

## Text Notes

### Overview

1. Some possible policy changes—notably, the adoption of policies to limit or reduce greenhouse gas emissions—could change the reference case projections significantly. EIA has examined many of the proposed greenhouse gas policies at the request of Congress; the reports are available on EIA's web site (see "Responses to Congressional and Other Requests," web site [www.eia.doe.gov/oiaf/service\\_rpts.htm](http://www.eia.doe.gov/oiaf/service_rpts.htm)).
2. The comparison of production levels was adjusted for the entry of Angola into OPEC in late 2007.
3. See Energy Information Administration, *Annual Energy Outlook 2007*, DOE/EIA-0383(2007) (Washington, DC, February 2007), "Impact of Rising Construction and Equipment Costs on Energy Industries," pp. 36-41.
4. Vehicles that can use alternative fuels or employ electric motors and advanced electricity storage, advanced engine controls, or other new technologies.
5. Biodiesel is defined as the monoalkyl esters of fatty acids derived from plant or animal matter and suitable for use in a diesel engine.
6. BTL is defined as diesel fuel and other liquid hydrocarbons produced by a Fischer-Tropsch process using cellulosic biomass as feedstock.

### Legislation and Regulations

7. U.S. Environmental Protection Agency, 40 CFR Parts 59, 80, 85 and 86 [EPA-HQ-OAR-2005-0036; FRL-8278-4], RIN 2060-AK70, "Control of Hazardous Air Pollutants from Mobile Sources; Final Rule," *Federal Register*, Vol. 72, No. 37 (February 26, 2007), web site <http://edocket.access.gpo.gov/2007/pdf/E7-2667.pdf>. Most of the data cited here were taken from this source.
8. For the complete text of the Energy Independence and Security Act of 2007, see web site [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110\\_cong\\_public\\_laws&docid=f:publ140.110.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ140.110.pdf).
9. See, for example, web site [http://energy.senate.gov/public/\\_files/HR6EnergyBillSummary.pdf](http://energy.senate.gov/public/_files/HR6EnergyBillSummary.pdf).
10. Footprint is the product of track width and wheelbase, measured in square feet.
11. Energy Policy Act of 2005, Section 1501.
12. "DuPont and BP Reveal Biobutanol Test Results" *Ethanol & Biodiesel News* (April 23, 2007).
13. DuPont, "Alternative Fuels and Potential Material Compatibility Issues," DuPont Automobile Annual Fuel Luncheon (April 16, 2008).
14. Energy Information Administration, *Annual Energy Outlook 2007*, DOE/EIA-0383(2007) (Washington, DC, February 2007), "Legislation and Regulations: Excise Taxes on Highway Fuels," p. 25, web site [www.eia.doe.gov/oiaf/archive/aeo07](http://www.eia.doe.gov/oiaf/archive/aeo07).
15. U.S. Department of the Treasury, Internal Revenue Service, *Excise Taxes for 2007*, Publication 510 (1/2007) (Washington, DC, Revised January 2007), web site [www.irs.gov/publications/p510](http://www.irs.gov/publications/p510).
16. Defense Energy Support Center, "Compilation of United States Fuel Taxes, Inspection Fees, and Environmental Taxes and Fees" (June 29, 2007).
