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*Key Environmental Issues in the Energy Policy Act of 2005
(P.L. 109-58, H.R. 6)*

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September 15, 2005

Abstract. Over the past several Congresses, there have been ongoing efforts to develop comprehensive energy legislation. Energy bills were debated in the 107th and 108th Congresses, but final agreement was not reached in either Congress. The debate over omnibus energy legislation (H.R. 6) continued in the 109th Congress. On August 8, 2005, President Bush signed the Energy Policy Act of 2005 (P.L. 109-58). The final version of H.R. 6 was enacted with some significant differences from the House- and Senate-passed bills. In many cases, the enacted law and the House and Senate versions treat environmental issues in a similar manner. However, there are several environmental provisions that were addressed by an earlier version of the bill but not the enacted law, or that were treated differently by different versions of the bill. The H.R. 6 environmental provisions addressed in this report are the following: limits on the use of MTBE; a renewable fuel mandate for gasoline; stricter regulation of underground storage tanks; climate change; Clean Water Act and Safe Drinking Water Act exemptions for oil and gas exploration and production (related to stormwater runoff and hydraulic fracturing); incentives and R&D funding for alternative fuels and vehicles; hydroelectric relicensing; ozone compliance deadlines; streamlining of environmental regulations; and a renewable portfolio standard. A short discussion of each of the above provisions is included in this report. It should be noted that not all environment-related provisions of H.R. 6 are discussed in this report; it focuses on the major environmental issues in the debate.

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Updated September 15, 2005

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Key Environmental Issues in the Energy Policy Act of 2005 (P.L. 109-58, H.R. 6)

Summary

Debate over a national energy policy has been ongoing since the 107th Congress. Both the 107th and 108th Congresses were unable to complete action on an omnibus energy bill. The 109th Congress debated and passed H.R. 6, the Energy Policy Act of 2005, which was signed by President Bush August 8, 2005 (P.L. 109-58).

The enacted law contains various provisions involving environmental protection and regulation. This report briefly summarizes and discusses the background and implications of key environmental provisions.

Title XV of P.L. 109-58 eliminates the reformulated gasoline (RFG) oxygen standard, and in its place establishes a renewable fuel mandate for gasoline. Because of related concerns over MTBE (a gasoline additive that competes with ethanol) contamination, the enacted law modifies existing authority for cleanup of leaking underground storage tanks, and authorizes funding for MTBE cleanup.

Title XVI establishes a program to promote the development and deployment of low-carbon technologies both domestically and in developing countries.

Section 322 amends the Safe Drinking Water Act to exempt certain hydraulic fracturing techniques from EPA regulation. Hydraulic fracturing involves the underground injection of fluids into coal beds to enhance recovery of oil gas.

Section 323 gives permanent exemption from Clean Water Act stormwater runoff rules for the construction of exploration and production facilities by oil and gas companies and roads that service those sites.

Various sections in Titles VII, VIII, and XIII authorize R&D funding for hydrogen, fuel cells, and alternative fuel vehicles or establish tax incentives for their use.

Section 241 gives applicants for hydroelectric licenses increased flexibility in complying with conditions imposed by federal agencies. These conditions can include water release controls to limit erosion, and protection of habitat.

Section 966 requires EPA to work with state and local officials in western Michigan to determine ozone pollution and transport, and assess alternatives to achieve compliance with air quality standards.

A variety of provisions are intended to expedite the process for completing or complying with environmental requirements.

Not included in the enacted law are provisions on oil exploration in the Arctic National Wildlife Refuge (ANWR) and a renewable portfolio standard.

This report will not be updated.

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Key Environmental Issues in the Energy Policy Act of 2005 (P.L. 109-58, H.R. 6)

Introduction

Over the past several Congresses, there have been ongoing efforts to develop comprehensive energy legislation. Energy bills were debated in the 107th and 108th Congresses, but final agreement was not reached in either Congress. The debate over omnibus energy legislation (H.R. 6) continued in the 109th Congress. On August 8, 2005, President Bush signed the Energy Policy Act of 2005 (P.L. 109-58).

The final version of H.R. 6 was enacted with some significant differences from the House- and Senate-passed bills. In many cases, the enacted law and the House and Senate versions treat environmental issues in a similar manner. However, there are several environmental provisions that were addressed by an earlier version of the bill but not the enacted law, or that were treated differently by different versions of the bill. The H.R. 6 environmental provisions addressed in this report are the following: limits on the use of MTBE; a renewable fuel mandate for gasoline; stricter regulation of underground storage tanks; climate change; Clean Water Act and Safe Drinking Water Act exemptions for oil and gas exploration and production (related to stormwater runoff and hydraulic fracturing); incentives and R&D funding for alternative fuels and vehicles; hydroelectric relicensing; ozone compliance deadlines; streamlining of environmental regulations; and a renewable portfolio standard.

A short discussion of each of the above provisions is included in this report. It should be noted that not all environment-related provisions of H.R. 6 are discussed in this report; it focuses on the major environmental issues in the debate.

MTBE and Ethanol: Fuels

Title XV of the enacted law contains several provisions addressing the gasoline additives methyl tertiary butyl ether (MTBE) and ethanol.

