

**Appendix A: Handling of Federal and Selected State Legislation and Regulation in the Annual Energy Outlook**

Legislation	Brief Description	AEO Handling	Basis
<b>Residential Sector</b>			
A. National Appliance Energy Conservation Act of 1987	Requires Secretary of Energy to set minimum efficiency standards for 10 appliance categories		
a. Room Air Conditioners		Current standard of 8.82 EER	Federal Register Notice of Final Rulemaking,
b. Other Air Conditioners (<5.4 tons)		Current standard 10 SEER for central air conditioner and heat pumps, increasing to 12 SEER in 2006.	Federal Register Notice of Final Rulemaking,
c. Water Heaters		Electric: Current standard .86 EF, increasing to .90 EF in 2004. Gas: Current standard .54 EF, increasing to .59 EF in 2004.	Federal Register Notice of Final Rulemaking,
d. Refrigerators/Freezers		Refrigerator consumption limit of 691 kWh/yr. decreasing to 483 kWh/yr in 2002.	Federal Register Notice of Final Rulemaking,
e. Dishwashers		Current standard of .46 EF	Federal Register Notice of Final Rulemaking,
f. Fluorescent Lamp Ballasts		Current standard of .90 power factor	Federal Register Notice of Final Rulemaking,
g. Clothes Washers		Current standard of 1.18 EF, increasing to 1.04 MEF in 2004, further increasing to 1.26 MEF in 2007.	Federal Register Notice of Final Rulemaking,
h. Furnaces		Standard set at 78 AFUE for gas and oil furnaces.	Federal Register Notice of Final Rulemaking,
i. Clothes Dryers		Gas: Current standard 2.67 EF. Electric: Current standard 3.01 EF. The increase in MEF for clothes washers further increases the de facto standard for clothes dryers due to better extraction of water from clothes in washing process.	Federal Register Notice of Final Rulemaking,
B. Energy Policy Act of 1992 (EPACT)			
a. Window Labeling	Designed to help consumers determine which windows are most energy efficient.	Assume decrease heating loads by 8 percent and cooling loads by 3 percent.	Based on a analysis of RECS data. Impacts 25 percent of existing (pre-1998) housing stock by the end of the forecast.
b. Low-Flow Showerheads	Designed to decrease domestic hot water use.	Assumed cuts hot water use for showers by 33 percent (implies 10 percent decrease in total hot water use). Only installed in new construction.	Analysis of how much domestic hot water is used for showers based on LBNL study.

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Legislation	Brief Description	AEO Handling	Basis
c. Building Codes	For the IECC 2000, specifies whole house efficiency minimums.	Assumes that all States adopt the IECC 2000 code by 2010.	Trend of States' adoption to codes, allowing for lead times for enforcement and builder compliance.
d. Home Energy Efficiency Rates (HERS)	Rates homes based on installed efficiency of appliances and shell.	Used to determine compliance with obtaining an energy-efficient mortgage.	No final HERS rating system has been established by DOE. State agencies and mortgage lenders have developed a non-binding system, which is currently in place.
e. Energy-Efficient Mortgages	Allow homeowners to qualify for higher loan amounts if the home is energy-efficient, as scored by HERS	Efficiency of equipment represented in technology choice parameters. Efficiency of shell represented in HVAC choice.	No way to separate out these purchases from others. Assumes historical effect in the forecast, with cost-reducing learning in the shell portion of HVAC choice.
<b>Commercial Sector</b>			
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 8.82 EER	Federal Register Notice of Final Rulemaking,
b. Other Residential-size Air Conditioners (<5.4 tons)		Current standard 10 SEER for central air conditioners and heat pumps, increasing to 12 SEER in 2006.	Federal Register Notice of Final Rulemaking,
c. Fluorescent Lamp Ballasts		Current standard of .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 (EPACT)			
a. Building Codes		Incorporated in commercial building shell assumptions. Efficiency of new relative to existing shell represented in shell efficiency indices. Assume shell efficiency improves 5 and 7 percent by 2025 for existing buildings and new construction, respectively.	Based on Arthur D. Little commercial shell indices developed for EIA in 1998, updated to 1999 CBECs building stock.
b. Window Labeling	Designed to help consumers determine which windows are most energy efficient.	Incorporated in commercial building shell assumptions. Efficiency of new relative to existing shell represented in shell efficiency indices. Assume shell efficiency improves 5 and 7 percent by 2025 for existing buildings and new construction, respectively.	Based on Arthur D. Little commercial shell indices developed for EIA in 1998, updated to 1999 CBECs building stock.
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: EPACT. Federal Register Notice of Final Rulemaking,

