



2008 Maine Fuels Report

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Section 1: Background

The federal reformulated gasoline (RFG) program was designed to reduce emissions of motor vehicle pollutants and required gasoline to achieve a set of emission performance standards. RFG was also required to have a minimum oxygen content until the Energy Policy Act of 2005 (EPA Act 2005) removed the requirement. Oxygen was added to RFG to make it burn more completely and to reduce the amount of unburned tailpipe emissions. Refiners had opted to comply with the oxygen requirement by selling RFG containing 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.

MTBE is a member of a group of chemicals (commonly known as fuel oxygenates) added to conventional fuel to increase its octane. MTBE replaced lead as an octane enhancer in 1979 and was used in gasoline throughout the United States to reduce carbon monoxide and ozone levels caused by auto emissions.

In 1991 Maine volunteered to phase into the RFG program and began selling RFG in January of 1995. States with voluntary RFG programs were required to decide by December 30, 1997, whether they wanted to remain in the program, otherwise procedures required them to stay in the program through 2003.

Soon after the distribution of RFG in southern Maine, there was public concern over the potential threat to ground water quality. Based on the results of a statewide groundwater study, in October 1998, Maine petitioned EPA under federal regulation 40 CFR 80.72(a) to opt-out of the RFG program based on the unacceptable risk to groundwater posed by MTBE. 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.

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. However, 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.

At the direction of the 120th legislature, the Department has been collecting data on gasoline sold in Maine to determine MTBE levels. The data collection was also intended to track the progress made towards the goal of eliminating MTBE in Maine gasoline by January 2003. This goal was not met, and during the second special session of the 121st Legislature, MTBE was banned in gasoline fuels, 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 Requirement

38 MRSA §585-H, enacted by the Legislature in 2000, requires MTBE monitoring and reductions. This section was amended in 2004 to reflect a ban on MTBE. Specifically the law 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 2008 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. Ninety eight (98) percent of the 229 shipments of gasoline in 2008 had MTBE

level at non-detect levels¹. The other 2 percent (2%) of the shipments were all well below the 0.5% by volume MTBE limit.

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

Section 4. Data Collection

The following bulk gasoline terminals reported automotive gasoline data to the Department:

<u>Terminal</u>	<u>Location</u>	<u>Fuel Reported</u>
Gulf	Portland	Gasoline, Ethanol
Irving	Bucksport	Gasoline, Ethanol
Exxon-Mobil	Portland	Gasoline, Ethanol
Citgo	Portland	Gasoline, Ethanol

Webber Energy in Searsport 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.

It is important to note that data was not obtained from any trucking of fuel into the state.

In addition to the requirements of 38 MRSA §585-H, Department rules 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 requested the information listed above from each bulk gasoline terminal carrying automotive gasoline. A bulk gasoline terminal refers to a storage facility that has a daily average throughput of more than 20,000 gallons of gasoline.

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.

In cooperation with the Maine Petroleum Association, the Department developed a quarterly reporting form for the terminals to fill out and submit to the Department. In addition to the various fuel components, the Department requested the date of delivery, the number of barrels delivered, and other significant information. In 2008, the Department also requested the number of barrels of ethanol that were delivered to the terminals.

While this information is not within the purview of this report, the Department maintains this information on its website at <http://www.maine.gov/dep/air/mobile/fuelspage.htm>.

Section 5: Ethanol in Maine

For the first quarter of 2008 the gasoline deliveries reported by Maine terminals consisted of the same conventional gasoline that had been delivered since the MTBE ban went into effect on January 1, 2007. Some gas stations received shipments of gasoline with 10% ethanol (E10) that was trucked in from Massachusetts. At the time it was cheaper to truck this E10 fuel into Maine than to purchase the conventional gasoline from the Maine terminals. In the mid second quarter (May) of 2008 the first terminal in Maine began to blend with 10% ethanol. Other terminals followed suit throughout the summer and fall until by mid-November all the terminals in Maine that carry gasoline were blending with ethanol. From May to December 2008 a total of 415,401 barrels of ethanol were blended into the gasoline. Figure 1 depicts the number of barrels of ethanol blended into the gasoline in 2008 by the terminals.

