Analysis of Senate Amendment 2028, the Climate Stewardship Act of 2003

Energy Information Administration
May 2004

Introduction

In June 2003, the Energy Information Administration (EIA) released an analysis[1] of the Climate Stewardship Act of 2003 (S.139) as introduced by Senators McCain and Lieberman in January 2003. S.139 would establish a cap on emissions of greenhouse gases[2] from covered sources that would be implemented in two phases beginning in 2010 and 2016 respectively. More recently, in October 2003, Senators McCain and Lieberman proposed an amended version of the bill, SA.2028, that included the first phase of emissions reductions beginning in 2010 but removed references to a second phase of reductions beginning in 2016.

On May 11, 2004, Senator Landrieu asked EIA to evaluate SA.2028. This paper responds to that request, relying on the modeling methodology, data sources, and assumptions used to analyze the original bill, as extensively documented in EIA's June 2003 report. By using the same modeling system and assumptions, the impacts of SA.2028 can be compared as a sensitivity case to the previously reported results for S.139. However, these results do not reflect updates to EIA's modeling system and the reference case energy forecast that were included in the *Annual Energy Outlook 2004 (AEO2004)*.[3] Given Senator Landrieu's request for an expedited response, it was not possible to undertake a completely new analysis using the latest updates to the model.

In addition to removing references to a second phase of emission reduction, SA.2028 made several other changes with possible implications for the results. These include:

- SA.2028 omits a provision in S.139 that would have allowed automobile manufacturers to obtain emission allowances in exchange for exceeding the Corporate Average Fuel Economy (CAFÉ) standards by over 20 percent. This change is reflected in EIA's analysis.

- SA.2028 now states explicitly that emissions from fuel sold for transportation outside the United States (i.e., "bunker fuels") are not covered sources. Because EIA's modeling system does not estimate emissions from bunker fuels separately, the exemption for bunker fuels is not reflected in EIA's analysis. Because carbon dioxide emissions from bunker fuels were 1.6 percent of total energy-related carbon dioxide emissions in 2002, the exclusion of bunker fuels from the cap should not materially affect the results.

- SA.2028 adds a provision entitled "Dedicated Program for Sequestration in Agricultural Soils." The provision allows an entity to satisfy up to 1.5 percent of its total allowance

[1] Energy Information Administration, *Analysis of S.139, the Climate Stewardship Act of 2003*, SR/OIAF/2003-02 (Washington, DC, June 2003). For full report, see http://www.eia.doe.gov/oiaf/servicerpt/ml/pdf/sroiaf(2003)02.pdf and for the highlights and summary, see http://www.eia.doe.gov/oiaf/servicerpt/ml/pdf/summary.pdf .
[2] S.139 covers emissions of the following greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).
[3] Energy Information Administration, *Annual Energy Outlook 2004* includes a discussion of key changes between the 2003 and 2004 reference case forecasts. See http://www.eia.doe.gov/oiaf/aeo/index.html .

submission requirements by submitting registered increases in net carbon sequestration in agricultural soils. Entities remain subject to a 15-percent overall limit on offsets. EIA's analysis methodology incorporates this provision through marginal abatement cost curves for agricultural and forestry combined, but does not separately constrain the proportion of that carbon sequestration from agricultural soils.

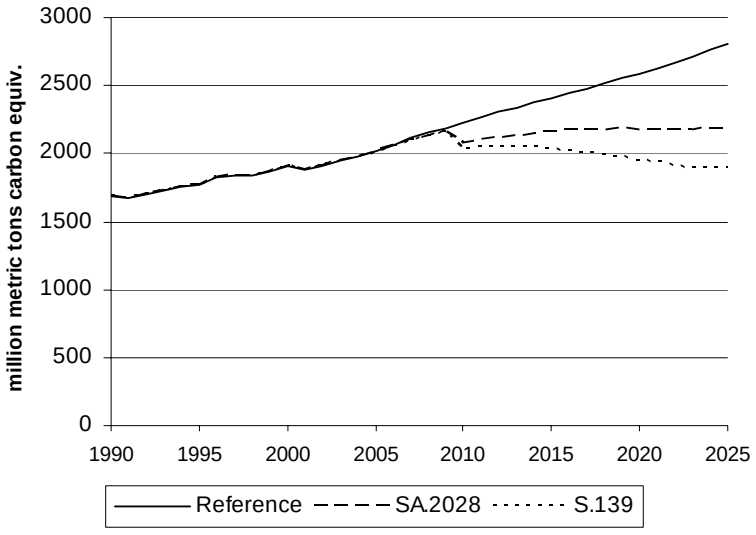
For the sake of brevity, the following discussion of the SA.2028 case assumes familiarity with EIA's previously published analysis of S.139. The SA.2028 case is compared both to the updated reference case from the *Annual Energy Outlook 2003*, on which the previous analysis was based, and the S.139 case.

Analysis of the SA.2028 Case

Emissions and Allowance Costs

The most significant change in SA.2028 relative to S.139 is the removal of references to a more restrictive second phase of emission caps beginning in 2016. While this change has its greatest impact after 2016, it also reduces some of the incentive to over-comply and bank allowances during the 2010 to 2015 period. Therefore, the realized level of covered emissions between 2010 and 2015 would tend to be higher in SA.2028, even though the allowance cap over that time period is the same as under S.139 (Figure 1). Eliminating the second phase also means that the cap on the use of offsets remains at 15 percent, instead of being reduced to 10 percent in 2016, as in S.139. This added flexibility helps to reduce the compliance costs of SA.2028 compared to S.139.

Figure 1. U.S. Greenhouse Gas Emissions in the Reference, S.139, and SA.2028 Cases, 1990-2025

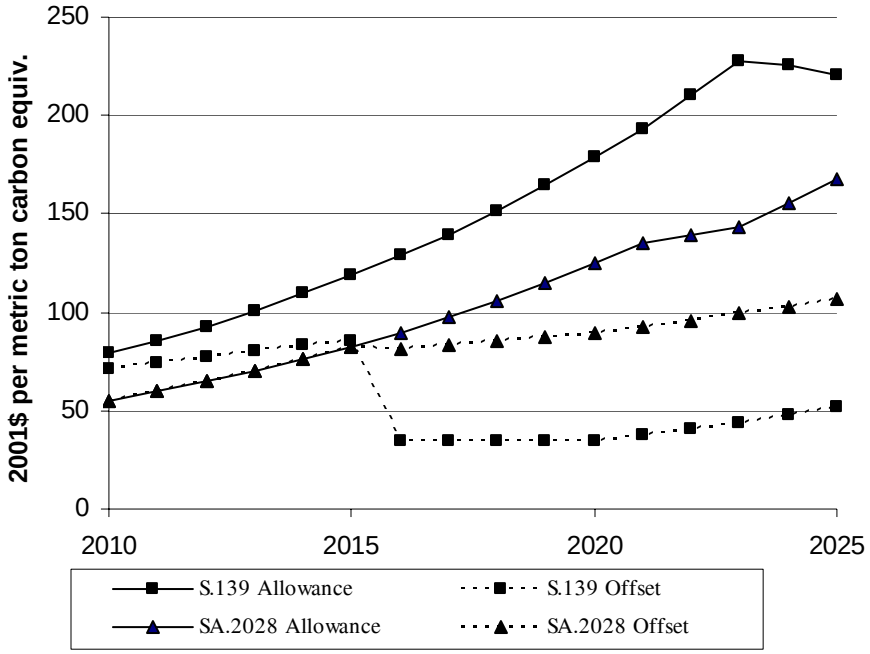


Source: Office of Integrated Analysis and Forecasting, National Energy Modeling System runs, MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

With a less restrictive emissions limit under SA.2028, the market for allowances would be expected to clear at a lower price than under S.139 (Figure 2). Estimated allowance prices (in 2001 dollars) grow from $55 per metric ton carbon equivalent in 2010 to $167 in 2025 under

SA.2028, compared to a growth of $79 to $221 dollars over the same period under S.139. Thus, on average, emission allowance costs are estimated to be about 30 percent less under SA.2028. With higher covered emissions and lower allowance costs from 2010 to 2015, the use of emissions offsets to comply is initially reduced under SA.2028. As a result, the limit on offset usage from 2010 to 2015 is not binding. In this situation, the markets for emission offsets and allowances are expected to clear at the same price. By 2016, however, the 15-percent limit on offsets is reached, and competition to supply this constrained demand for offsets causes the offset price to clear below the allowance market price. The allowance price remains higher than the offset price after 2016.

Figure 2. Estimated Greenhouse Gas Allowance and Offset Prices in the S.139 and SA.2028 Cases, 2010-2025



Source: Office of Integrated Analysis and Forecasting, National Energy Modeling System runs MLBILL.D050503a and SA2028.D051104A.

The use of offsets is 75 percent greater beginning in 2016 under SA.2028 than under S.139, since the maximum allowable percentage remains at 15 percent instead of dropping to 10 percent and because the emission cap on which that percentage is applied is higher. This allows the offset market to clear at a higher price after 2015 than in S.139 case, but reduces overall compliance costs since offsets are still cheaper than allowances.

Table 1 compares the emissions-related results of the reference, S.139, and SA.2028 cases for 2010 and 2025.

Table 1. Summary of Greenhouse Gas Emission Results, Reference, S.139, and SA.2028 Cases, 2010 and 2025 (million metric tons of carbon equivalent)

	2001	2010			2025		
		Refer-ence	S.139	SA.2028	Refer-ence	S.139	SA.2028
Greenhouse Gas Emissions							
Energy-Related Carbon Dioxide	1,559	1,802	1,710	1,746	2,234	1,482	1,777
Non-Energy Carbon Dioxide	36	40	40	40	46	46	46
Methane	175	178	115	120	172	120	113
Nitrous Oxide	119	127	121	121	143	137	137
High-GWP Gases (HFCs, PFCs, and SF6)	39	84	50	52	209	106	107
Total	**1,928**	**2,230**	**2,036**	**2,079**	**2,806**	**1,891**	**2,181**
S.139 Compliance Summary							
Covered Energy-Related Carbon Dioxide	1,379	1,605	1,513	1,549	2,014	1,257	1,556
Other Covered GHG Emissions	75	124	70	72	251	128	129
Total Covered Emissions	**1,454**	**1,729**	**1,583**	**1,621**	**2,265**	**1,385**	**1,685**
Offset Reductions Purchased							
Noncovered Greenhouse Gases			49	44		39	46
Increases in Biological Carbon Sequestration			113	104		87	112
International Offsets			73	51		0	62
Total Offset Reductions			**235**	**199**		**126**	**220**
Covered Emissions, less Offsets	1,454	1,729	1,349	1,423	2,265	1,259	1,465
Emission Allowances Issued			1,465	1,465		1,258	1,465
Net Allowance Bank Change (+deposit, - withdrawal)			117	42		-1	0
Allowance Price							
(2001 dollars per metric ton carbon equivalent)			79	55		221	167
(2001 dollars per metric ton carbon dioxide equivalent)			22	15		60	46
Offset Trading Price							
(2001 dollars per metric ton carbon equivalent)			71	55		52	106
(2001 dollars per metric ton carbon dioxide equivalent)			19	15		14	29

GWP=Global warming potential.

Source: Office of Integrated Analysis and Forecasting, National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A. Data on greenhouse gas emissions for 2001 from Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2001*. Forecasts of reference case greenhouse gas emissions other than carbon dioxide from reference materials provided by the U.S. Environmental Protection Agency (EPA). The EPA data included a business-as-usual case, developed in preparing the *Climate Change Action Plan 2001* and extrapolated to 2025.

Energy Sector Results

Under SA.2028, the effective cost of using energy increases compared to the reference case. This occurs because the costs of emission allowances (or their opportunity costs) are passed through to energy consumers. Consumers in the covered sectors will face higher costs for fossil fuels. Electricity consumers in all sectors are expected to face higher prices, as electricity suppliers pass their compliance costs on to customers.

Table 2 presents a summary of the key energy-related results for 2010 and 2025 for the reference, S.139, and SA.2028 cases. In general, the direction of changes in the SA.2028 case is the same as in the S.139 case, but the magnitudes of the changes are reduced, as the SA.2028 case is not as restrictive. In both the S.139 and SA.2028 cases, the use of natural gas, nuclear power, and renewable energy sources is greater than in the reference case, and the use of petroleum and coal is lower.

Energy price increases under SA.2028 are also lower than those under SA.139, resulting in correspondingly lower reductions in energy demand. Impacts of SA.2028 on delivered energy prices vary across sectors and fuels. The variation across sectors depends on whether or not a particular sector is covered under the bill and on the importance of distribution-related costs not impacted by the bill in the overall delivered energy price to each sector. For example, in the residential and commercial sectors, the delivered price of natural gas is virtually unchanged from the reference case level in 2010 and only 4 percent higher than the reference case in 2025. Greater increases occur in the average price of natural gas in the industrial and electric power sectors, 21 percent in 2010 and 58 percent in 2025, because the prices in these sectors include the allowance cost and distribution costs are a smaller component of delivered prices to these sectors.

The increases in gasoline prices projected to occur under SA.2028, 9 percent in 2010 and 19 percent in 2025 relative to the reference case, are expected to result in gradually increasing fuel economy in new passenger vehicles, reaching 27.2 miles per gallon by 2025, an increase of 0.8 miles per gallon over the reference case. Under the S.139 case, projected fuel economy for new vehicles reaches 29 miles per gallon by 2025. SA.2028 eliminates the additional incentive under S.139 that would allow automobile manufacturers to obtain emission allowances in exchange for exceeding the CAFE standards by over 20 percent. Had this incentive been retained in SA.2028, the average fuel economy for new light-duty vehicles in 2025 would be an estimated 0.6 miles per gallon higher, or 27.8 miles per gallon.

In both the SA.2028 and S.139 cases, the electric power sector accounts for about 88 percent of estimated emission reductions. Under SA.2028, however, the reduction in electric-power sector carbon dioxide from the reference case in 2025 is estimated at 404 million metric tons carbon equivalent (47 percent), compared to 663 (76 percent) in the S.139 case. As a result, only 26 gigawatts of nuclear power capacity are added by 2025 under SA.2028, compared to 49 gigawatts in the S.139 case. Relative to the reference case, the price of electricity increases less under SA.2028 (35 percent by 2025) than under S.139 (46 percent by 2025).

The production of coal is not expected to be as severely curtailed under SA.2028 as under S.139. Under SA.2028, coal production is reduced by 8 percent in 2010 and by 59 percent in 2025 relative to their respective reference case levels. Under S.139, the reductions in coal production relative to the reference case are estimated to be 14 percent in 2010 and 78 percent in 2025.

Table 2. Summary of Energy Sector Results in the Reference, S.139, and SA.2028 Cases, 2010 and 2025

Summary Indicators	2001	2010			2025		
		Refer-ence	S.139	SA.2028	Refer-ence	S.139	SA.2028
Greenhouse Gas Allowance Cost (2001 dollars per metric ton carbon equivalent)	---	---	79	55	---	221	167
Effective Delivered Energy Prices (2001 dollars per million Btu)							
Coal	1.26	1.18	3.18	2.59	1.12	6.44	5.22
Natural Gas	6.40	5.15	5.96	5.66	5.64	8.22	7.51
Residential and Commercial	8.88	7.14	7.24	7.15	7.63	8.04	7.90
Industrial and Electric Power	4.84	3.95	5.22	4.78	4.64	8.29	7.31
Motor Gasoline	11.57	11.45	12.98	12.53	12.07	15.31	14.41
Jet Fuel	6.20	5.66	7.10	6.64	6.72	10.35	9.42
Distillate Fuel	9.16	9.15	10.45	10.04	9.90	13.17	12.28
Residential and Commercial	8.12	7.16	7.12	7.11	8.07	7.65	7.72
Industrial and Electric Power	6.50	5.71	7.23	6.74	7.08	10.85	9.93
Transportation	10.05	10.19	11.71	11.23	10.64	14.37	13.32
Electricity	21.34	18.76	20.40	19.94	19.66	28.70	26.57
Primary Energy Use (quadrillion Btu)							
Natural Gas	23.26	27.35	28.12	27.63	35.55	39.54	37.54
Petroleum	38.46	44.45	43.74	43.97	56.11	50.76	53.04
Coal	22.02	25.47	22.00	23.50	29.86	6.74	13.86
Nuclear	8.03	8.25	8.37	8.37	8.28	12.39	10.50
Renewable	5.32	7.30	9.03	8.62	8.77	16.22	15.31
Other	0.21	0.31	0.43	0.42	0.06	0.32	0.24
Total	**97.29**	**113.13**	**111.67**	**112.50**	**138.63**	**125.97**	**130.50**
Electricity Sales (quadrillion Btu)	11.65	14.00	13.82	13.86	17.90	15.87	16.38
Carbon Dioxide Emissions by Fuel (million metric tons carbon equivalent)							
Natural Gas	329	391	402	395	509	493	533
Petroleum	668	761	748	752	963	870	912
Coal	561	650	560	599	763	119	332
Total	**1,559**	**1,802**	**1,710**	**1,746**	**2,234**	**1,482**	**1,777**
Carbon Dioxide Emissions by Sector (million metric tons carbon equivalent)							
Residential	314	355	326	337	406	181	266
Commercial	279	320	291	302	411	166	260
Industrial	451	500	472	482	592	391	467
Transportation	514	628	622	625	826	744	784
Total	**1,559**	**1,802**	**1,710**	**1,746**	**2,234**	**1,482**	**1,777**
Electricity Generation	612	697	615	647	868	205	463

Notes: "Other" includes net electricity imports, methanol, and liquid hydrogen. "Effective Delivered Energy Prices" include the costs of greenhouse gas allowances where applicable.
Source: Office of Integrated Analysis and Forecasting, National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Macroeconomic Results

The estimated macroeconomic impacts of SA.2028 are also significantly less than those estimated for S.139, with the impacts reduced in rough proportion to the corresponding impacts on energy markets. The effects on the economy from higher energy costs result in output losses and shifting of resources.

The measurement of losses in output for the economy, or actual gross domestic product (GDP), incorporates the transitional cost to the aggregate economy as it adjusts to its long-run path. Alternatively, the economic impact of the bill can be measured by its effects on potential GDP, which represents the long-run equilibrium path of the economy in which all resources are fully employed. Table 3 compares the estimated economic losses from SA.2028 and S.139 using these two measures. On an undiscounted basis, the cumulative losses in actual GDP are about $776 billion (1996 dollars) in the SA.2028 case, 43 percent less than in the S.139 case. The peak, single-year impact on actual GDP under SA.2028 occurs in 2025, with a loss of $76 billion (1996 dollars), or about 0.4 percent of GDP. The largest percentage change in actual GDP, 0.5 percent, occurs in 2011, where the estimated loss in actual GDP that year is $57 billion.

Table 3. Economic Impacts of S.139 and SA.2028 (billion 1996 dollars and percent change relative to the reference case)

	Potential GDP		Actual GDP	
	S.139	**SA.2028**	**S.139**	**SA.2028**
Cumulative GDP Loss, 2004-2025 (billion 1996 dollars)				
Undiscounted	559	304	1,354	776
Discounted at 7 Percent per Year	165	86	507	290
Percent Change from Reference Case				
Undiscounted	-0.2%	-0.1%	-0.4%	-0.3%
Discounted at 7 Percent per Year	-0.1%	-0.1%	-0.3%	-0.2%
Economic Impact, 2025				
GDP Loss (billion 1996 dollars)	90	55	106	76
Percent Change from Reference Case	-0.5%	-0.3%	-0.6%	-0.4%

Source: Office of Integrated Analysis and Forecasting, National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Additional Context

As noted in our original S.139 analysis, the assessment of impacts over a 20-year time period is subject to considerable uncertainty. The sensitivity cases presented in the original report illustrate some of the uncertainties, but do not encompass the full range of energy and economic outcomes that might result from the bill's enactment. The magnitude of the differences across comparable sensitivity cases for SA.2028 would, in most cases, likely be smaller, reflecting the lesser impacts projected under SA.2028.

