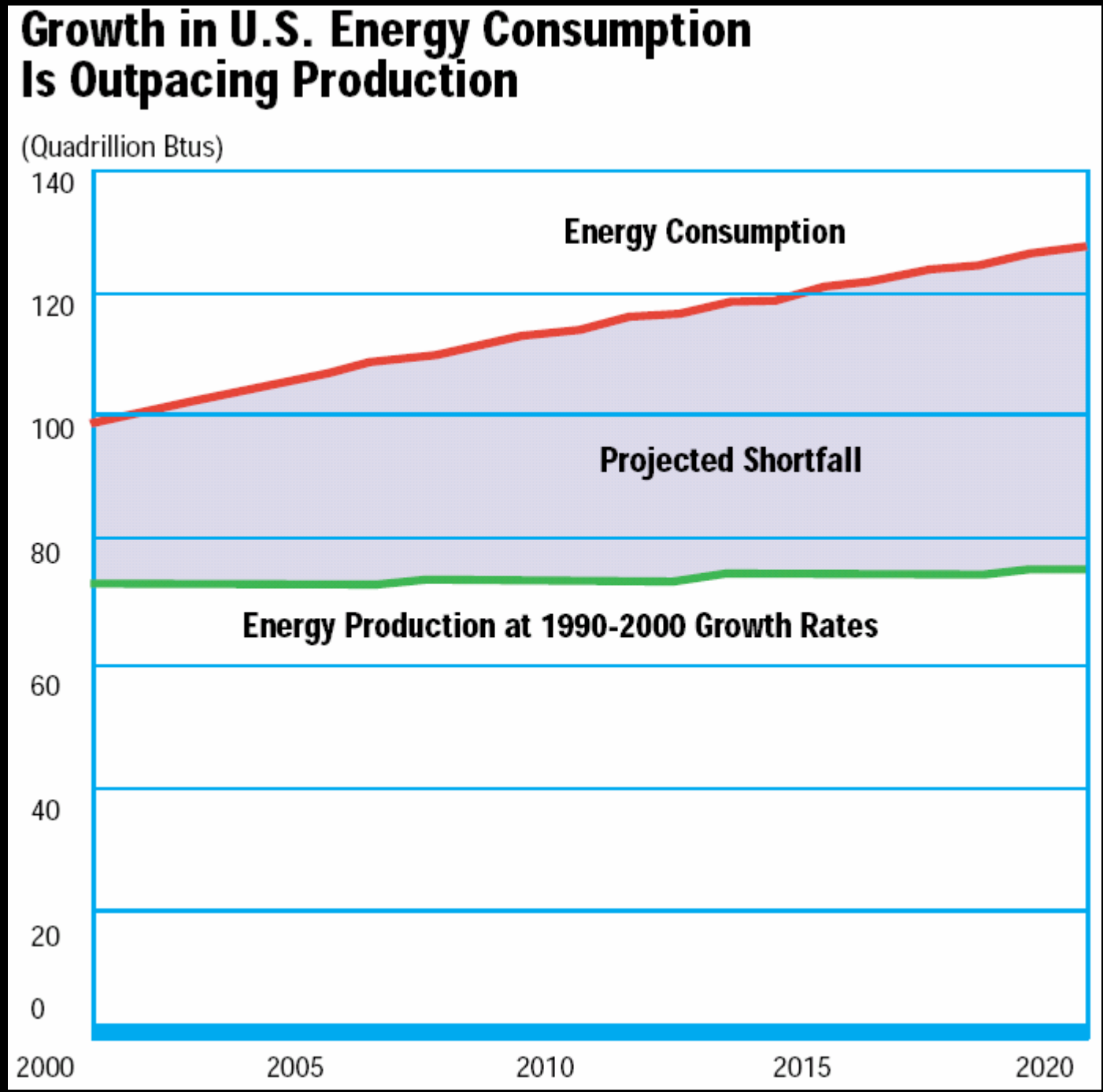
- Jeanne
- Ivan
- Frances
- Charley

2005 Hurricane Season:

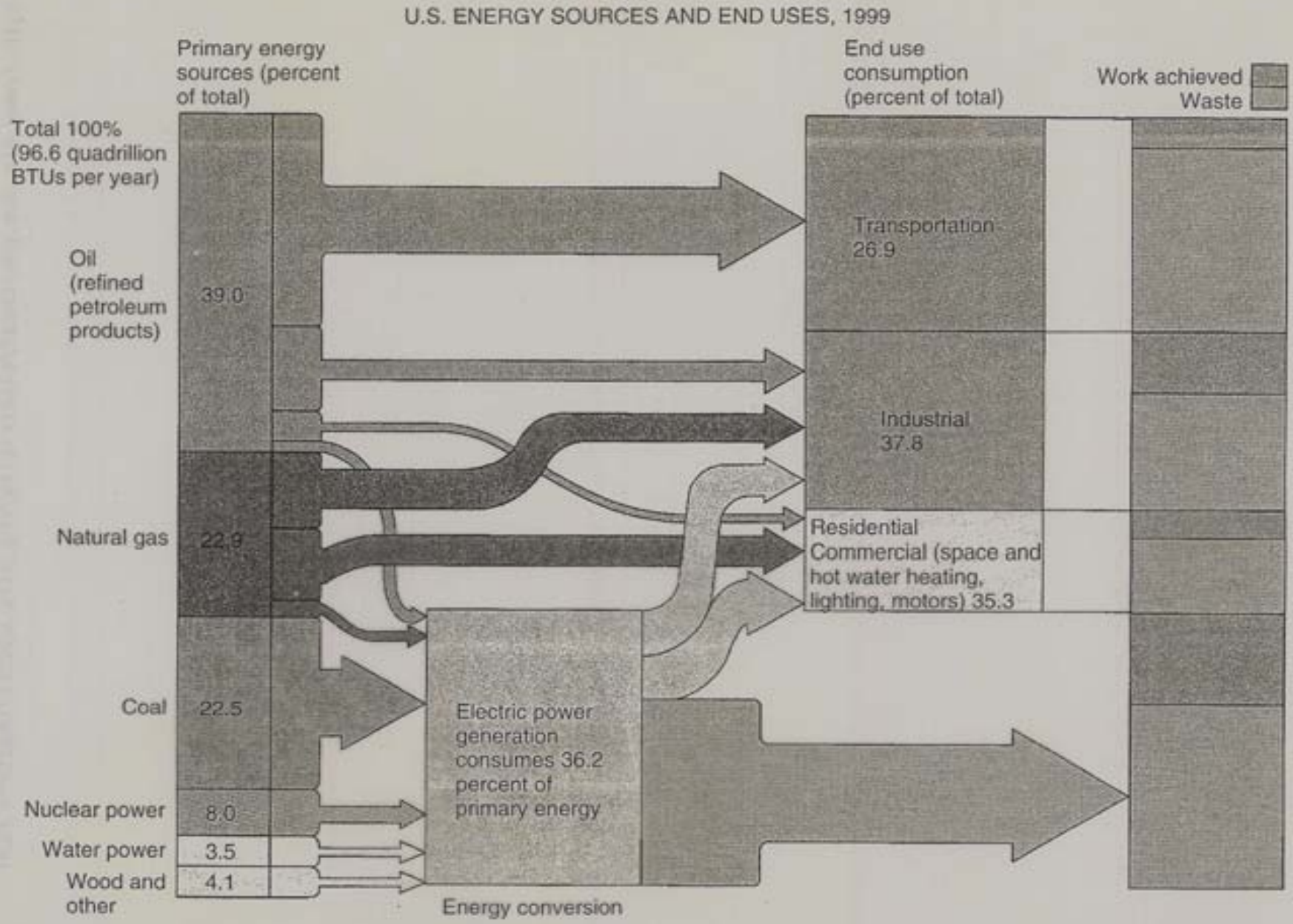
- Katrina
- Ophelia
- Rita
- ?

Historic Atmospheric CO_2 concentration in Mauna Loa, Hawaii

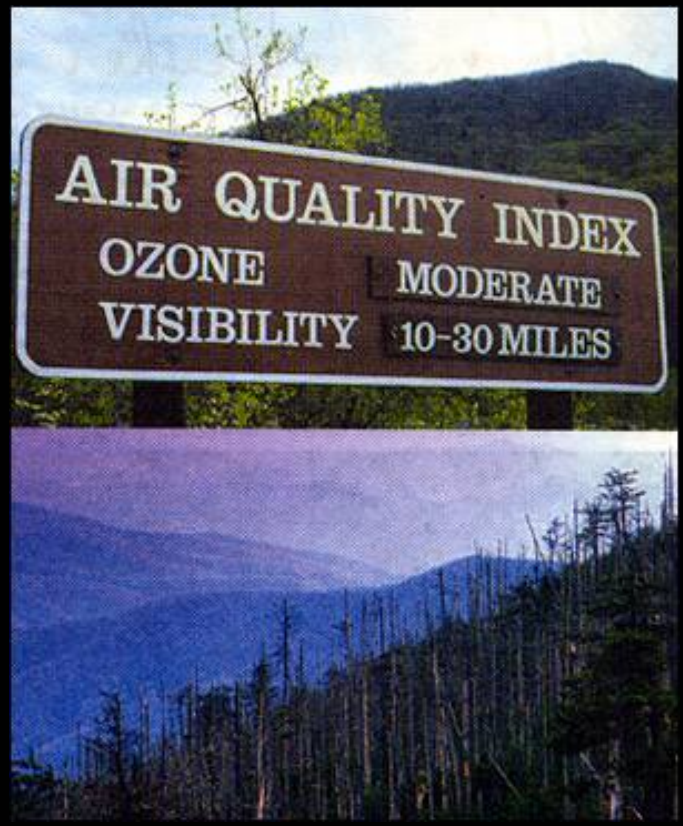
Source : Scripps Institution of Oceanography (SIO), University of California, 1998.

