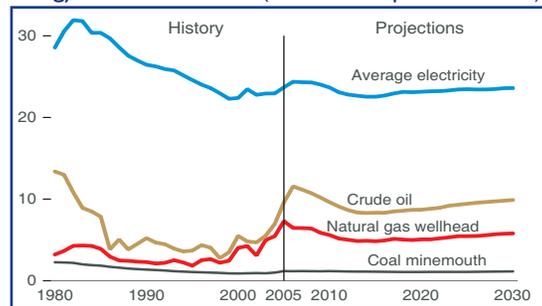
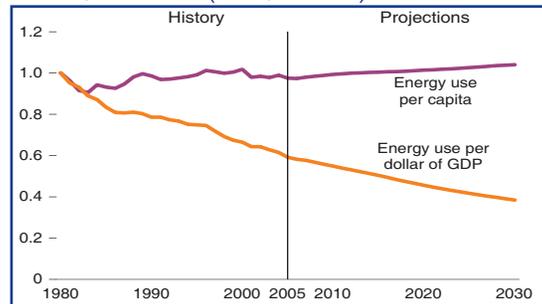


## Energy Prices, 1980-2030 (2005 dollars per million Btu)



- The reference case summarized in this brochure, one of the cases completed as part of the *Annual Energy Outlook 2007*, projects that world oil prices (2005 dollars), expressed in terms of the average price of imported low-sulfur crude oil to U.S. refiners, will decline gradually from current levels through 2015 as new supplies enter the market and then rise to over \$59 per barrel in 2030 (about \$95.00 per barrel in nominal terms).
- Average natural gas wellhead prices (2005 dollars) are projected to fall from today's levels to just over \$5 per thousand cubic feet in 2013 as the initial availability of new import sources, such as liquefied natural gas (LNG), and increased drilling expand available supply. After 2013, wellhead prices rise gradually to just under \$6 per thousand cubic feet in 2030 (\$9.63 per thousand cubic feet in nominal dollars).
- Projected electricity prices reach a peak of 8.3 cents per kilowatthour (2005 dollars) in 2006 and then decline to a low of 7.7 cents per kilowatthour in 2015 before increasing to 8.1 cent per kilowatthour in 2030. Without adjustment for inflation, average delivered electricity prices in the *AEO2007* reference case are projected to reach 13 cents per kilowatthour in 2030.

## Energy Use per Capita and per Dollar of Gross Domestic Product, 1980-2030 (index, 1980=1)



- Through 2030, projected energy use per 2000 dollar of gross domestic product (GDP) declines 1.8 percent per year and per capita energy consumption increases by 0.3 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 2.9 percent per year.