17. U.S. Department of Energy, Energy Efficiency and Renewable Energy, Alternative Fuels & Advanced Vehicles Data Center, "Volumetric Ethanol Excise Tax Credit (VEETC)," web site [www.eere.energy.gov/afdc/progs/view\\_ind\\_fed.php/afdc/399/0](http://www.eere.energy.gov/afdc/progs/view_ind_fed.php/afdc/399/0).
18. E85 is a fuel containing a blend of 70 to 85 percent ethanol and 30 to 15 percent gasoline by volume.
19. VEETC was established by the American Jobs Creation Act of 2004, Section 301. Before VEETC, gasoline blended with 5.7 percent, 7.7 percent, or 10 percent ethanol received an excise tax reduction equivalent to 51 cents per gallon of ethanol; however, the applicable excise tax reduction for blends with any other ethanol percentage was equivalent to less than 51 cents per gallon of ethanol. This was an especially serious impediment to blenders of E85.
20. VEETC provided biodiesel tax credits for 2005 and 2006. EPACT2005, Section 1344, extended the biodiesel tax credits through 2007 and 2008.
21. The Food, Conservation, and Energy Act of 2008 (Public Law 110-234), which was enacted in May 2008, contains several tax provisions related to biofuels. The bill reduces the ethanol blending tax credit from 51 cents to 45 cents per gallon once annual ethanol production or import volumes reach 7.5 billion gallons; extends the ethanol import tariff through 2010; and establishes a tax credit for cellulosic biofuels of up to \$1.01 per gallon produced. The *AEO2008* reference case projects ethanol production of 8.5 billion gallons in 2008, which would trigger the blending tax credit reduction in 2009. *AEO2008* does not include consideration of the Food, Conservation, and Energy Act of 2008, which was enacted too late for inclusion.
22. EPACT2005, Section 1347, increased the production volume for small producers from 30 million to 60 million gallons, starting in 2006.
23. Most of the data cited in this section are taken from U.S. Environmental Protection Agency, 40 CFR Parts 59, 80, 85, and 86, "Control of Hazardous Air Pollutants From Mobile Sources; Final Rule," *Federal Register*, Vol. 72, No. 37 (February 26, 2007), pp. 8428-8570, web site <http://edocket.access.gpo.gov/2007/pdf/E7-2667.pdf>.
24. The subsidy cost—essentially the expected cost of the program, excluding administrative expenditures—generally equals the amount of the loan multiplied by the probability of default. The actual computation of the "subsidy cost" and whether it represents the true cost of the program are complex issues far beyond the scope of this section of *AEO2008*. For more details on government loan guarantee programs, see Energy Information Administration, *Federal Financial Interventions and Subsidies in Energy Markets 2007*, SR/CNEAF/2008-01 (Washington, DC, April 2008), web site [www.eia.doe.gov/oiaf/servicecpt/subsidy2/index.html](http://www.eia.doe.gov/oiaf/servicecpt/subsidy2/index.html).
25. Energy Information Administration, *Annual Energy Outlook 2007*, DOE/EIA-0383(2007) (Washington, DC, February 2007), "Loan Guarantees and the Economics of Electricity Generating Technologies," pp. 48-49,

