

**GROWTH ENERGY'S COMMENTS ON NOTICE OF CLEAN AIR ACT
WAIVER APPLICATION TO INCREASE THE ALLOWABLE ETHANOL
CONTENT OF GASOLINE TO FIFTEEN PERCENT**

**REQUEST FOR COMMENT
AIR AND RADIATION DOCKET, DOCKET ID No. EPA-HQ-OAR-2009-
0211**

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Attn: The Honorable Lisa Jackson, Administrator

Re: Notice of Clean Air Act Waiver Application to Increase the Allowable Ethanol Content of Gasoline to 15 Percent; Request for Comment
Air and Radiation Docket, Docket ID No. EPA-HQ-OAR-2009-0211

Dear Administrator Jackson:

Growth Energy submits these comments in response to the United States Environmental Protection Agency's ("EPA's") April 21, 2009, Request for Comment in the above-referenced matter. Growth Energy, on behalf of its American corn and cellulosic ethanol producer members, urges EPA to grant Growth Energy's March 9, 2009 Waiver Application to increase the allowable ethanol content of gasoline up to fifteen percent, pursuant to section 211(f)(4) of the Clean Air Act ("Waiver Application").

I. Introduction

Growth Energy's Waiver Application seeks approval to increase the ethanol portion of ethanol-gasoline blends up to fifteen percent. The Clean Air Act provides for introduction of new fuels upon application of a fuel manufacturer that demonstrates that the new fuel "will not cause or contribute to the failure of any emission control device or system." While EPA's Request for Comment seeks comments on a variety of issues that are related to the need for and implementation of the requested waiver, as EPA's notice acknowledges, such considerations are not relevant to EPA's decision to grant the requested waiver. Per Congress's mandate in the Clean Air Act, and as affirmed by the federal courts, waiver decisions are to be based on only one criterion—whether the fuel causes or contributes to the failure of vehicle emission control devices to meet Clean Air Act emission standards.

The Waiver Application included numerous independent and peer-reviewed studies that demonstrate that ethanol blends up to fifteen percent do not cause or contribute to the failure of emission control devices to meet Clean Air Act standards. In fact, the studies demonstrate that fuels containing up to fifteen percent ethanol are indistinguishable in use and emissions from ethanol-gasoline blends containing ten percent ethanol, blends that have been safely and successfully used for over thirty years in the United States in millions of vehicles. Additionally, many of the studies in the Waiver Application included evaluations of ethanol blends containing more than fifteen percent ethanol, further supporting the conclusion that higher ethanol blends do not cause the failure of emission control devices or cause exceedances of applicable emission standards. In the months since Growth Energy submitted its Waiver Application, updates to studies included in the Waiver Application, as well as additional studies (which are attached to and hereby incorporated as part of these comments), further confirm that EPA

should grant the requested waiver. Based on the statutory standard and review of available studies, EPA can reach no other conclusion.

While not relevant to the limited statutory scope of EPA's review of the requested waiver, EPA should be aware that approval of higher ethanol blends is critical to meet Congress's mandate for renewable fuels under the Energy Independence and Security Act of 2007 ("EISA 2007"). As set forth in our comments below, higher-blend ethanol is the only currently available and immediately deployable option to achieve Congress's goal to reduce the United States' dependence on foreign oil and fossil fuels that monopolize the American transportation fuel market. Approval of the requested waiver is not only appropriate under the Clean Air Act, it will reduce foreign imports of fossil fuels, enhance national security, benefit the environment, and create thousands of jobs in the United States.

II. Growth Energy's Waiver Application Has Satisfied the Statutory Standard and EPA Should Grant the Requested Waiver

EPA requested comments on whether the statutory basis has been met for granting Growth Energy's Waiver Application for ethanol-gasoline blends containing up to fifteen percent ethanol. The data presented in the Waiver Application, as well as subsequent updates and studies, compel the conclusion that Growth Energy has satisfied the statutory basis and that EPA should grant the requested waiver.

