

Comment 1 for Air Quality Improvement Program Guidelines (aqip09) - 45 Day.

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Subject: Anhydrous ethanol additive to gasoline

Comment:

Will California make the right environmental/energy/health/climate choice?

If you scrutinize the information provided by the links at the end of the article, you'll learn there's no actual energy or environmental crisis in the US or anywhere else in the world. It's real but there are ways to avoid it that have been ignored, technologies we can still latch onto to solve our energy problems while at the same time changing our health, pollution, and global warming equations dramatically.

These four points are at the core of the most important issues we face today;

- 1- The weather pattern changes we call global warming are not caused by carbon dioxide (CO₂) but rather methane(CH₄), low level ozone forming pollutants (VOC's), low level ozone (O₃), and their reactions with sun light and atmospheric water vapor (H₂O).
- 2- Gasoline and diesel fuel can be refined to give 20% more mileage with 70 percent less pollution using polymer additives that are produced in the same kinds of refineries that gasoline is.
- 3- Anhydrous (water removed) ethanol, the kind of ethanol added to gasoline now, causes high emissions of volatile organic compounds (VOC's), a low level ozone precursor. It also causes loss of mileage, produces huge amounts of ozone forming pollutants where it's refined while pumping billions of tons of water vapor into the atmosphere mixed with pollutants, and has to be transported in trucks, trains, or barges because it's too corrosive for pipelines.
- 4- Hydrous ethanol (water left in or added) can be used as fuel by itself or mixed with gasoline while causing no mileage loss, no increase in emissions, and can be transported through pipelines. It's also cheaper to produce greater volumes of it while causing fewer emissions at the refinery.

Four points, it's just that simple. The story of why we aren't using them is too politically sensitive and convoluted to explain in a encyclopedia/news format. In reality, Barack Obama can solve most of our problems without reading the rest of this article if he looks into the four facts laid out above. But it would help him

understand why this would work if I better explain it.

Politics of Global Warming

The politics of global warming isn't as complicated as it is made out to be. It was first debated in the 1980's. There were many theories on what might cause it. Europe liked James Hansen of NASA's idea that CO₂ would change our climate by dramatically warming it. This was because they were already heading in the direction of a more efficient energy and industrial infrastructures which reduced their CO₂ emissions.

The popular solution for controlling CO₂ emissions is called "cap and trade." It works by setting a standard for CO₂ emissions that gives credits to industries who meet it. Then they can sell them to other companies who can't live up to the regulated CO₂ emission levels. In order to get a program like this started without shutting down any industry that can't meet the new criteria, someone has to have CO₂ credits to sell. Since Europe was the only league of nations that had industries that already met the standard for CO₂ emissions, they stood to make a great deal of money under that kind of system.

Since our Democratic Party has close ideological ties with many European countries, liberal politicians chose CO₂ to build legislation around to prevent a future global warming. Republicans and moderate Democrats either took a stand that there would be no global warming or that they would believe it when they saw it. After that, other actually more plausible climate change theories like that of Drew Shindell, also from NASA, were banished from the mainstream popular global warming debate.

After that, climate science legislation and funding focused on CO₂ even as there were no discernable signs of an impending global warming coming and no science that proved CO₂ was going to bring it. Then when extreme weather patterns started to repeat themselves year after year starting in the mid-1990's, more Americans started to believe that anthropogenic (caused by human beings) global warming was real. Since liberal Democrats had been the first to claim it was on the way and would be caused by CO₂, which is a long term gas that stays in the atmosphere for more than a hundred years, naturally everyone believed they were right about it all along.

But as weather patterns have been changing, so have our emissions of short term non-CO₂ gases. These short lived gases had been forecast to change weather patterns, not on a global scale but regionally on a global scale, by Professor Shindell in the same 1980's debates that Hansen's CO₂ theory was chosen as the winner of by nonscientist politicians. But Shindell's theory was dismissed in favor of CO₂ for political reasons. Now Shindell is back on the front pages with even the CO₂ believers standing behind his science. Only now his computer model science supported by new satellite technology much more profoundly proves what he has been saying all along. And finally the world is starting to listen.

Shindell: US "surface transportation sector" biggest threat to climate change

The changes in our emissions of VOC's from automobiles has been causing the changes in climate that is forcing many Americans to believe global warming is real. This originated primarily from an

additive to gasoline called MTBE. It was mandated as an oxygenate to get rid of smog in the Clean Air Act of 1990. It was able to do this by causing high emissions of formaldehyde, a VOC that when combined with nitrogen oxide (NO) emissions from diesel engines and coal burning (smog) in the sun's rays, dissolves the smog, or rather ignites in an invisible chemical reaction resulting in low level ozone and peroxyacetyl nitrate (PANs), both tragically bad for human health and the natural environment.

Although ozone and formaldehyde emissions are more dangerous than the byproducts of diesel and coal burning, it's less visible. So it impressed Americans concerned about pollution with the notion that air quality was safer. This satisfied the needs of the oil industry that lobbied congress through Enron corporation to mandate MTBE to be added to gasoline so they did not have to deal with getting rid of the smog themselves but rather put the burden on the gasoline consuming surface transportation sector .

Since the government had adopted CO2 as the culprit of future climate change, when MTBE use led to changes in weather patterns wherever it was used, MTBE wasn't suspected as the cause. Rather when MTBE use first started, it was reported that nationwide weather pattern changes were the result of a natural phenomenon called El Nino, a slight warming of Pacific Ocean coastal currents that migrate up from the southern hemisphere in the winter months every so many years.

