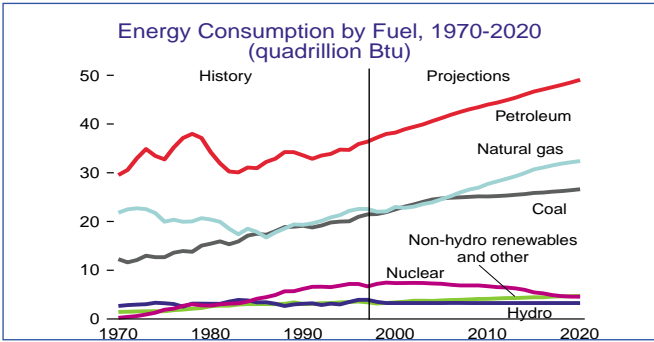
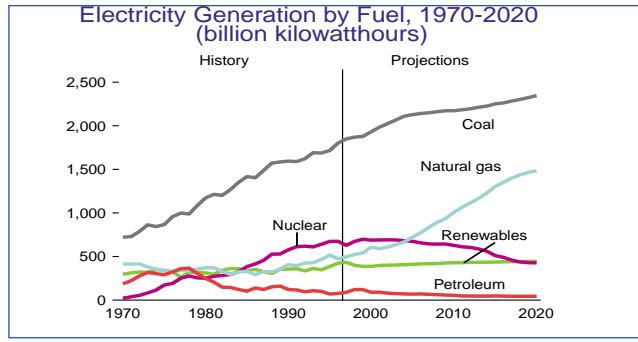


Annual Energy Outlook 2000

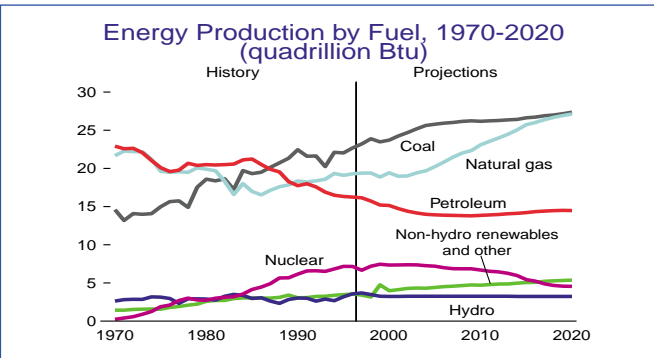
With Projections to 2020



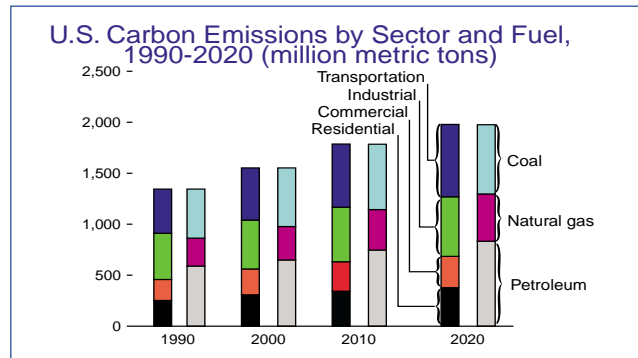
- Total U.S. energy demand grows at an average rate of 1.1 percent a year, from 95 to 121 quadrillion Btu between 1998 and 2020. Improved efficiency of energy-using equipment and buildings moderates increasing demand for energy services. Transportation is the most rapidly growing sector, due to personal and freight travel. Petroleum demand grows at an average annual rate of 1.3 percent with more than 70 percent used for transportation in 2020.
- Natural gas demand grows at an average annual rate of 1.8 percent, with growth in all sectors, but the most rapid growth is for electricity generation. Total coal consumption grows 0.9 percent a year on average with about 90 percent used for generation.
- Electricity demand increases at an average rate of 1.4 percent a year. Continued growth in the use of electric appliances is partially offset by improved efficiency.



