

GASOLINEGATE

A Report from Farmers Union Enterprises

July 4, 2019



DANGER
CONTAINS
BENZENE
CANCER HAZARD



Gasolinegate

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Summary of Findings

Gasolinegate: Collusion & Illusion



Is the EPA misleading consumers about the safety of gasoline emissions? Dangerous aromatics have catastrophic implications for air quality, the environment, and public health. Reminiscent of @VW #dieselgate scandal, is this the EPA's #gasolinegate?

After a decade of research and no significant progress by the [United States Environmental Protection Agency's Office of Transportation and Air Quality \(EPA/OTAQ\)](#) to carry out the regulations to reduce the [aromatic content of gasoline](#) in the Clean Air Act Amendments of 1990 (CAAA), the Farmers Union Enterprises (FUE) decided to take on the task of continue researching the source and health effects of [mobile source air toxics \(MSATs\)](#).

Why? We found there was a gap in research, public information, and a void in consumer representation on this issue. We also found there is a growing mound of evidence and concern in the public health sector that air pollution is a clear and present danger. It's an epic world public health threat that rivals AIDS, opioid addiction, smoking, and obesity COMBINED. Because it is common knowledge that about half of the pollution in the United States comes from transportation - we are compelled to share our findings and perspectives.

What's the sense of urgency? OTAQ is in the process of a rule-making that will decide the economic fate and health of millions of Americans. EPA is finalizing its recommendations for the Safer Affordable Fuel-Efficient Vehicles Rule called SAFE. The nation needs a new SAFE – Safer, Affordable, Fuel Efficient - Fuel to operate those vehicles in the most energy efficient and environmentally safe manner. The SAFE Rule can provide those benefits to vehicles and consumers if it contains a 98-100 RON octane standard for gasoline. At this point it would be a national health hazard to assume the EPA is going to change course after 28 years. The time for Congress and citizens to take action is now.

GLOSSARY: "Dieselgate"

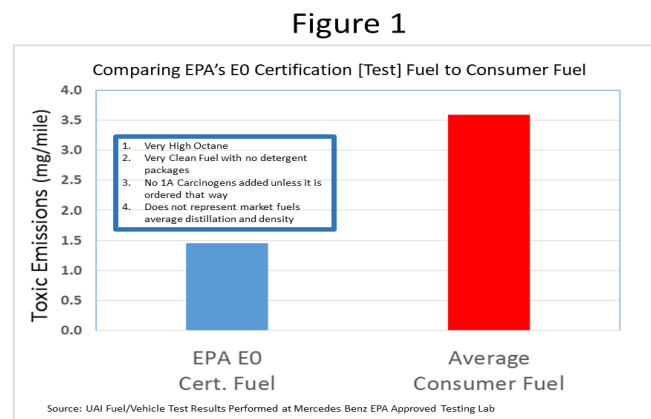
The Volkswagen emissions scandal began in September 2015, when the U.S. Environmental Protection Agency issued a notice of violation of the Clean Air Act to the automaker. The investigation was coined "Dieselgate" because Volkswagen purposely used software to cheat on emissions testing, then did not acknowledge their deceptive "defeat device" in an attempt to cover up their strategy. Wikipedia

We recognize there are thousands of dedicated employees at the EPA that are doing their best to uphold the law and protect the environment. This not at attempt to throw out the entire Agency with some dirty bathwater caused by a lackluster progress by OTAQ. We remain committed to offering the agency opportunities for correction, improvement, and retribution.

Gasolinegate is the synopsis of analysis of Freedom of Information Act (FOIA) information from requests to the EPA, independent real-world emission and driving testing, thousands of hours of collaborative discussion, numerous public and private requests to the EPA/OTAQ for progress, pleas to Congress, and the compilation and synthesis of 1,000+ validated research studies. We have also been encouraged by the response we have received from numerous citizens with diverse interests, that the results of our research are very similar to “Dieselgate” which is why we believe the nation is in the midst of “Gasolinegate”.

Gasolinegate is about the EPA/OTAQ acting unilaterally (i.e., separate from the intent of Congress) and getting caught colluding with Big Oil to create fake certification fuels and testing parameters. Just like the deceitful tactics used by Volkswagen to inaccurately model the emission data from 500,000 diesel power cards. Now compare the impact of Gasolinegate – a false sense of security in the emissions levels of the 263 million gasoline powered vehicles on the road. In the case of Gasolinegate, the “defeat device” was the deceptive design of fake fuels and testing procedures that were engineered to provide misleading data. That false data certified vehicles for emissions and fuel efficiency. These unfair and anti-competitive practices allowed gasoline to avoid further regulations to improve air quality, to delay the need to develop new technologies, and to protect the 100-year domination of crude oil on the transportation fuel market – which unnecessarily increases the cost of fuel to consumers. FOIA emails show how the EPA worked in cooperation with the industry they are responsible for regulating. The false data covered up the deathly health effects from the unnecessary use of higher levels of toxic/carcinogenic aromatics additives in gasoline. Adding unnecessary levels of benzene to gasoline is no different than adding benzene to tobacco to make nicotine get to the bloodstream faster.

By a sin of omission or commission, the outcome of Gasolinegate is those “certified/ tested” vehicles are emitting more emissions than currently being estimated, which impacts the cost of health care and the price consumers pay for fuel at the pump. This false data also impacts many Governors, Mayors, and state regulators who are responsible for implementing state ozone attainment plans because they may not utilize cleaner fuel strategies. This missed opportunity therefore costs them financially, as they can’t reduce emissions enough to attract new businesses and/or build new roads (See Figure 1).



Decades of fake fuels, fake tests, and fake results. The fuel being used today for testing vehicle emissions and efficiency does not represent what consumers buy, or the results they expect. What could have stopped the EPA from changing tests that had not been changed in decades, when those decades were spent trying to reduce pollution from vehicles?

**1990: Year of Clean Air Act Amendments Passed – 18 City MPG and 24 Highway MPG
27 Years Later – 21 City MPG and 30 Highway MPG (really?)**

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FINAL ASSEMBLY POINT: NEWTON

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SUPER HICAS 4-WHL. STEER SYSTEM

DESTINATION CHARGES: 275.00
TOTAL: 35,175.00

Compare this vehicle to others in the FREE GAS MILEAGE GUIDE available at the dealer.

CITY MPG	Highway MPG
18	24

Estimated Annual Fuel Cost: \$900

Actual Mileage will vary with options, driving conditions, driving habits and vehicle's condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between:

15 - 21 mpg in the city and beyond	20 - 28 mpg on the highway
------------------------------------	----------------------------

1990 NISSAN 300ZX 161 CUBIC INCH ENGINE, 6 CYLINDERS, FUEL INJECTION, FEEDBACK FUEL SYSTEM, TURBOCHARGER, 5-SPEED MANUAL TRANSMISSION, CATALYTIC CONVERTER.

For Conversion Staging, all vehicles classified as TWO SEATERS

NISSAN Security+Plus® EXTENDED SERVICE AGREEMENT ASK FOR DETAILS 2800 32 020527 1017 000000 7041

NISSAN 2017 NISSAN MAXIMA SV

Fuel Economy: 25 MPG (City 21, Highway 30)
Annual Fuel Cost: \$1,700 (based on 15,000 miles per year, 100% unleaded gasoline)

You spend \$1,500 more in fuel costs over 5 years (based on 15,000 miles per year, 100% unleaded gasoline)

Annual Fuel Cost: \$1,700 (based on 15,000 miles per year, 100% unleaded gasoline)

GOVERNMENT 5-STAR SAFETY RATINGS

CRASH TESTS	SAFETY RATINGS
Frontal	5 Star
Cash	5 Star
Side	5 Star
Rollover	5 Star

NISSAN Security+Plus Extended Protection Plan

During my next trip to Ann Arbor, I convened my engineering team to begin a review of the testing procedures. The fuel economy test simulated a 7.5 mile urban drive at an average speed of about 20 mph as well as a 10.2 highway drive averaging about 48 mph. The test hadn't changed in decades – but American driving habits had.

— Excerpt from *Driving the Future: Combating Climate Change and Cleaner, Smarter Cars*, by Margo T. Oge, former head of Office of Transportation and Air Quality (OTAQ) 1994 to 2012.

Environmental Protection and Progress?

27 years and 1 mile per gallon increase? We believe today's hydrocarbon-based toxic aromatic gasoline additives share the same history of deceit with lead (i.e., [a now banned additive to gasoline](#)), tobacco, and #Dieselgate, and now #Gasolinegate. We will share a well documented 100-year history of the oil industry's desire to protect market share at all cost – paid in full by the consumer.¹ Our findings suggest the oil industry misled the media and public to discredit the government and competitive products, which in turn discourages public research and private investment. We will detail a history of private interest manipulating and derailing government responsibility while public interest and personal health are left hanging in the balance of justice.



Many in the oil industry and their Washington representatives protecting aromatics used the same strategic tactics used for protecting tobacco. Manipulating research and data, throwing money as mud in the gears of government oversight, thus manipulating the market and price for fuels. All to the detriment of the consumer and taxpayer. We now have a 50-year modern day window of missed opportunity – with another possible 25 years on the horizon if the EPA/OTAQ does not change its strategy to delay new high octane and high compression engine requirements (see Part 8: U.S. House of Representatives [Congressional Hearing](#) - High Octane Fuels and High Efficiency Vehicles: Challenges and Opportunities hearing on April 13, 2018).

The nation is at a vulnerable crossroads. Automakers can no longer be primarily responsible for reducing mobile source air toxics (MSATs) and the health effects from trying to incinerate the oil industry's toxic/carcinogenic aromatic compounds. Fuels need to play a major role, and the nation will need SAFE fuels if it wants SAFE air.

In April the EPA will end its debate over the future of engines and fuel technology. Without action, we fear that the EPA's outdated and deceptive fuel assessments will inflict another 30 years of air toxic and carcinogenic exposure on the public. A proven womb-to-tomb cycle of sickness, disease and premature death caused by the addition of 8 billion gallons of benzene plus 24 more billion gallons of benzene-based components.

Why are there still ~30 billion gallons of Benzene, Toluene methylbenzene, Ethylbenzene, and Xylene dimethylbenzene and other hundreds of other benzene-ringed aromatics still in our gasoline? The gasoline family of aromatics is the most lethal and carbon intensive, commonly referred to as benzene, toluene, ethylbenzene, and toluene, or B.T.E.X.). Benzene—a Class A Category 1 proven carcinogen to humans—is added to gasoline in an effort to save the ¼ of a cent to remove it. The media, Congress, public health advocates, and the public must not allow the history of tobacco and leaded gasoline to be repeated. Trading poisonous lead for toxic/carcinogenic aromatics in gasoline is no longer necessary.

What are aromatics, why are they needed, and what's the concern?

The short story is — aromatics are made in the process of refining crude oil into gasoline and/or they are added to gasoline increase the level of octane. Gasoline with higher levels of octane permit engines to perform more efficiently and create less emissions.

A Teaching Moment: Gasoline, aromatics, octane, and emissionsⁱⁱ

A. Gasoline is a complex compound of 500 hydrocarbons and 150+ petrochemicals. The National Institute for Occupational Safety and Health (NIOSH) has designated gasoline as a carcinogen. About 20% to 30% of a gallon of gasoline contains toxic/carcinogenic aromatics. Aromatics are hydrocarbons derived from petroleum with one or several benzene ring-like molecular structure with a 'sweet' or aromatic odor. The most common aromatics include Benzene, Toluene methylbenzene, Ethylbenzene, and Xylene dimethylbenzene. This part of the family of aromatics are commonly referred to as BTEX, which are the most lethal part of the gasoline mix. The multitude of other less known benzene-ringed aromatics make up the other half of the remaining aromatic content and are considered even more toxic when it comes to creating more particulate matter (PM) from gasoline. See Figure 2 for a short list of aromatics other than BTEX.

B. Gasoline, aromatics, and octane: Aromatics are additives to gasoline to raise its “octane” rating. The octane rating is a measure of a fuel’s ability to avoid knock. Knock occurs when fuel is prematurely ignited in the engine’s cylinder, which degrades efficiency and can be damaging to the engine. Most gasoline stations carry three octane grades with an Antiknock Index (AKI) numbers of 87 Regular, 89 Mid-grade, and 91-93 Premium. The higher the octane number, the more resistant the gasoline mixture is to knock. “Octane” is not only the most expensive part of gasoline—to the extent “octane” is derived from crude oil, it is also the most toxic, carbon-intensive, and lethal part of gasoline. The use of higher-octane fuels can enable auto makers to design engines with higher compression ratios, turbocharging, and downsizing/down speeding. These features enable increases in vehicle efficiency (miles per gallon) and lower greenhouse gases through decreased petroleum consumption.ⁱⁱⁱ For 100 years, auto manufacturers have searched for affordable, effective, and environmentally safe octane-boosting compounds, but today there are only two commercially viable and legal contenders – hydrocarbon-based aromatics and renewable ethanol.

“Octane is the single most important property of gasoline when determining engine design.”

Mercedes Benz comments to EPA Tier 3 rule, July 1, 2013

C. Aromatics & Vehicle Emissions: Aromatics increase toxic emissions from vehicles (see Figure 3). In addition to all being built on benzene-ringed structure, when aromatics are incompletely combusted they also create benzene emissions from the vehicle tailpipe. Plus, studies show statistically significant increases in non-methane hydrocarbon (NMHC), particulate matter (PM) mass, particle number, and black carbon emissions with increasing volume of aromatics.^{iv} Low carbon non-toxic ethanol increases the octane of gasoline and reduces the need to add aromatics.

“EPA/OTAQ contived Gasolinegate emissions protocol to penalize non-petroleum alternatives.”

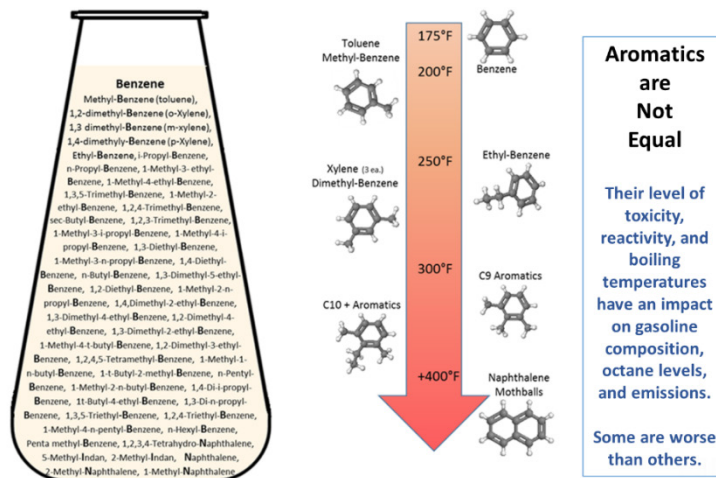
Urban Air Initiative, July 4, 2018

What’s the concern about benzene and how much is too much?

The American Petroleum Institute (API) stated as early as 1948 that “it is generally considered that the only absolutely safe concentration for benzene is zero.”^v

Despite the clear and present danger of benzene, it was not until the Clean Air Act Amendments of 1990 (CAAA)—*more than 40 years after the startling admission by API*—that action was taken to control it. All gasoline is limited to .63% benzene by volume (about 8 billion gallons per year). Yet random fuel samples sent out for testing by Urban Air

Figure 2
Aromatics: Welcome to the Benzene Family of Hydrocarbons



Initiative (UAI) from the Kansas City area due to increased swelling issues with plastic revealed benzene showed volumes *as high as 2.1% volume*--and that does not account for benzene emissions that are formed by other aromatics compounds as they exit the tailpipe. EPA had another opportunity to take a leadership role in 2007 with the CAAA required review of Mobile Source Air Toxics (MSATs), yet failed to take any significant action.

“There is no safe exposure level to benzene; even tiny amounts can cause harm. The US Department of Health and Human Services (DHHS) classifies benzene as a human carcinogen. Long-term exposure to excessive levels of benzene in the air causes leukemia, a potentially fatal cancer of the blood-forming organs. In particular, acute myeloid leukemia or acute nonlymphocytic leukemia (AML & ANLL) is not disputed to be caused by benzene. IARC rated benzene as “known to be carcinogenic to humans” (Group 1). As benzene is ubiquitous in gasoline and hydrocarbon fuels are in use everywhere, human exposure to benzene is a global health problem. Benzene targets liver, kidney, lung, heart and the brain and can cause DNA strand breaks, chromosomal damage, etc. Left unquestioned, unchallenged and unregulated, aromatics will continue to contribute to birth defects, life-long illnesses, cancers, lung disease, heart disease, brain disorders (footnote) – and the growing healthcare bill of individuals and federal and state governments.”

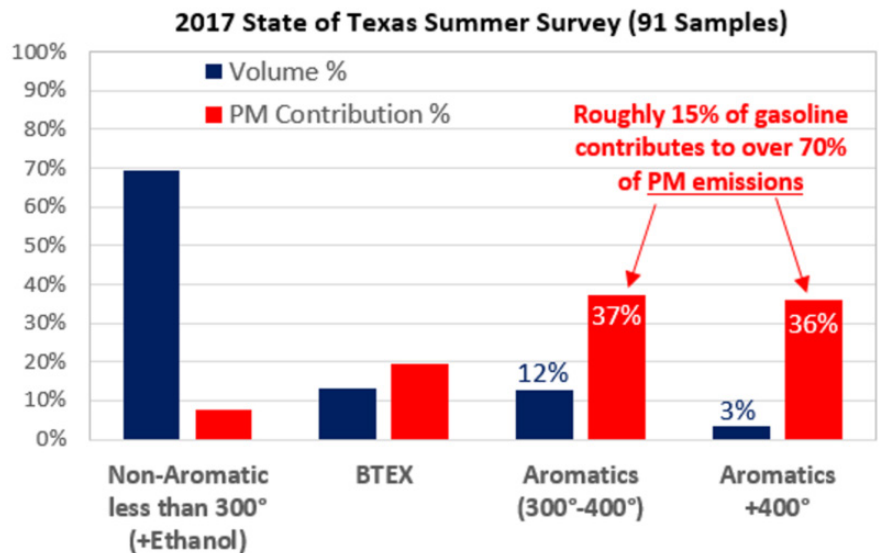
—Center for Disease Control, Toxic Substance Portal^{vi}

Conclusion

The true cost and price of gasoline, which should include all of the societal costs for crude oil too (e.g. environmental degradation, increased public health care costs, national/energy security costs, higher prices from lack of supply and market choices), must be considered in the upcoming debates on cleaner fuels and engines for U.S. light duty vehicles. Volkswagen will try to buyback nearly 500,000 vehicles as part of

its Dieselgate settlement.^{vii} In comparison, what will the settlement be for the 263 million vehicles and nearly every American that was impacted by Gasolinegate? Have a few at EPA/OTAQ gone rogue or is the office under regulatory capture by the industry it is supposed to regulate? We believe EPA needs the pressure of public support and Congressional action to get back on track and protect the public from the proven negative health effects of MSATs.

Figure 3



Has OTAQ Gone Rogue or is it “Regulatory Capture”?

Unelected – Unaccountable – Unresponsive

Amazingly, just a handful of EPA bureaucrats in the Office of Transportation and Air Quality (OTAQ) have set the rules for fuels and vehicles for the past 30 years in the U.S. Their decisions have dictated how industry and Americans spend billions every year on vehicles and fuels. Its fuels regulatory policies have had an enormous negative impact on the environment, public health, and economic welfare of our country. OTAQ’s missteps have adversely impacted our most vulnerable and important citizens—our children.

Part 1

EPA Circumvents Energy, Environment, and National Security Laws & Policies



The EPA's emissions testing fails to protect public health, defying Congressional Directives and the CAA. Millions are at risk due to flawed testing and deceptive intent. Why/how were these laws undermined? There are solutions available-- why won't the EPA use them? #Gasolinegate

Like any major legislative effort, amending the [Clean Air Act \(CAA\)](#) was not a rapid process. It was years in the making. President George H.W. Bush, as he signed the CAAA claimed responsibility and deep roots to the legislation, given that as Vice President to Ronald Regan he also headed up the Regulatory Reform Task Force. Staff at the [U.S. Environmental Protection Agency's Office of Transportation and Air Quality \(EPA/OTAQ\)](#) had equally deep roots to the bill, but for a different reason. The EPA/OTAQ's regulatory failure was what instigated the public, president, and Congress to take action.

In addition to environmental protection, the nation also recognized it had reached a point of diminishing returns from investing in a crude oil and gasoline mandate for its transportation sector. Urged by public outcry stemming from embargoes and economic upheaval, Congress passed numerous major pieces of energy and environmental legislation, while also creating the Environmental Protection Agency and Department of Energy to oversee and enforce the law, regulations, and policies (See Part 9 The People v Big Oil & EPA/OTAQ: The Anti-Ethanol Wars).

A near miss in 1988 when the CAA passed the U.S. House of Representatives but not the U.S. Senate was rectified when Congress returned in 1989. In fact, the groundwork for the fuel provisions was laid in 1987 when Senator Tom Daschle implored Vice President Bush to focus on the looming public health threat of high levels of toxic/carcinogenic aromatics in gasoline. An historic but not unusual bipartisan effort and agreement.

"I simply do not trust EPA to implement a program that has been stonewalled for more than a decade... the oil industry is one of the most powerful industries in the world. The EPA is not immune to pressure, both from well financed lobbying and from divergent interests with the Administration itself."

U.S. Senator Tom Daschle, proposing the regulation of mobile source toxics, March 29, 1990

GLOSSARY: Reformulated Gasoline

Reformulated gasoline (RFG) is gasoline blended to burn more cleanly than conventional gasoline and to reduce smog-forming and toxic pollutants in the air we breathe. The RFG program was mandated by Congress in the 1990 Clean Air Act amendments. Only 30% of gasoline sold in the U.S. is reformulated. Why not the rest?

Senator Daschle's frustration, along with many members of the Senate Environment Committee was the result of the EPA/OTAQ failing to acknowledge that the removal of lead from gasoline was resulting in significantly higher levels of aromatics. A committee report noted that in 1971, with lead in gasoline, the aromatic content of gasoline averaged 22% but by 1987 that had increased to 37%.^{viii}

Reports showed reducing lead cost refiners less than \$1 billion over time and saved \$5 billion in one year in consumer mortality and sickness. Later, the EPA estimated the cost/benefit of the Clean Air act at \$10 saved for \$1 of cost.^{ix} How can replacing lead with aromatics be considered a healthy trade off?

Why would the EPA allow toxic/carcinogenic aromatics to creep up to a whopping 45%, and even use that level in test fuels? That is exactly what they did.

For that reason toxic controls were established that to this day have largely been ignored by EPA/OTAQ. Led by Senators Daschle, Dole and Harkin the Senate passed key provisions to require clean octane and control toxics. It is important to note this was not driven by the Senate, nor a single party. A bi-partisan collection of key house members introduced a companion provision to the Daschle-Dole-Harkin "Clean Octane" Amendment.

As noted earlier, the dangers of [benzene](#) and the [other aromatics](#)^x were hardly a newsflash to EPA. So as the ink began to dry on the legislation EPA/OTAQ officials began to write the rules to supposedly enact Congressional intent, only to continue their long process of subversion.

