Environmental and Energy Study Institute

U.S. Environmental Protection Agency
Air and Radiation Docket and Information Center
Docket ID No. EPA-HQ-OAR-2015-0111
Mailcode: 28822T
1200 Pennsylvania Avenue, NW.,
Washington, DC 20460

Dear Administrator McCarthy:

The Environmental and Energy Study Institute respectfully submits the following comments regarding the U.S. Environmental Protection Agency's Notice of Proposed Rulemaking in *Federal Register* Vol. 80, No. 111 dated June 10, 2015, regarding the proposed Renewable Fuel Standard Program, "Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017".

The Environmental and Energy Study Institute (EESI) is an independent, non-profit organization, dedicated to promoting an environmentally and economically sustainable society. EESI seeks to advance a transition to a low-carbon economy through energy efficiency and renewable energy, including sustainable biomass energy. Founded by a bipartisan Congressional caucus in 1984, EESI is governed by a diverse Board of Directors comprised of environmental, business, academic, and former political leaders, serving as a trusted source of credible, non-partisan information on energy and environment solutions for policy makers.

The myths surrounding biofuels are pernicious, despite the fact that in a few short years, the RFS has already achieved tremendous success. Prior to EPA's 2013 proposal, the RFS was meeting many of its goals: improving energy security, stimulating rural economies, and reducing greenhouse gases and toxic aromatics from transportation fuel. Between 2005 and 2012, ethanol rose from 1 to 10 percent of gasoline supplies and reduced our dependence on imported petroleum in the same time period.[1] At the same time, the RFS has created 100,000 direct jobs, and has saved families an average of $1200 at the pump.[1] Most importantly, biofuels provide a healthier alternative to petroleum, both for humans and the environment.

Additionally, until 2013, the RFS was providing the incentive for the development of advanced and cellulosic biofuels, which could provide regionally appropriate, homegrown fuels in every area of this country. The current proposed reductions would be especially damaging to this nascent industry that has grown because of the consistent regulatory support provided by the RFS. While production of cellulosic fuel is not at the statutory levels as set by Congress, the industry is at an inflection point, and policy uncertainty will only further erode investor confidence in this sector. The industry met the 2013 advanced biofuels target, and produced 33 million gallons of cellulosic fuel. Additionally, several commercial scale plants are currently under construction, and advanced biofuels will soon achieve new applications, such as jet fuel.[2,3]

All of these projects are due to Congress' long-term, bipartisan commitment to renewable fuels. The advanced and cellulosic biofuels industry views the RFS as the single most important investment and

driver for the industry. These advanced technologies cannot be divorced from first-generation ethanol. Rather, advanced biofuels are building on the success of first generation biofuels, but will only continue on this path if the RFS is maintained at statutory levels. Not only does the full volumetric requirement support complementary EPA policies, it helps to protect the health and safety of humans and the environment. Alternatively, biofuels are a clean burning, non-toxic fuel additive. Maintaining the full volumetric requirement of the RFS is critical not only to a growing and advanced technology, but to human and environmental health.

EPA's proposal will continue to have a chilling effect on the nation's biofuels industry and particularly the investment climate for advanced biofuels, an industry that is providing clean, homegrown fuel to Americans. Indeed, the Biotechnology Industry Organization (BIO), has reported that the 2013 proposed reduction has already caused the industry to lose $13.7 billion in investments, mostly in advanced fuels. Instead of addressing administrative issues present in the RFS, EPA instead chose to heed the oil industry's calls for a weakened RFS.

