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EPA'S HIDDEN ROLE IN HIGH GASOLINE PRICES
OR
HOW UNSCIENTIFIC AND ILLEGAL RFG REGULATIONS UNNECESSARILY INCREASE
GASOLINE COSTS WITHOUT ENVIRONMENTAL BENEFIT, AND
SIGNIFICANTLY CONTRIBUTE TO SUPPLY AND DISTRIBUTION PROBLEMS

Washington - Mr. William Orr, Chairman of the National Alternative Fuels Association (NAFA) issued the following statement, "Today's high gasoline prices, especially those reflected in the reformulated gasolines (RFG) of the mid-west, are in large part the result of poor EPA science (related to RFG regulations). Unfortunately, even higher gasoline prices can be expected due to faulty EPA science related to the new de-sulfurization regulations!"

NAFA is a private scientific-based, non-profit entity (organized in 1992) (see <http://www.altfuels.net/>). NAFA's founders played an instrumental role in the adoption of the nation's first premier alternative fuel "unleaded gasoline." NAFA is the leading Plaintiff in NAFA v. EPA, a suit challenging the EPA's science related to the new de-sulfur regulations.

"Despite media hype about fuel distribution problems, Unocal patents¹, profiteering, ethanol, reformulated gasoline (RFG), crude oil prices, none of the above represents the real reason why gasoline prices are so high," said Orr.

"The real source of excessive gasoline prices lay at the feet of the EPA. Today's high prices are the result of "withdrawal" symptoms associated with weaning the refining industry off its MTBE addiction, coupled with the simultaneous force feeding of replacement alcohol (which the EPA has intentionally handicapped). Together with the same EPA regulations and related rules, the supply, storage, and distribution of gasoline has been aggravated," says Orr.

"The EPA rigged the science to create the MTBE addiction in the early 1990's, which has tragically poisoned ground water ever since - and that is where this story begins. If you follow the trail carefully, you will see how this happened and who is really responsible. This trail leads to unnecessarily expensive RFG and conventional gasoline!" said Orr.

In the early 1990's, concerned NAFA scientist's tried to warn the country about EPA's arbitrary "mass" basis volatile organic compound (VOC) definition - the basis for RFG,

¹ According to June 2000 testimony before a Senate Environmental and Public Works Subcommittee, the Unocal patent is not a problem.

and the potential for economic and environmental tragedy. NAFA's warning was ignored, and the faulty definition served to mandate MTBE industry wide, ultimately leading to present U.S. consumption of over 400,000 barrels per day.

MTBE's environmental characteristics were largely unknown when mandated. Yet the EPA failed to heed the vigorous warnings of NAFA's scientists for additional research. MTBE is now being phased out/banned nation-wide, due to groundwater contamination problems (see "EPA orders MTBE phase-out" <http://www.msnbc.com/news/384568.asp>, also see EPA Office of Mobile Resources <http://www.epa.gov/oms/consumer/fuels/mtbe/mtbe.htm> - Health Effects).

We must remember it was the EPA who started the MTBE addiction – the origin of today's problem. They did so by their *mass* basis volatile organic compound (VOC) definition, which ignored sound science by not considering whether volatile organic compounds (VOC) emissions actually cause pollution or were "reactive," (e.g. the actual effect a given atmospheric VOC has in causing ozone formation).

Rather, the EPA weighed all volatile VOC emissions the same. That is non-polluting, benign VOC emissions (e.g. not contributing to smog/ozone formation) are considered the same as the worst polluting VOC emissions (e.g. those causing extreme smog/ozone formation). The avoidance of sound science was intentional in order to eliminate alcohols from consideration in RFG. (Alcohols, unlike MTBE, increase total *mass* volatile emissions.) Alcohols increase RVP volatility, but the increase is generally benign. Thus, the definition is unfairly discriminates against alcohols.