The introduction of ethanol in Maine's gasoline is not a state requirement. Ethanol is available for several different reasons. Those reasons include the current fuel market and federal and state legislative actions as discussed below:

- **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 the national requirement was met by adding 4.0 billion gallons of ethanol to meet the 2.78 % renewable fuel content mandate. In 2007 the Energy Independence and Security Act was amended to require 9 billion gallons of ethanol to be blended into the gasoline supply in 2008 that amount is to increase to 36 billion gallons in 2022. *The State of Maine has no renewable fuel standard requirement.*
- **The current fuel market.** Maine Public Law 650 “*An Act to Improve the Method of Taxing Natural Gas for Highway Use*” provides a state fuel tax incentive of 1 cent per gallon of E-10. A federal tax incentive for refiners and distributors exists for certain gasoline blends of ethanol (in the case of E-10 the “blenders credit” is 5.1 ¢ per gallon of ethanol) , which 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;

- **Maine MTBE ban** – As discussed earlier in this report, 38 M.R.S.A §585-I, passed by the Maine Legislature in 2004, banned the sale and distribution of gasoline with greater than 0.5% MTBE into Maine after January 1, 2007, effectively banning MTBE as a gasoline additive in the state.

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>.

Map 1: State MTBE Bans

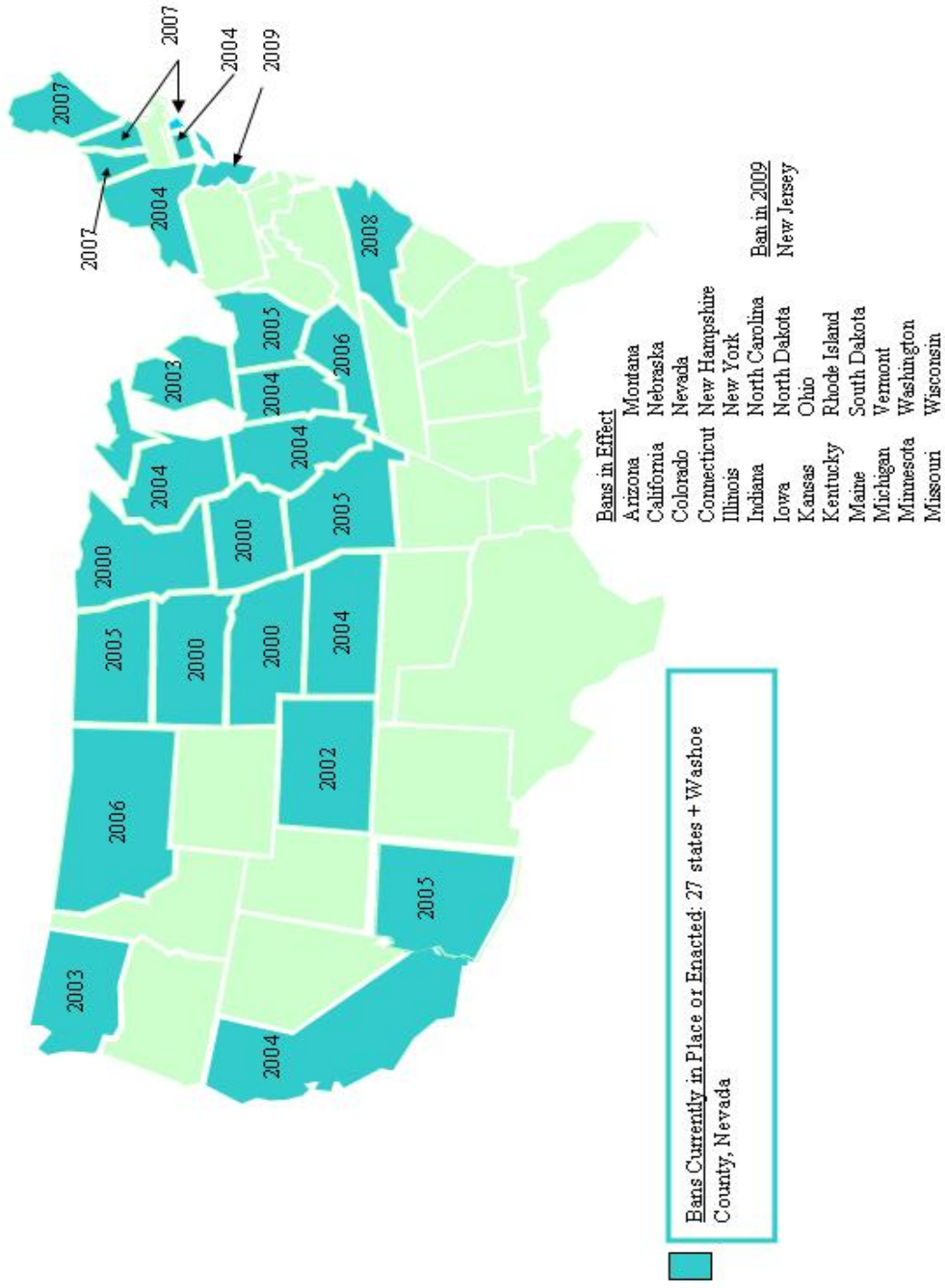


Figure 1
Barrels of Ethanol Blended