Another study that has analyzed several variants of S.139 was issued by researchers at the Massachusetts Institute of Technology (MIT) in June 2003.[4] This study included two scenarios that maintained the emissions cap at the 2010 level beyond 2015, as contemplated in SA.2028. One of these scenarios (Case 2) did not provide for any offset credits. The other scenario (Case 12) allowed for unlimited offsets for non-carbon dioxide greenhouse gases, notwithstanding the 15-percent limit on offsets imposed under SA.2028. These two scenarios bound a hypothetical case representing SA.2028. Table 4 compares the allowance costs for these two scenarios with those from EIA's SA.2028 case, with costs from the MIT researchers' paper converted from 1997 to 2001 dollars. Allowance costs in EIA's SA.2028 case fall within the range of estimates for the two relevant scenarios in the MIT paper through 2015 and match the Case 2 allowance price in 2020. Other significant differences between the EIA and MIT researchers' analyses are discussed in EIA's earlier report, including the much greater responsiveness of oil demand to the introduction of the allowance system in the MIT researchers' scenarios, which reduces the need for higher allowance prices to encourage adjustments in the electric power and industrial sectors.

Table 4. Comparison of Emission Allowance Prices from the EIA and MIT Researchers' Analyses

	2010	2015	2020
Greenhouse Gas Emission Allowance Price (2001 dollars per metric ton carbon equivalent)			
MIT Researchers' Case 2 (no offset credits)	83	106	125
MIT Researchers' Case 12 (unlimited offset credits)	31	40	52
EIA, SA.2028 case	55	83	125

Sources: MIT: S. Palstev, J.M. Reilly, H.D. Jacoby, A.D. Ellerman, and K.H. Tay, *Emissions Trading to Reduce Greenhouse Gas Emissions in the United States: The McCain-Lieberman Proposal*, Report No. 97 (Cambridge, MA: MIT Joint Program on the Science and Policy of Global Change, June 2003, Case 2 and Case 12. EIA: Office of Integrated Analysis and Forecasting, National Energy Modeling System run SA2028.D041104A.

Finally, like other EIA analyses, our analysis of SA.2028 focuses on impacts regarding energy choices made by consumers in all sectors and the implications of those decisions for the economy. This focus is consistent with EIA's statutory mission and expertise. EIA did not quantify, or place any value on, possible health or environmental benefits of curtailing greenhouse gas emissions.

[4] S. Palstev, J.M. Reilly, H.D Jacoby, A.D. Ellerman, and K.H. Tay, *Emissions Trading to Reduce Greenhouse Gas Emissions in the United States: The McCain-Lieberman Proposal*, Report No. 97 (Cambridge, MA: MIT Joint Program on the Science and Policy of Global Change, June 2003.)

Appendix A: Request Letter from Senator Landrieu

.. LANDRIEU
OUISIANA

United States Senate

WASHINGTON, DC 20510-1804

May 11, 2004

VIA U.S. MAIL AND FACSIMILE (202) 586-0329
The Honorable Guy Caruso
Administrator
Energy Information Administration
1000 Independence Avenue S.W.
Washington, DC 20585

Dear Administrator Caruso:

I am writing to request that the Energy Information Administration (EIA) provide me with information regarding the energy and economic impacts that might result from enactment of legislation to limit emissions of green house gases.

EIA had previously (June 2003) provided a detailed analysis of S.139, the Climate Stewardship Act as introduced in January 2003. More recently, during a floor debate last October, Senators McCain and Lieberman, the primary sponsors of S.139, proposed an amended bill that included the first phase of emissions reductions beginning in 2010, but removed references to a second phase of reductions beginning in 2016. The amended bill leaves a decision regarding further reductions to future policymakers.

While EIA's June 2003 analysis considered only the original version of S.139, I understand that the revised bill mandating only the first phase of reductions may again be considered by the Senate in the near future. Accordingly, I request that EIA provide me with any information it may have regarding the energy and economic impacts of the revised proposal.

Given the possibility of floor debate on this matter, I would appreciate receiving your response as quickly as possible, recognizing that you may need to rely on modeling results already in hand to meet this request. Please contact me or Neil Naraine of my office at 202-224-8854 with any questions.

With warmest regards, I am

Sincerely,

Mary L. Landrieu
United States Senator

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Appendix B: Comparison Tables for Reference Case, S.139 Case, S.A.2028 Case

Table B1. Total Energy Supply and Disposition Summary

(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Production										
Crude Oil and Lease Condensate	12.29	11.94	11.92	11.93	11.50	11.45	11.45	11.23	11.15	11.00
Natural Gas Plant Liquids	2.65	3.12	3.21	3.17	3.53	3.75	3.61	3.70	3.84	3.80
Dry Natural Gas	19.97	22.11	22.81	22.49	25.52	27.33	26.34	27.08	28.06	27.79
Coal	23.97	25.69	22.57	23.94	27.83	10.46	17.57	29.61	6.82	12.92
Nuclear Power	8.03	8.25	8.37	8.37	8.28	9.75	9.05	8.28	12.39	10.50
Renewable Energy[1]	5.32	7.30	9.03	8.62	8.31	14.68	12.80	8.77	16.22	15.31
Other[2]	0.57	0.85	0.82	0.83	0.79	0.62	0.66	0.80	0.59	0.60
Total	**72.80**	**79.26**	**78.73**	**79.35**	**85.76**	**78.04**	**81.48**	**89.47**	**79.06**	**81.92**
Imports										
Crude Oil[3]	20.26	25.09	24.88	24.88	27.63	26.92	27.14	28.62	27.72	28.04
Petroleum Products[4]	5.04	6.32	5.73	6.03	11.72	8.82	10.37	14.79	10.43	12.61
Natural Gas	4.18	5.43	5.53	5.34	7.41	9.37	8.12	8.44	11.48	9.81
Other Imports[5]	0.71	0.92	0.81	0.81	0.95	0.94	0.84	0.93	0.79	0.71
Total	**30.19**	**37.76**	**36.94**	**37.05**	**47.71**	**46.05**	**46.47**	**52.78**	**50.42**	**51.17**
Exports										
Petroleum[6]	2.01	2.25	2.21	2.23	2.38	2.29	2.32	2.43	2.32	2.36
Natural Gas	0.37	0.56	0.57	0.57	0.38	0.37	0.37	0.37	0.36	0.36
Coal	1.27	0.86	0.84	0.84	0.74	0.76	0.69	0.62	0.61	0.60
Total	**3.64**	**3.67**	**3.61**	**3.64**	**3.50**	**3.42**	**3.38**	**3.42**	**3.29**	**3.33**
Discrepancy[7]	**2.06**	**0.22**	**0.39**	**0.26**	**0.23**	**0.18**	**0.14**	**0.20**	**0.22**	**-0.74**
Consumption										
Petroleum Products[8]	38.46	44.45	43.74	43.97	52.15	48.65	50.29	56.11	50.76	53.04
Natural Gas	23.26	27.35	28.12	27.63	32.95	36.69	34.46	35.55	39.54	37.54
Coal	22.02	25.47	22.00	23.50	27.88	10.23	17.44	29.86	6.74	13.86
Nuclear Power	8.03	8.25	8.37	8.37	8.28	9.75	9.05	8.28	12.39	10.50
Renewable Energy[1]	5.32	7.30	9.03	8.62	8.31	14.68	12.80	8.77	16.22	15.31
Other[9]	0.21	0.31	0.43	0.42	0.17	0.50	0.40	0.06	0.32	0.24
Total	**97.29**	**113.13**	**111.67**	**112.50**	**129.74**	**120.50**	**124.43**	**138.63**	**125.97**	**130.50**
Net Imports - Petroleum	**23.29**	**29.16**	**28.40**	**28.68**	**36.97**	**33.45**	**35.19**	**40.98**	**35.83**	**38.29**
Prices (2001 dollars per unit)										
World Oil Price (dollars per barrel)[10]	22.01	23.99	23.77	23.77	25.48	24.15	24.15	26.57	24.58	24.58
Natural Gas Wellhead Price (dollars per thousand cubic feet)[11]	4.12	3.39	3.51	3.41	3.70	3.97	3.71	3.95	4.36	4.19
Coal Minemouth Price (dollars per ton)	17.59	15.06	15.84	15.56	14.34	15.27	15.06	14.39	13.67	15.63
Average Electricity Price (cents per kilowatthour)	7.3	6.4	7.0	6.8	6.7	8.8	8.0	6.7	9.8	9.1

[1]Includes grid-connected electricity from conventional hydroelectric; wood and wood waste; landfill gas; municipal solid waste; other biomass; wind; photovoltaic and solar thermal sources; non-electric energy from renewable sources, such as active and passive solar systems, and wood; and both the ethanol and gasoline components of E85, but not the ethanol components of blends less than 85 percent. Excludes electricity imports using renewable sources and nonmarketed renewable energy. See Table B19 for selected nonmarketed residential and commercial renewable energy.

[2]Includes liquid hydrogen, methanol, supplemental natural gas, and some domestic inputs to refineries.

[3]Includes imports of crude oil for the Strategic Petroleum Reserve.

[4]Includes imports of finished petroleum products, unfinished oils, alcohols, ethers, and blending components.

[5]Includes coal, coal coke (net), and electricity (net).

[6]Includes crude oil and petroleum products.

[7]Balancing item. Includes unaccounted for supply, losses, gains, net storage withdrawals, heat loss when natural gas is converted to liquid fuel, and heat loss when coal is converted to liquid fuel.

[8]Includes natural gas plant liquids, crude oil consumed as a fuel, and nonpetroleum-based liquids for blending, such as ethanol.

[9]Includes net electricity imports, methanol, and liquid hydrogen.

[10]Average refiner acquisition cost for imported crude oil.

[11]Represents lower 48 onshore and offshore supplies.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.

Sources: 2001 natural gas supply values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2002/08) (Washington, DC, August 2002). 2001 petroleum supply values: EIA, *Petroleum Supply Annual 2001,* DOE/EIA-0340(2001)/1 (Washington, DC, June 2002). Other 2001 values: EIA, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002) and EIA, *Quarterly Coal Report, October-December 2001*, DOE/EIA-0121(2001/4Q) (Washington, DC, May 2002). **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B2. Energy Consumption by Sector and Source

(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Energy Consumption										
Residential										
Distillate Fuel	0.91	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Kerosene	0.10	0.08	0.08	0.08	0.06	0.06	0.06	0.06	0.06	0.06
Liquefied Petroleum Gas	0.50	0.47	0.47	0.47	0.46	0.47	0.46	0.46	0.47	0.46
Petroleum Subtotal	1.50	1.46	1.46	1.46	1.36	1.37	1.36	1.33	1.33	1.32
Natural Gas	4.94	5.63	5.62	5.63	6.10	5.96	6.01	6.38	6.20	6.22
Coal	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Renewable Energy[1]	0.39	0.41	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.40
Electricity	4.10	4.93	4.88	4.89	5.60	5.05	5.24	5.95	5.11	5.33
Delivered Energy	**10.94**	**12.45**	**12.38**	**12.40**	**13.48**	**12.80**	**13.03**	**14.08**	**13.06**	**13.29**
Electricity Related Losses	9.15	10.37	10.11	10.32	11.03	9.29	10.04	11.42	9.26	10.05
Total	**20.08**	**22.82**	**22.50**	**22.72**	**24.51**	**22.09**	**23.07**	**25.50**	**22.32**	**23.35**
Commercial										
Distillate Fuel	0.46	0.51	0.51	0.51	0.52	0.54	0.53	0.52	0.56	0.53
Residual Fuel	0.09	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05
Kerosene	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Liquefied Petroleum Gas	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.09
Motor Gasoline[2]	0.05	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
Petroleum Subtotal	0.71	0.70	0.70	0.70	0.72	0.75	0.73	0.72	0.76	0.73
Natural Gas	3.33	3.74	3.74	3.74	4.23	4.27	4.25	4.50	4.97	4.73
Coal	0.09	0.10	0.10	0.09	0.10	0.11	0.11	0.11	0.11	0.11
Renewable Energy[3]	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Electricity	4.08	5.01	4.97	4.97	6.17	5.66	5.81	6.79	5.97	6.17
Delivered Energy	**8.32**	**9.65**	**9.60**	**9.61**	**11.33**	**10.89**	**11.00**	**12.23**	**11.92**	**11.85**
Electricity Related Losses	9.12	10.53	10.30	10.49	12.16	10.42	11.14	13.02	10.82	11.64
Total	**17.44**	**20.19**	**19.90**	**20.10**	**23.50**	**21.31**	**22.14**	**25.25**	**22.74**	**23.49**
Industrial[4]										
Distillate Fuel	1.13	1.21	1.20	1.20	1.36	1.30	1.32	1.44	1.36	1.39
Liquefied Petroleum Gas	2.10	2.55	2.54	2.54	3.06	2.99	3.01	3.28	3.14	3.19
Petrochemical Feedstock	1.14	1.44	1.41	1.41	1.70	1.53	1.55	1.82	1.57	1.59
Residual Fuel	0.23	0.19	0.18	0.18	0.20	0.17	0.18	0.20	0.17	0.18
Motor Gasoline[2]	0.15	0.17	0.17	0.17	0.18	0.18	0.18	0.19	0.19	0.19
Other Petroleum[5]	4.03	4.27	4.18	4.20	4.46	4.09	4.24	4.57	4.12	4.24
Petroleum Subtotal	8.79	9.82	9.67	9.71	10.96	10.26	10.47	11.50	10.55	10.77
Natural Gas	7.74	9.06	9.16	9.13	10.39	10.36	10.30	11.23	11.09	10.98
Lease and Plant Fuel[6]	1.20	1.37	1.40	1.39	1.60	1.70	1.66	1.73	1.77	1.76
Natural Gas Subtotal	8.94	10.43	10.56	10.52	11.98	12.06	11.95	12.96	12.86	12.74
Metallurgical Coal	0.72	0.66	0.65	0.65	0.55	0.47	0.48	0.50	0.39	0.41
Steam Coal	1.42	1.46	1.33	1.38	1.51	1.28	1.34	1.54	1.26	1.32
Net Coal Coke Imports	0.03	0.11	0.11	0.11	0.16	0.18	0.18	0.18	0.21	0.21
Coal Subtotal	2.16	2.23	2.09	2.14	2.22	1.93	2.00	2.22	1.87	1.94
Renewable Energy[7]	1.82	2.22	2.21	2.21	2.77	2.74	2.75	3.05	3.02	3.02
Electricity	3.39	3.97	3.89	3.91	4.65	4.41	4.49	5.01	4.66	4.74
Delivered Energy	**25.10**	**28.67**	**28.41**	**28.48**	**32.58**	**31.40**	**31.67**	**34.75**	**32.96**	**33.22**
Electricity Related Losses	7.57	8.35	8.06	8.25	9.17	8.12	8.61	9.61	8.45	8.95
Total	**32.67**	**37.02**	**36.47**	**36.73**	**41.75**	**39.53**	**40.28**	**44.36**	**41.40**	**42.17**

Table B2. Energy Consumption by Sector and Source (Continued)

(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Transportation										
Distillate Fuel[8]	5.44	7.09	7.01	7.05	8.68	8.30	8.49	9.55	8.98	9.19
Jet Fuel[9]	3.43	3.93	3.91	3.92	5.09	5.01	5.03	5.67	5.56	5.58
Motor Gasoline[2]	16.26	19.81	19.58	19.70	23.57	21.55	22.76	25.48	22.10	23.89
Residual Fuel	0.84	0.83	0.83	0.83	0.85	0.85	0.85	0.87	0.86	0.86
Liquefied Petroleum Gas	0.02	0.05	0.05	0.05	0.07	0.08	0.08	0.09	0.09	0.09
Other Petroleum[10]	0.24	0.26	0.26	0.26	0.30	0.30	0.30	0.32	0.32	0.32
Petroleum Subtotal	26.22	31.98	31.64	31.81	38.57	36.09	37.50	41.98	37.91	39.93
Pipeline Fuel Natural Gas	0.63	0.78	0.81	0.79	0.94	1.05	0.98	1.03	1.11	1.06
Compressed Natural Gas	0.01	0.06	0.06	0.06	0.10	0.09	0.09	0.11	0.10	0.10
Renewable Energy (E85)[11]	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.07	0.09	0.09	0.09	0.12	0.12	0.12	0.14	0.13	0.14
Delivered Energy	**26.94**	**32.91**	**32.61**	**32.75**	**39.73**	**37.36**	**38.70**	**43.26**	**39.25**	**41.24**
Electricity Related Losses	0.17	0.20	0.19	0.20	0.24	0.22	0.23	0.27	0.24	0.26
Total	**27.10**	**33.10**	**32.80**	**32.95**	**39.98**	**37.58**	**38.94**	**43.53**	**39.50**	**41.50**
Delivered Energy Consumption for All Sectors										
Distillate Fuel	7.94	9.74	9.64	9.67	11.40	10.99	11.17	12.32	11.71	11.91
Kerosene	0.15	0.12	0.12	0.12	0.11	0.11	0.11	0.10	0.10	0.10
Jet Fuel[9]	3.43	3.93	3.91	3.92	5.09	5.01	5.03	5.67	5.56	5.58
Liquefied Petroleum Gas	2.70	3.16	3.16	3.16	3.69	3.63	3.64	3.92	3.78	3.83
Motor Gasoline[2]	16.46	20.01	19.78	19.90	23.79	21.77	22.97	25.71	22.33	24.12
Petrochemical Feedstock	1.14	1.44	1.41	1.41	1.70	1.53	1.55	1.82	1.57	1.59
Residual Fuel	1.15	1.06	1.05	1.05	1.10	1.07	1.07	1.12	1.08	1.09
Other Petroleum[12]	4.24	4.51	4.41	4.44	4.74	4.36	4.51	4.87	4.42	4.53
Petroleum Subtotal	37.21	43.97	43.48	43.68	51.61	48.47	50.05	55.53	50.55	52.76
Natural Gas	16.02	18.49	18.57	18.56	20.82	20.68	20.66	22.23	22.36	22.03
Lease and Plant Fuel Plant[6]	1.20	1.37	1.40	1.39	1.60	1.70	1.66	1.73	1.77	1.76
Pipeline Natural Gas	0.63	0.78	0.81	0.79	0.94	1.05	0.98	1.03	1.11	1.06
Natural Gas Subtotal	17.86	20.64	20.78	20.74	23.35	23.43	23.30	24.98	25.23	24.85
Metallurgical Coal	0.72	0.66	0.65	0.65	0.55	0.47	0.48	0.50	0.39	0.41
Steam Coal	1.53	1.56	1.44	1.48	1.63	1.40	1.46	1.66	1.39	1.45
Net Coal Coke Imports	0.03	0.11	0.11	0.11	0.16	0.18	0.18	0.18	0.21	0.21
Coal Subtotal	2.27	2.34	2.20	2.25	2.34	2.05	2.12	2.34	1.99	2.06
Renewable Energy[13]	2.31	2.74	2.72	2.73	3.28	3.26	3.27	3.57	3.53	3.54
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	11.65	14.00	13.82	13.86	16.54	15.24	15.66	17.90	15.87	16.38
Delivered Energy	**71.29**	**83.68**	**83.01**	**83.24**	**97.13**	**92.45**	**94.40**	**104.32**	**97.19**	**99.60**
Electricity Related Losses	26.00	29.45	28.66	29.26	32.61	28.05	30.03	34.32	28.78	30.90
Total	**97.29**	**113.13**	**111.67**	**112.50**	**129.74**	**120.50**	**124.43**	**138.63**	**125.97**	**130.50**
Electric Power[14]										
Distillate Fuel	0.17	0.09	0.07	0.08	0.13	0.05	0.06	0.18	0.06	0.10
Residual Fuel	1.08	0.39	0.19	0.21	0.41	0.14	0.17	0.40	0.14	0.18
Petroleum Subtotal	1.25	0.48	0.26	0.29	0.54	0.19	0.23	0.58	0.21	0.28
Natural Gas	5.40	6.71	7.33	6.90	9.60	13.25	11.16	10.56	14.30	12.69
Steam Coal	19.75	23.13	19.79	21.25	25.54	8.18	15.32	27.52	4.74	11.80
Nuclear Power	8.03	8.25	8.37	8.37	8.28	9.75	9.05	8.28	12.39	10.50
Renewable Energy[15]	3.01	4.57	6.30	5.89	5.02	11.42	9.54	5.21	12.69	11.77
Electricity Imports	0.21	0.31	0.43	0.42	0.17	0.50	0.40	0.06	0.32	0.24
Total	**37.65**	**43.45**	**42.48**	**43.11**	**49.15**	**43.29**	**45.69**	**52.21**	**44.65**	**47.28**

Table B2. Energy Consumption by Sector and Source (Continued)