Under the Clean Air Act Amendments of 1990, reformulated gasoline (RFG) sold in many areas of the country with poor air quality was required to contain an oxygenate (MTBE, ethanol, or other substances containing oxygen) to improve combustion and reduce emissions of ozone-forming compounds and carbon monoxide. A little more than 30% of the gasoline sold in the United States is RFG, and a majority of RFG has contained MTBE. MTBE has been implicated in numerous incidents of groundwater contamination, however, and 25 states have taken

steps to ban or regulate its use. The most significant of these bans (in California, New York, and Connecticut) took effect at the end of 2003.¹

The law repeals the Clean Air Act requirement to use oxygenates in RFG, eliminating a key incentive for refiners to use MTBE.² The repeal will take effect on May 5, 2006 (270 days after enactment) — except in California, where it took effect immediately upon enactment, August 8, 2005. Both the House and Senate versions of H.R. 6 would also have banned the use of MTBE in motor vehicle fuel nationwide, with some exceptions, in 2014 or 2009 respectively. The enacted version does not contain a ban, however, effectively leaving the matter to the states to decide individually.

In place of the oxygen requirement, P.L. 109-58 establishes a new requirement that an increasing amount of gasoline contain renewable fuels such as ethanol. The law requires that motor fuels contain at least 4.0 billion gallons of renewables in 2006, and requires an increase of 700 million gallons each year through 2011, before reaching a level of 7.5 billion gallons in 2012. (In 2004, about 3.4 billion gallons of ethanol were used in motor fuels.) The law also authorizes funds to clean up MTBE contamination in groundwater, as discussed further in the next section below.

The enacted law also contains “anti-backsliding” provisions, to preserve the reductions in emissions of toxic substances achieved by the RFG program. The baseline emissions are set as the quantity emitted in 2001 and 2002.

The most controversial of the MTBE provisions was dropped in conference: a “safe harbor” that the House bill would have provided for fuels containing MTBE. The safe harbor from liability would have meant that such fuels could not be deemed defective in design or manufacture by virtue of the fact that they contained MTBE. The effect of this provision would have been to protect anyone in the product chain, from manufacturers to retailers, from liability for cleanup of MTBE or for personal injury or property damage based on the nature of the product. (Defective product liability is a legal approach that has been used in California to require refiners to shoulder liability for MTBE cleanup.) If liability for manufacturing and design defects had been ruled out, plaintiffs would have needed to demonstrate negligence in the handling of such fuels to establish liability — a more difficult legal standard to meet. The House version of the bill had set a retroactive effective date of September 5, 2003, for the safe harbor, rather than the date of enactment. This effective date would have protected oil and chemical industry defendants from

¹ For more details, see CRS Report RL32787, *MTBE in Gasoline: Clean Air and Drinking Water Issues*, by James E. McCarthy and Mary Tiemann, and CRS Report RL32865, *Renewable Fuels and MTBE: A Comparison of Selected Provisions in the Energy Policy Act of 2005 (H.R. 6)*, by Brent D. Yacobucci, Mary Tiemann, James E. McCarthy, and Aaron M. Flynn.

² However, MTBE is not only used as an oxygenate. MTBE is also used to extend gasoline stocks and to increase octane.

defective product claims in about 150 lawsuits that were filed in 15 states after that date.³

In addition to the House bill's safe harbor for MTBE producers, both the House and Senate versions of the bill contained a safe harbor for producers of renewable fuels, such as ethanol. This provision was less controversial, since there was no pending litigation that would have been affected, but it was also dropped from the enacted version.

[This section prepared by James McCarthy, Specialist in Environmental Policy.]

MTBE and Leaking Underground Storage Tanks

As part of the legislative effort to address drinking water contamination by MTBE, P.L. 109-58 (Title XV, Subtitle B) amends Subtitle I of the Solid Waste Disposal Act (SWDA) to allow funds appropriated from the Leaking Underground Storage Tank (LUST) Trust Fund to be used to enforce UST leak prevention regulations, and authorizes appropriations from the fund specifically for remediating gasoline tank leaks involving MTBE and other oxygenated fuels (including ethanol). The subtitle adds several leak prevention provisions and new requirements for states, EPA, and tank owners, and makes other changes to the underground storage tank (UST) regulatory program.

To address a nationwide groundwater contamination problem caused by leaking underground storage tanks, Congress created the UST leak prevention, detection, and cleanup program in 1984 (Solid Waste Disposal Act, Subtitle I). In 1986, Congress established the LUST Trust Fund to help EPA and states pay the costs of cleaning up leaking petroleum USTs where owners fail to do so, and to oversee LUST cleanup activities. While much progress has been made in the program, several issues remain. A major issue has concerned the discovery of MTBE at thousands of LUST sites across the country. This gasoline additive, which has been used to reduce air pollution from auto emissions, is very water soluble. Once released, MTBE tends to spread further than conventional gasoline; consequently, these leaks are more likely to reach water supplies and are more costly to remediate.⁴ Another issue is that state resources have not met the demands of overseeing the UST regulatory program, which is aimed at preventing leaks. States have sought larger appropriations from the trust fund to support the LUST program, and some have sought flexibility to use LUST funds to enforce the UST leak prevention regulations.

³ For further discussion, see CRS Report RS21676, *The Safe Harbor Provision for Methyl Tertiary Butyl Ether (MTBE)*, by Aaron Flynn.

⁴ A June 2005 study by the American Water Works Association concludes that a "reasonable best estimate" of the cost of addressing MTBE-contamination of public drinking water wells is roughly \$25 billion, with a range of \$4 billion to \$85 billion. Source: American Water Works Association. *A Review of Cost Estimates of MTBE Contamination of Public Wells*. June 21, 2005.

