

Vote Record

Committee on Environment and Natural Resources

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Moved by: STAPP Seconded by: WIRCH
Motion: ADOPT

<u>Committee Member</u>	<u>Aye</u>	<u>No</u>	<u>Absent</u>	<u>Not Voting</u>
Senator Neal Kedzie	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Senator Cathy Stepp	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Senator David Zien	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Senator Fred Risser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Senator Robert Wirch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Report for Congress

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MTBE in Gasoline: Clean Air and Drinking Water Issues

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MTBE in Gasoline: Clean Air and Drinking Water Issues

Summary

Concern over water contamination caused by the gasoline additive methyl tertiary butyl ether (MTBE) has raised questions concerning the desirability of using the additive as a means of producing cleaner burning fuel. MTBE is used by most refiners to produce the reformulated gasoline (RFG) required under the Clean Air Act in portions of 17 states and the District of Columbia. It is credited with producing marked reductions in carbon monoxide emissions; RFG has also reduced emissions of toxic substances and the volatile organic compounds that react with other pollutants to form smog. Over the last few years, however, incidents of drinking water contamination by MTBE, particularly in California, have raised concerns and led to calls for restrictions on its use. In March 1999, Governor Davis of California ordered a phase-out of MTBE use in the state by December 31, 2002 (since amended to December 31, 2003). Sixteen other states, including New York, have subsequently enacted limits or phase-outs of the substance.

EPA responded to initial reports of water contamination by intensifying research and focusing on the need to minimize leaks from underground fuel tanks. As reports of contamination spread in 1998 and 1999, however, EPA's position evolved. On March 20, 2000, the Agency announced it was beginning the process of requiring a reduction or phase-out of MTBE use under Section 6 of the Toxic Substances Control Act. Because regulatory action could take years to complete, EPA urged Congress to amend the Clean Air Act to provide specific authority to reduce or eliminate use of the substance. Since then, the Senate Environment and Public Works Committee has twice reported bills to provide such authority (S. 950 in the 107th Congress). The Senate incorporated similar provisions in its version of H.R. 4, which it passed April 25, 2002, but the bill died in conference.

If MTBE were removed from gasoline without amending the Clean Air Act, there would be a need for refiners to use alternative sources of oxygen in RFG. The potential alternatives are other forms of ether, or alcohols such as ethanol. Incomplete research makes conclusions regarding the health and environmental impacts of these substitutes uncertain, but a study by the State of California concluded that switching to ethanol would cause no significant adverse impacts to public health or the environment. Such a switch would not be without problems, however. Ethanol costs more to produce than MTBE, poses challenges to the gasoline distribution system, and, some studies suggest that it increases the risk of water contamination compared to non-oxygenated gasoline. Also, in the short term, ethanol is unlikely to be available in sufficient quantity to replace MTBE nationwide. Gasoline that meets the performance requirements for RFG without using oxygenates at all can be made, but current law requires the use of oxygenates in RFG.

The principal issues for Congress are whether MTBE use should be limited or phased out and whether Clean Air Act provisions concerning reformulated gasoline should be modified to allow refiners to discontinue or lessen their use of oxygenates. Numerous bills have been introduced in Congress to address these and related issues.

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MTBE in Gasoline: Clean Air and Drinking Water Issues

Introduction

This report provides background information concerning the gasoline additive methyl tertiary butyl ether (MTBE), discusses air and water quality issues associated with it, and reviews options available to congressional and other policy-makers concerned about its continued use. It includes a discussion of legislation in the 107th Congress.

Under the Clean Air Act Amendments of 1990, numerous areas with poor air quality are required to add chemicals called "oxygenates" to gasoline as a means of improving combustion and reducing emissions. The Act has two programs that require the use of oxygenates, but the more significant of the two is the reformulated gasoline (RFG) program, which took effect January 1, 1995.¹ Under the reformulated gasoline program, areas with "severe" or "extreme" ozone pollution (90 counties with a combined population of 64.8 million) must use reformulated gasoline; areas with less severe ozone pollution may opt into the program as well, and many have. In all, portions of 17 states and the District of Columbia use reformulated gasoline (see Table 1 and Figure 1); a little more than 30% of the gasoline sold in the United States is RFG.

The law requires that RFG contain at least 2% oxygen by weight. Refiners can meet this requirement by adding a number of ethers or alcohols, any of which contain oxygen and other elements. Because these substances are not pure oxygen, the amount used to obtain a 2% oxygen level is greater than 2% of the gasoline blend. For example, MTBE is only 19% oxygen and, thus, RFG made with MTBE must contain 11% MTBE by volume to meet the 2% requirement.

By far the most commonly used oxygenate is MTBE. In 1999, 87% of RFG contained MTBE, a number since reduced to about 70%. MTBE has also been used

¹The requirements for reformulated gasoline (RFG), to reduce air toxics and the emissions that contribute to smog formation, are found in Section 211(k) of the Clean Air Act. Separate requirements for oxygenated fuel, to reduce carbon monoxide formation, are contained in Section 211(m). Of the two programs, that for RFG has a much larger impact on the composition of the nation's gasoline, because RFG requirements are in effect year-round and apply to a larger percentage of the country. The Section 211(m) requirements, by contrast are in effect during winter months only and affect a small percentage of the nation's gasoline. Ethanol is the primary oxygenate used in winter oxygenated fuels and MTBE the primary oxygenate used in RFG, although either can be used in both fuels.

Table 1

Areas Using Reformulated Gasoline (as of January 2003)

Mandatory RFG Areas*

Baltimore, MD
Chicago, IL (and portions of Indiana and Wisconsin)**
Hartford, CT
Houston, TX
Los Angeles, CA
Milwaukee, WI**
New York, NY (and portions of CT and NJ)
Philadelphia, PA (and portions of DE, MD, and NJ)
Sacramento, CA
San Diego, CA
San Joaquin Valley, CA
Southeast Desert, CA
Ventura County, CA

Opt-In RFG Areas***

Connecticut (entire state)
Dallas / Fort Worth, TX
Delaware (entire state)
District of Columbia
Kentucky portion of Cincinnati metropolitan area
Louisville, KY
Maryland (DC suburbs)
Massachusetts (entire state)
New Hampshire portion of Greater Boston
New Jersey (entire state)
New York (counties near New York City)
Rhode Island (entire state)
St. Louis, MO
Virginia (DC suburbs, Richmond, Norfolk - Virginia Beach - Newport News)

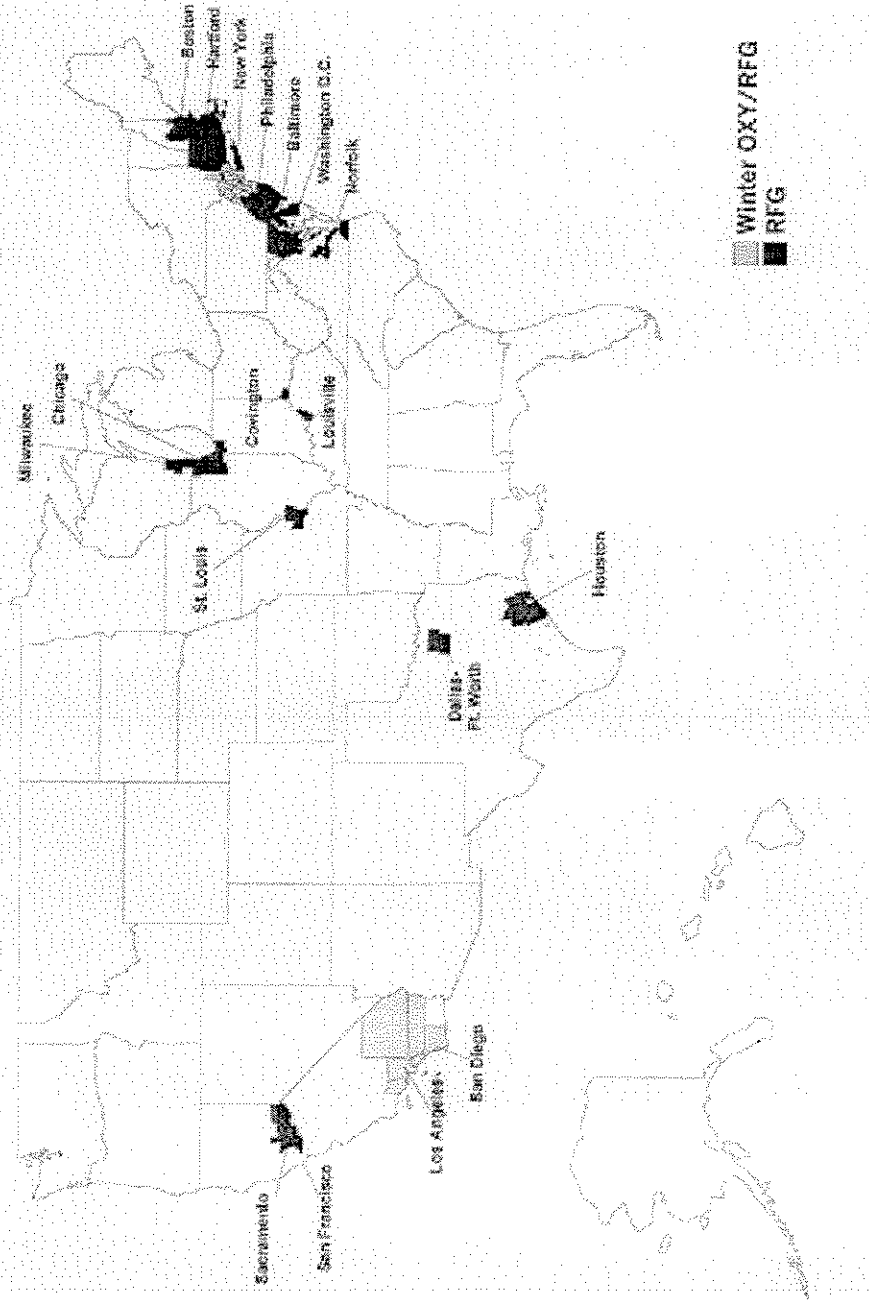
* RFG use required by the Clean Air Act.

** In the Chicago and Milwaukee areas, RFG is made with ethanol rather than MTBE.

*** RFG use required by State Implementation Plan as a means of attaining the ozone air quality standard. These "opt-in" areas may opt out of the program by substituting other control measures achieving the necessary reductions in emissions, but not before January 1, 2004.

Federal RFG & Winter OXY/RFG Programs

February, 2000



since the late 1970s in non-reformulated gasoline, as an octane enhancer, at lower concentrations. As a result, gasoline with MTBE has been used virtually everywhere in the United States, whether or not an area has been subject to RFG requirements.