(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Total Energy Consumption										
Distillate Fuel	8.10	9.83	9.71	9.76	11.53	11.04	11.23	12.50	11.77	12.00
Kerosene	0.15	0.12	0.12	0.12	0.11	0.11	0.11	0.10	0.10	0.10
Jet Fuel[9]	3.43	3.93	3.91	3.92	5.09	5.01	5.03	5.67	5.56	5.58
Liquefied Petroleum Gas	2.70	3.16	3.16	3.16	3.69	3.63	3.64	3.92	3.78	3.83
Motor Gasoline[2]	16.46	20.01	19.78	19.90	23.79	21.77	22.97	25.71	22.33	24.12
Petrochemical Feedstock	1.14	1.44	1.41	1.41	1.70	1.53	1.55	1.82	1.57	1.59
Residual Fuel	2.23	1.45	1.24	1.26	1.51	1.20	1.24	1.52	1.22	1.27
Other Petroleum[12]	4.24	4.51	4.41	4.44	4.74	4.36	4.51	4.87	4.42	4.53
Petroleum Subtotal	38.46	44.45	43.74	43.97	52.15	48.65	50.29	56.11	50.76	53.04
Natural Gas	21.42	25.20	25.91	25.45	30.42	33.94	31.82	32.79	36.67	34.73
Lease and Plant Fuel[6]	1.20	1.37	1.40	1.39	1.60	1.70	1.66	1.73	1.77	1.76
Pipeline Natural Gas	0.63	0.78	0.81	0.79	0.94	1.05	0.98	1.03	1.11	1.06
Natural Gas Subtotal	23.26	27.35	28.12	27.63	32.95	36.69	34.46	35.55	39.54	37.54
Metallurgical Coal	0.72	0.66	0.65	0.65	0.55	0.47	0.48	0.50	0.39	0.41
Steam Coal	21.28	24.70	21.24	22.73	27.17	9.58	16.77	29.18	6.13	13.25
Net Coal Coke Imports	0.03	0.11	0.11	0.11	0.16	0.18	0.18	0.18	0.21	0.21
Coal Subtotal	22.02	25.47	22.00	23.50	27.88	10.23	17.44	29.86	6.74	13.86
Nuclear Power	8.03	8.25	8.37	8.37	8.28	9.75	9.05	8.28	12.39	10.50
Renewable Energy[16]	5.32	7.30	9.03	8.62	8.31	14.68	12.80	8.77	16.22	15.31
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Imports	0.21	0.31	0.43	0.42	0.17	0.50	0.40	0.06	0.32	0.24
Total	**97.29**	**113.13**	**111.67**	**112.50**	**129.74**	**120.50**	**124.43**	**138.63**	**125.97**	**130.50**
Energy Use and Related Statistics										
Delivered Energy Use	71.29	83.68	83.01	83.24	97.13	92.45	94.40	104.32	97.19	99.60
Total Energy Use	97.29	113.13	111.67	112.50	129.74	120.50	124.43	138.63	125.97	130.50
Population (millions)	278.18	300.24	300.24	300.24	325.32	325.32	325.32	338.24	338.24	338.24
Gross Domestic Product (billion 1996 dollars)	9215	12258	12211	12226	16444	16364	16408	18916	18810	18840
Carbon Dioxide Emissions (million metric tons carbon equivalent)	1558.6	1802.2	1710.1	1746.4	2077.7	1568.5	1797.5	2234.4	1482.2	1777.3

[1]Includes wood used for residential heating. See Table B18 for estimates of nonmarketed renewable energy consumption for geothermal heat pumps, solar thermal hot water heating, and solar photovoltaic electricity generation.

[2]Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.

[3]Includes commercial sector consumption of wood and wood waste, landfill gas, municipal solid waste, and other biomass for combined heat and power. See Table B19 for estimates of nonmarketed renewable energy consumption for solar thermal hot water heating and solar photovoltaic electricity generation.

[4]Fuel consumption includes consumption for combined heat and power, which produces electricity, both for sale to the grid and for own use, and other useful thermal energy.

[5]Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

[6]Represents natural gas used in the field gathering and processing plant machinery.

[7]Includes consumption of energy from hydroelectric, wood and wood waste, municipal solid waste, and other biomass.

[8]Diesel fuel containing 500 parts per million (ppm) or 15 ppm sulfur.

[9]Includes only kerosene type.

[10]Includes aviation gasoline and lubricants.

[11]E85 is 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable).

[12]Includes unfinished oils, natural gasoline, motor gasoline blending components, aviation gasoline, lubricants, still gas, asphalt, road oil, petroleum coke, and miscellaneous petroleum products.

[13]Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

[14]Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

[15]Includes conventional hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, petroleum coke, wind, photovoltaic and solar thermal sources. Excludes net electricity imports.

[16]Includes hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, wind, photovoltaic and solar thermal sources. Includes ethanol components of E85; excludes ethanol blends (10 percent or less) in motor gasoline. Excludes net electricity imports and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports. Consumption values of 0.00 are values that round to 0.00, because they are less than 0.005.

Sources: 2001 consumption based on: Energy Information Administration (EIA), *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). 2001 population and gross domestic product: Global Insight macroeconomic model CTL0802. 2001 carbon dioxide emissions: EIA, *Emissions of Greenhouse Gases in the United States 2001*, DOE/EIA-0573(2001) (Washington, DC, December 2002). **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B3. Energy Prices by Sector and Source Including Greenhouse Gas Allowance Cost Where Applicable

(2001 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Residential	**15.81**	**13.97**	**14.62**	**14.39**	**14.62**	**17.37**	**16.34**	**14.89**	**18.74**	**17.91**
Primary Energy[1]	9.73	8.07	8.11	8.05	8.33	8.48	8.31	8.57	8.88	8.75
Petroleum Products[2]	10.85	10.02	9.88	9.91	10.91	10.32	10.58	11.21	10.79	10.79
Distillate Fuel	8.99	7.99	7.95	7.94	8.70	8.23	8.42	8.93	8.58	8.61
Liquefied Petroleum Gas	14.84	14.35	13.97	14.11	15.28	14.44	14.87	15.52	14.96	14.92
Natural Gas	9.41	7.57	7.67	7.58	7.77	8.07	7.81	8.04	8.48	8.33
Electricity	25.37	22.48	24.10	23.59	23.03	30.32	27.68	23.09	33.29	30.90
Commercial	**15.50**	**13.45**	**14.35**	**14.08**	**14.58**	**17.78**	**16.61**	**15.00**	**19.27**	**18.45**
Primary Energy[1]	7.81	6.43	6.50	6.43	6.78	6.93	6.75	7.05	7.33	7.21
Petroleum Products[2]	7.27	6.78	6.70	6.70	7.51	6.96	7.19	7.81	7.28	7.35
Distillate Fuel	6.40	5.67	5.63	5.62	6.45	5.96	6.15	6.75	6.30	6.37
Residual Fuel	3.46	4.01	3.93	3.94	4.23	3.96	3.97	4.39	4.02	4.03
Natural Gas	8.09	6.49	6.59	6.50	6.79	7.07	6.81	7.07	7.48	7.33
Electricity	23.28	19.81	21.51	21.07	20.98	27.61	25.24	21.25	30.97	28.60
Industrial[3]	**7.11**	**6.39**	**7.55**	**7.18**	**7.01**	**9.89**	**8.93**	**7.25**	**11.03**	**10.09**
Primary Energy	5.83	5.18	6.28	5.92	5.74	8.16	7.39	5.99	9.06	8.26
Petroleum Products[2]	7.72	7.07	7.87	7.62	7.85	9.55	9.11	8.13	10.34	9.75
Distillate Fuel	6.55	5.75	7.27	6.79	6.74	9.70	8.84	7.19	10.89	10.00
Liquefied Petroleum Gas	12.34	9.93	10.93	10.64	10.85	13.19	12.65	11.13	14.38	13.40
Residual Fuel	3.28	3.71	5.34	4.83	3.94	7.49	6.35	4.10	8.46	7.33
Natural Gas[4]	4.87	4.00	5.23	4.80	4.39	7.20	6.17	4.63	8.19	7.25
Metallurgical Coal	1.69	1.50	3.50	2.90	1.39	5.91	4.54	1.34	6.92	5.57
Steam Coal	1.46	1.39	3.38	2.78	1.31	5.67	4.41	1.30	6.64	5.41
Electricity	14.13	12.82	14.34	13.92	13.37	18.65	16.67	13.48	20.86	19.13
Transportation	**10.28**	**10.22**	**11.73**	**11.28**	**10.37**	**13.28**	**12.40**	**10.82**	**14.17**	**13.28**
Primary Energy	10.25	10.19	11.70	11.25	10.35	13.24	12.37	10.79	14.13	13.24
Petroleum Products[2]	10.25	10.20	11.71	11.26	10.35	13.25	12.37	10.80	14.14	13.25
Distillate Fuel[5]	10.05	10.19	11.71	11.23	10.27	13.17	12.23	10.64	14.37	13.32
Jet Fuel[6]	6.20	5.66	7.10	6.64	6.34	9.26	8.35	6.72	10.35	9.42
Motor Gasoline[7]	11.57	11.45	12.98	12.54	11.55	14.52	13.62	12.07	15.31	14.41
Residual Fuel	3.90	3.56	5.19	4.69	3.78	7.36	6.21	3.94	8.32	7.18
Liquefied Petroleum Gas[8]	16.93	15.55	16.35	16.12	16.06	18.30	17.77	15.99	19.15	18.09
Natural Gas[9]	7.65	7.19	8.38	7.98	7.75	10.29	9.32	8.09	11.26	10.39
Electricity	21.87	19.10	20.82	20.29	18.45	24.39	22.30	17.90	26.05	24.16
Average End-Use Energy	**10.75**	**9.97**	**11.17**	**10.80**	**10.47**	**13.38**	**12.42**	**10.82**	**14.50**	**13.60**
Primary Energy	8.52	8.07	9.18	8.83	8.46	10.70	10.01	8.84	11.49	10.83
Electricity	21.34	18.76	20.40	19.94	19.52	25.89	23.57	19.66	28.70	26.57
Electric Power[10]										
Fossil Fuel Average	2.14	1.82	3.75	3.14	2.04	6.68	5.09	2.13	7.93	6.37
Petroleum Products	4.73	4.28	6.13	5.60	4.72	8.74	7.48	5.04	9.77	8.51
Distillate Fuel	6.20	5.13	6.57	6.08	5.94	8.91	8.04	6.16	9.99	9.02
Residual Fuel	4.50	4.08	5.97	5.41	4.33	8.68	7.28	4.55	9.68	8.24
Natural Gas	4.78	3.88	5.20	4.74	4.35	7.36	6.25	4.64	8.37	7.37
Steam Coal	1.25	1.17	3.17	2.58	1.12	5.53	4.22	1.11	6.53	5.24

Table B3. Energy Prices by Sector and Source Including Greenhouse Gas Allowance Cost Where Applicable (Continued)

(2001 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Average Price to All Users[11]										
Petroleum Products[2]	9.54	9.46	10.76	10.37	9.81	12.34	11.61	10.22	13.20	12.43
Distillate Fuel	9.16	9.15	10.45	10.04	9.52	12.01	11.24	9.90	13.17	12.28
Jet Fuel	6.20	5.66	7.10	6.64	6.34	9.26	8.35	6.72	10.35	9.42
Liquefied Petroleum Gas	12.85	10.75	11.51	11.29	11.58	13.44	13.05	11.81	14.52	13.68
Motor Gasoline[7]	11.57	11.45	12.98	12.53	11.55	14.52	13.62	12.07	15.31	14.41
Residual Fuel	4.11	3.73	5.29	4.80	3.96	7.39	6.29	4.14	8.33	7.23
Natural Gas	6.40	5.15	5.96	5.66	5.40	7.41	6.60	5.64	8.22	7.51
Coal	1.26	1.18	3.18	2.59	1.13	5.50	4.21	1.12	6.44	5.22
Electricity	21.34	18.76	20.40	19.94	19.52	25.89	23.57	19.66	28.70	26.57
Non-Renewable Energy and Allowance Expenditures by Sector (billion 2001 dollars)										
Residential	166.77	168.16	175.14	172.54	191.19	215.33	206.32	203.68	237.11	230.84
Commercial	127.30	128.40	136.28	133.84	163.77	191.81	180.97	181.88	227.72	216.67
Industrial	135.32	137.86	162.27	154.55	172.27	235.92	214.13	190.69	277.18	255.19
Transportation	270.41	328.32	372.97	360.38	402.37	482.08	467.59	456.80	540.60	533.37
Total Non-Renewable Expenditures	699.80	762.73	846.66	821.30	929.60	1125.14	1069.01	1033.06	1282.60	1236.07
Transportation Renewable Expenditures	0.01	0.05	0.05	0.05	0.10	0.12	0.11	0.13	0.16	0.15
Total Expenditures	**699.81**	**762.78**	**846.72**	**821.36**	**929.70**	**1125.26**	**1069.12**	**1033.19**	**1282.76**	**1236.22**

[1]Weighted average price includes fuels below as well as coal.
[2]This quantity is the weighted average for all petroleum products, not just those listed below.
[3]Includes combined heat and power, which produces electricity and other useful thermal energy.
[4]Excludes use for lease and plant fuel.
[5] Diesel fuel containing 500 parts per million (ppm) or 15 ppm sulfur. Price includes Federal and State taxes while excluding county and local taxes.
[6]Kerosene-type jet fuel. Price includes Federal and State taxes while excluding county and local taxes.
[7]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[8]Includes Federal and State taxes while excluding county and local taxes.
[9]Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.
[10]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[11]Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.
Btu = British thermal unit.
Note: Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001 prices for motor gasoline, distillate, and jet fuel are based on: Energy Information Administration (EIA), *Petroleum Marketing Annual 2001*, http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/petroleum_marketing_annual/current/pdf/pmaall.pdf (September 2002). 2001 residential, commercial, and transportation natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2002/08) (Washington, DC, August 2002). 2001 electric power prices: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." 2001 industrial natural gas delivered prices based on: EIA, *Manufacturing Energy Consumption Survey 1998*. 2001 coal prices based on EIA, *Quarterly Coal Report, October-December 2001*, DOE/EIA-0121(2001/4Q) (Washington, DC, May 2002) and EIA, AEO2003 National Energy Modeling System run MLBILL.D050503A. 2001 electricity prices: EIA, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). 2001 ethanol prices derived from weekly spot prices in the Oxy Fuel News. **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B4. Greenhouse Gas Allowance Cost by End-Use Sector and Source

(2001 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Residential										
Petroleum Products[2]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distillate Fuel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liquefied Petroleum Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commercial										
Petroleum Products[2]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distillate Fuel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Residual Fuel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial[3]										
Petroleum Products[2]	0.00	0.00	0.94	0.66	0.00	2.15	1.50	0.00	2.66	2.02
Distillate Fuel	0.00	0.00	1.56	1.09	0.00	3.52	2.46	0.00	4.36	3.30
Liquefied Petroleum Gas	0.00	0.00	1.35	0.94	0.00	3.05	2.13	0.00	3.77	2.86
Residual Fuel	0.00	0.00	1.68	1.17	0.00	3.80	2.65	0.00	4.70	3.56
Natural Gas[4]	0.00	0.00	1.11	0.78	0.00	2.52	1.76	0.00	3.12	2.37
Metallurgical Coal	0.00	0.00	2.00	1.39	0.00	4.51	3.15	0.00	5.58	4.23
Steam Coal	0.00	0.00	2.00	1.40	0.00	4.53	3.16	0.00	5.60	4.24
Transportation										
Petroleum Products[2]	0.00	0.00	1.52	1.06	0.00	3.44	2.40	0.00	4.25	3.22
Distillate Fuel[5]	0.00	0.00	1.56	1.09	0.00	3.52	2.46	0.00	4.36	3.30
Jet Fuel[6]	0.00	0.00	1.51	1.05	0.00	3.41	2.38	0.00	4.22	3.20
Motor Gasoline[7]	0.00	0.00	1.51	1.05	0.00	3.42	2.38	0.00	4.23	3.20
Residual Fuel	0.00	0.00	1.68	1.17	0.00	3.80	2.65	0.00	4.70	3.56
Liquefied Petroleum Gas[8]	0.00	0.00	1.35	0.94	0.00	3.05	2.13	0.00	3.77	2.86
Natural Gas[9]	0.00	0.00	1.14	0.79	0.00	2.57	1.79	0.00	3.18	2.41
Electric Power[10]										
Fossil Fuel Average	0.00	0.00	1.78	1.26	0.00	3.32	2.59	0.00	3.80	3.30
Petroleum Products	0.00	0.00	1.65	1.15	0.00	3.72	2.60	0.00	4.60	3.47
Distillate Fuel	0.00	0.00	1.56	1.09	0.00	3.52	2.46	0.00	4.36	3.30
Residual Fuel	0.00	0.00	1.68	1.17	0.00	3.80	2.65	0.00	4.70	3.56
Natural Gas	0.00	0.00	1.14	0.79	0.00	2.57	1.79	0.00	3.18	2.41
Steam Coal	0.00	0.00	2.02	1.41	0.00	4.54	3.18	0.00	5.62	4.26

[1]Weighted average allowance cost includes fuels below as well as coal.
[2]This quantity is the weighted average for all petroleum products, not just those listed below.
[3]Includes combined heat and power, which produces electricity and other useful thermal energy.
[4]Excludes use for lease and plant fuel.
[5]Diesel fuel containing 500 parts per million (ppm) or 15 ppm sulfur. Price includes Federal and State taxes while excluding county and local taxes.
[6]Kerosene-type jet fuel. Price includes Federal and State taxes while excluding county and local taxes.
[7]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[8]Includes Federal and State taxes while excluding county and local taxes.
[9]Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.
[10]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
Btu = British thermal unit.
Projections: EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B5. Delivered Energy Prices by Sector and Source Excluding Greenhouse Gas Allowance Costs in the Industrial and Electric Power Sectors

