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

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Table 3. Key analyses from "Issues in Focus" in recent AEOs: U.S. Energy Information Administration, Annual Energy Outlook 2009, DOE/EIA-0383(2009) (Washington, DC, March 2009); U.S. Energy Information Administration, Annual Energy Outlook 2008, DOE/EIA-0383 (2008) (Washington, DC, June 2008); U.S. Energy Information Administration, Annual Energy Outlook 2007, DOE/ EIA-0383(2007) (Washington, DC, February 2007).

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Table 10. Projections of world oil prices, 2015-2035: AEO2009 (Reference case): AEO2009 National Energy Modeling System, run AEO2009.D030208F. AEO2010 (Reference case): AEO2010 National Energy Modeling System, run AEO2010R.D111809A. DB: Deutsche Bank AG, e-mail from Adam Sieminski (November 4, 2008). IHSGI: IHS/Global Insight, Inc., U.S. Energy Outlook (Lexington, MA, September 2008). IEA (reference): International Energy Agency, World Energy Outlook 2008 (Paris, France, September 2008), Reference Scenario. IER: Institute of Energy Economics and the Rational Use of Energy at the University of Stuttgart, e-mail from Markus Blesl (December 4, 2008). EVA: Energy Ventures Analysis, Inc., e-mail from Roger Avalos (January 7, 2009). SEER: Strategic Energy and Economic Research, Inc., e-mail from Ron Denhardt (February 6, 2009).

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Table 15. Comparison of coal projections, 2015, 2025, and 2035: AEO2010: AEO2010 National Energy Modeling System, run AEO2010R.D111809A. IHSGI: IHS/Global Insight, Inc., 2009 Energy Outlook (Lexington, MA, September 2009). DB: Deutsche Bank AG, email from Adam Sieminski (November 3, 2009). IEA: International Energy Agency, World Energy Outlook 2009 (Paris, France, November 2009), Table 1.4. WM: Wood Mackenzie Company, Fall 2009 Long Term Outlook Base Case. INFORUM: INFORUM Base, email from Douglas Meade (January15, 2010).

## **Figure Notes and Sources**

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Figure 77. U.S. net imports of natural gas by source, 1990-2035: History: U.S. Energy Information Administration, *Natural Gas Annual 2007*, DOE/EIA-0131 (2007) (Washington, DC, June 2009). **Projections:** AEO2010 National Energy Modeling System, run AEO2010R. D111809A.

Figure 78. Cumulative difference from Reference case natural gas supply and consumption in the High LNG Supply case, 2008-2035: AEO2010 National Energy Modeling System, run HILNG10.D112509A.

**Figure 79. Liquid fuels consumption by sector, 1990-2035: History:** U.S. Energy Information Administration, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** AEO2010 National Energy Modeling System, run AEO2010R. D111809A. Figure 80. Domestic crude oil production by source, 1990-2035: History: U.S. Energy Information Administration, *Petroleum Supply Annual 2008, Volume 1*, DOE/EIA-0340(2008)/1 (Washington, DC, June 2009). **Projections:** AEO2010 National Energy Modeling System, run AEO2010R.D111809A.

Figure 81. Total U.S. crude oil production in five cases, 1990-2035: History: U.S. Energy Information Administration, *Annual Energy Review 2008*, DOE/EIA-0384 (2008) (Washington, DC, June 2009). Projections: AEO2010 National Energy Modeling System, runs AEO2010R.D111809A, HP2010.D011910A, LP2010. D011910A, OGLTEC10.D121409A, and OGHTEC10. D121309A.

Figure 82. Liquids production from biomass, coal, and oil shale, 2008-2035: AEO2010 National Energy Modeling System, run AEO2010R.D111809A.

Figure 83. Net import share of U.S. liquid fuels consumption in three cases, 1990-2035: History: U.S. Energy Information Administration, *Annual Energy Review* 2008, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** AEO2010 National Energy Modeling System, runs AEO2010R.D111809A, LP2010.D011910A, and HP2010.D011910A.

Figure 84. EISA2007 RFS credits earned in selected years, 2008-2035: AEO2010 National Energy Modeling System, run AEO2010R.D111809A.

Figure 85. U.S. motor gasoline and diesel fuel consumption, 2008-2035: AEO2010 National Energy Modeling System, run AEO2010R.D111809A.

**Figure 86. U.S. refinery capacity, 1970-2035: History:** U.S. Energy Information Administration, *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections:** AEO2010 National Energy Modeling System, run AEO2010R.D111809A.

**Figure 87. U.S. production of cellulosic ethanol and other new biofuels, 2015-2035:** AEO2010 National Energy Modeling System, run AEO2010R.D111809A.