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Legislation	Brief Description	AEO Handling	Basis
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: EPACK
e. Commercial Water Heaters		Natural gas and oil EPACK standard .78 thermal efficiency, increasing to .80 thermal efficiency for gas units in 2003.	Public Law 102-486: EPACK. 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: EPACK.
h. Federal Energy Management	Requires Federal agencies to reduce energy consumption 20 percent by 2000 relative to 1985.	Superseded by Executive Order 13123.	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: EPACK.
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 lifecycle cost-effective energy measures,	The Federal "share" of the commercial sector uses the 10 year treasury bond rate as a discount rate in equipment purchase decisions as opposed to adding risk premiums to the 10 year treasury bond rate to develop discount rates for other commercial decisions.	Federal Register Notice of Executive Order. Code of Federal Regulations: 10CFR 436.14 Methodological assumptions for lifecycle cost calculations.
<b>Industrial Sector</b>			
A. Energy Policy Act of 1992 (EPACK)			
1. Motor Efficiency Standards	Specifies minimum efficiency levels for a variety of motor types and sizes	New motors must meet the standards.	Standard specified in EPACK, 10 CFR 431
2. 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 EPACK, 10 CFR 431.42

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Legislation	Brief Description	AEO Handling	Basis
<b>B. Clean Air Act Amendments of 1990 (CAAA90)</b>			
1. 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
2. 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 63
3. Industrial SO <sub>2</sub> emissions	Sets annual limit for industrial SO <sub>2</sub> emissions at 5.6 million tons. If limit is reached, specific regulations could be implemented.	Industrial SO <sub>2</sub> emissions are not projected to reach the limit (Source: EPA, National Air Pollutant Emissions Trends: 1990-1998, EPA-454/R-00-002, March 20 00, p. 4-3.)	CAAA90, Section 406 (42 USC 7651)
<b>Transportation Sector</b>			
A. Energy Policy Act of 1992 (EPACT)	Increases the number of alternative fuel vehicles and alternative fuel use in Federal, State, and fuel provider fleets.	Assumes Federal, State and fuel provider fleets meet the mandated sales requirements.	Energy Policy Act of 1992, Public Law 102-486-Ord. 24, 1992.
B. Low Emission Vehicle Program (LEVP)	Allows California the authority to set vehicle criteria emission standards that exceed Federal standards. In addition, this program mandates the sale of zero emission vehicles by manufacturers. States are given the option of opting into the Federal or California emission standards.	Incorporates the LEVP program as amended on 4/24/03. Assumes California, New York, Massachusetts, Maine, and Vermont adopt the LEVP program as amended April 24, 2003 and that the proposed sales requirements for hybrid, electric, and fuel cell vehicles are met.	General Motors Corp., Daimler/Chrysler and Isuzu Motors filed suit against the ZEV mandates outlined in the July 30, 2002 amendments. Due to the changes proposed in the April 24, 2003 amendments (Resolution 03-4), the auto manufacturers agreed to settle litigation with California.
C. Corporate Average Fuel Economy (CAFÉ) Standards	Requires manufacturers to produce vehicles whose average fuel economy meets a minimum Federal standard. Cars and light trucks are regulated separately.	The current CAFÉ standard for cars is 27.5 mpg. The car standard is unchanged through 2025. The current CAFÉ standard for light trucks is 20.7 mpg. Increasing to 21.0 mpg in 2005, 21.6 mpg in 2006, and 22.2 mpg in 2007 and beyond.	Energy Policy Conservation Act of 1975; Title 49 United States Code, Chapter 329; and Federal Register, Vol. 68, No. 66, Monday, April 7, 2003.
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
E. 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.

