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Comments by: Advanced Biofuels USA, www.advancedbiofuelsusa.org a 501 (c) (3) not-for profit educational organization. ABFUSA is not a manufacturer trade organization.

Topic:

ENVIRONMENTAL PROTECTION AGENCY
40 CFR Parts 79, 80, 85, 86, 600, 1036, 1037, 1065, and 1066
RIN 2060-AQ86
Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards

1. Part IV. Proposed Vehicle Emissions Program
   D. Emissions Test Fuel
   1. Proposed Changes to Gasoline Emissions Test Fuel

General Comments

As part of the recently proposed Tier 3 motor vehicle fuel and emission regulations, EPA included a very forward looking idea that could bring higher octane, higher ethanol gasoline to the marketplace.

However, Advanced Biofuels USA recommends the following changes to assure consumers get maximum fuel economy and climate change mitigation benefits from the EPA proposed higher octane, higher ethanol gasoline*.*

- Advance Biofuels USA fully supports EPA's recognition of the importance of higher octane, higher ethanol (in the range of E30) gasoline as a cost-effective way to allow manufactures to maximize the efficiency of smaller, more efficient engines that utilize high combustion pressures to meet 2022 EPA CO_2 vehicle emission standards.

- To provide a smooth path to making this "higher octane, higher ethanol content gasoline" available nationwide EPA Tier 3 regulations should not require individual vehicle manufacturers to certify the availability of this fuel. Instead, EPA should use their authority under section 211 of the Clean Air Act to provide for the commercial availability of this "higher octane, higher ethanol content gasoline."

- In using the Clean Air Act authority to assure that "higher octane, higher ethanol content gasoline" is available nationwide EPA should implement a reasonable phase-in schedule tied to manufacturer production plans required to meet 2017 and later EPA GHG requirements. This schedule should be based on the

"vehicles would not operate appropriately on other available fuels, and such a fuel would result in equivalent emissions performance," information.

- EPA should allow vehicle manufacturers that certify new vehicles with the "higher octane, higher ethanol content gasoline" to also certify that those vehicle are able to also operate on existing E10 or E15 fuels. These vehicles would be called "E30 capable."

- By building up the number of these "E30 capable" vehicles that could get the same mileage with a lower cost fuel, the demand for E30 would increase. This demand would create a nationwide E30 infrastructure that would then allow for the marketing of "E30 Optimized" Vehicles designed to provide the fuel economy and GHG reductions necessary to meet 2022 CO_2 reduction standards.

- Since a higher proportion of lower cost ethanol is used to produce E30, the "higher octane, higher ethanol content gasoline" would probably not be priced above current 87 octane E10 regular. Therefore, it should not be referred to as "premium" fuel in final regulations or for purposes of marketing but rather should be labeled differently. For example, "E30 capable/E30 optimized regular" fuel.

- EPA should also provide flexibility in the Tier 3 regulations so that other renewable, negative GHG (as compared to petroleum) octane additives could be substituted for 30% ethanol when they are commercially available. In order to qualify, these additives should have to meet the applicable EPA regulations for fuel composition, aromatic content, and certification testing. This flexibility would promote competition in the biofuel marketplace that would result in the most sustainable low GHG solutions possible.

By adopting a flexible, market-based Tier 3 higher octane, higher ethanol content gasoline program, EPA would send a clear Demand Certainty Signal to markets and fuel providers. This clear signal will provide the currently missing certainty to the financial markets that will be needed to provide the capital for total-biomass ethanol and other advanced biofuel plants that will be needed to provide the "higher octane, higher ethanol content."

This clear market signal would be the most effective way to meet EPA's stated goal to, **"*provide a market incentive to increase ethanol use beyond E10 and enhance the environmental performance of ethanol as a transportation fuel by using it to enable more fuel efficient engines.*"**

Additional Specific Comments

1. EPA has the Authority under Section 211 of the Clean Air Act to Implement Nationwide Marketing of "Higher Octane, Higher Ethanol Content Gasoline"

As stated in this proposed rulemaking on pages 32-33,
A. Basis for Action under the Clean Air Act
2. Clean Air Act Section 211

> *"We are proposing to adopt gasoline sulfur controls pursuant to our authority under section 211(c)(1) of the CAA. This section allows EPA to establish a fuel control if at least one of the following two criteria is met: (1) The emission products of the fuel cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare; or (2) the emission products of the fuel will impair to a significant degree the performance of any emissions control device or system which is either in general use or which the Administrator finds has been developed to a point where in a reasonable time it will be in general use were the fuel control to be adopted."*

Using the first criteria, the establishment of a higher fuel octane gasoline standard (fuel control) would reduce CO_2 emissions from direct injection/turbocharged/high compression engines below what they would be with lower octane, lower ethanol content gasoline. This reduction in CO_2 emissions, which have previously been determined by EPA to endanger public health and welfare as climate change inducing Greenhouse Gas (GHG) emissions, would come from two effects:

1. These engines would run at higher efficiency with the higher octane fuel meaning less fuel/mile would be used resulting in less CO_2 emissions/mile.