Air Quality Benefits Resulting from MTBE Use

State and local environmental agencies and EPA attribute marked improvements in air quality to the use of fuels containing MTBE and other oxygenates, but the exact role of oxygenates in achieving these improvements is subject to discussion. In Los Angeles, which has had the worst air quality in the country, the use of reformulated gasoline was credited with reducing ground-level ozone by 18% during the 1996 smog season, compared to weather-adjusted data for the same period in 1994 and 1995. Use of RFG also reduced the cancer risk associated with exposure to vehicle emissions by 30 to 40%, according to the California EPA, largely because it uses less benzene, a known human carcinogen.²

Whether the oxygenates themselves should be given credit for these improvements has been the subject of debate, with the answer depending to some extent on what one assumes would replace the oxygenates if they were removed. Asked to look at the ozone-forming potential of different oxygenates used in reformulated gasoline, a National Academy of Sciences panel concluded that "... the addition of commonly available oxygenates to RFG is likely to have little air-quality impact in terms of ozone reduction."³ An EPA advisory panel, by contrast, concluded that the use of oxygenates "appears to contribute to reduction of the use of aromatics with related toxics and other air quality benefits."⁴

Less controversy exists regarding oxygenates' role in reducing carbon monoxide emissions. Both EPA and an interagency group chaired by the White House Office of Science and Technology Policy (OSTP) have reported improvements in carbon monoxide (CO) levels due to the use of oxygenates. According to the June 1997 OSTP report, "analyses of ambient CO measurements in some cities with winter oxygenated gasoline programs find a reduction in ambient CO concentrations of about 10%."⁵

²See "Reformulated Fuels Help Curb Peak Ozone Levels in California," *Daily Environment Report*, November 6, 1996, pp. A-1 and A-2.

³Committee on Ozone-Forming Potential of Reformulated Gasoline, National Research Council, *Ozone-Forming Potential of Reformulated Gasoline*, May 1999, p. 5. The NAS study concluded that other characteristics of RFG, notably "lowering the Reid Vapor Pressure (RVP) of the fuel, which helps depress evaporative emissions of VOC [volatile organic compounds], and lowering the concentration of sulfur in the fuel, which prevents poisoning of a vehicle's catalytic converter" result in a reduction of about 20% in VOC emissions.

⁴U.S. Environmental Protection Agency, Blue Ribbon Panel on Oxygenates in Gasoline, Executive Summary and Recommendations, July 27, 1999, Appendix A. Available at Internet website: [<http://www.epa.gov/otaq/consumer/fuels/oxypanel/blueribb.htm>].

⁵Executive Office of the President, National Science and Technology Council, *Interagency Assessment of Oxygenated Fuels*, Washington, D.C., June 1997, p. iv. Referred to hereafter (continued...)

EPA also "believes that the reductions estimated in air quality studies are significant and that these reductions help to protect the public from the adverse health effects associated with high levels of CO in the air."⁶ The Agency based its conclusions on both its own analysis and on a report prepared for two industry groups. The latter, using hourly data for more than 300 monitoring sites gathered over a 9-year period, concluded that use of oxygenated fuels was associated with a 14% reduction in ambient CO concentrations.⁷

Health-related Questions

The improvements in measured air quality have not come without questions. In several cities, residents have complained of a variety of health effects from exposure to MTBE/gasoline exhaust: headaches, dizziness, nausea, sore eyes, and respiratory irritation. Some complaints have centered around the use of MTBE in cold weather, two of the principal areas noting complaints being Alaska and Milwaukee, Wisconsin.

The Interagency Task Force examined these complaints and concluded:

With regard to exposures ... experienced by the general population and motorists, the limited epidemiological studies and controlled exposure studies conducted to date do not support the contention that MTBE as used in the winter oxygenated fuels program is causing significant increases over background in acute symptoms or illnesses.⁸

Additional research is being conducted by EPA, universities, and others. Under the authority of Section 211 of the Clean Air Act, EPA has requested that refiners conduct a number of health effects studies on oxygenated, reformulated, and conventional gasoline, which should provide additional information.

Much discussion has centered on whether MTBE has the potential to cause cancer. Although there are no studies on the carcinogenicity of MTBE in humans, several rodent studies have been done. Based on these animal studies (which looked primarily at inhalation effects), EPA has concluded that MTBE poses a potential for carcinogenicity to humans at high doses; however, because of uncertainties and

⁵(...continued)

as the OSTP Report. (Executive summary and recommendations are available at Internet website [<http://www.sd.cr.usgs.gov/nawqa/pubs/abstracts/zogorski/ostp.exec.sum.html>]). The report expressed some hesitation about its conclusions, particularly regarding the impacts of MTBE in colder weather. It also noted methodological difficulties in identifying statistically significant reductions smaller than 10%, and recommended additional research.

⁶U.S. EPA Response to Interagency Assessment of Oxygenated Fuels, undated, p. 2.

⁷Systems Applications International, Inc., for the Renewable Fuels Association and the Oxygenated Fuels Association, *Regression Modeling of Oxyfuel Effects on Ambient CO Concentrations*, Final Report, January 8, 1997, p. 1.

⁸OSTP Report, p. vi. The report did suggest that "greater attention should be given to the potential for increased symptoms reporting among workers exposed to high concentrations of oxygenated fuels containing MTBE," however.

limitations in the data EPA has been unable to make a confident estimation of risk at low exposure levels.⁹ In 1998, the International Agency for Research on Cancer (IARC), the U.S. National Toxicology Program, and California's Carcinogen Identification Committee all determined not to list MTBE as a human carcinogen.

Regarding noncancer effects, another California advisory committee determined that there was not clear scientific evidence to support listing MTBE as a toxic substance affecting human development or reproduction. In reviewing available research on both cancer and noncancer effects, these groups generally noted that research gaps exist, and that the data were particularly limited on health effects associated with MTBE ingestion.

For practical purposes, the interpretation of any health risks associated with the addition of MTBE to gasoline requires a comparison to the health risks associated with conventional gasoline. The Interagency Task Force, EPA, and some environmental groups have all argued that current knowledge suggests that MTBE is a less serious pollutant than the gasoline components it replaces. According to the OSTP report, the cancer risk from exposure to MTBE is "substantially less than that for benzene, a minor constituent of gasoline that is classified as a known human carcinogen; and more than 100 times less than that for 1,3-butadiene, a carcinogenic emission product of incomplete fuel combustion."¹⁰

Water Quality and Drinking Water Issues

A major issue regarding the use of MTBE concerns its detection at low levels in ground water in numerous locations nationwide and at elevated levels in some municipal drinking water wells and reservoirs. MTBE is very soluble and, once released, it moves through soil and into water more rapidly than other chemical compounds present in gasoline. Once in ground water, it is slow to biodegrade and is more persistent than other gasoline-related compounds. In surface water, it dissipates more rapidly: studies show that most of it evaporates from the upper levels of surface water in a few weeks, while it persists longer at greater depths.¹¹

The available data indicate that the primary source of MTBE in ground water has been petroleum releases from leaking underground storage tank (UST) systems. Other significant sources include leaking above ground storage tanks, fuel pipelines, refueling facilities, and accidental spills. The most significant source of MTBE in

⁹U.S. Environmental Protection Agency. *Drinking Water Advisory: Consumer Acceptability Advice and Health Effects Analysis on Methyl Tertiary-Butyl Ether (MTBE)*. EPA-822-F-97-009, December 1997. p. 1-2. This and other health effects information is available at Internet website: [<http://www.epa.gov/OST/drinking/mtbe.html>]. (Also, see additional drinking water risk discussion on p. 9 and 10 of this report.)

¹⁰*Ibid.*, p. vii.

¹¹Keller, Arturo, et al., *Health and Environmental Assessment of MTBE*, Report to the Governor and Legislature of the State of California as Sponsored by SB 521, Volume I, Summary and Recommendations, University of California, November 1998. p. 35.

lakes and reservoirs appears to be exhaust from motorized watercraft, while smaller sources include gasoline spills, runoff, and ground water flow.¹²

Occurrence of MTBE in Drinking Water. Available information on the occurrence of MTBE in public drinking water supplies has increased substantially over the past few years but has been somewhat limited geographically. Although a number of serious contamination incidents have been reported, particularly in California, the available data generally do not indicate a broad presence of MTBE in drinking water supplies at levels of public health concern. However, as monitoring has increased among the states, so has the number of public water systems and private wells showing low-level detections of MTBE.

The most extensive MTBE monitoring data for drinking water are available for California, where testing for MTBE was made mandatory for most public water systems in February 1997. As of April 3, 2002, 2,957 systems had tested 9,905 sources of drinking water. MTBE was detected in 85 (0.9%) of these sources, including 54 (0.6%) of 9,234 ground water sources and 31 (4.6%) of 671 surface water sources. Overall, 53 (1.8%) of the 2,957 public water systems reported detections of MTBE in at least 1 of their drinking water sources, and 13 (0.4%) of the systems reported that a total of 21 (0.2%) sources of water had MTBE concentrations exceeding California's MTBE drinking water standard of 13 micrograms per liter ($\mu\text{g/L}$).¹³

In 1998, the State of Maine tested nearly 800 public water supplies and 950 randomly selected private wells and found detectable levels of MTBE in 16% of the public water supplies and 15.8% of the private wells. None of the public water supply samples exceeded the state drinking water standard of 35 $\mu\text{g/L}$, while 1% of private well samples contained MTBE concentrations above the standard. Roughly 94% of public water supply samples showed MTBE levels that were either not detectable or below 1 $\mu\text{g/L}$; the remaining 6% of samples were between 1 $\mu\text{g/L}$ and 35 $\mu\text{g/L}$.¹⁴

Nationwide, the data on the presence of MTBE in drinking water have been more limited. In July 1999, the EPA-appointed Blue Ribbon Panel on Oxygenates in Gasoline reported that between 5% and 10% of drinking water supplies tested in high oxygenate use areas show at least detectable amounts of MTBE, and that the vast

¹²Keller. p. 33-34.

¹³California Environmental Protection Agency. *MTBE in California Drinking Water*, April 3, 2002. Regular updates are available at Internet website: [<http://www.dhs.cahwnet.gov/ps/ddwem/chemicals/MTBE/mtbeindex.htm>]. (Micrograms per liter($\mu\text{g/L}$) are equivalent to parts per billion (ppb) for fresh water.)

