

Appendix A: Handling of Federal and selected State legislation and regulation in the AEO

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| Legislation | Brief description | AEO handling | Basis |
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| Residential sector | | | |
| A. National Appliance Energy Conservation Act of 1987 | Requires Secretary of Energy to set minimum efficiency standards for 10 appliance categories with periodic updates | Included for categories represented in the AEO residential sector forecast. | EPACT05. |
| a. Room air conditioners | Sets standards for room air conditioners in 2000. | Require new purchases of room air conditioners to meet the standard. | Federal Register Notice of Final Rulemaking. |
| b. Other air conditioners (<5.4 tons) | Sets standards for other air conditioners in 2006. | Require new purchases of other air conditioners to meet the standard. | Federal Register Notice of Final Rulemaking. |
| c. Water heaters | Sets standards for water heaters in 2015. | Require new purchases of water heaters to meet the standard. | Federal Register Notice of Final Rulemaking. |
| d. Refrigerators/freezers kWh/yr | Sets standards for refrigerators/freezers in 2001. | Require new purchases of refrigerators/freezers to meet the standard. | Federal Register Notice of Final Rulemaking. |
| e. Dishwashers | Sets standards for dishwasher in 2010. | Require new purchases of dishwashers to meet the standard. | Federal Register Notice of Final Rulemaking. |
| f. Fluorescent lamp ballasts | Sets standards for fluorescent lamp ballasts in 2005. | Require new purchases of fluorescent lamp ballasts to meet the standard. | Federal Register Notice of Final Rulemaking. |
| g. Clothes washers | Sets standards for clothes washers in 2011. | Require new purchases of clothes washers to meet the standard. | Federal Register Notice of Final Rulemaking. |
| h. Furnaces | Sets standards for furnaces in 2015. | Require new purchases of furnaces to meet the standard. | Federal Register Notice of Final Rulemaking. |
| i. Clothes dryers | Sets standards for clothes dryers in 1994. | Require new purchases of clothes dryers to meet the standard. | Federal Register Notice of Final Rulemaking. |
| B. Energy Policy Act of 1982 (EPACT92) | | | |
| a. Building codes | For the IECC 2006, specifies whole house efficiency minimums. | Assumes that all States adopt the IECC 2006 code by 2017. | Trend of States adoption to codes, allowing for lead times for enforcement and builder compliance. |
| b. Energy-efficient mortgages | Allow homeowners to qualify for higher loan amounts if the home is energy-efficient, as scored by the Home Energy Rating System (HERS). | Efficiency of equipment represented in technology choice parameters. Efficiency of shell represented in HVAC choice. | Trend of States adoption to codes, allowing for lead times for enforcement and builder compliance. |
| C. Energy Policy Act of 2005 (EPACT05) | | | |
| a. Touchiere lamp standard | | Sets 190 watt bulb limit in 2006. | EPACT05. |
| b. Ceiling fan light kit standard | Ceiling fans must be shipped with compact fluorescent bulbs or use no more than 190 watts per fixture in 2007. | Reduce lighting electricity consumption by appropriate amount. | Number of ceiling fan shipments and estimated kWh savings per unit determine overall savings. |

| Legislation | Brief description | AEO handling | Basis |
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| c. Dehumidifier standard | Sets standard for dehumidifiers in 2007 and 2012. | Reduce miscellaneous electricity consumption by appropriate amount. | Number of dehumidifier shipments and estimated kWh savings per unit determine overall savings. |
| d. Energy-efficient equipment tax credit | Purchasers of certain energy efficient equipment can claim tax credits in 2006 and 2007. | Reduce cost of applicable equipment by specified amount. | |
| e. New home tax credit | Builders receive \$1000 or \$2000 tax credit if they build homes 30 or 50 percent better than code in 2006 and 2007. | Reduce shell package cost for these homes by specified amount. | Cost reductions to consumers are assumed to be 100 percent of the builder's tax credit. |
| f. Energy-efficient appliance tax credit | Producers of energy-efficient refrigerators, dishwashers, and clothes washers receive tax credits for each unit they produce that meets certain efficiency specifications | Assume the cost savings are passed on to the consumer, reducing the price of the appliance by the specified amount. | Cost reductions to consumers are assumed to be 100 percent of the producer's tax credit. |
| D. Energy Independence and Security Act of 2007 (EISA 2007) | | | |
| a. General service incandescent lamp standard | Require less wattage for bulbs in 2012-2014 and 2020. | Reduce wattage for new bulbs by 28 percent in 2013 and 67 percent in 2020. | EISA 2007. |
| b. Dehumidifier standard | Updates EPACT 2005 standard. | Reduce miscellaneous electricity consumption by appropriate amount. | Increase savings estimated for EPACT 2005 by appropriate amount. |
| c. Boiler standard | Sets standards for boilers in 2013. | Require new purchases of boilers to meet the standard. | EISA 2007. |
| d. Dishwasher standard | Sets standards for dishwashers in 2010. | Require new purchases of dishwashers to meet the standard by 2010. | EISA 2007. |
| e. External power supply standard | Sets standards for external power supplies in 2008 | Reduce miscellaneous electricity consumption by appropriate amount. | Number of shipments and estimated kWh savings per unit determine overall savings. |
| f. Manufactured housing code | Require manufactured homes to meet latest IECC in 2011. | Require that all manufactured homes shipped after 2011 meet the IECC 2006 | EISA 2007. |
| E. Energy Improvement and Extension Act of 2008 (EIEA 2008) | | | |
| a. Energy-efficient equipment tax credit | Purchasers of certain energy efficient equipment can claim tax credits through 2016. | Reduce the cost of applicable equipment by specified amount. | EIEA 2008. |
| b. Energy-efficient appliance tax credit | Producers of energy-efficient refrigerators, clothes washers, and dishwashers receive tax credits for each unit they produce that meets certain efficiency specifications, subject to an annual cap. | Assume the cost savings are passed on to the consumer, reducing the price of the appliance by the specified amount. | Cost reductions to consumer are assumed to be 100% of the producer's tax credit. |

