

WISCONSIN'S PROPOSED ETHANOL MANDATE (AB 15/SB 15)

Environmental & Economic Development Implications

The Feb. 23, 2005 release of the final fuels report by the Southeast Michigan Council of Governments provides current and strong evidence that ethanol increases ozone pollution. This and other studies prepared by government and industry fuel experts conclude that mandating ethanol through AB 15/SB 15 can only worsen our ozone problem and increase related regulatory burdens for Wisconsin businesses and citizens.

Economic Development Impacts of Ozone Nonattainment

- An ozone nonattainment designation is a major economic development impediment for those Wisconsin counties in violation of the new 8-hour standard. The new standard is stricter and resulted in more counties being designated nonattainment in 2004. Counties currently designated nonattainment include:

Kenosha	Racine	Milwaukee	Waukesha	Washington
Ozaukee	Door	Kewaunee	Manitowoc	Sheboygan

- Counties adjacent to the above counties have elevated ozone levels and could violate the standard depending upon weather, emission levels and other factors.
- Nonattainment designation creates regulatory barriers for businesses to locate or expand in nonattainment areas, such as a construction ban for “major” sources. In addition, costly mandates are imposed on businesses and citizens, including requirements for stationary sources (manufacturing, utility, and commercial facilities), transportation sources and “area” sources.

Status of Nonattainment Designations

- Wisconsin Department of Natural Resources (DNR), working with Michigan, Illinois, Indiana and EPA, is currently developing its State Implementation Plan (SIP) to demonstrate to EPA how our nonattainment counties will meet the new standard by the 2009/2010 compliance dates. This plan is due to EPA by June 2007.
- To meet the new standard, DNR concludes that nonattainment counties must implement additional local controls to reduce volatile organic compounds (VOCs) or oxides of nitrogen (NOx), or both, which together form ozone.
- Any additional VOC or NOx emissions in the nonattainment counties would require a corresponding increase in the amount of local controls and related regulatory costs that would be layered over existing burdens being imposed on Wisconsin businesses.

Status of the Ethanol Emission Science

- Ethanol is currently required in reformulated gasoline (RfG) in the six-county Southeastern Wisconsin nonattainment area under the federal Clean Air Act. That formulation, however, must meet other specifications that reduce ozone pollutants and is a different fuel blend than E-10. Federal law precludes use of RfG in other areas of the state.
- Ethanol in conventional gas is a mixed bag as far as its environmental impacts; it reduces certain pollutants such as carbon monoxide (CO), and increases other emissions such as NOx and VOCs.
- From a regulatory perspective, however, ethanol clearly has negative impacts. Wisconsin does *not* violate the CO standard as MN did at the time of its initial ethanol mandate, but Wisconsin does violate the ozone standard, making NOx and VOCs the key pollutants of concern.
- New methods to detect E-10 emissions have found that prior regulatory models underestimated NOx and VOC emissions. Most recently, a Feb. 23, 2005 report by the Southeast Michigan Council of Governments (SEMCOG) evaluated fuel options that could help Southeastern Michigan meet federal ozone requirements.
 - The study found that of the 11 fuels evaluated, only E-10 would increase both NOx and VOCs emissions and that these increases would be “significant.” (See attached charts) The E-10 assessed by SEMCOG is the same fuel that would be mandated by AB 15 and SB 15.