(2001 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Residential	**15.81**	**13.97**	**14.62**	**14.39**	**14.62**	**17.37**	**16.34**	**14.89**	**18.74**	**17.91**
Primary Energy[1]	9.73	8.07	8.11	8.05	8.33	8.48	8.31	8.57	8.88	8.75
Petroleum Products[2]	10.85	10.02	9.88	9.91	10.91	10.32	10.58	11.21	10.79	10.79
Distillate Fuel	8.99	7.99	7.95	7.94	8.70	8.23	8.42	8.93	8.58	8.61
Liquefied Petroleum Gas	14.84	14.35	13.97	14.11	15.28	14.44	14.87	15.52	14.96	14.92
Natural Gas	9.41	7.57	7.67	7.58	7.77	8.07	7.81	8.04	8.48	8.33
Electricity	25.37	22.48	24.10	23.59	23.03	30.32	27.68	23.09	33.29	30.90
Commercial	**15.50**	**13.45**	**14.35**	**14.08**	**14.58**	**17.78**	**16.61**	**15.00**	**19.27**	**18.45**
Primary Energy[1]	7.81	6.43	6.50	6.43	6.78	6.93	6.75	7.05	7.33	7.21
Petroleum Products[2]	7.27	6.78	6.70	6.70	7.51	6.96	7.19	7.81	7.28	7.35
Distillate Fuel	6.40	5.67	5.63	5.62	6.45	5.96	6.15	6.75	6.30	6.37
Residual Fuel	3.46	4.01	3.93	3.94	4.23	3.96	3.97	4.39	4.02	4.03
Natural Gas	8.09	6.49	6.59	6.50	6.79	7.07	6.81	7.07	7.48	7.33
Electricity	23.28	19.81	21.51	21.07	20.98	27.61	25.24	21.25	30.97	28.60
Industrial[3]	**7.11**	**6.39**	**6.61**	**6.52**	**7.01**	**7.80**	**7.47**	**7.25**	**8.45**	**8.14**
Primary Energy	5.83	5.18	5.16	5.14	5.74	5.65	5.64	5.99	5.97	5.91
Petroleum Products[2]	7.72	7.07	6.93	6.96	7.85	7.40	7.61	8.13	7.68	7.72
Distillate Fuel	6.55	5.75	5.71	5.70	6.74	6.18	6.38	7.19	6.53	6.69
Liquefied Petroleum Gas	12.34	9.93	9.58	9.70	10.85	10.14	10.52	11.13	10.60	10.54
Residual Fuel	3.28	3.71	3.66	3.66	3.94	3.70	3.70	4.10	3.77	3.77
Natural Gas[4]	4.87	4.00	4.11	4.02	4.39	4.68	4.41	4.63	5.07	4.88
Metallurgical Coal	1.69	1.50	1.51	1.51	1.39	1.40	1.39	1.34	1.34	1.33
Steam Coal	1.46	1.39	1.38	1.39	1.31	1.14	1.25	1.30	1.04	1.17
Electricity	14.13	12.82	14.34	13.92	13.37	18.65	16.67	13.48	20.86	19.13
Transportation	**10.28**	**10.22**	**11.73**	**11.28**	**10.37**	**13.27**	**12.39**	**10.82**	**14.17**	**13.27**
Primary Energy	10.25	10.19	11.70	11.25	10.35	13.24	12.36	10.79	14.12	13.23
Petroleum Products[2]	10.25	10.20	11.71	11.26	10.35	13.25	12.37	10.80	14.14	13.25
Distillate Fuel[5]	10.05	10.19	11.71	11.23	10.27	13.17	12.23	10.64	14.37	13.32
Jet Fuel[6]	6.20	5.66	7.10	6.64	6.34	9.26	8.35	6.72	10.35	9.42
Motor Gasoline[7]	11.57	11.45	12.98	12.54	11.55	14.52	13.62	12.07	15.31	14.41
Residual Fuel	3.90	3.56	5.19	4.69	3.78	7.36	6.21	3.94	8.32	7.18
Liquefied Petroleum Gas[8]	16.93	15.55	16.35	16.12	16.06	18.30	17.77	15.99	19.15	18.09
Natural Gas[9]	7.65	7.19	7.25	7.19	7.75	7.72	7.53	8.09	8.08	7.98
Electricity	21.87	19.10	20.82	20.29	18.45	24.39	22.30	17.90	26.05	24.16
Average End-Use Energy	**10.75**	**9.97**	**10.87**	**10.59**	**10.47**	**12.73**	**11.97**	**10.82**	**13.71**	**13.01**
Primary Energy	8.52	8.07	8.82	8.58	8.46	9.90	9.47	8.84	10.52	10.11
Electricity	21.34	18.76	20.40	19.94	19.52	25.89	23.57	19.66	28.70	26.57
Electric Power[10]										
Fossil Fuel Average	2.14	1.82	1.97	1.88	2.04	3.36	2.50	2.13	4.13	3.07
Petroleum Products	4.73	4.28	4.49	4.45	4.72	5.02	4.88	5.04	5.18	5.03
Distillate Fuel	6.20	5.13	5.01	4.99	5.94	5.39	5.58	6.16	5.64	5.72
Residual Fuel	4.50	4.08	4.29	4.24	4.33	4.88	4.63	4.55	4.98	4.68
Natural Gas	4.78	3.88	4.07	3.95	4.35	4.79	4.46	4.64	5.19	4.96
Steam Coal	1.25	1.17	1.16	1.17	1.12	0.99	1.04	1.11	0.90	0.99

Table B5. Delivered Energy Prices by Sector and Source Excluding Greenhouse Gas Allowance Costs in the Industrial and Electric Power Sectors (Continued)

(2001 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Average Price to All Users[11]										
Petroleum Products[2]	9.54	9.46	10.54	10.22	9.81	11.85	11.28	10.22	12.61	11.99
Distillate Fuel	9.16	9.15	10.25	9.89	9.52	11.58	10.94	9.90	12.64	11.87
Jet Fuel	6.20	5.66	7.10	6.64	6.34	9.26	8.35	6.72	10.35	9.42
Liquefied Petroleum Gas	12.85	10.75	10.43	10.53	11.58	10.93	11.29	11.81	11.40	11.30
Motor Gasoline[7]	11.57	11.45	12.97	12.53	11.55	14.49	13.60	12.07	15.27	14.38
Residual Fuel	4.11	3.73	4.79	4.44	3.96	6.42	5.55	4.14	7.12	6.22
Natural Gas	6.40	5.15	5.24	5.16	5.40	5.63	5.40	5.64	6.03	5.87
Coal	1.26	1.18	1.17	1.19	1.13	1.02	1.06	1.12	0.94	1.01
Electricity	21.34	18.76	20.40	19.94	19.52	25.89	23.57	19.66	28.70	26.57
Non-Renewable Energy Expenditures by Sector (billion 2001 dollars)										
Residential	166.77	168.16	175.14	172.54	191.19	215.33	206.32	203.68	237.11	230.84
Commercial	127.30	128.40	136.28	133.84	163.77	191.81	180.97	181.88	227.72	216.67
Industrial	135.32	137.86	141.86	140.25	172.27	185.88	178.88	190.69	212.44	205.69
Transportation	270.41	328.32	372.90	360.33	402.37	481.84	467.41	456.80	540.27	533.12
Total Non-Renewable Expenditures	699.80	762.73	826.18	806.96	929.60	1074.86	1033.59	1033.06	1217.53	1186.31
Transportation Renewable Expenditures	0.01	0.05	0.05	0.05	0.10	0.11	0.11	0.13	0.15	0.14
Total Expenditures	**699.81**	**762.78**	**826.23**	**807.01**	**929.70**	**1074.97**	**1033.70**	**1033.19**	**1217.69**	**1186.46**

[1]Weighted average price includes fuels below as well as coal.
[2]This quantity is the weighted average for all petroleum products, not just those listed below.
[3]Includes combined heat and power, which produces electricity and other useful thermal energy.
[4]Excludes use for lease and plant fuel.
[5]Diesel fuel containing 500 parts per million (ppm) or 15 ppm sulfur. Price includes Federal and State taxes while excluding county and local taxes.
[6]Kerosene-type jet fuel. Price includes Federal and State taxes while excluding county and local taxes.
[7]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[8]Includes Federal and State taxes while excluding county and local taxes.
[9]Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.
[10]Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.
[11]Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.
Btu = British thermal unit.
Note: Data for 2001 are model results and may differ slightly from official EIA data reports.

Sources: 2001 prices for motor gasoline, distillate, and jet fuel are based on: Energy Information Administration (EIA), *Petroleum Marketing Annual 2001*, http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/petroleum_marketing_annual/current/pdf/pmaall.pdf (September 2002). 2001 residential, commercial, and transportation natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2002/08) (Washington, DC, August 2002). 2001 electric power prices: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." 2001 industrial natural gas delivered prices based on: EIA, *Manufacturing Energy Consumption Survey 1998*. 2001 coal prices based on EIA, *Quarterly Coal Report, October-December 2001*, DOE/EIA-0121(2001/4Q) (Washington, DC, May 2002) and EIA, AEO2003 National Energy Modeling System run MLBILL.D050503A. 2001 electricity prices: EIA, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). 2001 ethanol prices derived from weekly spot prices in the Oxy Fuel News. **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B6. Residential Sector Key Indicators and End-Use Consumption

(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Key Indicators										
Households (millions)										
Single-Family	77.50	86.16	86.14	86.14	94.13	93.99	94.04	97.63	97.43	97.49
Multifamily	22.19	24.15	24.13	24.14	27.09	26.99	27.03	28.82	28.71	28.74
Mobile Homes	6.57	7.11	7.10	7.10	7.86	7.86	7.86	8.11	8.11	8.11
Total	**106.27**	**117.42**	**117.37**	**117.38**	**129.08**	**128.83**	**128.93**	**134.55**	**134.25**	**134.34**
Average House Square Footage	**1685**	**1740**	**1740**	**1740**	**1782**	**1782**	**1782**	**1798**	**1798**	**1798**
Energy Intensity										
(million Btu per household)										
Delivered Energy Consumption	102.9	106.0	105.5	105.6	104.4	99.3	101.1	104.6	97.3	99.0
Total Energy Consumption	189.0	194.3	191.7	193.6	189.9	171.4	179.0	189.5	166.3	173.8
(thousand Btu per square foot)										
Delivered Energy Consumption	61.1	60.9	60.7	60.7	58.6	55.7	56.7	58.2	54.1	55.0
Total Energy Consumption	112.2	111.7	110.2	111.3	106.6	96.2	100.4	105.4	92.5	96.7
Delivered Energy Consumption by Fuel										
Electricity										
Space Heating	0.39	0.46	0.46	0.46	0.50	0.46	0.47	0.52	0.45	0.47
Space Cooling	0.52	0.60	0.60	0.60	0.65	0.59	0.61	0.69	0.59	0.61
Water Heating	0.45	0.47	0.46	0.47	0.44	0.38	0.40	0.44	0.33	0.36
Refrigeration	0.42	0.34	0.34	0.34	0.32	0.32	0.32	0.33	0.33	0.33
Cooking	0.10	0.11	0.11	0.11	0.12	0.12	0.12	0.13	0.13	0.13
Clothes Dryers	0.22	0.25	0.24	0.25	0.27	0.25	0.25	0.28	0.25	0.26
Freezers	0.11	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Lighting	0.74	0.93	0.91	0.92	1.03	0.81	0.90	1.07	0.74	0.84
Clothes Washers[1]	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Dishwashers[1]	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Color Televisions	0.13	0.20	0.19	0.19	0.25	0.24	0.24	0.27	0.24	0.25
Personal Computers	0.06	0.08	0.08	0.08	0.10	0.10	0.10	0.11	0.11	0.11
Furnace Fans	0.07	0.09	0.09	0.09	0.10	0.09	0.10	0.11	0.10	0.10
Other Uses[2]	0.83	1.26	1.25	1.25	1.66	1.54	1.58	1.87	1.69	1.74
Delivered Energy	**4.10**	**4.93**	**4.88**	**4.89**	**5.60**	**5.05**	**5.24**	**5.95**	**5.11**	**5.33**
Natural Gas										
Space Heating	3.13	3.70	3.69	3.70	4.10	3.97	4.01	4.30	4.11	4.15
Space Cooling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Heating	1.48	1.55	1.55	1.55	1.59	1.58	1.59	1.65	1.62	1.64
Cooking	0.20	0.23	0.23	0.23	0.25	0.25	0.25	0.26	0.26	0.26
Clothes Dryers	0.06	0.08	0.08	0.08	0.10	0.10	0.10	0.10	0.10	0.10
Other Uses[3]	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.11	0.08
Delivered Energy	**4.94**	**5.63**	**5.62**	**5.63**	**6.10**	**5.96**	**6.01**	**6.38**	**6.20**	**6.22**
Distillate										
Space Heating	0.74	0.76	0.76	0.76	0.71	0.71	0.71	0.69	0.69	0.69
Water Heating	0.16	0.14	0.14	0.14	0.12	0.12	0.12	0.11	0.11	0.11
Other Uses[4]	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Delivered Energy	**0.91**	**0.91**	**0.91**	**0.91**	**0.84**	**0.84**	**0.84**	**0.81**	**0.81**	**0.81**
Liquefied Petroleum Gas										
Space Heating	0.26	0.25	0.25	0.25	0.24	0.24	0.24	0.24	0.24	0.24
Water Heating	0.09	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06
Cooking	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Other Uses[3]	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.14
Delivered Energy	**0.50**	**0.47**	**0.47**	**0.47**	**0.46**	**0.47**	**0.46**	**0.46**	**0.47**	**0.46**
Marketed Renewables (wood)[5]	0.39	0.41	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.40
Other Fuels[6]	0.11	0.09	0.09	0.09	0.08	0.08	0.08	0.07	0.07	0.07

Table B6. Residential Sector Key Indicators and End-Use Consumption (Continued)

(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Delivered Energy Consumption by End-Use										
Space Heating	5.01	5.68	5.66	5.67	6.04	5.86	5.91	6.22	5.96	6.01
Space Cooling	0.52	0.60	0.60	0.60	0.65	0.59	0.61	0.69	0.59	0.61
Water Heating	2.19	2.24	2.23	2.24	2.21	2.14	2.17	2.26	2.13	2.17
Refrigeration	0.42	0.34	0.34	0.34	0.32	0.32	0.32	0.33	0.33	0.33
Cooking	0.33	0.36	0.36	0.36	0.39	0.39	0.39	0.40	0.40	0.40
Clothes Dryers	0.28	0.33	0.33	0.33	0.36	0.34	0.35	0.38	0.35	0.36
Freezers	0.11	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Lighting	0.74	0.93	0.91	0.92	1.03	0.81	0.90	1.07	0.74	0.84
Clothes Washers	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Dishwashers	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
Color Televisions	0.13	0.20	0.19	0.19	0.25	0.24	0.24	0.27	0.24	0.25
Personal Computers	0.06	0.08	0.08	0.08	0.10	0.10	0.10	0.11	0.11	0.11
Furnace Fans	0.07	0.09	0.09	0.09	0.10	0.09	0.10	0.11	0.10	0.10
Other Uses[7]	1.01	1.46	1.45	1.45	1.87	1.76	1.80	2.09	1.94	1.96
Delivered Energy	**10.94**	**12.45**	**12.38**	**12.40**	**13.48**	**12.80**	**13.03**	**14.08**	**13.06**	**13.29**
Electricity Related Losses	**9.15**	**10.37**	**10.11**	**10.32**	**11.03**	**9.29**	**10.04**	**11.42**	**9.26**	**10.05**
Total Energy Consumption by End-Use										
Space Heating	5.89	6.64	6.61	6.63	7.03	6.70	6.81	7.22	6.78	6.89
Space Cooling	1.68	1.86	1.83	1.85	1.94	1.68	1.77	2.00	1.67	1.76
Water Heating	3.20	3.23	3.20	3.22	3.08	2.84	2.93	3.10	2.74	2.84
Refrigeration	1.36	1.06	1.05	1.06	0.96	0.91	0.94	0.97	0.93	0.95
Cooking	0.55	0.59	0.59	0.59	0.63	0.61	0.62	0.65	0.63	0.64
Clothes Dryers	0.78	0.85	0.84	0.85	0.89	0.80	0.84	0.91	0.81	0.85
Freezers	0.36	0.28	0.27	0.28	0.26	0.25	0.26	0.27	0.25	0.26
Lighting	2.40	2.90	2.81	2.86	3.06	2.31	2.63	3.12	2.09	2.42
Clothes Washers	0.10	0.10	0.10	0.10	0.09	0.08	0.08	0.08	0.08	0.08
Dishwashers	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08
Color Televisions	0.43	0.61	0.60	0.60	0.75	0.67	0.71	0.78	0.68	0.72
Personal Computers	0.19	0.25	0.25	0.25	0.31	0.29	0.30	0.33	0.32	0.33
Furnace Fans	0.23	0.27	0.26	0.27	0.30	0.27	0.28	0.31	0.27	0.29
Other Uses[7]	2.86	4.10	4.03	4.08	5.14	4.59	4.83	5.67	4.99	5.23
Total	**20.08**	**22.82**	**22.50**	**22.72**	**24.51**	**22.09**	**23.07**	**25.50**	**22.32**	**23.35**
Non-Marketed Renewables										
Geothermal[8]	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Solar[9]	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
Total	**0.03**	**0.04**	**0.04**	**0.04**	**0.05**	**0.05**	**0.05**	**0.06**	**0.06**	**0.06**

[1]Does not include electric water heating portion of load.
[2]Includes small electric devices, heating elements, and motors.
[3]Includes such appliances as swimming pool heaters, outdoor grills, and outdoor lighting (natural gas).
[4]Includes such appliances as swimming pool and hot tub heaters.
[5]Includes wood used for primary and secondary heating in wood stoves or fireplaces as reported in the *Residential Energy Consumption Survey 1997*.
[6]Includes kerosene and coal.
[7]Includes all other uses listed above.
[8]Includes primary energy displaced by geothermal heat pumps in space heating and cooling applications.
[9]Includes primary energy displaced by solar thermal water heaters and electricity generated using photovoltaics.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001 based on: Energy Information Administration (EIA), *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B7. Commercial Sector Key Indicators and Consumption

(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Key Indicators										
Total Floorspace (billion square feet)										
Surviving	66.6	79.0	79.0	79.0	91.2	90.8	91.0	97.4	97.1	97.3
New Additions	3.6	3.0	3.0	3.0	3.4	3.4	3.4	3.4	3.4	3.4
Total	**70.2**	**82.0**	**82.0**	**82.0**	**94.6**	**94.2**	**94.5**	**100.8**	**100.6**	**100.7**
Energy Consumption Intensity (thousand Btu per square foot)										
Delivered Energy Consumption	118.4	117.8	117.1	117.2	119.8	115.6	116.5	121.3	118.6	117.6
Electricity Related Losses	129.9	128.5	125.6	128.0	128.5	110.6	117.9	129.1	107.6	115.5
Total Energy Consumption	248.3	246.2	242.7	245.2	248.3	226.1	234.4	250.4	226.2	233.1
Delivered Energy Consumption by Fuel										
Purchased Electricity										
Space Heating[1]	0.14	0.16	0.15	0.15	0.15	0.14	0.14	0.15	0.13	0.13
Space Cooling[1]	0.43	0.43	0.42	0.42	0.45	0.41	0.43	0.46	0.40	0.42
Water Heating[1]	0.15	0.16	0.15	0.15	0.16	0.14	0.15	0.15	0.13	0.14
Ventilation	0.17	0.18	0.18	0.18	0.19	0.17	0.18	0.19	0.16	0.17
Cooking	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03
Lighting	1.02	1.21	1.18	1.18	1.30	0.99	1.06	1.33	0.88	0.96
Refrigeration	0.21	0.24	0.24	0.24	0.26	0.24	0.25	0.27	0.23	0.24
Office Equipment (PC)	0.16	0.24	0.24	0.24	0.32	0.31	0.31	0.36	0.34	0.35
Office Equipment (non-PC)	0.31	0.47	0.47	0.47	0.75	0.72	0.73	0.92	0.87	0.89
Other Uses[2]	1.46	1.90	1.90	1.90	2.57	2.51	2.53	2.92	2.80	2.85
Delivered Energy	**4.08**	**5.01**	**4.97**	**4.97**	**6.17**	**5.66**	**5.81**	**6.79**	**5.97**	**6.17**
Natural Gas										
Space Heating[1]	1.32	1.53	1.53	1.53	1.65	1.58	1.62	1.71	1.56	1.63
Space Cooling[1]	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.03	0.03
Water Heating[1]	0.57	0.69	0.69	0.69	0.81	0.77	0.79	0.86	0.78	0.81
Cooking	0.25	0.30	0.30	0.30	0.35	0.33	0.34	0.37	0.35	0.35
Other Uses[3]	1.17	1.20	1.20	1.20	1.39	1.57	1.48	1.52	2.25	1.90
Delivered Energy	**3.33**	**3.74**	**3.74**	**3.74**	**4.23**	**4.27**	**4.25**	**4.50**	**4.97**	**4.73**
Distillate										
Space Heating[1]	0.17	0.24	0.23	0.23	0.25	0.27	0.25	0.25	0.28	0.25
Water Heating[1]	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Other Uses[4]	0.22	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Delivered Energy	**0.46**	**0.51**	**0.51**	**0.51**	**0.52**	**0.54**	**0.53**	**0.52**	**0.56**	**0.53**
Other Fuels[5]	**0.34**	**0.29**	**0.29**	**0.29**	**0.30**	**0.31**	**0.31**	**0.31**	**0.32**	**0.31**
Marketed Renewable Fuels										
Biomass	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Delivered Energy	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**
Delivered Energy Consumption by End-Use										
Space Heating[1]	1.63	1.92	1.92	1.92	2.05	1.98	2.01	2.11	1.97	2.02
Space Cooling[1]	0.44	0.45	0.44	0.44	0.48	0.44	0.46	0.50	0.43	0.45
Water Heating[1]	0.79	0.92	0.92	0.92	1.04	0.99	1.01	1.09	0.99	1.02
Ventilation	0.17	0.18	0.18	0.18	0.19	0.17	0.18	0.19	0.16	0.17
Cooking	0.29	0.33	0.33	0.33	0.38	0.36	0.37	0.40	0.37	0.38
Lighting	1.02	1.21	1.18	1.18	1.30	0.99	1.06	1.33	0.88	0.96
Refrigeration	0.21	0.24	0.24	0.24	0.26	0.24	0.25	0.27	0.23	0.24
Office Equipment (PC)	0.16	0.24	0.24	0.24	0.32	0.31	0.31	0.36	0.34	0.35
Office Equipment (non-PC)	0.31	0.47	0.47	0.47	0.75	0.72	0.73	0.92	0.87	0.89
Other Uses[6]	3.30	3.69	3.69	3.69	4.56	4.69	4.62	5.05	5.68	5.37
Delivered Energy	**8.32**	**9.65**	**9.60**	**9.61**	**11.33**	**10.89**	**11.00**	**12.23**	**11.92**	**11.85**