After El Nino passed while weather patterns remained changed, global warming caused by CO2 theories, which is a change in climate that is supposed to happen on a global scale from collective manmade emission buildups of CO2 that there would be nothing we could do to stop once it occurs, became the sole popular suspect of climate change. Since there was a time lag by first reporting El Nino as the problem when MTBE use first began and when global warming beliefs grew into a national debate, curiosity about what was causing weather pattern changes didn't look at MTBE. This served to validate CO2 theories that were politically motivated while keeping the science of Drew Shindell from coming to light.

Personally, I've always questioned how El Nino was forecast to bring changes in weather pattern that were going to be caused by MTBE. Then when it happened, no one questioned how slightly warmer ocean waters off California's coast could cause horrendous changes in climate in the Northeastern states in the middle of winter. It just doesn't make sense. Winter isn't caused by cooler ocean waters. It comes from the northern hemisphere moving further from the sun as the earth orbits the sun tilted on its axis. Warmer ocean waters can affect coastlines it's moving off the shores of but not on the other side of the continent. So I can only assume it was known what the true cause was going to be in order for it to be said it was coming before it happened. In fact it only makes sense for me that way, that the El Nino forecast was provided as cover for what was known to be going to happen.

Regardless of what the truth of that matter is, we now know that MTBE did cause those changes in weather patterns because science shows that there is no way it couldn't since the pollution it creates do in fact cause those same kinds of weather pattern changes, unseasonable warming, drought, flooding, and violent storms.

NASA climate science politics: Hansen -v- Shindell

Professor Shindell's work was well known in Washington DC and easily accessible at the time MTBE was first proposed to be mandated by federal law to be added to gasoline. In fact it wasn't long after Shindell had been providing wide access to his research around Washington that the idea of using MTBE to get rid of smog arrived in the Clean Air Act of 1990. So it's entirely possible that his work provided the inspiration for using MTBE to get rid of smog, which would mean it was decided that climate change science could be used to create emissions that would get rid of smog while knowing that it would effect weather patterns as well.

Perhaps the political choice of forecasting CO₂ to be the sole factor in climate change gave some of our leaders the impression that Shindell's work was failed climate science but could still be used for other purposes like using nuclear technology to produce bombs instead of energy.

The first MTBE theory sold around Washington was that its emission would mix with smog causing it to rise into the upper atmosphere and be carried away on the jet stream to be dumped in the Atlantic Ocean. That's the same story we're hearing from Shindell now about what's causing weather pattern changes. Only now he can prove it where initially he was looking for funding for research to prove that his theory was correct, just like Hansen was. Hansen on the other hand can still only call his science a theory while Shindell has proven his to be in fact reality.

In the 1980's climate change debate, everyone in Washington knew that James Hansen's work had been chosen over Shindell's for political reasons. No one was seriously looking at CO₂ as problematic when the future of climate change debate ended with CO₂ being chosen as its future mascot. In fact Hansen himself changes the focus of his publishing's to reflect Shindell's science whenever the true story of climate change looks like it might surface in a public way. Then he goes back to talking about CO₂ when the coast is clear as if he had never suggested that long term CO₂ gases are not a problem while all our attention should be devoted to short term gases are.

Hansen is right to project support for the short lived gas view as geological studies are showing more evidence every day that the earth has been through more than a few apocalyptic changes in climate that begun with short term gases causing small warming patterns that set in motion a kind of domino effect that leads to methane melting from under the ocean floors and frozen tundra's of the northern hemisphere. But when he goes back to pretending CO₂ is what we should be focused on because it makes him popular in Hollywood and the liberal environmentalist community, he risks the future of life on earth.

In August of 2000, Hansen told CNN that "If you add up the sum of other gases, methane, tropospheric ozone, chlorofluorocarbons and nitrous oxide, they cause a slightly larger forcing (warming) than you get from carbon dioxide." In the same article he also said "It makes a lot of sense to try to reduce these gases because, in some ways, it's easier and some have undesirable effects. Tropospheric air pollution is harmful to human health and agricultural productivity."

In August of 2000, he also published a paper titled "Global

warming in the twenty-first century: An alternative scenario" where he writes "A common view is that the current global warming rate will continue or accelerate. But we argue that rapid warming in recent decades has been driven mainly by non-CO2 greenhouse gases (GHGs), such as chlorofluorocarbons, CH4 (methane), and N2O (nitrous oxide), not by the products of fossil fuel burning" and also "If sources of CH4 and O3 (ozone) precursors were reduced in the future, the change in climate forcing by non-CO2 GHGs in the next 50 years could be near zero. Combined with a reduction of black carbon emissions and plausible success in slowing CO2 emissions, this reduction of non-CO2 GHGs could lead to a decline in the rate of global warming, reducing the danger of dramatic climate change."

In August of 2000, the politics surrounding MTBE nearly lead to the truth about its effects on climate change coming out. After the threat had passed, Hansen went back to talking about CO2 and global warming supporting the political notion that it was the sole cause of weather pattern changes we were already experiencing that most Americans were becoming deeply concerned about. In fact he was the lead climate advisor for Al Gore in the production of his 2006 Nobel Peace Prize/Academy Award winning documentary "An Inconvenient Truth" which focuses primarily on CO2 being the culprit of climate change.

In July of 2006, Hansen writes "Methane (CH4), which is "natural gas" that escapes to the atmosphere from coal mines, oil wells, rice paddies, landfills, and animal feedlots, is also an important greenhouse gas" and "Further global warming can be kept within limits (under two degrees Fahrenheit) only by means of simultaneous slowdown of CO2 emissions and absolute reduction of the principal non-CO2 agents of global warming, particularly emissions of methane gas. Such methane emissions are not only the second-largest human contribution to climate change but also the main cause of an increase in ozone—the third-largest human-produced greenhouse gas—in the troposphere, the lowest part of the Earth's atmosphere." This was in an article titled "The Threat to the Planet."