A. The Statutory Standard for a 211(f)(4) Waiver

The standard governing EPA's evaluation of Growth Energy's Waiver Application is set forth in section 211(f)(4) of the Clean Air Act. The Administrator may grant Growth Energy's Waiver Application if she determines that E-15 "will not cause or contribute to the failure of any emission control device or system (over the useful life of

the motor vehicle, motor vehicle engine, non-road engine or non-road vehicle in which such device or system is used) to achieve compliance by the vehicle or engine with the emission standards with respect to which it has been certified pursuant to sections 7525 and 7547(a) of this title.” 42 U.S.C. § 7545(f)(4). The Waiver Application discusses this statutory standard in significant detail, and we encourage EPA to again review that document. We take this opportunity, however, to emphasize the following important points:

1. EPA’s Decision Must Be Based *Solely* on Whether E-15 Causes or Contributes to the Failure of an Emission Control Device or System to Meet Clean Air Act Standards

The statutory provision cited above makes clear that EPA’s decision on whether to grant a waiver is based solely on whether the requested fuel will cause or contribute to the failure of any emission control device or system to meet Clean Air Act standards. Importantly, the United States Court of Appeals for the District of Columbia has held that “[t]he language of section 211(f)(4) is clear, directing the Administrator to consider *only* emission effects ... in waiver determinations.” *Ethyl Corp. v. Environmental Protection Agency*, 51 F.3d 1053, 1058 (D.C. Cir. 1995) (emphasis added). In *Ethyl Corp*, the Court found that the EPA Administrator exceeded her authority when she denied a section 211(f)(4) waiver application on the grounds of “public health concerns.” The Court explained that waiver decisions are to be “*based on one criterion: a fuel additive’s effect on emission standards,*” and EPA’s role is “to assess whether the additive’s emission products ‘causes or contributes’ to an emission control device’s ability to comply with the Act’s emission standards.” *Id.* at 1058 (emphasis added).

EPA’s consideration is further limited to only those tailpipe emissions for which emission standards have been established. As EPA itself recognized in prior waiver determinations, the waiver provision is “solely concerned with the emission standards which apply to tailpipe emissions of HC, CO and NO_x and evaporative emissions.” *See*,

e.g., EPA Decision Doc. regarding Petro-Tex Chemical Co. for MTBE (0-15%) (Dec. 16, 1978), 44 Fed. Reg. 1,447 (Jan. 5, 1979). This interpretation was confirmed by the D.C. Circuit Court of Appeals. *Ethyl Corp. v. EPA*, 51 F.3d at 1058 (D.C. Cir. 1995).

To the extent EPA were to base its waiver decision on considerations other than the potential impact on regulated emissions to meet applicable standards, EPA would exceed its statutory authority. The courts have been clear that an agency must limit its decision-making to those express factors articulated by Congress. See, e.g., *North Carolina v. Environmental Protection Agency*, 531 F.3d 896, 906 (D.C. Cir. 2008), quoting *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (reasserting standard that an EPA action is arbitrary and capricious if, in taking the action, EPA “relied on factors which Congress has not intended it to consider”); *Lead Industries Association, Inc. v. Environmental Protection Agency*, 647 F.2d 1130, 1150 (D.C. Cir. 1980), *cert. den.*, Dec. 8, 1980, (citation omitted) (“[W]hen Congress directs an agency to consider only certain factors in reaching an administrative decision, *the agency is not free to trespass beyond the bounds of its statutory authority by taking other factors into account.*”) (emphasis added); *Alliance to Save the Mattaponi v. U.S. Army Corps of Engineers*, 606 F.Supp.2d 121, 140 (D.D.C. 2009) (reversing EPA decision not to veto Clean Water Act section 404 permit because decision was based on “a whole range of . . . reasons completely divorced from the statutory text”). Accordingly, EPA’s decision to grant the waiver must be based only on the sole criterion established by Congress—whether the fuel will cause or contribute to failure of an emission control device or system.