| Legislation | Brief description | AEO handling | Basis |
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| F. American Recovery and Reinvestment Act of 2009 | | | |
| a. Energy-efficient equipment tax credit | Increases cap to \$1500 of energy efficient equipment specified under Section C(d) above. Removes cap for PV, wind, and ground-source heat pumps | Reduce the cost of applicable equipment by specified amount. | EPACT 2005 and ARRA 2009. |
| b. Weatherization and state energy programs | Increases funding for weatherization and other programs to increase the energy efficiency of existing housing stock. | Apply annual funding amount to existing housing retrofits. Savings for heating and cooling based on \$2600 per home investment as specified in weatherization program evaluation. | ARRA 2009. |
| Commercial sector | | | |
| A. National Appliance Energy Conservation Act of 1987 | Requires Secretary of Energy to set minimum efficiency standards for 10 appliance categories. | Included for categories represented in the AEO commercial sector forecast. | |
| a. Room air conditioners | | Current standard of 9.8 EER. | Federal Register Notice of Final Rulemaking. |
| b. Other residential-size air conditioners (<5.4 tons) | | Current standard 10 SEER for central air conditioning and heat pumps, increasing to 13 SEER in 2006 | Federal Register Notice of Final Rulemaking. |
| c. Fluorescent lamp ballasts | | Current standard if .90 power factor and minimum efficacy factor for F40 and F96 lamps based on lamp size and wattage, increasing to higher efficacy factor in 2005 that limits purchases to electronic ballasts. | Federal Register Notice of Final Rulemaking. |
| B. Energy Policy Act of 1992 (EPACT92) | | | |
| a. Buildings codes | | Incorporated in commercial building shell assumptions. Efficiency of new relative to existing shell represented in shell efficiency indices. Assumes shell efficiency improves 5 and 7 percent by 2030 for existing buildings and new construction, respectively. | Based on Science Applications International Corporation commercial shell indices for 2003 developed for EIA in 2008. |
| b. Window labeling | Designed to help consumers determine which windows are more energy efficient. | Incorporated in commercial building shell assumptions. Efficiency of new relative to existing shell represented by shell efficiency indices. Assume shell efficiency improves 5 and 7 percent by 2030 for existing buildings and new construction, respectively. | Based on Science Applications International Corporation commercial shell indices for 2003 developed for EIA in 2008. |
| c. Commercial furnaces and boilers | | Gas-fired furnaces and boilers: Current standard is 0.80 thermal efficiency. Oil furnaces and boilers: Current standard is 0.81 thermal efficiency for furnaces, 0.83 thermal efficiency for boilers. | Public Law 102-486: EPACT92. Federal Register Notice of Final Rulemaking. |

| Legislation | Brief description | AEO handling | Basis |
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| d. Commercial air conditioners and heat pumps | | Air-cooled air conditioners and heat pumps less than 135,000 Btu: Current standard of 8.9 EER. Air-cooled air conditioners and heat pumps greater than 135,000 Btu: Current standard of 8.5 EER. | Public Law 102-486: EPACT92. |
| e. Commercial water heaters | | Natural gas and oil: EPACT standard .78 thermal efficiency increasing to .80 thermal efficiency for gas units in 2003. | Public Law 102-486: EPACT92. Federal Register Notice of Final Rulemaking. |
| f. Lamps | | Incandescent: Current standard 16.9 lumens per watt. Fluorescent: Current standard 75 and 80 lumens per watt for 4 and 8 foot lamps, respectively. | |
| g. Electric motors | Specifies minimum efficiency levels for a variety of motor types and sizes. | End-use services modeled at the equipment level. Motors contained in new equipment must meet the standards. | Public Law 102-486: EPACT92. |
| h. Federal energy management | Requires Federal agencies to reduce energy consumption 20 percent by 2000 relative to 1995. | Superseded by Executive Order 13123, EPACT05, and EISA07. | Superseded by Executive Order 13123. |
| i. Business investment energy credit | Provides a permanent 10 percent investment tax credit for solar property. | Tax credit incorporated in cash flow for solar generation systems. Investment cost reduced 10 percent for solar water heaters. | Public Law 102-486: EPACT92 |
| C. Executive Order 13123. Greening the Government Through Efficient Energy Management | Requires Federal agencies to reduce energy consumption 30 percent by 2005 and 35 percent by 2010 relative to 1985 through life-cycle cost-effective energy measures. | Superseded by EPACT05 and EISA07. | Superseded by EPACT05 and EISA07. |
| D. Energy Policy Act of 2005 (EPACT05) | | | |
| a. Commercial package air conditioners and heat pumps | Sets minimum efficiency levels in 2010. | Air-cooled air conditioners/heat pumps less than 135,000 Btu: standard of 11.2/11.0 EER and heating COP of 3.3. Air-cooled air conditioners/heat pumps greater than 135,000 Btu: standard of 11.0/10.6 EER and heating COP of 3.2. | Public Law 109-58: EPACT05. |
| b. Commercial refrigerators, freezers, and automatic icemakers | Sets minimum efficiency levels in 2010. | Set standard by level of improvement above stock average efficiency in 2003. | Public Law 190-58: EPACT05. |
| c. Lamp ballasts | Bans manufacture or import of mercury vapor lamp ballasts in 2008. Sets minimum efficacy level for T12 energy saver ballasts in 2009 and 2010 based on application. | Remove mercury vapor lighting system from technology choice menu in 2008. Set minimum efficacy of T12 ballasts at specified standard levels. | Public Law 102-58: EPACT05. |
| d. Compact fluorescent lamps | Sets standard for medium base lamps at Energy Star requirements in 2006. | Set efficacy level of compact fluorescent lamps at required level. | Public Law 109-58: EPACT05. |

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| e. Illuminated exit signs and traffic signals | Set standards at Energy Star requirements in 2006. | Reduce miscellaneous electricity consumption by appropriate amount. | Number of shipments, share of shipments that currently meet standard, and estimated kWh savings per unit determine overall savings. |
| f. Distribution transformers | Sets standard as National Electrical Manufacturers Association Class I Efficiency levels in 2007. | Effects of the standard are included in estimating the share of miscellaneous electricity consumption attributable to transformer losses. | Public Law 109-58: EPACT05. |
| g. Prerinse spray valves | Sets maximum flow rate to 1.6 gallons per minute in 2006. | Reduce energy use for water heating by appropriate amount. | Number of shipments, share of shipments that currently meet standard, and estimated kWh savings per unit determine overall savings. |
| h. Federal energy management | Requires Federal agencies to reduce energy consumption 20 percent by 2015 relative to 2003 through life-cycle cost-effective energy measures. | The Federal "share" of the commercial sector uses the 10 year Treasury note rate as a discount rate in equipment purchase decisions as opposed to adding risk premiums to the 10 year Treasury note rate to develop discount rates for other commercial decisions | Public law 109-58: EPACT05. Superseded by EISA07. |
| i. Business investment tax credit for fuel cells and microturbines | Provides a 30 percent investment tax credit for fuel cells and a 10 percent investment tax credit for microturbines installed in 2006 through 2008. | Tax credit incorporated in cash flow for fuel cells and microturbines. | Public Law 109-58: EPACT05. Extended through 2008 by Public Law 109-432. Extended through 2016 by EIEA08. |
| j. Business solar investment tax credit | Provides a 30 percent investment tax credit for solar property installed in 2006 through 2008. | Tax credit incorporated in cash flow for solar generation systems. Investment cost reduced 30 percent for solar water heaters. | Public Law 109-58: EPACT05. Extended through 2008 by Public Law 109-432. Extended through 2016 by EIEA08. |
| E. Energy Independence and Security Act of 2007 (EISA07) | | | |
| a. Commercial walk-in coolers and walk-in freezers | Requires use of specific energy efficiency measures in equipment manufactured in or after 2009. | Set standard by equivalent level of improvement above stock average efficiency in 2003. | Public Law 110-140: EISA07. |
| b. Incandescent and halogen lamps | Sets maximum allowable wattage based on lumen output starting in 2012. | Remove incandescent and halogen general service lighting systems that do not meet standard from technology choice menu in 2012. | Public Law 110-140: EISA07. |
| c. Metal halide lamp ballasts | Sets minimum efficiency levels for metal halide lamp ballasts starting in 2009. | Remove metal halide lighting systems that do not meet standard from technology choice menu in 2009. Set minimum system efficiency to include specified standard levels for ballasts - ranging from 88 to 94 percent based on ballast type. | Public Law 110-140: EISA07. |
| d. Federal use of energy efficient lighting | Requires use of energy efficient lighting fixtures and bulbs in Federal buildings to the maximum extent possible starting in 2009. | Increase proportion of sector using 10 year treasury note rate for lighting purchase decisions to represent all existing and new Federal floorspace in 2009. | Public Law 110-140: EISA07 |