More precisely alcohols (such as ethanol) increase volatility (known as Reid vapor pressure [RVP ²]) and hence total evaporative VOC emissions. For example, when added to gasoline, ethanol increases RVP (or total *mass* evaporative VOC emissions) by about 1.0 to 1.4 pounds per square inch (psi), and methanol/butanol increases RVP by about 2.5-3.0-psi. Under EPA's *mass* definition this increase in volatility (RVP) creates a monumental commercial hurdle for alcohol, because the RFG base "blending gasoline," to which alcohol is added must have an artificially low vapor pressure (1.0 – 1.4 psi lower than the finished gasoline's RVP [if ethanol is used] and 2.5-3.0 psi lower [if methanol is used]). With MTBE there is no such requirement, because MTBE does not increase RVP

Thus, the EPA's restraint is prohibitively expensive, especially when the vapor pressure of RFG gasolines is already low (approx. 7.5 psi RVP). The EPA's restraint easily adds \$0.10 to 0.15/gallon (or more) to the cost of manufacturing ethanol based RFG's, compared to MTBE RFG, without environmental benefit.

Environmentally speaking, the EPA's RVP restraint provides little or no actual benefit, because alcohols, while increasing RVP do not appreciably increase the net total reactivity of the evaporative VOC emissions compared to the evaporative emissions from the same gasoline without ethanol added. Thus, even though total *mass* VOC emissions increased the net reactivity is lower, resulting in no appreciable gain in ozone formation or smog (pollution) This is because the increased VOC's generated from alcohol are largely net benign (or non-reactive), especially when taking into account offsetting reductions in tailpipe exhaust CO emissions.³

² RVP=Vapor pressure at 100°F

³ William Chameides, Member of the National Academy of Sciences, Chairman of the NAS committee reporting on "Ozone Forming Potential of Reformulated Gasoline (1999)," School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, Georgia, 30332, 404-894-1749; also see Carter et al, 1991 Evaluation of a Detailed gas-phase atmospheric reaction mechanism using environmental chamber data; Carter, W.P.L., 1993, Development

Because today's vehicles are more efficient, elevated RVP's do not translate into increased exhaust emissions. By ignoring known science on "reactivity" and hence effectively preventing commercial usage of inexpensive alcohols in RFG, the regulations gave MTBE a RFG monopoly. As such, the regulations were probably illegal according to a May 21, 1993 legal opinion (see http://altfuels.net/press_releases/john_armor.html).

But the monopoly created by the EPA came to an abrupt end due to MTBE's adverse health effects. Suddenly, refiners who had built up an extensive MTBE infrastructure found themselves having to use ethanol in the manufacture of RFG, instead of MTBE. But, they found themselves trapped by the *mass* basis definition.

To use ethanol, refiners had to back out higher vapor pressure gasoline components, such as butane. However, many refiners found themselves unable to use these components elsewhere, in turn forcing them to store and convert them into other usable products. For these refiners, this could add another \$0.10 to 0.15/gal. to the cost of gasoline (industry and refinery representatives can confirm this cost).

Not-with-standing the high artificial costs associated with manufacturing a "sub-vapor pressure" blending gasoline for ethanol, refiners had another set of problems to deal with on account of the *mass* definition – i.e., the handling, distribution, and storage of ethanol RFG's -- a problem not associated with MTBE gasolines. For example, "sub-vapor pressure" blending gasoline cannot be transmitted via pipelines together with ethanol as a finished RFG or conventional gasoline product. Contrary to some reports suggesting alcohol/gasoline compositions (due to water sensitivities) cannot be pipeline transported, they can (ARCO formerly transmitted such compositions via pipeline in the 1980's). But under the *mass* definition and related rules, including rules against commingling, this possibility is effectively foreclosed.

In the market place, the price of lower cost products will often chase higher priced products with the prices eventually closing. So, if a higher cost/higher price ethanol RFG product must be used, other lower priced/less expensive products will chase this higher priced product.

Thus, both the "sub-vapor pressure" blending gasoline and ethanol components have to be separately stored and transported, until being ultimately combined/dispensed in tanker trucks, which then transport finished ethanol RFG to gas stations. This adds a substantial layer of logistics and expense to the process, and sets the stage for supply interruptions. It also impacts conventional gasolines. When finally priced, this expensive product becomes the benchmark other lower cost gasolines chase. Naturally, any increase in crude oil prices, strained capacity, supply constraints, interruptions in normal pipeline operations, or the like, would exacerbate matters and send prices straight up, likely representing the "needle that broke the camel's back."