## Notes and Sources

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- web site [www.eia.doe.gov/oiaf/archive/aeo07/pdf/issues.pdf](http://www.eia.doe.gov/oiaf/archive/aeo07/pdf/issues.pdf).
26. U.S. House of Representatives, 110th Congress, “Energy and Water Development Appropriations Bill, 2008” (House Report 110-185, June 11, 2007); and U.S. Senate, 110th Congress, “Energy and Water Appropriations Bill, 2008” (Senate Report 110-127, July 9, 2007), web site [www.access.gpo.gov/congress/legislation/08appro.html](http://www.access.gpo.gov/congress/legislation/08appro.html).
  27. See, for example, testimony of Christopher Crane, Senior Vice President, Exelon Corporation, and President and Chief Nuclear Officer, Exelon Nuclear, before the Subcommittee on Energy and Air Quality, Committee on Energy and Commerce, U.S. House of Representatives (April 24, 2007), web site [http://energycommerce.house.gov/cmte\\_mtg/110-eaq-hrg.042407.Crane-testimony.pdf](http://energycommerce.house.gov/cmte_mtg/110-eaq-hrg.042407.Crane-testimony.pdf).
  28. U.S. Department of Energy, Loan Guarantee Program, “DOE Releases Information on Loan Guarantee Pre-Applications” (March 6, 2007), web site [www.lgprogram.energy.gov/press/030607.html](http://www.lgprogram.energy.gov/press/030607.html).
  29. Energy Information Administration, *Annual Energy Outlook 2005*, DOE/EIA-0383(2005) (Washington, DC, February 2005), “State Renewable Energy Requirements and Goals: Status Through 2003,” pp. 20-22, web site [www.eia.doe.gov/oiaf/archive/aeo05/leg\\_reg.html](http://www.eia.doe.gov/oiaf/archive/aeo05/leg_reg.html).
  30. Energy Information Administration, *Annual Energy Outlook 2006*, DOE/EIA-0383(2006) (Washington, DC, February 2006), “State Renewable Energy Requirements and Goals: Update Through 2005,” pp. 24-27, web site [www.eia.doe.gov/oiaf/archive/aeo06/leg\\_reg.html](http://www.eia.doe.gov/oiaf/archive/aeo06/leg_reg.html).
  31. Energy Information Administration, *Annual Energy Outlook 2007*, DOE/EIA-0383(2007) (Washington, DC, February 2007), “State Renewable Energy Requirements and Goals: Update Through 2006,” pp. 28-30, web site [www.eia.doe.gov/oiaf/archive/aeo07/leg\\_reg.html](http://www.eia.doe.gov/oiaf/archive/aeo07/leg_reg.html).
  32. State of New Hampshire, H.B. 873, web site [www.gencourt.state.nh.us/legislation/2007/HB0873.html](http://www.gencourt.state.nh.us/legislation/2007/HB0873.html).
  33. General Assembly of North Carolina, S.B. 3, web site [www.ncleg.net/Sessions/2007/Bills/Senate/PDF/S3v6.pdf](http://www.ncleg.net/Sessions/2007/Bills/Senate/PDF/S3v6.pdf).
  34. Oregon Legislative Assembly, S.B. 838, signed into law by Governor Theodore R. Kulongoski on June 6, 2007, defines a large supplier as any generator that provides at least 3 percent of the State’s electric load, a medium-sized supplier as one that provides between 1.5 and 3 percent of the State’s load, and a small supplier as one that provides less than 1.5 percent of the State’s load. See web site [www.oregon.gov/ENERGY/RENEW/docs/sb0838.en.pdf](http://www.oregon.gov/ENERGY/RENEW/docs/sb0838.en.pdf).
  35. Revised Code of Washington, Chapter 19.285, web site <http://apps.leg.wa.gov/RCW/default.aspx?cite=19.285>.
  36. State of Delaware, S.B. 19, web site <http://depsc.delaware.gov/electric/delrps.shtml>.
  37. An alternative compliance payment is a payment to the State for not meeting their renewable energy goal. In some instances, there are different compliance payments (or penalties) for unique generation technologies.