Subtitle B, which is based on the House bill, adds several leak prevention provisions to the UST program. It requires EPA or states to conduct compliance inspections of USTs every three years; prohibits fuel delivery to ineligible tanks, directs states to develop training requirements for persons responsible for operating and maintaining tanks and responding to spills; clarifies and expands UST compliance requirements for federal facilities; and requires EPA, with Indian tribes, to develop and implement a strategy to address releases on tribal lands. The subtitle further requires that, when determining the portion of cleanup costs to recover from a tank owner or operator, EPA or a state must consider the owner or operator's ability to pay for cleanup and still maintain basic business operations. It also allows EPA and states to use LUST funds to conduct inspections and enforce UST release prevention and detection requirements.

To further protect groundwater, the enacted law requires states to do one of the following: (1) require that new tanks are secondarily contained and monitored for leaks if the tank is within 1,000 feet of a community water system or potable well; or (2) require that UST manufacturers and installers maintain evidence of financial responsibility to pay for corrective actions, and require that persons installing UST systems are certified or licensed, or that their UST system installation is certified by a professional engineer or inspected and approved by the state, or is compliant with a code of practice or other method that is no less protective of human health and the environment.

This subtitle authorizes appropriations from the LUST Trust Fund, for each of FY2005 through FY2009, of \$200 million for cleaning up leaks from petroleum tanks generally, and another \$200 million for responding to tank leaks involving MTBE or other oxygenated fuel additives (e.g., ethanol). It also authorizes to be appropriated from the trust fund, for each of FY2005 through FY2009, \$155 million for EPA and states to administer the LUST cleanup program and to enforce the UST leak prevention requirements. From general revenues, it authorizes \$50 million to be appropriated for each of FY2005 through FY2009 for EPA and states to administer the remainder of Subtitle I.

[This section prepared by Mary Tiemann, Specialist in Environmental Policy.]⁵

Climate Change

Title XVI of P.L. 109-58 establishes a voluntary national program designed to accelerate demonstration and deployment of less-carbon-intensive technology to encourage voluntary reductions in greenhouse gases. The sections of this title attempt to support actions focused on reducing U.S. carbon intensity (the ratio of greenhouse gas emissions per unit of gross domestic product). The enacted law does not establish a requirement to reduce emissions. This title also establishes a program

⁵ For more information on the LUST program, see CRS Report RS21201, *Leaking Underground Storage Tanks: Program Status and Issues*, by Mary Tiemann. For a discussion of MTBE issues, see CRS Report RL32787, *MTBE in Gasoline: Clean Air and Drinking Water Issues*, by James McCarthy and Mary Tiemann.

to encourage exports of carbon intensity-reducing technologies to developing countries. Title XVI contains provisions similar to those added to the bill on the Senate floor by amendments that incorporated language found in S. 883 and S. 887. The House bill did not expressly address climate change issues.

Included in the Senate bill, but dropped in conference was a Sense of the Senate resolution that human activities are a substantial cause of greenhouse gas accumulation in the atmosphere, causing average temperatures to rise. Further, the resolution stated that “Congress should enact a comprehensive and effective national program of mandatory market-based limits and incentives on emissions of greenhouse gases that slow, stop, and reverse the growth of such emissions at a rate and in a manner that — (1) will not significantly harm the United States economy; and (2) will encourage comparable action by other nations that are major trading partners and key contributors to global emissions.” This is the first Sense of the Senate resolution on climate change since S.Res. 98 was passed in 1997, which voiced concern over the economic effects of emissions limits and the sense that developing countries must participate in meaningful action to control emissions.

The Senate also debated whether to adopt S.Amdt. 826, which contained language similar to S. 1151, the Climate Stewardship and Innovation Act of 2005. This amendment would have established a mandatory cap-and-trade system to limit greenhouse gas emissions from covered entities to year 2000 levels by 2010. This amendment was rejected on a 38-60 vote.

Greenhouse gas emissions and climate change have been an issue of congressional interest for over two decades. In 1993, the United States ratified the United Nations’ Framework Convention on Climate Change (UNFCCC), which called on industrialized countries to take the lead in making voluntary efforts to reduce greenhouse gases. Subsequently, a variety of voluntary and regulatory actions have been proposed or undertaken in the United States, including monitoring of utility carbon dioxide emissions, improved appliance efficiency, and incentives for developing renewable energy sources. Many of these policies were enacted as part of the Energy Policy Act of 1992. However, debate over the causes and effects of climate change, as well as the potential costs of any greenhouse gas reduction strategy, curtailed legislative action concerning the issue. In 2001, President George W. Bush rejected the Kyoto Protocol to the UNFCCC, which called for legally binding commitments by developed countries to reduce their greenhouse gas emissions. Instead, the Bush Administration has focused on voluntary actions to reduce the greenhouse gas intensity of the U.S. economy.

[This section prepared by Brent Yacobucci, Specialist in Energy Policy.]

Oil and Gas Exploration and Production: Clean Water

Section 323 of P.L. 109-58 gives a permanent exemption from Clean Water Act (CWA) stormwater runoff rules for the construction of exploration and production facilities by oil and gas companies and the roads that service those sites. Currently

under the CWA, the operation of facilities involved in oil and gas exploration, production, processing, transmission, or treatment generally is exempt from stormwater runoff regulations (so long as the runoff is uncontaminated by pollutants), but the *construction* of these facilities is not. Section 323 modifies the CWA to specifically include construction activities in the types of oil and gas facilities that are covered by the law's statutory exemption from stormwater rules.