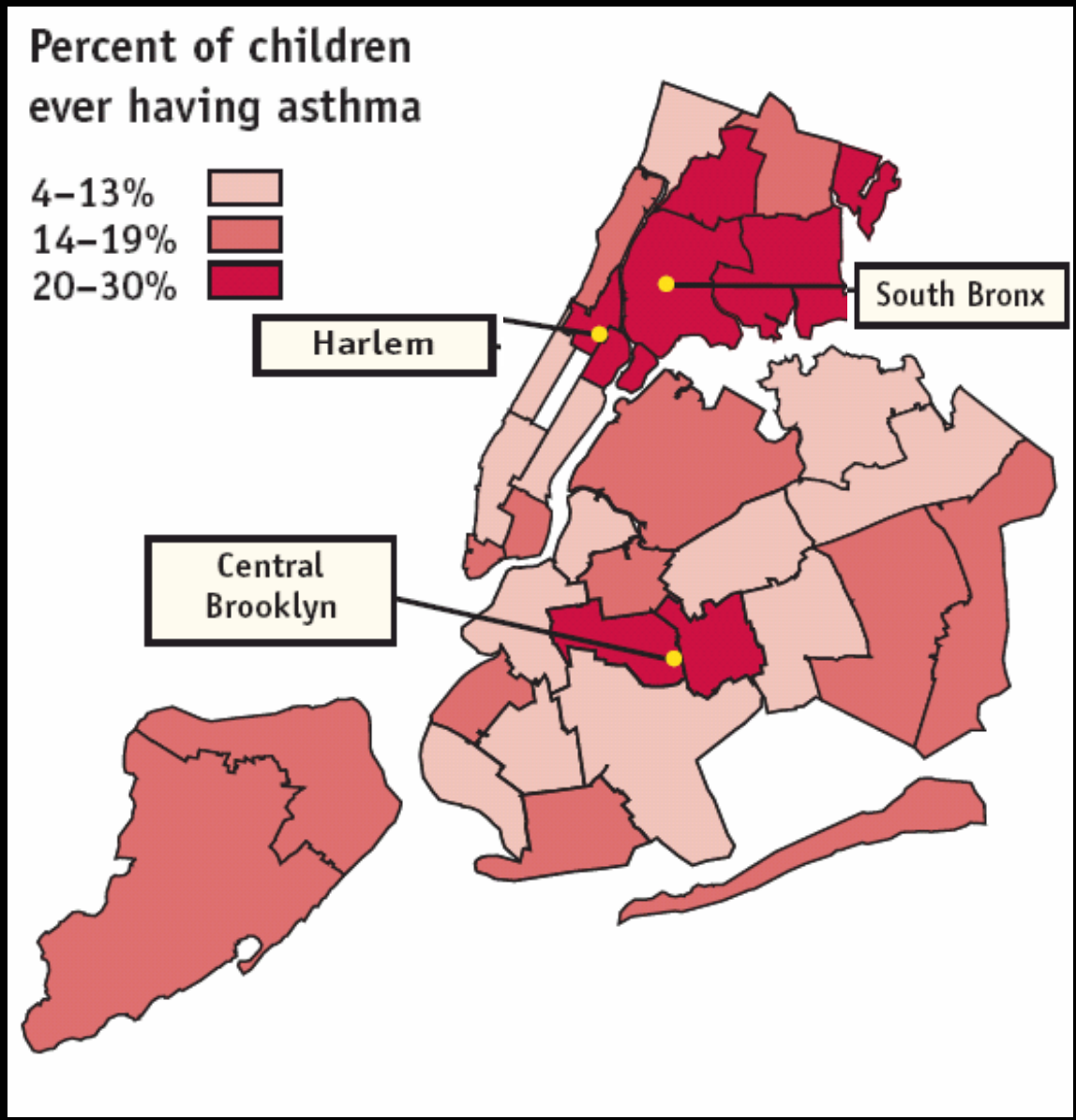


U.S. Energy Information Administration, 2001



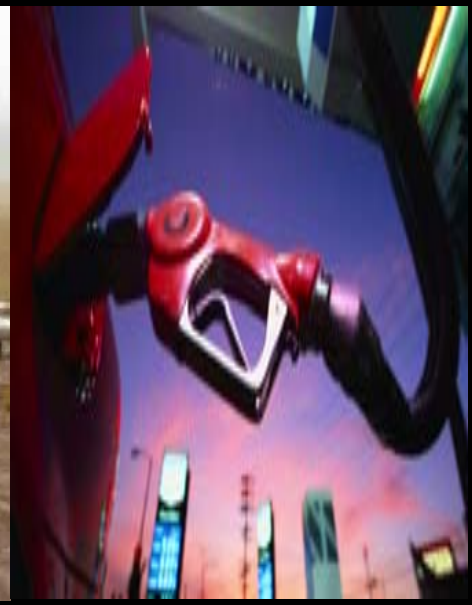
▲ FIGURE 13–9 ***Pathways from primary energy sources to end uses.*** Only major pathways are shown. Note that end uses are connected to primary sources in specific ways. Note also the large percentage of energy that is wasted as a large portion of the energy consumed is converted to heat and lost. (*Source*: Data from Energy Information Administration, U.S. Department of Energy, *Annual Energy Review 1999*, September 2000.)