Table B7. Commercial Sector Key Indicators and Consumption (Continued)

(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Electricity Related Losses	**9.12**	**10.53**	**10.30**	**10.49**	**12.16**	**10.42**	**11.14**	**13.02**	**10.82**	**11.64**
Total Energy Consumption by End-Use										
Space Heating[1]	1.95	2.25	2.24	2.24	2.36	2.24	2.29	2.40	2.20	2.27
Space Cooling[1]	1.39	1.34	1.32	1.34	1.38	1.21	1.28	1.39	1.15	1.24
Water Heating[1]	1.12	1.25	1.24	1.25	1.35	1.25	1.29	1.39	1.23	1.29
Ventilation	0.55	0.56	0.55	0.56	0.56	0.48	0.51	0.57	0.45	0.49
Cooking	0.37	0.40	0.40	0.40	0.44	0.41	0.42	0.45	0.41	0.42
Lighting	3.31	3.74	3.62	3.67	3.86	2.80	3.09	3.88	2.48	2.76
Refrigeration	0.69	0.74	0.73	0.73	0.77	0.68	0.72	0.78	0.66	0.70
Office Equipment (PC)	0.52	0.75	0.74	0.75	0.95	0.88	0.92	1.05	0.96	1.01
Office Equipment (non-PC)	0.99	1.45	1.43	1.45	2.21	2.06	2.14	2.69	2.45	2.57
Other Uses[6]	6.56	7.70	7.63	7.70	9.62	9.31	9.48	10.65	10.76	10.74
Total	**17.44**	**20.19**	**19.90**	**20.10**	**23.50**	**21.31**	**22.14**	**25.25**	**22.74**	**23.49**
Non-Marketed Renewable Fuels										
Solar[7]	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Total	**0.02**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**

[1]Includes fuel consumption for district services.
[2]Includes miscellaneous uses, such as service station equipment, automated teller machines, telecommunications equipment, and medical equipment.
[3]Includes miscellaneous uses, such as pumps, emergency electric generators, combined heat and power in commercial buildings, and manufacturing performed in commercial buildings.
[4]Includes miscellaneous uses, such as cooking, emergency electric generators, and combined heat and power in commercial buildings.
[5]Includes residual fuel oil, liquefied petroleum gas, coal, motor gasoline, and kerosene.
[6]Includes miscellaneous uses, such as service station equipment, automated teller machines, telecommunications equipment, medical equipment, pumps, lighting, emergency electric generators, combined heat and power in commercial buildings, manufacturing performed in commercial buildings, and cooking (distillate), plus residual fuel oil, liquefied petroleum gas, coal, motor gasoline, and kerosene.
[7]Includes primary energy displaced by solar thermal space heating and water heating, and electricity generation by solar photovoltaic systems.
Btu = British thermal unit.
PC = Personal computer.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001 based on: Energy Information Administration (EIA), *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B8. Industrial Sector Key Indicators and Consumption

(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Key Indicators										
Value of Shipments (billion 1996 dollars)										
Manufacturing	4079	5466	5420	5435	7226	7160	7188	8258	8162	8183
Nonmanufacturing	1346	1510	1500	1503	1744	1714	1726	1870	1828	1841
Total	**5425**	**6977**	**6920**	**6938**	**8969**	**8874**	**8914**	**10128**	**9990**	**10024**
Delivered Energy Prices Including Greenhouse Gas Allowance Cost [1]										
(2001 dollars per million Btu)										
Electricity	14.13	12.82	14.34	13.92	13.37	18.65	16.67	13.48	20.86	19.13
Natural Gas	4.87	4.00	5.23	4.80	4.39	7.20	6.17	4.63	8.19	7.25
Steam Coal	1.46	1.39	3.38	2.78	1.31	5.67	4.41	1.30	6.64	5.41
Residual Oil	3.28	3.71	5.34	4.83	3.94	7.49	6.35	4.10	8.46	7.33
Distillate Oil	6.55	5.75	7.27	6.79	6.74	9.70	8.84	7.19	10.89	10.00
Liquefied Petroleum Gas	12.34	9.93	10.93	10.64	10.85	13.19	12.65	11.13	14.38	13.40
Motor Gasoline	11.57	11.40	12.94	12.49	11.52	14.49	13.59	12.05	15.28	14.38
Metallurgical Coal	1.69	1.50	3.50	2.90	1.39	5.91	4.54	1.34	6.92	5.57
Energy Consumption[2]										
Purchased Electricity	3.39	3.97	3.89	3.91	4.65	4.41	4.49	5.01	4.66	4.74
Natural Gas	7.74	9.06	9.16	9.13	10.39	10.36	10.30	11.23	11.09	10.98
Lease and Plant Fuel[3]	1.20	1.37	1.40	1.39	1.60	1.70	1.66	1.73	1.77	1.76
Natural Gas Subtotal	8.94	10.43	10.56	10.52	11.98	12.06	11.95	12.96	12.86	12.74
Steam Coal	1.42	1.46	1.33	1.38	1.51	1.28	1.34	1.54	1.26	1.32
Metallurgical Coal and Coke[4]	0.74	0.77	0.76	0.76	0.71	0.65	0.66	0.68	0.60	0.61
Residual Fuel	0.23	0.19	0.18	0.18	0.20	0.17	0.18	0.20	0.17	0.18
Distillate	1.13	1.21	1.20	1.20	1.36	1.30	1.32	1.44	1.36	1.39
Liquefied Petroleum Gas	2.10	2.55	2.54	2.54	3.06	2.99	3.01	3.28	3.14	3.19
Petrochemical Feedstocks	1.14	1.44	1.41	1.41	1.70	1.53	1.55	1.82	1.57	1.59
Other Petroleum[5]	4.18	4.44	4.34	4.37	4.64	4.27	4.42	4.76	4.32	4.43
Renewables[5]	1.82	2.22	2.21	2.21	2.77	2.74	2.75	3.05	3.02	3.02
Delivered Energy	**25.10**	**28.67**	**28.41**	**28.48**	**32.58**	**31.40**	**31.67**	**34.75**	**32.96**	**33.22**
Electricity Related Losses	7.57	8.35	8.06	8.25	9.17	8.12	8.61	9.61	8.45	8.95
Total	**32.67**	**37.02**	**36.47**	**36.73**	**41.75**	**39.53**	**40.28**	**44.36**	**41.40**	**42.17**
Energy Consumption per dollar of Shipments[2] (thousand Btu per 1996 dollars)										
Purchased Electricity	0.63	0.57	0.56	0.56	0.52	0.50	0.50	0.49	0.47	0.47
Natural Gas	1.43	1.30	1.32	1.32	1.16	1.17	1.16	1.11	1.11	1.10
Lease and Plant Fuel[3]	0.22	0.20	0.20	0.20	0.18	0.19	0.19	0.17	0.18	0.18
Natural Gas Subtotal	1.65	1.49	1.53	1.52	1.34	1.36	1.34	1.28	1.29	1.27
Steam Coal	0.26	0.21	0.19	0.20	0.17	0.14	0.15	0.15	0.13	0.13
Metallurgical Coal and Coke[4]	0.14	0.11	0.11	0.11	0.08	0.07	0.07	0.07	0.06	0.06
Residual Fuel	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02
Distillate	0.21	0.17	0.17	0.17	0.15	0.15	0.15	0.14	0.14	0.14
Liquefied Petroleum Gas	0.39	0.37	0.37	0.37	0.34	0.34	0.34	0.32	0.31	0.32
Petrochemical Feedstocks	0.21	0.21	0.20	0.20	0.19	0.17	0.17	0.18	0.16	0.16
Other Petroleum[5]	0.77	0.64	0.63	0.63	0.52	0.48	0.50	0.47	0.43	0.44
Renewables[6]	0.33	0.32	0.32	0.32	0.31	0.31	0.31	0.30	0.30	0.30
Delivered Energy	**4.63**	**4.11**	**4.11**	**4.10**	**3.63**	**3.54**	**3.55**	**3.43**	**3.30**	**3.31**
Electricity Related Losses	1.40	1.20	1.16	1.19	1.02	0.92	0.97	0.95	0.85	0.89
Total	**6.02**	**5.31**	**5.27**	**5.29**	**4.65**	**4.45**	**4.52**	**4.38**	**4.14**	**4.21**

[1]Allowance costs would apply to those industrial entities with at least one facility emitting greenhouse gas greater than 10,000 metric tons carbon dioxide equivalent. Exempt entities would not be required to submit allowances and their cost of consuming fuel would exclude the allowance cost.

[2]Fuel consumption includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

[3]Represents natural gas used in the field gathering and processing plant machinery.

[4]Includes net coal coke imports.

[5]Includes petroleum coke, asphalt, road oil, lubricants, motor gasoline, still gas, and miscellaneous petroleum products.

[6]Includes consumption of energy from hydroelectric, wood and wood waste, municipal solid waste, and other biomass.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.

Sources: 2001 prices for motor gasoline and distillate are based on: Energy Information Administration (EIA), *Petroleum Marketing Annual 2001*, http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/petroleum_marketing_annual/current/pdf/pmaall.pdf (September 2002). 2001 coal prices are based on EIA, *Quarterly Coal Report, October-December 2001*, DOE/EIA-0121(2001/4Q) (Washington, DC, May 2002) and EIA, AEO2003 National Energy Modeling System run MLBILL.D050503A. 2001 electricity prices: EIA, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). 2001 natural gas prices based on: EIA, *Manufacturing Energy Consumption Survey 1998*. 2001 consumption values based on: EIA, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). **2001** shipments: Global Insight macroeconomic model CTL0802. **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B9. Transportation Sector Key Indicators and Delivered Energy Consumption

Key Indicators and Consumption	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Key Indicators										
Level of Travel (billions)										
Light-Duty Vehicles <8,500 pounds (VMT)	2409	3006	2975	2992	3752	3547	3663	4133	3795	3945
Commercial Light Trucks (VMT)[1]	66	84	83	83	107	104	106	120	115	117
Freight Trucks >10,000 pounds (VMT)	206	265	263	264	339	335	337	382	377	378
Air (seat miles available)	1109	1356	1348	1353	1944	1928	1933	2258	2231	2237
Rail (ton miles traveled)	1448	1691	1579	1625	2003	1467	1677	2173	1486	1650
Domestic Shipping (ton miles traveled)	788	882	869	874	1012	950	974	1088	992	1032
Energy Efficiency Indicators										
New Light-Duty Vehicle (miles per gallon)[2]	24.1	25.1	25.3	25.2	26.0	28.1	26.6	26.4	29.0	27.2
New Car (miles per gallon)[2]	28.1	28.5	28.8	28.6	29.7	32.6	30.4	30.1	32.9	30.9
New Light Truck (miles per gallon)[2]	20.7	22.3	22.5	22.4	23.1	24.6	23.6	23.5	25.8	24.3
Light-Duty Fleet (miles per gallon)[3]	19.8	19.6	19.6	19.6	20.3	20.9	20.5	20.5	21.8	20.9
New Commercial Light Truck (MPG)[1]	13.8	14.7	14.8	14.8	15.2	16.3	15.6	15.5	17.1	16.0
Stock Commercial Light Truck (MPG)[1]	13.7	14.3	14.3	14.3	14.9	15.4	15.1	15.2	16.2	15.5
Aircraft Efficiency (seat miles per gallon)	51.2	54.3	54.3	54.3	58.6	59.1	59.1	60.7	61.2	61.2
Freight Truck Efficiency (miles per gallon)	6.0	6.0	6.0	6.0	6.3	6.4	6.4	6.5	6.6	6.6
Rail Efficiency (ton miles per thousand Btu)	2.8	3.1	3.1	3.1	3.4	3.4	3.4	3.6	3.6	3.6
Domestic Shipping Efficiency (ton miles per thousand Btu)	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4
Energy Use by Mode (quadrillion Btu)										
Light-Duty Vehicles	15.28	18.88	18.86	18.98	22.76	20.99	22.20	24.71	21.55	23.38
Commercial Light Trucks[1]	0.60	0.73	0.73	0.73	0.89	0.84	0.87	0.98	0.89	0.94
Freight Trucks[4]	4.68	5.92	5.88	5.89	7.11	6.94	7.02	7.81	7.55	7.61
Air[5]	3.47	3.98	3.96	3.97	5.15	5.07	5.08	5.73	5.63	5.64
Rail[6]	0.63	0.68	0.65	0.66	0.75	0.59	0.65	0.78	0.59	0.63
Marine[7]	1.45	1.49	1.49	1.49	1.59	1.56	1.57	1.64	1.60	1.62
Pipeline Fuel	0.63	0.78	0.81	0.79	0.94	1.05	0.98	1.03	1.11	1.06
Lubricants	0.19	0.22	0.21	0.22	0.26	0.26	0.26	0.28	0.28	0.28
Total	**26.94**	**32.68**	**32.58**	**32.73**	**39.45**	**37.30**	**38.64**	**42.96**	**39.19**	**41.16**
Energy Use by Mode (million barrels per day oil equivalent)										
Light-Duty Vehicles	8.05	9.93	9.96	10.03	11.96	11.07	11.71	12.98	11.36	12.33
Commercial Light Trucks[1]	0.32	0.39	0.38	0.38	0.47	0.45	0.46	0.52	0.47	0.50
Freight Trucks	2.05	2.61	2.59	2.60	3.16	3.09	3.12	3.49	3.37	3.40
Railroad	0.24	0.26	0.24	0.25	0.28	0.20	0.23	0.28	0.19	0.22
Domestic Shipping	0.16	0.17	0.17	0.17	0.20	0.18	0.19	0.21	0.19	0.20
International Shipping	0.34	0.33	0.33	0.33	0.34	0.34	0.34	0.34	0.34	0.34
Air[5]	1.44	1.65	1.64	1.65	2.19	2.15	2.16	2.45	2.40	2.41
Military Use	0.30	0.34	0.34	0.34	0.38	0.38	0.38	0.40	0.40	0.40
Bus Transportation	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Rail Transportation[6]	0.05	0.06	0.06	0.06	0.08	0.08	0.08	0.08	0.08	0.08
Recreational Boats	0.16	0.18	0.18	0.18	0.19	0.19	0.19	0.20	0.20	0.20
Lubricants	0.09	0.10	0.10	0.10	0.12	0.12	0.12	0.13	0.13	0.13
Pipeline Fuel	0.32	0.39	0.41	0.40	0.47	0.53	0.50	0.52	0.56	0.54
Total	**13.64**	**16.54**	**16.54**	**16.62**	**19.97**	**18.90**	**19.60**	**21.74**	**19.83**	**20.87**

[1]Commercial trucks 8,500 to 10,000 pounds.
[2]Environmental Protection Agency rated miles per gallon.
[3]Combined car and light truck "on-the-road" estimate.
[4]Includes energy use by buses and military distillate consumption.
[5]Includes jet fuel and aviation gasoline.
[6]Includes passenger rail.
[7]Includes military residual fuel use and recreational boats.
Btu = British thermal unit.
VMT=Vehicle miles traveled.
MPG = Miles per gallon.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001: Energy Information Administration (EIA), *Natural Gas Annual 2000*, DOE/EIA-0131(2000) (Washington, DC, November 2001); Federal Highway Administration, *Highway Statistics 2000* (Washington, DC, November 2001); Oak Ridge National Laboratory, Transportation Energy Data Book: *Edition 22 and Annual* (Oak Ridge, TN, September 2002); National Highway Traffic and Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC, February 2000); EIA, *Household Vehicle Energy Consumption 1994*, DOE/EIA-0464(94) (Washington, DC, August 1997); U.S. Department of Commerce, Bureau of the Census, "Vehicle Inventory and Use Survey" EC97TV (Washington, DC, October 1999); EIA, *Describing Current and Potential Markets for Alternative-Fuel Vehicles*, DOE/EIA-0604(96) (Washington, DC, March 1996); EIA, *Alternatives to Traditional Transportation Fuels 1998*, http://www.eia.doe.gov/cneaf/alt_trans98/table1.html; EIA,*State Energy Data Report 1999*, DOE/EIA-0214(99) (Washington, DC, May 2001); U.S. Department of Transportation, Research and Special Programs Administration, *Air Carrier Statistics Monthly, December 2001/2000* (Washington, DC, 2001); EIA, *Fuel Oil and Kerosene Sales 2001*, http://www.eia.doe.gov/oil_gas/petroleum/data_publications/fuel_oil_and_kerosene_sales/historical/foks.html; and United States Department of Defense, Defense Fuel Supply Center. **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B10. Electricity Supply, Disposition, Prices, and Emissions
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Generation by Fuel Type										
Electric Power Sector[1]										
Power Only[2]										
Coal	1848	2237	1927	2057	2512	836	1510	2747	526	1174
Petroleum	113	40	19	22	47	11	16	52	13	23
Natural Gas[3]	411	671	811	724	1143	1745	1466	1314	1889	1646
Nuclear Power	769	790	801	801	793	934	866	793	1186	1005
Pumped Storage/Other	-9	-1	-1	-1	-1	-1	-1	-1	-1	-1
Renewable Sources[4]	258	394	517	475	414	991	800	423	1122	1039
Distributed Generation (Natural Gas)	0	1	5	2	5	13	5	8	13	6
Non-Utility Generation for Own Use	-21	-24	-26	-27	-24	-26	-26	-24	-25	-26
Total	**3370**	**4107**	**4053**	**4053**	**4889**	**4503**	**4635**	**5312**	**4725**	**4867**
Combined Heat and Power[5]										
Coal	33	33	30	32	33	16	23	33	10	18
Petroleum	7	4	3	4	3	3	3	3	3	3
Natural Gas	124	171	161	173	156	131	137	149	115	136
Renewable Sources	5	4	4	4	4	4	4	4	4	4
Non-Utility Generation for Own Use	-9	-18	-18	-18	-18	-17	-17	-18	-16	-17
Total	**162**	**193**	**181**	**195**	**178**	**138**	**151**	**171**	**116**	**145**
Net Available to the Grid	**3532**	**4301**	**4234**	**4247**	**5067**	**4641**	**4786**	**5483**	**4841**	**5011**
End-Use Sector Generation										
Combined Heat and Power[6]										
Coal	23	23	23	23	23	23	23	23	23	23
Petroleum	6	6	6	6	6	6	6	6	6	6
Natural Gas	84	105	122	116	142	201	173	174	328	259
Other Gaseous Fuels[7]	6	7	7	7	7	7	7	8	7	7
Renewable Sources[4]	31	40	39	40	51	50	50	56	55	55
Other[8]	11	11	11	11	11	11	11	11	11	11
Total	**160**	**192**	**209**	**203**	**240**	**298**	**270**	**278**	**431**	**362**
Other End-Use Generators[9]	4	5	5	5	6	6	6	6	7	6
Generation for Own Use	-138	-154	-173	-168	-183	-241	-221	-207	-328	-286
Total Sales to the Grid	**27**	**43**	**41**	**39**	**63**	**63**	**55**	**78**	**110**	**83**
Net Imports	**20**	**30**	**41**	**41**	**16**	**48**	**39**	**6**	**31**	**24**
Electricity Sales by Sector										
Residential	1201	1445	1429	1433	1640	1479	1535	1745	1498	1562
Commercial	1197	1468	1455	1456	1808	1659	1703	1990	1750	1808
Industrial	994	1164	1139	1145	1364	1293	1317	1469	1366	1390
Transportation	22	27	27	27	36	35	36	42	39	40
Total	**3414**	**4104**	**4050**	**4061**	**4848**	**4467**	**4591**	**5246**	**4653**	**4801**
End-Use Prices[10] (2001 cents per kilowatthour)										
Residential	8.7	7.7	8.2	8.1	7.9	10.3	9.4	7.9	11.4	10.5
Commercial	7.9	6.8	7.3	7.2	7.2	9.4	8.6	7.2	10.6	9.8
Industrial	4.8	4.4	4.9	4.7	4.6	6.4	5.7	4.6	7.1	6.5
Transportation	7.5	6.5	7.1	6.9	6.3	8.3	7.6	6.1	8.9	8.2
All Sectors Average	**7.3**	**6.4**	**7.0**	**6.8**	**6.7**	**8.8**	**8.0**	**6.7**	**9.8**	**9.1**
Prices by Service Category[10] (2001 cents per kilowatthour)										
Generation	4.7	3.9	4.4	4.3	4.2	6.1	5.4	4.2	7.1	6.5
Transmission	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.8	0.7
Distribution	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	2.0	2.0