Flawed Methodology of Proposed Rule & Alternative Paths Forward

While EPA's proposal for 2014, 2015, and 2016 renewable fuel volumes is an improvement over the 2013 proposed reduction, it still adheres to the fallacy of the 'blend wall,' which will impair the growth of advanced and cellulosic fuels, a nascent but growing sector of the domestic fuel landscape. **In EPA's proposal for 2014, 2015 and 2016, the total proposed volume will be capped at less than 10 percent, based on available infrastructure, not available fuel volumes.**

For the first time, EPA's proposed fuel volumes give credence to the E10 "blend wall," by asserting that its ability to lower statutory volumes of fuels in the case of "inadequate domestic supply" may be applied in a situation where a "limitation in the availability of qualifying advanced biofuel **and constraints on the ability to supply qualifying renewable fuels to the vehicles that use them**." This interpretation of the statute by EPA is not driven by a lack of overall supply of renewable fuels, but a lack of renewable fuels infrastructure.

This proposal is a complete departure from EPA's prior volume setting methodology – and more importantly, runs contrary to Congressional intent. EPA asserts that language in the Clean Air Act allows them to lower statutory fuel volumes across fuel categories. However, this is an extremely narrow interpretation of Congressional intent contained in the statute's language regarding the definition of "inadequate domestic supply". Senators expressed their displeasure at EPA's interpretation of the statute in a recent hearing, with Ranking Member of the Senate Homeland Security & Governmental Affairs, Subcommittee on Regulatory Affairs & Federal Management Senator Heitkamp (D-ND), stating,

> "The proposal continues to ignore Congressional intent, and reduces congressionally mandated blended volumes, citing availability of distribution capacity … When you say you can use that language to basically justify a refueling infrastructure waiver. Did you look at the legislative history? In 2005, when the House language pretty clearly addressed this… What does it tell you if distribution capacity is amended out of that [language] and all you have is domestic supply? What would that inform you, in terms of the legislative history? … You can't bootstrap the domestic supply issue to deal with infrastructure."

When the Renewable Fuel Standard was codified into law by the 2005 Energy Policy Act (EPAct) and later expanded under the 2007 Energy Independence and Security Act (EISA), the challenges presented

by the E10 "blend wall," were already well known. And while the nation's fuel supply reached 10 percent ethanol faster than predicted in both 2005 and 2007, EPA has failed to hold obligated parties – namely petroleum refiners – accountable for their role in ensuring adequate domestic supply of biofuels in the transportation fuel supply.

Despite these missteps at EPA, achievable solutions to the "blend wall" are still available to EPA. Restoring the full volumetric requirement will provide the certainty needed for investors to continue developing this technology here in the United States – not abroad. Already, ethanol companies have begun licensing their technology and building plants abroad, citing the uncertain regulatory future in the United States. By focusing on achievable solutions to the infrastructure issue, EPA will not only restore investor confidence in the U.S. advanced and cellulosic marketplace, but also break down the "blend wall".

EPA has administrative authority needed to address many of the issues that have hampered growth of the advanced and cellulosic fuels sector, including but not limited to;

1. Holding obligated parties responsible for their role in perpetuating the "blend wall,"
2. Work with automotive manufacturers, blenders to open marketplace for mid-level blends,
3. Address unintended consequences of RINs and waiver credit markets,
4. Resolve issues surrounding certification fuels,
5. Eliminate unnecessary regulatory barriers for renewable fuels producers,
6. Restore a reasonable FlexFuel Vehicle (FFV) credit,
7. Fix the faulty MOVES2014 model, and
8. Use Section 202 of the Clean Air Act to regulate toxic gasoline aromatics.

Without biofuels, it will be impossible to decarbonize the transportation sector in the timeframe made necessary by President Obama's commitment to mitigate further climate change. Below, EESI offers comments on concrete actions the agency can and should be taking to address the "blend wall" and provide incentive for the growth of advanced and cellulosic fuels.

1. Hold Obligated Parties Responsible for Their Role in Perpetuating the "Blend Wall"

The RFS is a compact between oil refineries, ethanol producers, farmers and automotive manufacturers to not only produce renewable fuels but to bring them to consumers at the pump. While the automotive industry, ethanol producers and farmers have proved that they can produce sufficient feedstocks, refine fuels, and design engines to handle these fuels, fuel refineries have not held up their end of the bargain. According to Senator Chuck Grassley (R-IA), "Big oil interests can't argue for repeal of the RFS because it didn't work when they're the ones responsible for ensuring that consumers don't have the choice for higher ethanol blends."