May of 2006 was when MTBE was replaced with ethanol, which is now wreaking havoc across the Midwest where ethanol refineries spew out tons of VOC and NO emissions mixed with billions of tons of water vapor from their distilling towers. When it looked like the story of what really causes weather pattern changes wasn't going to make it to the front pages of most major news sources, Hansen appears to have gone back to publishing articles that only talk about CO2.

The 2006 changes in climate were easily evident by simply following national weekly rain patterns that followed a Monday to Friday workweek schedule as pollution levels rise and fall with the days we pollute the most when we work to those when we don't work or drive as much like Saturday and Sunday. This is shown to be true by another NASA scientist named Thomas Bell in his paper titled "Midweek increase in U.S. summer rain and storm heights suggests air pollution invigorates rainstorms." His focus on this new area of climate concern began in 2006. But he sites pollution effecting atmospheric water vapor cycles going back over a decade to when MTBE was at the height of its excessive use.

So before 2000, Hansen says CO2 will cause global warming. In 2000, he says it has nothing to do with changing weather patterns where it will rather be caused by "non-CO2 greenhouse gases (GHGs), such as chlorofluorocarbons, CH4, and N2O, not by the products of

fossil fuel burning." Then he reverted back to CO2 until 2006. Now he's back to saying it's caused by CO2 again, or was the last I read anything he wrote.

Shindell's climate record

Professor Shindell, who works out of the same NASA office as Hansen, has only ever sighted one cause of climate change, the one that Hansen talks about when it looks like the cat's going to get out of the bag about what really causes it. Shindell was recognized in 2004 for being among the top fifty scientists in the US by Scientific American, the only NASA scientist to ever receive this honor. So in December of 2004, Scientific American was saying that the person the world should be listening to on climate change issues was Drew Shindell.

In January of 2005, a few weeks later, Hansen launched an attack against George Bush claiming he was censoring his work preventing him from telling the world how CO2 was causing climate change. The administration responded by saying they had not stopped him from talking about his science but from deciding economic policies. Bush had just put together the Asia-Pacific Partnership on Clean Development joined by Australia, China, India, Japan, and South Korea, to help those countries reduce emissions of methane. He also created a program here called Methane to Markets that works by inspiring investment in capturing methane for energy production that would otherwise become a greenhouse gas. Hansen supported both moves.

But with regards to his stand on CO2, Hansen came out with a public relations campaign against Bush that effectively undercut Professor Shindell from getting his 15 minutes of fame after he was chosen as our top climatologist. As stories of Shindell's recognition by Scientific American became the focus of reporting on climate science taking away the attention usually reserved for Hansen, Al Gore, and their CO2 theory, the story about Bush censoring the truth about CO2 causing global warming was just what the news media needed to put Hansen back in the global warming limelight.

Mainstream worldwide news sources have generally always, and apparently still do, support the politically correct version of CO2 being the cause of global warming. With Bush's popularity back then being at all time lows (not as compared with today), a NASA scientist coming out claiming his science was being repressed made Hansen the new man of the hour on climate issues once again.

In January 2007, Shindell testified before the Congressional Oversight and Government Reform Committee that his work was being censored by Bush administration hacks from the oil industry. But even then, Shindell's words were twisted around by Democratic members of the committee to reflect the view that it was CO2 related global warming science was being altered by the Bush administration in order to downplay the significance of its effects on global warming rather than what he was trying to say about how climate changes are being caused by pollutants when and where they are emitted.

In January 2008, Mark Bowen published a book titled "Censoring Science: Inside the Political Attack on Dr. James Hansen and the Truth of Global Warming." It's about how Bush dropped compromises that Bill Clinton had made on CO2 emissions with the EU when he

took office in 2000. Bowen makes no mention of the Asia-Pacific Partnership on Clean Development which the Kyoto Protocols/CO2 crowd says is an attempt by Bush to deny global warming. His book does however support James Hansen's CO2 view but makes no mention of ozone's effect in changing weather patterns as they are emitted into the atmosphere.

Is there any evidence to support my claims?

I remember reading an article in 1990 in The Washington Times about an additive to gasoline that was being considered to be mandated for use in our national fuel supplies by our political leadership that would create emissions that would blend with smog causing it to dissolve into gases that would then float high enough into the atmosphere to move into the jet stream where it would be carried out over the Atlantic Ocean and dumped there in rain. The idea was troubling to many in congress and was never brought up again.

Some months later, the Clean Air Act of 1990 debate began. The debate began just after it was reported in The Washington Times, in articles I've never been able to retrieve copies of, about an additive to gasoline called polyisobutylene (PIB) that would give 20 percent more mileage with 70% less emissions. This led to calls for then president George H.W. Bush to force the oil industry to use it. When he put pressure on them to agree to go along with a PIB program, they refused. But they hinted they would be willing to use MTBE which was claimed to be almost as good as PIB and even had PIB in it. But then just about everything made from crude oil has some form of PIB in it, including gasoline. The new PIB additive to gasoline simply came in a slightly longer molecular version.

So MTBE was settled on as the additive of choice against the beliefs of the scientific community who thought it would be bad for the environment with some even having concerns for how it would effect the atmosphere. As it turns out, the way MTBE works to get rid of smog, or oxygenates including anhydrous ethanol, is to cause smog to dissolve into thinner gases that then rise into the upper atmosphere where it's carried east by the jet stream and dumped in the Atlantic Ocean, unless of course it falls somewhere else. I've been contested on this memory many times since I started writing about it in 2000 so I offer this evidence to support my recollection of these articles that have apparently, along with many others relating the MTBE/Clean Air Act of 1990 story, been removed from The Washington Times archives.