- Nuclear generation declines 37 percent by 2020, as older and higher-cost plants are retired. No new plants are built, but units are life-extended if economical.
- Natural gas and coal generation increases due to growing electricity demand and declining nuclear generation. The share of coal-fired generation declines, but coal still accounts for nearly half of the generation in 2020. Natural gas grows to a 31-percent share of generation by 2020.
- Renewable generation grows slowly, at an average annual rate of 0.5 percent, due to low fossil fuel prices and industry restructuring which favors less capital-intensive natural gas technologies, instead of coal and renewables. Growth in renewable sources is encouraged by State renewable portfolio standards and other programs.

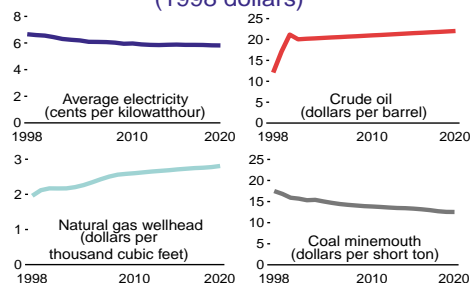


- Domestic crude oil production declines from 6.3 to 5.3 million barrels a day between 1998 and 2020. By 2020, net petroleum imports increase from 52 to 64 percent of demand as production declines and demand grows.
- Natural gas and coal production increases at average annual rates of 1.5 and 0.7 percent, respectively, to meet growing demand. Net imports of natural gas, primarily from Canada, grow to meet 16 percent of domestic demand by 2020. Coal exports decline at an average annual rate of 1.4 percent to 2020.



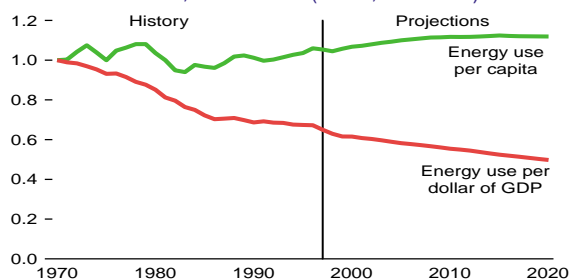
- Carbon emissions from energy use increase at an average annual rate of 1.3 percent due to rising energy demand, the slow penetration of renewables, and the decline in nuclear generation. The projections include no new policies that may be enacted for compliance with the Kyoto Protocol.
- In 2020, petroleum accounts for 42 percent of emissions, mostly for transportation, coal for 34 percent, and natural gas for 23 percent. Emissions from electricity generation account for 38 percent of carbon emissions in 2020, partly due to the continued reliance on coal.

Fuel Price Projections, 1998-2020
(1998 dollars)



- In the *Annual Energy Outlook 2000*, world oil prices increase from \$12.10 a barrel (1998 dollars) in 1998 to \$22.04 a barrel in 2020, an average annual rate of 2.8 percent. Prices increase sharply in the near-term, due to the economic recovery in East Asia and the March 1999 agreement by the Organization of Petroleum Exporting Countries to restrain production. In the long-term, technological improvements help expand production worldwide, restraining price increases as the world demand for oil grows.
- Average electricity prices decline at an average rate of 0.6 percent a year, due to cost reductions that result from the increasingly competitive market and declining coal prices.
- Coal minemouth prices decline at an average annual rate of 1.5 percent, due to increased production from lower-cost Western mines, productivity improvements, and competitive pressures on labor costs.
- Wellhead natural gas prices increase at an average annual rate of 1.7 percent, as technological progress helps to offset the impact of rapidly growing demand.

Energy Use per Capita and per Dollar of Gross Domestic Product, 1970-2020 (index, 1970 = 1)



- Energy use per dollar of gross domestic product declines 1.1 percent annually through 2020, and growth in per capita energy use slows. Efficiency gains and shifts to less energy-intensive industries offset growth in the demand for energy services.