  38. State of Colorado, H.B. 07-1281, web site [www.leg.state.co.us/clics/clics2007a/csl.nsf/fsbillcont3/C9B0B62160D242CA87257251007C4F7A?open&file=1281\\_enr.pdf](http://www.leg.state.co.us/clics/clics2007a/csl.nsf/fsbillcont3/C9B0B62160D242CA87257251007C4F7A?open&file=1281_enr.pdf).
  39. State of Connecticut, House Bill 7432, Public Act 07-242, web site [www.cga.ct.gov/2007/ACT/PA/2007PA-00242-R00HB-07432-PA.htm](http://www.cga.ct.gov/2007/ACT/PA/2007PA-00242-R00HB-07432-PA.htm).
  40. State of Illinois, Public Act 095-0481, web site [www.ilga.gov/legislation/publicacts/95/PDF/095-0481.pdf](http://www.ilga.gov/legislation/publicacts/95/PDF/095-0481.pdf).
  41. “Minnesota - Renewable Portfolio Standard,” web site [www.dsireusa.org/library/includes/tabsrch.cfm?state=MN0type=RPS&CurrentPageID=7&EE=1&R=1](http://www.dsireusa.org/library/includes/tabsrch.cfm?state=MN0type=RPS&CurrentPageID=7&EE=1&R=1).
  42. U.S. Environmental Protection Agency, “Clean Air Interstate Rule,” web site [www.epa.gov/cair](http://www.epa.gov/cair).
  43. U.S. Environmental Protection Agency, “Clean Air Mercury Rule,” web site [www.epa.gov/camr](http://www.epa.gov/camr).
  44. *AEO2007* included a summary of the RGGI provisions in the original model rule. See Energy Information Administration, *Annual Energy Outlook 2007*, DOE/EIA-0383(2007) (Washington, DC, February 2007), “State Regulations on Airborne Emissions: Update Through 2006,” pp. 30-32, web site [www.eia.doe.gov/oiaf/archive/aeo07/leg\\_reg.html](http://www.eia.doe.gov/oiaf/archive/aeo07/leg_reg.html).
  45. State of California, “Senate Bill 1368,” web site [www.energy.ca.gov/ghgstandards/documents/sb\\_1368\\_bill\\_20060929\\_chaptered.pdf](http://www.energy.ca.gov/ghgstandards/documents/sb_1368_bill_20060929_chaptered.pdf).
  46. California Environmental Protection Agency, Air Resources Board, “Proposed Regulations to Control Greenhouse Gas Emissions from Motor Vehicles,” web site [www.arb.ca.gov/regact/grnhsgas/grnhsgas.htm](http://www.arb.ca.gov/regact/grnhsgas/grnhsgas.htm) (September 19, 2005).
  47. State of California, “Assembly Bill No. 1493,” web site [www.calcleancars.org/ab1493.pdf](http://www.calcleancars.org/ab1493.pdf).
  48. U.S. Environmental Protection Agency, “California Greenhouse-Gas Waiver Request,” web site [www.epa.gov/otaq/ca-waiver.htm](http://www.epa.gov/otaq/ca-waiver.htm).
  49. Office of the New York State Attorney General Andrew M. Cuomo, “Cuomo Leads Coalition of 15 States Against EPA in Battle for States’ Right To Fight Global Warming” (January 2, 2008), web site [www.oag.state.ny.us/press/2008/jan/jan02a\\_08.html](http://www.oag.state.ny.us/press/2008/jan/jan02a_08.html).
  50. State of Washington, “Mitigating the impacts of climate change,” SB 6001 – 2007-08, web site <http://apps.leg.wa.gov/billinfo/summary.aspx?bill=6001>.
  51. State of Montana, House Bill No. 25, web site <http://data.opi.mt.gov/bills/2007/billpdf/HB0025.pdf>.
  52. State of Florida, Executive Order 07-126, “Leadership by Example: Immediate Actions to Reduce Greenhouse Gas Emissions from Florida State Government”; Executive Order 07-127, “Immediate Actions to Reduce Greenhouse Gas Emissions within Florida”; and Executive Order 07-128, “Florida Governor’s Action Team on Energy and Climate Change”; web site [www.dep.state.fl.us/climatechange/eo.htm](http://www.dep.state.fl.us/climatechange/eo.htm).