| Legislation | Brief description | AEO handling | Basis |
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| e. Federal energy management | Requires Federal agencies to reduce energy consumption per square foot 30 percent by 2015 relative to 2003 through life-cycle cost-effective energy measures. | The Federal “share” of the commercial sector uses the 10 year Treasury note rate as a discount rate in equipment purchase decisions as opposed to adding risk premiums to the 10 year Treasury note rate to develop discount rates for other commercial decisions. | Public Law 110-140: EISA07. |
| F. Energy Improvement and Extension Act of 2008 (EIEA08) | | | |
| a. Business solar investment tax credit | Extends the EPACT05 30-percent investment tax credit for solar property through 2016. | Tax credit incorporated in cash flow for solar generation systems. Investment cost reduced 30 percent for solar water heaters. | Public Law 110-343: EIEA08. |
| b. Business investment tax credit for fuel cells and microturbines | Extends the EPACT05 30-percent investment tax credit for fuel cells and 10-percent investment tax credit for microturbines through 2016. | Tax credit incorporated in cash flow for fuel cells and microturbines. | Public Law 110-343: EIEA08 |
| c. Business investment tax credit for CHP systems | Provides a 10-percent investment tax credit for CHP systems installed in 2009 through 2016 | Tax credit incorporated in cash flow for CHP systems. | Public Law 110-343: EIEA08. |
| d. Business investment tax credit for small wind turbines | Provides a 30-percent investment tax credit for wind turbines installed in 2009 through 2016. | Tax credit incorporated in cash flow for wind turbine generation systems. | Public Law 110-343: EIEA08. |
| e. Business investment tax credit for geothermal heat pumps | Provides a 10-percent investment tax credit for geothermal heat pump systems installed in 2009 through 2016. | Investment cost for geothermal heat pump systems reduced 10 percent. | Public Law 110-343: EIEA08. |
| G. American Recovery and Reinvestment Act of 2009 (ARRA09) | | | |
| a. Business investment tax credit for small wind turbines | Removes the cap on the EIEA08 30-percent investment tax credit for wind turbines through 2016. | Tax credit incorporated in cash flow for wind turbine generation systems. | Public Law 111-5: ARRA09. |
| b. Stimulus funding to Federal agencies | Provides funding for efficiency improvement in federal buildings and facilities. | Increase the proportion of sector using the 10 year Treasury note rate for purchase decisions to include all existing and new Federal floorspace in years stimulus funding is available to account for new, replacement, and retrofit projects. Assume some funding is used for solar generation, small wind turbine, and fuel cell installations. | Public Law 111-5: ARRA09. |
| c. State energy program funding and energy efficiency and conservation block grants | Provides grants for state and local governments for energy efficiency and renewable energy purposes. State Energy Program funding conditioned on enactment of new building codes. | Increase the proportion of sector using the 10 year Treasury note rate for purchase decisions to include all public buildings in years stimulus funding is available. Increase new building shell efficiency to 10 percent better than 2003 by 2018 for improved building codes. Assume some funding is used for solar generation and small wind turbine systems. | Public Law 111-5: ARRA09. |
| d. Funding for smart grid projects | Provides funding for smart grid demonstration projects. | Assume smart grid technologies cause consumers to become more responsive to electricity price changes by increasing the price elasticity of demand for certain end uses. | Public Law 111-5; ARRA09. |

| Legislation | Brief description | AEO handling | Basis |
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| Industrial sector | | | |
| A. Energy Policy Act of 1992 (EPACT92) | | | |
| a. Motor efficiency standards | Specifies minimum efficiency levels for a variety of motor types and sizes. | New motors must meet the standards. | Standard specified in EPACT92. 10 CFR 431. |
| b. Boiler efficiency standards | Specifies minimum combustion efficiency for package boilers larger than 300,000 Btu/hr. Natural Gas boilers: 80 percent, oil boilers: 83 percent. | All package boilers are assumed to meet the efficiency standards. While the standards do not apply to field-erected boilers, which are typically used in steam-intensive industries, we assume they meet the standard in the AEO. | Standard specified in EPACT92. 10 CFR 431. |
| B. Clean Air Act Amendments (CCCA90) | | | |
| a. Process emissions | Numerous process emissions requirements for specified industries and/or activities. | Not modeled because they are not directly related to energy projections. | CAAA90, 40 CFR 60. |
| b. Emissions related to hazardous/toxic substances | Numerous emissions requirements relative to hazardous and/or toxic substances. | Not modeled because they are not directly related to energy projections. | CAAA90, 40 CFR 60. |
| c. Industrial SO ₂ emissions | Sets annual limit for industrial SO ₂ emissions at 5.6 million tons. If limit is reached, specific regulations could be implemented. | Industrial SO ₂ emissions are not projected to reach the limit (Source: EPA, National Air Pollutant Emissions Trends:1990-1998, EPA-454/R-00-002, March 2000, p. 4-3.) | CAAA90, Section 406 (42 USC 7651) |
| d. Industrial boiler hazardous air pollutants | Requires industrial boilers and process heaters to meet emissions limits on HAPs to comply with the Maximum Achievable Control Technology (MACT) floor. | Not explicitly modeled because new boilers are expected to meet the standards in the absence of the rule and retrofit costs should be relatively small. | U.S. Environmental Protection Agency, National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63. |
| e. Emissions from stationary diesel engines | Requires engine manufacturers to meet the same emission standards as nonroad diesel engines. Fully effective in 2011. | New stationary engines meet the standards. | 40 CFR Parts 60, 85, 89, 94, 1039, 1065, and 1068. |
| C. Energy Policy Act of 2005 (EPACT 05) | | | |
| a. Physical energy intensity | Voluntary commitments to reduce physical energy intensity by 2.5 percent annually for 2007-2016. | Not modeled because participation is voluntary; actual reductions will depend on future, unknown commitments. | EPACT2005, Section 106 (42 USC 15811) |
| b. Mineral components of cement of concrete | Increase in mineral component of Federally procured cement or concrete. | Not modeled. | EPACT2005, Section 108 (42 USC 6966). |
| c. Tax credits for coke oven | Provides a tax credit of \$3.00 per barrel oil equivalent, limited to 4000 barrels per day average. Applies to most producers of coal coke or coke gas. | Not modeled because no impact on U.S. coke plant activity is anticipated. | EPACT2005, Section 1321 (29 USC 29). |