Reference Case Highlights	2005	2010	2015	2020	2025	2030	Growth Rate 2005-2030
<b>Primary Energy Production (quadrillion Btu)</b>							
Petroleum	13.30	14.42	14.97	14.85	14.13	13.71	0.1%
Dry Natural Gas	18.77	19.93	20.19	21.41	21.21	21.15	0.5%
Coal	23.20	24.47	25.74	26.61	30.09	33.52	1.5%
Nuclear Power	8.13	8.23	8.47	9.23	9.23	9.33	0.6%
Hydropower	2.71	3.02	3.07	3.08	3.09	3.09	0.5%
Biomass	2.71	4.22	4.45	4.69	5.04	5.26	2.7%
Other Renewable Energy	0.76	1.18	1.26	1.33	1.37	1.44	2.6%
Other	0.22	0.67	0.98	0.89	0.89	1.12	6.8%
Total	69.80	76.13	79.12	82.09	85.06	88.63	1.0%
<b>Net Imports (quadrillion Btu)</b>							
Petroleum	26.94	25.19	26.75	28.92	31.66	34.74	1.0%
Natural Gas	3.67	4.67	5.76	5.48	5.73	5.59	1.7%
Coal/other	-0.42	-0.19	0.06	0.93	1.22	1.57	N/A
Total	30.19	29.66	32.57	35.33	38.61	41.90	1.3%
<b>Consumption (quadrillion Btu)</b>							
Liquids	40.61	41.76	44.26	46.52	49.05	52.17	1.0%
Natural Gas	22.63	24.73	26.07	27.04	27.08	26.89	0.7%
Coal	22.87	24.24	25.64	27.29	30.62	34.14	1.6%
Nuclear Power	8.13	8.23	8.47	9.23	9.23	9.33	0.6%
Hydropower	2.71	3.02	3.07	3.08	3.09	3.09	0.5%
Biomass	2.38	3.30	3.48	3.64	3.91	4.06	2.2%
Other Renewable Energy	0.76	1.18	1.26	1.33	1.37	1.44	2.6%
Other	0.08	0.04	0.03	0.04	0.04	0.04	-2.6%
Total	100.19	106.50	112.28	118.16	124.39	131.16	1.1%
<b>Liquids &amp; Other Petroleum (million barrels per day)</b>							
Domestic Crude Production	5.18	5.67	5.91	5.89	5.58	5.39	0.2%
Other domestic production	3.04	4.03	4.35	4.49	4.77	5.08	2.1%
Net Imports	12.57	11.79	12.52	13.56	14.87	16.37	1.1%
Consumption	20.75	21.59	22.86	24.03	25.34	26.95	1.1%
<b>Natural Gas (trillion cubic feet)</b>							
Production	18.30	19.42	19.67	20.86	20.66	20.61	0.5%
Net Imports	3.57	4.55	5.62	5.35	5.58	5.45	1.7%
Consumption	21.98	24.02	25.32	26.26	26.30	26.12	0.7%
<b>Coal (million short tons)</b>							
Production and Waste Coal	1131	1189	1266	1323	1517	1691	1.6%
Net Imports	-21	-7	5	41	52	68	N/A
Consumption	1128	1195	1282	1377	1582	1772	1.8%
<b>Prices (2005 dollars)</b>							
World Oil Price (dollars per barrel)	56.76	57.47	49.87	52.04	56.37	59.12	0.2%
Imported Price of Crude Oil (dollars per barrel)	49.19	51.20	44.61	46.47	49.57	51.63	0.2%
Gas Wellhead Price (dollars per thousand cubic feet)	7.51	5.76	4.99	5.22	5.62	5.98	-0.9%
Coal Minemouth Price (dollars per ton)	23.34	24.20	22.41	21.58	21.55	22.60	-0.1%
Electricity (cents per kilowatthour)	8.1	8.1	7.7	7.9	8.0	8.1	0.0%
<b>Economic Indicators</b>							
Real Gross Domestic Product (billion 2000 dollars)	11049	12790	14698	17077	19666	22494	2.9%
GDP Chain-Type Price Index (index, 2000=1.000)	1.127	1.253	1.366	1.495	1.648	1.815	1.9%
Real Disposable Personal Income (billion 2000 dollars)	8105	9568	11077	13000	15172	17535	3.1%
Value of Manufacturing Shipments (billion 2000 dollars)	5763	6298	7033	7779	8585	9502	2.0%
Energy Intensity, Primary (thousand Btu per 2000 dollar of GDP)	9.07	8.33	7.64	6.92	6.33	5.83	-1.8%
<b>Carbon Dioxide Emissions (million metric tons)</b>							
	5945	6214	6589	6944	7425	7950	1.2%

Notes: Quantities are derived from historical volumes and assumed thermal conversion factors. "Other" production includes liquid hydrogen, methanol, supplemental natural gas, and some inputs to refineries. Net imports of petroleum include oil, petroleum products, unfinished oils, alcohol, ethers, and blending components. "Other" net imports include coal coke and electricity.

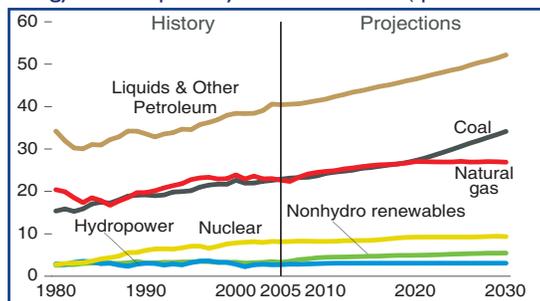
Sources: Tables A1, A19, and A20 from the forthcoming *Annual Energy Outlook 2007*, February 2007

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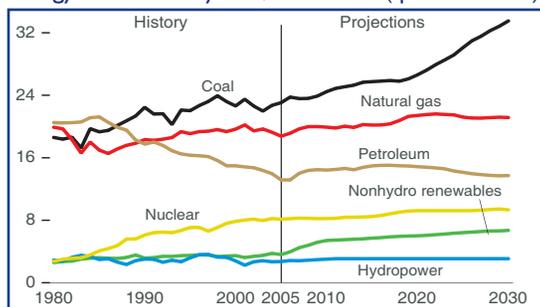
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**National Energy Information Center**  
 Washington, DC  
 (202)586-8800 [infoctr@eia.doe.gov](mailto:infoctr@eia.doe.gov)

