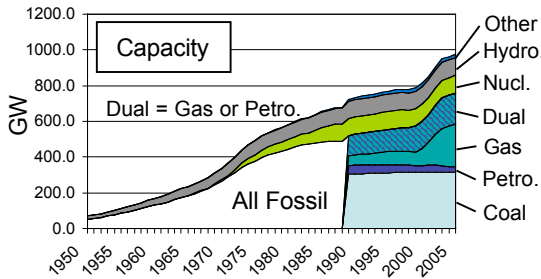
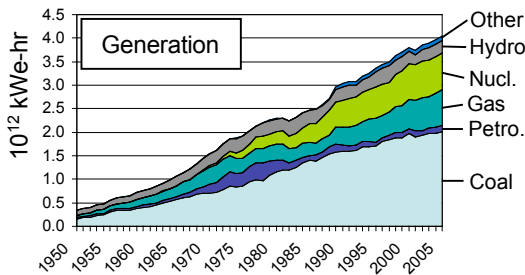
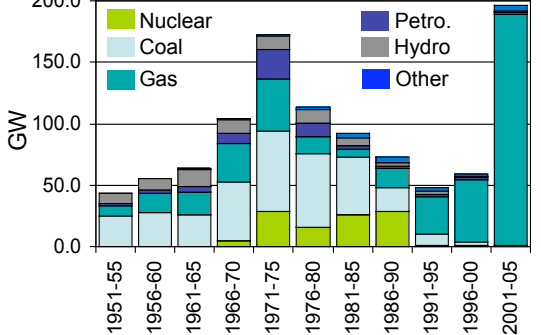


Capacity and Generation



Capacity Additions

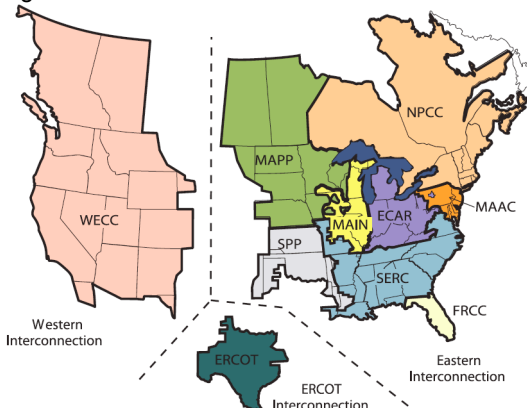


% Generation in 2005 by Source

Coal	49.88%	Hydro	6.40%	Wind	0.37%
Petro.	3.01%	Wood	0.91%	Solar	0.01%
Gas	19.00%	Waste	0.59%	Other	0.09%
Nucl.	19.33%	Geoth.	0.37%		

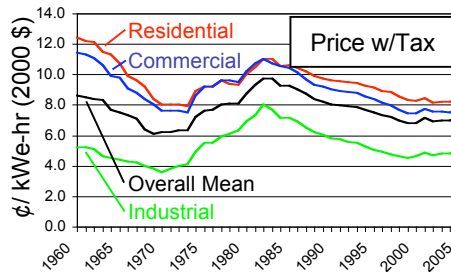
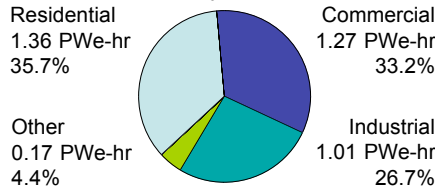
Transmission

- Three AC interconnection regions
- Voluntary power producer association regions jointly schedule and operate transmission and generating systems.
- Non-profit ISOs (not shown) have begun to form to oversee and control transmission and generators.

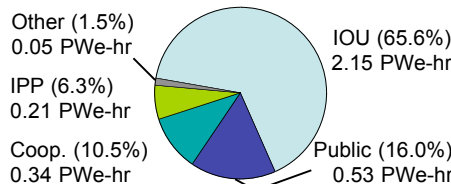


Consumption, Price, and Ownership

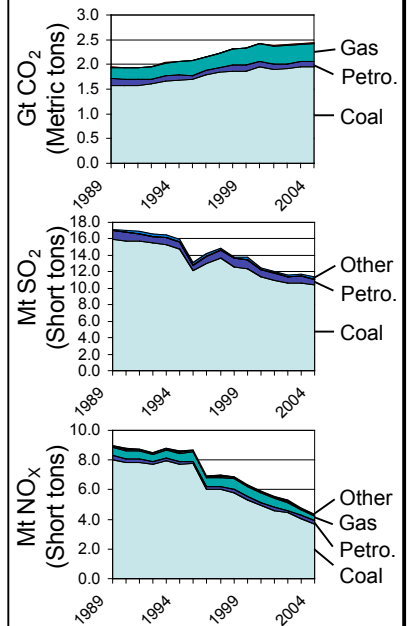
Consumption by End Use (2005)