RFG & Oxy-Fuel Programs

The key fuel provisions of the CAA were the [wintertime Oxy-Fuel program](#) designed to combat carbon monoxide (CO) and the year-round [reformulated gasoline \(RFG\)](#) program to address ground level ozone. The RFG provisions were quite clear, the recipe for the fuel was specified and a phase-in schedule was established. Similarly, mandatory studies aimed at [Mobile Source Air Toxics \(MSATs\)](#) directed the EPA/OTAQ to determine which MSATs to regulate and at what levels. As previously noted, the EPA received specific Congressional direction. It is important to point out that legislative language stating an agency *may* do something generally leaves it up to the discretion of the agency to act. Conversely, the word *shall* is a clear directive and order.

It is critical to recognize Congress had made its own endangerment finding and addressing toxics was not an option but an order. But before the [RFG requirements](#) even took effect in 1992, the agency was dragging its feet. The EPA was to have completed a rule-making on toxics by May of 1995. A partial study was conducted in 1993 and 1995, but EPA/OTAQ did not issue a preliminary rule until August of 2000. When the rule was finalized the EPA/OTAQ compounded being five years late with an inexplicable and complicated "toxics averaging scheme" that skirted what was clear Congressional intent — removing these toxics from gasoline.

Instead EPA/OTAQ gave the refining industry what was essentially a pass. Rather than EPA/OTAQ requiring the maximum toxics *reductions* possible, refiners were allowed to raise some levels of

"Gasoline can, and must be made cleaner. The toxic and aromatic compounds can be replaced with much cleaner alcohols."

U.S. House of Representatives,
Dear Colleague Letter, Henry
Waxman, Bill Richardson, Ed
Madigan et al, May 1990

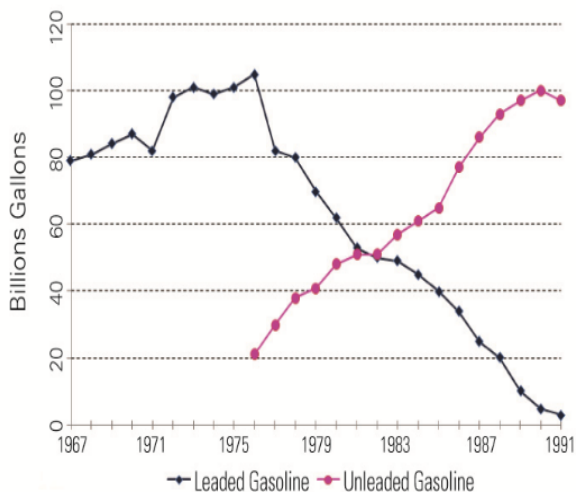
various toxics and average them so as not to *increase* overall toxic emissions. Yet the averaging did exactly that — in some areas benzene topped 3-4%.^{xi}

The petroleum industry was everywhere during this era. Lobbying expenses as reported to Congress were increasing. Refiners commissioned studies, claiming outrageous costs to comply with all the new requirements. The EPA/OTAQ consistently supported the oil companies throughout the process. We believe the EPA/OTAQ was protecting the oil industry from a future cost that had not been quantified.

Nowhere was this more obvious than in the areas selling reformulated gasoline (RFG). The law required the most polluted “[non-attainment areas](#)” i.e., cities in America as measured by

Summary of Leaded Gasoline Production vs. Unleaded with Higher Aromatics (1967-1991)

The production of leaded gasoline decreased from 77.5 billion gallons in 1967 to 3.1 billion gallons in 1991, or to 3% of all gasoline produced. During that same period, unleaded gasoline with higher aromatic levels significantly increased.



Source: U.S. EPA Report on Use of Alkyl-lead in Automotive Gasoline

ozone exceedances, to use RFG. Other areas, while not classified as “severe”, were “serious” and could opt-in to the RFG program. The oil industry badgered EPA/OTAQ to agree that simply lowering evaporative emissions, or Reid Vapor Pressure (RVP) (see Glossary), was enough of a control strategy and thus cemented a fixation on the part of the EPA/OTAQ that evaporative emissions (RVP) rather than tailpipe emissions were the most important fuel property to control. As illustrated in Figure 1, that was not the case as was proven in Phoenix, Arizona with RFG.

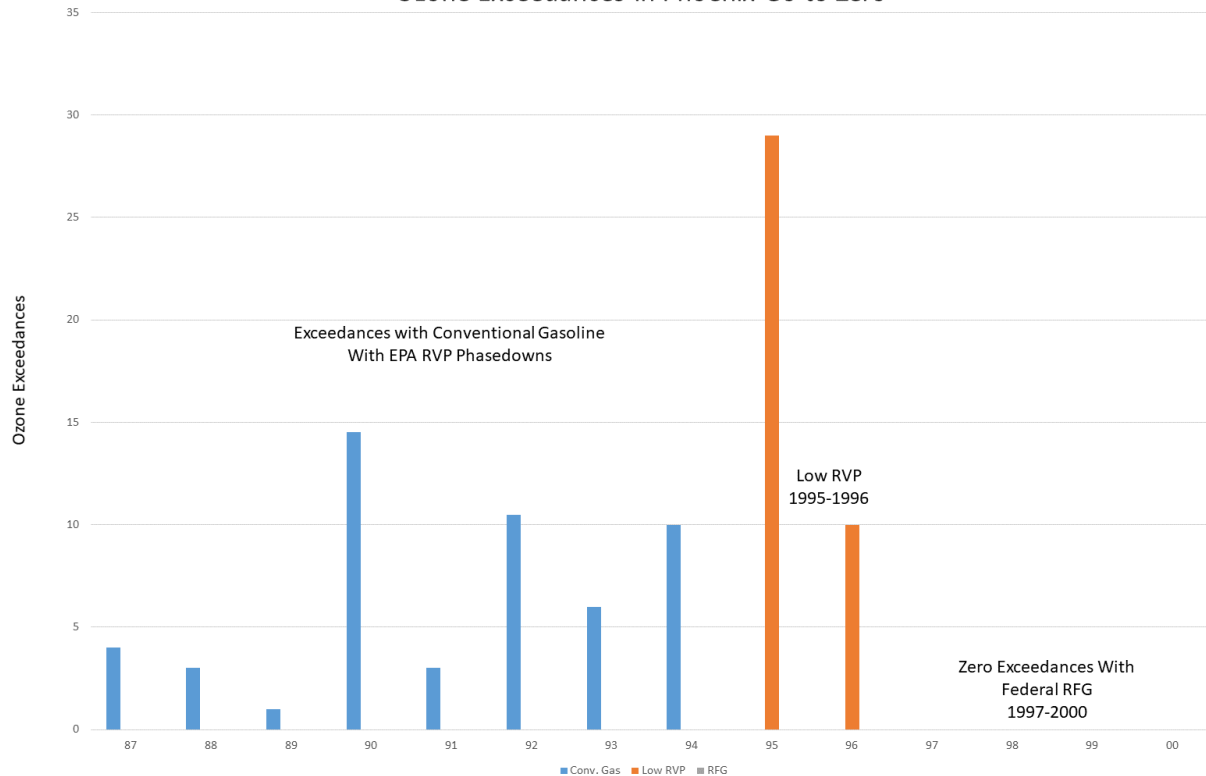
This defied both science, public policy objectives, and common sense. Real-world data had proven that the oxygen content as required with RFG fuels was eating up carbon monoxide (CO). While CO had its own compliance standard, and was considered to be a wintertime problem, it was clearly a precursor for ozone, or summertime smog as well. The RFG formula not only included oxygen but also capped benzene volumes and by EPA/OTAQ’s own models reduced several other ozone precursors.^{xiii}

[Note: All aromatic are benzene-ringed molecules. Incomplete combustion of aromatics results in higher levels of benzene from the tailpipe.]

“Aromatic hydrocarbons in gasoline include benzene, toluene, and xylene (BTEX). Benzene is a known carcinogen, one of the worst air toxics. 85% of all benzene in the air we breathe comes from motor vehicle exhaust. Xylene from automobile exhaust in the morning rush hour will form ozone [smog] in sunlight to choke our lungs by the afternoon trip home. Toluene, another aromatic, usually forms benzene during the combustion process and thus becomes carcinogenic along with benzene in the gasoline.”

U.S. Senator Tom Harkin (D-IA) Congressional Record, 101st Congress, Clean Air Act Amendment No. 1423 to Amendment No. 1293

Figure 1
Federal RFG v. Low RVP
Ozone Exceedances in Phoenix Go to Zero



Source: Clean Fuels Development Coalition

Simply lowering vapor pressure through a low RVP program only addressed one issue — evaporative emissions, and only during the summer months. It was the oxygen in the fuel and the cap on benzene that protected the public from unburned hydrocarbons in the form of toxic bearing particulates year-round. RFG included both vapor pressure *and* added oxygenates. Current EPA/OTAQ standards deem a low RVP program equal to the RFG formula, but the evidence (as illustrated in figure 1) shows RFG is notably superior.

GLOSSARY: Reid Vapor Pressure

Reid vapor pressure (RVP) is a common measure of the volatility of gasoline. It is defined as the absolute vapor pressure exerted by a liquid at 37.8°C (100°F) as determined by the test method ASTM-D-323.

The answer lies in the fact that oxygenated fuels displace petroleum and their use represented a loss in market share to an already heavily subsidized oil industry enjoying billions in tax breaks. We believe the only plausible explanation for how EPA/OTAQ could argue that low RVP sufficiently protected the public is either personal belief or it was imbedded with former employees of Big Oil. They certainly could not say they did not have enough information — Congress told them how to get toxics out of gasoline and they simply refused. As evidence piled up in city after city that low RVP was failing to reduce ozone while RFG was succeeding, they continued to support the petroleum industry arguments

that the two were equal. The battles raged from Phoenix to Birmingham to Pittsburgh to Providence as these and many other cities fought for clean air while EPA stood by showing no leadership.

In 1994 the EPA/OTAQ made clear how it felt about petroleum alternatives. As Congress began to focus on what it had done in the Clean Air Act Amendments of 1990 (CAAA) and as the requirements began to phase in, there was a concerted effort to ensure that the multiple public policy objectives of the CAAA were met — namely the energy security benefits of reducing petroleum use and creating markets for renewable and domestic ethanol. Under pressure from Congress, which had nearly passed legislation to require a certain percentage of oxygenates in the clean fuel programs to be renewable, EPA/OTAQ proposed a rule to require that 30% of the oxygen demand was met by renewables. It was struck down by the courts as overreaching by EPA. Many experts noted at the time that EPA's rule was riddled with weak links, the most important of which was OTAQ's obsession with evaporative emissions and ozone control rather than reducing the more dangerous mobile source air toxics caused by gasoline aromatics. In fact, a 1987 report to Congress by EPA stated "In analyzing the effect of gasoline volatility controls on cancer incidences caused by benzene, the Agency found that controlling volatility will have little or no impact on the number of incidents."

We believe by 2000 EPA/OTAQ had clearly established a pattern of intent – to derail ethanol's path forward. Based on their actions and notable inactions, it seems that the EPA/OTAQ was sheltering the oil industry from having to invest in new technology. This opened the door to more negative health risks. Hindsight has its advantages in analyzing the past, and also in understanding how EPA/OTAQ and big oil are today telegraphing this same strategy of delay tactics that will impact public health for the next 25 years (See Conclusion: The Farmers Union Enterprises Perspective.)

We believe this trend continues today. As of this writing, the EPA/OTAQ has indicated they intend to propose a REG's rule (Renewables Enhancement and Growth Support Rule, 81 Fed. Reg. 80828) that would potentially cap the use of higher ethanol blends in conventional vehicles at 15 vol %, thus mandating an 85% market share for aromatics in gasoline. The only way that Big Oil would agree to requests by the automakers to increase the baseline octane of gasoline was coupling it with killing the Renewable Fuel Standard (RFS) and then limiting ethanol blends to 15 vol %. This guarantees Big Oil could add more toxic/carcinogenic aromatics to gasoline, especially knowing [CAAA Section 202 \(l\)](#) aromatics regulations are not being enforced.

Part 2

Documented EPA Actions Against Environmental Progress



Did the EPA, in collaborating with Big Oil, break the law? #gasolinegate evidence raises questions. 28 years of protecting highly toxic fuel deserves public inquiry and government oversight. Why have they consistently refused to enforce CAAA Section 202 (l)?

The EPA/OTAQ's reluctance to update regulations on aromatics in gasoline and the value of ethanol as a replacement has raised suspicion of deliberate bias in favor of oil companies over petroleum alternatives. The EPA/OTAQ has the unique ability to determine the outcome of tests, experiments, studies, and assessments. Many of these are directly responsible for creating obstacles to alternatives to petroleum. Often because of these pro-oil biases – and the FOIA emails at the end of this section will illustrate it.

We believe these biases are real. A prominent EPA official speaking before the Biomass Advisory Committee in 2012 was asked by an ethanol representative on that committee why the agency was so unhelpful on ethanol. They were told — albeit in a private conversation — “we hate corn.”

When considering the pressure for EPA to reduce toxics, and that ethanol was providing them with a low-cost, low-toxic, low-carbon, high-octane, domestic fuel – you would think they would embrace ethanol. Then consider the following information and summary of a history of events and actions that left a trail of sickness, premature death, tears and unmet obligations to the American public.

The public record, which included over 10,000 internal EPA emails obtained under the Urban Air Initiative's (UAI) Freedom of Information (FOIA) requests, revealed what we believe is an “under-the-radar” collusion in which EPA/OTAQ used millions of taxpayer dollars in collaboration with oil industry experts, to manipulate fuel samples to build defective models and fraudulently blamed ethanol for the harmful emissions from aromatics in gasoline. Thus, the aromatic cover up.

This conspiracy's apparent goal has been to restrict the use of ethanol; the net effect has been to ensure the continued use of toxic/carcinogenic aromatic compounds, causing a substantial increase in harmful tailpipe emissions and inflicting great harm upon the public health and welfare which EPA/OTAQ has sworn to protect. The true irony in its failure to protect the addition/levels of aromatics is that EPA/

“The EPA has a demonstrated pattern and practice of hiding and withholding data from the public to advance their agenda.”

Senator David Vitter, member Senate Committee on Environment and Public Works. June 6, 2013

OTAQ officials have repeatedly said that they cannot regulate octane because it is not proven to be a source of pollution. Until now with SAFE? Why now?

Here is a summary of the top eleven events, obstacles, roadblocks, and hurdles that have seemingly been designed to detour ethanol's continued market growth in recent history:

- 1. 2007 MSAT Rule:** Responding to Congressional directives in Section 1504 of the Energy Policy Act (EPA Act) legislation (RFS1), OTAQ releases the 2007 MSAT Final Rule, in which it erroneously concludes that U.S. ethanol producers would not be able to produce enough sufficient ethanol cost effectively (e.g., without tax incentives, etc.) to replace toxic/carcinogenic aromatics in gasoline needed for octane enhancement. [OTAQ conceded it might have to revisit the MSAT provision if new science confirmed the linkage of aromatics to secondary organic aerosols (SOAs) and fine/ultrafine particulate matter (PM₁).]
- 2. 2007 PM2.5 Rule:** In finalizing the PM2.5 rule, OTAQ acknowledged that its model substantially under-predicted emissions of SOAs and fine particulate matter from organic sources. However, the EPA/OTAQ refused to correct its Community Multi-Scale Air Quality (CMAQ) model used to predict PM_{2.5}/SOA emissions. The EPA/OTAQ's top PM modeler, Prakash Bhave, insisted that most of urban PM2.5 came from either biogenic (trees) or diesel sources, and that gasoline's only contribution was Primary Organic Aerosols (POAs). EPA/OTAQ Director Christopher Grundler conceded the EPA's mistake in letter 3/15/18 to South Dakota Farmers Union President Doug Sombke.^{xiii} Bhave's bias and improper pressure on Harvard researchers looking at ultra-fine particulates was revealed by UAI's FOIA effort and admitted to by Harvard researcher Dr. Joel Schwartz. After nearly 20 years at the EPA, Prakash Bhave suddenly accepted a post with a think tank in Nepal at the peak of the FOIA searches.
- 3. 2008 Indirect Land Use Carbon Penalties:** In the RFS2 law, Congress instructed the EPA to develop lifecycle carbon intensity factors for all liquid fuels, including corn ethanol. As the ethanol production boom intensified, one report by Tim Searchinger about Indirect Land Use carbon penalties was put forth by the EPA, California Air Resources Board (CARB), and environmental/oil interests. The EPA/OTAQ ignored strong objections from several land use and climate experts who warned that Searchinger's theory was invalid, and imposed heavy carbon penalties on corn starch-derived ethanol, publishing its life cycle assessment (LCA) model in 2010. Real-world evidence since then has largely discredited the (indirect land use change (ILUC) theory as the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model (GREET) by Argonne National Laboratory has even whittled down a large portion of the ILUC penalty. However, as UAI pointed out in its 2016 Request for Correction of Information (RCI), The EPA/OTAQ has still refused to correct its LCA model. And still does today.
- 4. 2008 Food vs. Fuel Attacks:** As discussed later in the series with regard to the anti-ethanol wars backed by oil interests, over time the United Nations, USDA, and other credible organizations have



More Food vs Less Food

Very basically, world protein demand for human nutrition has created a glut of grain starch and crop oil. The best way to utilize these starch/oil surpluses produced by protein demand are biofuels. Corn and soybeans produce more protein per acre than any other grain crops and that is why these two crops are so widely and intensely grown. Protein requirements are the primary driver. Ethanol is simply the coproduct and economic bonus.

categorically rejected the linkage of food prices to ethanol production, yet the EPA/OTAQ has never taken a leadership role in conveying that to environmental organizations. Nor did they make any effort to promote corn ethanol for its true value of reducing carbon through sequestration, saving energy at the refining level, or ushering in a new era of farming efficiency. The only alternative to aromatics.

5. **2008 – 2010 Institute of Medicine “Anti-Backsliding” Study:** The EPA presented findings to the National Academies of Science (NAS) Institute of Medicine which asserted the U.S. would see 245 premature mortalities annually as a result of increased ethanol use driven by RFS2. The work was done in response to Congressional directives in RFS2 to complete an “anti-backsliding” study, which the EPA has not yet released. [Sierra Club has sued the EPA for the delay in releasing the study, and UAI recently filed an amicus curiae brief in the case.]^{xiv, xv} While the EPA/OTAQ has obsessed about ethanol’s alleged and relatively trivial acetaldehyde and NO_x emissions, it has consistently refused to acknowledge, measure, and control the far more serious health threat from the results from aromatics added to gasoline and its impact on ultrafine particles (PM₁), secondary organic aerosols (SOA) Polycyclic aromatic hydrocarbons (PAHs), and other toxics emissions.^{xvi, xvii, xviii}
6. **2010 – 2012 RFS Waiver rejection:** Several states attempted to get a waiver from the requirements that they have renewables, i.e. ethanol, in their gasoline. The EPA rejected that argument, noting that ethanol was plentiful and available at a reasonable cost. Despite this admission, they had used the exact opposite argument to decline further regulation of toxics by not updating their 2007 MSAT Cost Benefit Analysis.^{xix}
7. **2012: GHG – CAFE Rule-making.** The Clean Fuels Development Coalition (CFDC) led a broad industry effort in comments to EPA on a critically important carbon reduction issue affecting liquid fuels. The CFDC et al. comments made the unique argument that as the EPA was setting fuel economy and greenhouse gas standards, it would be an opportune time to finally enact the Congressional directive to reduce toxics, since high octane fuels would otherwise be met with aromatics produced by the petroleum industry. The EPA/OTAQ’s rejected that as “outside the scope” of the rule-making.
8. **2008 – 2012: EPAAct/MOVES Model Dispute:** The EPA/OTAQ undertook its EPAAct ethanol blends testing program, colluding with Chevron and CRC refinery experts to concoct unrealistic fuels, add more BTEX and other high boiler aromatics as more ethanol was added (contrary to what



Figure 1 – Need Original Chart

EPA Certification/Test Fuels v. Real World Testing
Ethanol Lowers Particulate Matter and Toxics

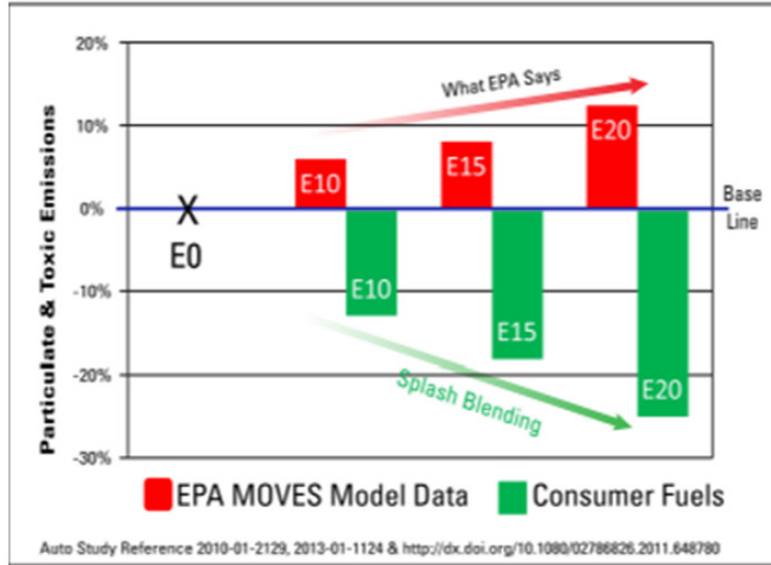
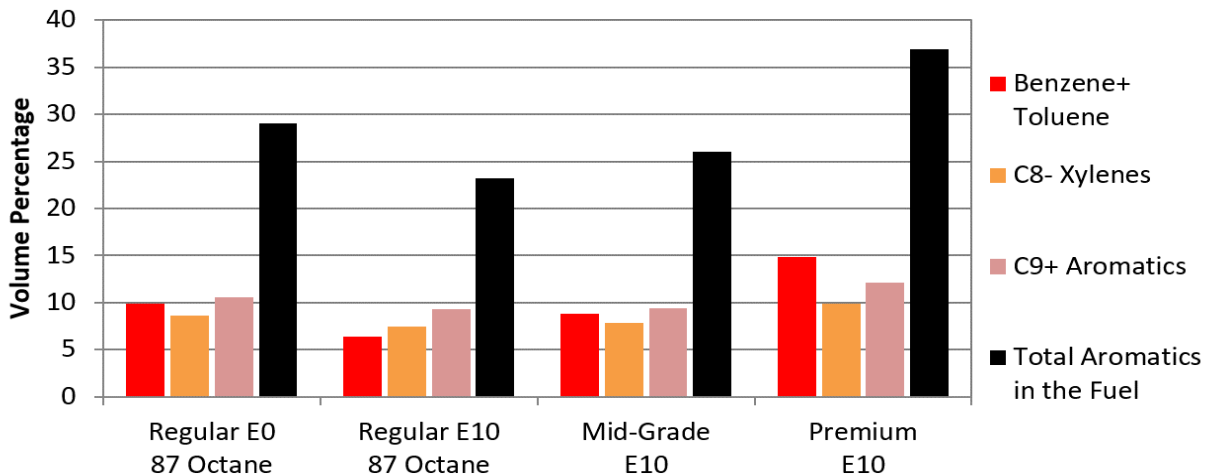


Figure 2
Omaha NE Fuels - Total Aromatics



Source: Urban Air Initiative Fuel Testing Program at Magellan Fuel Terminal in Omaha, Nebraska, July 2015

happens in the real world), and then blame the increased emissions on ethanol rather than toxic aromatics (see presentation to the EPA/OTAQ by UAI and Figure 1 and Figure 2).^{xx}

- 2013 Tier 3 Rule-making:** the EPA/OTAQ noted ethanol’s octane benefits, specifically requested comment on E30, but pulled it all back in the final rule. EPA Administrator Gina McCarthy is on record noting E30 might be the “sweet spot” for ethanol blends but seemed to be overruled by the Ann Arbor prejudices.