In April of 2006, Stanford University atmospheric scientist Mark Jacobson published his findings that anhydrous ethanol added to gasoline as an oxygenate, which is also what MTBE is, worsens air pollution. He goes on to report that although it does get rid of nitrogen oxide smog when its VOC emissions blend with it in UV sun rays, the result is low level ozone and peroxyacyl nitrates (PAN's), both which are very dangerous for human health and the environment. He's in the process now of publishing another paper that shows his past findings to have underestimated the negative effects of ethanol on human health and the environment, including its effects on climate change. He also argues it's the worst possible alternative source of energy we could choose while it receives the most funding and positive attention from the government.

MTBE creates even more VOC emissions (formaldehyde instead

acetaldehyde) than ethanol. Oxygenates were mandated to be used initially only during the winter months to aid engines that were too old to have been required to have emissions systems on them. Oxygenates were only supposed to help when these old vehicles engines were warming up on cold days where they are prone to emit high levels of carbon monoxide.

At the time, most engines were new enough to have emissions systems with fuel injected ignition systems. Oxygenates do not work well with fuel injected systems and engines with low compression ratios like many new models have. But unburned emissions of MTBE and its pollutant byproducts were projected to not be a problem because winter cold would cause it to hover near the ground waiting to be washed away in snow and rain. That's what was reported in The Washington Times in 1990, then again in 1995 when they decided to use MTBE year round all over the country at 15% instead of 11 percent.

Really the only reason MTBE helped mitigate carbon monoxide emissions was because it sticks to the side of cold piston cylinder walls so the piston pushes it to the top of the chamber as the exhaust valve opens where it ignites while mixing with gasoline emissions turning carbon monoxide emissions into other dangerous pollutants. The truth is there was no carbon monoxide emissions problem in the US at that time.

In 1995, MTBE was required to be used at 15 percent per gallon of gasoline year round even in warm regions to get rid of smog. By then it was largely forgotten by the public why it's was originally mandated to be used. This was when year round rain and flooding patterns turned to a national drought. At that time, as it is today, most Americans are not aware of what MTBE is, nor that ethanol is an oxygenate. MTBE had been being credited with getting rid of smog since its use first began even though that wasn't what it was supposed to do. In fact gasoline engines weren't blamed for creating smog while diesel engines and coal fired smoke stacks were. But MTBE was said to be a cleaner fuel that got rid of smog so none of the few people that knew enough to question the story said anything about increasing its use to 15% and using it year round.

How to clean up our fossil fuel equation

I've also been challenged on the assertion that there is an additive to gasoline that gives 20% more mileage with 70 percent less emissions. I never knew if it existed or not, just that a story about it giving this kind of performance was used to give the impression to the American people, who too distracted by Saddam Hussein's invasion of Kuwait to pay much attention to the details of the Clean Air Act of 1990 debate, that gasoline additives were the key to solving the future of energy and many of our environmental concerns. Then MTBE was substituted for PIB while giving the impression it was just as good.

At the same time I started trying to draw attention to what MTBE was doing to weather patterns, on August 25, 2000, August Gibbons of the Washington Times published an article titled "Chemist claims fuel additive cuts pollution, boosts mileage." In it he told the story of PIB and the company that held the patent on it as a gasoline additive GTATech.com. The company has since then become VisconUSA.com which sells its PIB additive to the state of Texas to be added to diesel fuel so they can reduce emissions in order to

bring them into compliance with EPA air quality rules.

Viscon is promoted to give more mileage as well as reduce emissions but the increased mileage aspect isn't mentioned in reporting about its use in Texas. It's been thoroughly tested and certified by the State of Texas while Viscon's owner Jerry Trippe has been contracted to advise diesel refiners in Texas about how to produce diesel fuel with the same properties that PIB gives it when added to it. PIB is refined from crude oil just like gasoline and diesel fuel are. So actually gasoline and diesel fuel can be refined to give more mileage with fewer emissions.

There's another company that claims no connection to Viscon that sells an additive called Ultimate ME2. They report it to have been tested and approved by the EPA. They say it gives the same increase in mileage for diesel fuel and gasoline as Viscon's PIB additive while reducing emissions and cooling engines, which Viscon makes these exact claims as well. It's also mixed with fossil fuels at the same ratios as Viscon and reported to be refined from crude oil as well. So if it works like Viscon apparently does for the state of Texas, whatever Ultimate ME2 is, gasoline and diesel fuel can be refined to have the same properties it offers as well.

Ultimate ME2 never return my emails inquiring if it's a PIB additive. If it is, then the EPA and the state of Texas are aware of additives to gasoline and diesel fuel that give 20% more mileage while causing 70 percent less emissions, which means 20% more fossil fuels for the world with almost no more pollution from either one. But since PIB is refined from crude oil, it means that diesel fuel and gasoline can simply be refined to have these properties, which is also evidenced by the fact that Viscon is aiding the state of Texas in learning how to refine diesel fuel with the same properties that Viscon gives it.