The issue arises from stormwater permitting rules for small construction sites and municipal separate storm sewer systems that were issued by EPA in 1999 and became effective March 10, 2003. Those rules, known as Phase II of the CWA stormwater program, require most small construction sites disturbing one to five acres and municipal separate storm sewer systems serving populations of up to 100,000 people to have a CWA discharge permit. The permits require pollution-prevention plans describing practices for curbing sediment and other pollutants from being washed by stormwater runoff into local water bodies. Phase I of the stormwater program required construction sites larger than five acres (including oil and gas facilities) and larger municipal separate storm sewer systems to obtain discharge permits beginning in 1991.

As the March 2003 Phase II compliance deadline approached, EPA authorized a two-year extension of the rules for small oil and gas construction sites to allow the agency to assess the economic impact on that industry. EPA had initially assumed that most oil and gas facilities would be smaller than one acre in size and thus excluded from the Phase II rules, but newer data developed for the Department of Energy indicate that up to 30,000 new sites per year would be of sizes subject to the rules.⁶ In a February 2005 report, GAO reported that the actual number of oil and gas construction activities that could be affected is uncertain, and the financial and environmental implications (including additional environmental protections) are difficult to quantify.⁷ In March 2005, EPA extended the exemption until June 2006 and said it would propose a specific rule for small oil and gas construction sites by September 2005, and issue a final rule in June 2006.

Section 323 of the law makes EPA's regulatory delay permanent and makes it applicable to construction activities at *all* oil and gas development and production sites, regardless of size, including those covered by Phase I rules. Industry had argued that the stormwater rule creates time-consuming permitting requirements, even though the short construction period for drilling sites carries little potential for stormwater runoff pollution. Supporters said the amendment was intended to clarify existing CWA language. Opponents argued that there is no evidence that construction at oil and gas sites causes less pollution than other construction activities, which are regulated under EPA's stormwater program. The legislative provision originated in House-passed H.R. 6; the Senate bill did not include similar

⁶ Memorandum from Advanced Resources International, Inc., to U.S. Department of Energy/Office of Fossil Energy, *Estimated Economic Impacts of Proposed Storm Water Discharge Requirements on the Oil and Natural Gas Industry*, December 7, 2004.

⁷ U.S. General Accountability Office. *Storm Water Pollution, Information Needed on the Implications of Permitting Oil and Gas Construction Activities*. GAO-05-240, February 2005, 27 p.

language. As a result of the provision in the enacted law, which is intended to exempt from the CWA all uncontaminated stormwater discharges that occur while setting up drilling operations, EPA is expected to modify the rule that it said would be proposed in September 2005, developing a new rule for discharges of contaminated stormwater from oil and gas operations.

[This section prepared by Claudia Copeland, Specialist in Resources and Environmental Policy.]

Hydraulic Fracturing: Drinking Water Regulation

Section 322 of P.L. 109-58 amends the Safe Drinking Water Act (SDWA), Section 1421(d), to specify that the definition of “underground injection” excludes the injection of fluids or propping agents (other than diesel fuels) used in hydraulic fracturing operations related to oil, gas, or geothermal production activities. This language prevents EPA from regulating the underground injection of fluids for hydraulic fracturing purposes, thus removing EPA’s existing authority to do so under SDWA, as needed to protect sources of drinking water. It also would effectively overturn two court rulings. The provision is based on the House bill; conferees added the references to diesel fuel and geothermal production activities. The Senate bill contained no similar provision.⁸

The SDWA requires controls on the underground injection of fluids to protect underground sources of drinking water. EPA had not considered hydraulic fracturing to fall within the regulatory definition of underground injection until 1997, when the U.S. Court of Appeals for the 11th Circuit ruled that the hydraulic fracturing of coal beds for methane production constitutes underground injection and must be regulated. (This decision applied only to Alabama (LEAF v. EPA, 118 F. 3d 1467).)⁹

While the practice of hydraulic fracturing has been used in the recovery of conventional oil and gas since the 1950s, this practice has been applied for recovery

⁸ The Senate version of H.R. 6 in the 108th Congress had called for EPA to prepare a study of the known and potential effects of hydraulic fracturing on underground sources of drinking water, and for the National Academy of Sciences to provide for an independent review of the study.

As passed in the 109th Congress, P.L. 109-58, Section 1811, calls for the National Academy of Sciences to conduct a study on the effect of coalbed natural gas production on surface and ground water resources, including drinking water, in Montana, Wyoming, Colorado, New Mexico, North Dakota, and Utah.

⁹ In 2000, a second suit was filed against EPA for approving Alabama’s revised UIC program when it contained several alleged deficiencies. (Legal Environmental Assistance Foundation, Inc. v. U.S. EPA., 276 F.3d 1253 (11th Cir. 2001)). The U.S. Court of Appeals for the 11th Circuit directed EPA to require Alabama to regulate hydraulic fracturing under SDWA. The court determined that EPA could regulate hydraulic fracturing under SDWA’s more flexible state oil and gas provisions in Section 1425, rather than the more stringent underground injection control requirements of Section 1422.

of coalbed methane primarily since the mid-1990s.¹⁰ Hydraulic fracturing involves the high-pressure injection of fluids into coal beds to enhance the recovery of oil and natural gas from underground formations. Water-based fluids are used commonly as fracturing fluids, but the industry reports that diesel fuel often is used; also, methanol and various toxic chemicals are used in fracturing fluids.¹¹ The volume of fracturing and stimulation fluids injected into each well for coalbed fracturing is estimated to range from 55,000 gallons to 350,000 gallons.¹²

A growing concern, reported by EPA, is that, “in many coalbed methane-producing regions, the target coalbeds occur *within* USDWs [underground sources of drinking water], and the fracturing process injects stimulation fluids directly into the USDWs.”¹³ EPA has determined that the use of diesel fuel as a fracturing fluid introduces benzene and other toxic and carcinogenic substances directly into underground sources of drinking water.¹⁴ Also, because the process fractures rock, fracturing can create new pathways for natural gas (primarily methane) and other contaminants to enter drinking water aquifers. As the number of coalbed methane (CBM) wells and the use of hydraulic fracturing have increased rapidly in recent years, so has concern over the potential impact on water resources, particularly in the water-scarce West, and very few studies have been done to evaluate these impacts.