10. 2016 – 2018: GHG – CAFE Standard Reconsideration: The EPA/OTAQ unnecessarily limited their assessment of potential fuel efficiency gains to regular grade gasoline. They clearly ignored the recommendations of the National Highway Traffic Safety Administration (NHTSA) and defied the National Research Council recommendations that high octane fuels, e.g., 93 AKI gasoline, have a positive impact.

11. Underestimating the impact these flawed fuel programs have on health issues is particularly of concern. A Health Effects Institute (HEI) workshop in December of 2016 brought together some of the leading experts in the nation. The majority consensus insisted the EPA must use real-world fuels under real-world driving conditions to get accurate measurements of emissions. The basis of that consensus is that EPA models are broken and do not even remotely reflect what consumers put in their gas tanks and under report toxic and particulate emissions by half, i.e., Gasolinegate

This relates back the core problem of EPA/OTAQ creating Gasolinegate-like “Unicorn” fuels, i.e. fuels that simply do not exist. In addition to health groups recognizing this, the auto industry has also weighed in on the flaws in OTAQ’s approach. A 2015 study by EPA assessing the emissions of higher blends of ethanol added aromatics as ethanol was added to produce a completely skewed emissions profile. Automakers in a Society of Automotive Engineers (SAE) paper went on record to complain that no one would ever make a fuel in that manner.^{xxi} But they did and they still do.

Whether it is a former ExxonMobil researcher now working for the EPA/OTAQ or OTAQ relying on studies by a Chevron Engineer and the Coordinating Research Council, it is not just a case of ethanol being deceitfully maligned but a failure to protect public health.

By certifying vehicles on gasoline formulations that do not exist, these vehicles then go out in to the real-world and fall short of standards. Sound familiar? This is the definition of the Dieselgate scandal and scam that Volkswagen ran on the public. They certified vehicles under false pretenses —in their case a defeat device on the vehicle — and later were shown to be polluting. In Gasolinegate, the defeat device is the fuel — with even worse results. The media and public were scammed on emissions, the related health threat, and the higher cost of gasoline by not using an alternative – that happens to be non-crude oil base called ethanol.

Conclusion

In researching this series, we’ve found evidence that indicates clearly and emphatically:

- ✓ The EPA relies on manipulated studies funded by the American Petroleum Industry and refiners;
- ✓ The EPA flipped the value of ethanol and aromatics in the 2007 MSAT toxics review;

Figure 3
Who - How - Why?

How can EPA data show an increase in emissions by **adding** ethanol while the same data can show an increase while **removing** ethanol?

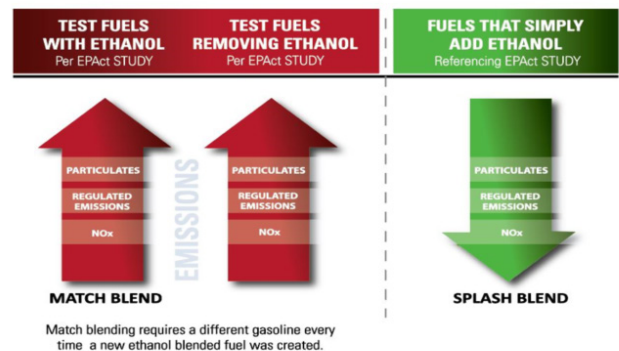
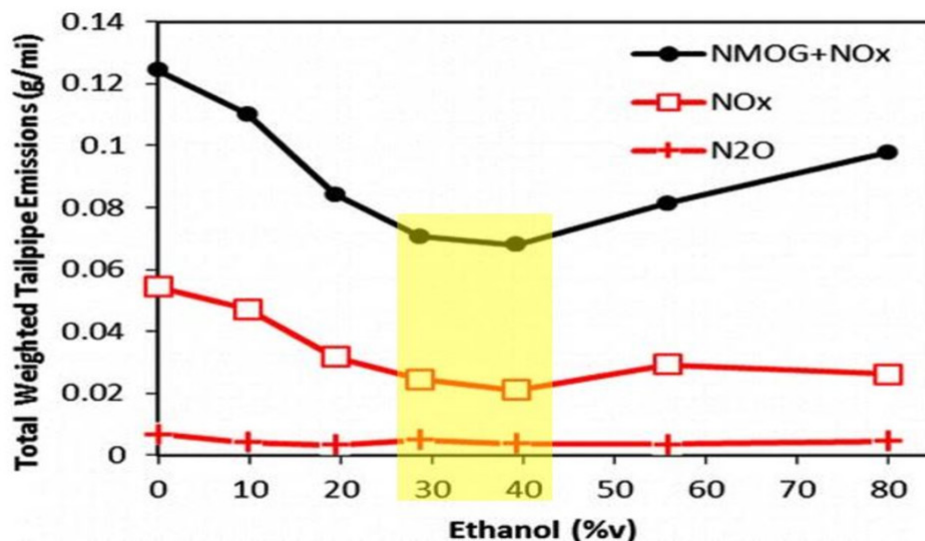


Figure adapted from EPAAct Phase 3 (EPAAct/VA/E-89) Final Report, page 5. Emission data based on fuel averages during testing under the LA92 Drive Cycle. Regulated emissions include: Total Hydrocarbon (THC), Non-Methane Organic Gases (NMOG), Non-Methane Hydrocarbons (NMHC), Methane (CH4) & Carbon Monoxide (CO)

- ✓ The EPA hired an expert from the oil industry with a conflict of interest;
- ✓ The EPA models dirtier gasoline with increasing levels of ethanol;
- ✓ The EPA used fuels that are illegal;
- ✓ The EPA creates a model to say increasing levels of ethanol raise emissions;
- ✓ The EPA creates a model that says even reformulated gasoline is not that beneficial;
- ✓ The EPA hides the value of octane;
- ✓ The EPA overestimates the impact of evaporative emissions to punish ethanol for its higher vapor pressure; and

Figure 4

Why? #1 = Increasing Ethanol Blends Will Lower Ozone, PM and Toxics.
Increasing Aromatics Will Not.



Source: Ethanol and Air Quality: Influence of Fuel Ethanol Content on Emissions and Fuel Economy of Flexible Fuel Vehicles Carolyn P. Hubbard, James E. Anderson, and Timothy J. Wallington, Ford Motor Company, Research and Innovation Center, American Chemical Society, 2013

- ✓ The EPA colluded works with Big Oil, manipulating science and data.

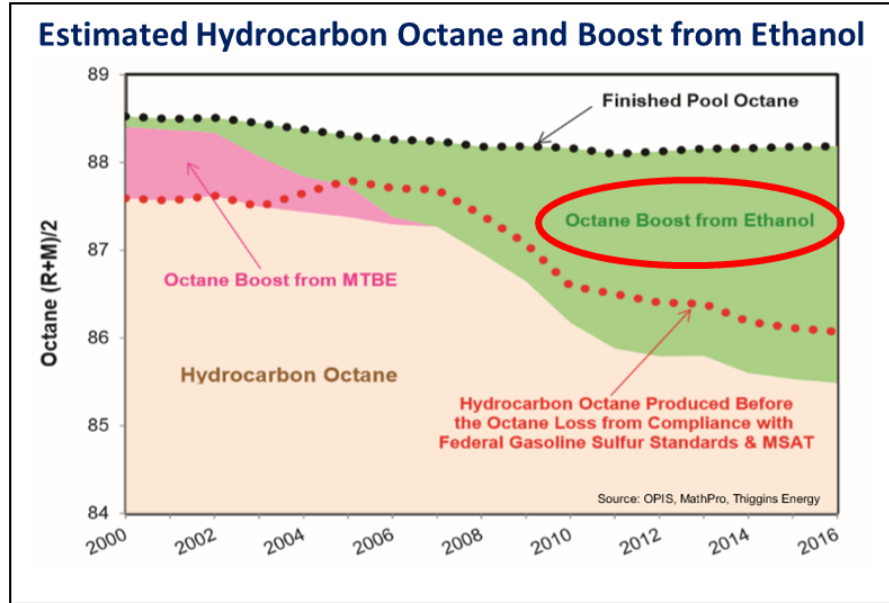
The thousands of emails obtained under the Freedom of information Act make compelling reading for anyone interested in joining us in our fight for cleaner SAFE fuels and protecting public health. We hope you take the time to review a brief yet extensive [analysis of the EPA/OTAQ FOIA emails received by the Urban Air Initiative](#).^{xxii}

Legal Implications of EPA's Reliance on the Oil Industry to Design the EPAct Study

- We believe that the EPA's secret consultation with a group of oil company employees about the test fuel parameters violated the requirement of the Federal Advisory Committee Act and EPA's

Figure 5

Why? #2 = Ethanol Displaces Aromatics Which are the Most Toxic, Highest Cost, Highest Carbon, Highest Octane Components in Gasoline. When Refiners Adjust their Processing due to Ethanol's Octane Value it Lowers the Amount of Crude Oil Needed to Make Gasoline.



Scientific Integrity Policy that such committees be balanced, that they be publicly announced and that their meetings be open to the public.

- The EPA's exclusive reliance on oil industry employees with an incentive to generate results favorable to petroleum and unfavorable to ethanol **violated the objectivity requirement of the Agency's Information Quality Guidelines. It also violated EPA's Scientific Integrity Policy**, which requires all employees, including scientists and managers, to "[a]void conflicts of interest and ensure impartiality."
- The EPA's reliance on oil industry consultants was kept secret, in **violation of the Scientific Integrity Policy's requirement that scientific findings, be "generated and disseminated in a timely and transparent manner."**
- The EPA's study contributed directly to the emissions factors in EPA's new vehicular emissions model, MOVES2014, which States must use in constructing implementation plans for compliance with EPA's air quality standards. **EPA's unlawful reliance on the oil industry to design the EPA's study compounds the agency's failure to give the public notice and an opportunity to comment on the MOVES2014 model, as required by law.**

Part 3

Health Effects of Failure to Protect

Consumers pay the ultimate price for EPA's inaction to protect public health from mobile source air toxics (MSATs). While there is disagreement about carbon dioxide and the impact fossil fuels have on changing the climate, there is no public dispute about the fact that air pollution is killing people. In this part of the series we discuss the link between what emissions come from toxic/carcinogenic aromatics and what those emissions do to the body (See Figure 1 & 2).^{xxiii}

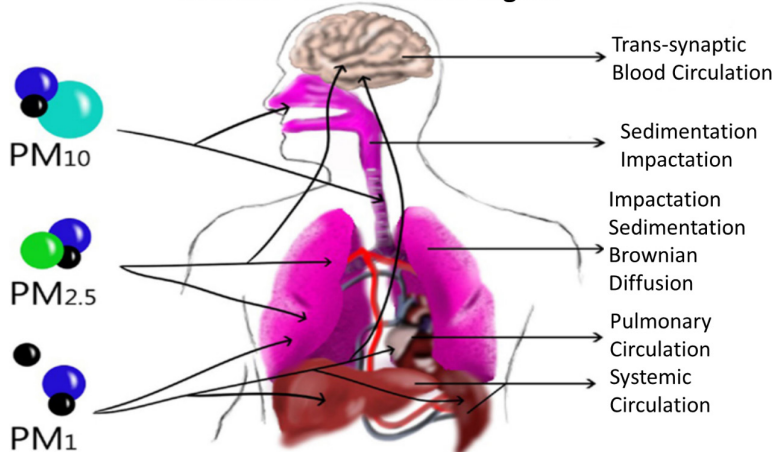
The U.S. Environmental Protection Agency's (EPA) Office of Transportation and Air Quality (EPA/OTAQ) acknowledges that as much as 50% of air pollution comes from mobile sources (i.e., the transportation sector), that petroleum products are the source of pollution from the transport sector, and that specifically within that subset, mobile source air toxics (MSATs) are considered to be the most dangerous. There is also no dispute that particulate matter (PM) from both stationary and mobile sources is the primary cause of mortality related to air pollution.^{xxiv}

The missing link in public knowledge and largely missing in the public debate is recognizing that the smaller the particulate matter (PM), the larger the health threat. The EPA/OTAQ will argue they have significantly reduced particulates through controls over stationary sources like power plants, as well as diesel fuel. These are sources of PM₁₀ and PM_{2.5}, what would be considered the largest in the controlled particulate family.

"Particle Pollution (PM) is linked to a wide variety of serious health effects and premature deaths in people with heart and lung disease. Americans throughout the country are suffering from the effects of pollution in our air, especially children who are more vulnerable to these chemicals."

Lisa Jackson, Former EPA Administrator, August 2010

Figure 1
How Ultrafine Particulate Matter (PM₁) Gets Into Your Blood and Organs



Source: Aeroparticles, Composition, and Lung Diseases, Carlos I. Falcon-Rodriguez, Alvaro R. Osornio-Vargas, Isabel Sada-Ovalle and Patricia Segura-Medina, Front. Immunol., 20 January 2016, <https://doi.org/10.3389/fimmu.2016.00003>

Source contributions to ultrafine particle number concentrations for a summertime period in the Eastern U.S. are gasoline automobiles (40%), industrial sources (33%), non-road diesel (16%), on-road diesel (10%), and (1%) from biomass burning and dust.^{xxv}

We've found evidence of EPA/OTAQ collusion with Big Oil to create unrealistic certification fuels and testing parameters that we believe deceitfully and inaccurately measures the emission data from the 263 million vehicles on the road. As a result, those vehicles

are likely emitting more emissions (up to 50% or more) than currently estimated.

Even if EPA measurements were 100% effective at predicting real-world emissions, what the EPA has failed to recognize is the fact that mobile sources — and gasoline represents 80% of the mobile source fuel — are largely responsible for the micro, or ultrafine particles that fall below any regulated category. They are disproportionately dangerous, as they defy particle size definitions, exacerbated by their characteristic of

being carriers of toxic carcinogens. Their microscopic size does not allow the human lung to filter them out and they can directly enter the bloodstream (See Figure 3). It is for this reason that gasoline related emissions producing ultrafine particulates are not only associated with respiratory ailments but also neurological issues such as autism.

Ultrafine particulate matter (PM1) and secondary organic aerosols (SOA) are linked to polycyclic aromatic hydrocarbons (PAHs, same as found in second hand smoke) – and the major source of these emissions starts with toxic/carcinogenic aromatics in our gasoline supply. This is not news — it was evident during the Clean Air Act Amendments of 1990 (CAAA) debate when Congress made its own endangerment finding as discussed in Section I. But the medical community knew this as well, and the EPA/OTAQ seemed to ignore what everyone else knew. According to the EPA and as illustrated in

Figure 3 – size matters. In fact most PM emissions coming from the tailpipe average PM.0035, which is much smaller than PM1, and because it is smaller it is significantly more toxic.

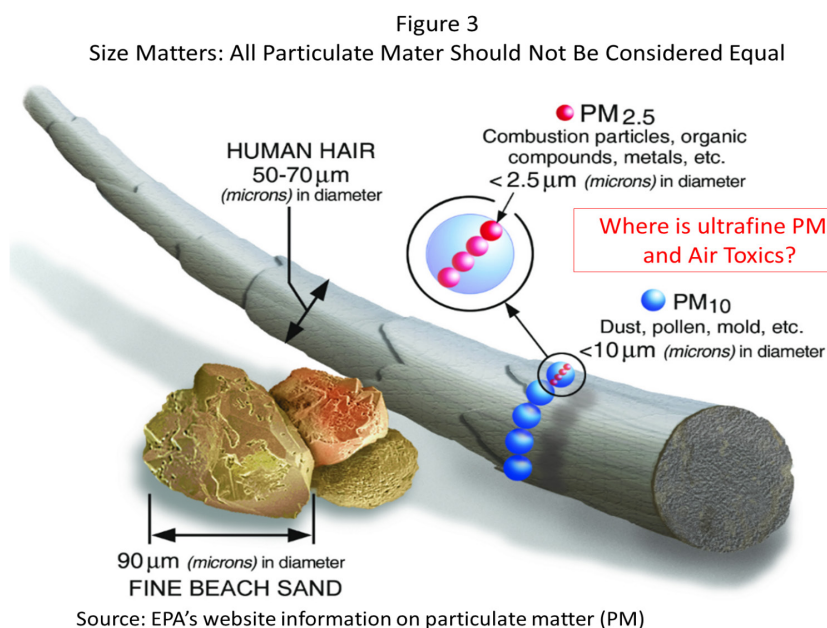


Figure 2
The Principal Route of Damage after Exposure to Particulate Matter (PM)



Source: Aeroparticles, Composition, and Lung Diseases, Carlos I. Falcon-Rodriguez, Alvaro R. Osornio-Vargas, Isabel Sada-Ovalle and Patricia Segura-Medina, Front. Immunol., 20 January 2016, <https://doi.org/10.3389/fimmu.2016.00003>

Why? This toxic/carcinogenic aromatic soup causes “Endocrine Disruptors” that start in the womb and follow us to our tomb – and they are not regulated by the EPA/OTAQ. The science is clear that gasoline containing aromatics increases PM1, PAH and SOA. Then why has the EPA allowed aromatics to be added to gasoline in volumes averaging well over 20% and

“Gasoline is more dangerous than ever... benzene is produced by combustion of aromatic hydrocarbons even in benzene free gasoline... Leukemia and brain and other cancers in refinery workers...API suppressed and trivialized the 142% increase in kidney cancer in American males from 1950–1985...it is clear that gasoline, in all phases of production, use and disposal, is a major source of environmental and occupational carcinogens and preventable cancers.”

Writing in the *Los Angeles Times*, Dr. Samuel Epstein MD, Professor of Environmental Medicine, University of Illinois College of Medicine, March 17, 1989!

can vary up to as high as 40% in premium grades? That is about 30 billion gallons of carcinogens every year that are incompletely combusted and emitted as highly toxic particulate airborne pollutants. These additives have been on the top of the cancer watch list for sixty years – especially the link between benzene and PAH and their similarity to tobacco and second-hand smoke.

The disease and death toll is staggering. Internationally, the World Health Organization (WHO) stated that air pollution had become the world’s single biggest environmental health risk, linked to around seven million deaths – or nearly one in eight deaths in 2012.^{xxvi} Their report links air pollution to the epidemic of diseases such as heart disease, stroke, lung disease, and cancers. “These are among the top five causes of death today, and one-quarter to one-third of deaths from these diseases are due to air pollution. The following year WHO’s [International Agency for Research on Cancer](#) (IARC) announced it classified air pollution as a human carcinogen.^{xxvii}

Closer to home, the Massachusetts Institute of Technology (MIT) placed premature deaths in the U.S. at 200,000 per year. According to MIT emissions from road transportation were the most problematic, causing approximately 53,000 premature deaths in 2005.^{xxviii} EPA’s [Benefits and Costs of the Clean Air Act \(CAA\) 1990-2020, the Second Prospective Study](#)^{xxix} proudly states the CAA will have prevented 230,000 deaths during the timeframe, but you can’t find the number of premature deaths that were actually caused.

One of the objectives in writing this series is to help the media, public, health and environmental/health advocacy organizations (NGOs), and Congress understand the link between generic “air pollution” and mobile source air pollution specifically — and mobile source air toxics (MSAT) emphatically. Not all pollution is created equal when you consider toxicity, reactivity, potency, exposure/dosage, impact on health, and if it is a proven carcinogen to humans. Why the emphasis on toxic aromatics? According to EPA, in the United States alone, there are 45 million people living, working or attending school within 300 feet of a major road, airport, or railroad.^{xxx} Residents of urban areas with buildings and other obstacles trapping these emissions are disproportionately affected.

Our research discovered and summarized over 100 noteworthy studies about the health effects of air pollution – in connection with known pollution from MSATs. Those studies reference another 1,000+ studies. All of the studies carry similar messages. Air pollution that has PM1, PAH, SOA and other MSATs causes health effects starting in the womb and cause birth defects that last a lifetime. Just before reaching the final destination of premature death, one must still pay the pollution toll. The pollution toll, caused by the disease associated with air pollution, comes with a hefty price tag that includes a doctor/specialist, special medicines, emergency room visits, and a costly extended hospital stay towards the end of life. What insurance do we have to cover us from death-by-breath? It should be EPA, but is it?

- The Center for Disease Control and Prevention (CDC) used to take blood samples to measure for lead in humans (see Figure 2). Why don't they measure for aromatics and BTEX? This is a question we have asked CDC via email — and we are still waiting for a response.
- Researchers in Belgium recently tested the urine of children in a school located near a roadway and found particulate matter (i.e., caused by aromatics in gasoline). We can only guess what we would find in the U.S. with similar tests.^{xxxii}
- Research is currently underway to determine the best way to collect real-world ground-level personal data from exposure to benzene and aromatics and bio-testing to measure levels in the body.

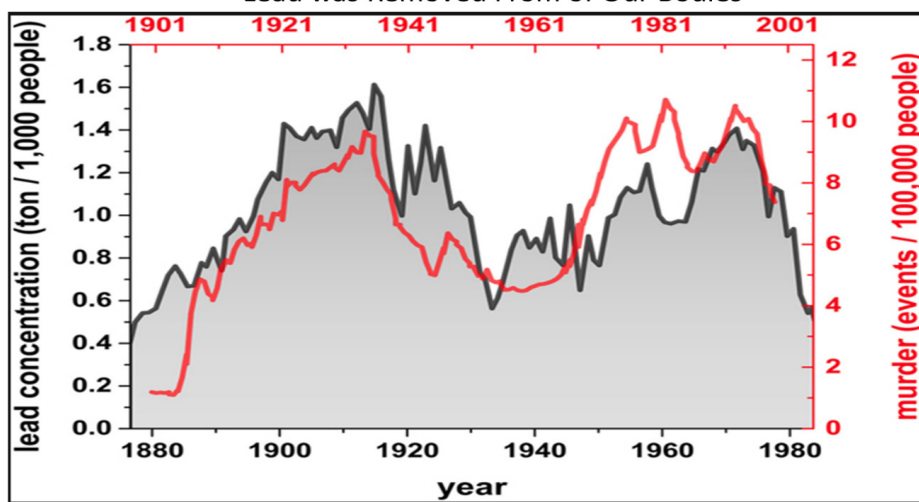
"In a 2009 study of the effects of PAHs on children's IQ in NYC... the mothers' exposure as measured during their pregnancies by wearing backpack monitors was associated with a decrease in IQ among the more exposed children. The extent of this effect was similar to that of low-level lead exposure."

Statement of Dr. Linda Birnbaum, head of the National Institute of Environmental Health Sciences, testifying before the Senate Environment and Public Works Committee in 2010.

Death-by-Breath is the outcome of the diseases caused by air pollution. It's not sudden like an opioid overdose – but it is equal in numbers. It's not a choice of lifestyle, bad habits or product choice. Then add insult to injury, as the economic and emotional loss of a loved one burdens everyone's healthcare premium and social programs. As the disease sets in later in life it becomes the responsibility of Mayors, Governors and their city/state health programs, which are also supported by the federal government. We pay the pollution toll again in taxes.

If there are 200,000 premature deaths in a given year that means there are millions of people in the United States under a death watch at any given time. Everyone is at risk, simply by breathing.

Figure 4
When Lead was Removed From Gasoline
Lead was Removed From of Our Bodies



Source: Data from, Rick Nevin, "How Lead Exposure Relates to Temporal Changes in IQ, Violent Crime, and Unwed Pregnancy." Environmental Research 83, no. 1 (2000): 1–22.