## Energy Consumption by Fuel, 1980-2030 (quadrillion Btu)



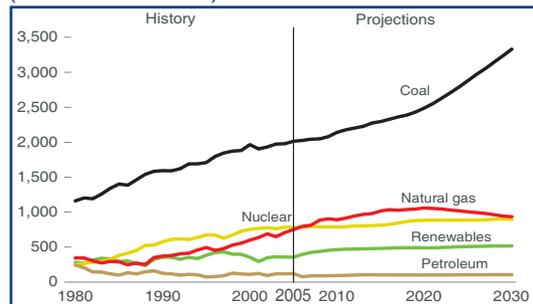
- Projected primary energy demand grows at a rate of 1.1 percent per year, to 131.2 quadrillion Btu in 2030. Improved equipment and building efficiency moderate energy demand growth. The transportation sector is expected to grow the most rapidly, due to increased personal and freight travel, slow stock turnover, and consumer preferences for performance over efficiency.
- Electricity demand grows at a rate of 1.5 percent per year, reaching 5,478 billion kilowatthours in 2030. 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 0.7 percent per year, with the most rapid growth rates for electricity generation. Projected coal demand grows by 1.6 percent annually, with almost 90 percent used for electricity generation.

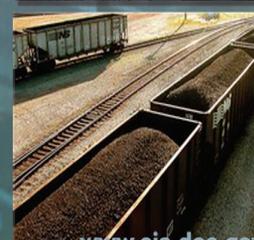
## Energy Production by Fuel, 1980-2030 (quadrillion Btu)



- Projected U.S. domestic crude oil production increases to a peak of 5.9 million barrels per day in 2017 as a result of increased offshore production, predominantly from the deep waters of the Gulf of Mexico, which offsets a decline in Alaskan production. Production subsequently falls to 5.4 million barrels per day in 2030. The net petroleum import share rises as domestic production falls, accounting for 61 percent of demand by 2030, up from 60 percent in 2005.
- Total natural gas supply is projected to increase to 26.1 trillion cubic feet in 2030, with major contributions from LNG imports, the completion of an Alaskan natural gas pipeline in 2018, and domestic unconventional production. In 2030, net LNG imports are 4.5 trillion cubic feet, production from Alaska is 2.2 trillion cubic feet, and unconventional production is 10.2 trillion cubic feet.
- Domestic coal production grows at a rate of 1.6 percent per year, from 1,131 million tons in 2005 to 1,691 million tons in 2030. This is driven by the increased use of existing electricity generation plants and the addition of new coal plants. Production from mines west of the Mississippi River is expected to provide the largest share of the incremental coal production.
- Electricity generation from natural gas, coal, nuclear, and renewable fuels is projected to increase through 2030. Coal remains the primary fuel for generation with its share of generation increasing from 50 percent in 2005 to 57 percent in 2030. The natural gas share of generation increases from 19 percent in 2005 to 22 percent around 2016, before falling to 16 percent in 2030. Over the entire period from 2005 to 2030, 156 gigawatts of new coal-fired generating capacity is projected to be added in the AEO2007 reference case, including 11 gigawatts at CTL plants and 67 gigawatts at Integrated Gasification Combined Cycle plants.
- Nuclear generating capacity increases to about 112.6 gigawatts in 2030, including 3 gigawatts from uprates of existing plants and 12.5 gigawatts of capacity at newly constructed power plants, partially stimulated by the provisions in Energy Policy Act of 2005.
- Nonhydroelectric renewable technologies are projected to grow relatively rapidly, but their contribution is expected to remain small. Fossil technologies, particularly coal and natural gas, are expected to dominate new capacity additions.
- Carbon dioxide emissions from energy use grow by 1.2 percent per year from 5,945 million metric tons in 2005 to 7,950 million metric tons in 2030 due to growth in fossil fuel demand and slow penetration by renewables and only a modest increase in nuclear generation.
- The carbon dioxide emissions intensity of the U.S. economy is projected to fall from 538 metric tons per million dollars of GDP in 2005 to 353 metric tons per million dollars of GDP in 2030, an average decline of 1.7 percent per year.

## Energy Generation by Fuel, 1980-2030 (billion kilowatthours)



# Annual Energy Outlook

## 2007

## With Projections to 2030