

Congressional Action to Mandate Use of MTBE In Spite of Known Risks

The Clean Air Amendments (CAAA) of 1990 established a rigid national standard for reformulated gasoline (RFG) that has resulted in far greater use of MTBE than would otherwise have occurred. Rather than accepting the performance standards for cleaner fuels proposed in a bi-partisan compromise, the Senate adopted an amendment requiring explicit reductions in toxics through the use of oxygenate. While the main purpose of the amendment was to expand the use of ethanol, it was well understood at the time that it would require a significant increase in the use of methyl tertiary butyl ether (MTBE). In fact, extensive debate and negotiations occurred to ensure MTBE could and would be used as well as ethanol to meet the mandate.

The amendment, proposed by Senators Thomas Daschle (D-SD) and Robert Dole (R-KS), set explicit targets to reduce aromatics and required a minimum of 2.7% oxygen by weight for RFG required in the nine most severe ozone nonattainment areas. Ethanol and MTBE were the most likely options. The rationale given by the sponsors was that under the amendment toxic aromatics like benzene, toluene and xylene would be replaced with more environmentally benign alternatives.

State and federal air quality regulators had been pressuring refiners to develop cleaner fuels to address serious air quality problems with ground level ozone and carbon monoxide (CO). By 1990, several companies were selling reformulated gasoline (RFG) in various markets around the country. Most, if not all, of the fuel reformulations included MTBE, but at a much lower concentration than ultimately required under the 1990 CAAA.

Ethanol interests and farm state representatives in Congress saw the legislation as an opportunity to expand the market by promoting ethanol as an environmental fuel. In addition to the federal RFG program, "oxyfuel", conventional gasoline with a minimum of 2.7% oxygen by weight, was required to reduce wintertime emissions of CO. At the time, the petroleum industry, in cooperation with the major automobile manufacturers, had just begun testing a range of different reformulated fuels. The petroleum industry and its supporters in the Senate argued that those tests should be carried out and used to inform a rulemaking by the EPA to set performance criteria for reformulated fuels.

While farm-state Senators were the major proponents of the amendment, others took an active part in the debate and negotiations to be certain MTBE, not just ethanol, could be used. Senator Frank Lautenberg (D-NJ) argued for a lower oxygen percentage in order to accommodate MTBE to avoid the ozone problems associated with blending ethanol. At the time, EPA was carefully reviewing the air quality implications of allowing a more lenient volatility standard – the Reid Vapor Pressure (RVP) -- in order to accommodate ethanol blending in Southern California. While dismissing such concerns, the advocates declared that if splash blending ethanol caused

more evaporative emissions and thereby ozone, it could not be used. This was a direct acknowledgement that EPA might foreclose ethanol use in certain areas, thereby leaving MTBE or another ether as the only option.

Known Problems with MTBE Prior To Passage Of the Oxygenate Mandate

At the time, EPA had been regulating and monitoring MTBE as an additive in gasoline for well over a decade. MTBE had been approved as a fuel additive as early as 1979. EPA had also been closely monitoring groundwater contamination with MTBE following incidents in Maine, North Carolina, New Jersey and New Hampshire. MTBE's properties as an ether made it highly soluble in water and difficult to remove once contamination occurred. In 1986, EPA added MTBE to the priority list for health effects under the Toxic Substances Control Act (TSCA). EPA added MTBE to the Drinking Water Priority List (DWPL) under the Safe Drinking Water Act in early 1988, then nine months later approved an expansion of up to 15% MTBE blends in gasoline.

Leaking underground storage tanks, a major source of the contamination, came under stricter federal standards in the late 1980's. Yet, at the time the 1990 CAAA were enacted, 35% of the existing tanks did not meet EPA standards. The deadline for remediation and replacement of older tanks was not until 1998.

Between the aggressive support from the agricultural sector and broader concerns on the part of the environmental community and state air officials with respect to giving too much discretion to EPA, the Senate amendment was overwhelmingly adopted by a vote of 69 to 30. A House counterpart amendment was accepted on a voice vote. In spite of known concerns related to ozone related problems associated with ethanol and the potential for groundwater contamination from leaking underground storage tanks, the final compromise, proposed by the Bush Administration, required a minimum 2 percent oxygen by weight and a 15 percent reduction in VOC and toxic emissions. The explicit statutory mandate limited the petroleum industry's flexibility in modifying fuel formulations to minimize MTBE contamination.

Shirley Neff

July 21, 2005