## Issues in Focus

53. M.L. Wald, "Costs Surge for Building Power Plants," *New York Times* (July 10, 2007), web site [www.nytimes.com/2007/07/10/business/worldbusiness/10energy.html](http://www.nytimes.com/2007/07/10/business/worldbusiness/10energy.html).
54. Imperial Oil Resources Ventures, Ltd., "Mackenzie Gas Project: Supplemental Information Project Update," National Energy Board Submission IPRCC. PR.07.08 (Calgary, Alberta, Canada, May 2007).
55. Rising oil prices do not necessarily lead to rising oil production from existing fields. Reservoir characteristics and the properties of the oil in the reservoirs primarily determine the maximum efficient recovery rate for a particular oil reservoir. Aggregate incremental rates of improvement in oil recovery diminish rapidly as oil prices rise. For example, a recent analysis of Alaska's North Slope oil fields indicates that very little incremental recovery is achievable once oil prices exceed \$60 per barrel. See National Energy Technology Laboratory, Arctic Energy Office, *Alaska North Slope Oil and Gas: A Promising Future or an Area in Decline? Summary Report*, DOE/NETL-2007/1280 (Fairbanks, AK, August 2007), web site [www.netl.doe.gov/technologies/oil-gas/publications/EPreports/ANS\\_SummaryReportFinalAugust2007.pdf](http://www.netl.doe.gov/technologies/oil-gas/publications/EPreports/ANS_SummaryReportFinalAugust2007.pdf). Technological progress is more likely to affect the ultimate oil recovery rate than oil prices or drilling costs.
56. Production began in 2000 at the Alpine Field, which has an estimated ultimate recoverable reserve of about 540 million barrels. Source: National Energy Technology Laboratory, *Alaska North Slope Oil and Gas: A Promising Future or an Area in Decline? Summary Report*, DOE/NETL-2007/1280.
57. A higher or lower level of future U.S. oil industry activity primarily affects the rate at which future U.S. oil production declines. High levels of activity can stabilize oil production for an extended period of time, especially through the application of EOR techniques, but eventually the depletion of the resource base causes production to decline. Lower levels of activity accelerate the rate of decline in future oil production.
58. Oil production in the shallow waters of the Gulf of Mexico declines slowly in all the cases.
59. The reference case assumes that pipelines from Canada and Alaska will be connected to natural gas markets in the lower 48 States. If no Arctic pipelines were built, however, there would be no pipeline to move natural gas from Alaska's North Slope to southern Alaska, where it would otherwise be converted to LNG and shipped to foreign and domestic customers. As an alternative, natural gas from the North Slope could be converted to petroleum liquids and transported through the existing Alyeska oil pipelines (also known as the TransAlaska Pipeline System).
60. Net LNG imports are slightly lower than gross LNG imports before 2011, because LNG exports to Japan from Alaska are expected to continue through 2011, at about 65 billion cubic feet per year.