¹⁴Maine Department of Human Services, Department of Environmental Protection, and Department of Conservation. *The Presence of MTBE and Other Gasoline Compounds in Maine's Drinking Water*, A Preliminary Report. October 13, 1998. 24 p. (Maine was not required to use RFG but had done so voluntarily; the state opted out of the RFG program in October 1998 because of concerns over MTBE contamination of ground water and drinking water wells.)

majority of these detections have been well below levels of public health concern, with roughly 1% of detections exceeding 20 µg/L.¹⁵

More recent federal and state monitoring efforts have been advancing the knowledge about the presence of MTBE in drinking water. Perhaps most notably, the United States Geological Survey (USGS), in cooperation with EPA, recently assessed the occurrence of MTBE and other volatile organic compounds (VOCs) in public water supplies in 10 mid-Atlantic and Northeastern states where MTBE use is common.¹⁶ The study analyzed water from 1,194 randomly selected community water systems. The USGS reported that MTBE was detected in 8.9% of the tested water systems and was strongly associated with areas where reformulated and/or oxygenated (RFG/OXY) fuels are used. Fifteen percent of systems in RFG/OXY areas reported detecting MTBE at concentrations of 1 µg/L or more, while 3% of systems outside of RFG/OXY areas reported such detections. Most MTBE concentrations ranged from 0.5 to 5 µg/L, and less than 1% of the systems reported MTBE at levels equal to or exceeding 20 µg/L, the lower limit of EPA's drinking water advisory.¹⁷

Occurrence of MTBE in Ambient Ground Water. Looking at ground water generally (not only drinking water wells), the data indicate that low-levels of MTBE are found often. Nationally, the most comprehensive ground water research has been conducted by the USGS through the National Water Quality Assessment Program (NAWQA). USGS data for some 2,743 monitoring, observation, and water supply wells in 42 states (from 1993-1998) showed MTBE present in about 5% (145) of the wells, with MTBE levels exceeding 20 µg/L in 0.5% (12) of the wells. In all, MTBE was detected in ground water in 22 of the 42 states. The USGS further evaluated the occurrence data based on whether or not detections occurred in RFG or winter oxyfuel program areas. The researchers reported that low concentrations of MTBE were detected in 21% of ambient ground water samples in high MTBE-use areas and in 2.3% of samples in low or no-MTBE use areas.¹⁸

MTBE has been detected most frequently in ground water associated with leaking underground storage tank (UST) sites. The California Environmental Protection Agency has estimated that, based on monitoring information available for

¹⁵The Blue Ribbon Panel on Oxygenates in Gasoline. Executive Summary and Recommendations. July 27, 1999. Summary and full report are available at Internet website: [<http://www.epa.gov/otaq/consumer/fuels/oxypanel/blueribb.htm>].

¹⁶For further information on MTBE research at the USGS, see Internet website: [<http://wwwsd.cr.usgs.gov/nawqa/vocns/>].

¹⁷Grady, Stephen J. and George D. Casey. *MTBE and other VOCs in Drinking Water in the Northeast and Mid-Atlantic Region*. Available at Internet website: [http://sd.water.usgs.gov/nawqa/pubs/abstracts/grady/Grady_iccssw_abs.pdf]. MTBE was the second most frequently detected VOC in drinking water, after trihalomethanes (disinfection byproducts) which were detected in 45% of systems tested. Chloroform, the most frequently detected trihalomethane, was found in 39% of systems.

¹⁸U.S. Geological Survey. Data summary submitted to the EPA Blue Ribbon Panel on the Use of MTBE and Other Oxygenates in Gasoline. January 22, 1999. Available at Internet website: [<http://www.epa.gov/otaq/consumer/fuels/oxypanel/blueribb.htm#Presentations>].

these sites, MTBE can be expected to be found in shallow, unused ground water at thousands of UST sites in the state, and often at high concentrations (in the parts per million range).¹⁹ Moreover, a 1998 report by the Lawrence Livermore National Laboratory found that MTBE was not significantly degrading in the monitoring networks for these leaking UST sites.²⁰

The picture nationwide may be similar. As of late 2000, 42 states had begun to require testing for MTBE in ground water at leaking UST sites. In a September 2000 survey of state leaking underground storage tank (LUST) programs, 31 states reported that MTBE was found in ground water at 40% or more of gasoline-contaminated sites in their states; 24 states reported MTBE at 60% to 100% of sites.²¹

EPA's Responses to MTBE Occurrence in Water

Safe Drinking Water Act Initiatives. To address concerns raised by the detection of MTBE in ground water and drinking water supplies, EPA has undertaken a variety of activities. In December 1997, the Agency issued a drinking water advisory for MTBE based on consumer acceptability (for taste and smell). EPA issues drinking water advisories to provide information on contaminants in drinking water that have not been regulated under the Safe Drinking Water Act (SDWA).²² Advisories are not enforceable, but provide guidance to water suppliers and other interested parties regarding potential health effects or consumer acceptability. While the MTBE advisory is not based on health effects, EPA notes that keeping MTBE levels in the range of 20-40 µg/L or lower for consumer acceptability reasons would also provide a large margin of safety from adverse health effects. Specifically, the advisory states that,

[c]oncentrations in the range of 20 to 40 µg/L are about 20,000 to 100,000 (or more) times lower than the range of exposure levels in which cancer or noncancer effects were observed in rodent tests. This margin of exposure is in the range of margins of exposure typically provided to protect against cancer effects by the National Primary Drinking Water Standards under the Federal Safe

¹⁹California Environmental Protection Agency, *MTBE Briefing Paper*, p. 17.

²⁰Happel, Anne, E. H. Beckenbach, and R. U. Halden. *An Evaluation of MTBE Impacts to California Groundwater Resources*. Lawrence Livermore National Laboratory and the University of California, Berkeley. June 11, 1998. p. iv.

²¹New England Interstate Water Pollution Control Commission (NEIWPC). *Survey of State Experiences with MTBE Contamination at LUST Sites (August 2000)*. Available at Internet website: [<http://www.neiwpc.org/mtbe1.html>]. The survey shows that some states began requiring testing at LUST sites in the 1980s (Maine in 1986 and Minnesota in 1987) while others recently began to do so (Kentucky in 2000 and Washington in 2001).

²²At least 7 states have set health-based drinking water standards for MTBE ranging from 13 parts per billion (ppb) to 240 ppb. (Parts per billion are equivalent to µg/L.) At least 5 states have adopted a secondary standard (based on aesthetic qualities, i.e., taste and odor), ranging from 5 ppb to 70 ppb. At least 32 states have adopted a very wide range of ground water cleanup levels; some are guidelines, some are enforceable, and some vary depending on the use of ground water; some states apply these levels to ground-water cleanup at leaking underground storage tank sites where ground water is used for drinking water.

Drinking Water Act. This margin is greater than such standards typically provided to protect against noncancer effects. Thus, protection of the water source from unpleasant taste and odor as recommended will also protect consumers from potential health effects.²³

Additionally, EPA is taking steps that could lead to the development of an enforceable drinking water standard for MTBE. In February 1998, EPA included MTBE on a list of contaminants that are potential candidates for regulation under the Safe Drinking Water Act. Compounds on the contaminant candidate list are categorized as regulatory determination priorities, research priorities, or occurrence priorities. Because of data gaps on MTBE health effects and occurrence, EPA placed MTBE in the category of contaminants for which further occurrence data collection and health effects research are priorities. Thus, while EPA has not selected MTBE for regulation to date, the Agency is pursuing research to fill the existing data gaps so that a regulatory determination may be made.

The Safe Drinking Water Act also directed EPA to publish a rule by August 1999, requiring public water systems to conduct monitoring for a list of unregulated contaminants that may require regulation. EPA included MTBE in this rule and directed large public water systems to begin monitoring for MTBE in January 2001.²⁴

The occurrence data generated under the Unregulated Contaminant Monitoring Rule, combined with the results of ongoing health effects studies, are intended to provide information needed by EPA to make a regulatory determination for MTBE. Under SDWA, the next round of regulatory determinations will be made in 2006. EPA typically requires roughly three and one-half years to promulgate a drinking water regulation; thus, the earliest EPA would be expected to issue a drinking water regulation for MTBE is 2010.

Underground Storage Tank Regulation. A key EPA and state contamination prevention effort involves implementing the underground storage tank program established by the 1984 amendments to the Resource Conservation and Recovery Act (RCRA). Under this program, EPA has set operating requirements and technical standards for tank design and installation, leak detection, spill and overflow control, corrective action, and tank closure. As of 1993, all tanks were required to comply with leak detection regulations. Additionally, all tanks installed before December 1988 (when standards for new tanks took effect) were required to be upgraded, replaced or closed by December 22, 1998. Federal and state regulators anticipate that as tank owners and operators comply with these requirements, the number of petroleum and related MTBE leaks from UST systems should decline significantly. Based on reporting by states, EPA estimates that, by the end of fiscal year 2001, 82% of facilities were in "significant operational compliance" with the 1998 spill prevention requirements and 77% of facilities were in significant operational compliance with the spill detection requirements. However, MTBE has

²³EPA Drinking Water Advisory, p. 2.

²⁴ 64 *Federal Register* 50555, September 17, 1999. The law requires monitoring by all large public water systems (serving more than 10,000 people) and requires a representative sampling of smaller systems.

been detected at many leaking tank sites, and this additive is proving more difficult and costly to remediate than conventional gasoline. Moreover, many sites have not been tested for MTBE. A key concern for states is that, as testing increases, it is likely that the number and scope of needed cleanups may increase as well.

In 1986, Congress created a federal response program for cleaning up releases from leaking petroleum USTs through the Superfund Amendments and Reauthorization Act, which amended RCRA Subtitle I. These provisions created the Leaking Underground Storage Tank (LUST) Trust Fund and authorized EPA and states to use the Fund to clean up underground storage tank spills and leaks in cases where tank owners or operators do not clean up sites. EPA and states use the annual Trust Fund appropriation primarily to oversee and enforce corrective actions performed by responsible parties. EPA and states also use Fund monies to conduct corrective actions where no responsible party has been identified, where a responsible party fails to comply with a cleanup order, or in the event of an emergency, and to take cost recovery actions against parties. For FY2002, Congress provided \$73 million for the program, and the President has requested \$73.3 million for FY2003.²⁵

In late 2000, EPA launched a new USTfields initiative to address abandoned or idle industrial and commercial properties where redevelopment is hindered by petroleum contamination from abandoned USTs. This program complements EPA's Superfund-related Brownfields program which generally did not cover petroleum contamination until the passage of the new brownfields act (P.L. 107-118). EPA estimates that out of 450,000 brownfields, roughly 100,000 to 200,000 contain abandoned tanks. Under the USTfields initiative, in November 2000, EPA made grants of \$100,000 to each of ten communities to clean up abandoned UST sites, with special consideration being given to sites with MTBE contamination. In 2001, the EPA Administrator announced that EPA would provide \$100,000 grants from Trust Fund monies to another 40 USTfield pilot projects. In P.L. 107-118, signed into law in January 2002, Congress authorized up to \$50 million of the annual brownfields appropriation to be used to clean-up petroleum contaminated sites.²⁶

Blue Ribbon Panel on Oxygenates in Gasoline

As part of its effort to gather information and focus research, in November 1998, EPA established an independent Blue Ribbon Panel on Oxygenates in Gasoline to review the broad range of issues posed by the use of MTBE and other oxygenates. The panel was established under the auspices of the Clean Air Act Advisory Committee, and its membership reflected a broad range of experts and stakeholders.²⁷

²⁵For more information on the LUST program and related legislation in the 107th Congress, see CRS Report RS21201, *Leaking Underground Storage Tanks: Program Status and Issues*.

²⁶For information on Brownfields, see CRS Issue Brief 10078, *Superfund and Brownfields in the 107th Congress*.

²⁷A list of Blue Ribbon Panel members is provided, along with the panel report and related materials, at Internet website: [<http://www.epa.gov/oar/caaac/mtbe.html>].

The panel was directed to perform the following tasks:

- ! examine the role of oxygenates in meeting the nation's goal of clean air,
- ! evaluate the efficiency of each of the available oxygenates in providing clean air benefits and the existence of alternatives,
- ! assess the behavior of oxygenates in the environment,
- ! review any known health effects, and
- ! compare the cost of production and use, and each product's availability.