| Legislation | Brief description | AEO handling | Basis |
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| D. The Energy Independence and Security Act of 2007 | | | |
| a. Motor efficiency standards | Supersedes EPACT1992 Efficiency Standards no later than 2011. | Motor purchases must meet the EPA1992 standards through 2010; afterwards purchases must meet the EISA2007 standards. | EISA2007 |
| E. The Energy Improvement and Extension Act of 2008 | | | |
| a. Combined heat and power tax incentive | Provides an investment tax credit for combined heat and power systems up to 50 megawatts through 2016 | Costs of systems adjusted to reflect the credit. | EIEA2008, Title I, Sec. 103 |
| Transportation sector | | | |
| A. Energy Policy Act of 1992 (EPACT92) | Increases the number of alternative fuel vehicles and alternative fuel use in Federal, State, and fuel provided fleets. | Assumes Federal, State and fuel provider fleets meet the mandated sales requirements. | Energy Policy Act of 1992, Public Law 102-486-Oct. 24, 1992. |
| B. Low Emission Vehicle Program (LEVP) | The Clean Air Act provides California the authority to set vehicle criteria emission standards that exceed Federal standards. A part of that program mandates the sale of zero emission vehicles by manufacturers, other nonattainm ent. States are given the option of opting into the Federal or California emission standards. | Incorporates the LEVP program as amended on August 4, 2005. Assumes California, Connecticut, Maine, Massachusetts, New Jersey, New York, Rhode island, Vermont, Oregon, and Washington adopt the LEVP program as amended August 4, 2005 and that the proposed sales requirements for hybrid, electric, and fuel cell vehicles are met. | Section 177 of the Clean Air Act, 42 U.S.C. sec. 7507 (1976) and CARB, California Exhaust Emissions Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, August 4, 2005. |
| C. Corporate Average Fuel Economy (CAFE) Standard | Requires manufacturers to produce vehicles that meet a minimum Federal average fuel economy standard, promulgated jointly for model years 2012-2016 with an average greenhouse emissions standard; cars and light-trucks are regulated separately. | CAFE standards are increased for model years 2011 through 2016 to meet the final CAFE rulemakings for model year 2011 and 2012 to 2016, redspectively. CAFE standards are assumed to increase from model year 2016 to 2020 to reach 35 MPG, as mandated by the Energy Independence and Security Act of 2007. | Energy Policy Conservation Act of 1975; Title 49 United States code, Chapter 329; Energy Independence and Security Act of 2007, Title 1, Section 102; Average Fuel Economy Standards Passenger Cars and Light Trucks Model Year 2011; Federal Register, Vol. 74, No. 59, March 2009; Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Final Rule, Federal Register, Vol. 75, No. 88, May 2010. |
| D. Electric, Hybrid, and Alternative Fuel Vehicle Tax Incentives | Federal tax incentives are provided to encourage the purchase of electric, hybrid and or alternative fuel vehicles. For example, tax incentives for hybrid vehicles in the form of a \$2,000 income tax deduction. | Incorporates the Federal tax incentives for hybrid and electric vehicles. | IRS Technical Publication 535; Business Expenses. |

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| E. Plug-in Hybrid Vehicle Tax Credit | EIEA2008 grants a tax credit of \$2,500 for PHEVs with at least 4KW h of battery capacity, with larger batteries earning an additional \$417 per kWh up to a maximum of \$7,500 for light-duty PHEVs. The credit will apply until 250,000 eligible PHEVs are sold or until 2015, whichever comes first. | Incorporates the Federal tax credits for PHEVs. | Energy Improvement and Extension Act of 2008, H.R.6049. |
| F. The Working Families Tax Relief Act of 2004 | The Act repeals the phase out of the credits which were allowed for qualified electric and clean fuel vehicles for property acquired in 2004 and 2005. The credit is reduced by 75 percent for vehicles acquired in 2006. This will provide an incentive to purchase electric and clean fuel vehicles. | The federal tax incentives are embodied in the code. This will provide an incentive to purchase electric and clean fuel vehicles but little impact is realized on projections of total highway energy use. | Sections 318 and 319 of the Working Families Tax Relief Act of 2004. |
| G. State Electric, Hybrid, and Alternative Fuel Vehicle Tax and Other Incentives | Approximately 20 States provide tax and other incentives to encourage the purchase of electric, hybrid and or alternative fuel vehicles. The tax incentives are in the form of income reductions, tax credits, and exemptions. Other incentives include use of HOV lanes and exemptions from emissions inspections and licensing fees. The incentives offered and the mix varies by State. For example, Georgia offers a tax credit of \$5,000 for electric vehicles and Oklahoma offers a tax credit of \$1,500 for hybrid and alternative fuel vehicles. | Does not incorporate State tax and other incentives for hybrid, electric, and other alternative fuel vehicle. | State laws in Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, New Hampshire, New York, Oklahoma, Pennsylvania, Utah, Virginia, and Washington. |
| H. Energy Policy Act of 2005 | Provides tax credits for the purchase of vehicles that have a lean burn engine or employ a hybrid or fuel cell propulsion system. The amount of the credit received for a vehicle is based on the vehicle's inertia weight, improvement in city tested fuel economy relative to an equivalent 2002 base year value, emissions classification, type of propulsion system, and number of vehicles sold. | Incorporates the Federal tax incentives for hybrid and fuel cell vehicles. | Title XIII, Section 1341 of the Energy Policy Act of 2005. |

Electric power generation

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| A. Clean Air Act Amendment of 1990 | Established a national limit on electricity generator emissions of sulfur dioxide to be achieved through a cap and trade program. | Sulfur dioxide cap and trade program is explicitly modeled, choosing the optimal mix of options for meeting the national emissions cap. | Clean Air Act Amendments of 1990, Title IV, Sections 401 through 406, Sulfur Dioxide Reduction Program, 42 U.S.C. 7651a through 7651e. |
| | Set boiler type specific nitrogen oxide emissions limits for electricity generators. | Assumes each boiler installs the options necessary to comply with their nitrogen oxide emissions limit. | Clean Air Act Amendments of 1990, Title IV, Sections 407, Nitrogen Oxide Emission Reduction Program, 42 U.S.C. 7651f. |
| | Under section 126, Northeast States petitioned the EPA arguing that generators in other States contributed to the nitrogen oxide emissions problems in | The 19-State summer season nitrogen oxide cap and trade program is explicitly modeled, allowing | Section 126 Rule: Revised Deadlines, Federal Register: April 30, 2002 (volume 67, |