61. U.S. Geological Survey, "USGS National Assessment of Oil and Gas Resources Update (December, 2006)," web site <http://certmapper.cr.usgs.gov/data/noga00/natl/tabular/total.xls>. The estimates cited in this discussion are rough approximations. The actual probability spread of the estimates is considerably larger.
62. If LNG imports into Canada and Mexico were constrained to the same degree as assumed for the lower 48 States, natural gas prices would be even higher, causing both a larger decrease in domestic natural gas consumption and a larger increase in lower 48 production.
63. CERA Advisory Service, "Monthly Natural Gas Briefing" (April 20, 2007).
64. NOAA Webcast, "Improving Climate Normals" (September 26, 2007).
65. A small amount of the difference is due to the use of dynamic population weights in *AEO2008*.
66. James T. Jensen of Jensen Associates in Weston, MA, stated in a presentation on "Increasing Global LNG Investments" to the LNG North America Summit 2007 in Houston, TX, June 20, 2007, that, "At the turn of the decade, LNG plant construction costs were approaching \$200/ton of capacity but current costs are a multiple of that level and there have been several 'problem trains' that have been quoted at \$1,200/ton and above."
67. Zeus Development Corporation of Houston, TX, has reported that costs for the Gros Cacouna terminal on the St. Lawrence River have nearly doubled from initial estimates and that the terminal is being put on hold while cost-cutting options to reduce costs to under \$1 billion are studied. See "Spiraling Costs Impact Petro-Canada's LNG Terminal, Delay Decision," *LNG Express* (August 1, 2007), web site [www.lngexpress.com](http://www.lngexpress.com) (subscription site).
68. According to Keith Bainbridge of London-based LNG Shipping Solutions, the price of a standard sized ship, estimated at around \$155 million in late 2003, has risen to between \$215 and \$230 million in 2007.
69. Wood Mackenzie Research and Consulting, "Global LNG Online," web site [www.woodmacresearch.com/cgi-bin/wmprod/portal/energy/productMicrosite.jsp?productOID=664070](http://www.woodmacresearch.com/cgi-bin/wmprod/portal/energy/productMicrosite.jsp?productOID=664070) (available to subscribers only).
70. Energy Information Administration, *International Energy Outlook 2007*, DOE/EIA-0484(2007) (Washington, DC, May 2007), web site [www.eia.doe.gov/oiaf/ieo](http://www.eia.doe.gov/oiaf/ieo).
71. Japan, South Korea, Spain, United States, France, Turkey, Belgium, United Kingdom, Italy, Mexico, Portugal, and Greece.
72. Taiwan, India, China, Puerto Rico, and Dominican Republic.
73. Indonesia, Malaysia, Qatar, Algeria, Trinidad and Tobago, Nigeria, Oman, Brunei, United Arab Emirates, Egypt, and Libya.
74. Embassy of the United States, Jakarta, Indonesia, *Country Commercial Guide - Indonesia Fiscal Year 2003*, Chapter 7, "Investment Climate Statement," p. 61, web site [www.usembassyjakarta.org/ccg/ccg.html](http://www.usembassyjakarta.org/ccg/ccg.html).
75. Government of Western Australia, Department of the Premier and Cabinet, *WA Government Policy on Securing Domestic Gas Supplies* (October 2006), web site [www.doir.wa.gov.au/documents/DomGas\\_Policy\(1\).pdf](http://www.doir.wa.gov.au/documents/DomGas_Policy(1).pdf).
76. Gas Infrastructure Europe's "Storage Investment Database" for November 2007 listed new storage projects