How to fix the ethanol equation

Mark Jacobson of Stanford University demonstrates conclusively that anhydrous ethanol added to gasoline causes many disastrous consequences for health and the environment. But his research focuses solely on anhydrous ethanol. Drew Shindells research demonstrates without a doubt that ethanol emissions cause extreme changes in weather patterns. But it's easier viewed first hand than studied though NASA computer modeling because it's been happening on quite a dramatic scale since anhydrous ethanol replaced MTBE in the May of 2006, especially in the Midwest where ethanol refiners mix hundreds of millions of tons of distilled hot water vapor with ozone forming pollutants as they are set adrift into the upper atmosphere to come back down as violent storms.

Anhydrous ethanol provides no fuel benefit. It was designed as an oxygenate, not a fuel. It's supposed to cause a loss of mileage to create emissions that dissolve smog. MTBE was made from chemical compounds that we have an overabundance of that are cheap and easy to refine, or were before MTBE stopped being used. It's made from natural gas and left over isobutylene emissions from crude oil refining that is too toxic to dump cheaply. Putting it into a gasoline additive gave the oil industry a way to make money off it rather than getting into trouble from the EPA for dumping it into the atmosphere. When MTBE use stopped, it should have created a vacuum that glutted the market forcing the price of natural gas drop dramatically. But the opposite happened with none of our leaders ever questioning why.

Ethanol made from corn and is very difficult to deal with. In fact since the price of oil has dropped, the ethanol industry is asking for a bailout along with our automakers and big banks, even as ethanol is so heavily subsidized by the government. So it's really not ironic that the value of the dollar started to decline at the same time ethanol replaced MTBE, which caused the price of crude oil to rise because it took more dollars to buy a barrel. This had a cascading effect on the economy that many believe will end the US as we know it unless Barack Obama can fix it.

What seems to have been overlooked is that although we used Brazil's independence from foreign energy sources as a model for our anhydrous ethanol program, they mostly use hydrous ethanol in engines designed to run on it or have had convertors install on them so they can. Hydrous ethanol is what anhydrous ethanol is before it is distilled a few more times to get all the water out of it. This is what makes it so expensive to produce and hard to handle as anhydrous ethanol is highly corrosive and evaporates easily. It also causes dangerous emissions and mileage losses. So although we've gone the wrong direction using the EPA's mandated oxygenate program as a source of domestic fuel that doesn't do anything but pollute and ruin our economy, we've also built so many ethanol refineries to meet this unrealistic goal that we can actually take a huge step in the direction of energy independence if we change our focus from anhydrous to hydrous ethanol because we have an exiting infrastructure that can easily accommodate this move.

No Magic Silver Bullet

If we change our use anhydrous ethanol towards now focusing on hydrous ethanol, we could begin to turn our oil dependent economy around in a matter of months. Hydrous ethanol mixed with gasoline doesn't cause a loss of mileage, doesn't require engine modifications, does not pollute, can be transported through pipelines, is safe, cheap, and does not pollute as much at the refinery when producing. The list goes on and on about the benefits hydrous ethanol can afford us to the point that it requires another article be written about it.

It is realistic to pursue a hydrous ethanol direction with the intent of getting our economy, not just back up and working again, but to make stronger than it has ever been before. And this could be done in a very short period of time because we already have the ethanol refining capacity to do it. In fact if we don't do something to rescue the ethanol industry soon, there will be nothing left of it but a bunch of bad memories and billions of dollars worth of rusty mothballed distilleries.

On top of what hydrous ethanol could give us, we could also lessen our dependence on foreign oil 20 more percent while getting rid of 70 percent of the pollution caused by diesel fuel and gasoline with PIB technologies. Of course there's still all the other clean sources of energy out there that we have yet to tap. But we can do these right now and still working towards clean sources of solar and wind power.

As Drew Shindell explains in his new campaign to change the focus of global warming from CO2 to ozone forming pollutants, the savings from future health care expenses is enough to make changing our unrealistic political focus on CO2 to a more scientific direction

targeting ozone forming pollutants from our "surface transportation sector" worthwhile, to say nothing of the fact that so many people won't have to get sick and or die if we stop polluting so much.

This can all be done without making our current leaders out to be liars for not having brought this to our attention in the past. They've been telling us all along that there's no magic silver bullet that will cure our energy markets, health needs, economy, or global warming. And they're right. These are golden bullets that can bring new life and liberty to a country on the verge of forgetting why we are the most powerful nation in the world that stands for the highest most honored principle ever conceived, Freedom. So choices like these are the only direction our new President can take and I have every confidence that he will.

Sources for hydrous ethanol PIB article

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<http://www.podtech.net/home/2646/mark-jacobson-the-truth-about-ethanol>

Climate forcing and air quality change due to regional emissions reductions by economic sector

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Idahoans go out of their way to get non ethanol gasoline because of mileage and poor performance

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Poisoning for profit - the tetraethyl lead story - part 1

<http://www.wsws.org/articles/2004/feb2004/poll-f02.shtml>

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<http://thehill.com/business--lobby/pummeled-by-wall-street-crisis-ethanol--producers-turn-to-washington-for-help-2008-12-02.html>

MTBE causes 12% increase in formaldehyde emissions; cold starts produce emissions of MTBE; MTBE used to reduce carbon monoxide emissions during winter

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http://epw.senate.gov/105th/sul_9-16.htm

Clean Air Act admits severe problems with low level ozone (search ozone)

<http://www.american.edu/TED/clean.htm>

Role of aerosols in climate, weather, and hurricanes -

<http://www.essl.ucar.edu/LAR/2006/strategic-goals/sp7/sp7.htm>

Search "Texas air quality study" (bottom of the page) -

<http://www.essl.ucar.edu/LAR/2007/strategic-priorities/sp2/index.php>

2007 research on aerosol affects on cloud formation -

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Autumn Foliage May Affect Air Quality and Climate -