Meanwhile, the petroleum industry and oil refineries have argued that the RFS is a failure, citing low consumer interest in mid and higher blends. Yet, as an obligated party, it is their responsibility to create interest and product acceptance. To say there is no consumer interest in these higher blends when they make it difficult or impossible for consumers to access them, is a self-fulfilling statement. Ironically, the same industry that wants to deny consumers access to higher blends recognizes the value of ethanol as the cheapest form of octane, and would continue to blend E10, with or without the motivation of the

RFS. In setting a fuel volume that is pegged to 10 percent of gasoline – EPA is creating a stable marketplace for continued use of petroleum – not biofuels.

The Big Five (Shell, BP, Chevron, ExxonMobil, and ConocoPhillips) have repeatedly claimed that they have no control over the offerings at individual retail gas stations, because they are individually and not refinery-owned. However, an analysis of retail fuel contracts by the Renewable Fuels Association (RFA) shows that extremely restrictive fuel contracts with Big Five refineries disincentive gas station owners from offering mid-blends to consumers, thus contributing to the E10 "blend wall". [4]

Using data from the Department of Energy (DOE), RFA found that unbranded or independent retail stations are four to six times more likely to sell E85 and 40 times more likely to sell E15 than stations carrying the Big Five oil brand. Meanwhile, as of 2014, only 288 – 0.6% of gas stations with a Big Five contract -- offered E85, and only one Big Five branded gas station in the U.S. offered E15.

Direct-to-retail programs like Michigan's Yellow Hose program are providing the lowest cost option to consumers in a growing number of gas stations. In the Yellow Hose program, ethanol producers sell directly to independent gas station owners at 33 gas stations in Michigan. This is just one example of how not only are the challenges of the blend wall surmountable, they are largely fabricated by the oil industry through disinformation, anticompetitive practices, and political maneuvering.

2. Work with Automotive Manufacturers, Blenders to Open Marketplace for Mid-Level Blends

A mid-level ethanol blend would provide a low cost option for several EPA regulations including Greenhouse gases (GHG), Corporate Average Fuel Economy (CAFE), Tier 3 emission standards, and Mobile Source Air Toxics (MSAT) rules. It is contradictory that EPA would choose to hamper a program that will actually work to benefit other EPA regulations, instead of working through relatively modest infrastructure challenges.

Researchers from Argonne National Laboratory (ANL), the National Renewable Energy Laboratory (NREL), and Oak Ridge National Laboratory (ORNL) have been conducting coordinated studies to address the opportunities and challenges of deploying high octane fuels with mid-level ethanol blends to the current passenger vehicle fleet. They are finding that fuels that blend between 25 to 40 percent ethanol (E25 to E40) with conventional gasoline, instead of the current 10 percent ethanol blend (E10), can lead to **greater** fuel efficiencies and **lower** overall GHG emissions in the existing passenger fleet. Additionally, the introduction of this high octane mid-level ethanol fuel could provide an **optimized** fuel source for the much more efficient internal combustion engines carmakers are developing.[5]

Widespread use of mid-level blends also has tremendous opportunity to reduce both carbon and ozone precursors, according to engineers at MathPro, Ford, GM and Chrysler. For example, the researchers found that shifting from a blend of E10 to E30 would reduce aromatics use by a staggering 60 percent at refineries, while still producing a high octane blend at 98 RON.[6] This would translate into large reductions in tailpipe emissions of air toxics, including ozone precursors, at significantly lower cost, since gasoline aromatics are the most expensive portion of the fuel.

