

The Last Word

Cleaning the Air with Ethanol *By Brett Hulsey*



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"What might surprise you is that the rest of the world is starting to hear what you've been telling them for years."

As smog hangs over many cities this summer, legislators across the nation are considering expanding ethanol choice to give drivers a cleaner fuel. A new study, "Clearing the Air with Ethanol," shows that ethanol use consistently reduces ozone and other pollution levels across the country. If we want to clean up our air, we need to support cleaner fuels like ethanol.

In the report, my coauthor, Brooke Coleman, director of the Renewable Energy Action Project, and I analyzed data from the Environmental Protection Agency, California Air Resources Board, South Coast Air Management District, Connecticut Department of Environmental Protection, Denver Regional Air Quality Council, Southeast Michigan Council of Governments, Michigan Department of Environment, Colorado Department of Public Health and the Environment, Coordinated Research Council, and Environmental Science and Technology.

The studies showed that ozone air pollution has consistently gone down across the country after ethanol was added to fuels. Ethanol also is one of the most successful measures to reduce greenhouse air pollution from autos, the largest and fastest growing sources of CO₂.

For example, Wisconsin Department of Natural Resources data showed that ozone exceedance days decreased 16 percent after the state adopted E10 in southeastern Wisconsin in 1994 as part of the reformulated gasoline requirements. Before 1994 the average was 630 ozone exceedance days in Milwaukee, Racine, and Waukesha County monitoring stations. After 1994 when E10 became a part of reformulated gas, exceedances dropped to an average of 539 in those stations, a 16 percent reduction. That's not to say ethanol was the only reason for this reduction, but it was a major contributor.

The "Clearing the Air with Ethanol" report also showed that ethanol use has been associated with consistent ozone reductions in California, New York, Connecticut, and other states where it has been put into use.

This report shows that concerns about ethanol increasing nitrous oxides and ozone are based on the selective use of a few computer models, not actual experience or the full weight of evidence.

Ethanol makes us more energy secure

According to 60 Minutes and other recent reports, Brazil is largely energy independent because of an investment in ethanol and flexible fuel vehicles. A recently released study by the Energy and McKnight Foundations, "The New Harvest: Wind Power and Biofuels for Rural Revitalization and National Energy Security," shows that a major commitment to ethanol, combined with more efficiency and smart growth could replace all gasoline in light duty vehicles by 2050. This could account for eight million barrels of oil a day, three times what we now import from the Persian Gulf. If Brazil can do it, why can't we?

Ethanol is an energy winner

The Argonne National Laboratory Ethanol Study shows that ethanol yields 20-60 percent more energy than it takes to produce it. The same study showed that gasoline is a net energy loser, wasting 20 percent of its energy in drilling, transportation, and refining losses.

Ethanol reduces greenhouse air pollution

Ethanol is made from renewable crops like corn, prairie grass, or wood and reduces greenhouse air pollution linked to global warming. An Argonne National Laboratory study shows that corn ethanol

reduces greenhouse air pollution by 18-29 percent while cellulosic ethanol reduces it by 85 percent. In fact, nation's 100 ethanol producers make four billion gallons per year reduce CO2 pollution by 16 billion pounds each year, equivalent to not burning 800 million gallons of gas.

Ethanol reduces the most dangerous air pollutants

As soot pollution levels reaches unsafe levels in many parts of the country, ethanol can be a solution. The EPA recently proposed new stronger soot particulate standards which could make much of country out of compliance requiring extensive control measures from industry.

Soot is particles or droplets a fraction of the size of a hair that come from the burning gasoline, diesel, or other fuels. The American Lung Association has compiled more than 2,000 studies showing soot causes health problems like cancer, asthma, and heart attacks.

One 2002 Journal of the American Medical Association study showed higher soot levels increase lung cancer, heart attack, and early deaths by 4-8 percent. The Sierra Club 2005 report, "Highway Health Hazards," highlights more than 20 studies showing living near roadways and being exposed to pollution from cars and trucks leads to health problems like more cancer, asthma, heart attacks, low birth weights, and other health problems. Most of the risk is from soot pollution.

A growing number of studies show that ethanol reduces soot particulate pollution. A 1999 study by the Colorado Division

of Public Health and the Environment showed that E10 reduced soot pollution by 36 percent from newer vehicles and more in older, more polluting vehicles. A 1997 study published in Environmental Science and Technology showed that vehicles burning E10 produced up to 22 percent less soot particulate pollution than those burning regular gas.

Ethanol reduces cancer-causing air pollutants

Ethanol also reduces cancer-causing benzene and formaldehyde. This is important because the nation's air is more than 700 times too polluted with cancer-causing chemicals according to Environmental Defense's analysis at the Scorecard.org.

Most of the cancer risk, 88 percent, comes from cars, trucks and other "mobile" sources and pollutants like diesel, benzene and formaldehyde. Ethanol replaces benzene in gasoline, reducing the cancer risks of driving and living near roadways. The Colorado study showed E10 reduced hydrocarbon pollution like benzene by 16.5 percent.

Ethanol reduces dangerous carbon monoxide

The recent tragic deaths of the West Virginia coal miners show carbon monoxide is a deadly pollutant. The Colorado study showed E10 reduces carbon monoxide pollution by 11 percent.

The EPA also recently found that "carbon monoxide is linked closely... to the cycle of tropospheric ozone and participates in the formation of

20-40 percent of the ozone found in non-urban areas. Carbon monoxide plays an important role in atmospheric photochemistry in regional and urban environments... In numerical simulations of at least one urban air shed, CO was found to participate in the formation of 10-20 percent of the ozone found there... On- and non-road mobile sources account for approximately 80 percent of the 1997 nationwide emissions inventory for CO."

For all these reasons, state and local policy makers should speed up the use of ethanol and build more ethanol capacity. That way, we can all breathe easier.

For more information:

A copy of the report can be found at www.ReapCoalition.org or by calling (608) 661-9099.