2. The increase from 10% to approximately 30% ethanol would decrease life-cycle GHG emissions when compared to the petroleum gasoline components it would replace. This decrease would become especially significant as proportion of total biomass (i.e. cellulosic) ethanol increases in accordance with the previously Congressional enacted Renewable Fuel Standard (RFS).

It making this determination to require higher octane, higher ethanol content gasoline, it is also important to recognize that these interrelated engine design features (the Ford Ecoboost is an example) are being implemented for the sole purpose of meeting the 2022 EPA CO_2/DOT mpg standards while also providing enough power to compensate for the extra weight requirements of DOT safety standards, and are not being introduced for high performance reasons. Therefore, engines using this integrated package of design features are as much emission control devices as the catalytic converters that caused EPA to issue lead elimination and sulfur reduction fuel control regulations to ensure lower HC, NO_x, and CO emissions.

2. "R" Factor Requirement

In order to provide equality in EPA fuel economy calculations for higher octane, higher ethanol fuels, the “R” fuel energy content factor should be set at “1.” This change is necessary since EPA has previously recognized that the engine technology used to set the “R” in the 1970s has reached levels of efficiency not envisioned at the time and as a result the factor does not represent the current reality.

3. Gasoline Blend Stock Requirements for Higher Octane, Higher Ethanol Fuels

In order to provide consistent octane in the E30 range blended fuel as well as consistency with the other commercial grades of ethanol blended fuels offered, E10 and E15, the octane of the current gasoline blend stock (BOB) shall be maintained.

Use of this gasoline feedstock would also allow the production of a Higher Octane, Higher Ethanol Fuel blend with the current rack mixing approach thereby not requiring any additional fuel system infrastructure costs.

4. Allow Optional Renewable Higher Octane Additives

While biomass, cellulose/hemicellulose/pectin, (“cellulosic ethanol” in RFS2) derived ethanol is the current primary octane enhancing component foreseen for Higher Octane, Higher Ethanol Fuel, final Tier 3 regulations should provide flexibility for other biofuel derived additives provided the following four criteria are met:

1. Life Cycle GHGs of the alternative additives are within 110% of industry wide life-cycle GHG emissions of the biomass ethanol used at the time of the introduction of the alternative additives.

2. The composition of the biofuel derived fuel components do not exceed EPA or CARB, whichever is lower, aromatic or other fuel composition standards in effect at the time of their introduction.

3. The use of such fuel components would not materially effect the cost of vehicle certification testing procedures.

4. The use of such fuel components would not materially effect any fuel system or engine components of the vehicles it was used in.

5. Consideration of CNG and LPG Emissions Test Fuel

In the past sulfur content regulation of “natural gas” sources fuels was not seen as necessary for two reasons, 1) the low volume of use, and 2) the historically low sulfur content of US “conventional” natural gas sources. However, with “unconventional” (fracked) natural gas sources now providing over 60% of the US NG supply (US DOE/EIA 2012 data) sulfur content becomes an issue because of the higher content in the unconventional gas. Therefore, EPA should enact standards for sulfur content of NG and LNG transport fuels that are equal (in terms of pollutant/mile) of these proposed Tier 3 regulations.

6. Low-Volume Manufacturers

While nothing in these regulations should throw up unneeded barriers to true low-volume manufacturers, EPA should proceed cautiously on the determination of what is a “low-volume” manufacturer. There are three circumstances that need to be considered.

1. While a manufacturer listed as a US company may fall in the <5,000 or 5,001-15,000 US vehicles sold category it’s worldwide sales total may well exceed that. Aston Martin most probably falls in that category.

2. While a manufacturer listed as a US company may fall in the <5,000 or 5,001-15,000 US vehicles sold category it is actually a part of a larger motor vehicle company that sells many more vehicles that 5,000 or 15,000 worldwide. Ferrari USA, which is part of Fiat, Porsche USA, which is part of Volkswagen/Audi, and Jaguar USA, which is part of Tata all fall in that category.

3. While a manufacturer listed as a US company may fall in the <5,000 or 5,001-15,000 US vehicles sold category it is actually a part of a larger motor vehicle company that has a business plan to greatly increase US sales above the initial “beachhead” number of a few thousand in a short timeframe.

In each of these cases, especially number 3, EPA would run the risk of approving a once low-volume vehicle that turned into a US market 250,000/year seller two or three years later without adequate long-term performance data that could predict consumer in-use issues including potential recalls.