Table B10. Electricity Supply, Disposition, Prices, and Emissions (Continued)
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Emissions										
Sulfur Dioxide (million tons)	10.63	9.69	9.84	9.48	8.95	5.87	8.95	8.95	1.93	8.41
Nitrogen Oxide (million tons)	4.75	3.90	3.50	3.73	4.02	1.48	2.75	4.08	0.67	2.17
Mercury (tons)	53.52	53.60	48.66	51.32	54.05	19.07	37.58	54.82	7.18	26.36

[1]Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes plants that only produce electricity.
[3]Includes electricity generation from fuel cells.
[4]Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar, and wind power.
[5]Includes combined heat and power plants whose primary business is to sell electricity and heat to the public (i.e., those that report NAICS code 22).
[6]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors.
[7]Other gaseous fuels include refinery and still gas.
[8]Other includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur and miscellaneous technologies.
[9]Other end-use generators include small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
[10]Prices represent average revenue per kilowatthour.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Source: 2001 power only and combined heat and power generation, sales to utilities, net imports, residential, industrial, and total electricity sales, and emissions: Energy Information Administration (EIA), *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002), and supporting databases. 2001 commercial and transportation electricity sales: EIA estimates based on Oak Ridge National Laboratory, *Transportation Energy Data Book 21* (Oak Ridge, TN, September 2001). 2001 prices: EIA, National Energy Modeling System run MLBILL.D050503A. **Projections**: EIA, AEO2003 National Energy Modeling System run MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B11. Electricity Generating Capacity
(Gigawatts)

Net Summer Capacity[1]	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Electric Power Sector[2]										
Power Only[3]										
Coal Steam	305.3	310.6	289.0	291.2	343.9	209.3	253.5	376.0	139.9	219.7
Other Fossil Steam[4]	133.8	77.9	80.7	77.0	71.9	64.8	64.7	71.1	53.0	62.4
Combined Cycle	43.2	148.4	175.9	160.5	233.0	319.1	280.6	278.1	374.1	313.7
Combustion Turbine/Diesel	97.6	126.4	123.2	128.5	148.0	121.4	130.9	164.3	118.2	134.3
Nuclear Power[5]	98.2	98.7	100.3	100.3	99.0	117.2	108.6	99.0	149.2	126.7
Pumped Storage	19.9	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
Fuel Cells	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Renewable Sources[6]	90.4	97.2	129.0	116.3	101.0	225.0	187.1	102.6	245.6	228.4
Distributed Generation[7]	0.0	1.7	1.7	1.6	11.7	4.9	6.5	17.7	5.0	9.3
Total	**788.3**	**881.2**	**920.2**	**895.9**	**1029.0**	**1082.2**	**1052.4**	**1129.3**	**1105.4**	**1115.1**
Combined Heat and Power[8]										
Coal Steam	5.2	4.7	4.4	4.7	4.7	3.3	3.6	4.7	2.6	3.3
Other Fossil Steam[4]	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Combined Cycle	22.6	32.9	32.9	32.9	32.9	32.9	32.9	32.9	32.9	32.9
Combustion Turbine/Diesel	4.6	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Renewable Sources[6]	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total	**33.7**	**44.3**	**44.0**	**44.2**	**44.3**	**42.9**	**43.2**	**44.3**	**42.2**	**42.9**
Total Electric Power Industry	**822.0**	**925.6**	**964.2**	**940.1**	**1073.4**	**1125.1**	**1095.6**	**1173.7**	**1147.6**	**1158.0**
Cumulative Planned Additions[9]										
Coal Steam	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Fossil Steam[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	83.1	83.1	83.1	83.1	83.1	83.1	83.1	83.1	83.1
Combustion Turbine/Diesel	0.0	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Fuel Cells	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Renewable Sources[6]	0.0	4.9	4.9	4.9	6.5	6.5	6.5	6.6	6.6	6.6
Distributed Generation[7]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**0.0**	**120.0**	**120.0**	**120.0**	**121.7**	**121.7**	**121.7**	**121.8**	**121.8**	**121.8**
Cumulative Unplanned Additions[9]										
Coal Steam	0.0	12.3	0.0	0.0	47.5	12.2	0.4	80.7	37.7	2.4
Other Fossil Steam[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	32.0	59.7	44.0	116.7	203.0	164.2	161.8	259.6	197.3
Combustion Turbine/Diesel	0.0	9.0	3.7	8.4	33.7	3.7	12.9	52.3	3.7	16.5
Nuclear Power	0.0	0.0	0.0	0.0	0.0	16.5	7.9	0.0	48.5	26.1
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources[6]	0.0	1.5	33.3	20.6	3.8	127.8	89.8	5.2	148.2	131.1
Distributed Generation[7]	0.0	1.7	1.7	1.6	11.7	4.9	6.5	17.7	5.0	9.3
Total	**0.0**	**56.5**	**98.4**	**74.6**	**213.3**	**368.1**	**281.7**	**317.8**	**502.8**	**382.6**
Cumulative Total Additions	**0.0**	**176.6**	**218.4**	**194.7**	**334.9**	**489.8**	**403.4**	**439.5**	**624.6**	**504.4**
Cumulative Retirements[10]										
Coal Steam	0.0	7.6	17.2	14.8	9.4	110.2	53.8	10.5	205.8	89.9
Other Fossil Steam[4]	0.0	54.4	51.6	55.3	60.4	67.5	67.6	61.2	79.3	69.9
Combined Cycle	0.0	0.7	0.9	0.6	0.7	0.9	0.6	0.7	2.6	0.6
Combustion Turbine/Diesel	0.0	11.2	9.1	8.4	14.3	10.9	10.6	16.7	14.2	10.8
Nuclear Power	0.0	2.4	0.8	0.8	3.4	1.8	1.8	3.4	1.8	1.8
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources[6]	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	**0.0**	**76.5**	**79.7**	**80.0**	**88.3**	**191.4**	**134.5**	**92.6**	**303.8**	**173.1**

Table B11. Electricity Generating Capacity (Continued)
(Gigawatts)

Net Summer Capacity[1]	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
End-Use Sector										
Combined Heat and Power[11]										
Coal	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Petroleum	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Natural Gas	14.6	17.0	19.4	18.4	22.1	30.1	26.3	26.4	48.7	38.2
Other Gaseous Fuels	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2
Renewable Sources[6]	4.7	6.2	6.2	6.2	8.1	8.0	8.0	9.0	8.9	8.9
Other	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Total	**27.8**	**31.8**	**34.2**	**33.2**	**38.8**	**46.7**	**42.9**	**44.2**	**66.2**	**55.8**
Other End-Use Generators[12]										
Renewable Sources[13]	1.1	1.5	1.5	1.5	1.7	1.9	1.8	2.0	2.2	2.2
Cumulative Additions[9]										
Combined Heat and Power[11]	0.0	4.1	6.4	5.6	11.1	19.0	15.2	16.6	38.5	28.1
Other End-Use Generators[12]	0.0	0.4	0.4	0.4	0.6	0.7	0.7	0.9	1.1	1.0

[1]Net summer capacity is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary power), as demonstrated by tests during summer peak demand.
[2]Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.
[3]Includes plants that only produce electricity. Includes capacity increases (uprates) at existing units.
[4]Includes oil-, gas-, and dual-fired capability.
[5]Nuclear capacity reflects operating capacity of existing units, including 4.3 gigawatts of uprates through 2025.
[6]Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar, and wind power.
[7]Primarily peak-load capacity fueled by natural gas
[8]Includes combined heat and power plants whose primary business is to sell electricity and heat to the public(i.e., those that report NAICS code 22).
[9]Cumulative additions after December 31, 2001.
[10]Cumulative total retirements after December 31, 2001.
[11]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors.
[12]Other end-use generators include small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
[13]See Table B17 for more detail.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model estimates and may differ slightly from official EIA data reports. Net summer capacity has been estimated for nonutility generators to be consistent with capability for electric utility generators.
Source: 2001 electric generating capacity and projected planned additions: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report" (preliminary). **Projections**: EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B12. Petroleum Supply and Disposition Balance
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Crude Oil										
Domestic Crude Production[1]	5.80	5.64	5.63	5.64	5.43	5.41	5.41	5.30	5.27	5.20
Alaska	0.97	0.64	0.64	0.64	1.23	1.23	1.23	1.17	1.17	1.17
Lower 48 States	4.84	5.00	4.99	4.99	4.20	4.18	4.18	4.13	4.09	4.02
Net Imports	9.31	11.49	11.40	11.40	12.67	12.35	12.45	13.14	12.72	12.87
Gross Imports	9.33	11.56	11.46	11.46	12.73	12.40	12.50	13.18	12.77	12.92
Exports	0.02	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04
Other Crude Supply[2]	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Crude Supply	**15.13**	**17.13**	**17.03**	**17.03**	**18.10**	**17.76**	**17.86**	**18.44**	**17.99**	**18.07**
Natural Gas Plant Liquids	**1.87**	**2.20**	**2.27**	**2.24**	**2.48**	**2.63**	**2.53**	**2.59**	**2.69**	**2.66**
Other Inputs[3]	**0.30**	**0.44**	**0.43**	**0.43**	**0.44**	**0.36**	**0.37**	**0.44**	**0.35**	**0.35**
Refinery Processing Gain[4]	**0.90**	**0.91**	**0.89**	**0.90**	**0.96**	**0.94**	**0.95**	**0.96**	**0.93**	**0.96**
Net Product Imports[5]	**1.59**	**2.17**	**1.89**	**2.03**	**4.88**	**3.42**	**4.22**	**6.48**	**4.22**	**5.32**
Gross Refined Product Imports[6]	2.08	2.55	2.32	2.37	4.89	3.40	4.21	6.51	4.26	5.38
Unfinished Oil Imports	0.38	0.63	0.55	0.65	1.07	1.06	1.06	1.08	1.01	1.02
Ether Imports	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Exports	0.95	1.00	0.98	0.99	1.08	1.03	1.05	1.11	1.05	1.08
Total Primary Supply[7]	**19.80**	**22.86**	**22.52**	**22.63**	**26.86**	**25.10**	**25.93**	**28.90**	**26.17**	**27.36**
Refined Petroleum Products Supplied										
Motor Gasoline[8]	8.67	10.54	10.42	10.48	12.53	11.47	12.10	13.55	11.76	12.71
Jet Fuel[9]	1.66	1.90	1.89	1.89	2.46	2.42	2.43	2.74	2.69	2.70
Distillate Fuel[10]	3.81	4.62	4.57	4.59	5.42	5.19	5.28	5.88	5.54	5.65
Residual Fuel	0.97	0.63	0.54	0.55	0.66	0.52	0.54	0.66	0.53	0.55
Other[11]	4.58	5.18	5.12	5.13	5.80	5.50	5.59	6.09	5.66	5.76
Total	**19.69**	**22.87**	**22.53**	**22.65**	**26.87**	**25.11**	**25.94**	**28.92**	**26.18**	**27.37**
Refined Petroleum Products Supplied										
Residential and Commercial	1.21	1.18	1.18	1.18	1.14	1.16	1.14	1.13	1.15	1.13
Industrial[12]	4.67	5.28	5.21	5.23	5.96	5.62	5.72	6.28	5.79	5.91
Transportation	13.27	16.19	16.02	16.11	19.53	18.25	18.98	21.25	19.14	20.20
Electric Power[13]	0.55	0.21	0.12	0.13	0.24	0.08	0.10	0.26	0.09	0.12
Total	**19.69**	**22.87**	**22.53**	**22.65**	**26.87**	**25.11**	**25.94**	**28.92**	**26.18**	**27.37**
Discrepancy[14]	**0.10**	**-0.02**	**-0.02**	**-0.02**	**-0.02**	**-0.01**	**-0.01**	**-0.02**	**-0.01**	**-0.01**
World Oil Price (2001 dollars per barrel)[15]	**22.01**	**23.99**	**23.77**	**23.77**	**25.48**	**24.15**	**24.15**	**26.57**	**24.58**	**24.58**
Import Share of Product Supplied	**0.55**	**0.60**	**0.59**	**0.59**	**0.65**	**0.63**	**0.64**	**0.68**	**0.65**	**0.66**
Net Expenditures for Imported Crude Oil and Petroleum Products (billion 2001 dollars)	**89.20**	**122.23**	**117.95**	**119.27**	**172.92**	**144.08**	**154.82**	**205.85**	**158.78**	**174.62**
Domestic Refinery Distillation Capacity[16]	**16.8**	**18.7**	**18.7**	**18.7**	**19.5**	**19.1**	**19.2**	**19.8**	**19.3**	**19.4**
Capacity Utilization Rate (percent)	**93.0**	**93.1**	**92.8**	**92.8**	**94.6**	**94.5**	**94.6**	**94.6**	**94.6**	**94.6**

[1]Includes lease condensate.
[2]Strategic petroleum reserve stock additions plus unaccounted for crude oil and crude stock withdrawals minus crude products supplied.
[3]Includes alcohols, ethers, petroleum product stock withdrawals, domestic sources of blending components, other hydrocarbons, natural gas converted to liquid fuel, and coal converted to liquid fuel.
[4]Represents volumetric gain in refinery distillation and cracking processes.
[5]Includes net imports of finished petroleum products, unfinished oils, other hydrocarbons, alcohols, ethers, and blending components.
[6]Includes other hydrocarbons, alcohols, and blending components.
[7]Total crude supply plus natural gas plant liquids, other inputs, refinery processing gain, and net product imports.
[8]Includes ethanol and ethers blended into gasoline.
[9]Includes only kerosene type.
[10]Includes distillate and kerosene.
[11]Includes aviation gasoline, liquefied petroleum gas, petrochemical feedstocks, lubricants, waxes, asphalt, road oil, still gas, special naphthas, petroleum coke, crude oil product supplied, and miscellaneous petroleum products.
[12]Includes consumption for combined heat and power, which produces electricity and other useful thermal energy.
[13]Includes consumption of energy by electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[14]Balancing item. Includes unaccounted for supply, losses, and gains.
[15]Average refiner acquisition cost for imported crude oil.
[16]End-of-year capacity.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001 product supplied based on: Energy Information Administration (EIA), *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). Other 2001 data: EIA, *Petroleum Supply Annual 2001*, DOE/EIA-0340(2001)/1 (Washington, DC, June 2002). **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B13. Petroleum Product Prices
(2001 Cents per Gallon, Unless Otherwise Noted)

Sector and Fuel	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
World Oil Price (2001 dollars per barrel)	**22.01**	**23.99**	**23.77**	**23.77**	**25.48**	**24.15**	**24.15**	**26.57**	**24.58**	**24.58**
Delivered Sector Prices Including Greenhouse Gas Allowance Cost										
Residential										
Distillate Fuel	124.6	110.9	110.3	110.1	120.7	114.2	116.8	123.8	119.0	119.4
Liquefied Petroleum Gas	127.3	123.1	119.8	121.0	131.1	123.9	127.6	133.1	128.3	128.0
Commercial										
Distillate Fuel	88.7	78.6	78.0	77.9	89.5	82.6	85.3	93.7	87.3	88.3
Residual Fuel	51.8	60.1	58.9	58.9	63.3	59.3	59.4	65.7	60.2	60.3
Residual Fuel (2001 dollars per barrel)	21.75	25.24	24.73	24.74	26.57	24.92	24.94	27.58	25.30	25.32
Industrial[1]										
Distillate Fuel	90.8	79.7	100.8	94.1	93.4	134.6	122.6	99.7	151.0	138.6
Liquefied Petroleum Gas	105.9	85.2	93.8	91.2	93.1	113.1	108.5	95.4	123.3	114.9
Residual Fuel	49.1	55.6	79.9	72.3	58.9	112.2	95.1	61.4	126.7	109.7
Residual Fuel (2001 dollars per barrel)	20.61	23.35	33.55	30.37	24.75	47.12	39.94	25.77	53.20	46.07
Transportation										
Diesel Fuel (distillate)[2]	139.4	141.4	162.4	155.7	142.4	182.6	169.6	147.5	199.3	184.7
Jet Fuel[3]	83.7	76.3	95.9	89.7	85.6	125.0	112.7	90.7	139.7	127.1
Motor Gasoline[4]	143.3	141.8	160.8	155.3	143.1	179.9	168.7	149.4	189.6	178.4
Liquid Petroleum Gas	145.2	133.4	140.3	138.3	137.8	157.0	152.5	137.1	164.3	155.2
Residual Fuel	58.4	53.4	77.8	70.2	56.6	110.1	92.9	59.0	124.5	107.5
Residual Fuel (2001 dollars per barrel)	24.52	22.41	32.66	29.47	23.76	46.25	39.03	24.80	52.31	45.13
Electric Power[5]										
Distillate Fuel	86.0	71.2	91.1	84.3	82.4	123.6	111.5	85.4	138.6	125.1
Residual Fuel	67.4	61.0	89.4	81.0	64.8	129.9	109.0	68.1	144.9	123.3
Residual Fuel (2001 dollars per barrel)	28.30	25.63	37.53	34.00	27.23	54.57	45.76	28.60	60.84	51.80
Delivered Sector Prices Excluding Greenhouse Gas Allowance Cost										
Residential										
Distillate Fuel	124.6	110.9	110.3	110.1	120.7	114.2	116.8	123.8	119.0	119.4
Liquefied Petroleum Gas	127.3	123.1	119.8	121.0	131.1	123.9	127.6	133.1	128.3	128.0
Commercial										
Distillate Fuel	88.7	78.6	78.0	77.9	89.5	82.6	85.3	93.7	87.3	88.3
Residual Fuel	51.8	60.1	58.9	58.9	63.3	59.3	59.4	65.7	60.2	60.3
Residual Fuel (2001 dollars per barrel)	21.75	25.24	24.73	24.74	26.57	24.92	24.94	27.58	25.30	25.32
Industrial[1]										
Distillate Fuel	90.8	79.7	79.2	79.1	93.4	85.7	88.5	99.7	90.6	92.8
Liquefied Petroleum Gas	105.9	85.2	82.2	83.2	93.1	87.0	90.3	95.4	91.0	90.4
Residual Fuel	49.1	55.6	54.7	54.8	58.9	55.4	55.4	61.4	56.4	56.4
Residual Fuel (2001 dollars per barrel)	20.61	23.35	22.99	23.01	24.75	23.26	23.28	25.77	23.67	23.70
Transportation										
Diesel Fuel (distillate)[2]	139.4	141.4	140.8	140.6	142.4	133.8	135.5	147.5	138.8	138.9
Jet Fuel[3]	83.7	76.3	75.5	75.5	85.6	78.9	80.6	90.7	82.7	83.9
Motor Gasoline[4]	143.3	141.8	142.1	142.2	143.1	137.6	139.1	149.4	137.3	138.8
Liquid Petroleum Gas	145.2	133.4	128.7	130.2	137.8	130.9	134.2	137.1	131.9	130.7
Residual Fuel	58.4	53.4	52.6	52.6	56.6	53.3	53.3	59.0	54.2	54.2
Residual Fuel (2001 dollars per barrel)	24.52	22.41	22.11	22.11	23.76	22.38	22.37	24.80	22.78	22.76
Electric Power[5]										
Distillate Fuel	86.0	71.2	69.5	69.3	82.4	74.7	77.4	85.4	78.2	79.3
Residual Fuel	67.4	61.0	64.2	63.4	64.8	73.1	69.3	68.1	74.6	70.1
Residual Fuel (2001 dollars per barrel)	28.30	25.63	26.98	26.63	27.23	30.71	29.11	28.60	31.31	29.42

Table B13. Petroleum Product Prices (Continued)

(2001 Cents per Gallon, Unless Otherwise Noted)