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Legislation	Brief Description	AEO Handling	Basis
<b>Electric Power Generation</b>			
A. Clean Air Act Amendments 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 emission 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, Section 407, Nitrogen Oxides 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 their states. EPA established a summer season nitrogen oxide emission cap and trade program covering 22 states (three were removed by the courts) to start in May 2003 (delayed until May 2004).	The 19-state summer season nitrogen oxide cap and trade program is explicitly modeled, allowing electricity generators to choose the optimal mix of control options to meet the emission cap.	Section 126 Rule: Revised Deadlines, Federal Register: April 30, 2002 (volume 67, Number 83), Rules and Regulations, Pages 21521-21530
	Requires the EPA to establish national ambient air quality standards. 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 specific nonattainment areas have not been designated and state implementation plans have not been established, these revised standards are not currently represented.	Clean Air Act Amendments 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.
	Required the EPA to study hazardous air pollutants from electricity generation. EPA announced in December 2000 that it would regulate electricity generator mercury emissions under Section 112 of the Clean Air Act. EPA plans to issue proposed mercury emission standards in December 2003 and final standards in December 2004. Generators will have until December 2007 to comply.		Clean Air Act Amendments of 1990, Title I, Section 112. No specific standard promulgated as of 9/1/2003.
B. Energy Policy Act of 1992 (EPACT)	Created a class of generators referred to as exempt wholesale generators (EWGs), 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
	Created production tax incentives (PTC) for wind and biomass and reintroduced a permanent investment tax credit (ITC) for solar. The PTC for wind and biomass has been reauthorized several times and currently expires as of December 31, 2003.	The PTCs and ITCs for renewables are explicitly modeled as stated in the law.	Energy Policy Act of 1992, Title XII, Renewable Energy, Section 1212, Renewable Energy Production Incentive

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Legislation	Brief Description	AEO Handling	Basis
C. The Public Utility Holding Company Act of 1935 (PUCHA)	<p>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.</p>	<p>It is assumed that holding companies act competitively and do not use their regulated power businesses to cross-subsidize their unregulated businesses.</p>	<p>Public Utility Holding Company Act of 1936</p>
D. FERC Orders 888 and 889	<p>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 an 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.</p>	<p>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.</p>	<p>Promoting Wholesale Competition Through Open Access, Non-discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by 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. RM 95-9-000.</p>
E. New Source Review (NSR)	<p>On August 27, 2003, the Environmental Protection Agency (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."<sup>[1]</sup> 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.</p>	<p>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 upgrades 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.</p>	<p>Environmental Protection Agency, 40 CFR Parts 51 and 52, Prevention of Significant Deterioration (PSD) and Non-Attainment New Source Review (NSR): Equipment Replacement Provision of the Routine Maintenance, Repair and Replacement Exclusion; Final Rule, Federal Register, Vol. 68, No. 207, page 61248, October 27, 2003.</p>

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Legislation	Brief Description	AEO Handling	Basis
F. State RPS laws, mandates, and goals	Several States have enacted laws requiring that a certain percentage of their generation come from qualifying renewable sources.	Estimates of projected new capacity, by renewable technology and forecast year, of future capacity resulting from state RPS, mandates, and goals are included for those states able to quantify expectations. Most estimates are limited to near-term years.	States with RPS or other mandates providing quantified projections are Arizona, California, Connecticut, Illinois, Massachusetts, Minnesota, Nevada, New Jersey, Pennsylvania, Texas, and Wisconsin.
G. 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 23 gigawatts of planned SO <sub>2</sub> scrubbers, 41 gigawatts of planned selective catalytic reduction (SCR) and 5 gigawatts of planned selective 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 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.
<b>Oil and Gas Supply</b>			
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. 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 lower risk premiums for new terminal construction.	Docket No. PL02-9, Natural Gas Markets Conference (2002).
D. 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 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).	This is reflected in lower risk premiums for new terminal construction.	P.L. 107-295.