2. EPA May Not Apply a “No-Increase” Standard When Evaluating the E-15 Waiver Application

Federal courts interpreting Clean Air Act section 211(f)(4) have held that the Administrator may not deny a waiver application because there may be *some* increase in

emissions; rather, a denial is only appropriate when an increase is shown to cause or contribute to a failure of a control device or system to comply with applicable emissions standards. In *Motor Vehicle Manufacturers Association of the United States v. Environmental Protection Agency*, the Court of Appeals for the District of Columbia expressly held that both the plain language and legislative history of section 211(f)(4) do not require the Administrator “to adopt a ‘no increase’ standard when considering waiver applications.” 768 F.2d 385, 390 (D.C. Cir. 1985). Thus, even if a proposed fuel will increase emissions, EPA may nonetheless grant a waiver, so long as the emissions do not exceed applicable emission standards.

3. EPA May Rely on Samples, Reasonable Theories, and Data Extrapolation to Grant the Requested Waiver

Although section 211(f)(4) requires an applicant to show that a fuel for which a waiver is requested will not cause or contribute to a failure of any emission control device or system, EPA and the courts have recognized that this burden, if interpreted literally, is “virtually impossible.” EPA Dec. Doc. granting waiver to ARCO for Arconol (TBA, 0-7%) (Feb. 6, 1979), 44 Fed. Reg. 10,530 (Feb. 21, 1979); *Motor Vehicle Mfrs. Ass’n of U.S. v. EPA*, 768 F.2d at 392. The agency has thus determined that the statutory standard may be met through statistical sampling and fleet testing protocols, and that a waiver should be granted where a limited sample indicates the use of the waiver fuel “will cause no significant failures of vehicles in a national fleet to meet emissions standards.” *See, e.g.*, EPA Dec. Doc. granting waiver to ARCO for Arconol (TBA, 0-7%) (Feb. 6, 1979), 44 Fed. Reg. 10,530 (Feb. 21, 1979); EPA Dec. Doc. granting waiver to Synco 76 Fuel Corp. for EN-81-20 (10% ethanol plus a proprietary additive) (May 18, 1982), 47 Fed. Reg. 22404 (May 24, 1982) at 6.

EPA also has reiterated on many occasions that an applicant, in lieu of test data, may rely on a “reasonable theory” about the emission effects of the fuel. *See, e.g.*,

Texaco; Grant of Application for Fuel Waiver for TC-11064, Decision Document, 45 Fed. Reg. 58,954, 58,956 (1980). Likewise, EPA has noted that “reasonable theoretical judgments as to the emission effects of the fuel may be utilized as an alternative to direct testing of vehicles.” Sun Refining and Marketing Co.; Conditional Grant of Application for Fuel Waiver for 15% MTBE, Decision Document at 10-11, 53 Fed. Reg. 33,846 (Sept. 1, 1988). This approach has been upheld by the United States Court of Appeals for the District of Columbia, which agreed with EPA that actual vehicle “testing may not be always required to make the requisite determination that a fuel will not cause a vehicle to exceed emissions standards.” *Motor Vehicle Mfrs. Ass’n*, 768 F.2d at 392-93.

Finally, EPA also has routinely permitted 211(f)(4) waiver applicants to extrapolate test results from different fuel blends including, notably, extrapolating test results from a higher ethanol blend to a lower ethanol blend. *See, e.g.*, Gas Plus, Inc.; Interpretation of Grant of Application for Fuel Waiver for 0-10% anhydrous ethanol (“gasohol”), 47 Fed. Reg. 14,596 (Apr. 5, 1982) (concluding, on the basis of ethanol’s chemical properties, that emissions data for E-10 could be extrapolated to lower blends, and that waiver approval of E-10 also applied to all blends between E-0 and E-10). Notably, in the case of fuels containing oxygenates such as ethanol, EPA has found that emissions testing results for fuels with higher levels of a given oxygenate generally may be extrapolated to fuels with lower levels of the same oxygenate. *See, e.g.*, ARCO; Grant of Application for Fuel Waiver for Methanol/GTBA (up to 3.5% oxygen), Decision Document at 6, 46 Fed. Reg. 56,361 (1981) (noting that “[e]xperience with other waivers ha[s] demonstrated that increases in emissions, particularly oxides of nitrogen and evaporative hydrocarbons, were proportional to oxygen content” and concluding that “if satisfactory results occur at the highest concentration endpoints of the combinations requested, [EPA] could grant a waiver for all intermediate concentrations.”). In the case of E-15, this principle of extrapolation indicates that favorable emissions data for higher ethanol blends (for example, E-20 in the Department of Energy, Rochester Institute of Technology, and Coordinated Research Council studies; E-20 through E-85 in the Energy