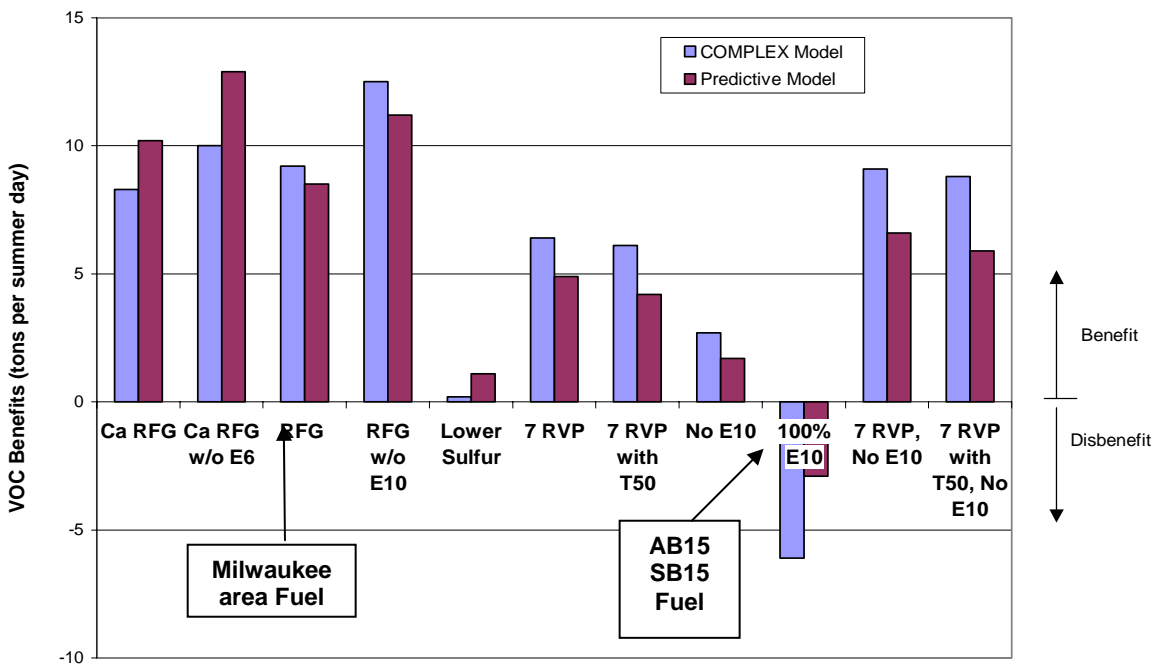
- **SEMCOG membership includes over 140 local governments** and plays a similar planning role to that performed by the Southeast Wisconsin Regional Planning Commission. They are the designated local air quality planning agency under the Clean Air Act, and are responsible for working with the Michigan Department of Environmental Quality in developing plans and programs that comply with the new ozone standard.
- Participants in the SEMCOG fuels report include automobile manufacturing and petroleum industry fuel experts, **as well as representatives from Michigan departments of Environmental Quality and Agriculture, and U.S. EPA.**
- VOC emissions come from tailpipes, evaporation, and “permeation” (see below). Ethanol’s effect of increasing evaporative and permeation emissions is more pronounced on hot days that are most favorable for forming ozone.
- The SEMCOG study built on work done by the State of California, a world leader in tackling ozone issues. A September 2004 report, sponsored by the California Air Resources Board (CARB), documented increases in VOC emissions from all automotive fuel systems tested that used ethanol in the fuel. **The oversight committee to this study included representatives from the ethanol industry.** In a February 2005 draft report, CARB summarized its assessment:
 - The breakthrough was the study’s focus on the permeation effects of ethanol. Permeation is a diffusion process whereby fuel molecules migrate through rubber and plastic parts that make up the vehicle’s fuel and fuel vapor systems.
 - In 2004, the use of ethanol in on-road vehicles increases VOC emissions from permeation over 27 ton per day (tpd) and NOx emissions by about 8 tpd in Southern California, which equates to more VOC/NOx emissions than from all the oil refineries and fuel distribution systems in Southern California. The ozone benefits from CO reductions were negligible.
 - CARB also estimated significant increase of VOCs and NOx from small off-road engines, portable containers and other sources. They also emphasized the fact that VOC emissions rise even more sharply on hot days that are of most concern for ozone formation.

Regulatory Impacts of Additional Emissions from AB 15/SB 15

- AB 15/SB 15 mandates 100% use of E-10 for gas sold in non-RfG areas compared to current 10% market penetration. It is highly unlikely regulatory agencies such as DNR and EPA will ignore the ozone implications of this ten-fold increase in ethanol use.
 - Nonattainment areas that don’t have RfG (Door, Kewanee, Manitowoc, Sheboygan) will be hardest hit as they receive the full impact of the additional emissions, as will “border counties.”
 - RfG counties in the Milwaukee area will see increased emissions from cars using E-10 entering those counties (migration emissions) and from emissions drifting in from E-10 counties (transport emissions).
- We will see the regulatory implications when the agencies adjust ozone modeling protocols to incorporate the recent findings from SEMGOC and CARB that ethanol increases VOC and NOx emissions. These models are straightforward: more emission in, more controls out.
 - Even if not mandated by EPA, these “adjustments” can be expected because the underlying studies are current and use testing protocols developed with state environmental agencies and EPA oversight for the specific purpose of developing ozone control strategies.
 - For example, DNR recommended in its AB 15 testimony that the Legislature impose costly mitigation measures (e.g., changing fuel specs, “high-tech” gas cans). Clearly, DNR believes there are sufficient increased emissions from an E-10 mandate to justify more mandates; the only question being whether those mandates are enacted now, through related E-10 legislation, or later, as part of our ozone SIP.

SEMCOG VOC & NOx Graphs (Annotated)

**Figure ES-1. Net VOC Benefits in 2007 - All Sources
(tons per summer day)**



**Figure ES-2. Net NOx Exhaust Benefits in 2007 - All Sources
(tons per summer day)**

