2010 Maine Fuels Report

MTBE and Ethanol Levels in Maine Gasoline Fuels

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Section 1: Background on MTBE

Federal Reformulated Gasoline and the Use of MTBE. The federal reformulated gasoline (RFG) program is designed to reduce emissions of motor vehicle pollutants. For many states in non-compliance with federal ground level ozone air quality standards, RFG was chosen as an emissions reduction strategy to reduce the formation of ozone.

Federal laws required fuel oxygenates to be added to RFG to make it burn more completely and to reduce the amount of unburned tailpipe emissions. Most refiners had opted to comply with the fuel oxygenate requirement by selling RFG containing the fuel oxygenate, methyl tertiary butyl ether (MTBE), at 11 percent by volume. In comparison, conventional gasoline had MTBE in amounts of 2-3 percent by volume or less, while some premium blends contained as much as 9 percent by volume MTBE. Since 1979, MTBE was added to gasoline to replace lead additives that were used by refiners to enhance gasoline octane. Research has shown that gasoline containing MTBE is effective at reducing air pollution including carbon monoxide, ozone forming pollutants, and hazardous air pollutants.

Maine Chooses the Federal RFG Program to Reduce Ozone Levels in Maine. In 1991 Maine volunteered to phase into the RFG program as apart of its overall strategy to reduce ozone levels in the state, and began selling RFG in January of 1995. States, like Maine, with voluntary RFG programs were required to decide by December 30, 1997, whether they wanted to remain in the program, otherwise federal requirements required those states to stay in the program through 2003.

MTBE Poses Unacceptable Risk to Groundwater – Maine Opts Out of RFG Program. Soon after the distribution of RFG in southern Maine, there was public concern over the potential threat MTBE posed to ground water quality resulting from gasoline spills. Based on the results of a statewide groundwater study conducted by state agencies (including the Department), Maine petitioned EPA in October 1998 to opt-out of the RFG program. Maine subsequently requested EPA approval to substitute a 7.8 Reid Vapor Pressure (RVP) fuel for RFG. EPA approved the petition and the effective date for withdrawal from the RFG program was March 10, 1999.

After Maine opted out of the RFG program, the Department anticipated that if RFG levels for MTBE (11% by volume) were not required, then the levels of MTBE would drop to the levels for conventional gas sold in Maine prior to participation in the RFG program (1995). The Department also anticipated MTBE would not be totally eliminated since the petroleum industry continued to rely on MTBE as an octane enhancer in gasoline fuel production. In fact, both of the aforementioned predictions were realized; the MTBE levels in gasoline remained at the pre-RFG levels of 2-3 % by volume.

2007 MTBE Ban. During the second special session of the 121st Legislature, Public Law 2003 Chapter 638 was enacted . This law effectively banned the sale of gasoline fuels containing MTBE beginning on January 1, 2007. As of that date no one in Maine may sell, offer for sale, distribute or blend gasoline containing more than ½ of 1% (0.5%) by volume MTBE.

Section 2: Legislative MTBE Monitoring and Reporting Requirements

In 2000, Public Law 1999 Chapter 709 was enacted by the Legislature, which required the Department to monitor and report MTBE levels in gasoline, and established a goal of eliminating the use of MTBE by 2003. This section was amended in 2004 (Public Law 2003 Chapter 638) to reflect a ban on the sale of MTBE in gasoline. Specifically the statute now reads:

"The department shall monitor shipments of gasoline to storage terminals in this State and compile annual reports showing the levels of methyl tertiary butyl ether, referred to as "MTBE," in gasoline brought into this State.

The department shall promote and actively participate in regional efforts by state regulatory agencies in the Northeast to develop alternatives to the use of MTBE as a gasoline additive.

The department shall annually, no later than February 1st of each year, present a report to the joint standing committee of the Legislature having jurisdiction over natural resources matters on the levels of MTBE in gasoline brought into this State. The committee may report out to any session of any Legislature legislation relating to MTBE use in gasoline."

38 M.R.S.A §585-I was enacted as follows:

"The following provisions apply to the sale of MTBE in the State.

1. Definition. For purposes of this section, "MTBE" means the gasoline oxygenate methyl tertiary butyl ether.

2. Prohibition on sale. Beginning January 1, 2007, a person may not sell, offer for sale, distribute or blend in this State gasoline that contains more than ½ of 1% by volume MTBE that is intended for sale to ultimate consumers in this State."