<http://www.ucar.edu/communications/newsreleases/2001/leaves.html>

Warm air from cities can collide with water vapor from a near by source causing rain downwind of a city and affecting winds hundreds of miles away -

<http://www.ucar.edu/communications/staffnotes/0603/cities.shtml>

Aerosols emissions from both manmade and natural sources cause different kinds of cloud formation -

http://www.windows.ucar.edu/tour/link=/earth/Atmosphere/aerosol_cloud_nucleation_dimming.html

Ozone peaks at the end of the day and rises into the upper atmosphere -

http://www.blueridgenow.com/article/20080922/NEWS/809210262/1042?Title=Speakers_Air_quality_in_WNC_is_poor

Volatile Organic Compounds, VOC's from trees mix with manmade gases to produce low level ozone -

<http://www.ncar.ucar.edu/research/chemistry/pollution.php>

October 2008 article - Ozone issue needs its own 'Kyoto'

-<http://www.guardian.co.uk/science/2008/oct/06/ozone.pollution>

California government resource page for oxygenates

-<http://www.arb.ca.gov/fuels/gasoline/oxy/oxy.htm>

U.K. - Institute of Science in Society - "burning ethanol produces carcinogens and increases ozone levels in the atmosphere."

- Dr. Mae-Wan Ho -

<http://www.i-sis.org.uk/ECBNESEB.php>

Missouri Drops Ethanol Blends Causing Gas Prices To Plummet

-<http://www.allheadlinenews.com/articles/7013205894>

Brazilian ethanol to sponsor Indy races -

<http://www.desmoinesregister.com/article/20081121/NEWS/81121025/1002/NEWS01>

U.S. and Brazil sign pact in 2007 to work together to advance ethanol technology -

<http://redgreenandblue.org/2008/11/21/us-dept-of-energy-and-brazil-to-commercialize-biofuels/>

EPA's hydrous ethanol engine low emissions high mileage -

<http://www.epa.gov/otaq/presentations/sae-2002-01-2743-v2.pdf>

Study comparing Wisconsin fuel efficiency before ethanol to Minnesota's after -

<http://i-r-squared.blogspot.com/2007/09/wisconsin-tops-minnesota.html>

Drew Shindell testimony Congressional Oversight and Government Reform Committee, Jan. 30, 2007, U. S. House of Representatives -

<http://oversight.house.gov/documents/20070130113315-90082.pdf>

President Bush and the Asia-Pacific Partnership on Clean Development - <http://www.state.gov/g/oes/rls/fs/50314.htm>

Hansen lashes out at Bush for censoring his work in January of 2005 -

<http://www.washingtonpost.com/wp-dyn/articles/A19162-2005Jan18.html>

January 2008, Mark Bowen publishes book - "Censoring Science: Inside the Political Attack on Dr. James Hansen and the Truth of Global Warming." -

<http://www.npr.org/templates/story/story.php?storyId=17926941>

NASA Climatologists Named in Scientific American Top 50 Scientists

- http://www.nasa.gov/vision/earth/everydaylife/sa_top50.html

Hydrous ethanol injected into air intake of diesel engine to produce 40 % better fuel efficiency -

http://ethanolproducer.com/article.jsp?article_id=5054

Mechanics Blame Ethanol Fuel for Engine Woes -

<http://www.myfoxmemphis.com/myfox/pages/News/Detail?contentId=7846462&version=1&locale=EN-US&layoutCode=TSTY&pageId=3.2.1>

Advancing the understanding of ground-level ozone pollution -

http://www.oar.noaa.gov/spotlite/archive/spot_ozone.html

Viscon testing in Texas to reduce dependence on fossil fuels and provide new technology to refiners -

<http://www.tercairquality.org/NTRD/Projects/N-029>

Texas Commission on Environmental Quality Viscon PB additive to gasoline approval notification -
http://www.tceq.state.tx.us/assets/public/implementation/air/sip/texled/viscon_approval_letter.pdf

NASA says low level ozone causing 50% of arctic warming -
<http://www.msnbc.msn.com/id/11838578/>

German research: adding hydrous ethanol to gasoline -
http://www.heblends.com/index.php?option=com_content&task=view&id=12&Itemid=27

Germany: Gasoline blending with hydrous ethanol reduces costs and saves energy -
http://www.mindsinmotion.net/index.php/mim/themes/alternative_fuels/news/gasoline_blending_with_hydrous_ethanol

Ford Promises 30% Better Mileage Using Ethanol Injection -
<http://gas2.org/2008/09/03/ford-promises-30-better-mileage-using-ethanol-injection/>

Typical mileage loss story about ethanol -
<http://wnyt.com/article/stories/S656290.shtml?cat=300>

Hansen - Target Atmospheric CO2: Where Should Humanity Aim? -
http://www.columbia.edu/~jeh1/2008/TargetCO2_20080407.pdf

Article on Hansen's new publishing; CO2 with no mention of other gases -
<http://www.sciencedaily.com/releases/2008/11/081108155834.htm>

Australia socialists: Hansen says ten years to stop global warming -
<http://www.greenleft.org.au/2008/774/39930>

NASA Measurements Show Greenhouse Gas Methane on the Rise Again -
http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=ind_focus.story&STORY=/www/story/10-29-2008/0004914146&EDATE=WED+Oct+29+2008,+11:16+AM

Who Killed the Electric Car? -
http://en.wikipedia.org/wiki/Who_Killed_the_Electric_Car

James Hansen in 2000 on methane and ozone being worse than CO2 -
<http://archives.cnn.com/2000/NATURE/08/16/nasa.greenhouse.enn/index.html>