Sector and Fuel	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Greenhouse Gas Allowance Cost										
Residential										
Distillate Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial										
Distillate Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residual Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residual Fuel (2001 dollars per barrel)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial[1]										
Distillate Fuel	0.0	0.0	21.6	15.1	0.0	48.9	34.1	0.0	60.5	45.8
Liquefied Petroleum Gas	0.0	0.0	11.6	8.1	0.0	26.1	18.3	0.0	32.4	24.5
Residual Fuel	0.0	0.0	25.1	17.5	0.0	56.8	39.7	0.0	70.3	53.3
Residual Fuel (2001 dollars per barrel)	0.00	0.00	10.55	7.37	0.00	23.86	16.66	0.00	29.53	22.37
Transportation										
Diesel Fuel (distillate)[2]	0.0	0.0	21.6	15.1	0.0	48.9	34.1	0.0	60.5	45.8
Jet Fuel[3]	0.0	0.0	20.4	14.2	0.0	46.1	32.2	0.0	57.0	43.2
Motor Gasoline[4]	0.0	0.0	18.7	13.1	0.0	42.3	29.5	0.0	52.3	39.7
Liquid Petroleum Gas	0.0	0.0	11.6	8.1	0.0	26.1	18.3	0.0	32.4	24.5
Residual Fuel	0.0	0.0	25.1	17.5	0.0	56.8	39.7	0.0	70.3	53.3
Residual Fuel (2001 dollars per barrel)	0.00	0.00	10.55	7.37	0.00	23.86	16.66	0.00	29.53	22.37
Electric Power[5]										
Distillate Fuel	0.0	0.0	21.6	15.1	0.0	48.9	34.1	0.0	60.5	45.8
Residual Fuel	0.0	0.0	25.1	17.5	0.0	56.8	39.7	0.0	70.3	53.3
Residual Fuel (2001 dollars per barrel)	0.00	0.00	10.55	7.37	0.00	23.86	16.66	0.00	29.53	22.37

[1]Includes combined heat and power, which produces electricity and other useful thermal energy.
[2]Diesel fuel containing 500 part per million (ppm) or 15 ppm sulfur. Includes Federal and State taxes while excluding county and local taxes.
[3]Kerosene-type jet fuel.
[4]Sales weighted-average price for all grades. Includes Federal, State and local taxes.
[5]Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[6]Weighted averages of end-use fuel prices are derived from the prices in each sector and the corresponding sectoral consumption.
Note: Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources:. 2001 prices for motor gasoline, distillate, and jet fuel are based on: EIA, *Petroleum Marketing Annual 2001*, http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/petroleum_marketing_annual/current/pdf/pmaall.pdf (September 2002). 2001 residential, commercial, industrial, and transportation sector petroleum product prices are derived from: EIA, Form EIA-782A: "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report." 2001 electric power prices based on: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." 2001 ethanol prices derived from weekly spot prices in the Oxy Fuel News. 2001 world oil price: EIA, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). **Projections**: EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B14. Natural Gas Supply and Disposition
(Trillion Cubic Feet per Year)

Supply and Disposition	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Production										
Dry Gas Production[1]	19.45	21.53	22.21	21.90	24.85	26.61	25.65	26.36	27.32	27.06
Supplemental Natural Gas[2]	0.08	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Net Imports	**3.73**	**4.76**	**4.85**	**4.66**	**6.88**	**8.80**	**7.58**	**7.90**	**10.87**	**9.24**
Canada	3.61	4.16	4.20	4.10	5.14	5.44	5.20	5.21	5.61	5.43
Mexico	-0.13	-0.20	-0.21	-0.21	-0.02	0.16	-0.01	0.29	0.66	0.33
Liquefied Natural Gas	0.26	0.80	0.86	0.77	1.76	3.21	2.38	2.40	4.60	3.47
Total Supply	**23.26**	**26.39**	**27.15**	**26.66**	**31.83**	**35.51**	**33.32**	**34.36**	**38.29**	**36.39**
Consumption by Sector										
Residential	4.81	5.48	5.47	5.48	5.93	5.80	5.85	6.21	6.03	6.05
Commercial	3.24	3.64	3.63	3.64	4.12	4.16	4.14	4.38	4.84	4.60
Industrial[3]	7.53	8.81	8.91	8.88	10.10	10.08	10.02	10.93	10.79	10.68
Electric Power[4]	5.30	6.58	7.20	6.77	9.42	13.00	10.95	10.37	14.03	12.45
Transportation[5]	0.01	0.06	0.06	0.06	0.10	0.09	0.09	0.11	0.10	0.10
Pipeline Fuel	0.61	0.76	0.79	0.77	0.91	1.02	0.96	1.00	1.08	1.03
Lease and Plant Fuel[6]	1.17	1.33	1.36	1.35	1.56	1.66	1.61	1.68	1.72	1.71
Total	**22.67**	**26.66**	**27.42**	**26.94**	**32.14**	**35.80**	**33.62**	**34.67**	**38.59**	**36.63**
Natural Gas to Liquids	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discrepancy[7]	**0.59**	**-0.28**	**-0.26**	**-0.28**	**-0.31**	**-0.30**	**-0.30**	**-0.31**	**-0.30**	**-0.24**

[1]Marketed production (wet) minus extraction losses.
[2]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.
[3]Includes consumption for combined heat and power, which produces electricity and other useful thermal energy.
[4]Includes consumption of energy by electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[5]Compressed natural gas used as vehicle fuel.
[6]Represents natural gas used in the field gathering and processing plant machinery.
[7]Balancing item. Natural gas lost as a result of converting flow data measured at varying temperatures and pressures to a standard temperature and pressure and the merger of different data reporting systems which vary in scope, format, definition, and respondent type. In addition, 2001 values include net storage injections.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001 supply values: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2002/08) (Washington, DC, August 2002). 2001 consumption based on: EIA, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B15. Natural Gas Prices, Margins, and Revenue
(2001 Dollars per Thousand Cubic Feet, Unless Otherwise Noted)

Prices, Margins, and Revenue	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Source Price										
Average Lower 48 Wellhead Price[1]	4.12	3.39	3.51	3.41	3.70	3.97	3.71	3.95	4.36	4.19
Average Import Price	4.43	3.40	3.46	3.40	3.88	4.17	3.91	4.19	4.65	4.47
Average[2]	**4.17**	**3.39**	**3.50**	**3.41**	**3.74**	**4.02**	**3.76**	**4.01**	**4.45**	**4.26**
Delivered Prices Including Greenhouse Gas Allowance Cost										
Residential	9.68	7.79	7.89	7.80	7.99	8.30	8.02	8.26	8.72	8.57
Commercial	8.32	6.67	6.78	6.69	6.98	7.27	7.00	7.26	7.69	7.53
Industrial[3]	5.01	4.11	5.37	4.94	4.51	7.40	6.34	4.76	8.42	7.45
Electric Power[4]	4.87	3.95	5.30	4.83	4.44	7.50	6.37	4.73	8.53	7.51
Transportation[5]	7.87	7.39	8.62	8.21	7.97	10.58	9.58	8.32	11.57	10.68
Average[6]	**6.57**	**5.28**	**6.12**	**5.81**	**5.55**	**7.61**	**6.78**	**5.80**	**8.44**	**7.71**
Delivered Prices Excluding Greenhouse Gas Allowance Cost										
Residential	9.68	7.79	7.89	7.80	7.99	8.30	8.02	8.26	8.72	8.57
Commercial	8.32	6.67	6.78	6.69	6.98	7.27	7.00	7.26	7.69	7.53
Industrial[3]	5.01	4.11	4.23	4.14	4.51	4.81	4.53	4.76	5.21	5.02
Electric Power[4]	4.87	3.95	4.14	4.02	4.44	4.88	4.54	4.73	5.29	5.06
Transportation[5]	7.87	7.39	7.45	7.39	7.97	7.94	7.74	8.32	8.30	8.21
Average[6]	**6.57**	**5.28**	**5.38**	**5.30**	**5.55**	**5.78**	**5.54**	**5.80**	**6.19**	**6.03**
Transmission & Distribution Margins[7]										
Residential	5.50	4.39	4.39	4.39	4.25	4.27	4.26	4.25	4.28	4.30
Commercial	4.14	3.28	3.28	3.27	3.24	3.24	3.24	3.25	3.24	3.27
Industrial[3]	0.83	0.72	0.73	0.72	0.77	0.79	0.77	0.75	0.77	0.76
Electric Power[4]	0.70	0.56	0.65	0.61	0.70	0.86	0.78	0.72	0.84	0.80
Transportation[5]	3.69	4.00	3.95	3.98	4.23	3.92	3.98	4.31	3.86	3.95
Average[6]	**2.40**	**1.89**	**1.88**	**1.89**	**1.81**	**1.76**	**1.78**	**1.79**	**1.75**	**1.77**
Transmission & Distribution Revenue (billion 2001 dollars)										
Residential	26.45	24.08	24.00	24.01	25.22	24.78	24.94	26.39	25.78	26.05
Commercial	13.42	11.94	11.91	11.91	13.33	13.48	13.39	14.25	15.68	15.04
Industrial[3]	6.28	6.36	6.49	6.43	7.82	7.94	7.70	8.23	8.27	8.08
Electric Power[4]	3.69	3.70	4.64	4.14	6.57	11.18	8.54	7.42	11.80	9.91
Transportation[5]	0.04	0.23	0.22	0.23	0.41	0.36	0.37	0.47	0.39	0.41
Total	**49.88**	**46.31**	**47.27**	**46.72**	**53.36**	**57.74**	**54.94**	**56.76**	**61.91**	**59.49**
Greenhouse Gas Allowance Cost										
Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commercial	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial[3]	0.00	0.00	1.15	0.80	0.00	2.59	1.81	0.00	3.21	2.43
Electric Power[4]	0.00	0.00	1.16	0.81	0.00	2.62	1.83	0.00	3.24	2.45
Transportation[5]	0.00	0.00	1.17	0.82	0.00	2.64	1.84	0.00	3.27	2.48
Average[6]	**0.00**	**0.00**	**0.74**	**0.51**	**0.00**	**1.83**	**1.24**	**0.00**	**2.25**	**1.68**

[1]Represents lower 48 onshore and offshore supplies.
[2]Quantity-weighted average of the average lower 48 wellhead price and the average price of imports at the U.S. border.
[3]Includes consumption for combined heat and power, which produces electricity and other useful thermal energy.
[4]Includes consumption of energy by electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.
[5]Compressed natural gas used as a vehicle fuel. Price includes estimated motor vehicle fuel taxes.
[6]Weighted average allowance cost. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.
[7]Within the table, "transmission and distribution" margins equal the difference between the delivered price and the source price (average of the wellhead price and the price of imports at the U.S. border) of natural gas and, thus, reflect the total cost of bringing natural gas to market. When the term "transmission and distribution" margins is used in today's natural gas market, it generally does not include the cost of independent natural gas marketers or costs associated with aggregation of supplies, provisions of storage, and other services. As used here, the term includes the cost of all services and the cost of pipeline fuel used in compressor stations.

Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.

Sources: 2001 electric generators delivered price: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." 2001 industrial delivered prices based on Energy Information Administration (EIA), *Manufacturing Energy Consumption Survey 1998*. 2001 residential, commercial, and transportation delivered prices, average lower 48 wellhead price, and average import price: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2002/08) (Washington, DC, August 2002). Other 2001 values: EIA, Office of Integrated Analysis and Forecasting. **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B16. Oil and Gas Supply

Production and Supply	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Crude Oil										
Lower 48 Average Wellhead Price[1] (2001 dollars per barrel)	**22.91**	**23.89**	**23.56**	**23.57**	**24.98**	**23.65**	**23.54**	**26.22**	**24.11**	**23.98**
Production (million barrels per day)[2]										
U.S. Total	**5.80**	**5.64**	**5.63**	**5.64**	**5.43**	**5.41**	**5.41**	**5.30**	**5.27**	**5.20**
Lower 48 Onshore	3.13	2.47	2.47	2.47	2.06	2.05	2.05	1.92	1.90	1.90
Lower 48 Offshore	1.71	2.52	2.52	2.52	2.14	2.13	2.13	2.22	2.19	2.13
Alaska	0.97	0.64	0.64	0.64	1.23	1.23	1.23	1.17	1.17	1.17
Lower 48 End of Year Reserves (billion barrels)[2]	**19.48**	**17.72**	**17.70**	**17.71**	**15.39**	**15.34**	**15.31**	**15.04**	**14.92**	**14.74**
Natural Gas										
Lower 48 Average Wellhead Price[1] (2001 dollars per thousand cubic feet)	**4.12**	**3.39**	**3.51**	**3.41**	**3.70**	**3.97**	**3.71**	**3.95**	**4.36**	**4.19**
Dry Production (trillion cubic feet)[3]										
U.S. Total	**19.45**	**21.54**	**22.21**	**21.90**	**24.86**	**26.61**	**25.65**	**26.37**	**27.32**	**27.06**
Lower 48 Onshore	13.72	15.57	16.17	15.90	17.96	18.65	17.73	17.77	18.72	18.28
Associated-Dissolved[4]	1.77	1.37	1.36	1.37	1.19	1.19	1.19	1.13	1.13	1.13
Non-Associated	11.94	14.20	14.81	14.54	16.77	17.46	16.54	16.64	17.59	17.15
Conventional	6.54	7.04	7.32	7.15	7.15	7.37	7.16	7.04	7.13	7.22
Unconventional	5.40	7.16	7.49	7.39	9.61	10.09	9.38	9.60	10.46	9.94
Lower 48 Offshore	5.30	5.49	5.56	5.52	5.43	5.58	5.53	5.74	5.77	5.94
Associated-Dissolved[4]	1.08	0.96	0.96	0.96	0.80	0.79	0.79	0.82	0.81	0.78
Non-Associated	4.22	4.53	4.60	4.56	4.63	4.78	4.74	4.93	4.96	5.15
Alaska	0.43	0.48	0.48	0.48	1.47	2.39	2.39	2.85	2.84	2.84
Lower 48 End of Year Dry Reserves[3] (trillion cubic feet)	**174.04**	**186.42**	**185.39**	**185.58**	**194.24**	**195.87**	**192.82**	**190.10**	**192.41**	**189.09**
Supplemental Gas Supplies (trillion cubic feet)[5]	**0.08**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**
Total Lower 48 Wells (thousands)	**33.94**	**25.73**	**25.75**	**25.56**	**26.21**	**27.25**	**26.22**	**27.53**	**29.30**	**27.97**

[1]Represents lower 48 onshore and offshore supplies.
[2]Includes lease condensate.
[3]Marketed production (wet) minus extraction losses.
[4]Gas which occurs in crude oil reserves either as free gas (associated) or as gas in solution with crude oil (dissolved).
[5]Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001 lower 48 onshore, lower 48 offshore, and Alaska crude oil production: Energy Information Administration (EIA), *Petroleum Supply Annual 2001*, DOE/EIA-0340(2001)/1 (Washington, DC, June 2002). 2001 natural gas lower 48 average wellhead price, Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2002/08) (Washington, DC, August 2002). Other 2001 values: EIA, Office of Integrated Analysis and Forecasting. **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B17. Coal Supply, Disposition, and Prices
(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Production[1]										
Appalachia	443	420	415	422	416	212	320	433	145	253
Interior	147	161	153	158	151	88	130	159	42	112
West	548	669	513	576	801	185	387	865	128	236
East of the Mississippi	539	527	518	527	529	286	415	554	182	345
West of the Mississippi	599	723	563	628	839	199	422	902	132	255
Total	**1138**	**1250**	**1081**	**1155**	**1367**	**485**	**838**	**1456**	**315**	**600**
Net Imports										
Imports	19	20	11	11	25	11	11	28	10	10
Exports	49	33	33	33	29	29	27	24	24	23
Total	**-30**	**-14**	**-22**	**-22**	**-4**	**-19**	**-16**	**3**	**-13**	**-13**
Total Supply[2]	**1109**	**1236**	**1060**	**1133**	**1363**	**466**	**821**	**1460**	**301**	**587**
Consumption by Sector										
Residential and Commercial	4	5	5	5	5	5	5	5	6	6
Industrial[3]	63	67	61	63	70	59	62	71	58	61
of which: Coal to Liquids	0	0	0	0	0	0	0	0	0	0
Coke Plants	26	24	24	24	20	17	18	18	14	15
Electric Power[4]	957	1146	966	1044	1274	390	744	1371	227	558
Total	**1050**	**1242**	**1055**	**1136**	**1369**	**471**	**829**	**1466**	**306**	**640**
Discrepancy and Stock Change[5]	**58**	**-6**	**4**	**-2**	**-6**	**-6**	**-7**	**-6**	**-4**	**-53**
Average Minemouth Price										
(2001 dollars per short ton)	17.59	15.06	15.84	15.56	14.34	15.27	15.06	14.39	13.67	15.63
(2001 dollars per million Btu)	0.83	0.73	0.76	0.75	0.70	0.71	0.72	0.71	0.63	0.73
Delivered Prices Including Greenhouse Gas Allowance Cost (2001 dollars per short ton)[6]										
Industrial	32.82	30.11	73.69	60.61	28.45	123.14	95.85	28.04	143.97	117.22
Coke Plants	46.42	41.27	96.11	79.52	38.08	162.07	124.51	36.67	189.79	152.64
Electric Power										
(2001 dollars per short ton)	25.06	23.63	65.08	52.54	22.44	116.04	86.78	22.27	136.11	110.86
(2001 dollars per million Btu)	1.25	1.17	3.17	2.58	1.12	5.53	4.22	1.11	6.53	5.24
Average	**26.06**	**24.33**	**66.29**	**53.56**	**22.98**	**118.63**	**88.26**	**22.74**	**140.21**	**112.46**
Delivered Prices Excluding Greenhouse Gas Allowance Cost (2001 dollars per short ton)[6]										
Industrial	32.82	30.11	30.10	30.19	28.45	24.86	27.11	28.04	22.55	25.27
Coke Plants	46.42	41.27	41.37	41.31	38.08	38.31	38.12	36.67	36.64	36.60
Electric Power										
(2001 dollars per short ton)	25.06	23.63	23.76	23.87	22.44	20.83	21.36	22.27	18.81	20.87
(2001 dollars per million Btu)	1.25	1.17	1.16	1.17	1.12	0.99	1.04	1.11	0.90	0.99
Average	**26.06**	**24.33**	**24.53**	**24.59**	**22.98**	**21.98**	**22.15**	**22.74**	**20.39**	**21.67**
Exports[7]	36.97	32.68	32.41	32.51	30.94	28.76	30.28	30.36	27.46	28.68
Greenhouse Gas Allowance Cost (2001 dollars per short ton)[6]										
Industrial	0.00	0.00	43.59	30.42	0.00	98.28	68.74	0.00	121.42	91.96
Coke Plants	0.00	0.00	54.74	38.21	0.00	123.76	86.39	0.00	153.14	116.04
Electric Power										
(2001 dollars per short ton)	0.00	0.00	41.32	28.66	0.00	95.21	65.42	0.00	117.30	89.99
(2001 dollars per million Btu)	0.00	0.00	2.02	1.41	0.00	4.54	3.18	0.00	5.62	4.26
Average	**0.00**	**0.00**	**41.76**	**28.96**	**0.00**	**96.65**	**66.12**	**0.00**	**119.82**	**90.79**

[1]Includes anthracite, bituminous coal, lignite, and waste coal delivered to independent power producers. Waste coal deliveries totaled 10.1 million tons in 2000 and 10.6 million tons in 2001.
[2]Production plus net imports and net storage withdrawals.
[3]Includes consumption for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public.
[4]Includes all electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.
[5]Balancing item: the sum of production, net imports, and net storage withdrawals minus total consumption.
[6]Sectoral prices weighted by consumption tonnage; weighted average excludes residential/ commercial prices and export free-alongside-ship (f.a.s.) prices.
[7]F.a.s. price at U.S. port of exit.
Btu = British thermal unit.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001 data based on Energy Information Administration (EIA), *Quarterly Coal Report, October-December 2001*, DOE/EIA-0121(2001/4Q) (Washington, DC, May 2002) and EIA, AEO2003 National Energy Modeling System run MLBILL.D050503A. **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B18. Renewable Energy Generating Capacity and Generation
(Gigawatts, Unless Otherwise Noted)