AIR QUALITY INDEX
OZONE MODERATE
VISIBILITY 10-30 MILES

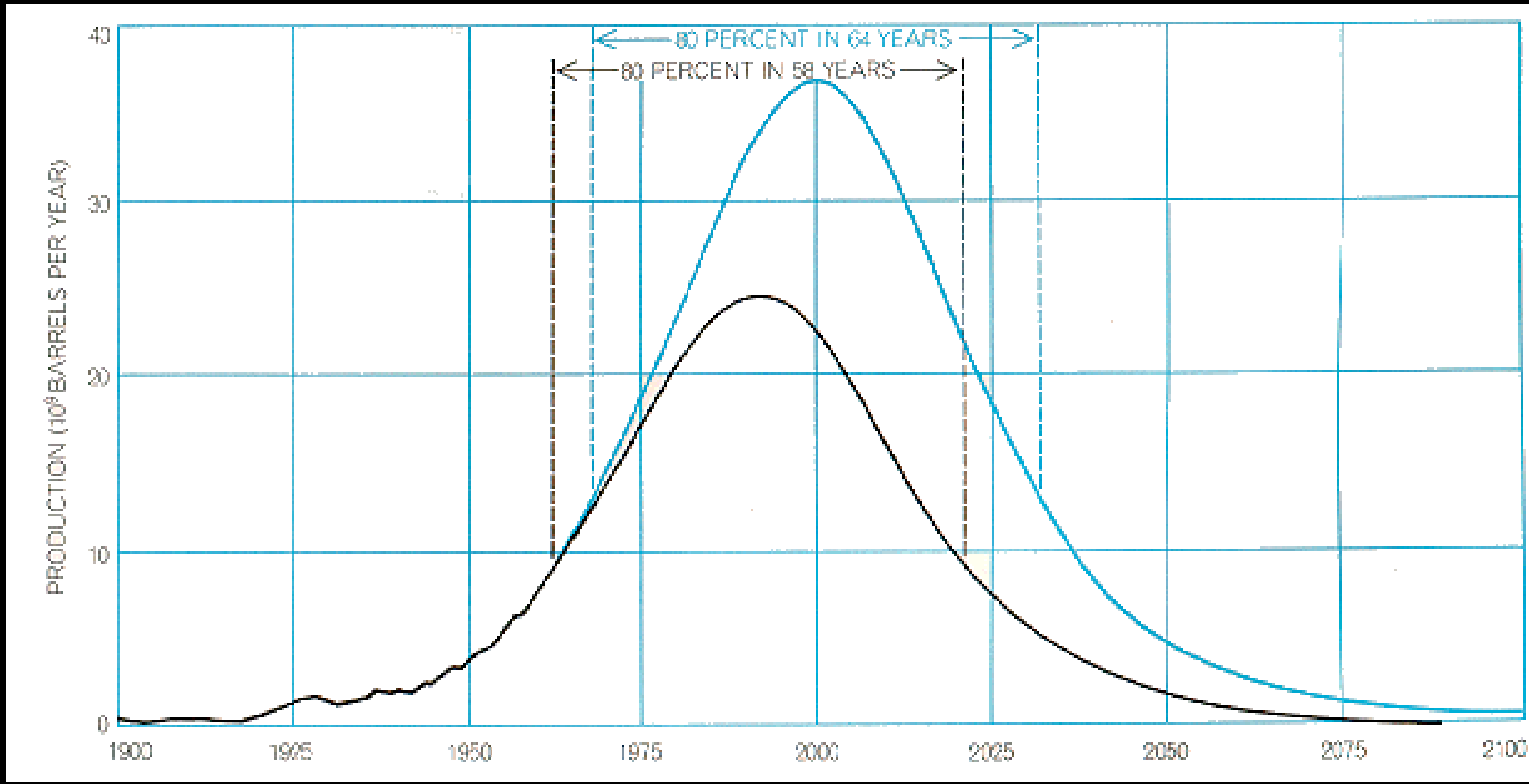


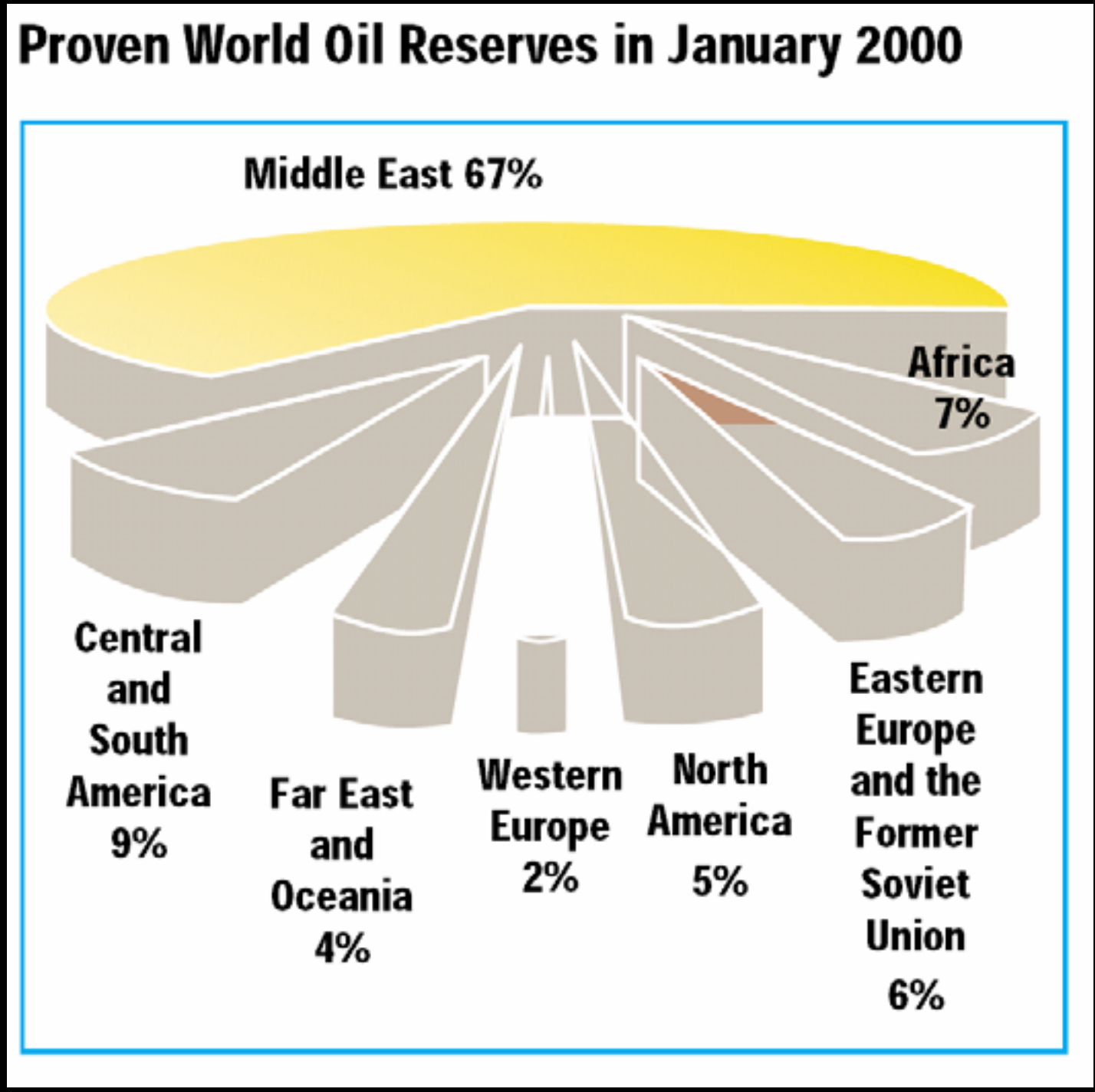
According to the American Lung Association asthma hospitalizations in the Bronx for children under age 15 are higher than any other borough in the city.






"Our ignorance is not so vast as our failure to use what we know." *Marion K. Hubbert*

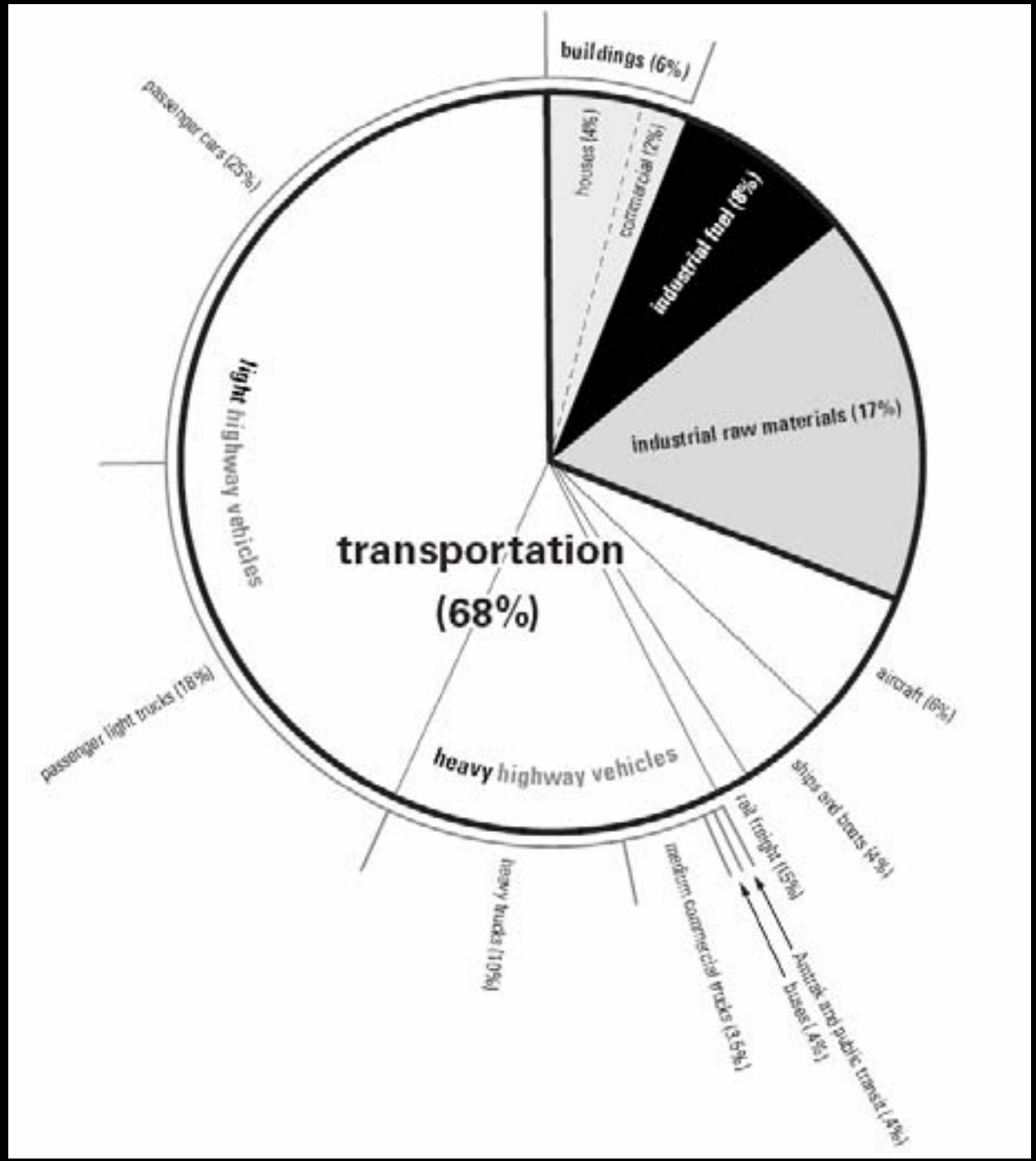




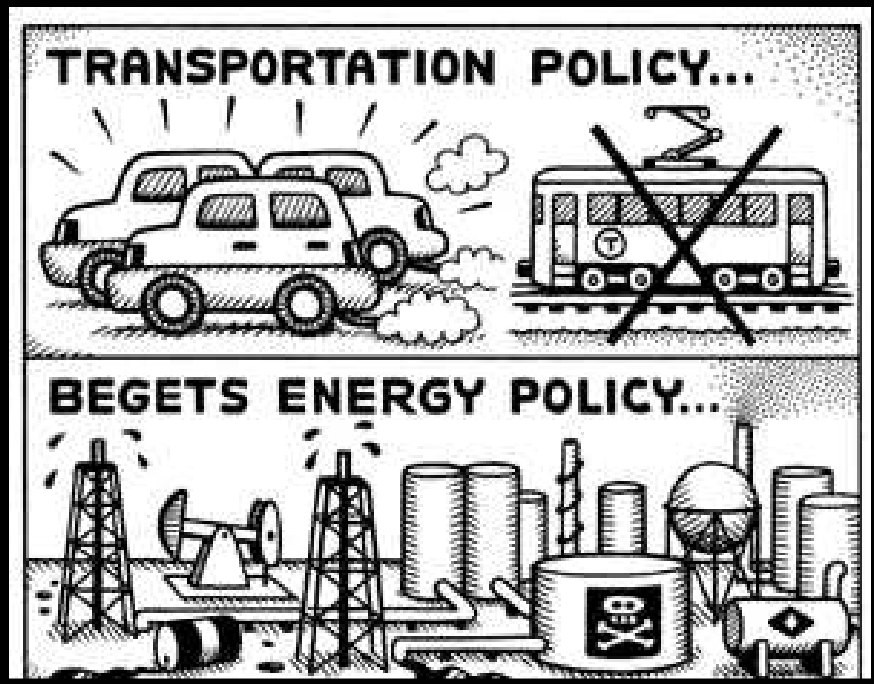
U.S. Energy Information Administration, 2001

