

July 20, 2009

Air and Radiation Docket
U.S. Environmental Protection Agency
Mail Code 6102T
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Attention: Docket ID No. EPA-HQ-OAR-2009-0211

Re: Comments on the Clean Air Act Waiver Application to Increase the Allowable Ethanol Content of Gasoline to 15 Percent

Dear Docket Administrator:

The Northeast States for Coordinated Air Use Management (NESCAUM) offer the following comments on Growth Energy's application for a waiver of the prohibition of the introduction into commerce of certain fuels and fuel additives set forth in section 211(f) of the Clean Air Act. Specifically, Growth Energy seeks a waiver to allow the introduction into commerce of gasoline containing up to 15 percent ethanol by volume (E15). EPA published its request for comments on this matter on April 21, 2009 (74 Federal Register pp 18228-18230). We believe there is no reason at this time to grant a waiver of the prohibition under section 211(f) and thus urge EPA to deny the waiver request. Specific comments are provided below.

Effect of E15 on emission control systems for motor vehicles:

NESCAUM references and supports the comments submitted to the Docket by the New York State Department of Environmental Conservation (NY DEC) (Document ID # EPA-HQ-OAR-2009-0211-2063).

Effect of E15 on emission control systems for nonroad engines:

NESCAUM would like to emphasize the importance of ensuring that emission reductions from new nonroad gasoline engines – such as lawn and garden equipment, recreational marine engines, and large spark-ignited (SI) nonroad engines – are realized in the timeframe required by EPA in recently finalized regulations on these sources. EPA estimated that in 2002 emissions from land-based nonroad small SI engines and marine SI engines were approximately 26 percent of the total mobile-source inventory of VOC emissions and 1 percent of the NOx inventory. EPA's recent small SI and marine SI rule is projected to result in an approximate 33-50 percent reduction by 2020 in NOx and VOC from these engines.¹ Other EPA rules have put in place stringent controls on other categories of nonroad SI engines. States have included the reductions that are anticipated to be achieved with the implementation of these standards into their state implementation plans (SIPs). In order for states to meet federal National Ambient Air Quality

Standards for ozone, it is imperative that emissions from existing nonroad SI engines do not increase, a possibility if they were to be fueled with mid-level ethanol blends. Further, potential increases in air toxic emissions of acetaldehyde are a concern with higher ethanol blends.

Availability of test data on intermediate ethanol blends used in nonroad engines:

Currently, nonroad SI engine manufacturers have the option to use either a 10 percent ethanol blend or standard gasoline test fuel for certification of exhaust emissions. Relatively little data exist on the impact of the use of higher blends of ethanol in gasoline. Given the potential emissions increases that could result from the use of E15 in nonroad engines, E15 should not be used in these engines until 1) further study is done to evaluate the emissions impacts of using E15 in nonroad gasoline engines; and 2) manufacturers are required to certify the engines meet emission standards on E15. Further support for this assertion is provided below.

Testing of nonroad engines cited by Growth Energy in its waiver application is limited. The only study cited was conducted by the U.S. Department of Energy (DOE) with the National Renewable Energy Laboratory on 28 engines: 8 generators, 9 blowers, 6 power washers, and 5 line trimmers. In its summary report, DOE notes that over 900 engine families are certified each model year,² but its study examines only a fraction of these, leaving a large gap in our understanding of the effects E15 may have on small nonroad engines.

An evaluation of the DOE study conducted by the Outdoor Power Equipment Institute (OPEI) found several instances of adverse effects of increased ethanol concentrations on small nonroad engine functionality.³ Specifically, the OPEI evaluation indicated that the DOE testing demonstrated intermediate ethanol blends caused increased engine exhaust temperatures, unintentional clutch engagement, engine damage, and erratic engine operability. These consequences reduce the equipment's usefulness and can increase criteria pollutant emissions and exposure to emissions by equipment operators. Further testing is needed on a wider variety of engines to examine the pervasiveness and severity of these effects. The OPEI evaluation specifically calls for further testing on the fuel's effects on the diversity of engines and equipment available, fuel delivery mechanisms, sizes and functions of the equipment, and operational constraints of the equipment (such as the operator's proximity to the engine).