Figure 88. Coal production by region, 1970-2035: History (short tons): 1970-1990: U.S. Energy Information Administration, The U.S. Coal Industry, 1970-1990: Two Decades of Change, DOE/EIA-0559 (Washington, DC, November 2002). 1991-2000: U.S. Energy Information Administration, Coal Industry Annual, DOE/EIA-0584 (various years). 2001-2008: U.S. Energy Information Administration, Annual Coal Report 2008, DOE/EIA-0584(2008) (Washington, DC, September 2009), and previous issues. History (conversion to quadrillion Btu): 1970-2008: Estimation Procedure: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting. Estimates of average heat content by region and year are based on coal quality data collected through various energy surveys (see sources) and national-level estimates of U.S. coal production by year in units of quadrillion Btu, published in EIA's Annual Energy Review. Sources: U.S. Energy Information Administration, Annual Energy Review 2008, DOE/EIA-0384(2008) (Washington, DC, June 2009), Table 1.2; Form EIA-3, "Quarterly Coal Consumption and Quality Report, Manufacturing Plants"; Form EIA-5, "Quarterly Coal Consumption and Quality Report, Coke Plants"; Form EIA-6A, "Coal Distribution Report"; Form EIA-7A, "Coal Production Report"; Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report"; Form EIA-906, "Power Plant Report"; Form EIA-920, "Combined Heat and Power Plant Report"; Form EIA-923, "Power Plant Operations Report"; U.S. Department of Commerce, Bureau of the Census, "Monthly Report EM 545"; and Federal Energy Regulatory Commission, Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." **Projections:** AEO2010 National Energy Modeling System, run AEO2010R.D111809A. **Note:** For 1989-2030, coal production includes waste coal.

Figure 89. U.S. coal production in six cases, 2008, 2020, and 2035: AEO2010 National Energy Modeling System, runs AEO2010R.D111809A, LCCST10.D120909A, HCCST10.D120909A, LM2010.D011110A, HM2010. D020310A, and HP2010.D011910A. Note: Coal production includes waste coal.

Figure 90. Average annual minemouth coal prices by region, 1990-2035: History (dollars per short ton): 1990-2000: U.S. Energy Information Administration, Coal Industry Annual, DOE/EIA-0584 (various years). 2001-2008: U.S. Energy Information Administration, Annual Coal Report 2008, DOE/EIA-0584(2008) (Washington, DC, September 2009), and previous issues. **History** (conversion to dollars per million Btu): 1970-2008: Estimation Procedure: U.S. Energy Information Administration, Office of Integrated Analysis and Forecasting. Estimates of average heat content by region and year based on coal quality data collected through various energy surveys (see sources) and national-level estimates of U.S. coal production by year in units of quadrillion Btu published in EIA's Annual Energy Review. Sources: U.S. Energy Information Administration, Annual Energy Review 2008, DOE/EIA-0384(2008) (Washington, DC, June 2009), Table 1.2; Form EIA-3, "Quarterly Coal Consumption and Quality Report, Manufacturing Plants"; Form EIA-5, "Quarterly Coal Consumption and Quality Report, Coke Plants"; Form EIA-6A, "Coal Distribution Report"; Form EIA-7A, "Coal Production Report"; Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report"; Form EIA-906, "Power Plant Report"; and Form EIA-920, "Combined Heat and Power Plant Report"; Form EIA-923, "Power Plant Operations Report"; U.S. Department of Commerce, Bureau of the Census, "Monthly Report EM 545"; and Federal Energy Regulatory Commission, Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." **Projections:** AEO2010 National Energy Modeling System, run AEO2010R.D111809A. Note: Includes reported prices for both open-market and captive mines.

Figure 91. Average annual delivered coal prices in four cases, 1990-2035: History: 1990-2008: U.S. Energy Information Administration, *Quarterly Coal Report, October-December 2008*, DOE/EIA-0121(2008/4Q) (Washington, DC, March 2009), and previous issues; *Electric Power Monthly, October 2009*, DOE/EIA-0226(2009/10) (Washington, DC, October 2009); and *Annual Energy Review 2008*, DOE/EIA-0384(2008) (Washington, DC, June 2009). **Projections**: AEO2010 National Energy Modeling System, runs AEO2010R.D111809A, LCCST10.D120909A, HCCST10.D120909A, and HP2010.D011910A.

Figure 92. Change in U.S. coal consumption by end use in two cases, 2008-2035: AEO2010 National Energy Modeling System, runs AEO2010R.D111809A and NORSK2010.D012510A. Figure 93. Carbon dioxide emissions by sector and fuel, 2008 and 2035: AEO2010 National Energy Modeling System, run AEO2010R.D111809A.

Figure 94. Sulfur dioxide emissions from electricity generation, 2000-2035: History: 1995: U.S. Environmental Protection Agency, *National Air Pollutant Emissions Trends*, 1990-1998, EPA-454/R-00-002 (Washington, DC, March 2000). 2000: U.S. Environmental Protection Agency, *Acid Rain Program Preliminary Summary Emissions Report, Fourth Quarter 2004*, web site www.epa.gov/ airmarkets/emissions/prelimarp/index.html. 2008 and Projections: AEO2010 National Energy Modeling System, run AEO2010R.D111809A. Figure 95. Nitrogen oxide emissions from electricity generation, 2000-2035: History: 1995: U.S. Environmental Protection Agency, *National Air Pollutant Emissions Trends*, 1990-1998, EPA-454/R-00-002 (Washington, DC, March 2000). 2000: U.S. Environmental Protection Agency, *Acid Rain Program Preliminary Summary Emissions Report, Fourth Quarter 2004*, web site www.epa.gov/ airmarkets/emissions/prelimarp/index.html. 2008 and Projections: AEO2010 National Energy Modeling System, run AEO2010R.D111809A.