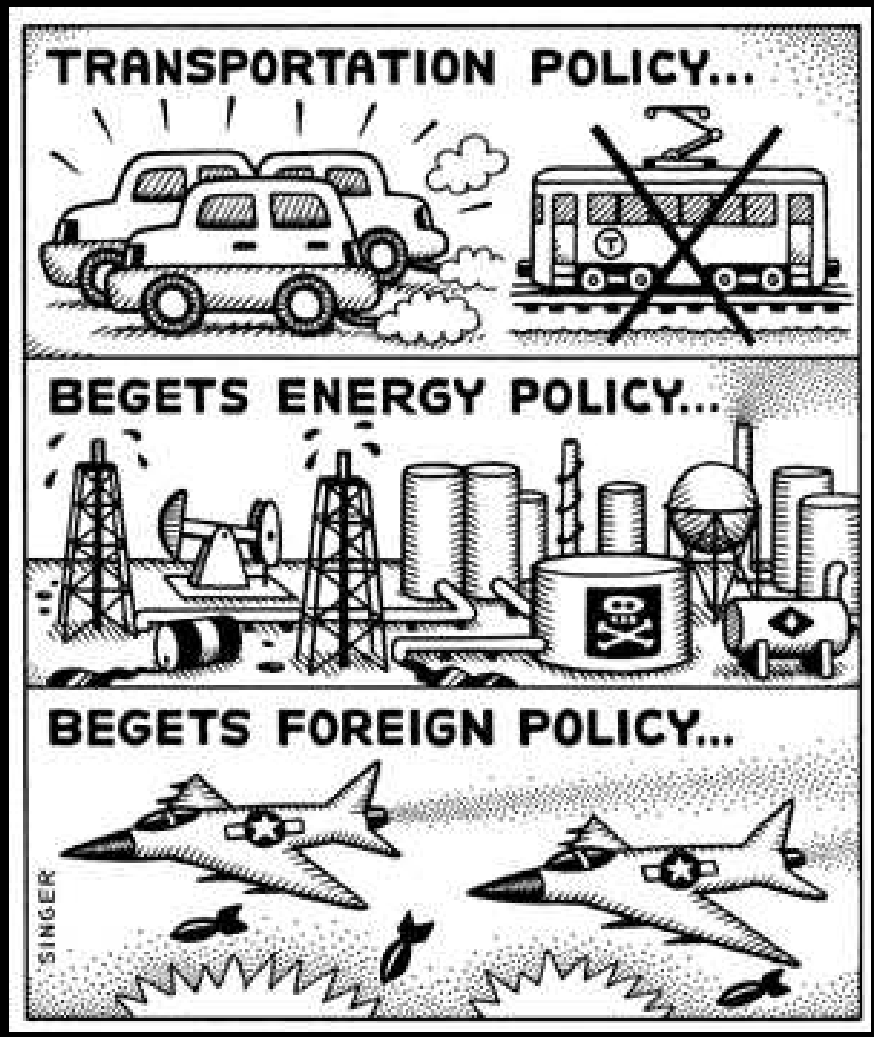
The U.S.A. has **4.6%** of the world's population and produces **21%** of Gross World Product
but uses **26%** of the world's oil.

Rocky Mountain Institute, 2002



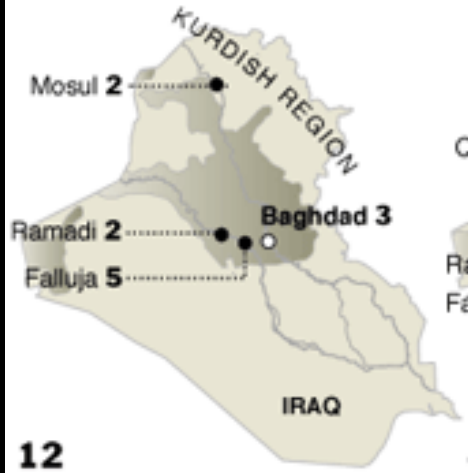

TRANSPORTATION POLICY...


TRANSPORTATION POLICY...
BEGETS ENERGY POLICY...

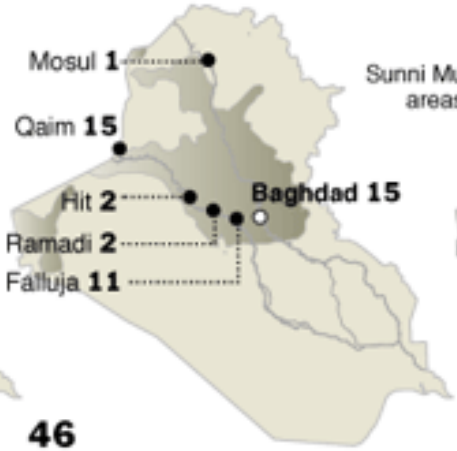

TRANSPORTATION POLICY...
BEGETS ENERGY POLICY...
BEGETS FOREIGN POLICY...
SINGER

7 Days, 208 Iraqis Killed

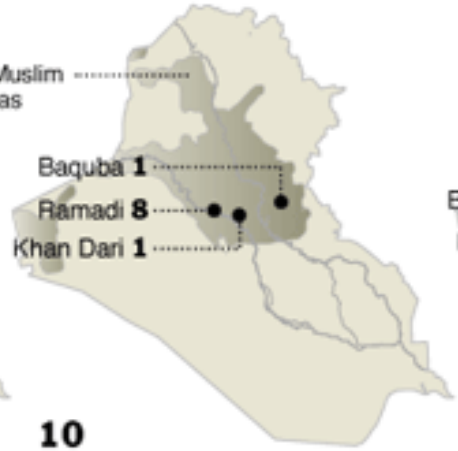
Figures based on reports from the Iraqi government, hospitals, U.S. military, news agencies and Iraqis employed by The New York Times. They do not include the Kurdish region.