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| | their States. EPA established a summer season nitrogen oxide emission capand trade program covering 22 States (three were removed by the courts) to start in May 2003 (delayed until May 2004). | electricity generators to choose the optimal mix of control options to meet the emission cap. | Number 83). Rules and Regulations, Pages 21521-21530. |
| | Requires the EPA to establish national ambient air quality standards (NAAQS). In 1997, EPA set new standards for ground level ozone and fine particulates. EPA is currently determining which areas of the country are not in compliance with the new standards. Area designations will be made in December 2004. States will then have until December 2007 to submit their compliance plans, and until 2009-2014 to bring all areas into compliance. | Because State implementation plans have not been established, these revised standards are not currently represented. | Clean Air Act Amendment of 1990, Title I, Sections 108 and 109, National Ambient Air Quality Standards for Ozone, 40 CFR Part 50, Federal Register, Vol 68, No 3, January 8, 2003. National Ambient Air Quality Standards for Particulate Matter, 40 CFR Part 50, Federal Register, Vol. 62, No. 138, July 18, 1997. |
| B. Clean Air Interstate Rule (CAIR) | CAIR imposes a two-phased limit on emissions of sulfur dioxide and/or nitrogen oxide from electric generators in 28 states and the District of Columbia. | Cap and trade programs for SO2 and NOx are modeled explicitly, allowing the model to choose the best method for meeting the emission caps. | Federal Register, Vol. 70, No. 91 (May 12, 2005), 40 CFR Parts 51, 72, 73, 74, 77, 78 and 96. |
| C. State Mercury Provisions | Many States have adopted stringent regulations to limit mercury emissions and require the best control technologies be in operation. | Although State plans vary, a general regional requirement compatible with NEMS was used to require specific mercury emission removal rates for electric generators. | Various state laws. |
| D. Energy Policy Act of 1992 (EPACT92) | Created a class of generators referred to as exempt wholesale generators (EW Gs), exempt from PUCHA as long as they sell wholesale power. | Represents the development of Exempt Wholesale Generators (EWGs) or what are now referred to as independent power producers (IPPs) in all regions. | Energy Policy Act of 1992, Title VII, Electricity, Subtitle A, Exempt Wholesale Generators. |
| E. The Public Utility Holding Company Act of 1935 (PUCHA) | PUCHA is a US Federal statute which was enacted to legislate against abusive practices in the utility industry. The act grants power to the US Securities and Exchange Commission (SEC) to oversee and outlaw large holding companies which might otherwise control the provision of electrical service to large regions of the country. It gives the SEC power to approve or deny mergers and acquisitions and, if necessary, force utility companies to dispose of assets or change business practices if the company's structure of activities are not deemed to be in the public interest | It is assumed that holding companies act competitively and do not use their regulated power businesses to cross-subsidize their unregulated businesses. | Public Utility Holding Company Act of 1936. |

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| F. FERC Orders 888 and 889 | FERC has issued two related rules—Orders 888 and 889 designed to bring low cost power to consumers through competition, ensure continued reliability in the industry, and provide for open and equitable transmission services by owners of these facilities. Specifically, Order 888 requires open access to the transmission grid currently owned and operated by utilities. The transmission owners must file nondiscriminatory tariffs that offer other suppliers the same services that the owners provide for themselves. Order 888 also allows these utilities to recover stranded costs (investments in generating assets that are unrecoverable due to consumers selecting another supplier). Order 889 requires utilities to implement standards of conduct and a Open Access Same-time Information System (OASIS) through which utilities and non-utilities can receive information regarding the transmission system. Consequently, utilities are expected to functionally or physically unbundle their marketing functions from their transmission functions. | These orders are represented in the forecast by assuming that all generators in a given region are able to satisfy load requirements anywhere within the region. Similarly, it is assumed that transactions between regions will occur if the cost differentials between them make it economic to do so. | Promoting Wholesale Competition Through Open Access, Non-Discriminatory Transmission Services by Public Utilities; Public Utilities and Transmitting Utilities, ORDER NO. 888 (Issued April 24, 1996), 18 CFR Parts 35 and 385, Docket Nos. RM95-8-000 and RM94-7-001. Open Access Same-Time Information System (formerly Real-Time Information Networks) and Standards of Conduct, ORDER NO. 889, (Issued April 24, 1996), 18 CFR Part 37, Docket No. RM95-9-000. |
| G. New Source Review (NSR) | On August 28, 2003, the EPA issued a final rule defining certain power plant and industrial facility activities as routine maintenance, repair and replacement, which are not subject to new source review (NSR). As stated by EPA, these changes provide a category of equipment replacement activities that are not subject to Major NSR requirements under the routine maintenance, repair and replacement (RMRR) exclusion.[1] Essentially this means that power plants and industrial facilities engaging in RMRR activities will not have to get preconstruction approval from the State or EPA and will not have to install best available emissions control technologies that might be required if NSR were triggered. | It is assumed that coal plants will be able to increase their output as electricity demand increases. Their maximum capacity factor is set at 84 percent. No increases in the capacity of existing plants is assumed. If further analysis shows that capacity uprates may result from the NSR rule, they will be incorporated in future AEOs. However, at this time, the NSR rule is being contested in the courts. | EPA, 40 CFR Parts 51 and 52, Deterioration (PSD) and Non-Replacement Provision of the Vol. 68, No. 207, page 61248, Prevention of Significant Attainment New Source Review (NSR): Equipment Routine Maintenance, Repair and Replacement Exclusion; Final Rule, Federal Register, October 27, 2003. |
| H. State RPS Laws, Mandates, and Goals | Several States have enacted laws requiring that a certain percentage of their generation come from qualifying renewable sources | The AEO reference case represents the Renewable Portfolio Standard (RPS) or substantively similar laws from 30 States and the District of Columbia. As described in the | The 30 States with RPS or other mandates providing quantified projections are detailed in the Legislation and Regulations section of this report. |

| Legislation | Brief description | AEO handling | Basis |
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| | | Renewable Fuels Module chapter of this document, mandatory targets from the various States are aggregated at the regional level, and achievement of nondiscretionary compliance criteria is evaluated for each region. | |
| I. State Environmental Laws | Several States have enacted laws requiring emissions reductions from their generating plants. | Where compliance plans have been announced, they have been incorporated. In total 31 gigawatts of planned SO ₂ scrubbers, 18 gigawatts of planned selective catalytic reduction (SCR) and 3 gigawatts of planned elective non-catalytic reduction (SNCR) are represented. | North Carolina’s Clean Smoke Stacks Act, Session Law 2002-4, Senate Bill 1078, An Act to Improve Air Quality in the State by Imposing Limits on the Emission of Certain Pollutants from Certain Facilities that Burn Coal to Generate Electricity and to Provide for Recovery by Electric Utilities of the Costs of Achieving Compliance with those Limits. |
| J. Energy Policy Act of 2005 | Extended and substantially expanded and modified the Production Tax Credit, originally created by EPACT1992. | EPACT2005 also adds a PTC for up to 6,000 megawatts of new nuclear capacity and a \$1.3 billion investment tax credit for new or repowered coal-fired power projects. The tax credits for renewables, nuclear and coal projects are explicitly modeled as specified in the law and subsequent amendments. | Energy Policy Act of 2005, Sections 1301, 1306, and 1307 |
| K. American Recovery and Reinvestment Act of 2009 | Extends the Production Tax Credit (PTC) to wind facilities constructed by December 31, 2012 and to other eligible renewable facilities constructed by December 31, 2013. Allows PTC-eligible facilities to claim a 30 percent investment tax credit (ITC) instead of the PTC. Projects starting construction by the end of 2010 (subsequently extended to the end of 2011) may elect to take a cash grant equal to the value of the 30 percent ITC instead of either tax credit. | The extensions of the PTC and 30 percent ITC are represented in the AEO reference case as specified in the law. The AEO does not distinguish between the effects of the 30 percent ITC and the equivalent cash grant, and the cash grant is not specifically modeled. | American Recovery and Reinvestment Act of 2009, Division B, Title I, Sec. 1101, 1102, and 1603. |
| | ARRA provided \$6 billion to pay the cost of guarantees for loans authorized by the Energy Policy Act of 2005. The purpose of these loan guarantees is to stimulate the deployment of conventional renewable and transmission technologies and innovative biofuels technologies. However, to qualify, eligible projects must be under construction by September 30, 2011. | The AEO2011 includes projects that have received loan guarantees under this authority, but does not assume automatic award of the loans to potentially eligible technologies. | American Recovery and Reinvestment Act of 2009, Title IV, “Energy and Water Development”, Section 406. |