Indeed, automakers have already asked EPA to approve high-octane fuels, noting that they would make it significantly easier for the manufacturers to comply with more stringent miles per gallon (MPG) standards. Mid-level ethanol blends would provide "ridiculous power and good fuel economy", according to William Woebkenberg, senior engineer for fuels policy at Mercedes-Benz.[7] The auto

industry is eager for high octane fuels and recognizes the value of biofuels. In a 2012 presentation, a Chrysler representative stated, "ethanol offers low carbon content and less GHG emissions....and offers most expedient and least expensive means to lessen CO2 for liquid fuels." This sentiment is echoed by other American automakers.

As far as moving past E10 in the near term, the Department of Energy (DOE) has carefully examined the effects of E15 on legacy vehicles and found that it is safe to use in these vehicles.[8] Eighty percent of vehicles on the road today are able to use E15 fuels, with the EPA approving E15 in use of 2001 model year vehicles and beyond.[9] Additionally, most new vehicles sold in the United States expressly allow for the use of an E15 blend as per their manufacturer's warranties. Infrastructure challenges have also been overstated. Research from National Renewable Energy Laboratory has shown that the infrastructure costs for transitioning to an E25 blend are modest, given that a significant amount of retail gas station infrastructure is already compatible with blends up to E25.

3. Address Unintended Consequences of RINs, Waiver Credit Markets

The actions taken by EPA to diminish the RFS in 2013 and now in 2015 are largely at the behest of the oil industry, which repeatedly cites a destabilized Renewable Identification Number (RIN) market as the chief cause of instability in oil markets in 2013.[10] Despite these claims, EPA's own economic analysis has found that the RINs market, the compliance mechanism of the RFS, has worked as intended. As stated by EPA's own economic analysis published in May of 2015,

> "The structure of the RFS program does not cause a systematic competitive advantage for one type of refiner or the other... Based on available data, however, **the RIN market seems to be functioning generally as expected**; providing an incentive for the continued growth of renewable fuels in the transportation fuel market without causing overall increases to the retail price of transportation fuel."[11]

Despite the oil industry's calls that maintaining the Renewable Fuel Standard will throw the U.S. economy into a "death spiral" in 2013, the net economic effect of renewable fuels has been the opposite – increased fuel diversity, reduced dependence on imported petroleum.

Although there is little evidence of 3rd party traders significantly influencing the RIN marketplace, as oil refineries had claimed, increased data collection and transparency on the various actors in the marketplace will help the program work as intended.[12] Data-aggregation on RIN trading ultimately hampers administration of the program. It also allows refiners to claim that the RIN marketplace is unduly influenced by outside actors, despite the fact that RIN prices climbed in 2013 due primarily to refineries stockpiling RINs.

Even more concerning than the myth of RIN speculation propagated by oil refineries is that refiners are not required to purchase actual cellulosic fuel that is produced. For example, Quad County Ethanol Producers are having difficulty selling their gallons of cellulosic fuel, as refiners choose to instead purchase cheaper waiver credits. Indeed, the Renewable Volume Obligates (RVOs) may be so low that cellulosic fuel producers (including biogas) may produce more RINs than required under the proposed 2016 RVO. When RINs for cellulosic fuel are available, they should be required for compliance.[13]

4. Resolve Issues Surrounding Certification Fuels

EPA requires auto manufacturers to use "commercially available" test fuels for new vehicles, despite no such statutory requirement. The net result is that manufacturers cannot sell vehicles that are co-optimized for mid-level ethanol blends, despite the technology being readily available. In a recent court case in the U.S. Court of Appeals for the D.C. Circuit, the Court ascertained, that if EPA allowed the use of E30 as a test fuel, there would be "substantial reason to think that at least some vehicle manufacturers would use it." In addition, the Court cited a comment from Ford Motor Company that a mid-level ethanol blend such as E30 would "enable the first steps to the development of a new generation of highly efficient internal combustion engine vehicles." Other auto manufacturers, namely Mercedes and General Motors, have also commented on the potential co-optimization of highly efficient engines with a mid-level ethanol blend.