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Legislation	Brief Description	AEO Handling	Basis
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 dollars (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 tarsands; 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 is 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.
<b>Natural Gas Transmission and Distribution</b>			
A. State of Alaska, Right-of-Way Leasing Act Amendments of 2001	Prohibits leases across State land for a "northern" or "over-the-top" gas pipeline route running east from the North Slope to Canada's Mackenzie River Valley. Prohibition does not apply to a "southern" pipeline route.	Assumes the pipeline construction cost estimate for the "southern" Alaska pipeline route in projecting when an Alaska gas pipeline would be profitable to build.	Senate Bill 164, 22 <sup>nd</sup> Legislature - 1 <sup>st</sup> Session, Effective on 5/1/00, <a href="http://www.legis.state.ak.us/basis/get_fulltext.asp?session=22&amp;bill=SB164">http://www.legis.state.ak.us/basis/get_fulltext.asp?session=22&amp;bill=SB164</a>
B. Pipeline Safety Improvement Act of 2002	Imposes a stricter safety 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.
C. 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 non-discriminatory, open-access gas 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 & Regulations Paragraph 30,665 (1985)



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Legislation	Brief Description	AEO Handling	Basis
D. 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 of first refusal" at the expiration of their firm transportation contracts, adopted Straight-Fixed-Variable rate design as the presumptive 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 reset 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)
<b>Petroleum Refining</b>			
A. Ultra-Low Sulfur Diesel (ULSD) regulations under the Clean Air Act	80 percent of highway diesel fuel must contain 15 ppm sulfur or less starting in mid-2006. By mid-2011, all highway diesel must be 15 ppm or less.	Reflected in diesel specifications	40 CFR Parts 69, 80, and 86
B. Mobile Source Air Toxics (MSAT) controls under the Clean Air Act.	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 (2002) representing anti-backsliding requirements.	40 CFR Parts 60 and 86
C. Low-sulfur gasoline regulations under the Clean Air Act	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 17 States	Seventeen States ban the use of MTBE in gasoline by 2004	Ethanol assumed to be the oxygenate of choice in RFG where MTBE is banned.	State laws in California, Colorado, Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New York, Ohio, South Dakota, Washington, and Wisconsin.
E. Regional clean fuel formulations under the Clean Air Act Amendments of 1990	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.
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
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 Oil and Gas.

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H. Ethanol Tax Credit	Gasoline blenders may choose a reduced Federal excise tax rate or an income tax credit for blending ethanol into gasoline. The excise tax reduction and income tax credit have the same value, 52 cents per gallon of ethanol blended in gasoline for 2004 and 51 cents per gallon for 2005 and 2006. The ethanol tax credit is set to expire in 2007 but is expected to be renewed, as it has been in the past.	The value of the excise tax reduction or income tax credit per gallon of ethanol blended is assumed to be extended indefinitely at a nominal rate of 51 cents per gallon after 2006.	26 USC 40, 4041

Source: Energy Information Administration, Office of Integrated Analysis and Forecasting.

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### Abbreviations:

AEO: Annual Energy Outlook  
AFUE: Average Fuel Use Efficiency  
Btu: British Thermal Unit  
CAFÉ: Corporate Average Fuel Economy  
CBECs: Commercial Building Energy Consumption Survey  
CFR: Code of Federal Regulations  
DOE: Department of Energy  
DOT: Department of Transportation  
DWRRA: Deep Water Royalty Relief Act  
EER: Energy Efficient Ratio  
EF: Energy Efficiency  
EIA: Energy Information Administration  
EPA: Environmental Protection Agency  
EPACT: Energy Policy Act of 1992  
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: Kilo-watt-hour  
LBNL: Lawrence Berkeley National Laboratory  
LEVP: Low Emission Vehicle Program  
LNG: Liquefied Natural Gas  
MARAD: Maritime Administration  
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  
SO<sub>2</sub>: Sulfur Dioxide  
SNCR: Selective Non-Catalytic Reduction  
ULSD: Ultra-Low Sulfur Dioxide  
U.S.C.: United States Code  
USGS: United States Geological Survey  
ZEV: Zero Emission Vehicle