



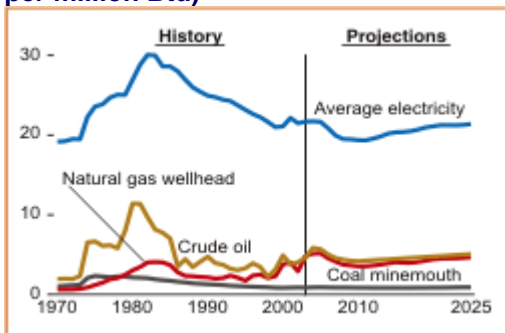
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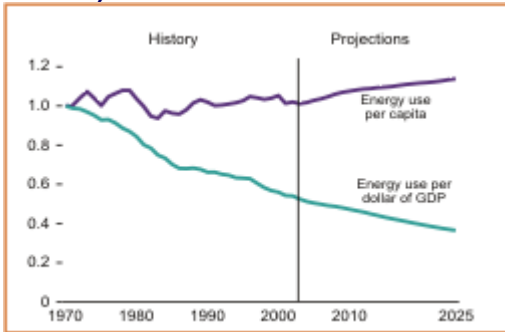
With Projections to 2025

Figure 1. Energy Prices, 1970-2025 (2003 dollars per million Btu)



- The Annual Energy Outlook 2005 Reference Case, projects that world oil prices will increase from \$27.73 per barrel (2003 dollars) in 2003 to \$35.00 per barrel in 2004, before declining to \$25.00 per barrel by 2010 as new supplies enter the market. After 2010, the price increases, reaching \$30.31 per barrel in 2025. In nominal dollars, the average world oil price reaches about \$52.00 per barrel in 2025.
- Average natural gas wellhead prices are projected to generally decrease, from \$4.98 per thousand cubic feet (2003 dollars) in 2003 to \$3.64 per thousand cubic feet in 2010 as the initial availability of new import sources, such as liquefied natural gas (LNG), and increased drilling expands available supply. After 2010, wellhead prices increase gradually, reaching \$4.79 per thousand cubic feet by 2025.
- Projected average delivered electricity prices (2003 dollars) decline from 7.4 to 6.6 cents per kilowatt-hour between 2003 and 2011 as a result of a decline in natural gas prices and a slowdown in new construction. After 2011, real electricity prices are projected to increase to 7.3 cents per kilowatt-hour in 2025 (equivalent to 12.5 cents per kilowatt-hour in nominal dollars) as a result of increasing natural gas and coal prices.

Figure 2. Energy Use per Capita and per Dollar of Gross Domestic Product, 1970-2025 (index, 1970=1)

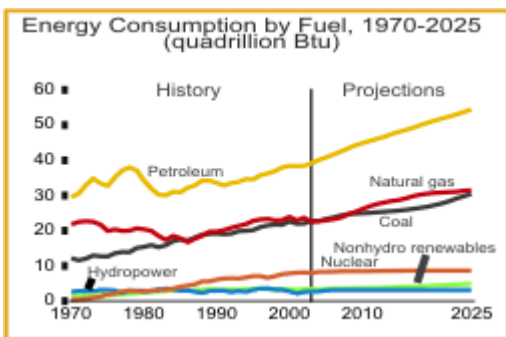


- Through 2025, projected energy use per 2000 dollar of gross domestic product declines 1.6 percent per year and per capita energy consumption increases by 0.5 percent per year. Efficiency gains and structural shifts in the economy to less-energy-intensive industries partially offsets growth in the demand for energy services, which results from population growth of 0.8 percent per year and projected economic growth of 3.1 percent per year.