If the agency approves the use of a mid-level blend as a test fuel, the fuel will reach commercial availability, as there is great interest from the automotive industry to move to a higher octane-rated fuel, as much of the rest of the developed world already enjoys. In the United States, the lowest cost octane available is ethanol, and by resolving the test fuel issue, volumes of ethanol consumed will increase.[14]

5. Eliminate Unnecessary Regulatory Barriers for Advanced Renewable Fuel Producers

While EPA has taken steps to streamline the pathways process for new fuel pathways currently, 22 applications are still pending, and 8 of these are for advanced and cellulosic fuels. This backlog is especially frustrating as EPA claims that there is "inadequate domestic supply" of these advanced fuels. If higher volumes of advanced fuels are to be reached, additional pathways must be approved, and the lengthy pathways process needs to be revisited.[15]

EPA should also address the definition of 'facility' as required under the statute. According to a white paper from the American Council On Renewable Energy (ACORE), the statute requires a renewable fuel to be produced at one facility in order to generate RINs and qualify as a renewable fuel. Yet, with multiple steps and intermediates, it is common for renewable fuels to be produced at multiple facilities. This narrow definition causes producers to lose potential RINs. By addressing the facility definition outlined under the RFS, additional gallons of advanced and cellulosic fuels will qualify under the RFS.[16]

6. Restore a Reasonable FFV Credit

General Motors estimates that there are now 20 million FFVs in the United States, yet with EPA's adopted 2016 – 2025 CAFE standards, EPA decided to roll back this program that is one key component of exceeding the "blend wall". In EPA's new CAFE standards, the credit for FFVs are significantly reduced, to the point where auto manufacturers will no longer produce significant numbers of FFVs. While it is true that the average FFV owner only uses 13.4 gallons of E85 a year, this is not a vehicle manufacturing issue. Rather, it speaks to a lack of E85 infrastructure at retail gasoline stations, and a market that does not pass biofuel cost savings through to consumers.

Instead of closing the FFV emissions "loophole" by addressing fuel efficiency in FFVs, EPA chose to close off a huge potential pool of vehicles that can utilize biofuels blends up to E85. As Volkswagen pointed

out in their request for EPA to revisit the FFV credits, "Increasing the number of FFVs in the national fleet would help overcome the blend wall and enable compliance with the RFS's statutory blending requirements."

FlexFuel manufacturing credits provided a pathway that was immensely successful in getting FFVs on the road. With full deployment of FFV and plug-in hybrid technology in vehicles, we could significantly reduce our dependence on unhealthy petroleum. Furthermore, FlexFuel Vehicles, if deployed concurrently with hybrid and plug-in technologies, could be a win-win for manufacturers and consumers, achieving miles per gallon ratings of up to 500 mpg.[17] Instead, EPA decided to roll back the FFV credit, despite the protests of automotive manufacturers such as Volkswagen, as well as agriculture, ethanol and Clean Cities coalitions.

7. Fix the Flawed MOVES 2014 Model

EPA requires state regulators to use the MOVES model to craft state implementation plans (SIPs) for ozone. However, there is significant evidence that the underlying studies used to build the recently updated model seriously mischaracterize the emissions from using ethanol-blended fuels. According to auto engineers from Ford and GM, when ethanol is "splash-blended" with gasoline, as it is at the refinery, it lowers the overall toxicity of emissions.[18] Yet, EPA's studies were conducted using a method called "match blending," which artificially controls certain fuel parameters, and is not reflective of what happens at refineries. The net result is that ethanol is labeled as worse for ozone and other emissions than gasoline. The perverse effect of widespread use of this model would be to instead increase the most toxic portion of gasoline, gasoline aromatics, instead of relying on clean forms of octane**.**

Researchers at the Urban Air Initiative used the Honda Predictive Model Index (PMI), to calculate particulate emissions for E0, E10, E15, and E20. Their results showed that splash blending ethanol from E0 to E20 resulted in a 0.3 reduction in fine particulates.[19] The effect of match blending versus splash blending is a major parameter in any emissions testing and needs to be accounted for in any predictive model. Additionally, if refiners were required to perform splash blending, they would not be allowed to add heavy, low-value refinery fractions to gasoline prior to ethanol blending. Splash blending results in improved fuel quality.