Our compilation of research clearly shows a lack of focus and prioritization on mobile source air pollution and toxics by EPA. It also illustrates air pollution, and specifically small particulate matter and air toxics can lead to many illnesses and death. Now consider that 7 of the “Top 10 Causes of Death” (See Table 1) in the U.S. are associated with the research we discovered about the harmful health effects from air pollution, which includes benzene, and benzene emissions from burning aromatics and MSATs.

Table 1. Top 10 Causes of Annual Deaths in the United States^{xxxii}

(7 out of the top 10 causes are also related to health effects from air pollution)

1. Heart disease deaths - 614,348
2. Cancer deaths - 591,699 (Men lung - 85,920 — Women lung 72,160/Breast 40,450)
3. Respiratory disease/COPD deaths 147,101
4. Accidental deaths 136,053
5. Stroke deaths 133,033
6. Alzheimer’s disease deaths 93,541
7. Diabetes deaths 76,488
8. Influenza and pneumonia deaths 55,227
9. Kidney disease deaths 48,146
10. Suicide deaths 42,773

Note: Contribution to death from climate change, greenhouse gases, fighting wars and terrorism is not included.

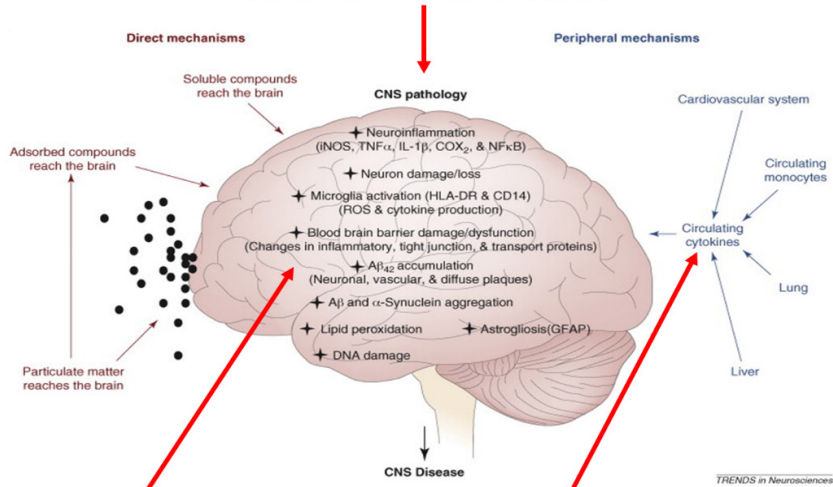
How much benzene is too much? Any. There is no safe exposure level; even tiny amounts can cause harm. The U.S. Department of Health and Human Services (HHS) classifies benzene as a human carcinogen. The International Agency for Research on Cancer (or IARC) is an arm of the WHO charged with investigating cancer, and particularly the disease’s causes. IARC rated benzene as “known to be carcinogenic to humans” (Group 1).

“As benzene is ubiquitous in gasoline and hydrocarbon fuels are in use everywhere, human exposure to benzene is a global health problem. Benzene targets liver, kidney, lung, heart and the brain and can cause DNA strand breaks, chromosomal damage, etc. Benzene causes cancer in animals including humans. Benzene has been shown to cause cancer in both sexes of multiple species of laboratory animals exposed via various routes.”^{xxxiii}

“For every 10 part-per-billion rise in ozone concentration, the mortality rate rose by 1.1 percent, producing an extra 19,000 deaths just among the elderly. It is clear from this study that there is not really a safe level of air pollution.”

Dr. Brian W. Christman, Vice Chair, Department of Medicine, Vanderbilt University Medical Center (See endnote 23 air pollution and early deaths)

Figure 4 This is Your Brain



This is Your Brain On Air Pollution

Source: Air pollution: mechanisms of neuroinflammation and CNS disease. Trends in Neurosciences. September 2009. Michelle L. Block, Lilian Calderón-Garcidueñas. [http://www.cell.com/trends/neurosciences/fulltext/S0166-2236\(09\)00128-3](http://www.cell.com/trends/neurosciences/fulltext/S0166-2236(09)00128-3).

Conclusion

The good news is that reducing pollution saves lives.^{xxxiv} The bad news is in many respects today's air pollution has the similar negative health effects that the nation experienced when lead was added to gasoline to increase octane.^{xxxv} The even worse news is that the EPA underestimates the amount of pollution exposure with its monitoring program and the amount of deaths because they influenced independent studies and emission testing – and we have the FOIA emails to prove it. (see the link on page 20 and footnote XXII).

Part 4

How Aromatics Affect Health Care Costs: What's Your Cost per Life per Gallon?



The increase in air pollution via toxic aromatics has financial implications too—when factoring in healthcare costs for the public, gasoline's true cost is \$2 higher per gallon. Cleaning our air and getting aromatics out saves \$2 Trillion. The time to act is now. #Gasolinegate

From womb-to-tomb^{xxxvi} consumers pay in many ways for the negative health effects associated with air pollution in general — and specifically with regard to the toxic/carcinogenic aromatic gasoline additives and other mobile source air toxics (MSATs). Are you adding \$2 per gallon when you fill up to account for increases in your health care costs? Would you be willing to pay more for lower-toxic fuel? You don't have to – it's already less. Part 3 in our research showed the debilitating health impacts of increased emissions from high levels of aromatics in gasoline. Now we will help you quantify the financial cost of “Gasolinegate” which is the cost of air pollution related healthcare costs and savings. It has been established that cleaner fuels, which will help clean the air, reduce healthcare costs. The desired outcome is avoiding premature death and healthcare costs plus saving lives and money at the pump.

Since the passage of the Clean Air Act Amendments of 1990 (CAAA) Big Oil has pumped over 1 *Trillion* gallons of toxic/carcinogenic aromatics into the U.S. gasoline pool. If the EPA/OTAQ would have used its authority under [Section 202 \(1\) of the CAAA](#) to reduce toxic/carcinogenic aromatics for the 70% of the nation that is not impacted by the federal reformulated gasoline (RFG) program, it would have reduced the amount of aromatics by about 130 billion gallons, or the equivalent of the entire annual U.S. gasoline pool.^{xxxvii}

How much would it be worth to add an extra ten years onto one's life? While personal values might vary, it's not hard to quantify the cost of disease and life. The reason Congress passed the CAAA was the overwhelming evidence that reducing pollution saves lives and, in the process, money. Just to be sure, the law requires the EPA to do the cost benefit every 20 years and periodically for different programs.^{xxxviii} EPA's most recent study says for every \$1 invested in reducing pollution we taxpayers get \$30 back.^{xxxix}

The Cost: How Toxic Aromatics & MSATs Get In Your Wallet

Those who may not have directly been made ill from the effects of gasoline related emissions will still have to pay for the ones that were not so lucky. Healthcare costs are a burden across the populace, and with increasing science and medical data supporting their linkage to gasoline it is only going to

get worse if the EPA does not take action. Large metro areas like Philadelphia are looking for ways to reduce the cost of health care.

“According to data cited by the Council of Economic Advisors in 2009, 18% of Americans under the age of 65 are Medicare or Medicaid beneficiaries (i.e., poverty line) or receive healthcare from the military. About 16% are not insured – and the rest are self-paying healthcare

plans or their employees are paying for the plan as part of a benefit. In any form or percent we all pay. With regard to the impact on premature death and air pollution on the elderly, for Americans above the age of 65, the Centers for Disease Control reported that 94% are enrolled in Medicare. Therefore, large portions of all healthcare costs are borne by federal, state, and municipal governments. It follows that health care savings due to improved air quality are realized by all of these groups.”



—[How the Clean Air Act Has Saved \\$22 Trillion in Health-Care Costs](#), Alan H. Lockwood, The Atlantic, September 7, 2012. That’s why states are getting \$260 billion from tobacco companies

According to research in *Lives per Gallon: The True Cost of our Addiction to Oil*, “The Institute for Transportation Studies at the University of California at Davis places the minimum external cost of air pollution from motor vehicles in the U.S. at \$24.3 billion each year.^{xi} That alone is a health care tax of 17 cents more per gallon. Their work and related studies suggest the costs may be far higher when values are added for things like early deaths and lost productivity.

Other estimates show direct health care costs associated with air pollution of \$54.7 billion to \$672.3 billion each year, which includes everything from headaches to hospitalization, asthma attacks to respiratory illness, and chronic illness to mortality.”^{xii} Many feel the EPA’s estimates are on the low side. We did not use one report from Harvard because our documented FOIA emails show the EPA and API influenced the outcome of the data – and their estimates were lower than other reputable studies. If we agree that about half, or \$280 billion, would be a fair number (because 50% of air pollution is mobile sources) – then the extra cost for healthcare from mobile sources is about \$2 per gallon of gasoline.

The United States is not the only country facing this cost-benefit dilemma. According to the World Health Organization (WHO), the annual economic cost of premature deaths from air pollution across the countries of the WHO European Region stood at US \$1.431 trillion; and the overall annual economic cost of health impacts and mortality from air pollution, including estimates for morbidity costs, stood at US \$1.575 trillion.^{xiii}

According to a World Bank report, air pollution costs the global economy more than \$5 trillion annually in welfare costs, with the most devastating damage occurring in the developing world. The welfare figure incorporates a number of costs associated with air pollution like health and consumption. Only considering lost income, air pollution costs the global economy \$225 billion annually.^{xiiii}

According to an Organization of Economically Developing Countries’ (OECD) report, *The Cost of Air Pollution: Health Impacts of Road Transport*, air pollution has now become the biggest environmental cause of premature death, overtaking poor sanitation and a lack of clean drinking water. In most OECD countries, the death toll from heart and lung diseases caused by air pollution is much higher than the

one from traffic accidents. The OECD has estimated that people in its 34 Member countries would be willing to pay \$1.7 trillion USD to avoid deaths caused by air pollution. Road transport is likely responsible for about half.^{xliv}

Cost vs Savings: An Investment of a Lifetime?

According to the [Benefits and Costs of the Clean Air Act 1990-2020, the Second Prospective Study](#) prepared by the EPA March 2011, the CAA saves lives and money. Reductions in premature deaths are the most important source of the monetized benefits associated with the CAA. By the year 2020, the scenario predicted by the EPA avoids 230,000 premature deaths among adults (30+) each year. The EPA's calculation of the cost of meeting the CAA air quality standards increased was \$65 billion for the period 1990 to 2020 and the benefits at \$2 trillion.^{xlv}

“When the federal Office of Management and Budget (OMB) evaluated for Congress the benefits and costs of all federal regulations in 2007, it found the largest estimated benefit was from reduction in air pollution from a single air pollutant: fine particulate matter. The benefits were estimated at between \$18.8 billion and \$167.4 billion per year, compared to a cost of \$7.3 billion per year. That translates to a benefit-cost ratio of between 2.5 to 1 or possibly up to 20 to 1. These are pretty astounding numbers for the benefits that were initiated by Harvard's 1993 Six Cities Study publication. That specific study ultimately led to a new agenda for air pollution research, new air quality standards, improved air quality, and evidence of the benefits of cleaner air.”^{xlvi}

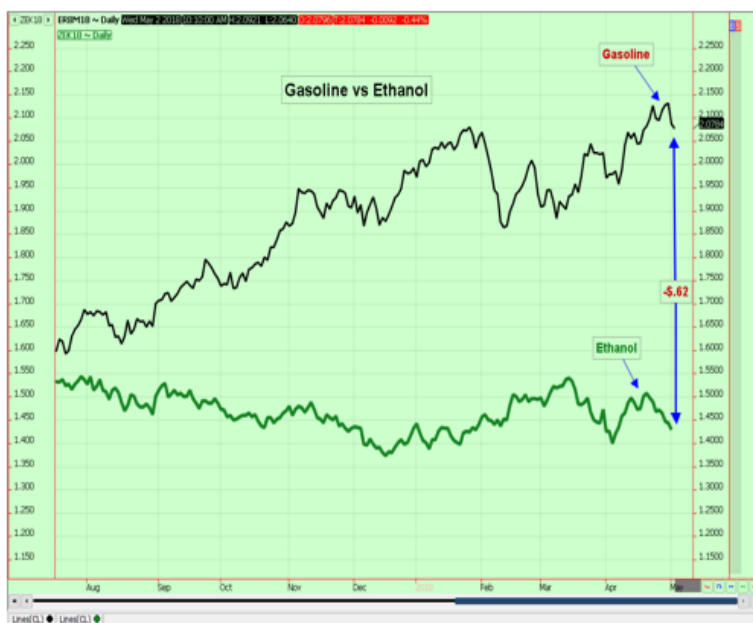
Some portion of those staggering costs have to be attributed to aromatics and MSATs and the toxic soup of ultrafine particulate matter (PM₁) that is attached to polycyclic aromatic hydrocarbons (PAHs) and secondary organic aerosols (SOA). In spite of all the appearance of progress in stationary sources, there seems to be much less progress on mobile sources that have more dangerous emissions.

The EPA's cost of inaction is forcing consumers to pay more for higher-polluting and higher-toxic aromatics in gasoline (See Figure 1).

The one alternative to higher aromatics and MSATs — ethanol — is cheaper. Why is the EPA fighting to keep carcinogenic aromatics? We need to recognize the health sacrifices and higher price consumers have to pay for an inferior and dangerous product.

The EPA was established to protect human health and the environment. The EPA is responsible for preventing and detecting environmental crimes, informing the public of environmental

Figure 1
Ethanol is Less Expensive Than
Gasoline or BTEX



enforcement, and setting and monitoring standards of air pollution, water pollution, hazardous wastes and chemicals – with a budget of \$8.1 billion.

The EPA is failing at its mission of protecting consumers from toxic/carcinogenic aromatic octane enhancers in gasoline. It is proven that reducing aromatics in gasoline reduces benzene, MSAT, PAH, and SOA related PM1 pollution. Therefore, if reducing pollution saves lives and money, this series illustrates how we believe the agency circumvented the law and time after time failed to take stronger measures to clean up gasoline, and quite simply did not do its job.

As far back as the 1950's legislation was introduced that would prohibit any motor vehicle from U.S. roadways that discharged pollution in excess of levels found dangerous by the U.S. Surgeon General. By 1961, the U.S. Department of Health estimated that 90% of all Americans lived in localities with harmful air pollution that was directly linked to vehicle exhaust.^{xlvii} Will Congress and the EPA step in to address this public health threat? If reducing pollution saves lives and money, why is the EPA/OTAQ actively impeding progress on ethanol when it's the most viable solution? What will it take for the EPA to act?

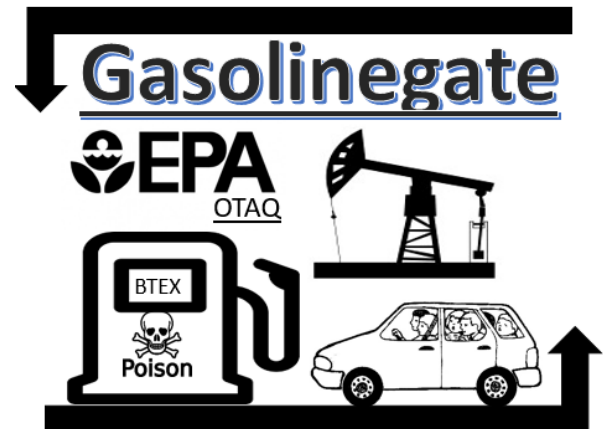
Part 5

The Cover up: A Readily Available Alternative to Toxic Aromatics in Gasoline



There is a viable, renewable alternative to toxic aromatics in gasoline that is cheaper and safer. Ethanol has grown into a \$42B industry and is ready to compete with Big Oil—so why is it being hindered by the EPA? Why the cover up? #Gasolinegate

“You can never make the same mistake twice, because the second time it’s not a mistake, it’s a choice.” For decades many people with the authority to change the status quo have known that certification fuels and testing procedures were not adequate. They also should have known that using more aromatics in gasoline was a bad idea. It is the EPA’s job to understand the science, and make progress that complies with the laws and policies of the United States designed to protect the public – to the extent possible. That’s not just a good idea – that is the law.



Section 202(l) in Title II of the Clean Air Act

Amendments of 1990 contains Congressional language stating EPA shall use of Maximum Achievable Control Technology (MACT) and “Technology-Forcing” regulatory adjustments to reduce toxics in gasoline as they present themselves. The Administrator can decide on the greatest degree of emission reduction achievable through the application of technology which will be available by taking into consideration many variables that include commercial availability and cost.

For ~100 years the oil industry manipulated research, the government, the media, the market, and the public with doublespeak about crude oil, refining motor fuel, and environmental secret-science to protect a one fuel mandate for gasoline.^{xlvi} After ~100 years of research, the only two viable commercial octane enhancers in the marketplace are ethanol and toxic/carcinogenic aromatics additives. In this series we have explored the history, health effects, cost, and politics of oil, and the use of aromatics and their impact on the EPA and public health. Let’s now take a deep dive on the alternative to using more aromatics in gasoline.

In 1925 Henry Ford designed his Model T to burn any combination of gasoline and alcohol. He was expressing an opinion that was widely shared in the automotive industry. Many of the great scientific minds of the 20th century expressed their support and interest specifically in alcohol as a high-quality fuel and the general idea of opening vast new industrial markets for farm products. These included

Back to the Future

1925 — “The fuel of the future is going to come from fruit like that sumac...apples, weeds, sawdust... almost anything.” Henry Ford, CEO, Ford Motor Company, 1925.

1985 to today — All automakers approve the use of 10% ethanol and produce 20 million vehicles designed to run on any amount of ethanol.

Today, 90% of automakers approve 15% ethanol and BMW Mini Cooper approves up to 25% ethanol.

See information on South Dakota E30 Program.

Henry Ford, Alexander Graham Bell, Thomas Edison and Charles F. Kettering. Today NASCAR uses gasoline with 15% ethanol and the IndyCar Series uses fuel that is 98% ethanol and 2% gasoline. It appears the search for high performing octane fuel would be over – if you were looking in the right place.

As discussed in the description of the anti-ethanol campaigns in this series, if left unchallenged the petroleum industry would have succeeded in convincing the American public that ethanol would damage cars and gasoline pumps, pollute the air, use more energy to make than it made, and that using corn for fuel would drive up food prices and starve the world (see Part 8: The Anti-Ethanol Wars). Thankfully those falsehoods were countered by publicly available science, innovation, common sense, capitalism, farmers, and courageous public policy makers.

Why is ethanol an option?

There has likely never been a product that has been more scrutinized and undervalued than fuel ethanol. A most valuable player for our national economy, yet for decades serving as a poster child for the rhetoric of the oil industry, which successfully deflected criticism of their product by demonizing the alternative. It's time to set the record straight and end four decades of anti-ethanol discrimination played out in the media in the name of unfair competition and pay-to-play research and politics.

Crude oil and gasoline have not evolved in over 100 years of development to meet the ever-changing needs of our country. New needs, many resulting from reliance on crude oil, include energy diversity, economic diversity, environmental/public health protection, rural development,

Figure 1
Ethanol is Less Expensive Than
Gasoline or BTEX



sustainable agriculture, job creation, auto technology, and national security. While on one hand ethanol has been publicly chastised, with the other it has risen to every occasion to support each of the aforementioned public policies. While the beneficiary of a lower tax rate in the industry's formative years, ethanol no longer receives a direct financial subsidy, despite competing with the heavily subsidized oil industry. Ethanol has been a great return on investment for the American taxpayer/consumer.

The Nation at a Crossroad: What's the Next Stop?

Our nation's leaders need to consider how we should blend fuel to remain a leader in auto technology and fuel production for the next several decades. The process underway will set the standards for gasoline quality, air quality, octane, and the fuel efficiency of vehicles (i.e., miles per gallon and carbon reductions).

There are many merits to consider when looking at ethanol as a replacement to toxic/carcinogenic aromatics in gasoline. In each consideration below, it's important to consider the source of negative information—often it can be traced back to petroleum funded think tanks or studies financed with oil money. Understanding the key role ethanol plays in the U.S. motor fuel pool makes it difficult to imagine the U.S. without this fuel.

Ethanol is a viable extender of fuel supplies and the best option to replace aromatic-based octane enhancers, and along the way creating jobs, reducing

Consumer Choice and Truth in Labeling *Note: Chart being upgraded by designer*

If truth in advertising is important here,

SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, & May Complicate Pregnancy.



it's even more important here.

FACT: Gasoline emissions contain the same toxic carcinogens as cigarettes.



Not everyone smokes. But everyone breathes. The Center for Disease Control says that up to 45% of Americans in large urban areas live near major roads "suggesting increased exposure to traffic related air pollution and risk of adverse health outcomes."¹ More than 45 million people in the U.S. live, work or go to school within 300 feet of a major road, airport or railroad.² Clearly, the impact of toxic emissions from roadway traffic is cause for grave concern.

What's in our fuel is killing us. Join us in telling the Environmental Protection Agency to take toxic carcinogens out of gasoline.

Visit FixOurFuel.com

¹EPA Office of Transportation and Air Quality, *FAQ Doc*, EPA-420-F-14-044, August 2014
²CDC Morbidity and Mortality Weekly Report (MMWR), 11/22/2013, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry

pollution, supporting American agriculture, and improving our national and energy security. Consider the following:

Price

1. Ethanol is sold to gasoline blenders for less than the price of gasoline and the higher cost toxic/carcinogenic aromatics used to increase octane. The savings to the refiner and gasoline blender are not passed to the consumer.
2. Between 2008 and 2014 U.S. gasoline prices remained well above the three-dollar mark. Without ethanol's contribution to the finished gasoline pool – Merrill Lynch estimated gasoline prices could have been 50¢ per gallon higher. The Department of Energy had concluded that ethanol also reduces crude oil demand, which makes crude oil cheaper for the whole world.^{xlix} Therefore ethanol makes all products cheaper, including food. The demand for corn – 95% not used for human consumption – has ushered in a new era of efficiency. It stands to reason that if a product is in demand, that producers will do everything they can to maximize production and minimize costs. That is exactly what has happened to corn, with increased yields and lower inputs. Many economists point out that without the demand for corn from ethanol there would be less incentive to farm and fewer farmers, resulting in higher prices for all the raw products agriculture produces.
3. Ethanol currently sells for about 50¢ less than gasoline and even with the temptation to capitalize on that margin, it is more important to the petroleum industry to maintain market share and keep ethanol prices down (See Figure 1).

Infrastructure Compatibility

4. Ethanol is a liquid fuel currently dispensed in nearly every gasoline station in the country at 10% volumes. Some stations carry ethanol blends of 15% to 30%, and in some cases up to 85% to meet alternative fuel law requirements. This has occurred without “major incidents” (see Table 1).
5. At least 10% ethanol is in nearly every gallon of gasoline in nearly every car in the United States. This has occurred without “major incident” and is now considered a constant component of gasoline when fuels are certified for emissions and efficiency.
6. Auto technology evolved allowing for the production of nearly 20 million flexible fuel vehicles (i.e., capable of burning any combination of ethanol up to 85%). When ethanol is added to gasoline it increases the octane, which can help cars burn gasoline more efficiently and with less emissions. Ethanol's high octane will allow auto makers to make gains in efficiency and reducing carbon without “major incidents” or additional manufacturing costs.