| Legislation | Brief description | AEO handling | Basis |
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| | ARRA provides \$4.5 billion for smart grid demonstration projects. These generally include a wide array of measurement, communications, and control equipment employed throughout the transmission and distribution system that will enable real-time monitoring of the production, flow, and use of power from generator to consumer. | In the electricity module, it was assumed that line losses would fall slightly, peak loads would fall as customers shifted their usage patterns, and customers would be more responsive to pricing signals. | American Recovery and Reinvestment Act of 2009, Title IV, "Energy and Water Development", Section 405. |
| | ARRA provides \$800 million to fund projects under the Clean Coal Power Initiative program focusing on capture and sequestration of greenhouse gases. | It was assumed that one gigawatt of new coal with sequestration capacity would come online by 2017. | American Recovery and Reinvestment Act of 2009, Title IV, "Energy and Water Development" |
| Oil and gas supply | | | |
| A. The Outer Continental Shelf Deep Water Royalty Relief Act (DWRRA) | Mandates that all tracts offered by November 22, 2000, in deep water in certain areas of the Gulf of Mexico must be offered under the new bidding system permitted by the DWRRA. The Secretary of Interior must offer such tracts with a specific minimum royalty suspension volume based on water depth. | Incorporates royalty rates based on water depth. | 43 U.S.C. SS 1331-1356 (2002). |
| B. Energy Policy and Conservation Act Amendments of 2000 | Required the USGS to inventory oil and gas resources beneath Federal lands. | To date, the Rocky Mountain oil and gas resource inventory has been completed by the USGS. The results of this inventory have been incorporated in the technically recoverable oil and gas resource volumes used for the Rocky Mountain region. | Scientific Inventory of Onshore Federal Lands: Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to their Development: The Paradox/San Juan, Uinta/Piceance, Greater Green River, and Powder River Basins and the Montana Thrust Belt. Prepared by the Departments of Interior, Agriculture and Energy, January 2003. |
| C. Section 29 Tax Credit for Nonconventional Fuels | The Alternative Fuel Production Credit (Section 29 of the IRC) applies to qualified nonconventional fuels from wells drilled or facilities placed in service between January 1, 1980, and December 31, 1992. Gas production from qualifying wells could receive a \$3 (1979 constant dollars) per barrel of oil equivalent credit on volumes produced through December 31, 2002. The qualified fuels are: oil produced from shale and tar sands; gas from geopressurized brine, Devonian shale, coal seams, tight formations, and biomass; liquid, gaseous, or solid synthetic fuels produced from coal; fuel from qualified processed formations or biomass; and steam from agricultural products. | The Section 29 Tax Credit expired on December 31, 2002, and it not considered in new production decisions. However, the effect of these credits is implicitly included in the parameters that are derived from historical data reflecting such credits. | Alternative Fuel Production Credit (Section 29 of the Internal Revenue Code), initially established in the Windfall Profit Tax of 1980. |

| Legislation | Brief description | AEO handling | Basis |
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| D. Energy Policy Act of 2005 | Established a program to provide grants to enhance oil and gas recovery through CO ₂ injection. | Additional oil resources were added to account for increased use of CO ₂ -enhanced oil recovery. | Title III, Section 354 of the Energy Policy Act of 2005. |
| E. Section 29 Tax Credit for Nonconventional Fuels | The Alternative Fuel Production Credit (Section 29 of the IRC) applies to qualified nonconventional fuels from wells drilled or facilities placed in service between January 1, 1980, and December 31, 1992. Gas production from qualifying wells could receive a \$3 (1979 constant dollars) per barrel of oil equivalent credit on volumes produced through December 31, 2002. The qualified fuels are: oil produced from shale and tar sands; gas from geopressurized brine, Devonian shale, coal seams, tight formations, and biomass; liquid, gaseous, or solid synthetic fuels produced from coal; fuel from qualified processed formations or biomass; and steam from agricultural products. | The Section 29 Tax Credit expired on December 31, 2002, and it not considered in new production decisions. However, the effect of these credits is implicitly included in the parameters that are derived from historical data reflecting such credits. | Alternative Fuel Production Credit (Section 29 of the Internal Revenue Code), initially established in the Windfall Profit Tax of 1980. |
| F. Energy Policy Act of 2005 | Established a program to provide grants to enhance oil and gas recovery through CO ₂ injection. | Additional oil resources were added to account for increased use of CO ₂ -enhanced oil recovery. | Title III, Section 354 of the Energy Policy Act of 2005. |

Natural gas transmission and distribution

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| A. Alaska Natural Gas Pipeline Act, Sections 101-116 of the Military Construction Hurricane Supplemental Appropriations Act, 2005. | Disallows approval for a pipeline to enter Canada via Alaska north of 68 degrees latitude. Also, provides Federal guarantees for loans and other debt obligations assigned to infrastructure in the United States or Canada related to any natural gas pipeline system that carries Alaska natural gas to the border between Alaska and Canada south of 68 degrees north latitude. This authority would expire 2 years after the final certificate of public convenience and necessity is issued. The guarantee will not exceed 1) 80 percent of the total capital costs (including interest during construction), 2) \$18 billion dollars (indexed for inflation at the time of enactment), or 3) a term of 30 years. | Assumes the pipeline construction cost estimate for the "southern" Alaska pipeline route in projecting when an Alaska gas pipeline would be profitable to build. With recent increased in cost estimates, well beyond \$18 billion, the loan guarantee is assumed to have a minimal impact on the build decision. | P.L. 108-324. |
| B. American Jobs Creation Act of 2004, Sections 706 and 707. | Provides a 7 year cost-of-investment recovery period for the Alaska natural gas pipeline, as opposed to the currently allowed 15-year recovery period, for tax purposes. The provision would be effective for property placed in service after 2013, or treated as such. Effectively extends the 15-percent tax credit currently applied to costs related to enhanced oil recovery to construction costs for a gas treatment plant on the on the North Slope that would feed gas into an Alaska pipeline to Canada. | The change in the recovery period is assumed to have a minimal impact on the decision to build the pipeline. The assumed treatment costs are based on company estimates made after these tax provisions were enacted. | P.L. 108-357. |