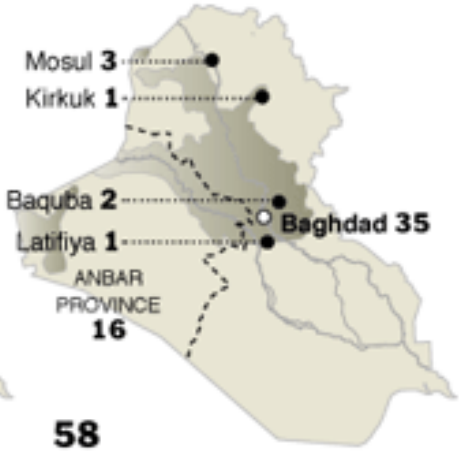
12
MONDAY, OCT. 11



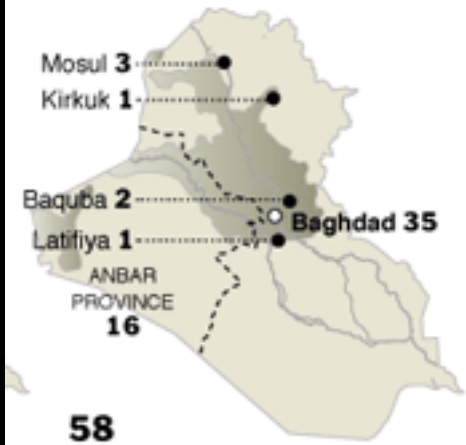
46
TUESDAY, OCT. 12



10
WEDNESDAY, OCT. 13



58
THURSDAY, OCT. 14

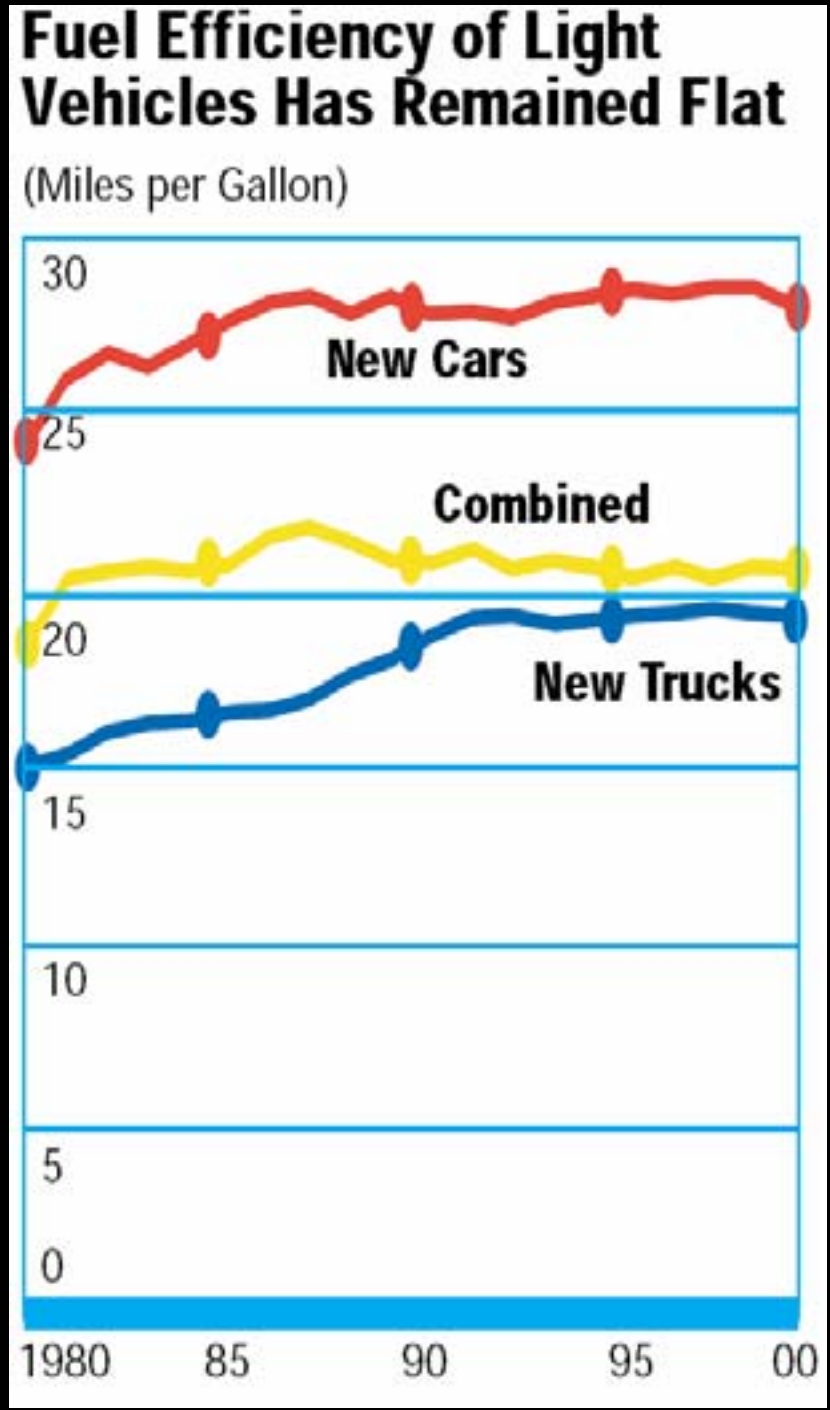


58
THURSDAY, OCT. 14

24
FRIDAY, OCT. 15

31
SATURDAY, OCT. 16

27
SUNDAY, OCT. 17



U.S. Energy Information Administration, 2001

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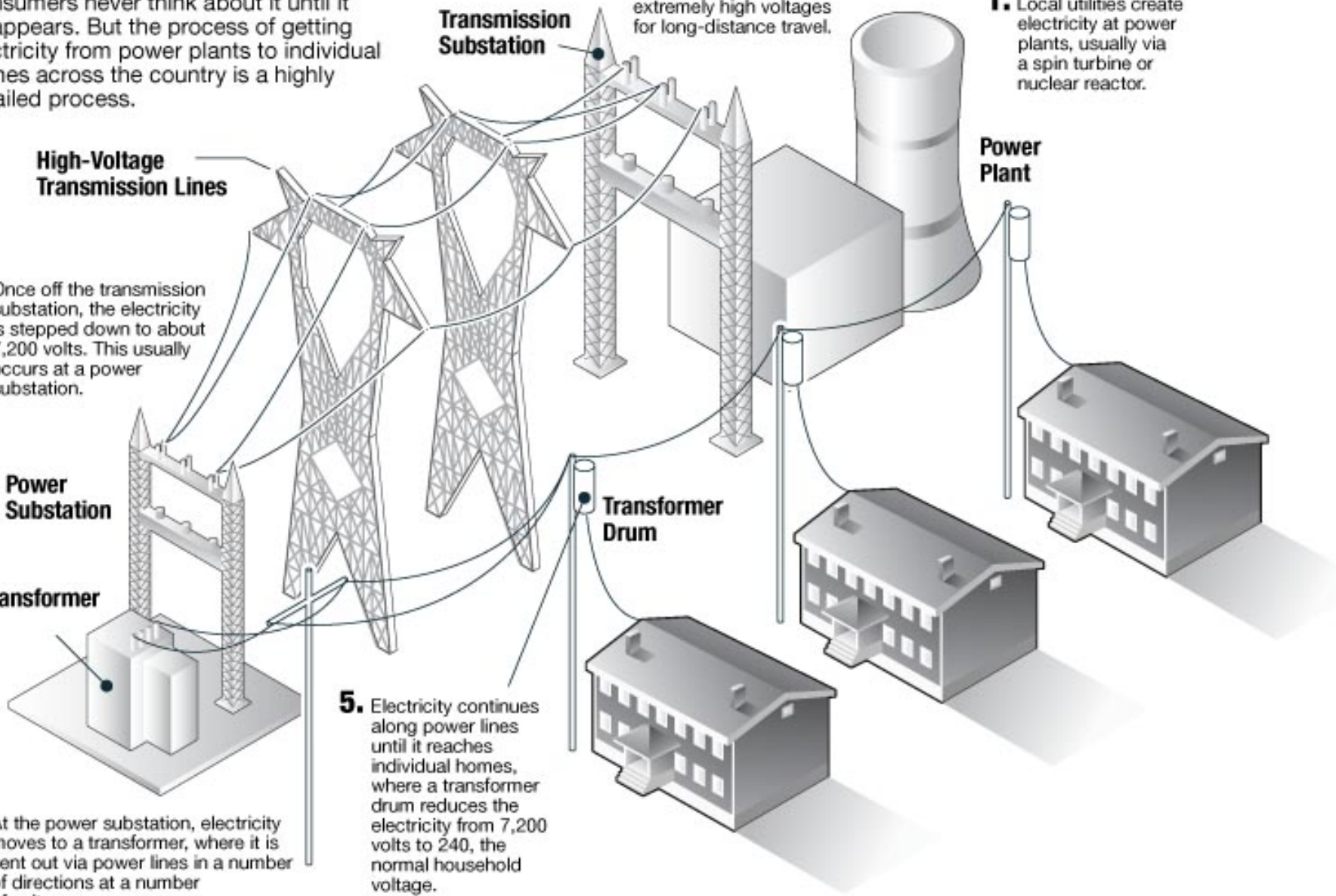
Understanding the Power Grid

In some ways, electrical power is like the air: Consumers never think about it until it disappears. But the process of getting electricity from power plants to individual homes across the country is a highly detailed process.



Without Power

A list of other significant blackouts that have hit cities in North America.

The Manhattan skyline is dark during the massive power failure of November 1965.

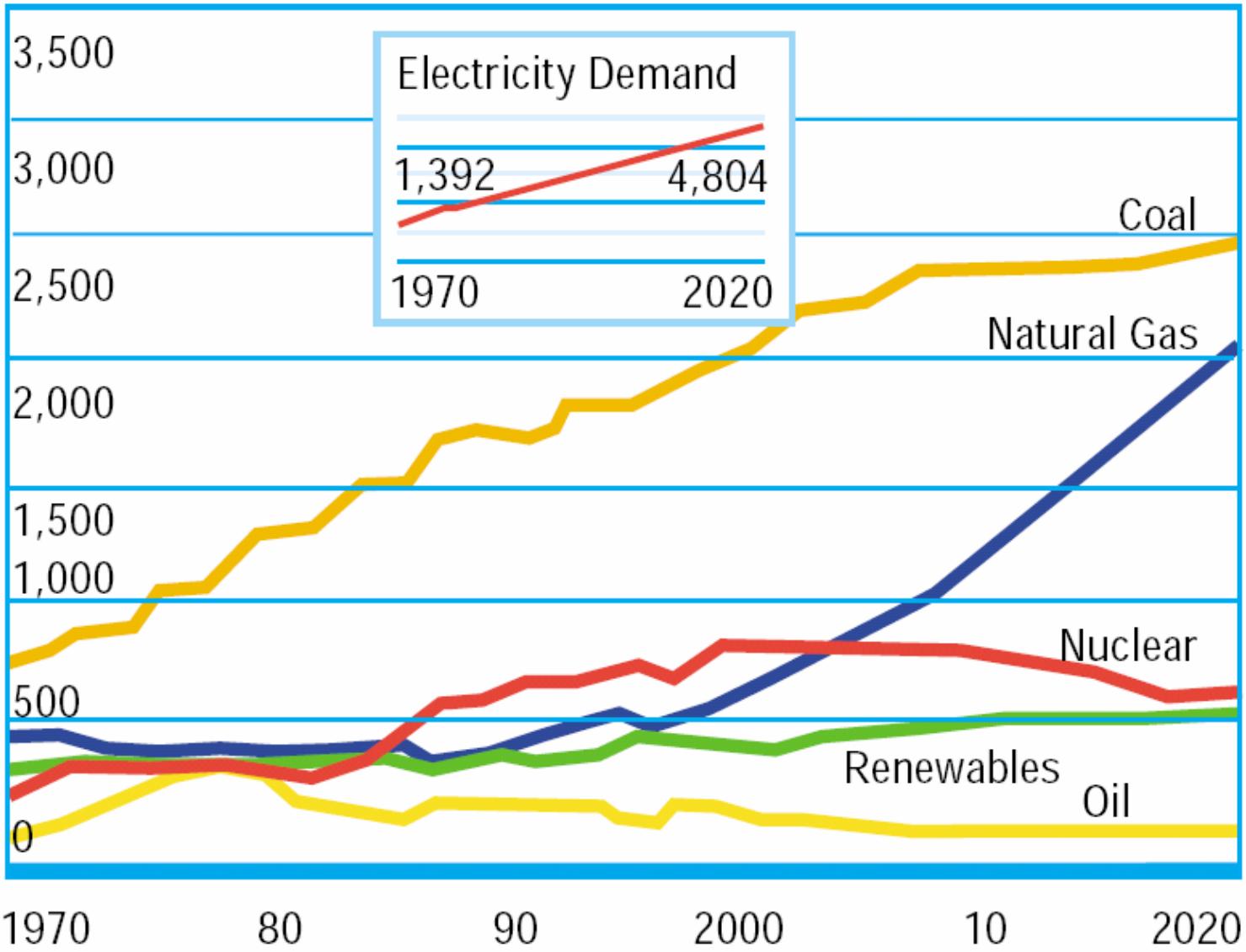
AP File Photo

- **NOVEMBER 1965,** ***Northeastern United States and Ontario, Canada:*** Cascading power failure leaves 30 million without electricity.
- **JULY 1977,** ***New York City:*** Lightning knocks out power, leaving millions without electricity. About 4,500 arrested during ensuing riots.
- **MARCH 1989,** ***Quebec, Canada:*** Solar storm knocks out a power transformer and plunges province of Quebec into darkness.
- **SEPTEMBER 1989,** ***Alabama, South Carolina:*** Hurricane Hugo, with maximum winds of 160 mph, leaves about 696,000 without power.
- **JANUARY 1998,** ***New York, northern New England, parts of Canada:*** Massive ice storm leaves 3 million people without electricity.
- **JANUARY 1999,** ***Southern United States:*** Hurricane Georges rips through Florida Keys and central Gulf Coast, leaving 669,000 without power.
- **JULY 1999,** ***New York City:*** A spike in power demand leads to a 19-hour blackout affecting 200,000 in Manhattan.
- **JUNE 2000,** ***California:*** Gov. Gray Davis imposes rolling blackouts in different parts of the state.
- **DECEMBER 2002,** ***South Carolina:*** Massive ice storm tears through the Midwest and Southern states, leaving at least 1.2 million without power.