In January 2003, EPA’s National Drinking Water Advisory Council (established by Congress under SDWA) submitted to the EPA Administrator a report on hydraulic fracturing, underground injection control, and coalbed methane production and its impacts on water quality and water resources. The council noted several concerns, including the use of diesel fuel and toxic additives in the hydraulic fracturing process,

¹⁰ Demand for natural gas, new technologies, federal tax credits, and the identification of shallow coal formations have led to a dramatic growth in the coalbed methane development industry. For example, the U.S. Geological Survey reports that the number of CBM wells in the Powder River Basin in Wyoming and Montana increased from 110 wells in May 1994 to 5,446 wells in May 2001. (Testimony of Dr. Gene Whitney, Supervisory Geologist, U.S. Geological Survey, before the Committee on Resources, Subcommittee on Energy and Mineral Resources, U.S. House of Representatives, hearing on *The Orderly Development of Coalbed Methane Resources from Public Lands*, Sept. 6, 2001). In 2002, the Bureau of Land Management estimated that another 51,000 wells were planned for Wyoming and 25,000 wells were planned for Montana.

¹¹ Environmental Protection Agency, *Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs*, Washington, D.C., June 2004, pp. 4-3 - 4-4.

¹² *Ibid.*, p. 3-11.

¹³ *Ibid.*, pp. 1-6. According to EPA, hydraulic fracturing of oil and gas found in conventional geologic traps is well established; however, hydraulic fracturing of coal beds is relatively new. Conventional sites are usually more than 1000 feet deep, and typically involve highly saline ground water that is unsuitable for drinking water. In contrast, geologic formations that contain coal bed methane can be near the surface where ground water may be used as a source of drinking water supplies.

¹⁴ *Ibid.*, pp. 4-9 - 4-10.

and the potential impact of coalbed methane development on local underground water resources and on the quality of surface waters.¹⁵

The Advisory Council recommended that EPA work through regulatory or voluntary means to eliminate the use of diesel fuel and related additives in fracturing fluids that are injected into formations containing sources of drinking water. In 2003, EPA entered into an agreement with three companies that provide most hydraulic fracturing services (BJ Services, Halliburton Energy Services, and Schlumberger Technology Corporation).¹⁶ Under this voluntary agreement, the firms conditionally agree to remove diesel fuel from CBM fluids injected directly into drinking water sources, if cost-effective alternatives are available. EPA has not sought to limit other toxic components in fracturing fluids, and other companies did not agree to cease injecting diesel fuel into drinking water sources.

The National Drinking Water Advisory Council further recommended that EPA continue to study the extent and nature of public health and environmental problems that could occur as a result of hydraulic fracturing for coalbed methane production, and defend its authority to implement the UIC program in a manner that protects groundwater resources from contamination. However, oil and gas industry representatives argue that regulation is unneeded and would slow natural gas development.

In response to the 1997 court decision and citizen complaints about water contamination attributed to hydraulic fracturing, EPA began to study the impacts of hydraulic fracturing practices used in CBM production on drinking water sources, and to determine whether further regulation was needed. In 2002, EPA issued a draft report that identified alleged water quality and quantity problems attributed to hydraulic fracturing in Alabama, New Mexico, Colorado, Wyoming, Montana, Virginia, and West Virginia.¹⁷ Based on the preliminary results of the study, EPA tentatively concluded that the potential threats to public health posed by hydraulic fracturing of coalbed methane wells appeared to be small.

In 2004, EPA issued a final report, based primarily on a review of the available literature, and concluded that the injection of hydraulic fracturing fluids into CBM wells poses little threat to underground sources of drinking water and requires no further study; however, EPA noted that very little documented research has been

¹⁵ National Drinking Water Advisory Council, *Report on Hydraulic Fracturing and Underground Injection Control and Coalbed Methane by the National Drinking Water Advisory Council Resulting from a Conference Call Meeting Held December 12, 2002*, Washington, D.C.

¹⁶ Memorandum of Agreement Between the United States Environmental Protection Agency and BJ Services Company, Halliburton Energy Services, Inc., and Schlumberger Technology Corporation, Dec. 12, 2003.

¹⁷ U.S. Environmental Protection Agency. *Draft Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs*. EPA 816-D-02-006. Aug. 2002 p. 6-20 - 6-21.

done on the environmental impacts of injecting fracturing fluids.¹⁸ EPA also noted that estimating the concentration of diesel fuel components and other fracturing fluids beyond the point of injection was beyond the scope of its study.¹⁹ The report has been criticized by some, including EPA professional staff, and the EPA Inspector General has been asked to review a whistle-blower's assertions that EPA's findings are scientifically unfounded.²⁰ (For more information, see CRS Report RL32262, *Selected Legal and Policy Issues Related to Coalbed Methane Development*, by Aaron M. Flynn.)