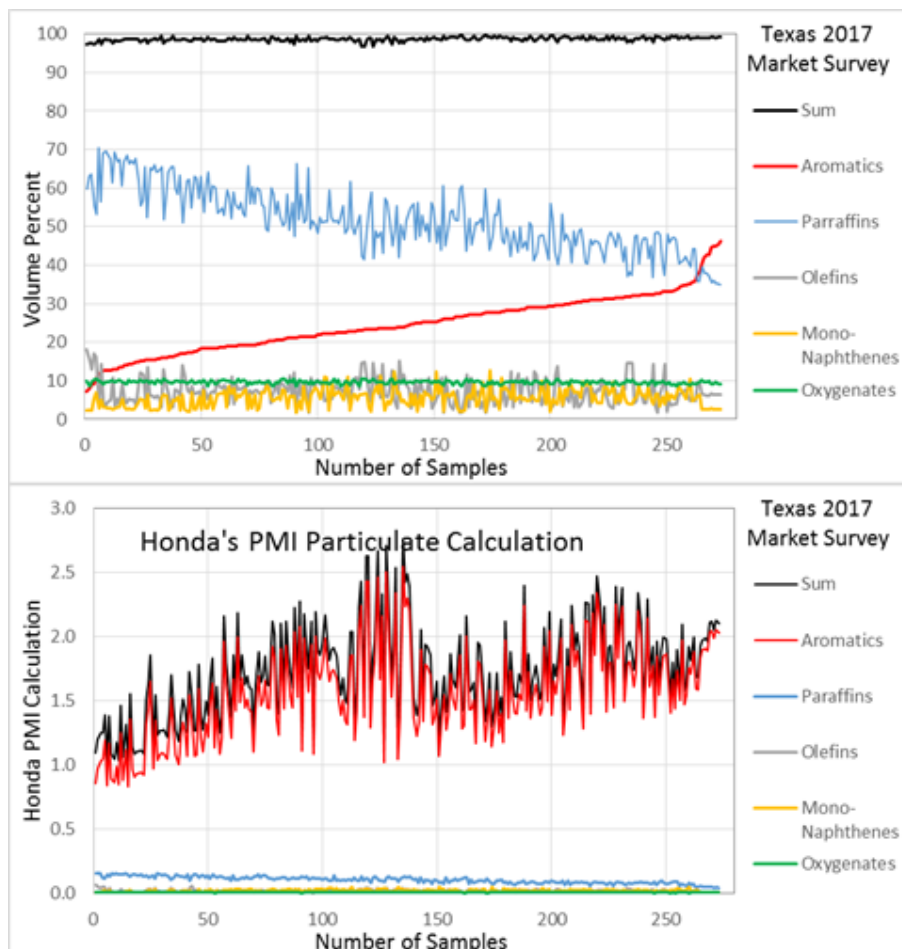
Major Incidents

For decades big oil companies have claimed the use of ethanol in gasoline would create a litany of major incidents or unintended consequences such as consumer satisfaction, drivability, price, supply, emissions, political, environmental, and agricultural — but to no avail. Then consider the level of doublespeak when considering the “major incidents” the reoccur because the nation still relies on petroleum for over 90% of its transportation needs. Major incidents relating to crude oil such as pollution, war and environmental disasters — all driving up the overall evaluation and total societal costs of petroleum.

- New gasoline pumps are now standardized to allow the dispensing of up to 25 volume percent (vol %) ethanol at no extra cost to the retailer or consumer. With testing of ethanol blends of up to 40 vol % underway, approval should soon follow.

Protecting the Environment and Public Health

- In addition to birth defects and diseases, there are an estimated 200,000 premature deaths each year associated with air pollution and about 50,000 of those deaths are associated with transportation fuels. This public health threat carries a hefty price tag, upwards of \$2 per gallon (See Part 4 about Health Effects).
- One gallon of ethanol directly replaces up to 2 gallons of aromatics, which are the most carbon intensive and toxic of the 350+ chemicals in gasoline. Adding ethanol to gasoline allows refiners to back out these toxic/carcinogenic aromatics additives and reduce other mobile source air toxics (MSATs), ultrafine particles (PM1) that are attached to polycyclic aromatic hydrocarbons (PAHs) and secondary organic aerosols (SOA) that create dangerous pollution including precursors to ozone and urban smog with the associated negative health effects.
- Reducing aromatics in gasoline and the MSATs emissions from it, reduces negative health effects which saves money on health care costs associated with air pollution. The Clean Air Act costs \$65 billion and saves \$2 trillion.



11. With more tars, sands, and heavier crude oil being imported into the country the 1990 baseline for gasoline and crude oil greenhouse gases is increasing the need for more octane and is also forcing more toxic/carcinogenic aromatics into gasoline (See Texas Fuel Survey).

Economic Stimulation & Energy Diversity

12. Publicly available evidence says continued high crude oil pricing brings us that much closer to realizing advanced biofuel crops that utilize trash and other waste byproducts. What stands in the way? Market price – not value when considering the total society costs of finding and producing crude oil to refine into transportation fuels.

13. Ethanol producers in the United States spend \$25 billion annually on production inputs — including \$1 billion in labor (339,175 jobs) – which generates \$42 billion in economic activity. Otherwise, without ethanol consumers would have increased the 25% of the nation’s crude oil imports that still come from OPEC countries – which cost our economy over \$60 billion in 2017.^{li}

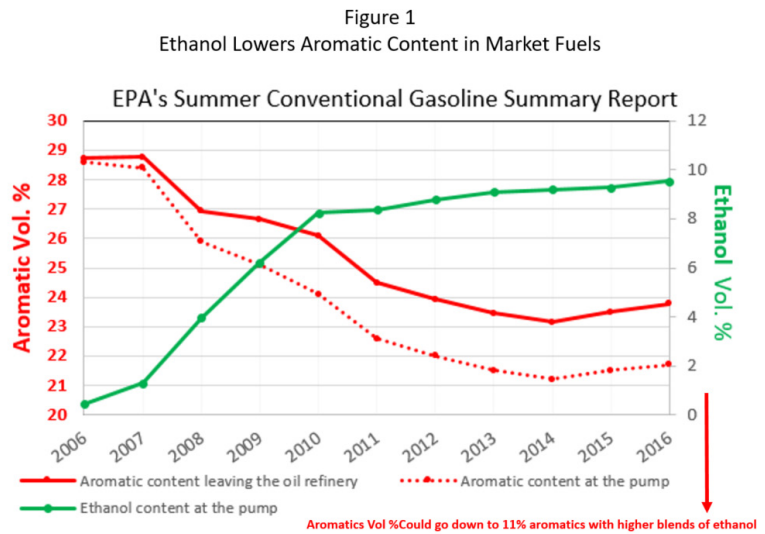
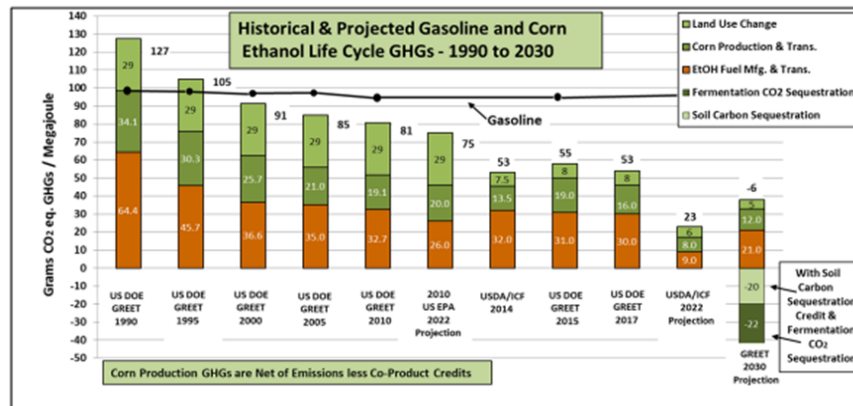


Figure 2
Ethanol is Getting Better and Gasoline is Getting Worse

Ethanol When Compared to 1990 Baseline Gasoline – Reduces Greenhouse Gas Emissions – at a Lower Cost.
Due to the Lower Quality of Newer Shale Oil and Canadian Crude Oil Supplies –
Gasoline’s 1990 Baseline of GHG Emissions are Going Higher & so is the Cost to Make High Octane Gasoline

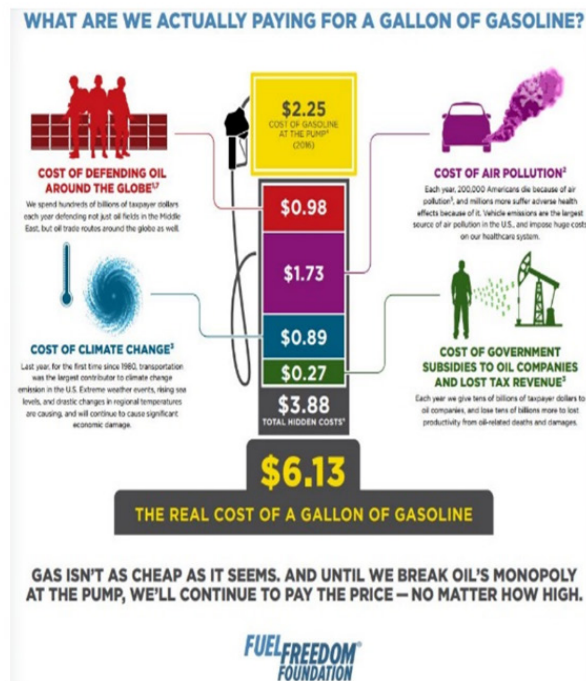


Source: Data from the U.S. DOE, EPA, USDA and the USDA/ICF report on the Carbon Intensity of Corn Ethanol. Summarized by Ron Alverson, 2018

14. Transportation is now the largest source of carbon emissions in the U.S. Modern ethanol plants use abundant clean burning natural gas as a process fuel and turn it into clean burning high octane liquid fuels. When considering the total life cycle (i.e., energy inputs) of ethanol and a baseline of 1990 gasoline (see Figure 2) ethanol continues to improve and is on schedule to achieve zero carbon emissions by 2030. Regardless of one's stance on the climate change issue, federal and state laws require carbon emission reductions and ethanol's carbon reduction comes at a lower price than many other reduction strategies.

15. Gasoline costs significantly more than consumers pay at the pump. The annual cost to taxpayers to defend the U.S. oil supply around the globe is about \$100 billion, almost twice the budget of the Department of Homeland Security and about the same as invested in the Clean Air Act.^{lii} At a minimum, that's \$1 more per gallon, or \$2,700 per person in the U.S. Then there is the price of the ultimate sacrifice paid to protect our oil supplies and fight crude oil funded terrorism. In fact, many studies show that Big Oil receives \$4 Billion^{liiii} to \$4 Trillion^{liiv} in tax breaks. Why the wide margin? It depends on where you draw the line – dollars per taxpayer – or lives per gallon.^{liv}

Figure 3
The Real Cost of Oil Minus the Benefit of Energy, Economic, Environmental and Personal Security Plus Ethanol is Less Expensive too!



Source: Fuel Freedom Foundation, October 2017

Perspective

- In 2017 25% of the Crude Oil Used in the United States Came from Organization of the Petroleum Exporting Countries (OPEC).
- The average cost of that crude oil was \$52.51 per barrel.
- Therefore, in 2017 consumers gave OPEC \$60.5 billion for imported crude oil that was valued added into fuel. Should there be truth in labeling for gasoline pumps that contain imported crude oil? Why are some any other imported products labeled?

U.S. Crude Oil Imports from OPEC Members: Algeria, Angola, Ecuador, Iran, Iraq, Kuwait Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. The U.S. does not import from OPEC members Iran, Equatorial Guinea, and Gabon

Internationally important incidents or conflicts in OPEC's history have included the [Six-Day War \(1967\)](#), [Yom Kippur War \(1973\)](#), a [hostage siege directed by Palestinian militants \(1975\)](#),

the [Iranian Revolution](#) (1979), [Iran–Iraq War](#) (1980–1988), [Iraqi occupation of Kuwait](#) (1990–1991), [September 11 attacks](#) by mostly Saudi hijackers (2001), [American occupation of Iraq](#) (2003–2011), [Conflict in the Niger Delta](#) (2004–present), [Arab Spring](#) (2010–2012), [Libyan Crisis](#) (2011–present), and international [Embargo against Iran](#) (2012–2016).

Table 1. Top 10 Largest Oil Spills & “Other Major Incidents”

Spill / Tanker	Location	Date	US Gallons
Kuwaiti War + the Oil Fires	Kuwait	1/16/91 to 11/6/91	42,000,000,000
Kuwaiti Oil Lakes	Kuwait	1/1991 – 11/1991	1,050,000,000 to 2,100,000,000
Lakeview Gusher	U.S. California	3/1910 – 11/1911	378,000,000
Gulf War + the Oil Spill	Kuwait, Iraq, and the Persian Gulf	1/19/1991 to 1/28/1991	252,000,000 to 336,000,000
Deepwater Horizon	United States, Gulf of Mexico	4/ 20/2010 to 7/15/2010	172,000,000 to 180,800,000
Ixtoc	Mexico, Gulf of Mexico	6/3/1979 to 3/23/1980	139,818,000 to 147,840,000
Atlantic Empress / Aegean Captain	Trinidad and Tobago	19-Jul-79	88,396,000
Fergana Valley	Uzbekistan	2-Mar-92	87,780,000
Nowruz Field Platform	Iran, Persian Gulf	4-Feb-83	80,080,000
ABT Summer	Angola, 700 nmi (1,300 km; 810 mi) offshore	28-May-91	80,080,000

Note: “Major Incidents” include Persian Gulf Conflicts & Wars and 53,000 premature lives lost annually due to emissions from transportation fuels. 71% of the world’s oil is used for transportation fuels.^{lvii} In the U.S. crude oil/petroleum accounts 92% of fuel used for transportation and 65% of the transportation total is used for personal vehicles.^{lviii}

With the production of this series based on peer reviewed research, the fight over the facts about ethanol and the benefits of the national renewable fuel standard (RFS) should be over — but the war over consumer market share is not. ethanol technology has been innovating and increasing in efficiency for the past 40 years, despite well-funded opposition (see Series Section II).

The RFS was signed by President George W. Bush in 2005 passed by a Republican controlled Congress and again in 2007 with a Democratic controlled Congress. Since the RFS was passed the price of corn is virtually the same or lower, despite dire predictions they would increase. The supply and price of ethanol has held down the price of gasoline by as much as 50 cents per gallon – and then also consider the effect ethanol has on lowering crude oil prices.

Since the RFS was passed, the U.S. now produces:

- ✓ 25% more corn on the same land with the similar inputs and 60% more ethanol.
- ✓ 450 million metric tons of feed coproducts worth \$7.2 billion annually – that new supply supports world protein needs and food production.

- ✓ \$6.4 billion in new corn production on the same amount of land with the same amount of inputs.
- ✓ More money. Ethanol producers spend \$25 billion annually on production inputs — including \$1 billion in labor – which also generate \$42 billion in economic activity.
- ✓ 339,175 more jobs. Good Midwest manufacturing jobs — compared to 174,000 blue-collar, full-time, permanent jobs related to coal in the U.S.
- ✓ Tax savings. In addition to new revenue dollars, ethanol saves money that would have been used to support decaying agricultural economies, paid to the unemployed, or on healthcare costs for the millions on Medicare or Medicaid.
- ✓ Cleaner air. Ethanol displaced over 100 billion gallons of carcinogenic octane enhancing additives that create a dangerous soup of mobile source air toxics (MSATs) that present a “grave” danger to public health with an estimated 50,000 premature deaths each year (a comparable number of deaths to the nation’s opioid epidemic).

How did the oil companies fare during this same period? If accommodating the RFS was as expensive and expensive as oil companies said it would be, surely their profits would decrease? Instead, the opposite occurred for the top three U.S. oil companies.

- ExxonMobil stock went from \$52.29 to \$79.72 and paid a dividend each month.
- Chevron stock went from \$62.08 to \$126.50 and paid a dividend each month.
- ConocoPhillips stock went from \$42.27 to \$59.00 paid a dividend each month and split twice.

Once a conspiracy theory, now Congress talks openly about OPEC threatening to restrict supplies to drive up prices and reduce shale oil production. That is not a free market. Why do they raise prices? *Because they can.* The Brazilians turned the oil industry on its head decades ago by making the commitment to have every new car in their country capable of operating on any combination of ethanol and gasoline, allowing the consumer to respond to high oil prices by increasing ethanol use (See Part 8, A Tale of Two Countries). Conversely, they can reduce ethanol if economics favor it. With options, we can control our destiny.

Part 6

A Grand Conspiracy? Adversaries or Partners?



Without real world tests and real fuels, you don't get real results. This deception is the heart of #gasolinegate--the EPA underestimates emissions and health consequences of aromatics. Why are we paying more money for more toxic fuel? Makes #Dieselgate seem small in comparison.

Gasolinegate clearly demonstrates the public costs of the EPA's inaction, in defiance of legal mandates to clean up fuel and protect the public. This leads us to the obvious question — how and why does the U.S. Environmental Protection Agency (EPA) perpetuate this legacy of fake fuels, fake tests, and fake results? What is the EPA's Office of Transportation and Air Quality (EPA/OTAQ) doing to change the status quo today and how will they regulate Big Oil?

Performance Baseline: Clean Air Act Amendments of 1990 Section 202 (I)

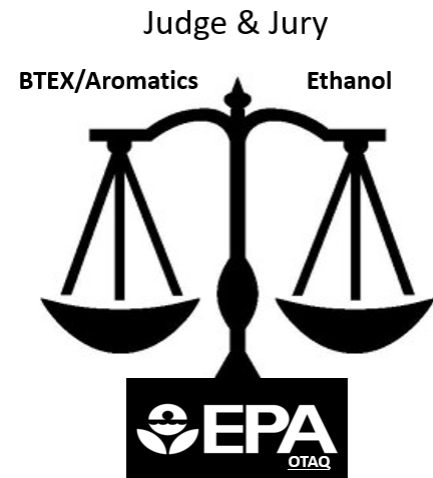
(I) Mobile source-related air toxics (MSATs)

(1) Study: Not later than 18 months after November 15, 1990, the Administrator shall complete a study of the need for, and feasibility of, controlling emissions of toxic air pollutants which are unregulated under this chapter and associated with motor vehicles and motor vehicle fuels, and the need for, and feasibility of, controlling such emissions and the means and measures for such controls. The study shall focus on those categories of emissions that pose the greatest risk to human health or about which significant uncertainties remain, including emissions of benzene, formaldehyde, and 1,3 butadiene. The proposed report shall be available for public review and comment and shall include a summary of all comments. **Performance Review Status: Failed**

(2) Standards: Within 54 months after November 15, 1990, the Administrator shall, based on the study under paragraph (1), promulgate (and from time to time revise) regulations under subsection (a)(1) of this section or section 7545(c)(1) of this title containing reasonable requirements to control hazardous air pollutants from motor vehicles and motor vehicle fuels. The regulations shall contain standards for such fuels or vehicles, or both, which the Administrator determines reflect the greatest degree of emission reduction achievable through the application of technology which will be available, taking into consideration the standards established under subsection (a) of this section, the availability and costs of the technology, and noise, energy, and safety factors, and lead time. Such regulations shall not be inconsistent with standards under subsection (a) of this section. The regulations shall, at a minimum, apply to emissions of benzene and formaldehyde. **Performance Review Status: Failed**

Background

For more than 30 years, a handful of technocrats at the EPA/OTAQ in Ann Arbor, Michigan have shaped transportation fuels regulatory policy in the United States. Generally, the same staff have been centrally involved in overseeing U.S. gasoline regulatory standards during that entire period, which spanned five Presidencies and their EPA political appointees. Presidents and their EPA Administrators — both Republican and Democrat — have come and gone, but these career bureaucrats have directed OTAQ's transportation fuels regulatory policy for three decades. During that entire period, they have stealthily foiled Congressional directives to protect the public health and welfare by blocking policies that would substantially reduce levels of toxic/carcinogenic aromatic hydrocarbons in gasoline.



These powerful but largely unaccountable bureaucrats make regulatory decisions that impact what kind of vehicles Americans can buy, what kind of fuel they can put in them, and how much their emissions affect their children's health.

As discussed in detail in Part 1 of the Series, prior to the Clean Air Act Amendments of 1990 (CAAA), Congress had no legislative authority but urged the EPA to take action to increase the use of ethanol as a substitute for what was clearly going to be an increase in toxic aromatics as a result of phasing out lead.

Specifically, through letters, hearings, reports, and floor statements, Congress urged the EPA to support the increased use of ethanol. Ignoring that request, the EPA/OTAQ actually proposed to increase the test fuel they used in the Ann Arbor Laboratories to 45% aromatic content.^{lix}

The Tier II certification fuel the EPA used for National Uniform Auto Certification for over 20 years is best described as a high octane (93 AKI) and very clean premium fuel. While Volkswagen made computer adjustments to lower tailpipe emissions, the EPA made certification fuel adjustments to accomplish a similar outcome. Why? Independent studies show tailpipe emissions from consumer gas is double that of EPA certified gas. Dieselgate, or Gasolinegate - same intent / same outcome.

The record doesn't lie. Since the late 1980's, every time the EPA, and specifically OTAQ, had an opportunity to facilitate and encourage more ethanol use, they did the opposite (See Part 2: Documented EPA Actions against Environmental Progress).

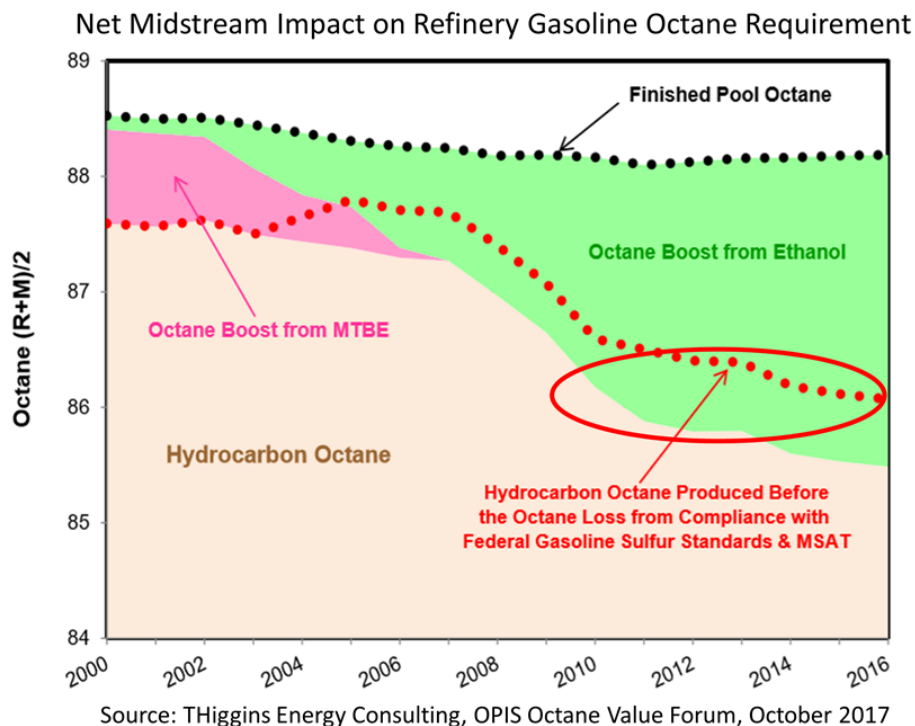
Why does OTAQ resist reducing aromatic content to the extent possible?