The panel also was directed to study the causes of ground water and drinking water contamination from motor vehicle fuels, to explore prevention and cleanup technologies for water and soil, and to make recommendations to EPA "on how to ensure public health protection and continued improvement in both air and water quality."

Findings and Recommendations. In releasing its recommendations July 27, 1999, the Blue Ribbon Panel stressed that "RFG has provided substantial reductions in the emissions of a number of air pollutants from motor vehicles, most notably volatile organic compounds (precursors of ozone), carbon monoxide, and mobile-source air toxics (benzene, 1,3-butadiene, and others), in most cases resulting in emissions reductions that exceed those required by law."²⁸

However, the panel noted water quality problems associated with MTBE releases and made a number of recommendations. Specifically, the panel:

- ! recommended that Congress act to remove the current Clean Air Act requirement that 2% of RFG, by weight, consist of oxygen, in order to ensure that adequate fuel supplies can be blended in a cost-effective manner while reducing usage of MTBE;
- ! recommended that the winter oxygenated fuels program be continued;
- ! agreed broadly that use of MTBE should be reduced substantially (with some members supporting its complete phase out), and that Congress should act to provide clear federal and state authority to regulate and/or eliminate the use of MTBE and other gasoline additives that threaten drinking water supplies;
- ! recommended that EPA seek mechanisms to ensure that there is no loss of current air quality benefits (i.e., no backsliding); and
- ! recommended a comprehensive set of improvements to the nation's water protection programs, including over 20 specific actions to enhance

²⁸ Blue Ribbon Panel on Oxygenates in Gasoline, "Panel Calls for Action to Protect Water Quality While Retaining Benefits from National Clean Burning Gas," press release, July 27, 1999, p. 2. Available at [<http://www.epa.gov/oms/consumer/fuels/oxypanel/blueribb.htm>]. Regarding dissenting views, one member endorsed the water protection reforms but disagreed with the recommendation to limit the use of MTBE, noting that the panel had not identified any increased public health risk associated with MTBE use in gasoline; another member supported maintaining the existing oxygenate standard for the air quality benefits.

Underground Storage Tank, Safe Drinking Water, and private well protection programs.

The panel's numerous water protection recommendations addressed prevention, treatment, and remediation. For example, the panel recommended that EPA work with Congress to determine whether aboveground petroleum storage tanks (which generally are not regulated) should be regulated; work to enhance state and local efforts to protect lakes and reservoirs that serve as drinking water supplies by restricting use of recreational water craft; and accelerate research for developing cost-effective drinking water treatment and remediation technologies.

With regard to the recommendation to reduce substantially the use of MTBE, the panel noted that accomplishing such a major change in gasoline supply without disruptions to fuel supply and price would require up to 4 years lead time if the use of MTBE were eliminated (or less if use was substantially reduced).

The panel also suggested that EPA and others should accelerate ongoing health effects and environmental behavior research of other oxygenates and gasoline components that would likely increase in use in the absence of MTBE.

Former EPA Administrator Carol Browner concurred with the recommendation of the Blue Ribbon Panel calling for a significant reduction in the use of MTBE. She also stated her commitment to work with Congress for "a targeted legislative solution that maintains our air quality gains and allows for the reduction of MTBE, while preserving the important role of renewable fuels like ethanol."²⁹

On March 20, 2000, she announced that EPA would begin the process of issuing regulations to reduce or phase out use of MTBE (discussed at greater length below in the section on "Current Statutory Authority"). Recognizing that this process could take several years to complete, she renewed her call for congressional action to "amend the Clean Air Act to provide the authority to significantly reduce or eliminate the use of MTBE," to "ensure that air quality gains are not diminished," and to "replace the existing oxygen requirement contained in the Clean Air Act with a renewable fuel standard for all gasoline."³⁰

In its few public statements on MTBE, the Bush Administration has not indicated any change in the Clinton Administration's policy, although EPA's effort to regulate MTBE using its existing authority has slowed noticeably. This Administration, like the previous one, would defer to a legislative solution. As one EPA official described it, "If the ethanol and oil industries can come to an agreement, we'll support it."

²⁹Statement by former EPA Administrator Carol Browner on Findings by the EPA's Blue Ribbon MTBE Panel, July 26, 1999, available on the Blue Ribbon Panel home page, previously cited.

³⁰U.S. Environmental Protection Agency. "Clinton-Gore Administration Acts to Eliminate MTBE, Boost Ethanol," EPA Headquarters Press Release, March 20, 2000, pp. 7-8.

Alternatives to MTBE

The major potential alternatives to MTBE are other oxygenates. This is so both for practical and for regulatory reasons: at present, oxygenates are required by the Clean Air Act, and, they possess several advantages, including high octane and the ability to replace toxic components of conventional gasoline.

Oxygenates that could replace MTBE include ethers, such as ethyl tertiary butyl ether (ETBE), and alcohols, such as ethanol. These other oxygenates may pose health and environmental impacts, but inadequate data make it difficult to reach definite conclusions. EPA's Blue Ribbon Panel concluded:

The other ethers (e.g., ETBE, TAME, and DIPE) have been less widely used and less widely studied than MTBE. To the extent that they have been studied, they appear to have similar, but not identical, chemical and hydrogeologic characteristics. The Panel recommends accelerated study of the health effects and groundwater characteristics of these compounds before they are allowed to be placed in widespread use.³¹

Ethanol and other alcohols are considered relatively innocuous on their own; they generally do not persist in ground water and are readily biodegraded. However, research suggests that the presence of ethanol in a gasoline plume can extend the spread of benzene and other toxic constituents of gasoline through ground water.³² This is largely because ethanol is likely to be degraded preferentially by microorganisms that would otherwise feed on other chemical components of gasoline including benzene, toluene, ethylbenzene, and xylene (BTEX).

In announcing the phase-out of MTBE in his state, March 25, 1999, California's Governor Davis required three state agencies to conduct additional research on the health and environmental impacts of ethanol, the most likely substitute. In reports approved in January 2000, the agencies concluded that if ethanol were substituted for MTBE, there would be "some benefits in terms of water contamination" and "no substantial effects on public-health impacts of air pollution."³³

A more recent article, based on the California ethanol review, focused specifically on the relative risks of ground-water contamination by spills of ethanol-blended gasoline, MTBE-blended gasoline, and non-RFG gasoline. The authors concluded that,

³¹Blue Ribbon Panel Report, p. 8.

³²See, for example, "Ethanol-Blended RFG May Cause Small Hike in Gasoline Plume Size," *Mobile Source Report*, December 2, 1999, p. 11, or "Experts Charge Cal/EPA Rushing Approval of Ethanol in RFG," *Inside Cal/EPA*, January 14, 2000, p. 1.

³³California Air Resources Board, Water Resources Control Board, and Office of Environmental Health Hazard Assessment. *Health and Environmental Assessment of the Use of Ethanol as a Fuel Oxygenate*. Report to the California Environmental Policy Council in Response to Executive Order D-5.-99. Dec. 1999. Volume 1, Executive summary. P. 1-22. Report is available at Internet website: [<http://www-erd.lnl.gov/ethanol/>].

relative to risks associated with standard formulation gasoline, *there is an increase in the risk that wells will be contaminated by RFG using either MTBE or ethanol as an oxygenate.* (Emphasis added.) With ethanol, the risk of contaminating wells decreases after approximately five years. However, the risk continues to grow for MTBE because of the assumption that this chemical is not degraded in the subsurface. The conservative approach used in this analysis, including the low biodegradation rates and assumption that the gasoline source areas are not remediated, results in an overstatement of the risks associated with these additives to gasoline. Nevertheless, the relative trends do favor ethanol when considering risk associated with RFG spills.³⁴

The switch from MTBE to ethanol is not without technical problems as well. Ethanol costs substantially more to produce than MTBE; it poses challenges to the gasoline distribution system (it would separate from gasoline if transported long distances by pipeline, so it must be mixed with non-oxygenated gasoline blendstock close to the market in which it is to be sold); and, in the short term, it is unlikely to be available in sufficient quantity to replace MTBE nationwide.³⁵

Since late 1997, some refiners have discussed the possibility of making gasoline that meets the performance requirements for RFG without using oxygenates. Tosco and Chevron, two firms with large stakes in the California gasoline market, have asked for changes in the rules to allow the sale of RFG not meeting the oxygenate requirement. In October 1997, Tosco expressed concern about the growing evidence of the potential for extensive MTBE contamination in asking the California Air Resources Board to "take decisive action" to "begin to move away from MTBE."³⁶ Chevron, California's largest refiner, followed suit, announcing that it "may be possible to make a cleaner burning gasoline without oxygenates, and still reduce emissions to the same extent achieved with current standards."³⁷ The company has stated its support for legislation allowing it to stop or reduce its use of oxygenates. These statements were supported by the Western States Petroleum Association. The American Petroleum Institute now also supports legislation to remove the RFG oxygenate requirement.

Affected industries have not been united in seeking authority to replace MTBE, however. The major producers of MTBE have not joined the efforts to promote alternatives, and ethanol producers and agricultural interests (most ethanol is made from corn) are concerned that removing the oxygenate requirement would negatively affect the sales of their products.

³⁴Powers, Susan, et al. "Will Ethanol-Blended Gasoline Affect Groundwater Quality?" *Environmental Science & Technology*. American Chemical Society. January 1, 2001. p 28A.

³⁵For additional information on ethanol, see CRS Report RL30369, *Fuel Ethanol: Background and Public Policy Issues*.

³⁶Letter of Duane B. Bordvick, Vice President, Environmental and External Affairs, Tosco, to John D. Dunlap III, Chairman, California Air Resources Board, October 17, 1997.

³⁷"Chevron Seeks Changes to Reformulated Gasolines," Press Release, Chevron Corporation Public Affairs Department, December 1, 1997.

Current Statutory Authority to Control the Use of MTBE

Whether EPA has authority to take steps to regulate or ban MTBE use in the absence of specific congressional authorization is a question many have raised as the Agency and Congress consider their responses to MTBE contamination. In theory, if the Agency determines that MTBE poses what it considers a significant threat to air quality, water quality, or human health, it can take action to restrict or ban the substance using existing authority under the Toxic Substances Control Act (TSCA).³⁸ Until early 2000, based on its public statements, the Agency seemed unlikely to make such a determination. In April 1998 testimony before a House Commerce subcommittee, for example, EPA's then Acting Assistant Administrator for Air and Radiation stated: "One needs to be very cautious about initiating changes to the RFG program that could upset the balance of previous agreements that have led to the significant emissions reductions we are seeing today."³⁹ Instead, the Agency focused attention on the need to prevent leaks from underground fuel storage tanks, which, it argued, would address the major cause of drinking water contamination by MTBE.

On March 20, 2000, however, former EPA Administrator Browner announced that the Agency would start a regulatory process "aimed at phasing out MTBE,"⁴⁰ using Section 6 of TSCA. According to the Agency's press release, the Agency expected to issue a proposed rule to ban or phase down MTBE within 6 months. As the Agency noted, however, a TSCA rulemaking is procedurally burdensome and may take "several years" to complete. To use the authority, the Agency will have to conclude that MTBE poses an unreasonable risk to health or the environment. In the 24 years since TSCA was enacted, the Agency has successfully invoked this authority against fewer than half a dozen classes of chemicals.