Highlights	2002	2003	2005	2010	2015	2020	2025	Annual Change 2003-2025
Primary Energy Production (quadrillion Btu)								
Petroleum	14.71	14.38	14.66	15.41	14.31	13.83	12.82	-0.5%
Dry Natural Gas	19.48	19.58	19.80	20.97	21.33	22.48	22.42	0.6%
Coal	22.70	22.66	24.15	25.10	25.56	27.04	29.90	1.3%
Nuclear Power	8.14	7.97	8.31	8.49	8.62	8.67	8.67	0.4%
Renewable Energy	5.79	5.89	6.49	6.85	7.13	7.57	8.10	1.5%
Other	1.12	0.93	1.02	0.97	0.78	0.77	0.82	-0.5%
Total Primary Energy Production	71.94	71.42	74.44	77.79	77.73	80.35	82.73	0.7%
Net Imports (quadrillion Btu)								
Petroleum	22.64	24.10	25.57	28.61	33.10	36.87	41.11	2.5%
Natural Gas	3.59	3.32	3.46	5.06	7.19	8.08	8.87	4.6%
Coal/Other (- indicates export)	-0.47	-0.43	-0.47	-0.14	0.19	0.25	0.58	N/A
Total Net Imports	25.75	26.99	28.56	33.53	40.47	45.21	50.55	2.9%
Consumption (quadrillion Btu)								
Petroleum Products	38.41	39.09	40.81	44.84	48.07	51.30	54.42	1.5%
Natural Gas	23.59	22.54	22.92	26.11	28.69	30.73	31.47	1.5%
Coal	21.98	22.71	23.30	24.95	25.71	27.27	30.48	1.3%
Nuclear Power	8.14	7.97	8.31	8.49	8.62	8.67	8.67	0.4%
Renewable Energy	5.79	5.89	6.49	6.85	7.13	7.57	8.10	1.5%
Other	0.07	0.02	0.02	0.03	0.07	0.05	0.04	4.1%
Total Consumption	97.99	98.22	101.85	111.27	118.29	125.60	133.18	1.4%
Petroleum (million barrels per day)								
Domestic Crude Production	5.74	5.68	5.76	6.02	5.49	5.21	4.73	-0.8%
Other Domestic Production	3.60	3.38	3.43	3.59	3.77	4.00	4.10	0.9%
Net Imports	10.54	11.24	11.91	13.37	15.40	17.11	19.11	2.4%
Consumption	19.71	20.00	20.91	22.98	24.67	26.32	27.93	1.5%
Natural Gas (trillion cubic ft.)								
Production	19.03	19.13	19.34	20.49	20.85	21.97	21.91	0.6%
Net Imports	3.50	3.24	3.37	4.94	7.02	7.89	8.66	4.6%
Consumption	22.98	21.95	22.32	25.44	27.96	29.95	30.67	1.5%
Coal (million short tons)								
Production	1105	1083	1179	1238	1270	1345	1488	1.5%
Net Imports	-23	-18	-23	-9	3	7	20	N/A
Consumption	1066	1095	1137	1229	1273	1352	1508	1.5%
Prices (2003 dollars)								
World Oil Prices (dollars per barrel)	24.10	27.73	33.99	25.00	26.75	28.50	30.31	0.4%
Gas Wellhead Price (dollars per thousand cubic ft.)	3.06	4.98	5.30	3.64	4.16	4.53	4.79	-0.2%
Coal Minemouth Price (dollars per ton)	18.23	17.93	18.61	17.30	16.89	17.25	18.26	0.1%
Average Electricity (cents per kilowatthour)	7.4	7.4	7.4	6.6	6.9	7.2	7.3	-0.1%
Economic Indicators								
Real Gross Domestic Product (billion 2000 dollars)	10075	10381	11221	13084	15216	17634	20292	3.1%
GDP Chain-Type Price Index (index, 2000=1.000)	1.041	1.060	1.104	1.218	1.373	1.563	1.814	2.5%
Real Disposable Personal Income (billion 2000 dollars)	7560	7734	8250	9594	11192	12783	14990	3.1%
Value of Industrial Shipments (billion 1996 dollars)	5067	5105	5499	6165	6850	7633	8469	2.3%
Energy Intensity (thousand Btu per 2000 dollars of GDP)	9.73	9.47	9.08	8.51	7.78	7.13	6.57	-1.6%
Carbon Dioxide Emissions (million metric tons)	5751	5789	6023	6627	7052	7520	8062	1.5%

Figure 3. Energy Consumption by Fuel, 1970-2025 (quadrillion Btu)

- Electricity demand growth is projected to slow over time, averaging 1.8 percent per

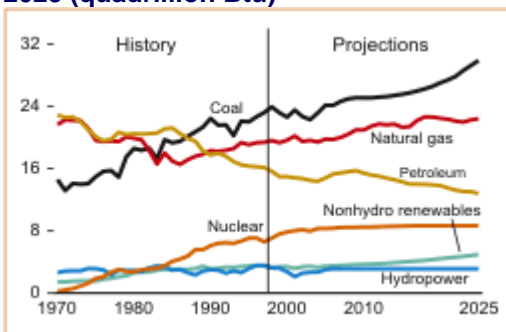


- Projected primary energy demand grows at a rate of 1.4 percent per year through 2025. Improved equipment and building efficiency moderates energy demand growth. The transportation sector is expected to grow the most rapidly, due to increased personal and freight travel, slow stock turnover, and consumer preferences for performance over efficiency.

year through 2025. Rapid growth in computers, office equipment, and electrical appliances is only partially offset by improved efficiency.