SOURCE: Reuters

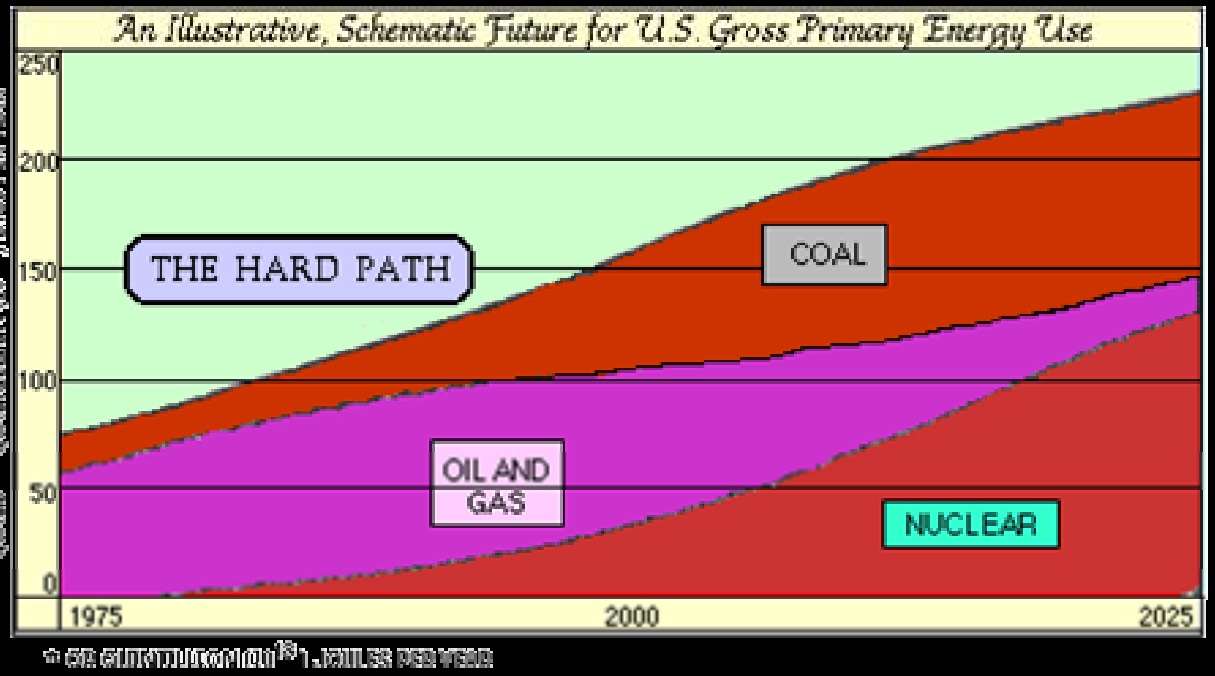
Electricity Generation by Fuel: Current Trends

(Billions of Kilowatt-Hours)



U.S. Energy Information Administration, 2001

FIGURE 1



Amory Lovins,
Rocky Mountain Institute

Amory Lovins, Rocky Mountain Institute

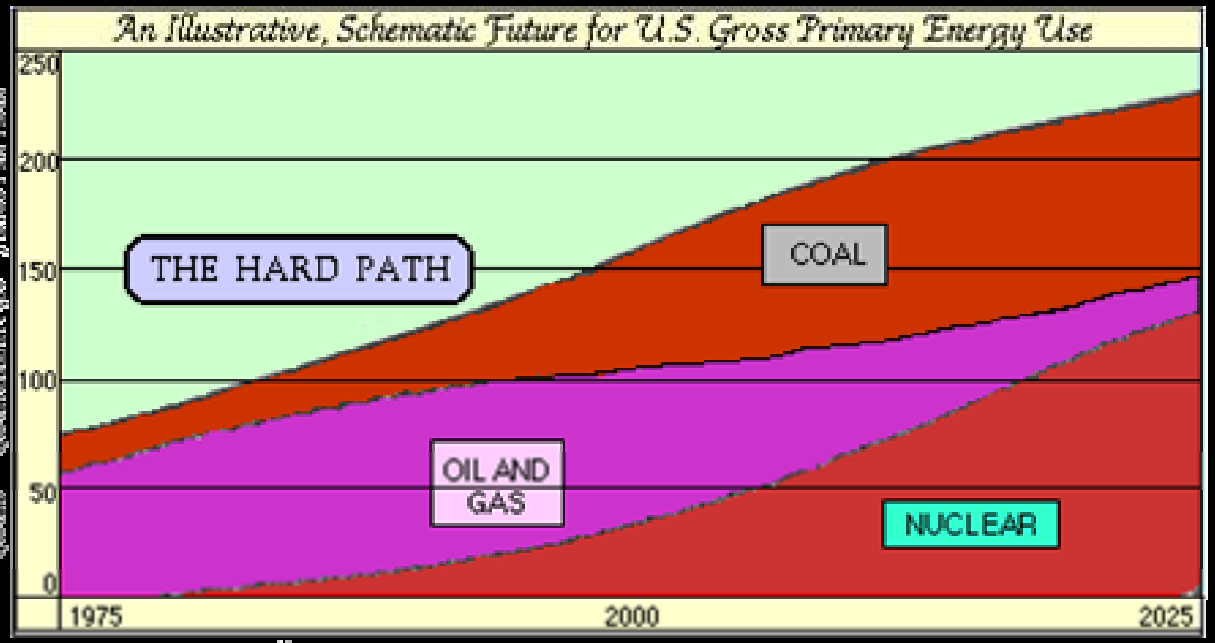
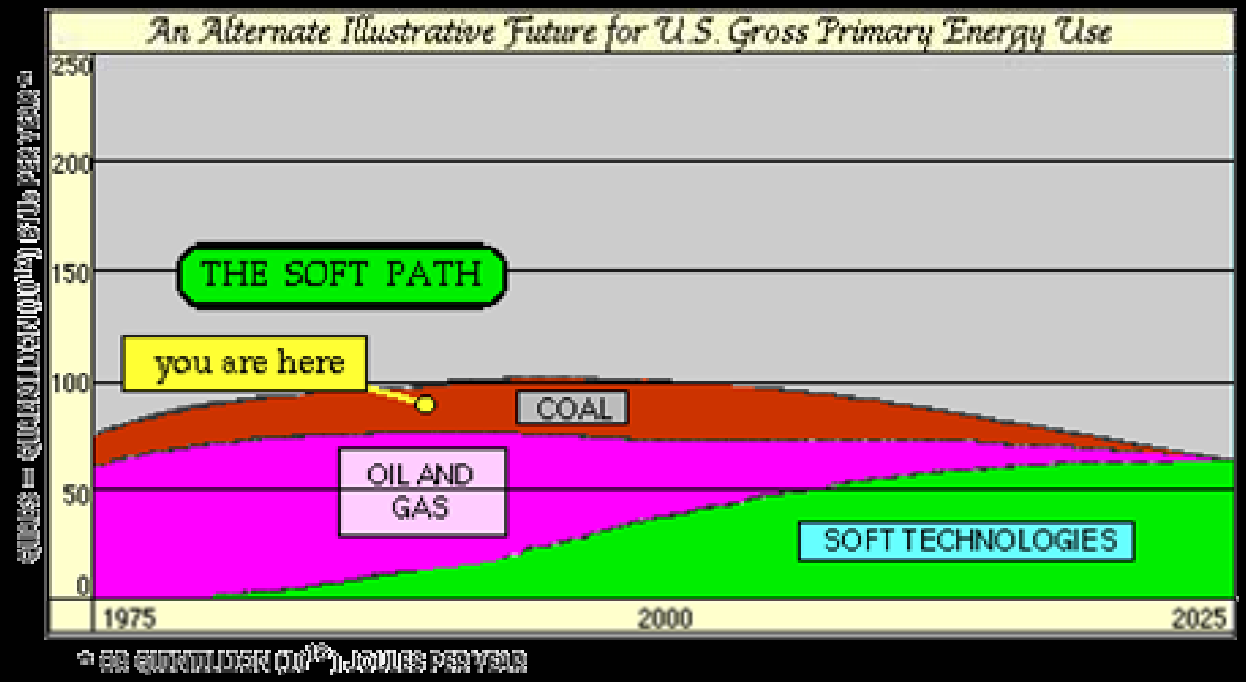
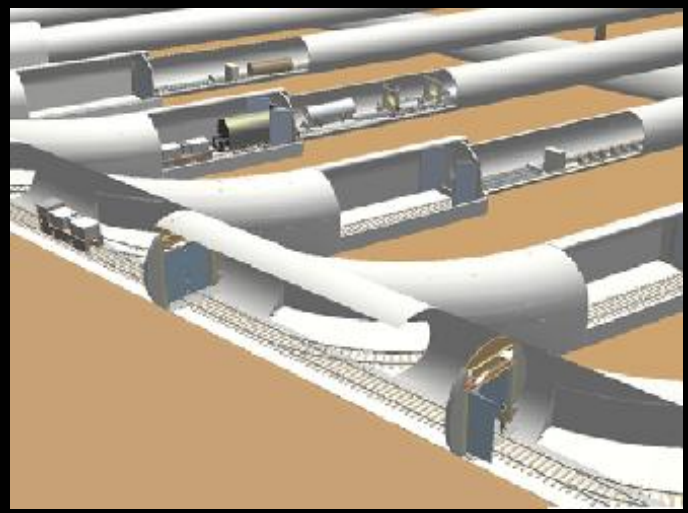