8. Use Section 202 of the Clean Air Act to Regulate Toxic Gasoline Aromatics

Corn ethanol, advanced and cellulosic biofuels provide a clean alternative to toxic aromatic compounds that are used to boost octane in gasoline. When BTEX was chosen as an alternative to lead, in order to provide the same octane-boosting qualities, its dangers were already well established.[20] In 1989, when the removal of lead from gasoline was being considered in Congress, the *Congressional Record* was filled with warnings about the parallels between BTEX and lead. There was early concern about aromatic additives in gasoline. In 1987, Senator Tom Daschle wrote to Vice President Bush to express his and many other's concerns about the negative health effects of aromatics and BTEX, writing:

> "given the mounting scientific evidence linking rising gasoline aromatic levels and the increased risk of human exposure to highly carcinogenic benzene, I believe the federal government should initiate a coordinated effort to reduce the dangers from gasoline spills and auto emissions, and

that this effort should include the promotion of the use of environmentally safe ethanol as an alternative means of octane enhancement."[21]

Senator Daschle, along with Senators Dole and Harkin introduced the "Clean Octane" amendment S. 1630, to the 1990 CAAA, which passed along with the other 1990 CAA amendments. The Clean Octane amendment calls for the use of "benign additives to replace the toxic aromatics that are now used to boost octane in gasoline." Over 20 years later, this intent has not been fulfilled. While we have succeeded in removing some of the benzene added to gasoline, it still contains at least 20 percent by volume of other aromatics, such as toluene, ethylbenzene and xylene, which are converted to benzene, an aromatic compound, upon combustion. Research has also indicated a positive relationship between gasoline aromatic content in the formation of Secondary Organic Aerosols (SOA), an ultrafine particulate matter. Researchers at the Harvard School of Public Health demonstrated that the aromatics blended into gasoline are particularly efficient at forming SOA.[22] These ultrafine particulates (commonly referred to as $PM_{2.5}$) arise from the incomplete combustion of gasoline aromatics (BTEX) and contain a mixture of soot, ash, and unburned fuel and lubricant.

Biofuels provide a clean alternative to toxic, petroleum-based fuel oxygenates such as benzene, toluene, ethylbenzene and xylene (BTEX) that are currently in our gasoline. The EPA has the authority, and the obligation, to enforce Section 202 of the 1990 Clean Air Act Amendments, to reduce "mobile source air toxics" to "the greatest degree … achievable," and in particular to reduce the toxins emitted by gasoline aromatic compounds (BTEX). A co-benefit of enforcing section 202 would be that use of renewable fuels would increase in the transportation fuels marketplace.

Conclusions

Splash blending of ethanol has allowed us to reduce the toxic load of aromatics and their secondary compounds from the fuel supply. Mid-level blends would further reduce individuals' needless exposure to toxic chemicals, and reinstating FFV credits would ensure a supply of vehicles that can utilize these fuels. Going forward, auto manufacturers will require a high octane fuel to meet stringent CAFE standards, and to allow them to standardize vehicle fleets. Farmers and refiners are consistently meeting – and exceeding lifecycle greenhouse gas emissions requirements for feedstock growth and renewable fuels refining. Time and again, it has been proven that the only parties not actively participating in activities to further the penetration of renewable fuels in the United States are oil companies.