## Notes and Sources

in Europe with a total of 1.47 trillion cubic feet of working capacity—including 0.96 trillion cubic feet in OECD countries—that had planned operational dates before 2016 and were designated as either aquifer or depleted reservoir types (commonly used for seasonal storage). The database included projects placed in operation after June 2007, under construction, committed (evaluated by the company with detailed studies and possibly undergoing planning and permitting stages), or planned (at an early evaluation stage). Four types of capacity were included: aquifer, LNG peak shaving, reservoir, and salt cavity. See Gas Infrastructure Europe, “Storage Investment Database,” web site [www.gie.eu.com/maps\\_data/database.html](http://www.gie.eu.com/maps_data/database.html).

77. BG Group, “BG Group Finalises Agreement To Meet Natural Gas Demand in Chile,” Press Release (June 4, 2007), web site [www.bg-group.com/MediaCentre/PressArchive/2007/Pages/060407-sx.aspx](http://www.bg-group.com/MediaCentre/PressArchive/2007/Pages/060407-sx.aspx).

### Market Trends

78. The energy-intensive manufacturing sectors include food, paper, bulk chemicals, petroleum refining, glass, cement, steel, and aluminum.
79. This change in methodology is discussed in the Issues In Focus section, pages 44-46.
80. A Divisia index is used for this calculation. A discussion of the index can be found in G. Boyd, J.F. McDonald, M. Ross, and D.A. Hansont, “Separating the Changing Composition of U.S. Manufacturing Production from Energy Efficiency Improvements: A Divisia Index Approach,” *Energy Journal*, Vol. 8, No. 2 (1987).
81. S.C. Davis and S.W. Diegel, *Transportation Energy Data Book: Edition 25*, ORNL-6974 (Oak Ridge, TN, May 2006), Chapter 4, “Light Vehicles and Characteristics,” web site <http://cta.ornl.gov/data/chapter4.shtml>.
82. The fuel shares are calculated in terms of energy content. Because of the differences in energy content per gallon of gasoline, diesel, and ethanol, the percentage share would be different on a volumetric basis. For example, it takes about 1.3 gallons of E85 to replace the energy in 1 gallon of gasoline.
83. Unless otherwise noted, the term “capacity” in the discussion of electricity generation indicates utility, nonutility, and CHP capacity. Costs reflect the average of regional costs, except for wind, which uses a representative region.
84. Does not include off-grid PV. Based on annual PV shipments from 1989 through 2005, EIA estimates that as much as 192 megawatts of remote electricity generation PV applications (i.e., off-grid power systems) were in service in 2005, plus an additional 481 megawatts in communications, transportation, and assorted other non-grid-connected, specialized applications. See Energy Information Administration, *Annual Energy Review 2006*, DOE/EIA-0384(2006) (Washington, DC, June 2007), Table 10.8 (annual PV shipments, 1989-2005). The approach used to develop the estimate, based on shipment data, provides an upper estimate of the size of the PV stock, including both grid-based and off-grid PV. It will overestimate the size of the stock, because shipments include a substantial number of units that are exported, and each year some of the PV units installed earlier will be retired from service or abandoned.
85. Previous AEOs did not consider State RPS requirements.
86. Wind capacity is more than double the 2030 level projected in AEO2007.
87. Imperial Oil Resources Ventures, Ltd., “Mackenzie Gas Project: Supplemental Information Project Update,” National Energy Board Submission IPRCC. PR.07.08 (Calgary, Alberta, Canada, May 2007).
88. CAIR mandates SO<sub>2</sub> emissions caps in 28 eastern and midwestern States and the District of Columbia. The first compliance period begins in 2010, and a second, more stringent cap takes effect in 2015.
89. The first milestone for reducing NO<sub>x</sub> emissions from electric power generation becomes effective in 2009. A lower limit is mandated for 2015.

### Comparison with Other Projections

90. AEO2008 also includes the CAMR regulations. On February 8, 2008, the U.S. Court of Appeals found CAMR to be unlawful and voided it, ruling that the EPA had not proved that mercury was a pollutant eligible for regulation under a less stringent portion of the Clean Air Act; however, EIA did not have time to revise AEO2008 before publication to remove the impact of CAMR.
91. Although neither EVA nor GII provided projections for coal consumption at CTL plants, the lack of growth in coal consumption in non-electricity sectors indicates that this technology is either not represented explicitly by the models or, alternatively, that very little CTL capacity is projected to come on line.

### Table Notes and Sources

**Note:** Tables indicated as sources in these notes refer to the tables in Appendixes A, B, C, and D of this report.

**Table 1. Total energy supply and disposition in the AEO2008 and AEO2007 reference cases, 2006-2030:** AEO2007: AEO2007 National Energy Modeling System, run AEO2007.D112106A. AEO2008: AEO2008 National Energy Modeling System, run AEO2008.D030208F. **Notes:** Quantities are derived from historical volumes and assumed thermal conversion factors. Other production includes liquid hydrogen, methanol, and some inputs to refineries. Net imports of petroleum include crude oil, petroleum products, unfinished oils, alcohols, ethers, and blending components. Other net imports include coal coke and electricity.

**Table 2. Representative efficiency standards for enclosed motors:** National Electrical Manufacturers Association, *NEMA Summary and Analysis of Energy Independence and Security Act of 2007*, Appendix II, Section 313—Electrical Motor Efficiency, web site [www.nema.org/gov/energy/upload/NEMA-Summary-and-Analysis-of-the-Energy-Independence-and-Security-Act-of-2007.pdf](http://www.nema.org/gov/energy/upload/NEMA-Summary-and-Analysis-of-the-Energy-Independence-and-Security-Act-of-2007.pdf).