The first step in the TSCA rule-making process was the issuance of an Advance Notice of Proposed Rulemaking (ANPRM) on March 24, 2000.⁴¹ The ANPRM solicited the input of interested parties regarding EPA's course of action, including:

- ! whether some use of MTBE as a gasoline additive should be allowed to continue,
- ! how much lead time would be necessary to allow refiners to eliminate MTBE from RFG or from all fuels without unacceptable impacts on the price or supply of fuel,

³⁸Under the Clean Air Act, EPA has authority to waive the RFG oxygenate requirement if the oxygenate interferes with the attainment of an air quality standard; however, EPA has no authority to waive the requirement for water quality reasons.

³⁹Statement of Richard D. Wilson, former Acting Assistant Administrator, Office of Air and Radiation, U.S. EPA, in "Implementation of the Reformulated Gasoline Program in California," Hearing before the Subcommittee on Health and Environment, Committee on Commerce, U.S. House of Representatives, April 22, 1998, Serial No. 105-94, p. 30.

⁴⁰U.S. Environmental Protection Agency. "Clinton-Gore Administration Acts to Eliminate MTBE, Boost Ethanol," EPA Headquarters Press Release, March 20, 2000, p. 2.

⁴¹65 *FR* 16093, March 24, 2000.

! whether EPA should eliminate or cap the use of any other gasoline additives (e.g., other ethers) in addition to MTBE, and

! whether MTBE presents significantly greater risk to public health and/or water quality than alternative gasoline additives.

The Agency also requested additional information regarding releases of gasoline containing MTBE, the extent of contamination of water resources by the substance, remediation technologies, alternatives to MTBE and their potential impacts on health and the environment, and the cost of limiting or phasing out MTBE over various time frames.⁴² As of January 2003, the Agency is still preparing a proposed rule, but Agency staff familiar with the process describe it as “basically on hold,”⁴³ with the Administration deferring to what they thought would be congressional action throughout 2002.

In addition to TSCA authority, Section 303 of the Clean Air Act could possibly have been invoked. Section 303 allows the Administrator to seek a restraining order (and temporarily to issue such orders on her own authority) in cases where “a pollution source or combination of sources ... is presenting an imminent and substantial endangerment to public health or welfare, or the environment....” In EPA’s assessment, however, studies to date suggest that MTBE is less toxic than certain other gasoline components, such as benzene, so it might be difficult to justify a finding of imminent and substantial endangerment.

Legislation

Legislation that could affect MTBE use has been introduced in every Congress since the 104th, but generally has not reached the floor of either chamber.⁴⁴ In the 107th Congress, however, the Senate acted, including MTBE provisions in its version of H.R. 4, the comprehensive energy bill that it passed April 25, 2002. Sections 831 - 839 of the bill would have banned the use of MTBE in gasoline within 4 years, eliminated the RFG program’s oxygenate requirement, required the maintenance of toxic air pollutant reductions achieved under the RFG program, provided additional funding for the cleanup of contaminated ground water, authorized \$750 million in conversion assistance grants to merchant producers of MTBE, and required studies of the health and environmental effects of MTBE substitutes. In Section 820, the bill also mandated a tripling of the use of renewable motor fuels such as ethanol by 2012 and provided a “safe harbor” from lawsuits for producers of renewable fuel. Many of the MTBE provisions were contained in legislation reported December 20, 2001,

⁴²The specific request for information is found on pp. 16106-16107 of the March 24, 2000 Federal Register notice.

⁴³ Personal communication, U.S. EPA, Office of Transportation and Air Quality, January 6, 2003.

⁴⁴ Prior to the 107th Congress, the only legislation that had reached the floor of either house was a Senate amendment to the FY2000 agricultural appropriations bill (S. 1233), offered by Senator Boxer, expressing the sense of the Senate that use of MTBE should be phased out. The Senate adopted the amendment on August 4, 1999.

by the Environment and Public Works Committee (S. 950, S.Rept. 107-131). The rest were added on the Senate floor in S.Amdt. 2917.

The House did not pass comprehensive MTBE or ethanol provisions, but Section 604 of the House version of H.R. 4, passed August 2, 2001, would have authorized the appropriation of \$200 million from the Leaking Underground Storage Tank (LUST) Trust Fund to clean up MTBE leaks. Senate and House conferees did not reach agreement on H.R. 4, so the bill died at the end of the 107th Congress.

Besides H.R. 4 and S. 950, at least a dozen other bills related to MTBE were introduced in the 107th Congress. As in previous years, two of the bills in the 107th Congress (H.R. 52 and H.R. 2270) aimed to change the regulatory requirements for reformulated gasoline as they pertain to California. Legislation similar to these bills was the focus of House efforts on MTBE in the 104th - 106th Congresses. The House Commerce Committee's Subcommittee on Health and Environment held hearings and approved the 106th Congress version, H.R. 11, with an amendment, September 30, 1999. Concerns that the bill was too narrowly drawn stalled further consideration, however, and developments since then have not been favorable to the California-only approach. Most recently, on August 1, 2001, the House rejected similar language offered by Representative Christopher Cox as an amendment to H.R. 4, on a vote of 300-125.

The difficulties encountered by H.R. 11 and the Cox amendment to H.R. 4 reflect wider concerns over MTBE use. Organizations initially opposed or indifferent to legislation affecting California have come to favor action on a broader scale. These organizations include the American Petroleum Institute (API) and environmental interests such as the Natural Resources Defense Council (NRDC) and American Lung Association (ALA). API, NRDC, and ALA have supported a set of principles adopted by the Northeast States for Coordinated Air Use Management (NESCAUM). NESCAUM represents the air pollution program directors in New York, New Jersey, and the 6 New England states. It has played a significant role in building consensus among the Northeastern states required to use reformulated gasoline. In a report issued in August 1999,⁴⁵ and in subsequent principles adopted by a task force of state air and water officials, NESCAUM called for:

- ! repealing the two percent oxygen mandate for RFG in the Clean Air Act;
- ! phasing down and capping MTBE content in all gasoline;
- ! clarifying state and federal authority to regulate, and/or eliminate, MTBE or other oxygenates if necessary to protect public health or the environment;
- ! maintaining the toxic emissions reductions benefits achieved to date by the RFG program (Note: the reductions *achieved* are substantially higher than the reductions *required* by the Clean Air Act);

⁴⁵See *Summary of RFG/MTBE Findings and Program Recommendations*, August 1999, available at web site [<http://www.nescaum.org/RFG/RFGPh2.shtml>]

- ! promoting consistency in fuel specifications through the timely implementation of effective federal requirements; and
- ! providing adequate lead time for the petroleum infrastructure to insure adequate fuel supply and price stability.

While support for waiving the oxygenate requirement is now widespread among environmental groups, the petroleum industry, and states, a potential obstacle to enacting legislation has lain among agricultural interests. About 7% of the nation's corn crop is used to produce the competing oxygenate, ethanol. If MTBE use is reduced or phased out, but the oxygenate requirement remains in effect, ethanol use would likely soar, increasing demand for corn. Conversely, if the oxygenate requirement is waived by EPA or by legislation, not only would MTBE use decline, but so, likely, would demand for ethanol.

As a result, Members, Senators, and Governors from corn-growing states have taken a keen interest in MTBE legislation. Unless their interests are addressed, they might pose a potent obstacle to its passage. Reflecting these concerns, the Senate version of H.R. 4 would have eliminated the oxygen requirement but mandated a tripling of the use of renewable fuels such as ethanol by 2012. The bill died in conference at the end of the 107th Congress, however.

As the deadlines for state phaseout of MTBE move closer, investment decisions involving hundreds of millions of dollars hang on the regulatory framework of the post-MTBE gasoline market. Thus, pressure for congressional action on this issue remains significant. Whether this pressure will produce enacted legislation is still not clear.

California and Other State Initiatives

Among the states, California has arguably been the most active in addressing MTBE issues. Actions taken by the State Legislature and the Governor helped propel the issue to national prominence. Legislation, signed October 8, 1997, required the state to set standards for MTBE in drinking water, and required the University of California to conduct a study of the health effects of MTBE and other oxygenates and risks associated with their use. The UC report, which was issued in November 1998, recommended a gradual phase-out of MTBE from gasoline in California.⁴⁶ Based on the report and on public hearings, Governor Davis issued a finding that "on balance, there is a significant risk to the environment from using MTBE in gasoline in California," and required the state's Energy Commission to develop a timetable for the removal of MTBE from gasoline at the earliest possible date, but not later than December 31, 2002.⁴⁷ (This date was amended, in March 2002, to December 31,

⁴⁶See Keller, Arturo, et al., *Health & Environmental Assessment of MTBE*, Report to the Governor and Legislature of the State of California As Sponsored by SB 521, November 1998. Available on the web at [<http://www.tsrtf.ucdavis.edu/mtberpt/homepage.html>].

⁴⁷Governor Gray Davis, Executive Order D-5-99. The Executive Order and related materials can be found at: [http://www.governor.ca.gov/state/govsite/gov_homepage.jsp]. (Search (continued...))

2003.) The Governor also required the California Air Resources Board (CARB) to make a formal request to U.S. EPA for a waiver from the requirement to use oxygenates in reformulated gasoline and required three state agencies to conduct additional research on the health and environmental impacts of ethanol, the most likely substitute for MTBE.

The waiver request resulted in months of negotiation between EPA and CARB, with EPA expressing skepticism that it had authority to grant a waiver under the circumstances.⁴⁸ The Clean Air Act authorizes waiver of the RFG oxygenate requirement only if the Administrator determines that oxygenates would prevent or interfere with the attainment of a National Ambient Air Quality Standard.⁴⁹ More than 2 years later, on June 12, 2001, the Agency finally denied California's request. Without a waiver, gasoline sold in ozone nonattainment areas in the state will be required to contain another oxygenate (most likely, ethanol) when the MTBE ban takes effect, unless Congress acts to change the oxygenate requirement.

Following California's decision to phase-out MTBE, at least 16 other states (Arizona, Colorado, Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New York, Ohio, South Dakota, and Washington) have acted to limit or phase out its use. The largest of these, New York, will ban it on January 1, 2004. Maine (which is not required to use RFG, but had chosen to do so) also opted out of the RFG program in October 1998 as a result of concerns over MTBE contamination of ground water, and subsequently substituted a low-volatility gasoline to provide similar reductions in emissions of ozone-forming compounds, without requiring the use of oxygenates.

NAFTA Arbitration

Another MTBE issue that emerged in the wake of California's decision to phase out the use of MTBE in gasoline concerns the applicability of certain provisions in the North American Free Trade Agreement (NAFTA). In June 1999, the Methanex Corporation, a Canadian company that produces methanol in the United States and Canada, notified the U.S. Department of State of its intent to institute an arbitration against the United States under the investor-state dispute provisions of the NAFTA, claiming that the phase-out of MTBE ordered by the Governor of California March 25, 1999 breaches U.S. NAFTA obligations regarding fair and equitable treatment and expropriation of investments, entitling the company to recover damages which it estimated at \$970 million. (Methanol is a major component of MTBE and is Methanex's only product. The California market for MTBE reportedly accounts for roughly 6% of global demand for methanol.)