It is vitally important that the RFS remain a significant driver in ethanol levels above 10 percent of the gasoline supply. For the health of our citizens, especially developing children, RFS can provide critical reduction of toxic aromatics. Additionally, RFS is helping to reduce GHG and lessen our dependence on petroleum. The RFS is critical and effective policy. EPA's proposed action is causing a prolonged and chilling effect on the investment community and the biofuels industry overall, just as advanced biofuels are growing, and as many new technologies, feedstock and facilities are coming on line. Without the RFS as a significant driver of investments in the advanced and cellulosic industries, we are deeply concerned that this new commercial industry will leave the United States due to a more stable climate in other countries. For these reasons, EESI encourages EPA to re-evaluate the rollback of the 2016 RVOs, and their interpretation of "adequate domestic supply," for the health of our citizens and our environment. There are so many "wins" in reaching commercial volumes of advanced and cellulosic fuels, for reducing

greenhouse gases, health, while improving miles per gallon, fuel diversity and performance, but we must address these issues consistent with the original intent of the RFS. We would be happy to discuss any of these issues with you.

Sincerely,

Carol Werner

Executive Director

Environmental and Energy Study Institute

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[1] 2013 Ethanol Industry Outlook, Renewable Fuels Association.
[2] America Needs a Diversified, Balanced Portfolio of Energy Options, Advanced Biofuels Association, 2013
[3]Gentile, G., et al., Boeing Seeks Approval for Green Diesel, Platts, January 14, 2014.
[4] Perez-Reyes, M. Senators Klobuchar and Grassley Call for FTC Probe on Big Oil's Monopoly on Fuels, July 2014, EESI.
[5] Stolark, J., Fact Sheet: High Octane Fuels: Challenges & Opportunities, June 2015, EESI.
[6] D. Hirshfeld, et al., Refining Economics of U.S. Gasoline: Octane Ratings and Ethanol Content. Environmental Science & Technology, vol. 48, no. 19, Aug. 2014.
[7] Wald, M. Squeezing More from Ethanol. New York Times, May 3, 2013.
[8] Knoll, K., et al., Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1 – Updated, U.S. DOE, 2009.
[9]Handbook for Handling, Storing, and Dispensing E85 and Other Ethanol-Gasoline Blends, U.S. DOE EERE, 2013
[10] Stolark, J A Reduced Renewable Fuel Standard – The Philadelphia Story, EESI, May 2014.
[11] Burkholder, D., A Preliminary Assessment of RIN Market Dynamics, RIN Prices, and Their Effects, May 2015, U.S. EPA.
[12] EPA: No sign of undue influence on RIN market, Argus Media, July 2015.
[13] Peterka, A., Cellulosic Refiners hamstrung by chaos in RFS-credit market, May 2011, E&E Publishing.
[14] Sapp, M. DC Court Throws out E30 suit against EPA but says ethanol proponents in the right, July 2015, Biofuels Digest.
[15] Stolark, J., The RFS and the Advanced Fuels Pathways Backlog, August 2014, EESI.
[16] Shays, J., Co-location requirements under the RFS advanced biofuels development, May 2015, ACORE.
[17] Energy Future Coalition, "Set America Free", a Blueprint for U.S. Energy Security, Congressional Record 151:61 (May 11, 2005), p. H3191.
[18] J. Andersen et. al, Issues with T50 and T90 as Match Criteria for Ethanol-Gasoline Blends. SAE International Journal of Fuels and Lubricants, vol. 7, no. 3. Nov. 2014.
[19] Vander Griend, S. Understanding the Emissions Benefits of Higher Ethanol Blends: EPA Modeling Fails to Tell the Whole Story, Ethanol Across America, 2013.
[20] Clean Fuels Development Coalition, Oxygenates: Fact Book.
[21] Daschle, T. Letter to Vice President George Bush, March, 1987.

[22] Fann, N. et al., Estimating the National Public Health Burden Associated With Exposure to Ambient $PM_{2.5}$ and Ozone, Risk Analysis, 2012.