[This section prepared by Mary Tiemann, Specialist in Environmental Policy.]

Alternative Fuels and Vehicles: R&D and Incentives

P.L. 109-58 contains provisions on hydrogen and fuel cell research and development, as one strategy to promote expansion of alternative fuels and advanced technology vehicles and reduce dependence on foreign oil. Title VIII authorizes \$3.3 billion for hydrogen fuel and fuel cell R&D over the course of FY2006-FY2010. The House version would have authorized \$4.0 billion over the same time frame; the Senate bill would have authorized \$3.2 billion. Further, the enacted law authorizes funding for the development of a nuclear plant to produce electricity and hydrogen. Title VI, Subsection C authorizes \$1.25 billion over ten years for this project. Since FY2003, funding for hydrogen and fuel cell R&D through the Department of Energy has been steadily increasing, as part of the FreedomCAR and Hydrogen Fuel initiatives. For FY2004 through FY2008, the Bush Administration is seeking a total of \$1.8 billion for the initiatives. If appropriated, the above authorizations would represent a significant increase in hydrogen research funding.

P.L. 109-58 also authorizes research on vehicle energy efficiency; establishes a program to promote the domestic production and sale of hybrid and advanced diesel vehicles; and establishes tax credits for the purchase of alternative fuel, fuel cell, hybrid, and advanced lean-burn engine vehicles. The enacted law also provides grant funding for states, localities, school districts, and private cargo carriers to replace existing diesel engines and vehicles with alternative fuel, fuel cell, and advanced diesel technologies, or to retrofit emissions systems on existing engines.

[This section prepared by Brent Yacobucci, Specialist in Energy Policy.]²¹

¹⁸ Ibid. p. 4-1.

¹⁹ Ibid. p. 4-12.

²⁰ Letter (and technical analysis) to Sens. Wayne Allard and Ben Nighthorse Campbell and Rep. Diana DeGette from Weston Wilson, U.S. Environmental Protection Agency, Region 8, Oct. 8, 2004.

²¹ For more information, see CRS Issue Brief IB10128, *Alternative Fuels and Advanced Technology Vehicles: Issues in Congress*.

Hydroelectric Power: Relicensing

Section 241 of P.L. 109-58 will give applicants for hydroelectric licenses increased flexibility in complying with conditions imposed by federal agencies. Currently, the Federal Power Act (16 U.S.C. Section 791 et al.) gives certain federal agencies (conditioning agencies) the authority to attach conditions to Federal Energy Regulatory Commission (FERC) licenses. For example, federal agencies may require applicants to build passageways through which fish can travel around the dam, schedule periodic water releases for recreation, release minimum flows of water for fish migration, control water release rates to reduce erosion, or limit reservoir fluctuations to protect the reservoir's shoreline habitat. Once an agency issues such conditions, FERC must include them in its license. While these conditions often generate environmental or recreational benefits, they may also require construction expenditures and may increase power generation costs by reducing operational flexibility.

The enacted law allows entities to propose alternative license conditions and will require federal agencies to consider the alternatives proposed by license applicants and other parties to the license proceeding. The law also requires an agency to accept a proposed alternative, if it finds that the alternative (1) provides for the adequate protection and utilization of the federal reservation, or is no less protective of the fish resource than the fishway initially prescribed, and (2) costs significantly less to implement than the original condition, and/or will improve operation of the project for electricity production. Agencies that are issuing conditions will also be required to provide FERC with a written statement demonstrating that the relevant Secretary gave "equal consideration" to the effects of the conditions on factors such as energy supply, flood control, navigation, water supply, and air quality. It remains to be seen how this equal consideration clause will affect agencies' resources and whether it will alter their responsibilities concerning the resources under their jurisdiction.

[This section prepared by Kyna Powers, Analyst in Energy and Environmental Policy.]

Small Hydroelectric Power: Alaska

P.L. 109-58, amends the conditions pursuant to which the State of Alaska may regulate its small hydroelectric dams. Under current law (16 U.S.C. Section 823c), Alaska's regulatory program must meet certain conditions for FERC to grant it jurisdiction. For example, the program must require "conditions for the protection, mitigation, and enhancement of fish and wildlife based on recommendation received pursuant to the Fish and Wildlife Coordination Act" (16 U.S.C. Section 823c (a)(3)(c)). Under P.L. 109-58, the State of Alaska may decide against issuing such conditions if it finds that the recommendation will not allow it to (1) protect the public interest, multiple purposes, and the environment to the same extent provided through FERC licensing and regulation, or (2) give equal consideration to the purposes of energy conservation, fish and wildlife, recreation, the interests of Alaska Natives, and other beneficial public uses (i.e., irrigation, flood control, water supply and, navigation).

Pursuant to a November 2000 amendment to the Federal Power Act (16 U.S.C. 823c), the State of Alaska is finalizing regulations to the state's small hydroelectric dams.

[This section prepared by Kyna Powers, Analyst in Energy and Environmental Policy.]

Air Quality: Ozone Nonattainment Area Deadlines

Section 1443 of the House version of H.R. 6 would have amended the Clean Air Act to extend deadlines for areas that have not attained the ozone air quality standard if upwind areas “significantly contribute” to their nonattainment. Under the 1990 Clean Air Act Amendments, ozone nonattainment areas with higher concentrations of the pollutant were given more time to reach attainment, but in return for the additional time, they were required to implement more stringent controls on emissions. Failure to reach attainment by the specified deadline was to result in reclassification of an area to a higher category and the imposition of more stringent controls. Section 1443 would have amended this system to extend deadlines (without requiring more stringent controls) in areas affected by upwind sources of pollution. There was no comparable provision in the Senate bill, and the conferees did not include the House provision in the enacted law.