⁴⁷(...continued)
"MTBE").

⁴⁸See statements of Robert Perciaspe, former Assistant Administrator for Air and Radiation, U.S. EPA, at the May 6, 1999 House Commerce subcommittee hearing, previously cited, pp. 47-52.

⁴⁹The waiver language is found in Section 211(k)(2)(B).

Chapter 11, Article 1110, of the NAFTA requires the United States, Canada, and Mexico to treat each other's investors and investments in accordance with the principles set out in the Chapter. It also allows these investors to submit to arbitration a claim that a NAFTA party has breached Chapter 11 obligations and to recover damages from any such breach. The NAFTA requires the disputing investor to deliver a written notice of its intent to the NAFTA country involved at least 90 days before the claim is submitted to arbitration under the appropriate international arbitral rules. NAFTA also requires 6 months to elapse "since the events giving rise to a claim" before the investor may proceed with arbitration. Because no settlement was reached within that timeframe, the matter proceeded to arbitration. In August 2002, an arbitration panel ordered Methanex to file a fresh claim more specifically relating the actions of California to the company's manufacture of methanol. Methanex filed a new claim on November 2002.⁵⁰

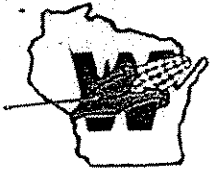
Conclusion

Controversy continues to surround the use of MTBE in gasoline. Research conducted to date suggests that the air quality benefits of its use are substantial. However, increasing detections of MTBE in ground and surface water, and particularly in municipal and private drinking water wells, have raised significant concerns about the use of this oxygenate. Research on MTBE and other oxygenates is ongoing and should provide additional information to help advance the current understanding of MTBE-related health and environmental issues and those of its potential alternatives.

Legislation introduced in Congress initially focused on the limited issue of MTBE use in California, where federal requirements have prevented refiners from adopting a more flexible approach permitted by state regulations. Modifying the federal requirements as they pertain to California has had substantial support among the California congressional delegation. As MTBE has been detected in drinking water wells in other parts of the country, and in surface waters in addition to underground sources, broader legislation has been introduced. These bills emerge in a context of ongoing activities aimed at reducing releases of petroleum, generally, or MTBE, specifically. The effectiveness and sufficiency of these efforts (such as the continued implementation of UST regulations and stricter emissions standards for marine engines), combined with concerns and uncertainties about potential replacements for MTBE, add complexity to the debate. Also, some lawmakers have cautioned against acting precipitously to replace MTBE with other additives without adequate research and consideration of potential adverse consequences. Others view the debate over MTBE as an opportunity to encourage the greater use of ethanol, a competing oxygenate generally made from corn.

Developments in the states, particularly California and the Northeast, have driven reconsideration of the petroleum industry's reliance on MTBE as the principal means of meeting RFG requirements. These developments are likely to generate continued congressional interest in the issue

⁵⁰For more information, see CRS Report RL31638, *International Investor Protection: "Indirect Expropriation" Claims under NAFTA Chapter 11*.



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February 20, 2003

The Honorable Russell Feingold
U.S. Senate
506 Hart Senate Office Bldg.
Washington, D.C. 20510

Dear Senator Feingold:

As you are aware, last year farm groups and the petroleum industry came together for the first time at the table and agreed to create a Renewable Fuels Standard (RFS). This agreement was passed in the Senate in 2002 as part of S.517, the National Energy Policy bill, but stalled in conference committee. We are writing to you respectfully requesting that you support reintroduction and passage of the RFS during this session of Congress.

Renewable fuels are important to agriculture because they increase the demand for corn and soybeans. As you know, Wisconsin has a developing ethanol industry. Two plants are now in operation and others are in the planning stages. By establishing a RFS, it will insure a continued market share for these new value-added ethanol plants and require that a portion of America's fuels include this domestically produced product. The RFS would also allow petroleum refiners greater flexibility in supplying fuels to America by reducing the number of "boutique" fuels in the market place.

The RFS will:

- Increase renewable, domestic fuels from the current 2.5 billion gallons to 5 billion gallons by 2012.
- Establish a national credit banking and trading program to ensure that renewable fuels are produced and used cost-effectively in areas of the country, like the Midwest, where it makes the most sense.
- Eliminate the federal reformulated gasoline oxygen requirement.
- Provide for a four-year phase out of MTBE that will provide market opportunity for alternative renewable fuels.
- Protect the air quality benefits resulting from the reformulated fuels program.

The debate about reducing our country's increasing reliance on foreign imported oil has gone on long enough. The RFS provides an excellent opportunity for the country to reduce our dependence on foreign oil, enhance our rural economies and improve air quality at the same time.

The Honorable Russell Feingold
February 20, 2003
Page 2

Again, we thank you for your support of this very important and historic initiative.

Sincerely,

Bob Oleson
Executive Director
Wisconsin Corn Growers Association

William L. Oemichen
President and CEO
Wisconsin Federation of Cooperatives

Erin T. Roth
Executive Director
Wisconsin Petroleum Council

Paul Zimmerman
Director of Governmental Relations
Wisconsin Farm Bureau Federation

Alex Samardzich
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TESTIMONY ON SENATE BILL 117 -2003 BY BOB SATHER
ACE ETHANOL, STANLEY, WISCONSIN

The purpose of oxygenates is two fold:

1. To increase the octane in gasoline
2. To decrease hydrocarbon exhaust pollution from combustion engines. By increasing the volume of oxygenates by 10% it can eliminate about 35 % of Exhaust pollution. Accordingly, oxygenates in the main are environmentally friendly and are actually required to be added to federal reformulated gasoline (RFG) where air quality fails to meet clean air standards for ground level ozone non-attainment. In fact, when MTBE-blended RFG was introduced in 1995 in Southeastern Wisconsin, citizens complained of nausea, headaches and other ailments and demanded that MTBE be removed from the fuel. The result has been that Wisconsin and Chicago use only ethanol in RFG. In some cases, whole states fail to meet minimum standards and are labeled non attainment areas.

Ostensibly, there are three products that can oxygenate gasoline:

1. Lead which nationally has been prohibited from use for many years
2. MTBE (Methyl Tertiary Butyl Ether) which contaminates ground water and is a carcinogen. Most MTBE is imported from the gulf region. Also, nationally, there are hundreds of millions of dollars in litigation against petroleum refining and marketing companies as well as service stations for ground water contamination that contained MTBE. This has been a strong motivating factor for many of petroleum companies for no longer objecting to the prohibition of MTBE. The question may arise as to how MTBE is getting into our water? It comes from underground gasoline tanks, piping from dispensers to the tanks, transport truck spills, marina spills, and some as simple as small container spills.
3. Ethanol which is biodegradable and can be produced from domestic corn and a number of other products. In a metaphorical sense, corn is our oil wells and ethanol plants are our refineries. Ethanol is good for the Wisconsin economy, good for energy security/independence and a solution to the structural deficit. The positive economic impact is on the attached document.

The producers of MTBE and its associated industries do their best to scare people away from banning water polluting MTBE. Instead of defending their own product, they spread misinformation. The number one item on the misinformation list is, "there will not be enough ethanol supply and the price of gasoline will spike unreasonably high". Nothing could be more from the truth. There is a glut of ethanol. One company, ADM has over 100 million barrels of surplus ethanol. Ethanol production continues to increase

and exceed demand. There was 1.7 billion gallons of ethanol produced in 2001 and this is more than what was needed to meet demand. Last year the industry produced over 2.13 billion gallons while the industry has the capacity to produce 2.7 billion gallons, thus production again will be exceeding demand. Additionally, there are currently plants under construction that will produce another 500 million gallons when on line. These old stale arguments, crying that there is a lack of supply, were used when California mandated a state-wide ethanol blend. It didn't happen because supply exceeded demand. As a matter of fact, ethanol has not accelerated in cost proportional to gasoline so the price at the gas pump should be less costly to the consumer if there is ethanol in the blend. Rest assured, supply will be there to meet Wisconsin's demand if MTBE were to be prohibited.

I believe that Senate Bill 117 is in the best interest to the citizens of Wisconsin, good for the environment and it will help grow the gross state domestic product. Wisconsin should join some 15 other states as have the surrounding states of Illinois, Indiana, Michigan and Minnesota that have or will prohibit the use of MTBE

With that I remain available for questions and I thank you.



Wisconsin Ethanol Producers Association

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A PERSPECTIVE FOR A STATE ETHANOL INCENTIVE PROGRAM

Ostensibly, there are three ways to solve the State budget deficit:

1. Reduce spending
2. Raise taxes
3. Grow the State Economy

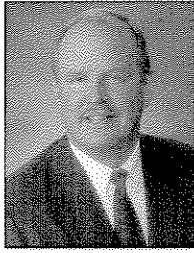
It is suggested that state would be better served by being a partner with the private sector when the state is the benefactor of an economic value added outcome. The state ethanol incentive program does this.

The Purpose of Ethanol is to:

1. Increase the octane of gasoline; the alternative is MTBE (Methyl Tertiary Butyl Ether which pollutes ground water and is a carcinogen)
2. Reduce air pollution
3. Reduce dependence on foreign oil

The following is the case of how the state incentive program will provide value added economic growth to the state: (The data is from "The Economic Impacts of Ethanol Production in Wisconsin, Don Wichert, Chief Energy Resources Section, DOA, 2000)

- For every dollar that the state invests in the incentive program the state will receive about \$3 in return in direct taxes before the state disburses a single dollar.
- For every 100 million gallons of ethanol produced it will:
 - a. Create 23,600 new jobs
 - b. Provide 2 billion dollars in economic out-put to the state
 - c. Provide 450 million dollars in earnings
 - d. Increase farm and agribusiness earnings to a long standing economically depressed industry.
 - e. Provide a byproduct, distillers grain, which is a high protein cattle feed
 - f. The state yearly exports about 200 million bushels of corn. Each 100 million gallons of ethanol requires 38 million bushels of corn
 - g. Reduce the state import of ethanol
 - h. Reduces dependency on foreign oil



DALE W. SCHULTZ Wisconsin State Senator



SB 117 MTBE Ban (Methyl Tertiary Butyl Ether)

Senate Bill 117 was introduced to address a number of issues related to the use of MTBE as the oxygenate additive in motor fuels. Seventeen other states have already banned MTBE for many of the same reasons, which I will note. As the lead author, I would like to paint the big picture on the need for this legislation.