Given differences in emissions standards, hand-held engines should be evaluated separately from non-hand-held engines. In addition to testing an adequate number and variety of current production engines, proper evaluation of these classes of nonroad engines would also require full useful life evaluations of older engines as these engine classes have been covered by emissions standards since at least 1998. Engine and exhaust aftertreatment technologies capable of meeting standards promulgated by EPA in 2008 must also be evaluated for full useful life impacts of E15. As many of these engines will require catalysts while lacking the sophisticated feedback controls present in automotive applications, the effects of E15 use cannot be extrapolated from current engines, or from highway vehicles.

Growth Energy provided no information regarding the effects of E15 on emissions and emission control systems on the myriad other categories of nonroad engines. These include larger industrial engines, marine engines, and recreational vehicle and heavy-duty vehicle engines. These engines range in sophistication from simple controls with a fixed air-fuel ratio, to complex computerized feedback controls based on automotive technology. Each combination of engine size, engine control technology level, exhaust aftertreatment technology level, and operating environment needs to be evaluated individually over the full useful life of the engines in order to develop sufficient data to evaluate E15 in nonroad engines.

Available evidence suggests that some types of marine engines may be adversely affected by increased ethanol concentrations. The National Marine Manufacturer's Association states that ethanol blends in any concentration may be harmful to engines used in the boating fleet.⁴ E10 has been shown to reduce the hardness and compressive strength of fiberglass used in marine fuel tanks.⁵ Additional research is needed to determine whether an increased ethanol concentration would exacerbate this effect.

Finally, Growth Energy provided no discussion of evaporative emissions from nonroad engines and equipment. This topic must be addressed for all classes of engine for which evaporative standards have been promulgated. This includes standards pertaining to future model years.

Availability of evidence to support a waiver for an ethanol-gasoline blend greater than 10% and less than or equal to 15%:

NESCAUM references and supports the comments submitted to the Docket by the New York State Department of Environmental Conservation (NY DEC) (Document ID # EPA-HQ-OAR-2009-0211-2063).

Use of E15 in a subset of vehicles/engines under a partial waiver:

At the state level, requirements for labeling at gas stations, nozzle requirements, and underground storage tank requirements will likely need to be amended if E15 is allowed for use in a subset of vehicles/engines. While labeling can assist consumers in complying with different fueling requirements in the case of a waiver for E15, the only way to ensure that fuels covered by the waiver are only used in a subset of approved passenger cars would be to modify the fuel dispensing equipment in a manner to preclude misfueling. Likely it would be necessary to change the nozzles on the E15 fuel pumps and change the filler necks on E15 compatible automobiles. This would require substantial changes at the thousands of gasoline stations in the Northeast and tens of thousands of automobiles. Barring these very costly modifications, NESCAUM does not see a reasonable way to ensure that E15 misfueling could be prevented.

In addition, it may be necessary to change the certification test fuel at the federal level for the subset of vehicles/engines that could use E15.

Dynamics of the blendwall concern:

NESCAUM disagrees with Growth Energy's assertion that the current 10-percent blend limit poses an immediate concern. EPA estimates that renewable fuel volume requirements under the revised Renewable Fuels Standard (RFS2) will not exceed 10 percent of US gasoline demand until around 2013.⁶ Delaying action on a waiver would allow for a more comprehensive evaluation of this issue, without impeding compliance with RFS2.