Today, refiners are unquestionably being harmed by the EPA's bad science. This has caused an insidious ripple effect. They must first amortize their multi-billion dollar MTBE investment in each gallon of gasoline they manufacture. Then, they must manufacture an unnecessarily expensive low vapor pressure RFG gasoline (because of bad EPA science), and then somehow deal with the difficult storage, supply, distribution, and logistic requirements associated with ethanol (because of bad EPA

science). On top of that, present refining capacity is already strained from years of meeting the heavy burden of EPA regulation (a substantial consolidation of the industry occurred the past decade and half). Consequently, there is simply no margin for error.

“Worst of all, this unnecessary situation must be absorbed by the motorists, who get the brunt of higher prices without added environmental benefit!” said Orr.

The fact is the public is unaware of the inherent nature of this underlying problem, which has mistakenly led most to accuse alcohol as being the source of the problem. This is unfair and regrettable (see “Gas Debate Gives Ethanol a Black Eye,” http://dailynews.yahoo.com/h/ap/20000701/bs/gas_prices_ethanol_2.html).

The public doesn't know the truth. This appears evident by the recent action of frustrated Wisconsin legislators, who sued the EPA over high RFG prices, but failed to cite the EPA's arbitrary alcohol RVP restraint with consequential storage, supply, and distribution problems, as being the primary cause behind high gasoline prices (see Wisconsin Legislators Sue EPA, 6/29/00 http://dailynews.yahoo.com/h/ap/20000629/pl/gasoline_suit_1.html

“We saw the potential for this calamity years ago and called upon the EPA to resolve it when they still had time. But they refused.” said Orr.

Scientists have long maintained that ethanol is entitled to at least a 0.5-psi RVP exemption (if not the full 1.0-psi). Other less expensive alcohols, which also increase RVP, are entitled to similar RVP exemptions.

Had meaningful RVP exemptions been in place this summer, the high cost of gasoline, and attendant storage, supply, and distribution problems could have been largely avoided. NAFA and ethanol industry representatives have vigorously urged the EPA for some time to provide alcohol such an exemption, which many believe could be easily implemented. But the EPA has steadfastly refused.

Finally, buckling to heavy political pressure, the EPA proposed on 6/30/00 that ethanol be granted an RVP exemption of 0.2 psi. The EPA also plans to reconsider minimum oxygen RFG levels (see 6/30/00 “EPA Seeks To Ease Rules to Make Clean Gasoline,” http://dailynews.yahoo.com/h/nm/20000630/ts/epa_gasoline_dc_1.html).

“This 0.2-psi RVP exemption for ethanol is after the fact and a clear acknowledgement of the EPA's bad RFG science. Sadly, it is only a token exemption and will not appreciably reduce today's high gasoline prices or eliminate the storage, supply, and distribution problems, associated with the ethanol,” said Orr.

“It is a very weak response (to the politically hostile conditions of the mid-west in an election year). It conspicuously does not consider other inexpensive alternative alcohols, like methanol. Nor does it look at other more attractive alternative fuel formulas capable of achieving even better emissions at costs below current RFG costs. And, it is too modest -- too late to help motorists this year.

“Frankly, as now proposed, this rule might actually harm the environment by fueling a backlash to kill RFG altogether, because it is already too expensive, and next time this year it will be even more expensive! It will fuel resentment and continue to cause ethanol to be unfairly blamed,” said Orr.

“Until the science is objectively addressed, this problem isn't going away,” said Orr.

“It's time to stop pointing fingers and hold those who are responsible, responsible. And, it's time for action now,” stated Orr.

Poor EPA science is not new (see. 5-12-00 New York Times "EPA's Auto Pollution Model is Flawed, Expert Panel Finds"

http://altfuels.net/press_releases/nyt_auto_pollution_model.html). The National Academy of Sciences has also criticized the EPA's science, in general, expressing "concerns about the quality of research behind the agency's regulatory decisions" (see 6-15-00 Washington Post "EPA Urged to Improve Its Scientific Research" http://altfuels.net/press_releases/wp_epa_urgent_to_improve.html).

On a separate note, NAFA is troubled about the prospects for another round of gasoline hikes estimated to be at least another \$0.10-0.20/gal, which will be attributed to the EPA's gasoline sulfur regulations, which also appear to be scientifically faulty. See Special 6/5/00 South West Research Report to NAFA re: Tier II low-sulfur gasoline <http://www.altfuels.net/reports/08-030.pdf>.

(Scientists, expert reports, and industry contacts are available upon request.)

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