James Hansen: "The threat to the planet" - July 2006 -
<http://www.nybooks.com/articles/19131>

Ethanol vehicles pose significant risk to health, new study finds -
<http://news-service.stanford.edu/news/2007/april18/ethanol-041807.html>

GTA Fuel Enhancer with Viscon -
<http://www.need4speedpower.com/gtafuel.html>

Ultimate ME2 article - http://www.enn.com/press_releases/2408

EYI Announces Ultimate ME2 Receives EPA Registration -
<http://www.collagendiet.com/ultimateME2.htm>

How Ultimate ME2 works -
<http://test.myultimateme2.com/products.php>

Put a polymer in your tank -

http://findarticles.com/p/articles/mi_qa3739/is_/ai_n8926653

EcoSense Solutions develops ethanol combustion carburetor -

http://www.ethanolproducer.com/article.jsp?article_id=2442

Mix 20% water with pure ethanol and efficiency in the combustion

chamber doubles - gasoline made from garbage and biomass -

<http://cleantechnica.com/2008/08/25/everyday-waste-to-become-gasoline/>

China debuts reformulated hydrous ethanol; can blend with any
concentration of gasoline -

<http://biofuelsdigest.com/blog2/2008/07/03/china-debuts-reformulated-hydrous-ethanol-can-blend-with-any-concentration-of-gasoline/>

Hydrous ethanol alternative costs 60 percent less to produce -

<http://www.biofuelsdigest.com/blog2/2008/01/07/china-car-maker-achieves-breakthrough-on-hydrous-ethanol-alternative-to-ethanol-costs-60-percent-less-to-produce/>

Emissions from hydrous anhydrous ethanol -ozone/PANs -

<http://74.125.45.104/unclesam?q=cache:No9IXgzbnNAJ:www.osti.gov/bridge/servlets/purl/70761-IYKlDc/webviewable/70761.pdf+hydrous+ethanol&hl=en&ct=clnk&cd=6&gl=us>

Anhydrous ethanol can't be transported in pipelines -

<http://www.ers.usda.gov/AmberWaves/April06/Features/Ethanol.htm>

Ethanol causes 20 to 30% mileage loss -

<http://www.fueleconomy.gov/feg/ethanol.shtml>

Louisiana adopts advanced biofuels initiative -

http://www.biomassmagazine.com/article.jsp?article_id=1766

Hydrous Ethanol Can be Effectively Used in Most Ethanol/Gasoline
Blending Applications -

<http://renergie.wordpress.com/2008/07/29/hydrous-ethanol-can-be-effectively-used-in-most-ethanolgasoline-blending-applications/>

US EPA on oxygenates - <http://www.epa.gov/MTBE/gas.htm>

Ohio - Gasoline requires 10 percent anhydrous ethanol additive -

<http://74.125.45.104/unclesam?q=cache:YZgo-wBA6ugJ:www.epa.state.oh.us/dapc/regs/3745-72/3745-72-07.pdf+anhydrous+ethanol+gasoline&hl=en&ct=clnk&cd=10&gl=us>

Ethanol mandate for gas dropped: CRITICS APPLAUD CHANGE, SAY
ADDITIVE NOT NEEDED. -

http://www.accessmylibrary.com/coms2/summary_0286-12748729_ITM

Ethanol added to gasoline causes low level ozone problems in urban
areas -

<http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/02/16/BAG04H9IQG1.DTL&type=printable>

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/aqip09/1->

02dec08_circumstances_of_crime.doc'

Original File Name: 02dec08 circumstances of crime.doc

Date and Time Comment Was Submitted: 2009-03-10 06:05:04

No Duplicates.

Comment 2 for Air Quality Improvement Program Guidelines (aqip09) - 45 Day.

First Name: Steve
Last Name: Fermi
Email Address: steve194@comcast.net
Affiliation:

Subject: Please continue to provide funding for AB 118!
Comment:

PLEASE extend the funding program that provides rebates for alternative fuel vehicles that was slated to expire on March 31, 2009. I am in the process of purchasing an all-electric Tesla vehicle, and I urge CARB to continue to provide incentives to make it easier for individuals like me to purchase electric cars, or other alternative fuel vehicles.

Purchasing an electric vehicle is one of the things that individual consumers like me can do that helps the CARB agenda in several ways, including:

- 1)help slow down global warming
- 2)decrease our dependence on foreign oil, and
- 3)support the growth of companies like Tesla and others who are producing these revolutionary vehicles that can move us in the right direction for the future.

PLEASE extend this very valuable incentive program!

Attachment: "

Original File Name:

Date and Time Comment Was Submitted: 2009-04-20 10:52:17

No Duplicates.

Comment 3 for Air Quality Improvement Program Guidelines (aqip09) - 45 Day.

First Name: Colette
Last Name: Farabaugh
Email Address: colette@pley.net
Affiliation:

Subject: Zero Emission Rebates
Comment:

Finding an alternative to the ICE is imperative if we are to 1) stop global warming, 2) stop relying on the Mid East for our source of fuel, 3) cease to be a consuming nation when we can become a re-use nation.

Continuing to support ZEV via a meaningful rebate will be one way California shows they believe that we, as a nation, can stop this dependence on foreign oil. The rebate is an encouragement to consumers to consider alternatives to an ICE vehicle. For those of us who have shown our support for ZEV by purchasing an all-electric vehicle, the continuance of the CARB rebate will help us keep the cost of this purchase down while allowing us to show Californians, and the rest of America, what is possible.

Please consider carrying on this rebate program. It is really, really needed.

Thank you.