Additionally, as NYDEC notes in its comments, RFS2 does not require ethanol; the rule sets volumetric requirements only for "renewable" fuels, which could include ethanol or numerous other fuels.*

We also note that ethanol can be blended into E-85 fuel for use in flex-fuel vehicles. Greater emphasis on the development of infrastructure for E-85 refueling and appropriate pricing of E-85 (to account for the fuel economy penalty) could obviate any need to increase the allowable ethanol content in other gasoline. According to the Energy Information Administration, in 2007 there were over 7 million flex-fuel vehicles in use throughout the US, representing approximately 3 percent of the total light duty vehicle fleet. Yet fewer than 400,000 – or 6 percent – of these vehicles were actually fueled with E85.⁷ As a result, a potentially substantial means for ethanol distribution and use in the U.S. remains untapped. Given the large number of flex fuel vehicles on the road today, and their low cost premium, the ethanol industry could focus more effort on increasing the availability of E85 in order to ensure a sufficient market for ethanol.

Finally, the EPA Administrator has authority under EISA to waive or modify RFS2 fuel volume requirements if it is determined that implementation would "severely harm the economy or environment...or...there is an inadequate domestic supply." If EPA concludes that RFS2 volume requirements cannot be met in a particular year without increasing the allowable ethanol content in gasoline, we believe that the Administrator can and should waive the volume requirements for that year.

Automobile warranty concerns:

We note that automobile manufacturers currently warranty their products for use with fuels containing a maximum 10% ethanol by volume. We are concerned about the potential impact of intermediate blends on manufacturers' warranties for existing and new vehicles.

Summary:

There is a significant lack of data on the impact of E15 on nonroad and highway engines and vehicles emissions and operation. Given the conditions that must be met under the waiver

* We note that EISA directed EPA to study the potential to allow RFS2 credits for electricity from renewable energy sources. Given that numerous automobile manufacturers have announced plans to sell electric-drive vehicles within the next few years, electricity could potentially play a major role in RFS2 compliance. We urge EPA to complete its study and to consider allowing credits from renewable electricity as a compliance option.

requirements as outlined in section 211(f) of the Clean Air Act, and Growth Energy's failure to demonstrate compliance with these requirements, we urge EPA to deny the E15 waiver request at this time. We believe that Growth Energy has overstated the need to act immediately on this issue for the reasons stated above. We urge EPA to evaluate data that will be forthcoming from various technical studies on the impact of E15 on highway and nonroad engine exhaust and evaporative emissions prior to allowing any increase in the ethanol content of U.S. gasoline.

Sincerely,



Arthur Marin
Executive Director

¹ EPA, "Control of Emissions from Marine SI and Small SI Engines, Vessels, and Equipment Final Regulatory Impact Analysis, Executive Summary," September, 2008. Accessed from <http://www.epa.gov/otaq/regs/nonroad/marinesi-equiuld/420r08014-exsum.pdf> July 2009.

² Knoll, K., B. West, W. Clark, R. Graves, J. Orban, S. Przesmitzki, and T. Theiss 2009. "Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1—Updated." National Renewable Energy Laboratory. February 2009. Accessed from http://feerc.ornl.gov/publications/Int_blends_Rpt1_Updated.pdf.

³ Sahu, Ron 2009. "Preliminary Comments on the DOE report titled 'Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1—Updated,' NREL/TP-540-43543 and ORNL/TM-2008/114, dated February 2009." Outdoor Power Equipment Institute (OPEI). Accessed from <http://www.opei.org/ht/a/GetDocumentAction/i/1926> July 2009.

⁴ http://www.nmma.org/lib/docs/nmma/gr/policy/Mid-Level_Ethanol_NMMA_Policy_Brief_07-11-08.pdf. Accessed July 2009.

⁵ <http://www.boatus.com/seaworthy/fueltest.asp>. Accessed July 2009.

⁶ US EPA, Draft Regulatory Impact Analysis: Changes to Renewable Fuel Standard Program. EPA-420-D-09-001 May 2009

⁷ Energy Information Administration, "Alternatives to Traditional Transportation Fuels 2007", April 2009. Accessed July 2009 from <http://www.eia.doe.gov/cneaf/alternate/page/atftables/afv-atf2007.pdf>