- Projected natural gas demand grows at a rate of 1.5 percent per year, with the most rapid growth rates for electricity generation. Projected coal demand grows by 1.5 percent annually, with over 90 percent used for electricity generation.

Figure 4. Energy Production by Fuel, 1970-2025 (quadrillion Btu)

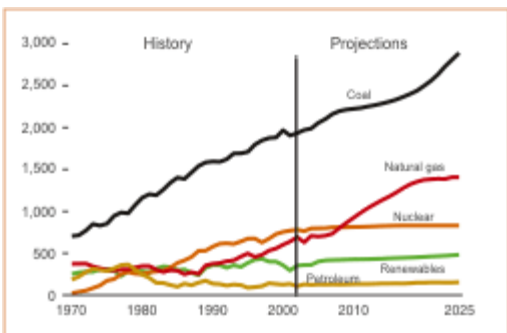


- Projected U.S. crude oil production increases from 5.7 to 6.2 million barrels per day between 2003 and 2009 as a result of increased off-shore production. After 2010, production falls to 4.7 million barrels per day in 2025 and net petroleum imports increase, accounting for 68 percent of demand by 2025, up from 56 percent in 2003.

- Total natural gas supply is projected to increase from 22.4 to 30.6 trillion cubic feet between 2003 and 2025, with major contributions from LNG imports and the completion of an Alaska natural gas pipeline in 2016. Net LNG imports are projected to increase from 0.4 trillion cubic feet in 2003 to 6.4 trillion cubic feet in 2025 and production for the Alaska pipeline reaches 2.0 trillion cubic feet by 2025.
- Domestic coal production grows at a rate of 1.5 percent per year, reaching 1,488 million short tons by 2025. This is driven by the increased use of existing electric generation plants and the addition of new plants.

Figure 5. Electricity Generation by Fuel, 1970 -2025 (billion kilowatthours)

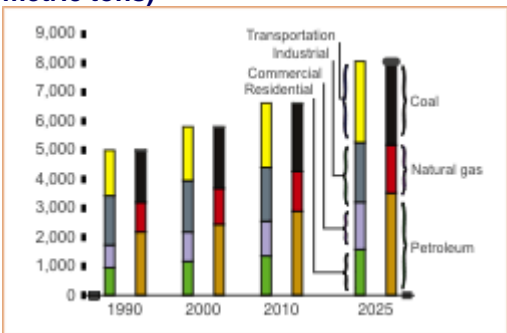
- Nuclear generation increases slowly over the forecast, as the capacity of some facilities is updated.
- Nonhydroelectric renewable



technologies are projected to grow relatively rapidly, but even with the strong rate of growth, their contribution is expected to remain small. Fossil technologies are expected to dominate new capacity additions. State and Federal renewable programs are considered in the forecast where enacted.

- Electricity generation from natural gas, coal, nuclear, and renewable fuels is projected to increase through 2025. Coal remains the primary fuel for generation with its share of generation decreasing from 51 percent in 2003 to 50 percent in 2025. The natural gas share of generation grows from 16 percent in 2003 to 24 percent in 2025.

Figure 6. U.S. Carbon Dioxide Emissions by Sector and Fuel, 1990-2025 (million metric tons)



- In 2025, petroleum accounts for 44 percent of emissions, mostly from transportation, coal for 35 percent, and natural gas for 21 percent; electricity generation and transportation are expected to account for 41 and 35 percent of carbon dioxide emissions, respectively, due to continued reliance on fossil fuels.

- Carbon dioxide emissions from energy use grow by 1.5 percent per year due to growth in fossil fuel demand and slow penetration by renewables and only a slight rise in nuclear generation.

Visit the Energy Analysis & Forecasting Web Site at:
www.eia.doe.gov/oiaf/forecasting.html

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