There are a number of experts who will testify and are prepared to answer the more technical and specific questions about the oxygenate use in reformulated gas

- A major issue related to the use of MTBE has been its detection in ground water, municipal drinking water wells and reservoirs. Once it contaminates ground water, MTBE is slow to biodegrade and some reports indicate that without exposure to Ultra Violet light it may take significant time to break down and is more persistent than other gasoline related compounds.
- EPA and National Research Council (NRC) officials and scientists in a 1999 report to Congress, recommended a reduction of MTBE use based on water contamination and the adverse health effects being reported. Some of those effects included difficulty breathing, nausea, sore throat, skin rashes, eye irritations and neurological problems.
- The 1990 amendment to the Federal Clean Air Act provided for the Oxy-fuel program as a method to clean up fuels. The program required 39 areas nationwide including 6 counties in Wisconsin, to use 2.7 percent of oxygen in gasoline to reduce carbon monoxide emissions and to create cleaner-burning fuels. MTBE was the chemical compound, which contained oxygen component initially added to gasoline to meet clean fuel oxygen requirements, it is also used in non reformulated gasoline to boost its octane, so it is present in small amounts in regular gasoline but less than the ½ % allowed under this bill. When the environmental and health problems related to the use of MTBE became apparent, EPA and the Wisconsin DNR began a series of investigations on reformulated gasoline and began to encourage oil companies to switch from MTBE to Ethanol as the oxygenate.

The current debate over the federal 2% oxygenate standard for reformulated gasoline and MTBE is at a critical juncture. Our nation is faced with a choice— whether to increase our use of petroleum-derived fuels such as MTBE or to increase the use of emerging renewable fuels, such as ethanol made from corn or other agriculture based residue. The use of ethanol-based gasoline would also continue reductions in benzene, butadiene, and formaldehyde emissions. Finally, unlike petroleum-based alternatives, agriculture based ethanol promotes sustainable economic development, increased jobs, greater fuel diversity, and mitigates global warming.

Additional Information,

The 66 other counties, not in the 6 county watch area in Wisconsin, do have some occurrences of MTBE contamination. That occurs when refineries which have used MTBE as an octane booster in regular gasoline ship that product to those counties and product mixing also occurs in pipelines transporting the fuel from the south to be marketed in northern states, although the levels at which MTBE occurs is usually at less than the ½ percent SB 117 allows.

Some have argued that both MTBE and Ethanol have an adverse effect if they contaminate groundwater. While that is true, EPA requires the use of an oxygenate of some type and the adverse effects of ethanol are significantly less, in that Ethanol biodegrades very quickly in comparison to MTBE which is basically un-degradable by natural processes. In addition, if groundwater should be contaminated by Ethanol unlike MTBE, the water does not become unusable due to offensive odor or bad taste that occurs with MTBE contamination even before the MTBE contamination has reached levels which could cause health concerns.

All of our bordering states have implemented some type of MTBE ban. Along with the phase in provided by SB 117 it is not anticipated that any disruption in gasoline supplies or spikes in price will occur.

I encourage you to give favorable consideration to Senate Bill 117. Thank you.

2003 ENERGY LEGISLATION: MAJOR FUELS PROVISIONS

	SENATE	HOUSE
ISSUE	S. 791 Passed out of EPW on 4/9/03	H.R.6 Passed 4/10/03
TRANSPORTATION FUELS		
<ul style="list-style-type: none"> • Repeal Oxy Mandate 	Eliminates the federal RFG oxygen requirement 270 days after enactment of legislation; but immediately effective in CA.	Repeal of the federal RFG oxygen requirement generally effective 270 days following enactment, but immediately effective in CA.
<ul style="list-style-type: none"> • 4 yr MTBE phase-down 	National phase-out of MTBE not later than 4 years after enactment of legislation. Trace quantities of MTBE (not to exceed 0.5 percent by volume) would continue to be allowed to be present in gasoline. Provides for MTBE merchant producer conversion assistance.	No national phase-down of MTBE. Provides for MTBE merchant producer conversion assistance.
<ul style="list-style-type: none"> • Murkowski Amendment 	Exempts Alaska and Hawaii from the RFS. Approved by voice vote.	
<ul style="list-style-type: none"> • Ryan Amendment 		EPA to give approval to SIPs requiring RFG or low RVP gasoline (7.8 RVP).
<ul style="list-style-type: none"> • Safe Harbor 	Limited fuels safe harbor provision applying to renewable fuels and not others.	Limited fuels safe harbor provision applying to renewable fuels and MTBE.
<ul style="list-style-type: none"> • RFS 	A renewable fuels standard (RFS) that starts in 2005 at 2.6 billion gallons and grows to 5.0 billion gallons in 2012. Credit banking and trading included. State waivers (if approved) available if RFS found to "severely" harm economy or environment; or (2) inadequate supply/distribution capacity.	A renewable fuels standard (RFS) that starts in 2005 at 2.7 billion gallons per year (bgy) and grows to 5 bgy in 2015, includes credit banking and trading. State waivers (if approved by EPA) available if RFS found (1) to have "significant and meaningful adverse impact" on economy or environment; or (2) inadequate supply/distribution capacity.

<ul style="list-style-type: none"> • Prevent environmental backsliding 	<p>A reformulated gasoline toxics anti-backsliding requirement to maintain emissions at year 1999 and 2000 levels over volumes of RFG not to exceed 1999 and 2000 levels. Also includes a requirement for EPA to finalize their phase II Mobile Source Air Toxics Rule by July 1, 2004, as they committed to do in the Phase I final rule.</p>	<p>A reformulated gasoline toxics anti-backsliding requirement and a requirement for EPA to finalize their phase II Mobile Source Air Toxics Rule on July 1, 2004, as they committed to do in the Phase I final rule.</p>
<ul style="list-style-type: none"> • Small Refinery Exemptions to RFS 	<p>Small refinery exemptions to renewable fuels requirements until January 1, 2011, with additional 2 year exemptions possible. A small refinery may waive exemptions and be subject to renewable fuel requirements and also obtain the ability to generate credits. Small refinery defined as those with an average aggregate throughput of 75,000 bbls of crude per day, or less.</p>	<p>A five-year exemption from the RFS for small refineries, defined as those with an average aggregate throughput of 75,000 bbls of crude per day, or less, with an allowance for refineries to petition for extensions based on economic hardship. A small refinery may waive exemptions and be subject to renewable fuel requirements and also obtain the ability to generate credits.</p>
<ul style="list-style-type: none"> • Consolidation of Summertime RFG 	<p>Consolidation of all summertime RFG to the VOC-Control Region 1 requirements</p>	<p>Consolidation of all summertime RFG to the VOC-Control Region 1 requirements</p>
<ul style="list-style-type: none"> • State Opt-in to RFG Program 	<p>Provides OTC states option to opt into RFG program over entire state area.</p>	
<ul style="list-style-type: none"> • State 1 lb RVP Waiver Repeal 	<p>Provision to allow states to repeal 1 lb RVP waiver during high ozone season.</p>	
<ul style="list-style-type: none"> • Commingling 	<p>Commingling of ethanol-based RFG and non-oxygenated RFG at retail stations allowed provided if, for each occurrence retailer notifies Administrator before commingling occurs identifying retail station and specific tank, and retailer certifies that the commingled RFG will meet all applicable content and emissions requirements for RFG</p>	
<ul style="list-style-type: none"> • Lust Funds 	<p>Provisions for use of LUST funds for remediation of contamination from ether fuel additives.</p>	<p>Amendment that provides money for MTBE clean-up.</p>

Required Studies

- Study and potential regulation (to ensure that 35% or more of renewable fuel is used in each of 2 specified periods) of excessive seasonal variation in renewable fuel use.
- EPA is required to conduct annual surveys to determine the use of renewable fuels in reformulated and conventional gasoline.
- DOE is required to conduct survey of renewable fuel consumption on a monthly basis, and a retrospective survey of renewable fuel produced, cost of production, cost of blending and marketing, quantity blended, quantity imported, and market price data.
- EPA to conduct study on the effects on public health, air quality and water resources of increased use of substitutes for MTBE including ETBE and other ethers, ethanol, isooctane, alkylate.
- EPA to conduct anti-backsliding analysis.
- A requirement that EPA, in consultation with DOE, conduct a boutique fuels report and make recommendations to Congress for addressing boutique fuels.

- Study and potential regulation (to ensure that 35% or more of renewable fuel is used in each of 2 specified periods) of excessive seasonal variation in renewable fuel use.
- EPA and DOE/EIA are required to conduct surveys to determine the use of renewable fuels in reformulated and conventional gasoline.
- A requirement that EPA, in consultation with DOE, conduct a boutique fuels report and make recommendations to Congress for addressing boutique fuels.



WISCONSIN CORN GROWERS ASSOCIATION

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Phone: (262) 495-2232 Fax: (262) 495-3178

April 22, 2003

The Honorable Paul Ryan
U.S. House of Representatives
1217 LHOB
Washington, D.C. 20515

Dear Congressman Ryan:

The ethanol industry and transportation interests have long been concerned about the loss of federal highway funds to states due to the increased use of ethanol in gasoline. Currently, ethanol-blended fuel is taxed at a lower rate than straight gasoline (13.2 cents per gallon on a 10% blend vs. 18.4 cents per gallon for unblended gasoline). As you know, 5.2 cents of the 18.4 cents is used for the ethanol tax exemption for blenders.

The eventual phase down of the use of MTBE (methyl tertiary butyl ether) in reformulated fuel around the country and passage of a renewable fuels standard by Congress will provide for an increased market for ethanol. Many are concerned that the negative future effect on the federal highway trust fund, because of this increase, will lessen Wisconsin's ability to provide a first rate transportation system that is vital to economic development and jobs.

In view of these facts, there is movement within Congress to redraft the ethanol excise tax exemption by Senators Grassley (R-IA), Baucus (D-MT), Daschle (D-SD) and Jeffords (I-VT). Their proposal would grant that all of the 18.4 cents per gallon, rather than 13.2 cents with ethanol blended fuel, would go into the highway trust fund, and the 5.2 cent "blenders credit" would be credited to general revenues. In addition, the plan would return 2.5 cents of the tax paid on ethanol-blended fuel, which is currently retained in the general fund, into the highway trust fund. Together these two proposals would inject an estimated additional \$2 billion per year into the highway trust fund.

The legislation will accomplish a very important objective, and that is to alleviate the long debate about ethanol use vs. available transportation dollars. And, it will encourage gasoline blenders to blend at 10% ethanol rather than the current blending tiers of 5.7, 7.7 and 10%, which will provide additional markets for Wisconsin corn growers.

We strongly urge your support of this budget proposal. If you need additional information, do not hesitate to contact one of the organizations listed below.

Wisconsin Corn Growers Association
Wisconsin Ethanol Producers Assoc.
Wisconsin Petroleum Council
Metro Milwaukee Association of Commerce
Wisconsin Manufacturers & Commerce

Transportation Development Association
Wisconsin Grocers Association, Inc.
Wisconsin Motor Carriers Association
Wisconsin Federation of Cooperatives
Wisconsin Transportation Builders Assoc.

Senate Committee on the Environment
State of Wisconsin
April 24, 2004

By: Larry Johnson
Delta-T Corporation

I am Larry Johnson, Business Development Manager for Delta-T Corporation, a leading design/engineering company specializing in dry mill ethanol production and located in Williamsburg, Virginia. Prior to joining Delta-T on January 1, 2000, I spent fifteen years as a consultant, providing services to the ethanol industry. From 1986 to 1996, my largest client was the Minnesota Department of Agriculture where I was the primary ethanol resource for the state of Minnesota.