**Table 3. Summary of DOE’s August 2006 loan guarantee solicitation:** U.S. Department of Energy, *DOE Releases Information on Loan Guarantee Pre-Applications*

(March 6, 2007), web site [www.lgprogram.energy.gov/press/030607.html](http://www.lgprogram.energy.gov/press/030607.html).

**Table 4. State renewable portfolio standards:** Energy Information Administration, Office of Integrated Analysis and Forecasting.

**Table 5. Key analyses from “Issues in Focus” in recent AEOs:** Energy Information Administration, *Annual Energy Outlook 2007*, DOE/EIA-0383(2007) (Washington, DC, February 2007); Energy Information Administration, *Annual Energy Outlook 2006*, DOE/EIA-0383(2006) (Washington, DC, February 2006); Energy Information Administration, *Annual Energy Outlook 2005*, DOE/EIA-0383(2005) (Washington, DC, February 2005).

**Table 6. Costs of producing electricity from new plants, 2015 and 2030:** AEO2008 National Energy Modeling System, run AEO2008.D030208F.

## Figure Notes and Sources

*Note: Tables indicated as sources in these notes refer to the tables in Appendixes A, B, C, and D of this report.*

**Figure 1. Energy prices, 1980-2030: History:** Energy Information Administration, *Annual Energy Review 2006*, DOE/EIA-0384(2006) (Washington, DC, June 2007). **Projections:** Table A1.

**Figure 2. Delivered energy consumption by sector, 1980-2030: History:** Energy Information Administration, *Annual Energy Review 2006*, DOE/EIA-0384(2006) (Washington, DC, June 2007). **Projections:** Table A2.

**Figure 3. Energy consumption by fuel, 1980-2030: History:** Energy Information Administration, *Annual Energy Review 2006*, DOE/EIA-0384(2006) (Washington, DC, June 2007). **Projections:** Tables A1 and A17.

**Figure 4. Energy use per capita and per dollar of gross domestic product, 1980-2030: History:** Energy Information Administration, *Annual Energy Review 2006*, DOE/EIA-0384(2006) (Washington, DC, June 2007). **Projections: Energy use per capita:** Calculated from data in Table A2. **Energy use per dollar of GDP:** Table A19.

**Figure 5. Total energy production and consumption, 1980-2030: History:** Energy Information Administration, *Annual Energy Review 2006*, DOE/EIA-0384(2006) (Washington, DC, June 2007). **Projections:** Table A1.

**Figure 6. Energy production by fuel, 1980-2030: History:** Energy Information Administration, *Annual Energy Review 2006*, DOE/EIA-0384(2006) (Washington, DC, June 2007). **Projections:** Tables A1 and A17.

**Figure 7. Electricity generation by fuel, 1980-2030: History:** Energy Information Administration, *Annual Energy Review 2006*, DOE/EIA-0384(2006) (Washington, DC, June 2007). **Projections:** Table A8.

**Figure 8. U.S. carbon dioxide emissions by sector and fuel, 1990-2030: History:** Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2006*, DOE/EIA-0573(2006) (Washington, DC, November 2007). **Projections:** Table A18.

**Figure 9. Changes in construction commodity costs, 1973-2007:** U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index for WPU112 (construc-

tion), WPU101 (iron and steel), WPU133 (concrete), and WPU1322 (cement).

**Figure 10. Changes in construction commodity costs and electric utility construction costs, 1973-2007:** *Handy-Whitman Bulletin*, No. 165, “Cost Trends of Electric Utility Construction”; and U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index, Series ID WPU112.

**Figure 11. Additions to U.S. electricity generation capacity by fuel in three cases, 2006-2030:** AEO2008 National Energy Modeling System, runs AEO2008.D030208F, LC2008.D030308A, and HC2008.D030308A.

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**Figure 16. New generating capacity additions in four cases, 2006-2030:** AEO2008 National Energy Modeling System, runs AEO2008.D030208F, HIGASDEM.D030408A, LOGASSUP.D030408A, and HDEMLSUP.D030408A.

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