3. Emergency order. Notwithstanding subsection 2, whenever the commissioner finds that a danger to public health or safety exists due to low supply of gasoline in the State, the commissioner may issue an emergency order waiving the sales prohibition in subsection 2.

Section 3: Maine's MTBE Ban Status

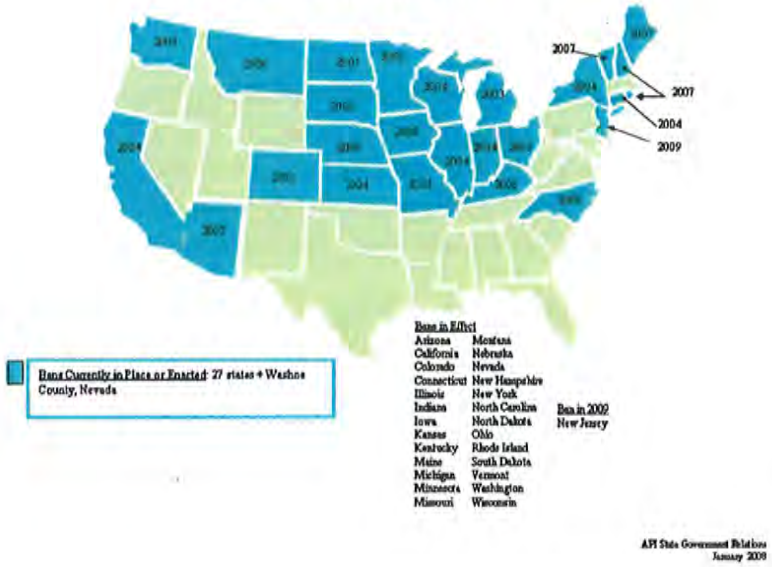
In 2010 all gasoline deliveries to Maine terminals were below the limitations of the MTBE ban (less than ½ of 1 percent (0.5%) by volume) that went into effect on January 1, 2007. In 2010,

one hundred (100) percent of the 270 shipments of gasoline reported non-detect levels for MTBE[1]. These results are consistent with MTBE level monitoring results since 2007.

Note: *The Department intends to monitor our shipments of gasoline for the next few years. Although we were unable to confirm the amount of MTBE used in the country in 2010, we expect its use to be very small because of the federal renewable standards for gasoline requiring more use of renewable fuel additives, such as ethanol, throughout the United States.*

As a reference Map 1 depicts the start years of all the states in the nation with MTBE bans.

Map 1: State MTBE Bans



Section 4: Data Collection

Shipment Reports. The Department monitored shipments of gasoline to storage terminals in this State by collecting information from Maine bulk gasoline terminals. A bulk gasoline terminal refers to a storage facility that has a daily average throughput of more than 20,000 gallons of gasoline. The following bulk gasoline terminals reported gasoline fuels data to the DEP:

[1] Non-detect means the lowest level the lab analysis can detect the chemical with a 99% certainty. Most labs report the measured levels as non-detect rather than zero. All MTBE analytical non-detect levels are below the 0.5% MTBE by volume limit.

Terminal	Location	Fuel Reported
Gulf	Portland	Gasoline
Irving	Searsport	Gasoline
Exxon-Mobil	Portland	Gasoline
Citgo	Portland	Gasoline

Note:
The Department did not obtain data from the trucking of fuel into the state; and Webber Energy in Bucksport no longer stores gasoline. Cold Brook Energy in Hamden and Exxon-Mobil in Bangor (reported through the South Portland Exxon-Mobil terminal) also reported how many barrels of ethanol were delivered for blending at their terminals.

Recordkeeping requirements. In addition to the MTBE reporting requirements of 38 MRSA §585-H, the Department rule Chapter 119 *Motor Vehicle Fuel Volatility Limit* requires the following records to be kept at the bulk gasoline terminals:

"Any owner or operator of a bulk gasoline terminal shall maintain records on the Reid Vapor Pressure, oxygen content, oxygenate, benzene, aromatics, and sulfur of any gasoline that is delivered to or distributed from such terminal. Such records shall be maintained for at least three years and shall be available for inspection during normal business hours, and copies shall be provided to the Commissioner or his representative upon request."

The Department maintains all of the fuel data requested by quarter on its website at http://www.maine.gov/dep/air/mobile/fuelspage.htm.