The Clean Air Act Amendments of 1990 was historic legislation that when implemented has improved air quality in the most populous areas of the country. Air quality non-attainment areas were divided into two separate categories: nine regions with ozone (smog) problems and thirty-nine cities with excessive carbon monoxide (CO). One of the primary tools used to reduce the combustion emissions of vehicles was the requirement that all gasoline sold in these non-attainment areas must contain oxygen.

The ozone non-attainment areas such as Chicago and Milwaukee were required to use reformulated gasoline (RFG) on a year' round basis. RFG was a new gasoline formulation that among other criteria needed to have reduced volatility, lower levels of aromatics and a minimum 5.6% oxygen content.

Carbon monoxide non-attainment areas such as The Twin Cities could use conventional gasoline but it was required to have at least 2.7% oxygen during the winter months. The oxygen source was not specified but the two most common gasoline components in use were methyl tertiary butyl ether (MTBE) and ethyl alcohol (ethanol). Due to an unexpected interpretation of the legislation by USEPA, ethanol was prohibited from being used in the ozone non-attainment areas unless the base gasoline it was to be blended with had a lower volatility level. As a result, the market penetration for all oxygenates was divided about 70% for MTBE and 30% for ethanol. MTBE was the primary oxygenate for the ozone non-attainment areas and ethanol became the dominant oxygenate in the CO non-attainment areas.

Both Chicago and Milwaukee implemented the program using MTBE in 1995 but before long there was a negative public reaction and complaints of headaches, nausea, dizziness by thousands of motorists who attributed the symptoms to MTBE. Governor Thompson was under a great amount of pressure to outlaw the addition of MTBE at that time and violate the provisions of the Clean Air Act. However, it was not long before a solution was reached. The refineries agreed to provide a lower volatility gasoline blend stock and all gasoline retailers began substituting ethanol for MTBE. This proved to be a solution that satisfied nearly everyone, as the negative health symptoms disappeared, the air was cleaner, the Clean Air Act provisions were not violated and farmers found a new market for additional ethanol.

Unfortunately for the state economy, all the ethanol was produced in other states and brought in by rail and truck. Since then, the ethanol industry has greatly expanded and Wisconsin has joined some other states in providing incentives for new production. Private investors and entrepreneurs responded by building three new production facilities and more might follow if there is confidence of continued state support.

There seems to have been countless studies over the past fifteen years arriving at various conclusions about the attributes or negatives of both ethanol and MTBE. Many of these analysis were generated by proprietary interests and came up with predictable results but there has now developed a consensus on many issues.

- Both MTBE and Ethanol are quality gasoline blending components
- Both MTBE and Ethanol perform well in all gasoline engines.
- Both MTBE and ethanol reduce polluting emissions from vehicle exhaust
- Both MTBE and Ethanol extend gasoline supplies
- Both MTBE and ethanol are in abundant supply
- Most MTBE is imported from foreign countries
- Most ethanol is produced in the U.S.
- MTBE has been found in groundwater in every state it has been used and when contaminated, the water is always unfit for consumption
- Ethanol can even be consumed as a beverage and it rapidly degrades when spilled into the environment

Today the EPA requires portions of some 150 counties in 17 states to burn reformulated gasoline. Mike Shields, manager of fuels policy for the EPA in Washington, D.C., estimates that 35 percent of those areas still use MTBE, which is a possible human carcinogen and has turned up in groundwater. Besides California, New York and Connecticut also plan to ban the substance. There are 17 other states that now ban MTBE, but most of them are in corn-producing regions and use ethanol instead of MTBE as an additive. Wisconsin remains as one of the last Midwestern states to still allow its use.

I think that rather than ask why the state of Wisconsin should ban MTBE, a more appropriate question would be, "Why would we want to allow its use?" Wisconsin has learned by personal experience that consumers don't want it. As far back as 1998 a University of Massachusetts study found over 30 private wells in Wisconsin were contaminated during the limited time it was in common usage. With many other states deciding to ban it, the chances are increased that existing supplies will be pressured into the few remaining markets where it is allowed.

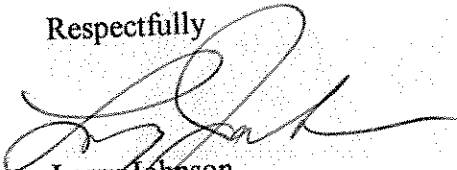
And the most obvious reason to not allow MTBE in Wisconsin is that you have a better replacement. Ethanol is produced right here in Wisconsin by businesses and by people who live here, work here and pay taxes here.

Minnesota has learned this lesson. Through a combination of state incentives and legislation along with a lot of private enthusiasm, risk and effort, Minnesota has built a successful industry. In 1987, Minnesota produced less than 1 million gallons of ethanol and ethanol was blended with less than 7% of all gasoline. Today 14 ethanol plants produce nearly 350 million gallons of ethanol annually and ethanol is used in about 99% of the 260 million gallons of gasoline sold.

Even though there never was any MTBE sold in Minnesota and the industry consensus was that there never would be, Minnesota still thought it wise to pass a law disallowing its use. This insures there will be no MTBE pollution in our precious waters and a stable market for 100 million bushels of corn. Minnesota now uses 10% of its corn crop to replace 10% of our imported gasoline. This makes good economic sense as well as good environmental sense. It will be a similar case for Wisconsin.

I have attached a Fact Sheet and a list of documented testimonials on MTBE issues that I had in my files. I thought they might provide additional insight on MTBE.

Respectfully



Larry Johnson

MTBE Fact Sheet

What is MTBE?

Methyl tertiary butyl ether (MTBE) is made from methanol, a poisonous alcohol derived from natural gas, biomass or coal, and isobutylene, an oil refinery product. It is a colorless, flammable liquid that smells like turpentine and resists biodegradation. Since the late 1970s, MTBE has been added to gasoline as an octane booster to increase engine performance, and it has been used to meet oxygenate levels mandated by the 1990 Clean Air Act Amendments.

MTBE Facts

- More than half of the MTBE used in the United States today is imported, primarily from Saudi Arabia.
- 85% of all domestically produced MTBE is made in Texas.
- MTBE is used in 80% of reformulated gasoline, which is 30% of the car fuel used in the United States.

Groundwater Contamination

- The EPA-mandated Blue Ribbon Panel and a detailed study from the University of California-Davis have confirmed that MTBE has contaminated water supplies in several states.
- If just one tanker full of MTBE collided with another vehicle and overturned, it could contaminate a year's supply of Chicago drinking water. One gallon of MTBE could contaminate 26 million gallons of water. (*Chicago Department of Water*)
- MTBE is difficult and expensive to clean up because it resists biodegradation and clings to water molecules more stubbornly than other gasoline components. (*National Drinking Water Clearinghouse*)
- MTBE contaminates water resources faster than any other gasoline component. (*Bureau of Health, Department of Human Services and Department of Environmental Protection, 5/21/98*)

Health Considerations

- The U.S. EPA tentatively classifies MTBE as a possible human carcinogen.
- MTBE is capable of causing cancer, kidney, reproductive, developmental and nervous system toxicity in laboratory animals exposed to large amounts. (*Bureau of Health, Department of Human Services and Department of Environmental Protection, 5/21/98*)
- There have been nationwide reports of headaches, dizziness, irritated eyes, burning of the nose and throat, coughing disorientation and nausea after MTBE had been added to gasoline. (*National Water-Quality Assessment Program*)

Benefits of MTBE

- MTBE-gasoline blends have proven to be effective at reducing ozone, carbon monoxide and toxic air pollutants.

MTBE Testimonials

MTBE Groundwater Contamination

- Santa Monica has lost "71% of its drinking water supply due to MTBE contamination," said Senator Barbara Boxer (D-Calif). Boxer supports the ban of MTBE nationwide. (*The Oil Daily, 10/6/99*)
- "MTBE is capable of contaminating water resources faster than any other gasoline component. (*University of California - Davis study, November 1998*)
- "The use of MTBE was a tragic mistake, which will haunt California for years to come... MTBE has polluted the water, made people ill and damaged our cars." (*California Sen. Richard L. Mountjoy*)
- MTBE was detected in 27% of urban wells, and in 1.3% of agricultural wells distributed across the United States. (*National Air Water-Quality Assessment Program*)
- Despite MTBE's air-quality benefits, regulators have discovered that MTBE is highly soluble, does not biodegrade as easily as ethanol and pollutes drinking-water supplies when it leaks from faulty underground storage tanks, pipelines and other gasoline conveyances. MTBE also fouls lakes and rivers when discharged in exhaust from boats powered by two-stroke engines. (*The Wall Street Journal, 11/3/99*)
- "We have concluded that this additive poses an unacceptable risk to natural resources, in particular to potable water," said Jason Grumet, executive director of NESCAUM, a coalition composed of the environmental agencies of New York, New Jersey and the New England States.

Health Hazards

- According to the November 1998 University of California-Davis study:
 - Studies have indicated that MTBE has the potential for producing effects associated with depression, including headache, dizziness, spaciness, nausea and disorientation.
 - "It is plausible that combustion products of MTBE could exacerbate or even cause asthma." Formaldehyde is a by-product of MTBE, an air toxic and known carcinogen, and can cause irritation to the eyes, mucus membrane and respiratory tract.
 - Gasoline station attendants, auto mechanics and commuters are more in danger from MTBE, since they face higher exposure via inhalation.
- At high doses, MTBE has caused tumors in two species of rat and one species of mouse, but it is still uncertain whether MTBE will affect humans the same way. (*EPA Blue Ribbon Panel, July 1999*)

MTBE Testimonials, cont'd

MTBE Reductions

- California Gov. Gray Davis has required that all MTBE be removed from gasoline by Dec. 31, 2002, calling it a risk to the state's environment. (*The San Diego Union Tribune, 8/9/99*)
- An EPA advisory panel, the Blue Ribbon Panel on Oxygenates and Gasoline, concluded that MTBE use in reformulated gasoline "should be reduced substantially." (*July 1999*)
- There are "significant risks and costs associated with water contamination due to the use of MTBE." (*University of California-Davis study, November 1998*)

MTBE Market Issues

- As the No. 1 world producer of methanol (the main ingredient in MTBE), Methanex Corp. relies heavily on MTBE sales. The company launched an unprecedented \$1 billion lawsuit against the U.S. government and has filed a complaint with the NAFTA environmental commission charging that the federal and state governments failed to properly enforce underground gasoline storage laws that resulted in MTBE leaks and spills. (*Oxy-Fuel News, 11/1/99*)

Responses to Methanex lawsuit:

Kip Lipper, staff director for the California Senate's Environmental Quality Committee, argues that Methanex's recent lawsuits are nothing more than a business "attempting to protect the market for a product." Lipper argues that MTBE manufacturers long ago should have been aware of their product's potential for contaminating water supplies. (*The Wall Street Journal, 11/3/99*)

Edward H. Fong, spokesman for the California EPA, argues that "the allegation [Methanex lawsuit] has nothing to do with the enforcement of environmental laws and has everything to do with Methanex desperately trying to hold on to the California market for MTBE." (*The Wall Street Journal, 11/3/99*)