| Legislation | Brief description | AEO handling | Basis |
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| C. Pipeline Safety Improvement Act of 2002 | Imposes a stricter regime on pipeline operators designed to prevent leaks and ruptures. | Costs associated with implementing the new safety features are assumed to be a small percentage of total pipeline costs and are partially offset by benefits gained through reducing pipeline leakage. It is assumed that the Act accelerates the schedule of repair work that would have been done otherwise. | P.L. 107-355, 116 Stat. 2985. |
| D. FERC Order 436 (Issued in 1985) | Order 436 changed gas transmission from a merchant business, wherein the pipeline buys the gas commodity at the inlet and sold the gas commodity at the delivery point, to being a transportation business wherein the pipeline does not take title to the gas. Order 436 permitted pipelines to apply for blanket transportation certificates, in return for becoming nondiscriminatory, open-access transporters. Order 436 also allocated gas pipeline capacity on a first-come, first-serve basis, allowed pipelines to discount below the maximum rate, allowed local gas distributors to convert to transportation only contracts, and created optional expedited certificates for the construction of new facilities. | Natural gas is priced at the wellhead at a competitive rate determined by the market. The flow of gas in the system is a function of the relative costs and is set to balance supply, demand, and prices in the market. Transportation costs are based on a regulated rate calculation. | 50 F. R. 42408, FERC Statutes and Regulations Paragraph 30,665 (1985). |
| E. FERC Order 636 (Issued in 1992) | FERC Order 636 completed the separation of pipeline merchant services from pipeline transportation services, requiring pipelines to offer separate tariffs for firm transportation, interruptible transportation, and storage services. Order 636 also permitted pipelines to resell unused firm capacity as interruptible transportation, gave shippers the right to first refusal at the expiration of their firm transportation contracts, adopted Straight-Fixed-Variable rate methodology, and created a mechanism for pipelines to recover the costs incurred by prior take-or-pay contracts. | A straight-fixed-variable rate design is used to establish regulated rates. To reflect some of the flexibility built into the system, the actual tariffs charged are allowed to vary from the regulated rates as a function of the utilization of the pipeline. End-use prices are set separately for firm and interruptible customers for the industrial and electric generation sectors. | 57 F.R. 13267, FERC Statutes and Regulations Paragraph 30,939 (1992) |
| F. Hackberry Decision | Terminated open access requirements for new onshore LNG terminals and authorized them to charge market-based rather than cost-of-service rates. | This is reflected in the structural representation of U.S. LNG imports in EIA's International Natural Gas Model, used to develop U.S. LNG import supply curves for the NGTDM. | Docket No. PL02-9, Natural Gas Markets Conference (2002). |
| G. Maritime Security Act of 2002 Amendments to the Deepwater Port Act of 1974 | Transfers jurisdiction over offshore LNG facilities from FERC to the Maritime Administration (MARAD) and the Coast Guard, both under | This is reflected in the structural representation of U.S. LNG imports in EIA's International Natural Gas Model, used to develop U.S. LNG import supply curves for the NGTDM. | P.L. 107-295. |

| Legislation | Brief description | AEO handling | Basis |
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| | the Department of Transportation (DOT), provides these facilities with a new, streamlined application process, and relaxes regulatory requirements (offshore LNG facilities are no longer required to operate as common carriers or to provide open access as they did while under FERC jurisdiction). | | |
| H. Energy Policy Act of 2005 | Allowed natural gas storage facilities to charge market based rates if it was believed they would not exert market power. | Storage rates are allowed to vary from regulation-based rates depending on market conditions. | Title III, Section 312 of the Energy Policy Act of 2005. |
| Petroleum refining | | | |
| A. Ultra-Low Sulfur Diesel (ULSD) regulations under the Clean Air Act Amendment of 1990 | 80 percent of highway diesel pool must contain 15 ppm sulfur or less starting in fall 2006. By mid-2010, all highway diesel must be 15 ppm or less. All nonroad, locomotive, and marine diesel fuel produced must contain less than 500 ppm starting mid-2007. By mid-2010 nonroad diesel must contain less than 15 ppm. Locomotive and marine diesel must contain less than 15 ppm by mid-2012. | Reflected in diesel specifications. | 40 CFR Parts 69, 80, 86, 89, 94, 1039, 1048, 1065, and 1068. |
| B. Mobile Source Air Toxics (MSAT) Controls Under the Clean Air Act Amendment of 1990 | Establishes a list of 21 substances emitted from motor vehicles and known to cause serious human health effects, particularly benzene, formaldehyde, 1,3 butadiene, acetaldehyde, diesel exhaust organic gases, and diesel particulate matter. Establishes anti-backsliding and anti-dumping rules for gasoline. | Modeled by updating gasoline specifications to most current EPA gasoline survey data (2005) representing anti-backsliding requirements. | 40 CFR Parts 60 and 86. |
| C. Low-Sulfur Gasoline Regulations Under the Clean Air Act Amendment of 1990 | Gasoline must contain an average of 30 ppm sulfur or less by 2006. Small refiners may be permitted to delay compliance until 2008. | Reflected in gasoline specifications. | 40 CFR Parts 80, 85 and 86. |
| D. MTBE Bans in 25 States | 23 States ban the use of MTBE in gasoline by 2007. | Ethanol assumed to be the oxygenate of choice in RFG where MTBE is banned | State laws in Arizona, California, Colorado, Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Rhode Island, South Dakota, Vermont, Washington, and Wisconsin. |
| E. Regional Clean Fuel Formulations | States with air quality problems can specify alternative gasoline or diesel formulations with EPA's permission. California has long had authority to set its own fuel standards. | Reflected in PADD-level gasoline and diesel specifications. | State implementation plans required by the Clean Air Act Amendments of 1990, as approved by EPA. |

| Legislation | Brief description | AEO handling | Basis |
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| F. Federal Motor Fuels Excise Taxes | Taxes are levied on each gallon of transportation fuels to fund infrastructure and general revenue. These taxes are set to expire at various times in the future but are expected to be renewed, as they have been in the past. | Gasoline, diesel, and ethanol blend tax rates are included in end-use prices and are assumed to be extended indefinitely at current nominal rates. | 26 USC 4041 Extended by American Jobs Creation Act of 2004 |
| G. State Motor Fuel Taxes | Taxes are levied on each gallon of transportation fuels. The assumption that State taxes will increase at the rate of inflation supports an implied need for additional highway revenues as driving increases. | Gasoline and diesel rates are included in end-use prices and are assumed to be extended indefinitely in real terms (to keep pace with inflation). | Determined by review of existing State laws performed semi-annually by EIA's Office of Energy Statistics. |
| H. Diesel Excise Taxes | Phases out the 4.3 cents excise tax on railroads between 2005 and 2007. | Modeled by phasing out. | American Jobs Creation Act of 2004, Section 241. |
| I. Energy Policy Act of 2005 (EPACT05) | | | |
| a. Ethanol/biodiesel tax credit | Petroleum product blenders may claim tax credits for blending ethanol into gasoline and for blending biodiesel into diesel fuel or heating oil. The credits may be claimed against the Federal motor fuels excise tax or the income tax. The tax credits are 51 per gallon of nonvirgin biodiesel, and \$1.00 per gallon of virgin biodiesel. The ethanol tax credit expires in 2010. The biodiesel tax credits expire after 2008. | The tax credits are applied against the production costs of the products into which they are blended. Ethanol is used in gasoline and E85. Virgin biodiesel is assumed to be blended into highway diesel, and nonvirgin biodiesel is assumed to be blended into nonroad diesel or heating oil. | 26 USC 40, 4041 and American Jobs Creation Act of 2004. Biodiesel tax credits extended to 2008 under Energy Policy Act of 2005. |
| b. Renewable Fuels Standard (RFS) | This section has largely been redefined by EISA07 (see below) however EPA rulemaking completed for this law was assumed to contain guiding principles of the rules and administration of EISA07. | | Energy Policy Act of 2005, Section 1501. |
| c. Elimination of oxygen content requirement in reformulated gasoline | Within 270 days of enactment of the Act, except for California where it is effective immediately. | Oxygenate waiver already an option of the model. MTBE is assumed to phase out in 2006 resulting from the petroleum industry's decision to discontinue use. AEO projection may still show use of ethanol in gasoline based on the economics between ethanol and other gasoline blending components. | Energy Policy Act of 2005, Section 1504. |
| d. Coal gasification provisions | Investment tax credit program for qualifying advanced clean coal projects including Coal-to-Liquids Projects. | Two CTL units are available to build with lower capital costs reflecting the provision's funding. | Energy Policy Act of 2005, Section 1307. |