The enacted version does establish a demonstration project, however, to address the issue of upwind pollution. In Section 996, the enacted law requires EPA to work with State and local officials in a multi-county Western Michigan project area to determine the extent of ozone and ozone precursor transport, to assess alternatives to achieve compliance with the 8-hour ozone standard apart from local controls, and to determine the timeframe in which such compliance could take place. (Western Michigan is believed to be affected by pollution originating in the Chicago and Milwaukee metropolitan areas.) EPA is prohibited from imposing requirements or sanctions that might otherwise apply during the demonstration project.

[This section prepared by James McCarthy, Specialist in Environmental Policy.]²²

Streamlining Environmental Requirements

P.L. 109-58 includes a variety of provisions, applicable to several categories of energy projects, that are intended to expedite the process for completing or complying with environmental requirements. Commonly referred to as “streamlining,” these provisions are most often specified for complex federal actions such as oil and gas development projects that may trigger compliance with literally

²² For more information, see CRS Report RS21611, *Ozone and Particulate Air Quality: Should Deadlines for Attainment Be Extended?*

dozens of federal, state, tribal, and local environmental statutory and regulatory requirements. Such projects, in turn, may require the participation or input of possibly dozens of agencies. Proponents of streamlining provisions indicate that they are intended to better coordinate the interagency consultations necessary to complete applicable environmental requirements.

The environmental streamlining provisions in the enacted law primarily specify procedures intended to expedite the process for obtaining federal authorizations (e.g., permits, special use authorizations, or approvals) or to comply with the National Environmental Policy Act of 1969 (NEPA, P.L. 91-190). Federal authorizations for a given category of energy projects may be required under any of a number of local, state, tribal, or federal requirements (e.g., permitting requirements under the Clean Air Act or the Clean Water Act). Some element of NEPA compliance is required of all federal actions potentially impacting the environment.

NEPA requires federal agencies to consider the environmental impacts of their proposed actions before final decisions are made. For proposed federal actions *significantly* affecting the quality of the environment, NEPA requires federal agencies to provide a detailed statement of environmental impacts (referred to as an environmental impact statement (EIS)). Projects for which it is not initially clear whether impacts will be significant require the preparation of an Environmental Assessment (EA) to determine the level of significance of the action's impacts. Projects that do not individually or cumulatively have a significant social, economic, or environmental effect, and have been determined from past experience to have no significant impact, are categorically excluded from the requirement to prepare and EIS or an EA. Streamlining provisions regarding NEPA often propose legislative or administrative procedures intended to expedite the process for completing the necessary NEPA documentation.

Methods of expediting federal authorizations or NEPA compliance include designating a specific agency (e.g., the Department of Energy or the Federal Energy Regulatory Commission) as the "lead agency" to coordinate applicable federal authorizations; specifying procedures to coordinate interagency consultations (often accomplished through the creation of a "memorandum of understanding" between agencies specifying project milestones and deadlines); and/or designating specific types of projects that will be considered categorical exclusions.

Some Members of Congress have argued that streamlining provisions in P.L. 109-58 are needed to reduce delays and more efficiently facilitate delivery of needed projects. Others members have argued that they are unnecessary or may undercut needed environmental protection.

Categories of projects or actions for which environmental streamlining provisions are provided include:

- Coordination of geothermal leasing and permitting on federal lands (Section 225);
- Procedures for complying with selected sections of the Natural Gas Act (14 U.S.C. 717n) regarding the siting, construction, or operation

of liquefied natural gas import facilities and interstate natural gas pipelines (Section 313);

- Onshore oil and gas leasing and permitting (Section 361-366);
- The designation of right-of-way corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on federal land (Section 368);
- Commercial leasing of federal land for commercial development of oil shale and tar sands (Section 369);
- Granting rights-of-way on public land for natural gas pipelines and “utility facilities” (e.g., facilities or systems for the transportation or storage of oil, natural gas, synthetic liquid fuel, or gaseous fuel; or the generation, transmission, and distribution of electric energy) (Section 372);
- Environmental permitting for new petroleum refineries (Section 391-392); and
- Siting interstate electric transmission facilities (Section 1221).

Also, P.L. 109-58 (Section 390) designates specific actions undertaken by the Secretary of the Interior in managing public lands or the Secretary of Agriculture in managing National Forest System Lands that will be presumed to be categorical exclusions under NEPA. Those activities, if conducted pursuant to the Mineral Leasing Act for the exploration or development of oil or gas, are:

- Individual surface disturbances of less than 5 acres (as long as the total surface disturbance on the lease is not greater than 150 acres and site-specific analysis in a document prepared pursuant to NEPA has been previously completed);
- Drilling an oil or gas well at a location or well pad site at which drilling has occurred previously within 5 years prior to the date of spudding the well;
- Drilling an oil or gas well within a developed field for which an approved land use plan or any environmental document prepared pursuant to NEPA analyzed such drilling as a reasonably foreseeable activity (if that plan or document was approved within the previous five years);
- Placement of a pipeline in an approved right-of-way corridor (as long as the corridor was approved within the previous five years); and
- Maintenance of a minor activity, other than any construction or major renovation or a building or facility.

[This section prepared by Linda Luther, Analyst in Environmental Policy.]