Highlights	1997	1998	2005	2010	2015	2020	Annual Change 1998-2020
Primary Production (quadrillion Btu)							
Petroleum	16.23	15.73	13.92	13.86	14.22	14.49	-0.4%
Natural Gas	19.43	19.40	20.25	23.09	25.73	27.13	1.5%
Coal	23.28	23.89	25.79	26.18	26.63	27.36	0.6%
Nuclear Power	6.71	7.19	7.20	6.70	5.45	4.56	-2.1%
Renewable Energy	7.00	6.67	7.07	7.39	7.70	7.98	0.8%
Other	0.66	0.57	0.62	0.59	0.63	0.66	0.7%
Total Primary Production	73.30	73.46	74.85	77.81	80.35	82.18	0.5%
Net Imports (quadrillion Btu)							
Petroleum	19.65	20.95	26.92	29.73	32.00	34.15	2.2%
Natural Gas	2.90	3.20	4.28	4.62	4.96	5.25	2.3%
Coal/Other (-indicates export)	-1.66	-1.46	-0.60	-0.74	-0.55	-0.50	-4.8%
Total Net Imports	20.89	22.69	30.62	33.61	36.41	38.91	2.5%
Consumption (quadrillion Btu)							
Petroleum Products	36.43	37.21	41.21	43.98	46.65	49.05	1.3%
Natural Gas	22.60	21.99	24.57	27.69	30.68	32.38	1.8%
Coal	21.34	21.50	24.72	25.12	25.84	26.60	1.0%
Nuclear Power	6.71	7.19	7.20	6.70	5.45	4.56	-2.1%
Renewable Energy	7.00	6.67	7.08	7.41	7.71	7.99	0.8%
Other	0.33	0.32	0.50	0.36	0.33	0.36	0.6%
Total Consumption	94.41	94.88	105.28	111.26	116.66	120.95	1.1%
Petroleum (million barrels per day)							
Crude Oil	6.45	6.25	5.36	5.18	5.20	5.26	-0.8%
Other Domestic Production	2.96	2.90	3.13	3.45	3.68	3.81	1.2%
Net Imports	9.16	9.77	12.55	13.85	14.96	16.04	2.3%
Consumption	18.59	18.94	21.08	22.51	23.87	25.10	1.3%
Natural Gas (trillion cubic feet)							
Production	18.90	18.88	19.70	22.46	25.03	26.40	1.5%
Net Imports	2.84	3.13	4.19	4.52	4.85	5.14	2.3%
Consumption	21.99	21.39	23.91	26.95	29.88	31.53	1.8%
Coal (million short tons)							
Production	1098	1128	1221	1242	1269	1316	0.7%
Net Imports	-76	-69	-47	-47	-38	-38	-2.7%
Consumption	1029	1043	1175	1195	1232	1279	0.9%
Prices (1998 dollars)							
World Oil Price (dollars per barrel)	18.71	12.10	20.49	21.00	21.53	22.04	2.8%
Natural Gas Wellhead Price (dollars per thousand cubic feet)	2.39	1.96	2.34	2.60	2.71	2.81	1.7%
Coal Minemouth Price (dollars per short ton)	18.32	17.51	14.71	13.84	13.34	12.54	-1.5%
Average Electricity Price (cents per kilowatt-hour)	6.9	6.7	6.1	6.0	5.9	5.8	-0.6%
Economic Indicators							
Real Gross Domestic Product (billion 1992 dollars)	7,270	7,552	9,056	10,054	11,147	12,179	2.2%
GDP Implicit Price Deflator (index, 1992=1.00)	1.12	1.13	1.28	1.42	1.59	1.86	2.3%
Real Disposable Personal Income (billion 1992 dollars)	5,183	5,348	6,406	7,204	8,083	9,008	2.4%
Index of Manufacturing Gross Output (index, 1987=1.00)	1.365	1.411	1.645	1.812	1.999	2.160	2.0%
Energy Intensity (thousand Btu per 1992 dollar of GDP)							
	12.99	12.57	11.63	11.07	10.47	9.94	-1.1%
Carbon Emissions (million metric tons)							
	1479	1485	1683	1787	1893	1979	1.3%

Notes: World Oil Price represents the average refiner acquisition cost for imported crude oil. 1997 and 1998 represent partial historical data, which may be revised in later publications. Other production includes liquid hydrogen, methanol, supplemental natural gas, and some inputs to refineries. Net imports of petroleum include crude oil, petroleum products, unfinished oils, alcohols, ethers, and blending components. Other net imports include coal coke and electricity. Some refinery inputs appear as petroleum product consumption. Other consumption includes net electricity imports, liquid hydrogen, and methanol.

EIA Web Site:

www.eia.doe.gov

For Further Information Contact:

National Energy Information Center 202/586-8800
E-Mail: infoctr@eia.doe.gov Washington, DC 20585