Attachment: "

Original File Name:

Date and Time Comment Was Submitted: 2009-04-20 14:13:09

No Duplicates.

Comment 4 for Air Quality Improvement Program Guidelines (aqip09) - 45 Day.

First Name: Barry
Last Name: Wallerstein
Email Address: bwallerstein@aqmd.gov
Affiliation: SCAQMD

Subject: AB118 Improvement Program Guidelines
Comment:

Please see attached comment on behalf of SCAQMD

Attachment: 'https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/aqip09/7-scaqmd_comments_re_ab118_guidelines-funding_plan_041709.pdf'

Original File Name: SCAQMD Comments re AB118 Guidelines-Funding Plan 041709.pdf

Date and Time Comment Was Submitted: 2009-04-21 09:50:50

No Duplicates.

Comment 5 for Air Quality Improvement Program Guidelines (aqip09) - 45 Day.

First Name: William
Last Name: Guerry
Email Address: wguerry@kelleydrye.com
Affiliation: OPEI

Subject: OPEI Comments - AB 118-AQIP for April 23-24 hearing
Comment:

Dear Sir or Madam -
Enclosed are comments that the Outdoor Power Equipment Institute (OPEI) is filing on the proposed Air Quality Improvement Act (AQIP) which the Board is considering at its upcoming April 23-24 hearing. OPEI represents the manufacturers of forestry, lawn and garden equipment including utility vehicles. OPEI's membership includes manufacturers of efficient, clean, advanced technologies, including solar, hybrids, fuel cells, battery-powered and ultra-low emitting gasoline and diesel engines.

Sincerely,
William Guerry
Counsel to OPEI

Attachment: 'https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/aqip09/8-final_opei_comments_re_carb_aqip_california_air_quality_investment_plan.pdf'

Original File Name: FINAL OPEI Comments re CARB AQIP California Air Quality Investment Plan.pdf

Date and Time Comment Was Submitted: 2009-04-21 10:28:52

No Duplicates.

Comment 6 for Air Quality Improvement Program Guidelines (aqip09) - 45 Day.

First Name: Bill
Last Name: Kammerer
Email Address: bkammerer@me.com
Affiliation: Rancher/Businessman

Subject: Funding Plan for proposed AB 118 Air Quality Improvement Program (AQIP) for fiscal year 20

Comment:

April 19, 2009

Board Members
c/o Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Regarding: Funding Plan for proposed AB 118 Air Quality Improvement Program (AQIP) for fiscal year 2009-2010

Dear ARB Board Members,

I am writing you to convey my strong support for the recommendation of your staff to include \$1,3000,000 in the AQIP funding plan to promote the adoption of electric agricultural work vehicles in California.

As a rancher and property owner I am keenly in touch with the effects of vehicles on our property and the surrounding plants and animals. We have used gas-powered ATVs for years to perform countless chores on our ranch. These vehicles are extremely useful but they are noisy and produce significant exhaust fumes. I have been watching developments of electric ATVs and we would love to have one for its dramatically noise reduction, lower cost of fuel, increased reliability, higher torque, etc.

Electric ATVs are not yet in mass production so they are currently more expensive than their noisy and polluting gasoline powered cousins. Therefore, the proposed \$2,500 rebate for electric agricultural vehicles is essential to allow us and other farmers and ranchers to acquire one of these vehicles. This rebate will contribute greatly to the spread of these much more environmentally friendly ATVs. Please keep these \$2,500 rebate proposal in ABB 118 to help speed adoption of electric agriculture vehicles.

Sincerely,
William S. Kammerer
2092 Mohawk Drive
Pleasant Hill, CA 94523
bkammerer@me.com
415 750-0000

Attachment: 'https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/aqip09/9-carb_ab118_aqip_letter_20090419.doc'

Original File Name: CARB AB118 AQIP Letter 20090419.doc

Date and Time Comment Was Submitted: 2009-04-21 15:45:07

No Duplicates.

Comment 7 for Air Quality Improvement Program Guidelines (aqip09) - 45 Day.

First Name: Richard

Last Name: Clark

Email Address: rclark@nvidia.com

Affiliation:

Subject: CARB program

Comment:

I urge the committee to fund California AB 118. I believe it is critical to enlarge the ZEV community.

Attachment: "

Original File Name:

Date and Time Comment Was Submitted: 2009-04-21 16:57:24

No Duplicates.

Comment 1 for Air Quality Improvement Program Guidelines (aqip09). (At Hearing)

First Name: Max

Last Name: Scheder

Email Address: Non-web submitted comment

Affiliation:

Subject: Barefoot Motors

Comment:

please see attached

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/aqip09/11-max.pdf>

Original File Name: Max.pdf

Date and Time Comment Was Submitted: 2009-04-24 14:23:05

No Duplicates.

Comment 2 for Air Quality Improvement Program Guidelines (aqip09). (At Hearing)

First Name: Matt

Last Name: Miyasato

Email Address: Non-web submitted comment

Affiliation:

Subject: SCAQMD

Comment:

please see attached

Attachment: https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/aqip09/12-matt_miyasato.pdf

Original File Name: Matt Miyasato.pdf

Date and Time Comment Was Submitted: 2009-04-24 14:25:29

No Duplicates.

Comment 3 for Air Quality Improvement Program Guidelines (aqip09). (At Hearing)

First Name: Laura

Last Name: Marion

Email Address: Non-web submitted comment

Affiliation:

Subject: Aptera Motors

Comment:

please see attached

Attachment: https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/aqip09/13-laura_marion.pdf

Original File Name: Laura Marion.pdf

Date and Time Comment Was Submitted: 2009-04-24 14:25:58

No Duplicates.