An excerpt from Mercedes Benz comments to EPA's Tier 3 Rule in July 2013 is key to understanding that for petroleum interests and automobile manufacturers, the past 100 years has been dominated by an intense search for a technologically and cost-effective source of octane. Mercedes stated "*Octane is the single most important property of gasoline when determining engine design.*"^{lix}

Finding the right compound to boost gasoline octane ratings has been extremely difficult. Today, after a century of effort, the only two commercially viable — and legally permissible — octane enhancing

additives are toxic/carcinogenic aromatic compounds and renewable ethanol. The EPA/OTAQ has been and continues to be influenced by the oil industry and their allies to prevent ethanol from competing on a level playing field in the commercial marketplace because CAAA regulations are already causing them to lose market share (See Figure 1).

Figure 1



Oil Interests Want to Block the Competition at the Consumer's Expense

About 25 – 30% of ~140 billion gallons of the gasoline sold in the U.S. is aromatics — about 32 billion gallons of carcinogens each year. Thanks to the success of the RFS and the inherent value of ethanol as an octane booster, ethanol now comprises nearly 10% of the U.S. gasoline pool, which has allowed maintenance of gasoline octane ratings while helping to reduce aromatics that were added.

Aromatics happen to be the most expensive, carbon-intensive, and toxic, environmentally harmful fraction of gasoline. However, for refiners, it can also be the most profitable, and aromatics are derived from crude oil, which they control. Consequently, oil interests see a transition to a national higher-octane gasoline standard as a competitive threat because it would favor ethanol, which they do not control. We believe they have secretly manipulated the EPA/OTAQ to erect unnecessary (in many cases, we suspect illegal) regulatory barriers and manipulated blend testing to increased ethanol use. SAFE high octane. Now octane has actual value and is a premium fuel.

Auto engineers have reported being reprimanded by corporate management for advocating for higher blends of ethanol. With the auto industry being the dominant user of liquid fuels, Big Oil must control the fuel composition auto engineers can test.

As the [CAA Mobile Source Air Toxics \(MSAT\) provisions](#) were becoming law of the land, during the 1990 - 2005 time frame OTAQ developed regulations which favored the use of petroleum's preferred oxygenate, MTBE, by imposing volatility controls that were subtly designed to block ethanol use on the grounds that it could increase "evaporative emissions" and thus exacerbate ground level ozone formation (smog).

Frequently working in concert with the oil industry-funded Coordinating Research Council (CRC), EPA/OTAQ produced defective studies which failed to acknowledge the substantial role toxic/aromatic compounds play in fuel permeation and evaporative emissions. These are all documented in the extensive collection of emails obtained under the Freedom of Information Act (FOIA).^{lxi} On the other hand, another CRC study shows less benzene in the vapors when using oxygenates, petroleum based oxygenates MTBE, ETBE and TAME. Ethanol was excluded.^{lxii}

The EPA/OTAQ consistently ignored that Congress had made it clear in the CAAA that it was to put equal, if not greater, emphasis on policies that reduced mobile source air toxics (MSATs), compared to reductions in smog precursors. However, as a Senate Environment and Public Works Committee report (i.e., Beale-Brenner case) makes clear, a handful of EPA bureaucrats conspired to shift the bulk of the agency's regulatory attention to the control of ozone and fine particulate matter (PM_{2.5}), and to primarily regulate stationary, not mobile, sources.^{lxiii} By subjugating MSAT control to ozone and PM_{2.5} controls, the EPA/OTAQ managed to ignore the Congressional mandate in [Section 202 \(l\) to reduce benzene and air toxic levels to the greatest extent possible as technologies presented themselves](#).

However, as will be explained in more detail below, to make its subterfuge work, EPA/OTAQ had to find a way to cover up the predominant role that gasoline toxic aromatics play in urban PM_{2.5} emissions. We believe they did that by refusing to acknowledge dozens of peer-reviewed studies that proved the direct link between aromatics in gasoline and secondary organic aerosols (SOAs), insisting that "the jury was still out", and that the complex chemistries were "not fully understood". This is clearly illustrated in Figure 1.

When necessary, the EPA/OTAQ and its sister agencies went beyond mere denial — they actively sought to suppress, derail or water down studies by prestigious institutions, such as the Harvard Center for Regulatory Analysis (see discussion of Freedom of Information Act emails and analysis in Part 2: Documented EPA Actions against Environmental Progress). After more than fifteen years of EPA/OTAQ stonewalling and refusal to enforce mandatory provisions of law, Congress took matters into its own hands once again passing the [first Renewable Fuels Standard \(RFS1\)](#) in the [2005 Energy Policy and Conservation Act \(EPAct\)](#). The centerpiece of that legislation was requiring the petroleum industry to include in their slate of products a gradually increasing percentage of renewable fuels. In exchange, the ethanol and biofuels industries agreed to the removal of the mandatory oxygen requirement in reformulated gasoline (RFG), a requirement that would have been met almost exclusively with ethanol.

However, during the deliberations over this important legislation, Congress rejected oil industry (and EPA/OTAQ) efforts to eliminate the Section 202 (l) MSAT provision. Instead, Congress doubled down, and instructed the EPA/OTAQ to deliver its long-overdue MSAT report within 18 months of enactment. (Note: proposals by the refining industry being floated by Congress as of this writing, August 2018 again attempt to eliminate the MSAT provisions and Section 202 (l) which will limit the amount of aromatics that can be used in meet the changing requirements of automakers which need higher octane to meet CAFE emission and efficiency standards.

But even without the oxygen requirement for federal RFG, ethanol was a recognized source of clean octane and was used extensively by the oil industry. With that and the RFS as a base, before the ink was dry, U.S. ethanol producers and farmers responded with an unprecedented display of technological prowess and financial support, far exceeding the Congressionally-mandated targets within two years. As oil prices climbed above \$100/barrel, and corn ethanol producers proved the commercial viability of their technologies, Congress increased the targets for conventional biofuels, including corn starch-derived ethanol, up to 15 billion gallons. Congress then established even higher targets for ethanol derived from cellulosic materials and advanced biofuels. It was during this period the lobbying costs (See Part 7: The People v. Big Oil & EPA: Preserving Wealth & Power at Any Cost) reported by the petroleum industry increased by \$100 million dollars.

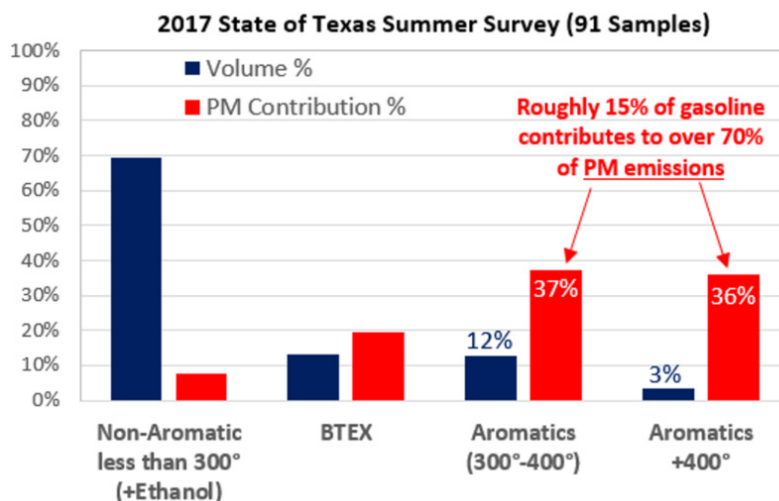
Fearing that the U.S. corn ethanol industry would expand exponentially, we believe the oil industry allied with the environmental community to pressure the EPA and OTAQ to derail the corn ethanol juggernaut. As contradictory as it would seem, many key environmental groups were more focused on land use and misguided net energy reports and were easy prey for the doublespeak oil companies to have them join in opposing ethanol. We believe the EPA/OTAQ used its broad regulatory powers to attack ethanol on a number of fronts simultaneously.

To reinforce its powers, we also believe the EPA/OTAQ actively, and secretly, colluded with its oil industry allies, as revealed through numerous emails obtained via the freedom of information act (FOIA) revealed in Part 2. It also worked overtime to — as revealed by a Senate EPW Committee report — manipulate key cost benefit analyses and emissions modeling to make ethanol appear to be more costly than toxic aromatics, and to fraudulently pin the emissions from aromatics on ethanol.

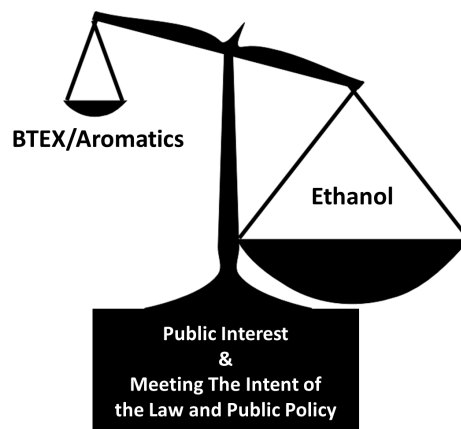
For example, in the EPA’s most recent 2007 MSAT rule-making cost benefit analysis regarding ethanol used (note: the update is 10 years past due). If that’s not collusion – it intentional illusion.

1. An outdated 1992 crude oil value of \$19,

Figure 1



Weighing The Cost and Health Benefits to The Consumer/Taxpayer



2. A projected ethanol production rate that was exceeded just two years later,
3. A value for an aromatic (toluene) that was 100% higher than ethanol (the opposite is true) to make ethanol appear more expensive – when it was actually less expensive than the hydrocarbon-based aromatic alternative.

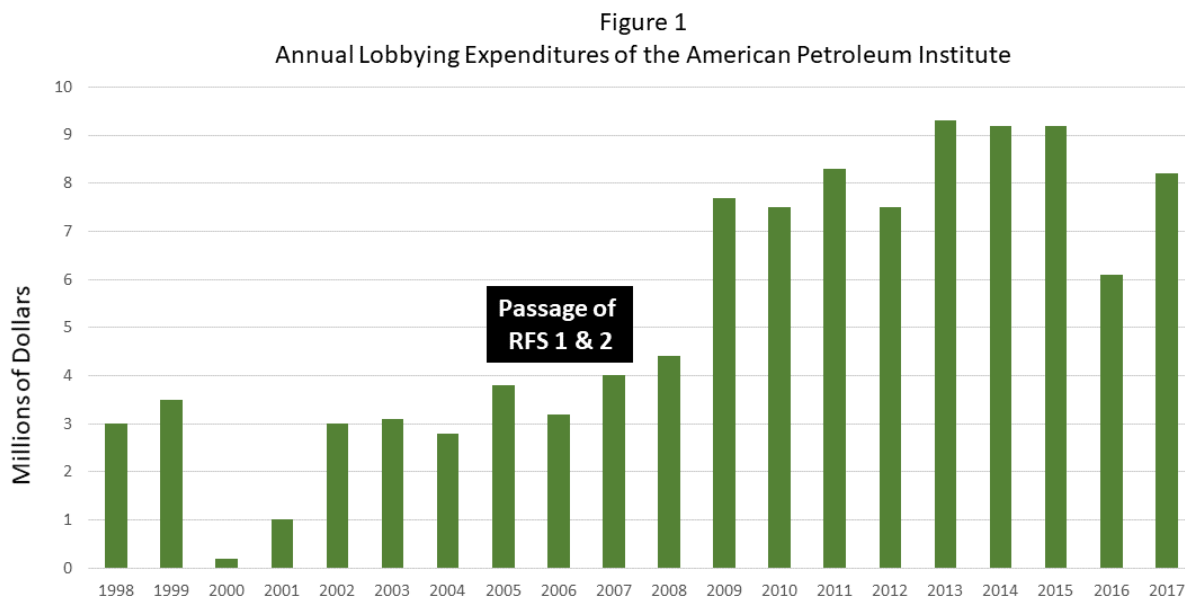
Part 7

The People v. Big Oil & EPA: Preserving Wealth & Power at Any Cost



With 735 lobbyists, and spending almost a billion dollars in a 10 year period, we have to ask—how much influence did the oil industry buy? When and how were clean air and fuel laws undermined? #Gasolinegate raises questions about the extent of Big Oil’s influence on the EPA.

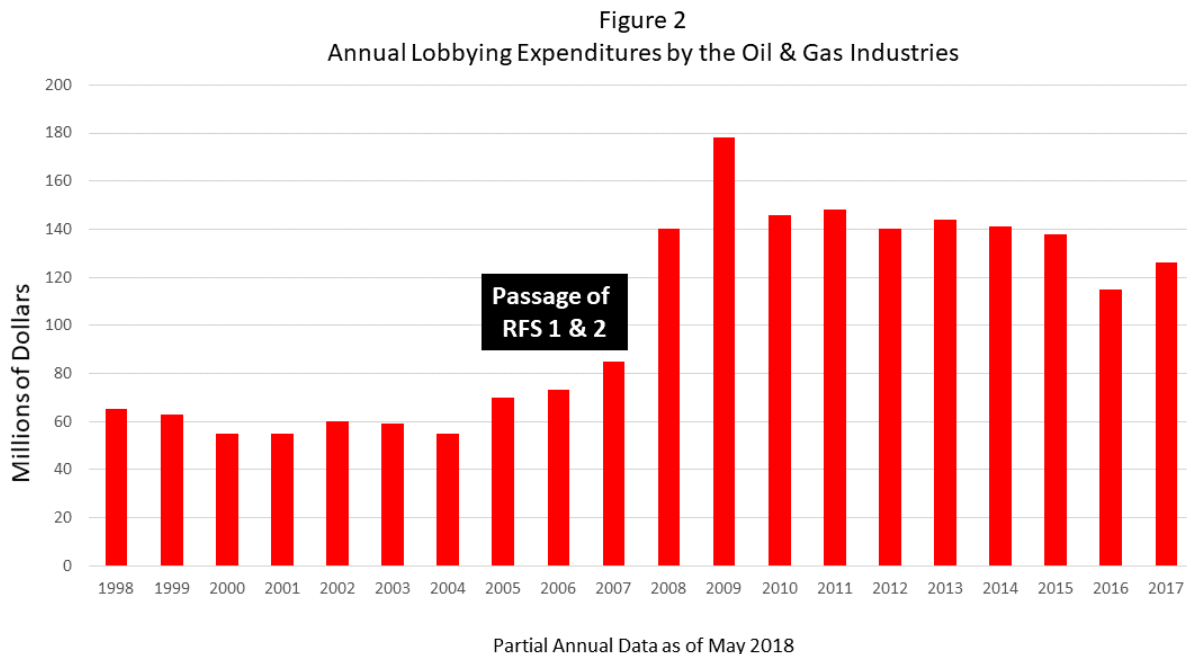
The [American Petroleum Institute \(API\)](#) spent over \$80 million dollars in a ten year period from 2007 to 2017 (use the link to get the verbatim opposition on the national renewable fuel standard and ethanol). But what did that money get them? More agency friends, more congressional influence, and more power to stifle petroleum alternatives.



Source: OpenSecrets.org, Center for Responsive Politics, 2018 Data Not Complete

Our research uncovered some data and trends to support why the [U.S. Environmental Protection Agency’s Office of Transportation and Air Quality \(EPA/OTAQ\)](#) is not meeting its responsibility under the [Clean Air Act Amendments of 1990 \(CAAA\) Section 202 \(l\)](#) to protect the public from toxic/carcinogenic aromatic octane enhancers added to gasoline – as well as many other obstructive activities. While EPA and the Big Oil should be adversaries, it appears more likely they could be partners.

As outlined in the previous installment of our series [Part 1: EPA Circumventing Energy, Environment, and National Security Laws & Policies](#) there has been a long difficult road to change motor fuel to improve air quality in the United States — for which there were many successes. After the passage of the second [national renewable fuel standard \(RFS2\)](#) the amount of money spent on lobbying (as reported) by the entire oil and gas industry increased by ~\$100 million dollars per year – for several years (See Figure 2).^{lxiv}



Total for Oil & Gas: \$34,573,180 ■ # of Clients Reported: 154 ■ # of Lobbyists Reported: 565 ■ # of Lobbyists on Revolving Door Watch List: 565 (66%)

Source: OpenSecrets.org, Center for Responsive Politics, 2018 Data Not Complete

That’s just the tip of the iceberg – the \$100MM is only the reported lobbying expense at the federal level and does not include political contributions. Anyone who thinks lobbying reports are comprehensive and tell the whole story does not work in Washington—or any state Capitol either. These reports only account for “covered officials” at the agency level, meaning many of the career employees often with long and protected positions can be lobbied directly or indirectly with no limit. This amount also does not include lobbying efforts at the state level, which often do not require reporting. The state Oxy-fuel program and the ethanol pump labeling anti-ethanol campaign are examples of efforts not covered under our research of money spent on lobbying, but they certainly still take place. The past and current efforts to thwart fuel quality programs to reduce mobile source air toxics (MSATs) in order to protect the use of toxic/carcinogenic aromatics is well documented.

As documented throughout this series, laws made in the public interest that create energy, environmental, economic and public health policy are influenced by conflicted special interests.

It’s not illegal to petition, question, or lobby our government. However, there are rules to protect the integrity of our political system. Most important is the transparency of money spent on specific bills, by specific industries, by specific people, with specific stated interests.

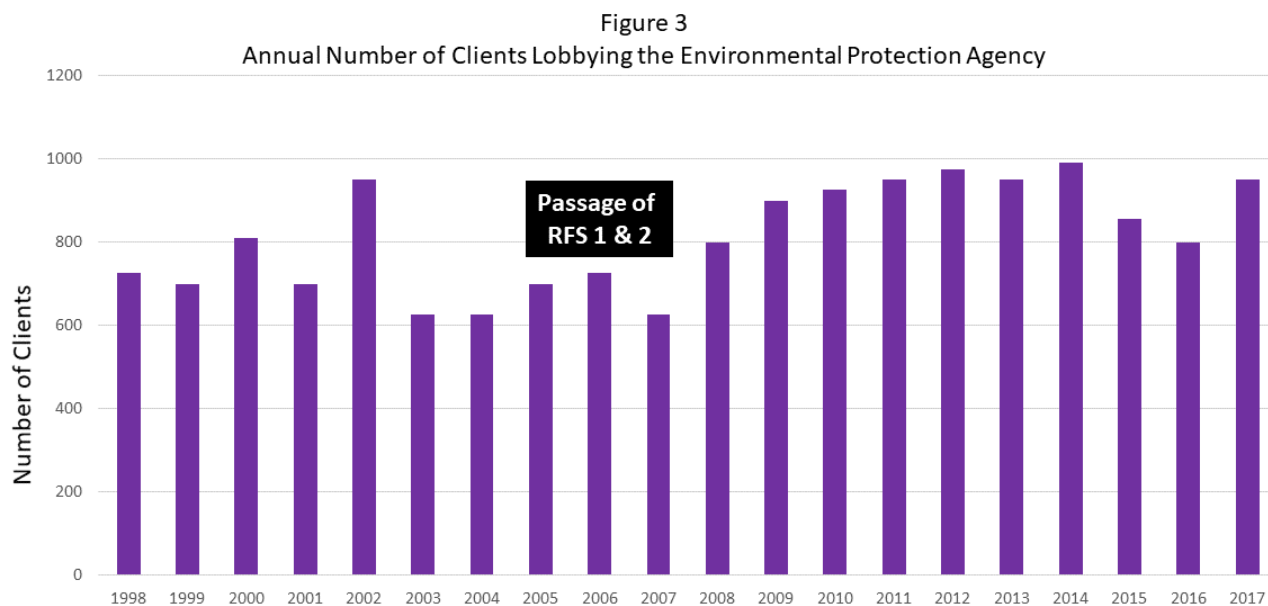
Here are a few highlights from API’s list of bills they lobbied just in 2017.

- Consumer and Fuel Retailer Choice Act
- Renewable Fuel Standard (RFS) Elimination Act
- Renewable Fuel Standard (RFS) Reform Act of 2017
- Ozone Standards Implementation Act of 2017
- Establishing the congressional budget for the United States Government for fiscal year 2017 and **setting forth the appropriate budgetary levels for fiscal years 2018 through 2026.**

GLOSSARY: “Revolving Door”

In politics, the “revolving door” is a movement of personnel between roles as legislators and regulators, on one hand, and members of the industries affected by the legislation and regulation on the other. Used to refer to a situation in which the same events or problems recur in a continuous cycle.

According to the www.OpenSecrets.org service of the Center for Responsive Politics — 24 out of 33 API lobbyists in 2016-2017 have previously held government jobs. According to the Washington Post, it appears this trend continued for 10 years as they reported “three of every four oil and gas lobbyists worked for the federal government, a proportion that far exceeds the usual revolving-door standards on Capitol Hill. With more than 600 registered lobbyists (now 763), the industry has among the biggest and most powerful contingents in Washington in 2010.”^{lxv}



Source: OpenSecrets.org, Center for Responsive Politics, 2018 Data Not Complete

What about the EPA's Revolving Door?

The EPA experienced the same upswing in lobbying activity after 2007. There are currently 655 entities and interest groups lobbying the EPA according to OpenSource.org. Seven out of forty-five new EPA top staff came from the coal, oil, and chemical industries.^{lxvi}

It is quite common for key industry officials to have done a tour of duty in key government roles and return to industry to advise them on how to get around the very rules they established. The EPA is no exception. For example, a key official within the Office of Air and Radiation (which oversaw OTAQ and was directly involved in the deliberations of the CAAA) later went to work for API. OTAQ was the key arm of the EPA that controlled everything from emissions testing and protocol to fuel modeling.

“In 1980 OMB increased the pressure on EPA to do something about the complaints of the small refiners. Richard Wilson, EPA’s acting director of enforcement for air, held 32 meetings with refiner representatives to discuss their problems, but none with public health or public interest officials.”

—The Removal of Lead from Gasoline: Historical and Personal Reflections, Herbert L. Needleman, Department of Psychiatry, University of Pittsburgh School of Medicine, June 28, 1999.

Fast forward to today, another example is the President and CEO of the American Fuel & Petrochemical Manufacturers (AFPM). They had for years been known as the National Petroleum Refiners Association (NPRA) and were a formidable force in fighting ethanol and any alternative fuel that threatened their market share. Their current President was a classic case of an attorney with a prosperous law firm, he went to the EPA as a political appointee for about two years as Deputy General Counsel, then went back to another law firm with significant petroleum clients. According to OpenSecrets.org, just for 2011, the firm’s clients included the American Chemistry Council, BP, Dow Chemical, DuPont, FMC, Methanol Institute, National Petroleum Refiners Association (oil & gas), Penn. General Energy (oil & gas), Philip Morris International, Royal Dutch Shell (oil & gas), SC Johnson & Son (chemicals). Was that good luck or coincidence?



- The AFPM has been among the greatest of the myth spreaders, telling Congress that their failure to comply with the law of the RFS has caused them great hardship. They have funded a well-orchestrated campaign to pit steel and refinery workers against agriculture and ethanol workers.
- API recently, quietly, announced the new President of the organization was the former Chief of Staff to the former Speaker of the House of Representatives. So the two leading petroleum organizations are directed by a former EPA official and a former senior staffer to the top member of Congress.
- EPA currently has 165 former employees on the OpenSecrets.org Revolving Door watch list that are involved in lobbying the federal government. Our LinkedIn research provided some insights into the rotating cast of employees between the legislative branch, the oil industry, and government.