FIGURE 2




NEVADA
Sites storing spent nuclear fuel, high-level radioactive waste, and/or surplus plutonium destined for geologic disposition.
Symbols do not reflect precise locations



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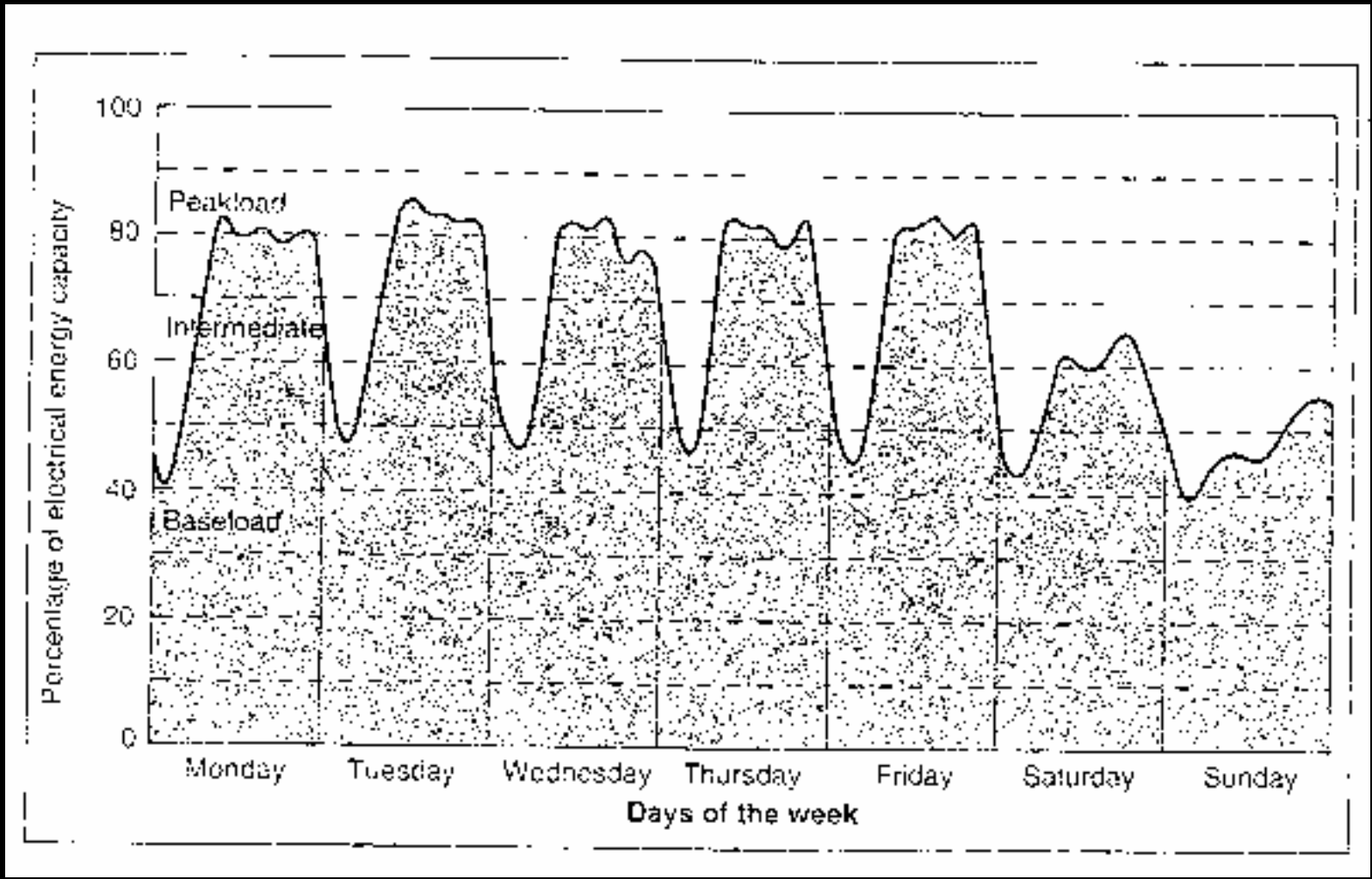
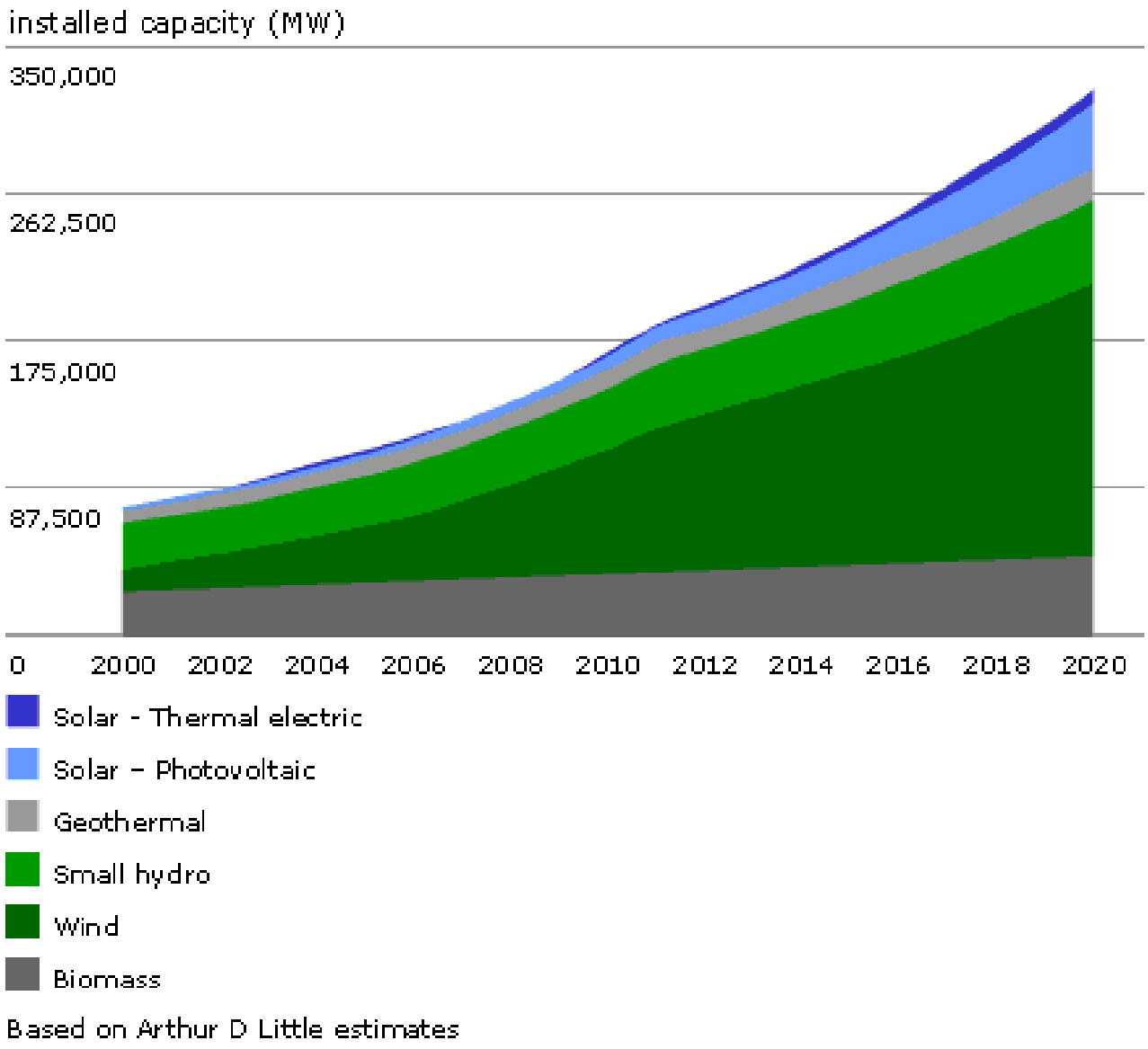
Typical Electricity Weekly Demand Cycle