Generation by Ownership Type (2004)



Emissions and Fuel Use



Fuel Consumption (2005)

Coal	1.05 b short tons
Oil	215 m barrels
Gas	6.45 m cubic feet

Key Issues & Future Prospects

Demand Growth: Electricity use is expected to grow on the order of 50% by 2030 over 2004 numbers (EIA AEO2006). Driven by service sector growth, commercial use is expected to see the biggest rise. Under current state and national laws, most of the supply is expected to come from coal and natural gas.

Demand-Side: Electrical end-use efficiency has improved notably since the 1970s though efforts such as appliance standards and integrated resource planning. Residential customers often require short (~2 year) payback periods to improve efficiency.

Carbon Regulation: Regional carbon emission cap-and-trade programs have been initialized in California as well as several northeastern states (RGGI). Various national programs have been proposed, but thus far none have been voted into law. The US did not sign the Kyoto Protocol. Most of the industry expects some form of national carbon legislation, likely a cap-and-trade scheme, within the next 5 years.

Transmission: Transmission capacity has not kept pace with electricity growth due to difficulty in obtaining right-of-ways, local opposition high voltage lines, and generation sites located far from load centers.

Deregulation: Several states have moved to deregulate their electricity markets (notably California, Texas, and several mid-Atlantic and New England states), though after California's energy crisis in 2001 this trend has slowed.

Policy Trends: Many states are adopting binding or voluntary renewable portfolio standards and plant emissions limits. At the national level, new constraints on NO_x and Mercury emissions are under consideration.

Key References

Data was primarily taken from:
EIA Annual Energy Review 2005
EIA Electric Power Annual 2004

EIA website: www.eia.doe.gov
For references of specific figures, see
Electricity Fact Sheet reference page.

Capacity & Generation

Historic Capacity Plot:

- Power producer, direct use, and combined heat and power generating capacity
- Other = wood, waste, geoth., wind, solar...
- Hydroelectric capacity includes pumped hydro and conventional generators
- Data from table 8.11a, EIA AER 2006

Historic Generation Plot:

- Power producer, direct use, and combined heat and power generating capacity
- Other = wood, waste, geoth., wind, solar...
- Hydroelectric generation includes pumped hydro., a negative value decreasing the hydro generation number by about 2%
- Data from table 8.2a, EIA AER 2006

2005 Generation Table

- Power producer and direct use generation
- Other = batteries, chemicals, hydrogen, pitch, purchased steam, ...
- Data from table 8.2a, EIA AER 2006

Historic Capacity Additions Graph

- EIA data for >1 MW generators (EIA-860 Database) through 1/1/2005 found at <http://www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html>
- Data includes utilities, Independent power producers, and direct use generators
- Akin to graph in The Wall Street Journal CERAWEEK supplement, 2/9/2006

Transmission

Figure and comments from EIA reports "Electricity Transmission in a Restructured Industry" (2004) available at: http://www.eia.doe.gov/cneaf/electricity/page/transmission/DOE_EIA_0639.htm

Consumption by End Use

2005 Consumption by End Use Plot

- Other = Transpiration and direct use
- Data from table 8.9, EIA AER 2006

Historic Price Plot

- Transportation prices not plotted
- Data from table 8.10, EIA AER 2006

Ownership Type Plot

- Other = Federal, Non-Utility sales
- Difference in total generation between ownership (~3.3 Pwe-hr) and 2004 total generation (~4.0 Pwe-hr) is made up largely by direct use consumption
- Data from tables 10 and 11 from Electricity Sales, Revenue, and Price: http://www.eia.doe.gov/cneaf/electricity/esr/esr_sum.html

Key Issues & Future Prospects

Demand Growth

EIA Annual Energy Outlook 2006
<http://www.eia.doe.gov/oiaf/aeo/index.html>

Transmission:

See transmission section

Deregulation:

Demand-Side:

Carbon Regulation:

www.dimatechange.ca.gov
www.rggi.org
<http://unfccc.int>

Policy Trends:

http://www.eere.energy.gov/states/maps/renewable_portfolio_states.cfm
<http://www.epa.gov/air/clearskies/>

EIA AER 2005 = EIA Annual Energy Review 2005
<http://www.eia.doe.gov/emeu/aer/contents.html>

EIA EPA 2004 = Electric Power Annual 2004 (2005 to be released 11/06)
<http://www.eia.doe.gov/cneaf/electricity/epa/review.html>