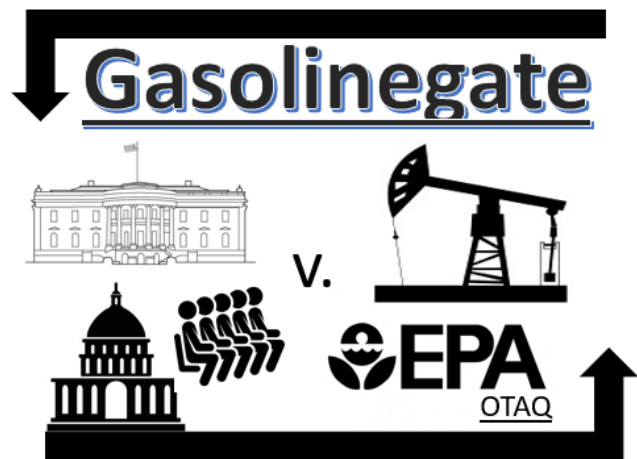
The Bigger Picture

Remember the \$80 million dollars API spent over 11 years? That's how much the oil and gas industry collectively spent in just one year. When combined, the oil and gas industry spent nearly \$1 billion more on lobbying in the 10 years after the RFS was passed. In 2017 there were 763 reported oil and gas lobbyists and 495 of them are on the OpenSecrets.org Revolving Door watch list. There were 178 clients that spent \$125 million in one year.

With 763 reported oil and gas lobbyists, there could be more than one representative for each member of the House, Senate, and the 37 committees that have oversight over EPA, each federal agency, and each of the President's Cabinet.

What does the Web of Influence Look like?

How could the EPA be an accomplice? Congress enacted fourteen laws to support the development of alternative fuels and protect people from toxic air pollution from 1978 to 2007. To the extent ethanol was a substitute fuel, it was a big hill for ethanol to climb that included a huge 20-year burden of proof that included drivability, durability, emission testing, consumer acceptance, price stability, infrastructure compatibility, and performance. As illustrated in Figure 4 of the lobbying spending patterns, it was the passage of the 2nd renewable fuel standard (RFS) when the true battle began.



Who is Influencing EPA? Follow the Money and the Budget

Over half of Congress's 535 offices have input when it comes to jurisdiction oversight of EPA. This allows for a confusing spiderweb of closely-knit legislators and lobbyists linked to a network of lawyers and representatives of individual companies.

- ✓ There are 21 Senate Committees/subcommittees with jurisdiction over EPA.

- ✓ There are 90 Senators/members of those committees.
- ✓ There are 16 House committees/subcommittees with jurisdiction over EPA.
- ✓ There are 229 Representatives that are members of those committees.

The Web of Influence: Who is Lobbying the EPA?

- ✓ Former Congressional Members and their Staff
- ✓ Former EPA Employees and Other Government Employees
- ✓ Former U.S. and International Oil Company Employees
- ✓ Political Appointees
- ✓ API and Oil & Gas Related Associations
- ✓ Congress & Committees
- ✓ Law and Lobbying Firms

Time to Pull the Swamp Plug

"the chances for Congress overcoming what EPA could do to damage the ethanol industry would be very difficult when you stop to think of this being very much driven by Big Oil. Seems like this iron triangle is working its will through the Washington swamp. You know how Big Oil has had Washington wired for a long time and I think EPA is part of this Washington swamp delivering this blow to ethanol if it occurs."

U.S. Senator Charles Grassley,
June 6, 2018



Part 8

The People v. Big Oil & EPA: The Anti-Ethanol Wars



Consumers need to realize that we pay more money for a more dangerous fuel. The true cost of gasoline would be over \$5 a gallon. We need to demand clean fuels now. We have to prioritize public interests over special interests. It's time to demand ethanol. #gasolinegate

“A lie can travel around the world and back again while the truth is lacing up its boots.”

—Mark Twain.

Big Oil’s history of [anti-competitive practices](#), manipulating research, the government, the media, the marketplace, and the public is a conspiracy with roots over 100 years old. The storylines of tobacco, lead phase down, and now aromatics are aligned. Big Oil has a well-established and documented modus operandi (MO) of preserving wealth and power at any cost – without regard for public health, cost to the consumer, or the truth. In the face of fourteen pieces of legislation to spur cleaner domestic fuels, Big Oil conspired to fight this movement of public consensus (See Table 1).

Recommended reading for anyone interested in this history is the excellent [dissertation by Professor Bill Kovarik](#) that chronicles the discovery of lead in 1923, and what became a 70 year fight by the oil industry to keep the destructive octane enhancer in gasoline. A United Nations-commissioned report estimated the global impact of lead in vehicle fuels at about 1.1 million deaths; loss of 322 million IQ points; 60 million crime cases, and an economic loss of \$2.4 trillion per year — or about 4% of global GDP. Lead additives v. alcohol fuels at the expense of the people.

One tactic became clear in his research — the industry’s ability to manipulate the media with doublespeak, largely due to the inherent complexity of refinery operations coupled with automobile technology. Then add conflicting agriculture, energy, environmental, national security and public health policy goals, and the layers of complexity to the anti-ethanol political agenda grow. In an effort to achieve the public interest goals and combat Big Oil’s obvious bias, Congress passed the “[Gasohol Competition Act of 1980](#)” which protects independent gasoline marketers that want to sell ethanol blends.

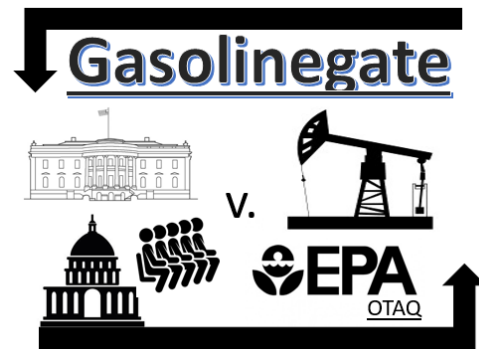
Fast forward to recent U.S. House of Representatives [Congressional Hearing](#) - High Octane Fuels and High Efficiency Vehicles: Challenges and Opportunities hearing on April 13, 2018 - and you can watch Big Oil spread deceptive ignorance and market bullying arrogance.

The House Energy and Commerce Committee’s subcommittee on environment hearing clearly established the oil company’s characteristic MO as well as that of an absent EPA. It was a public

Table 1. Legislative & Regulatory Timeline Related to Ethanol, Gasoline, and Federal Agencies

1970 U.S. Environmental Protection Agency Established
1973 OPEC Oil Embargo & Recession
1978 U.S. Department of Energy Established
1978 Energy Tax Act
1979 OPEC Oil Embargo & World Recession
1980 Crude Oil Windfall Profits Tax Act and Energy Security Act
1980 Gasohol Anti-Competition Act
1988 Alternative Motor Fuels Act
1990 Omnibus Budget Reconciliation Act
1990 Clean Air Act Amendments of 1990 (Oxy-fuels & RFG)
1992 Energy Policy Act
1994 Renewable Oxygen Requirement (ROR)
1995 Reformulated Gasoline Program
1998 Transportation Efficiency Act of the 21st Century
2004 Volumetric Ethanol Excise Tax Credit (VEETC)
2004 Jobs Creation Act
2005 & 2007 Energy Policy Acts (RFS I and RFS II)
2007 MSAT Rule
2007 PM2.5 Rule
2008 Indirect Land Use Carbon Penalties
2008 Food vs. Fuel Attacks
2008 – 2010 Institute of Medicine “Anti-Backsliding” Study
2008 – 2012 EPAAct/MOVES Model Dispute
2010 - 2012: RFS Waiver rejection
2012: GHG – CAFE Rulemaking
2012: RFS2 Final Rulemaking
2012 Repeal of End of VEETC
2013 Tier 3 Rulemaking
2015- 2018 Pressure to Repeal RFS
2016 – 2018: GHG – CAFE Standard Reconsideration
2017 New MSAT Cost Benefit Analysis is 10 Years Overdue
2018 U.S. House of Representative Octane Hearing
2018 EPA REG Rule to limit ethanol use
2018 Reform intended to kill the renewable fuel standard

hearing about the future of cars and gasoline – with little focus on what should have been the primary point of discussion — public health. Beyond a doubt, the oil industry once again boldly showed their cards and telegraphed their next move as to how they see the next 30 years, ideally just like the last 100 -- all oil, more toxic/carcinogenic aromatic octane enhancers - and no renewable fuel standard. The refining industry deftly put ethanol on trial, dismissing any notion that gasoline needed to be cleaned up while eviscerating the available, cleaner, and less expensive additive.



Fourteen separate major legislative/regulatory events either created, extended, or otherwise supported the use of ethanol and addressed the dangers of our nation’s dependence on petroleum. Every U.S. President since Jimmy Carter has supported ethanol. These were courageous bipartisan efforts to end the nation’s addiction to crude oil and end a 100-year gasoline mandate. And for each of these positive efforts to meet a host of public policy objectives such as rural and economic development, energy and national security, and protecting the environment, there are also volumes of anti-ethanol testimony for each of these laws in the [Congressional Record](#).

The American Petroleum Institute (API) and the National Petroleum Refiners Association (now the American Manufacturers of Fuels & Chemicals) routinely would testify that alternatives to gasoline were not available, options proposed would not work, and then play the ultimate trump card of fear for any member of Congress — that being party to promoting substitutes for oil would raise gasoline prices negatively affecting their funding and bid for re-election. Big Oil understood and played on the policy maker and public’s fear of high gasoline prices.

The oil funded PR firms and press machine often blamed ethanol without evidence or foundation. And they always neglected to mention they received tax incentives to use ethanol, which they pocketed along with the margins they counted on by grossly underpaying ethanol producers.

API’s National Government Gas Advertisement Campaign

API’s claims then and now are similarly outrageous. With the power of hindsight, we can now mark their claims from that misinformation campaign officially fact-checked as **FALSE**. Big Oil has not changed their strategy since the passage of the Clean Air Act in 1990.

*** Chicago Tribune, May 10, 1990 (the text below is from the advertisement in the photo on the next page): **So Why Let Politicians Write the Chemical Formula for Gasoline?** Politicians in Washington are writing a specific gasoline formula for use in urban areas where about one-third of American motorists live. Motorists will have to buy “Government Gas.” They will have no choice. Yet, no testing has been done to show “Government Gas” is less polluting, more efficient or affordable [**FALSE: Keep reading this Gaslinegate Report**]. According to the Environmental Protection Agency, “Ozone smog continues to be the most pervasive ambient air pollution problem in the U.S.” [**Still TRUE Today: Why? Government Gas only covers 30% of the country**] California’s Sierra Research, Inc., a leading environmental analysis firm, says the “Government Gas” formula will increase emissions of hydrocarbons and nitrogen oxides the two principal ingredients of smog and “this would be expected to lead to increases in ambient ozone levels.” [**FALSE. While the hired consultant may**

**It Won't Cure The Smog Problem.
It Will Cost You More.
It Will Cut Auto Efficiency.**

So Why Let Politicians Write The Chemical Formula for Gasoline?

Politicians in Washington are writing a specific gasoline formula for use in urban areas where about one-third of American motorists live. Motorists will have to buy "Government Gas." They will have no choice. Yet, no testing has been done to show "Government Gas" is less polluting, more efficient or affordable.

According to the Environmental Protection Agency, "Ozone [smog] continues to be the most pervasive ambient air pollution problem in the U.S." California's Sierra Research, Inc., a leading environmental analysis firm, says the "Government Gas" formula will increase emissions of hydrocarbons and nitrogen oxides – the two principal ingredients of smog – and "this would be expected to lead to increases in ambient ozone levels." Politicians would "solve" the nitrogen oxides problem by simply stating no increase would be allowed – even though such an edict defies science!

All of us want cleaner air. Automakers and oil companies are running thousands of tests on cars with 25 different fuels in search of the best clean-burning gasoline. Answers are just months away.

But politicians are rushing to impose a single formula designed to dramatically increase the use of ethanol. Sierra Research says motorists will be "paying more for dirtier air." The last thing taxpayers need is a political formula that benefits the ethanol lobby with a billion dollar a year subsidy.

We want to make the air cleaner. We believe Congress should set a tough, mandatory pollution reduction goal and then let scientists make fuels that will meet the goal at the least possible cost to consumers.

If you agree, please ask your U.S. Representative to reject "Government Gas" amendments to the Clean Air Act.

American Petroleum Institute 1220 L Street, NW, Washington, D.C. 20005 (202) 682-8000

have said it, it is proven the opposite is true – aromatics pollute] Politicians would “solve” the nitrogen oxides problem by simply stating no increase would be allowed even though such an edict defies science! All of us want cleaner air. [FALSE: See Entire Series] Automakers and oil companies are running thousands of tests on cars with 25 different fuels in search of the best clean-burning gasoline. Answers are just months away [FALSE: Then and now, still waiting]. But politicians are rushing to impose a single formula designed to dramatically increase the use of ethanol [FALSE. It took 70 years to get the lead out of gasoline. Reformulated Gasoline was designed to reduce toxic/carcinogenic hydrocarbon-based aromatics]. Sierra Research [NOTE: Not Sierra Club] says motorists will be “paying more for dirtier air.” [FALSE. Refiners buy ethanol for about 50 cents less than gasoline, which should lower the price of gasoline and increases all supplies]. The last thing taxpayers need is a political formula that benefits the ethanol lobby with a billion dollar a year subsidy [FALSE. Big Oil pocketed the money and did not pass along the price/tax savings to the consumer – and meanwhile - they get over \$100 billion per year in tax subsidies see Section V]. We want to make the air cleaner [FALSE: Big Oil has done nothing other than required by federal and state law].

We believe Congress should set a tough, mandatory pollution reduction goal and then let scientists make fuels that will meet the goal at the least possible cost to consumers. [FALSE: The EPA/OTAQ only accepted oil industry manipulated data, see FOIA email analysis in Part 2 of this series] If you agree, please ask your U.S. Representative to reject “Government Gas” amendments to the Clean Air Act. — American Petroleum Institute 1220 L Street, NW Washington, D.C. 20005 (202) 682-8000 ###

The first “No Alcohol” in our gasoline signs appeared during and after the oil supply crisis of the late 1970s. It was a concerted effort to malign the product, and imply with simple signage that there was something wrong with gasoline that contained ethanol. They carried this tactic further by an intense lobbying effort at the state level to require often ominous “warning-like” labels that this product contained ethanol.

By funding think tanks, “independent” studies, lobbying Congress and the federal agencies, and literally buying print and electronic media, Big Oil orchestrated a large-scale misinformation campaign that convinced many people that ethanol was a bad product.

A Tale of Two Countries

Meanwhile, Petrobras (Brazil's state oil company) became the world's largest ethanol producer, exporter, and user. Brazil also called on all their auto makers to manufacturer vehicles that could run on any combination of ethanol up to 100% — and they did — 30 years ago.

Why are automakers claiming to have difficulty duplicating Brazil's achievements — since they already make Flex-Fuel Vehicles that can burn up to 85% ethanol at no extra cost? Why not optimize for lower economical blends (25%-30%)? BMW Mini Cooper is currently the only exception, with approval of up to 25 vol % ethanol in its warranty. Expanding ethanol use is hardly unprecedented. Brazil's transition to predominantly ethanol fuels shows that with sufficient political will, such a switch could be readily achieved.

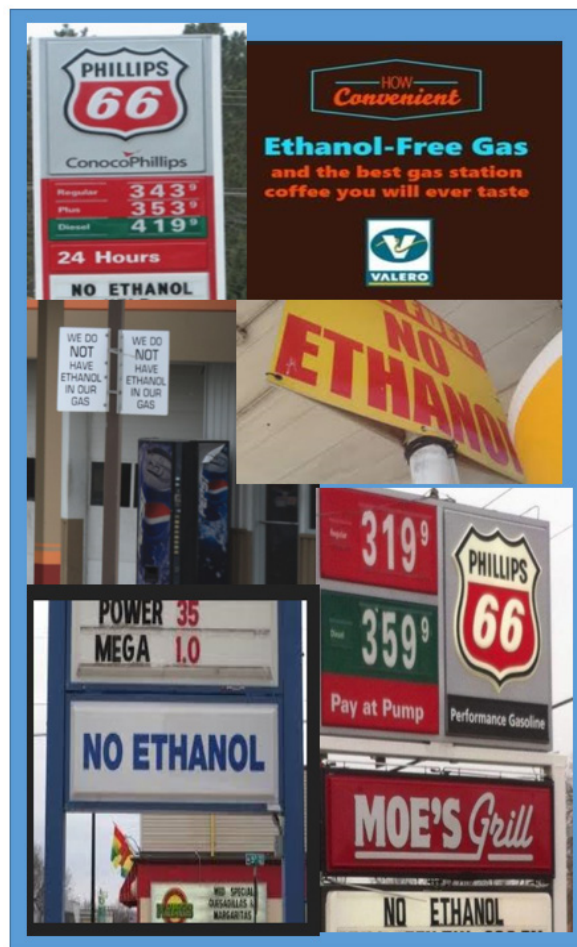
The São Paulo International Motor Show is not the Los Angeles Car Show, or the Detroit Car Show (NAIAS); nor is it the Frankfurt, Paris, Geneva, or Tokyo Motor Shows. But every car on display is capable of running on E27, and in many instances, they can run on E100.

Most of these vehicles are virtually the same vehicles that are sold, or can be sold, in America, Canada, the United Kingdom, Europe, Australia, New Zealand, India, Japan, and other countries with little or no changes required to the engines and fuel systems.

Previews include vehicles built by VW, McLaren, Fiat, Chevrolet, Nissan, and Mercedes-Benz. You can find them on the front page of TheAutoChannel.com website and <https://www.theautochannel.com>.

Why are EPA and oil companies debating to prove that E10 and E15 can be safely and efficiently be used in North America? Brazil - with a population that exceeds 200 million - has been powering their vehicles with high level ethanol-gasoline blends for decades. And Brazil's Embraer aircraft company also builds ethanol-powered airplanes. And they have leaf blowers, and lawn mowers, chain saws, and a few boats too.

In 1996, a book titled **THE CIGARETTE PAPERS** rocked the world. It exposed what many people knew, what many people talked about for years...that tobacco smoking is deadly, and how the tobacco industry manipulated politicians, the media, and the medical community to spread their lies. **THE**



PETROBRAS AND EXXONMOBIL SIGN STRATEGIC ALLIANCE



[ETHANOL PAPERS](#) (link to the free book), documents over 600 pages of information to counter the continuous lies and disinformation spread by the oil industry. – Marc J. Rauch, Exec. Vice President/Co-Publisher, THE AUTO CHANNEL. For more information watch [“Conversations that Matter.”](#)

Lies, Doublespeak or Both

The first wave of lies launched by the petroleum industry was that ethanol was more expensive. While in the very early days of ethanol that was true in some instances, the tax exemption to the oil industry was designed to offset any such increases. It was unfortunately called the ethanol tax exemption, though the oil industry took the money and left the ethanol industry to bear that cross. As ethanol matured the cost consistently fell below that of gasoline,

but the petroleum industry was happy to continue to pocket most, if not all of, the subsidy. Throughout these years Big Oil criticized ethanol for being subsidized, but camouflaged that the subsidy went to them. In fact, many studies show that Big Oil receives \$4 Billion^{lxvii} to \$4 Trillion^{lxviii} in tax breaks. Why the wide margin? It depends on where you draw the line – dollars per taxpayer – or lives per gallon.^{lxix}



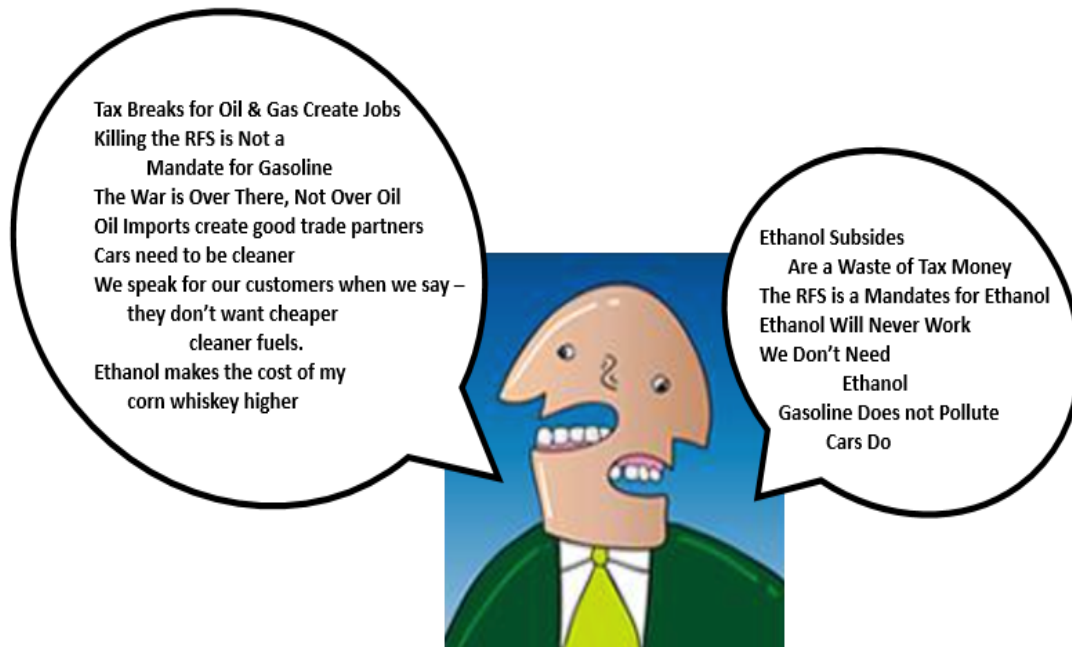
**Anti-Ethanol Wars at the State Level
Created Egregious Ethanol “Warning-Like” Pump Labeling Laws**



Note: Only California Has A State Label Requirement On Gasoline Pumps Warning Consumers about Benzene



Then Big Oil created a canard of “net energy balance,” claiming ethanol took more energy to produce than it yielded, ignoring the reality that converting one form of energy into another usable form inevitably requires energy in the conversion process (such as converting crude oil to gasoline). Similarly, they claimed ethanol used water resources when refineries used more water than anyone. When confronted with these facts, they would go to a tried and true tactic of claiming it hurt engines. Despite all automakers honoring warranties for 10% ethanol use, they continued to make such claims. Similarly they claimed small engines, boats, and other users of gasoline would be negatively affected. When faced with evidence that refuted their erroneous claims, Big Oil would simply pivot to another issue and redirect to another deceptive talking point.



The Doublespeak Misinformation Campaign

When it comes to crude oil – where’s the Free Market, Fair Trade, Pro-Business, Pro-Growth, Pro-Competition and Consumer Choice?

The US sends billions of consumer dollars to foreign companies and countries that have expressed willingness to drive up the price of oil and do economic harm to the United States. It’s a bit complicated to track oil imports by company, but so was going to the moon.^{lxx} Change the word in the text below from crude oil and gasoline to hamburgers and consumers would be up in arms. So why don’t consumers know that increasing the price of crude increases the price of their hamburgers — and everything else? No competition.

That was then...