| Legislation | Brief description | AEO handling | Basis |
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| J. Energy Independence and Security Act of 2007 (EISA07) | | | |
| a. Renewable Fuels Standard (RFS) | Requires the use of 36 billion gallons of ethanol per year by 2022, with corn ethanol limited to 15 billion gallons. Any other biofuel may be used to fulfill the balance of the mandate, but the balance must include 16 billion gallons per year of cellulosic biofuel by 2022 and 1 billion gallons per year of biodiesel by 2012. | The RFS is included in AEO2011, however it is assumed that the schedule for cellulosic biofuel is adjusted downward consistent with waiver provisions contained in the law. | |
| K. State Heating Oil Mandates | A number of Northeastern States passed legislation that reduces the maximum sulfur content of heating oil to between 15 and 50 ppm in different phases through 2016. | All State regulations included as legislated in AEO2011. 2008 EIA Heating Oil consumption data used to calculate respective State/Census Division shares for new consumption of low sulfur diesel as heating oil. | Connecticut State Senate Bill 382, Maine State Legislature HP1160, NJ State Department of Environmental Protection, Amendment N.J.A.C. 7:27-9.2, New York State Senate Bill S1145C. |
| L. California Low Carbon Fuel Standard (LCFS) | California passed legislation which is designed to reduce the Carbon Intensity (CI) of motor gasoline and diesel fuels sold in California by 10 percent between 2012 and 2020 through the increased sale of alternative "low-carbon" fuels. | The LCFS is included in AEO2011 as legislated for gasoline and diesel fuel sold in California, and for other regulated fuels. The Pacific Census Division 9 was used as a proxy. | California Air Resources Board, "Final Regulation Order: Subarticle 7. Low Carbon Fuel Standard." |
| M. EPA ETS Waiver | EPA approved two waivers for the use of ethanol motor gasoline blends of up to 15 percent in vehicles 2001 and newer. | These two waivers were included and modeled in AEO2011 based on forecasted vehicle fleets and potential infrastructure and liability setbacks. | EPA-HQ-OAR-2009-0211; FRL-9215-5, EPA-HQ-OAR-2009-0211; FRL-9258-6. |

Coal supply

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| A. April 1, 2010 Memorandum: Improving EPA Review of Appalachian Surface Coal Mining Operations Under the Clean Water Act, National Environmental Policy Act, and the Environmental Justice Executive Order | On April 1, 2010, the EPA issued a set of interim guidelines to several of its regional offices for monitoring the compliance of surface coal mining operations in Appalachia. The guidelines relate primarily to the ongoing controversy over use of the mountaintop removal method at a number of surface coal mining operations in Central Appalachia primarily in southern West Virginia and eastern Kentucky. While the guidelines propose a more rigorous review for all new surface coal mines in Appalachia, the EPA indicates that the practice of valley fills, primarily associated with the mountaintop removal method, is the aspect of Appalachian coal mining that will be most scrutinized. | The impact of the EPA's interim guidelines for surface coal mining operations in Appalachia is represented by downward adjustments to the coal mining productivity assumptions for Central Appalachian surface mines. The revised productivity levels, which are roughly 15 to 20 percent lower than those that would have been used for a case without the EPA's new permit review guidelines, are based on the assumption that average productivity for surface mining operations. Central Appalachia will decline gradually toward the productivity levels for smaller surface mines in the region as a result of the more restrictive guidelines for overburden management at large mountaintop mining operations. | Permit program for discharges of dredged or fill material, which is administered primarily by the U.S. Army Corps of Engineers pursuant to Section 404 of the CWA, 33 U.S.C. 1344; the National Pollutant Discharge Elimination System (NPDES), which is administered by the EPA and authorized States pursuant to Section 402 of the CWA, 33 U.S.C. 1342; the National Environmental Policy Act; and the Environmental Justice Executive Order (E.O. 12898) |
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Source: U.S. Energy Information Administration, Office of Energy Analysis.

Abbreviations:

AEO: Annual Energy Outlook
AFUE: Average Fuel Use Efficiency
Btu: British Thermal Unit
CAFE: Corporate Average Fuel Economy
CBECs : Commercial Building Energy Consumption Survey
CFR : Code of Federal Regulations
DOE : U.S. Department of Energy
DOT: Department of Transportation
DWRRA: Deep Water Royalty Relief Act
EER: Energy Efficient Ratio
EF: Energy Efficiency
EIA: U.S. Energy Information Administration
EPA: U.S. Environmental Protection Agency
EPACT92: Energy Policy Act of 1992
EPACT05: Energy Policy Act of 2005
EWGs: Exempt Wholesale Generators
FERC: Federal Energy Regulatory Commission
HERS: Home Energy Efficiency Rating
HVAC: Heating, Ventilation, and Air Conditioning
IECC: International Energy Conservation Code
ITC: Investment Tax Credit
kWh: Kilowatt-hour
LBNL: Lawrence Berkeley National Laboratory
LEVP: Low Emission Vehicle Program
LNG : Liquefied Natural Gas
MARAD : Maritime Administration
MCF: Thousand Cubic Feet
MEF : Modified Energy Factor
MSAT: Mobile Source Air Toxics
MTBE: Methyl-Tertiary-Butyl-Ether
OASIS: Open Access Same-Time Information System
PADD : Petroleum Administration for Defense Districts
P.L.: Public Law
PPM: Parts Per Million
PTC : Production Tax Credit
PUCHA : Public Utility Holding Company Act of 1935
RECS: Residential Energy Consumption Survey
RPS: Renewable Portfolio Standard
SCR: Selective Catalytic Reduction
SEER: Seasonal Energy Efficiency Rating
SO₂: Sulfur Dioxide
SNCR: Selective Non-Catalytic Reduction
ULSD: Ultra-Low Sulfur Diesel
U.S.C. : United States Code
USGS: United States Geological Survey
ZEV: Zero Emission Vehicle

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