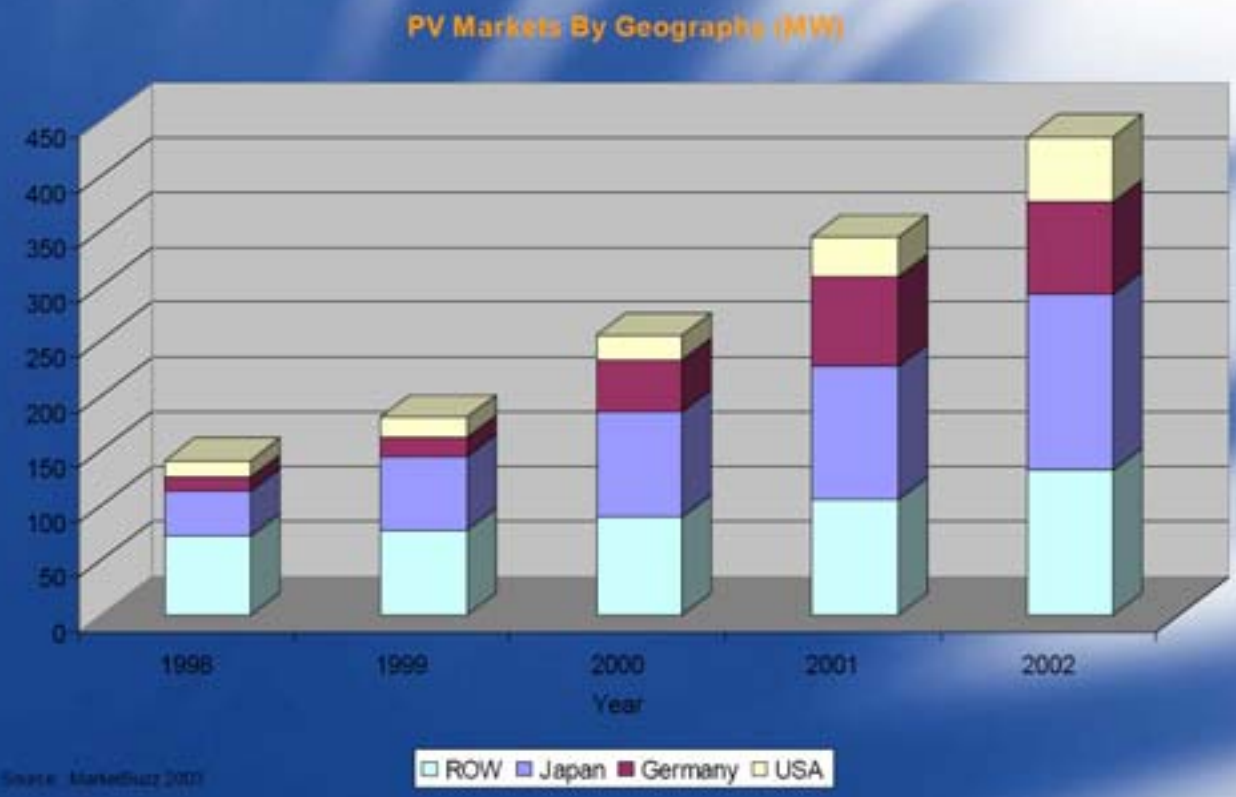
renewable energy sources forecast



Based on Arthur D Little estimates

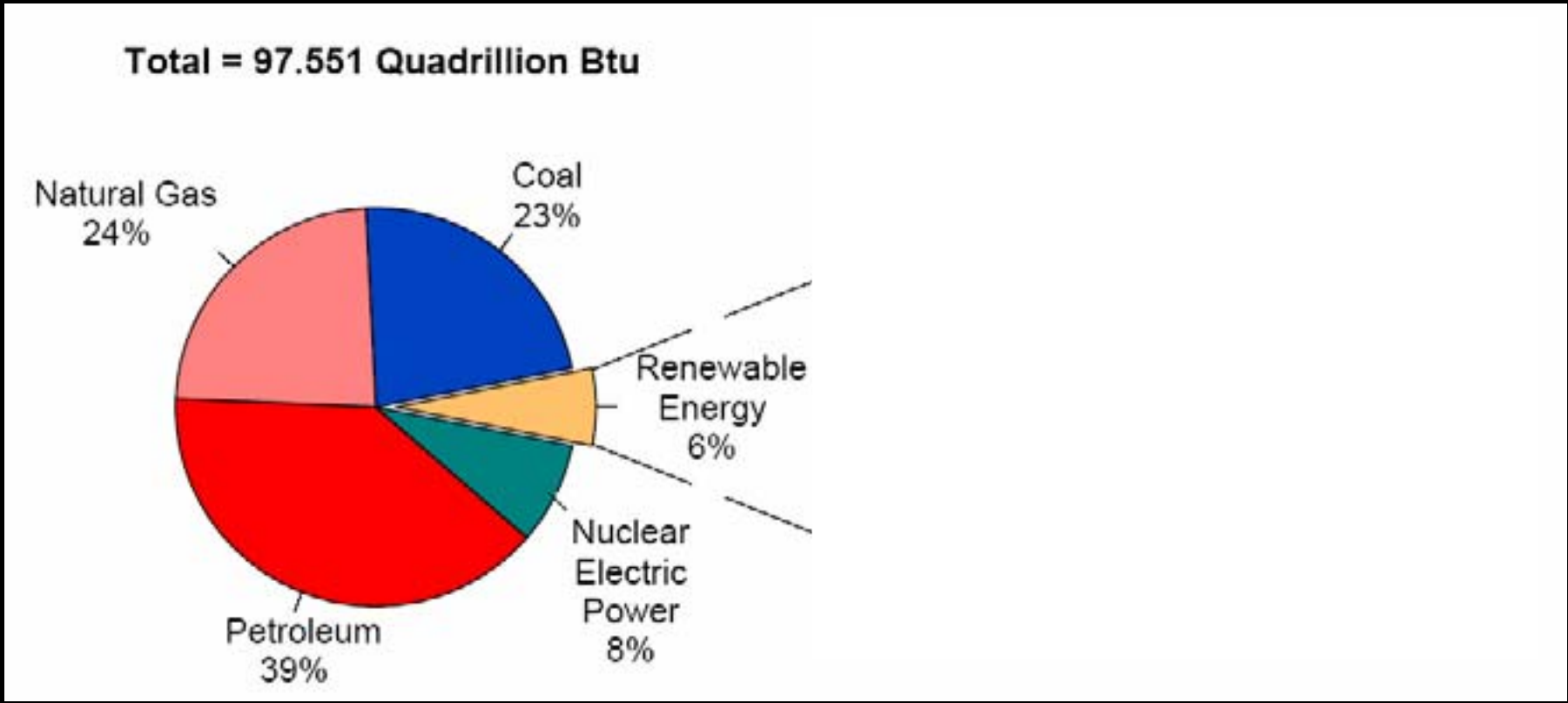
Worldwide PV Markets by Geography

RWE SCHOTT Solar
Powered By The Sun



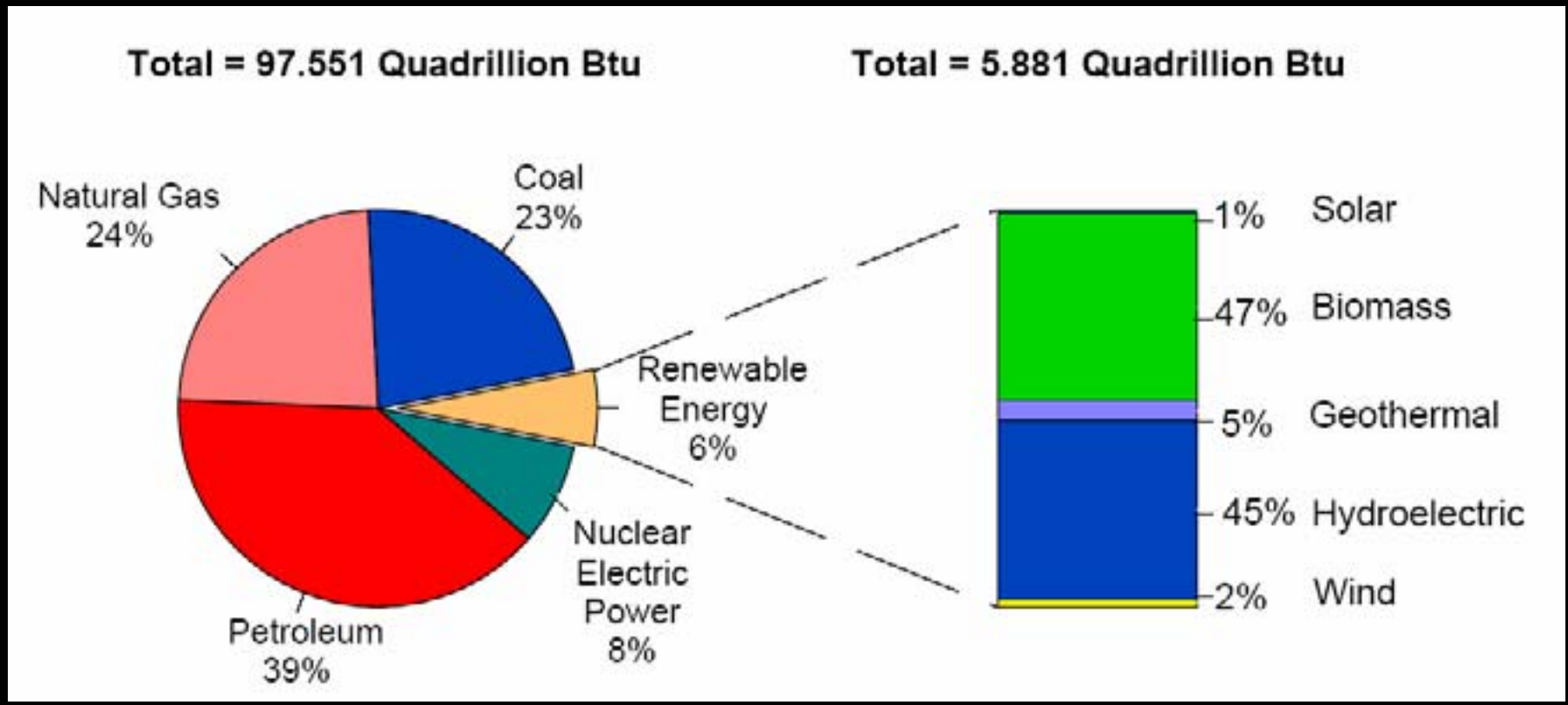
Source: MarketBuzz 2003

Renewables remains a small part of the nation's overall production of energy.



Source: U.S. Dept. of Energy, 2002

Renewables remains a small part of the nation's overall production of energy. We must change this.



Source: U.S. Dept. of Energy, 2002

Center for Sustainable Energy

Bronx Community College
City University of New York

Our mission is to promote a stronger economy and a healthier environment through education, training and community involvement.