“Oil crisis, a sudden rise in the price of oil that is often accompanied by decreased supply. Since oil provides the main source of energy for advanced industrial economies, an oil crisis can endanger economic and political stability throughout the global economy. In the post-World War II period there have been two major oil crises. The first occurred in 1973, when Arab members of OPEC decided to quadruple the price of oil to almost \$12 a barrel. In 1979, a result of the Iranian Revolution (1978–79) and outbreak of the Iran-Iraq War (1980–88) spiked

Role of OPEC is to Manipulate the Market

The Organization of Petroleum Exporting Countries (OPEC) was formed in 1960 with the mandate to “coordinate and unify the petroleum policies” of its members and to “ensure the stabilization of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to producers and a fair return on capital for those investing in the petroleum industry.” —OPEC

oil prices. In 1981 the price of oil was stabilized at \$32 per barrel. By 1983, however, major capitalist economies had adopted more-efficient methods of production, and the problems of the 1970s had been transformed into a relative oversupply of oil rather than a shortage. Both incidents lead to world recessions.^{lxxi} The engineered collapse of world oil prices to impact new U.S. shale oil production have had equally devastating economic impacts.

This is now...

[Gas prices are up 31% from last Memorial Day. Here's why \[OPEC & Russia\] – May 25, 2018](#) ■ [Oil Prices Under Pressure From Rising OPEC Supplies – 2017](#) ■ [Royal purge shakes up Saudi Arabia - \\$70 oil more likely than \\$50 – 2017](#) ■ [Blame OPEC for the price at the pump – 2016](#) ■ [Higher prices at the pump may be looming after OPEC agrees to cut output to push up oil prices – 2016](#) ■ [That was quick: Gasoline prices shoot up overnight on OPEC news – 2016](#) ■ [Gas Prices May Rise As OPEC Slashes Production – 2016](#) ■ [Plunging oil prices may have people dancing on OPEC's grave, but geopolitical havoc is the price we'll pay – 2015](#) ■ [Year in review 2014: OPEC's oil-price strategy anyone's guess – 2014](#) ■ [Does OPEC still have the U.S. over a barrel? – 2013](#) ■ [AMERICA OUT OF GAS: Unreal Images From The 1973 Oil Crisis \[40 Year Anniversary\] - 2013](#) ■ [OPEC and oil prices - is the story over? – 2013](#) ■

The Gloves Came Off with Food vs. Fuel

But the game changing criticism the oil industry seized upon was the accusation that the ethanol program was a choice between food and fuel, suggesting that using corn for fuel was causing starvation and high food prices. This Big Oil funded ad campaign not only turned the general public against corn ethanol, but Congress and the media fell victim to the deception too.

This issue came front and center with the passage of the [Renewable Fuel Standard \(RFS\)](#). In response to the oil industry's constant complaints over the reformulated gasoline program (RFG), and their reluctance to be required to use ethanol, they agreed, and in fact supported the flexibility to meet clean fuel standards without having to use ethanol. In exchange, they agreed to use the same amount but in areas of their choosing and at volumes they would decide. The dual objectives of clean air and energy security would still be met and the ethanol industry would have a guaranteed market. The concept was so successful that the ethanol industry responded by demonstrating they could build plants quickly and produce product efficiently.

To the petroleum industry, it was too quickly and too efficiently. In less than two years from the enactment of the RFS, it was expanded and called for a staggering 36 billion gallons of ethanol. It was at that point in time Big Oil declared an all-out war and launched the food vs. fuel campaign with a vengeance. There had always been the stigma of corn being used for ethanol, and the oil industry did not let the fact that 95% of corn grown is not for human consumption get in the way of their story. Nor did they

EPA's Mission Statement

"To protect human health and the environment."

Source: EPA, Feb. 7, 2018.

EPA is responsible for preventing and detecting environmental crimes, informing the public of environmental enforcement, and setting and monitoring standards of air pollution, water pollution, hazardous wastes and chemicals—with a budget of \$8.1 billion.

mention that only the starch content of corn was converted to ethanol, leaving a high protein feed with a greater value than just the corn they started with. All they had to do was plant the image of third world children suffering at the hands of big agribusiness and let it loose.

Admittedly, when the RFS 2 passed, a combination of factors, largely driven by global demand, high oil prices, and speculators drove the price of all commodities, including corn, beyond any predictions. It was perfect for the argument that it was ethanol's fault. The irony is that the highest commodity price jump was oil, not agricultural products. That did not stop the petroleum industry from piling on this effort to deflect attention from skyrocketing oil prices.

It is difficult to imagine Big Oil did not have a hand in funding the powerful Grocery Manufacturers Association (GMA) when it launched a brutal multi-million dollar campaign against ethanol. The GMA officially put out a request proposal for \$5 million to discredit ethanol, which U.S. Senator Grassley made very public in a floor statement.^{lxxii} They settled on using the Glover Park Group in Washington D.C.^{lxxiii} Was \$5MM a lot of money for the GMA? Consider the GMA had a budget of \$12.8MM in 2005, they spent \$1.4MM for lobbying in 2006, \$1.5MM in 2007, and \$4.5MM in 2008. Records indicate they lobbied bills about the RFS and ethanol.^{lxxiv} Did GMA spend nearly 50% of their budget to act alone and launch a brutal, multi-million dollar media campaign against ethanol to create a scapegoat for rising food prices? We don't believe so.

For years, anti-ethanol crusaders leveraged this campaign to blame ethanol for higher food prices and used an emotionally driven strategy to take advantage of fear and hate to try and kill the RFS and ethanol. Thankfully now it's all refuted history.

It also wouldn't be such a heinous lie if the opposite weren't true (See Figure 1). Crude oil prices drive consumer prices because crude oil drives the price of everything. Reputable studies from both government and private sector experts confirm on average only 7.8¢ of every dollar spent on food is due to the food stock. The majority is processing, transport, packaging, and profit — all with ties to petroleum. This 7.8¢ average takes into consideration tomatoes and strawberries on the high side of 30-40¢, and corn at less than 5¢ on the low side. In 2016 USDA estimated the farmer's share of the food stock was only 7.8¢. For almost all corn derived products the bag holding the contents costs more than the contents. For example, a bag of Cheetos has about 3¢ worth of corn and a box of corn flakes has less than a nickel. Compare those prices to what consumers pay at their local store.

One of the great examples of doublespeak and irony are the [TV commercials Texaco ran nationally using America's trusted icon Bob Hope](#). At that time Bob Hope was on par with Walter Cronkite and John Wayne as being one of the most respected and trusted spokespeople in the U.S. In these commercials they touted the benefits of ethanol as a high performance, clean burning fuel. In fact Texaco's slogan was "*You Can Trust Your Car to the Man Who Wears the Star*".

DOE's Mission Statement

"To ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions."

Source: U.S. DOE

DOE's budget request for 2019 is \$30.6 Billion for which only \$696 Million will be for the Office of Energy Efficiency and Renewable Energy.

Other companies fighting ethanol in the United States ran advertisements and created strategic alliances to support ethanol and biofuels in other countries. Often it seems, petroleum companies support ethanol when it's profitable for them, but demonize it when it begins to encroach on their market.

Figure 1
2016 Food Dollar



Source: U.S.D.A. Economic Research Service

Conclusion

The FUE Perspective: How is it that...



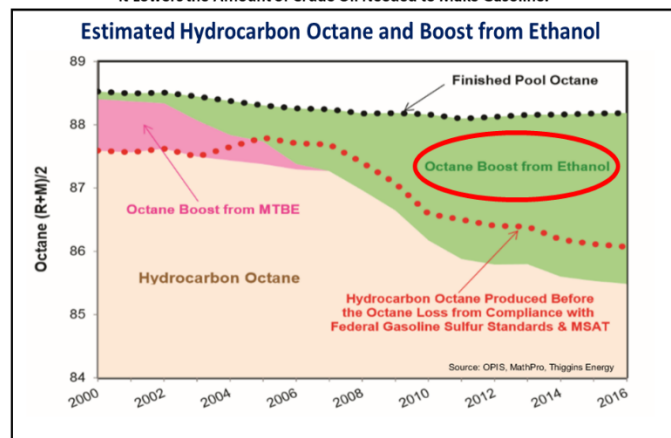
How is it that everyone knows a lot about ethanol, but not the truth about gasoline, benzene and aromatics? Why don't we get a choice in our fuel? Why won't the EPA enforce section 202 (l) of CAA to protect public health? Ethanol is a viable solution--why does the EPA ignore it? #Gasolinegate

As we conclude the Gasolinegate Report, please don't think our coverage of this critical issue will stop. For example, as of this writing, Big Oil is likely working with [U.S. Environmental Protection Agency's Office of Transportation and Air Quality \(EPA/OTAQ\)](#) to implement a E15 Waiver rule that will limit the use of ethanol blends over 15% and kill Section 202 (l) of the Clean Air Act — yet today 145 people will also die prematurely from transportation related air pollution. Where is SAFE.

FUE will continue to question, monitor, and oversee the actions by the EPA with regard to Section 202(l) in Title II of the Clean Air Act Amendments of 1990 contains Congressional language stating EPA shall use of Maximum Achievable Control Technology (MACT) and “Technology-Forcing” regulatory adjustments to reduce toxics in gasoline as they present themselves. The Administrator can decide on the greatest degree of emission reduction achievable through the application of technology which will be available by taking into consideration many variables that include commercial availability and cost.

FUE remains committed to improving air quality and protecting public health by reducing the use of toxic/carcinogenic aromatic additives to improve emissions and the economy (i.e., create jobs, save lives & money). We are focused on increasing the use of the one commercially available alternative to those toxic/carcinogenic aromatics. That happens to be low-carbon high-octane ethanol which has been proven to replace harmful aromatic compounds in gasoline. We will need gasoline to fuel our transportation for decades to come – it simply can become a better fuel with the addition of ethanol. FUE wants to help the EPA/OTAQ and the federal government meet its public policy goals to lower

Exhibit A
Ethanol Displaces the Most Toxic, Higher Cost, Higher Carbon, Higher Octane Components in Gasoline (BTEX).
When Refiners Adjust their Processing due to Ethanol's Octane Value it Lowers the Amount of Crude Oil Needed to Make Gasoline.



emissions and reduce carbon in our environment through scientific studies and real-world data to promote better fuel blends, engine design, and public awareness.

We end our series hoping that “we the people and you the jury” concur that EPA/OTAQ has either through outright conspiracy, collusion, incompetence or a combination of all, has not acted in the best interest of the public. We have created a list of perspectives.

Here are a few of our questions:

1. **How is it that** Most everyone appears to know A LOT about ethanol (mostly negative) — while those same people know almost nothing about the direct impact of gasoline aromatics on their health?
2. **How is it that** Oil companies can complain about policies to promote domestic clean burning fuels – yet won’t relinquish the billions of dollars in tax subsidies and polices they receive?
3. **How is it that** Big Oil can be so worried about a product that is cheaper, cleaner, with more societal benefits than theirs – yet refuse to improve their product?
4. **How is it that** Big Oil, being faced with uncontrollable oil supplies from non-reliable sources in a 100-year war zone, would want the American Petroleum Institute to kill the U.S. renewable fuel standard while calling on the EPA to create a regulation to prohibit vehicles from using more than 15 volume percent (vol %) ethanol? (See Exhibit A)
5. **How is it that** The EPA can spend billions of dollars on the 50% of pollution that comes from stationary source emissions, and much less on the more toxic 50% of emissions that come from mobile sources?
6. **How is it that** All of the Big Oil financial analysts missed the mark when they predicted the renewable fuel standard would increase the price of gasoline, ethanol, corn, and food? (See Exhibit B).

Exhibit B
The Impact of the RFS is
More Jobs & Economic Development
Less Aromatics in Gasoline & Lower Fuel Prices
Lower Food Prices (i.e., lower crude oil prices)
Corn Prices Heading Lower - Again

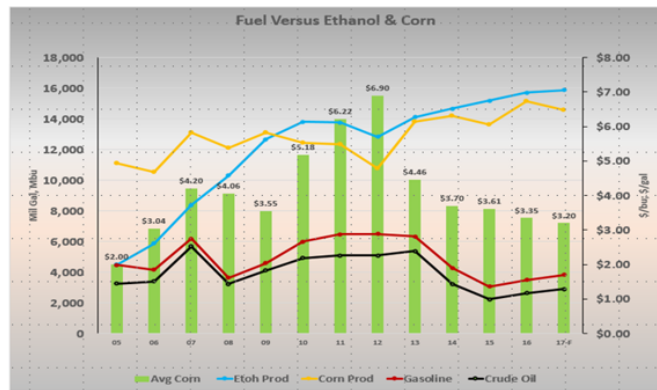
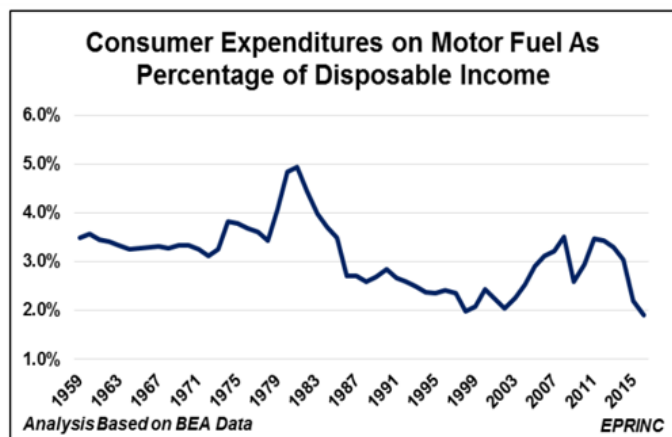


Exhibit C



7. **How is it that** Automakers continue to put their future in the hands of Big Oil and not force them to clean up and improve their product?

8. **How is it that** The EPA can simply refuse to update a required cost benefit analysis to Congress for 10 years that projected \$19 barrel crude oil, ethanol price relationships that never existed, and ethanol production that was met less than 2 years after their projection?

9. **How is it that** For 100 years Big Oil complained to the government, Congress, the media and the public that that policies to make cleaner domestic fuels will cost more, yet instead the opposite occurred? Despite insisting that gasoline prices would increase about \$1 per gallon for each product enhancement, when forced to adopt these changes, we got cleaner fuels and \$42 billion in economic activity, at no cost to the consumer. In fact, they spend less on gasoline than they did 59 years ago (see Exhibit C) — ethanol is still the most economical octane enhancer, and is still less than the price of gasoline.

10. **How is it that** The EPA simply ignores the science and pleas from industry to move to real fuel testing under real world driving conditions?

11. **How is it that** Many policy makers and consumers don't realize that if there is a "free market" for crude oil and gasoline, the extra supply of ethanol reduces the price of crude oil and gasoline – and therefore every product that it impacts (which is everything)? If one believes there is not a free market for crude oil and gasoline, then that's another good reason to have ethanol.

12. **How is it that** It's been 100+ years since the production of the first car being able to run on any combination of ethanol and gasoline, yet today automakers say (with the exception of BWM Mini Cooper) they can't exceed 15% ethanol? What would Henry Ford say?

13. **How is it that** Dieselgate has propelled Europe into real-world fuels and real-world testing – and we are just getting started on Gasolinegate?

14. **How is it that** Nobody can get the EPA/OTAQ to do the next right thing?

Exhibit D – Need Original Chart

EPA Certification/Test Fuels v. Real World Testing
Ethanol Lowers Particulate Matter and Toxics

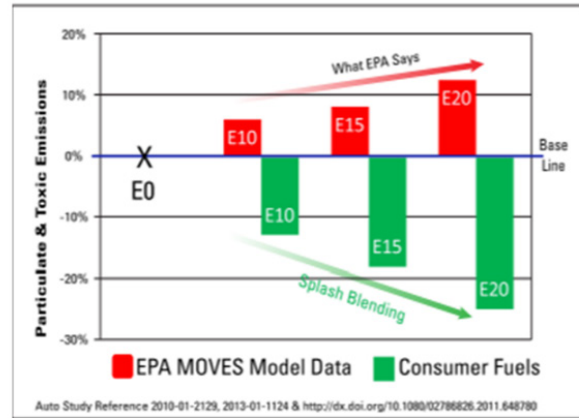
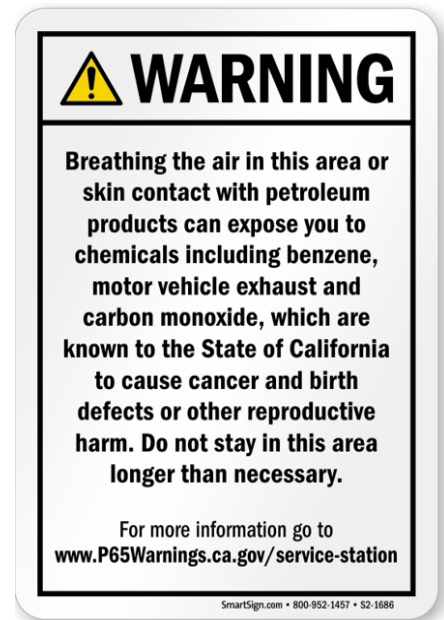


Exhibit E



- 15. How is it that** All pumps in the U.S. have a “Contains 10% Ethanol” label – yet only one state (California) has a label about the dangers of benzene or other aromatics?
- 16. How is it that** In three years the Food and Drug Administration (FDA) could get McDonalds’ to take the trans-fat out of their food to protect the public health – and in 28 years the EPA can’t get Big Oil to lower the aromatics in gasoline and the nation’s bloodstream?
- 17. How is it that** In the past two decades, the ethanol industry does not have any outstanding grievances or issues with the U.S. Department of Energy, U.S. Department of Agriculture, any other agencies, or the U.S. Congress? It is clear, that the EPA continues to create roadblocks and detours to market growth and is actively evading or trying to change existing laws and rules to go against the intent of public policy.

Is this a case of “regulatory capture” by the oil industry, or is the EPA intentionally adhering to the oil companies best interests? In either case, the time has come to curb Big Oil’s influence on the agency and address this anti-ethanol bias.

With all of that in mind, where are we today? Consider the following laundry list of unresolved issues/requests/questions that have been submitted to EPA on numerous occasions. In each item on the list presented EPA/OTAQ can take action to stimulate market competition, provide free market access, and restore confidence and integrity in government oversight. What will be the outcome of SAFE? Will it break the trend or provide another example?

GLOSSARY:

Reproductive Harm occurs when a chemical interferes with the ability to produce normal, healthy offspring. This includes effects on the female and male reproductive systems, and effects on the developing embryo, fetus, or child, resulting from exposure during pregnancy. Under Proposition 65, “reproductive toxicity” includes “developmental toxicity,” “female reproductive toxicity,” and “male reproductive toxicity.”

Reproductive Toxicant: An agent that can cause reproductive toxicity.

Reproductive Toxicity occurs when a chemical interferes with the ability to produce normal, healthy offspring. This includes effects on the female and male reproductive systems, and effects on the developing embryo, fetus, or child, resulting from exposure during pregnancy. Under Proposition 65, “reproductive toxicity” includes “developmental toxicity,” “female reproductive toxicity,” and “male reproductive toxicity.”

Source: CA.gov

Table 1

<p align="center">Actions EPA Can Take to Lower Toxic/Carcinogenic Aromatics and Save Lives, Save Consumers Money, and Create Jobs</p>	<p align="center">Approximate Date Requested</p>
<p>EPA needs to restore 1.5 billion gallons of lost ethanol demand due to the RFS waiver for small refiners and place the burden of relief on suppliers of crude oil imports.</p>	<p>August 2018</p>
<p>EPA needs to stop using contrived fuels and testing procedures and begin certifying the emissions and efficiency of vehicles with real-world testing and stop covering up for the harmful effects of aromatics and mobile source air toxics (MSATs) on the public health (i.e., Gasolinegate).</p>	<p>August 2018</p>
<p>EPA needs to enforce the Section 202 (I) in the CAAA to remove mobile source air toxics [aromatics] to the extent possible.</p>	<p>August 2018</p>
<p>EPA needs to update and correct its MOVES Model and fix the fuel economy formula that blames ethanol for higher emissions and therefore prevents state regulators from getting SIP relief by using more ethanol blends. EPA still penalizes ethanol for increasing CO₂ emissions because of match blending test fuels. EPA modeling should be based on splash blending ethanol, or simply adding ethanol to gasoline.</p>	<p>August 2018</p>
<p>EPA needs to update its 10-years-past-due 2007 MSAT Rule Cost/Benefit Analysis regarding ethanol which will prove ethanol is a lower cost option that is technologically and readily available.</p>	<p>August 2018</p>
<p>EPA needs to eliminate the REGS Rule provision that would cap ethanol blend use in conventional vehicles at 15 vol %.</p>	<p>August 2018</p>
<p>EPA needs to correctly interpret the 211 (f) sub sim provision.</p>	<p>August 2018</p>
<p>EPA needs to approve an alternative certification fuel with 25–30% ethanol to give consumers and automakers more choices.</p>	<p>August 2018</p>
<p>EPA needs to reinterpret the RVP waiver statute to apply to all fuel blends containing gasoline and at least 10% ethanol—not just E10.</p>	<p>August 2018</p>
<p>EPA needs to adopt an updated lifecycle analysis of ethanol’s greenhouse gas emissions that reflects the evolution of improvements recognized by the Department of Energy, the Department of Agriculture, and other subject matter experts.</p>	<p>August 2018</p>
<p>EPA needs to stop defending the use of aromatics in \$60 billion worth of imported oil from OPEC that is used by U.S. refiners to make gasoline – at a higher cost and with higher toxics?</p>	<p>August 2018</p>
<p>EPA needs to consider the proven science and concern by public health officials over toxics in gasoline, and question why it would possibly consider introducing a rule to stream line reformulated gasoline (RFG) provisions that would repeal section 202 (I) in the Clean Air Act limiting toxic/carcinogenic aromatics (when asked, EPA officials did not know either).</p>	<p>August 2018</p>
<p>EPA needs to review the checks and balance systems in place and determine who specifically monitors the Clean Air Act Amendments of 1990 (CAAA) for backsliding and anti-dumping regulations for the increased use of aromatics in gasoline? New reports and data clearly indicate there is an increase in the volume of aromatics as well as the need to increase aromatic use in the gasoline pool to boost octane to make up for the growing low octane sources of crude oil refiners are buying from shale oil producers and from Canada.</p>	<p>August 2018</p>

The trend continues. Since our investigation started two months ago, we have had to add several additional components to our list of examples and compelling events. What do you expect will be the next critical issue in our continuing battle with EPA/OTAQ to improve your air quality in the United States to the extent possible? What is your perspective?

Please send us your perspective on this series as it applies to you personally, your organization or, from your special viewpoint. Where will Gasolinegate take the fuels debate and the nation?

Where and when do you take a stand on what's in your fuel and your air?

When we started our research we had to determine if we passed the “gate this and gate that” litmus test.

1. Human(s) acted unethically and without integrity (possibly illegally) with the purpose of personal interest over public interest.
2. The action was taken with the intent to create an advantage over a competing interest.
3. The human activity was uncovered and then corrective actions were taken because there was not an admission of wrong doing or correction.
4. The result of the overall activity harmed the government's credibility and integrity of government oversight – which harmed the public and our democracy.



It's easy for you to be a victim, but It's easier for you to be a health advocate and a SAFE gasoline activist. In 100-years gasoline makers never volunteered to make gasoline cleaner, they had to be told to do it.

Join a growing number of organizations and educated consumers demanding EPA to do their job and enforce Section 202(1) of the Clean Air Act Amendments of 1990. The Act requires the EPA to fulfill the Congressional intent when it directed the agency to control these hazardous air pollutants and develop standards that “reflect the greatest degree of emissions reduction achievable.”

Please act now. We urge you to sign the “EPA: Make Gasoline SAFE!” Petition, to ensuring we have SAFE cars, SAFE gasoline, and SAFE air. It's time to demand change @ : www.change.org/p/environmental-protection-agency-epa-make-gasoline-safe. - The Life You Save - May Be Your Own.

Endnotes

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