Key Environmental Provisions not Included in P.L. 109-58

Oil Exploration in the Arctic National Wildlife Refuge (ANWR)

One major element of the energy debate in the 109th Congress has been whether to approve energy development in the Arctic National Wildlife Refuge (ANWR) in northeastern Alaska, and if so, under what conditions, or whether to continue to prohibit development to protect the area's biological, subsistence, and recreational resources. Current law forbids energy leasing in the Refuge. As passed by the House, H.R. 6 would have opened ANWR (including Native lands) to energy leasing, specified environmental lease stipulations, modified existing law to allocate 50% of revenues to the federal government (rather than 10%, as specified in the Alaska Statehood Act), limited judicial review and requirements under the National Environmental Policy Act, and limited certain features of federal leasing development to no more than 2,000 acres. The Senate version of H.R. 6 had no ANWR development provisions. In the end, the enacted law dropped the ANWR development provisions, although the matter is likely to recur in the debate over reconciliation for the FY2006 budget.²³

[This section prepared by M. Lynne Corn, Specialist in Natural Resources.]²⁴

Renewable Portfolio Standard

The Senate version of H.R. 6 contained a renewable energy portfolio standard (RPS). There was no RPS in the House version and the Senate provision was dropped in conference. A description of the Senate provision follows.

For retail electricity suppliers, a renewable portfolio standard (RPS) sets a minimum requirement (often a percentage) for electricity production from renewable energy resources or for the purchase of tradable credits that represent an equivalent amount of production. In the markup of H.R. 1640 (which was incorporated into H.R. 6) by the House Committee on Energy and Commerce, an amendment to add an RPS

²³ The budget resolution (H.Con.Res. 95, H.Rept. 109-62) as approved by the House and Senate on April 28, 2005, contained reductions in mandatory spending targets of \$2.4 billion over FY2006 to FY2010 for House Resources and Senate Energy Committees that will be difficult to achieve unless ANWR development legislation is passed. The inclusion of the Senate target particularly sets the stage for including ANWR development legislation in a reconciliation bill, since other approaches would face a threatened filibuster in the Senate. (See CRS Issue Brief IB10136, Arctic National Wildlife Refuge (ANWR): Controversies for the 109th Congress for additional information.)

²⁴ For more information, see CRS Issue Brief IB10136, *Arctic National Wildlife Refuge (ANWR): Controversies for the 109th Congress*; CRS Report RL31278, *Arctic National Wildlife Refuge: Background and Issues*; and CRS Report RL31115, *Legal Issues Related to Proposed Drilling for Oil and Gas in the Arctic National Wildlife Refuge (ANWR)*.

(1% in 2008, increasing by 1% annually and reaching 20% in 2027) was rejected. Proponents noted a growing number of states with an RPS and noted that EIA reports show an RPS could reduce electricity bills. Opponents raised concerns about the exclusion of existing hydropower facilities and renewable energy resource limits for the southeastern United States.

The Senate-passed version of H.R. 6 had an RPS in Section 291.²⁵ It set an initial target of 2.5% in 2008, rising in steps to 10% by 2020, and remaining at 10% through 2030. Multiplying 10% times the Energy Information Administration's (EIA's) projected total generation for 2020 yields an estimate of renewable energy peak generation slightly greater than 500 billion kilowatt-hours (kWh). Further, EIA projects that the renewable energy stimulated by a 10% RPS would mostly displace natural gas, but also some coal, with a cumulative (2005 through 2025) value of saved energy projected at about \$5 billion.²⁶

Production from hydropower and municipal solid waste facilities would have been excluded from the base amount used to calculate the annual target. "Existing renewable energy" was defined as electricity produced from facilities already placed in service that use solar, wind geothermal, ocean, or biomass (open and closed loop) resources. Only "new renewable energy" would have been eligible to satisfy the target. It would have been defined as electricity produced from facilities placed in service after the RPS is enacted, that use solar, wind geothermal, ocean, or biomass (open and closed loop), landfill gas, or incremental hydropower resources. Further, for existing facilities, any "incremental" production above the previous three-year average would also have qualified.²⁷ Double value would have been given to production from facilities on Indian land and triple value would be given to production from distributed generators that are smaller than one megawatt in capacity.

The retail obligation to meet the annual target could have been met through direct generation, purchases of renewable energy, and/or purchases of tradable credits from the Department of Energy. Tradable credits would have had a cost cap of 1.5 cents/kWh, adjusted annually for inflation, and credits for surplus generation exceeding the annual target could be carried forward for up to three years. A noncompliance penalty would have been imposed, with a value that was the greater of 1.5 cents/kWh or two times the national average market value of the tradable credits.

A federal RPS would set a minimum requirement. The states would have been free to set a higher requirement. DOE collections from credit sales and penalties would have gone into an account that provided state grants to promote renewables, especially in states with a small share of renewable energy capacity. Exempt retail

²⁵ The RPS was proposed in S.Amdt. 791, which was adopted in Senate floor debate over H.R. 6.

²⁶ U.S. DOE, EIA, letter to Senator Jeff Bingaman, June 15, 2005, p. 2.

²⁷ Incremental geothermal energy is defined in terms of an average for five of the previous seven years.

suppliers included those in Hawaii and all those that produced less than four million megawatt-hours (million watt-hours) of electricity per year.

[This section prepared by Fred Sissine, Specialist in Energy Policy.]²⁸

²⁸ For more information, see CRS Issue Brief IB10041, *Renewable Energy: Tax Credit, Budget, and Electricity Production Issues*.