Section 5: Ethanol Blended Gasoline in Maine

The introduction of ethanol blended gasoline fuels in Maine is the result of several reasons, each of which are discussed briefly in the bullets below. Most notably, the federal renewable fuel standard has required the blending of ethanol to increase in all gasoline fuels nationwide; in fact, the use of E10 has nearly saturated the fuels market. The Department noticed E10 (i.e. gasoline containing at least ten percent ethanol) being sold in southern Maine during the fall of 2007 and the winter of 2008. By May of 2008, at least one South Portland gasoline storage terminal began blending ethanol and distributing it throughout retail locations in southern Maine; and by November 2008, all Maine gasoline terminals were distributing E10 statewide.

- **National Renewable Fuels Standard.** In 2005, Congress passed the Energy Policy Act which mandated an increase in the amount of renewable fuels used in gasoline nationally. In 2006 this requirement was met by adding 4.0 billion gallons of ethanol to meet the 2.78 % renewable fuel content mandate in the nation's gasoline supply. In 2007 the Energy Independence and Security Act was amended to require 9 billion gallons of ethanol to be blended into the national gasoline supply in 2008; and recent federal renewable fuels regulations require that amount to increase to 36 billion gallons in 2022. *Presently, the State of Maine has no renewable fuel standard requirement for gasoline fuels.*

- **EPA partially approves a waiver to allow the sale of E15:** On October 13, 2010, the Environmental Protection Agency (EPA) granted a waiver allowing the use of E15 (gasoline containing 15% ethanol) for model year 2007 and newer cars and light trucks. At that time, EPA denied a request to allow the use of E15 for model year 2000 and older vehicles due to lack of adequate testing of these vehicles. Following the testing, EPA approved on January 21, 2011 the use of E15 in model years 2001 to 2006 cars and light trucks. EPA also announced that no waiver is being granted this year for E15 use in any motorcycles, heavy-duty vehicles, or non-road engines because current testing data does not support such a waiver.

  The E15 petition was submitted to EPA by Growth Energy and 54 ethanol manufacturers in March 2009. In April 2009, EPA sought public comment on the petition and received over 78,000 comments. The petition was submitted under a Clean Air Act provision that allows EPA to waive the act's prohibition against the sale of a significantly altered fuel if the petitioner shows that the new fuel will not cause or contribute to the failure of the engine parts that ensure compliance with the act's emissions limits.

  The granting of this waiver does not require retailers to sell E15; rather the sale of E15 is no longer prohibited. In Maine the sale of E15 is unlikely due to the lack of storage space that would require retailers to dedicate a tank solely to E15 and label it accordingly to prevent misfueling. Most retailers do not have extra tanks to dedicate to a product that will have a limited clientele.

- **Tax incentives in the current fuel market**. The Federal Volumetric Ethanol Excise Tax Credit (VEETC) or "Blenders Credit" was extended for one year in December of 2010. This tax incentive creates an industry incentive to use higher volumes of ethanol. That being said, the market is fluid and could change at any time should blending with ethanol prove to be less cost effective than other fuel formulations.

In 2010, all gasoline bulk terminals blended their gasoline fuel products with 10% ethanol. From January to December 2010, a total of 1,990,538 barrels of ethanol were blended into the gasoline. Since the terminals began blending 10% ethanol into the fuel (the 2nd quarter of 2008) the amount of ethanol blended into the fuel has increased. In 2009, 2,122,582 barrels of ethanol were blended into the gasoline an amount only slightly higher than the 2010 total listed above.

In an effort to provide information to consumers, retail facilities and distributors the Department has established a web page devoted to ethanol. That page is found at http://www.maine.gov/dep/air/mobile/ethanol.htm.

Section 6: Mobile Sources Air Toxics Rule

In February 2007, EPA finalized a rule to reduce hazardous air pollutants from mobile sources which went into effect on January 1, 2011. Hazardous air pollutants, also known as air toxics, include benzene and other hydrocarbons such as 1, 3-butadiene, formaldehyde, acetaldehyde, acrolein, and naphthalene. Air toxics emitted by motor vehicles and other moving sources are known to cause cancer or other serious health or environmental effects. The standards will significantly lower emissions of benzene and other air toxics in three ways: (1) by lowering benzene content in gasoline to an annual average of 0.62 percent by volume or less; (2) by reducing exhaust emissions from passenger vehicles operated at cold temperatures (under 75 degrees); and (3) by reducing emissions that evaporate from, and permeate through, portable gas cans.

EPA estimates that in 2030 this rule would reduce total emissions of mobile source air toxics by 330,000 tons and VOC emissions (precursors to ozone and PM2.5) by over 1 million tons. By 2010, EPA's existing programs will reduce mobile source air toxics by over one million tons from 1999 levels.