Capacity and Generation	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Electric Power Sector[1]										
Net Summer Capacity										
Conventional Hydropower	78.10	78.66	78.66	78.66	78.65	78.65	78.65	78.65	78.65	78.65
Geothermal[2]	2.83	3.81	6.68	6.58	5.19	10.06	9.56	5.77	10.55	9.87
Municipal Solid Waste[3]	3.25	4.08	4.84	4.78	4.41	5.17	5.17	4.42	5.19	5.19
Wood and Other Biomass[4]	1.80	2.09	3.96	3.27	2.20	48.03	31.71	2.33	67.38	64.08
Solar Thermal	0.33	0.44	0.44	0.44	0.48	0.48	0.48	0.50	0.50	0.50
Solar Photovoltaic[5]	0.02	0.10	0.10	0.10	0.27	0.27	0.27	0.36	0.36	0.36
Wind	4.29	8.24	34.53	22.71	10.05	82.60	61.48	10.81	83.22	70.02
Total	**90.62**	**97.42**	**129.20**	**116.54**	**101.24**	**225.26**	**187.31**	**102.83**	**245.84**	**228.67**
Generation (billion kilowatthours)										
Conventional Hydropower	213.82	300.90	300.89	300.89	300.07	299.92	299.96	300.36	300.10	300.17
Geothermal[2]	13.81	22.04	44.61	43.85	33.43	73.14	69.13	38.12	77.22	71.94
Municipal Solid Waste[3]	19.55	29.20	35.17	34.78	31.67	37.63	37.64	31.81	37.83	37.86
Wood and Other Biomass[4]	9.38	21.47	27.11	24.55	22.06	304.95	188.02	22.82	429.32	396.20
Dedicated Plants	7.66	12.47	19.52	17.15	13.22	304.95	188.02	14.09	429.32	396.20
Cofiring	1.72	9.00	7.59	7.40	8.84	0.00	0.00	8.73	0.00	0.00
Solar Thermal	0.49	0.77	0.77	0.77	0.90	0.90	0.90	0.97	0.97	0.97
Solar Photovoltaic[5]	0.00	0.24	0.24	0.24	0.66	0.66	0.66	0.88	0.88	0.88
Wind	5.78	22.91	112.46	73.69	29.20	277.70	207.45	32.03	280.10	234.93
Total	**262.85**	**397.53**	**521.25**	**478.78**	**417.98**	**994.90**	**803.75**	**427.00**	**1126.43**	**1042.96**
End- Use Sector										
Net Summer Capacity										
Combined Heat and Power[6]										
Municipal Solid Waste	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Biomass	4.41	5.93	5.89	5.90	7.79	7.67	7.72	8.74	8.60	8.63
Total	**4.69**	**6.21**	**6.17**	**6.18**	**8.07**	**7.95**	**8.00**	**9.03**	**8.88**	**8.92**
Other End-Use Generators[7]										
Conventional Hydropower[8]	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.02	0.38	0.38	0.38	0.61	0.76	0.70	0.94	1.15	1.07
Total	**1.12**	**1.47**	**1.47**	**1.47**	**1.71**	**1.85**	**1.79**	**2.04**	**2.25**	**2.16**
Generation (billion kilowatthours)										
Combined Heat and Power[6]										
Municipal Solid Waste	2.46	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15	2.15
Biomass	28.67	37.53	37.31	37.37	48.39	47.72	48.01	53.98	53.13	53.34
Total	**31.13**	**39.68**	**39.46**	**39.53**	**50.54**	**49.87**	**50.16**	**56.13**	**55.28**	**55.49**
Other End-Use Generators[7]										
Conventional Hydropower[8]	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Photovoltaic	0.02	0.82	0.82	0.82	1.32	1.61	1.50	1.99	2.42	2.26
Total	**4.25**	**5.05**	**5.05**	**5.05**	**5.55**	**5.85**	**5.73**	**6.23**	**6.66**	**6.49**

[1]Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes hydrothermal resources only (hot water and steam).
[3]Includes landfill gas.
[4]Includes projections for energy crops after 2010.
[5]Does not include off-grid photovoltaics (PV). See Annual Energy Review 2001 Table 10.6 for estimates of 1989-2000 PV shipments, including exports, for both grid-connected and off-grid applications.
[6]Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors.
[7]Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.
[8]Represents own-use industrial hydroelectric power.

Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports. Net summer capacity has been estimated for nonutility generators for AEO2003. Net summer capacity is used to be consistent with electric utility capacity estimates. Additional retirements are determined on the basis of the size and age of the units.

Sources: 2001 capacity: Energy Information Administration (EIA), Form EIA-860: "Annual Electric Generator Report" (preliminary). 2001 generation: EIA, *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B19. Renewable Energy Consumption by Sector and Source[1]
(Quadrillion Btu per Year)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Marketed Renewable Energy[2]										
Residential	**0.39**	**0.41**	**0.41**	**0.41**	**0.41**	**0.40**	**0.40**	**0.40**	**0.40**	**0.40**
Wood	0.39	0.41	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.40
Commercial	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**	**0.11**
Biomass	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Industrial[3]	**1.82**	**2.22**	**2.21**	**2.21**	**2.77**	**2.74**	**2.75**	**3.05**	**3.02**	**3.02**
Conventional Hydroelectric	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Municipal Solid Waste	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Biomass	1.77	2.17	2.16	2.16	2.72	2.69	2.71	3.00	2.97	2.98
Transportation	**0.15**	**0.26**	**0.26**	**0.26**	**0.31**	**0.28**	**0.30**	**0.33**	**0.29**	**0.31**
Ethanol used in E85[4]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Ethanol used in Gasoline Blending	0.15	0.26	0.26	0.26	0.30	0.28	0.29	0.33	0.28	0.31
Electric Power[5]	**3.01**	**4.57**	**6.30**	**5.89**	**5.02**	**11.42**	**9.54**	**5.21**	**12.69**	**11.77**
Conventional Hydroelectric	2.16	3.09	3.09	3.09	3.07	3.07	3.07	3.07	3.07	3.07
Geothermal	0.29	0.57	1.30	1.28	0.93	2.23	2.07	1.07	2.36	2.16
Municipal Solid Waste[6]	0.31	0.40	0.48	0.47	0.43	0.51	0.51	0.43	0.51	0.51
Biomass	0.15	0.26	0.31	0.29	0.27	2.78	1.74	0.28	3.89	3.59
Dedicated Plants	0.12	0.14	0.21	0.19	0.15	2.78	1.74	0.16	3.89	3.59
Cofiring	0.03	0.12	0.09	0.10	0.12	0.00	0.00	0.12	0.00	0.00
Solar Thermal	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Solar Photovoltaic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wind	0.08	0.24	1.12	0.76	0.30	2.82	2.13	0.33	2.84	2.41
Total Marketed Renewable Energy	**5.46**	**7.56**	**9.28**	**8.88**	**8.61**	**14.95**	**13.10**	**9.10**	**16.50**	**15.62**
Sources of Ethanol										
From Corn	0.15	0.26	0.26	0.26	0.28	0.26	0.27	0.28	0.24	0.27
From Cellulose	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.05	0.05	0.05
Total	**0.15**	**0.26**	**0.26**	**0.26**	**0.31**	**0.28**	**0.30**	**0.33**	**0.29**	**0.31**
Non-Marketed Renewable Energy[7]										
Selected Consumption										
Residential	**0.03**	**0.04**	**0.04**	**0.04**	**0.05**	**0.05**	**0.05**	**0.06**	**0.06**	**0.06**
Solar Hot Water Heating	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
Geothermal Heat Pumps	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Solar Photovoltaic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Commercial	**0.02**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**
Solar Thermal	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Solar Photovoltaic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01

[1]Actual heat rates used to determine fuel consumption for all renewable fuels except hydropower, solar, and wind. Consumption at hydroelectric, solar, and wind facilities determined by using the fossil fuel equivalent of 10,280 Btu per kilowatthour.

[2]Includes nonelectric renewable energy groups for which the energy source is bought and sold in the marketplace, although all transactions may not necessarily be marketed, and marketed renewable energy inputs for electricity entering the marketplace on the electric power grid. Excludes electricity imports; see Table B8.

[3]Includes all electricity production by industrial and other combined heat and power for the grid and for own use.

[4]Excludes motor gasoline component of E85.

[5]Includes consumption of energy by electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

[6]Includes landfill gas.

[7]Includes selected renewable energy consumption data for which the energy is not bought or sold, either directly or indirectly as an input to marketed energy. The Energy Information Administration does not estimate or project total consumption of nonmarketed renewable energy.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.

Sources: 2001 ethanol: Energy Information Administration (EIA), *Annual Energy Review 2001*, DOE/EIA-0384(2001) (Washington, DC, November 2002). 2001 electric generators: EIA, Form EIA-860: "Annual Electric Generator Report" (preliminary). Other 2001 values: EIA, Office of Integrated Analysis and Forecasting. **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B20. Greenhouse Gas Emissions and Allowance Cost
(Million Metric Tons Carbon Equivalent)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Carbon Dioxide Emissions										
Residential										
Petroleum	27.2	27.6	27.6	27.6	25.7	25.8	25.6	25.0	25.0	24.9
Natural Gas	71.1	81.1	81.0	81.0	87.9	85.8	86.6	91.9	89.3	89.6
Coal	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Total	**98.7**	**109.1**	**109.0**	**109.0**	**113.9**	**112.0**	**112.6**	**117.2**	**114.7**	**114.9**
Commercial										
Petroleum	14.0	13.7	13.7	13.7	14.1	14.5	14.2	14.1	14.8	14.3
Natural Gas	48.0	53.9	53.8	53.9	60.9	61.5	61.2	64.8	71.6	68.1
Coal	2.3	2.4	2.5	2.4	2.7	2.8	2.7	2.8	2.9	2.9
Total	**64.3**	**70.0**	**69.9**	**70.0**	**77.7**	**78.8**	**78.1**	**81.7**	**89.3**	**85.2**
Industrial[1]										
Petroleum	97.9	97.9	96.0	96.5	105.5	99.1	101.3	109.1	101.1	103.6
Natural Gas[2]	123.4	147.7	149.8	148.9	169.4	171.0	169.4	183.3	182.4	180.5
Coal	52.1	56.5	53.1	54.2	56.2	48.9	50.7	56.2	47.3	49.2
Total	**273.4**	**302.1**	**298.9**	**299.6**	**331.2**	**319.0**	**321.3**	**348.6**	**330.8**	**333.3**
Transportation										
Petroleum[3]	501.4	611.5	605.1	608.2	737.5	690.4	717.1	802.8	725.3	763.7
Natural Gas[4]	9.2	12.0	12.5	12.2	14.9	16.4	15.5	16.4	17.4	16.8
Other[5]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**510.6**	**623.6**	**617.6**	**620.5**	**752.5**	**706.8**	**732.7**	**819.2**	**742.7**	**780.5**
Total Carbon Dioxide Emissions by Delivered Fuel										
Petroleum[3]	640.5	750.8	742.5	746.0	882.8	829.8	858.2	950.9	866.2	906.5
Natural Gas	251.7	294.7	297.0	296.1	333.1	334.8	332.7	356.4	360.7	355.0
Coal	54.7	59.3	55.9	57.0	59.3	52.0	53.8	59.4	50.5	52.3
Other[5]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**947.0**	**1104.8**	**1095.4**	**1099.1**	**1275.2**	**1216.6**	**1244.7**	**1366.7**	**1277.4**	**1313.9**
Electric Power[6]										
Petroleum	27.5	10.1	5.4	6.0	11.3	3.9	4.8	12.0	3.9	5.8
Natural Gas	77.7	96.6	105.0	99.3	138.2	158.0	160.2	152.1	132.6	178.1
Coal	506.4	590.8	504.4	542.0	653.0	190.0	387.8	703.6	68.3	279.5
Total	**611.6**	**697.4**	**614.8**	**647.3**	**802.5**	**351.9**	**552.8**	**867.8**	**204.8**	**463.4**
Total Carbon Dioxide Emissions by Primary Fuel[7]										
Petroleum[3]	668.0	760.8	747.9	752.0	894.1	833.7	863.0	962.9	870.2	912.2
Natural Gas	329.4	391.3	402.0	395.4	471.3	492.8	492.9	508.5	493.3	533.1
Coal	561.1	650.1	560.3	599.0	712.2	242.0	441.6	763.0	118.8	331.9
Other[5]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**1558.6**	**1802.2**	**1710.1**	**1746.4**	**2077.7**	**1568.5**	**1797.5**	**2234.4**	**1482.2**	**1777.3**
Non-Energy Related Carbon Dioxide Emissions	**36.3**	**39.5**	**39.5**	**39.5**	**43.9**	**43.9**	**43.9**	**46.2**	**46.2**	**46.2**
Total Carbon Dioxide Emissions	**1594.9**	**1841.7**	**1749.7**	**1786.0**	**2121.6**	**1612.4**	**1841.4**	**2280.6**	**1528.4**	**1823.5**
Other Greenhouse Gas Emissions	**332.9**	**388.3**	**286.4**	**292.6**	**466.6**	**339.5**	**333.7**	**525.0**	**362.9**	**357.7**
Methane	175.2	177.6	115.2	119.8	174.3	126.4	115.3	172.2	120.0	113.1
Nitrous Oxide	118.9	126.5	121.0	121.0	137.3	131.4	131.4	143.4	137.2	137.2
High Global Warming Potential Gases	38.8	84.2	50.2	51.8	155.0	81.8	87.0	209.4	105.8	107.4
Total Greenhouse Gas Emissions	**1927.8**	**2230.1**	**2036.1**	**2078.6**	**2588.2**	**1951.9**	**2175.1**	**2805.6**	**1891.4**	**2181.2**

Table B20. Greenhouse Gas Emissions and Allowance Cost (Continued)
(Million Metric Tons Carbon Equivalent)

Sector and Source	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
Greenhouse Gas Emission Cap Compliance										
Covered Emissions										
Energy-Related Carbon Dioxide	1378.2	1605.0	1513.1	1549.3	1866.0	1357.5	1586.7	2014.2	1256.9	1555.8
Other Greenhouse Gases	75.2	123.5	70.1	72.2	195.7	102.8	108.4	250.7	127.6	129.4
Offsets Purchased	0.0	0.0	234.7	198.7	0.0	126.1	219.8	0.0	125.6	219.9
Non-Covered Greenhouse Gas Offsets	0.0	0.0	48.5	44.4	0.0	34.3	45.7	0.0	39.0	46.0
U.S. Sequestration Offsets	0.0	0.0	112.8	103.6	0.0	91.8	127.9	0.0	86.5	112.3
International Offsets	0.0	0.0	73.4	50.7	0.0	0.0	46.2	0.0	0.1	61.6
Covered Emissions less Offsets	1453.4	1728.5	1348.5	1422.8	2061.6	1334.2	1475.2	2264.9	1258.9	1465.3
Covered Emissions Goal	N/A	N/A	1465.1	1465.1	N/A	1257.9	1465.1	N/A	1257.9	1465.1
Allowance Bank Activity	0.0	0.0	116.5	42.2	0.0	-76.3	-10.2	0.0	-1.0	-0.2
Cumulative Bank Balance	0.0	0.0	116.5	42.2	0.0	98.9	8.5	0.0	7.3	-1.8
Allowance Cost (2001 dollars per ton)										
Emissions Allowance Cost	0.00	0.00	78.89	55.07	0.00	178.36	124.50	0.00	220.71	167.24
Offset Price	0.00	0.00	71.49	55.07	0.00	34.84	89.00	0.00	51.73	106.48

[1]Fuel consumption includes energy for combined heat and power plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public.
[2]Includes lease and plant fuel.
[3]This includes international bunker fuel, which by convention are excluded from the international accounting of carbon dioxide emissions. In the years from 1990 through 2000, international bunker fuels accounted for 24 to 30 million metric tons carbon equivalent of carbon dioxide annually.
[4]Includes pipeline fuel natural gas and compressed natural gas used as vehicle fuel.
[5]Includes methanol and liquid hydrogen.
[6]Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Does not include emissions from the nonbiogenic component of municipal solid waste because under international guidelines these are accounted for as waste, not energy.
[7]Emissions from electric power generators are distributed to the primary fuels.
N/A = Not applicable.
Note: Totals may not equal sum of components due to independent rounding. Data for 2001 are model results and may differ slightly from official EIA data reports.
Sources: 2001 emissions and emission factors: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 2001*, DOE/EIA-0573(2001) (Washington, DC, December 2002). **Projections:** EIA, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.

Table B21. Macroeconomic Indicators

(Billion 1996 Chain-Weighted Dollars, Unless Otherwise Noted)

Indicators	2001	Projections								
		2010			2020			2025		
		Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case	Reference Case	S.139 Case	SA.2028 Case
GDP Chain-Type Price Index (1996=1.000)	**1.094**	**1.313**	**1.321**	**1.319**	**1.708**	**1.735**	**1.726**	**1.981**	**2.028**	**2.019**
Potential Gross Domestic Product	9456	12454	12458	12458	16772	16729	16750	19240	19150	19185
Real Gross Domestic Product	**9215**	**12258**	**12211**	**12226**	**16444**	**16364**	**16408**	**18916**	**18810**	**18840**
Real Consumption	6377	8412	8375	8387	11346	11284	11325	13008	12954	12982
Real Investment	1575	2499	2478	2485	3755	3724	3738	4496	4447	4456
Real Government Spending	1640	1895	1897	1896	2211	2204	2207	2429	2417	2421
Real Exports	1076	1784	1781	1782	3361	3329	3338	4696	4621	4636
Real Imports	1492	2302	2292	2294	4060	4027	4047	5395	5376	5395
Real Disposable Personal Income	**6748**	**8635**	**8607**	**8617**	**11693**	**11648**	**11687**	**13425**	**13432**	**13446**
Federal Funds Rate (percent)	**3.89**	**5.48**	**5.63**	**5.59**	**6.37**	**6.58**	**6.58**	**6.49**	**6.97**	**6.88**
AA Utility Bond Rate (percent)										
Nominal	**7.57**	**7.22**	**7.38**	**7.33**	**9.00**	**9.17**	**9.16**	**9.61**	**9.99**	**9.94**
Real	**5.60**	**5.26**	**5.20**	**5.22**	**6.12**	**6.18**	**6.19**	**6.54**	**6.76**	**6.71**
Energy Intensity (thousand Btu per 1996 dollar of GDP)										
Delivered Energy	7.74	6.83	6.80	6.81	5.91	5.65	5.76	5.52	5.17	5.29
Total Energy	10.56	9.24	9.15	9.21	7.89	7.37	7.59	7.33	6.70	6.93
Consumer Price Index (1982-84=1.00)	**1.77**	**2.19**	**2.20**	**2.20**	**2.93**	**2.97**	**2.96**	**3.47**	**3.55**	**3.53**
Unemployment Rate (percent)	**4.79**	**4.42**	**4.55**	**4.52**	**5.88**	**6.03**	**5.94**	**5.77**	**5.85**	**5.85**
Housing Starts (millions)	**1.80**	**2.18**	**2.12**	**2.14**	**1.93**	**1.92**	**1.93**	**2.01**	**2.01**	**2.00**
Single-Family	1.27	1.34	1.31	1.32	1.12	1.11	1.11	1.12	1.11	1.11
Multifamily	0.33	0.47	0.45	0.45	0.49	0.49	0.49	0.57	0.57	0.56
Mobile Home Shipments	0.19	0.37	0.36	0.37	0.32	0.33	0.33	0.33	0.33	0.33
Commercial Floorspace, Total (billion square feet)	**70.2**	**82.0**	**82.0**	**82.0**	**94.6**	**94.2**	**94.5**	**100.8**	**100.6**	**100.7**
Value of Shipments (billion 1996 dollars)										
Total Industrial	5425	6977	6920	6938	8969	8874	8914	10128	9990	10024
Nonmanufacturing	1346	1510	1500	1503	1744	1714	1726	1870	1828	1841
Manufacturing	4079	5466	5420	5435	7226	7160	7188	8258	8162	8183
Energy-Intensive Manufacturing	1086	1264	1255	1259	1451	1434	1441	1538	1515	1522
Non-Energy-Intensive Manufacturing	2993	4203	4164	4177	5774	5726	5748	6720	6647	6662
United Sales of Light-Duty Vehicles	**17.11**	**18.29**	**17.87**	**18.01**	**20.02**	**20.06**	**20.06**	**20.00**	**20.15**	**20.11**
Population (millions)										
Population with Armed Forces Overseas	278.2	300.2	300.2	300.2	325.3	325.3	325.3	338.2	338.2	338.2
Population (aged 16 and over)	215.4	236.6	236.6	236.6	256.5	256.5	256.5	266.6	266.6	266.6
Employment, Non-Agriculture	131.7	147.3	147.1	147.1	159.1	158.8	159.0	165.8	165.5	165.6
Employment, Manufacturing	17.5	17.7	17.7	17.7	17.8	17.7	17.8	18.5	18.4	18.4
Labor Force	141.8	156.5	156.5	156.5	169.8	169.6	169.7	177.4	177.3	177.3

GDP = Gross domestic product.
Btu = British thermal unit.
Sources: 2001: Global Insight macroeconomic model CTL0802. **Projections:** Energy Information Administration, AEO2003 National Energy Modeling System runs MLBASE.D050303A, MLBILL.D050503A, and SA2028.D051104A.