and Environmental Research Center study; and E-30 in the Minnesota Center for Automotive Research study) is applicable to a lower blend such as E-15; likewise, favorable emissions data for E-15 should be applicable to all ethanol blends between E-0 and E-15. *See, e.g., Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1*, prepared by Oak Ridge National Laboratory for the U.S. Department of Energy (October 2008); *Report to the U.S. Senate on E-20 Ethanol Research*, prepared by the Rochester Institute of Technology (October 2008); *Fuel Permeation from Automotive Systems: E-0, E-6, E-10, E-20 and E-85*, prepared by the Coordinating Research Council, Inc. (CRC Report No. E-65-3) (December 2006); *Optimal Ethanol Blend-Level Investigation, Final Report*, prepared by Energy & Environmental Research Center and Minnesota Center for Automotive Research for American Coalition for Ethanol (October 2007); *Use of Mid-Range Ethanol/Gasoline Blends in Unmodified Passenger Cars and Light Duty Trucks*, prepared by Minnesota Center for Automotive Research (July 1999).

In sum, EPA's waiver decision is to be based on whether a fuel will cause or contribute to failure of an emission control device or system. EPA may not deny a waiver application based on other factors or based on increases in emissions that are below applicable standards. Further, in making its decision, EPA may rely not only upon actual test data for the proposed waiver fuel, but also upon statistical sampling, reasonable scientific theories, and data extrapolations to conclude the fuel will not cause or contribute to the failure of an emission control device or system.

B. Growth Energy's Waiver Application Satisfies the Statutory Standard for a Waiver for Ethanol Blends up to Fifteen Percent

Growth Energy's Waiver Application presents results derived from a wide range of representative testing and statistical analysis, with more independent, peer-reviewed, and relevant data than presented in any other section 211(f)(4) waiver application. The

scientific data presented in the Waiver Application involved thousands of hours of testing on more than 100 vehicle models and engines types¹ that generated extensive and statistically analyzed data regarding exhaust emissions, evaporative emissions, materials compatibility, and vehicle drivability based on use of ethanol-gasoline blends for both E-15 as well as for blends with significantly higher ethanol content. The information provided in the Application is overwhelmingly clear: ethanol blends containing up to fifteen percent ethanol will not cause or contribute to the failure of an emission control device or system. Since submittal of the Waiver Application, updates to studies and new studies that are included with these comments, involving hundreds of additional vehicles

¹ Studies included in the Waiver Application tested a variety of mid-level ethanol blends, including E-15, on vehicles representative of the current U.S. fleet, including model years 1978 to 2007 and the following unique vehicle models and engine types: 1978 Oldsmobile Cutlass, 1985 Ford Econoline 150 4.9L, 1985 Nissan Sentra, 1985 Oldsmobile Cutlass Ciera 2.5L, 1989 Ford Taurus, 1990 Chevrolet C1500 4.3L, 1990 Dodge Caravan 3.3L, 1990 Honda Accord, 1990 Honda Integra, 1991 Cadillac Sedan DeVille 4.9L, 1991 Chrysler Caravan, 1991 Ford Explorer, 1991 Honda Accord, 1992 Chevrolet K1500 5.7L, 1992 Ford Taurus 3.8L, 1992 Geo Metro 1.0L manual, 1992 GM Cutlass, 1992 Toyota Lexus, 1993 Chevrolet Caprice, 1993 Ford Escort, 1993 Mazda MPV, 1994 Buick Regal 3.1L, 1994 Nissan Sentra, 1994 Toyota Camry, 1995 Ford Ranger, 1995 GM Grand AM, 1995 Nissan Pathfinder, 1996 Oldsmobile Achieva 3.1L, 1997 Chevrolet K3500 7.4L manual, 1997 Chevrolet K1500 5.7L, 1997 Chrysler Town and Country, 1997 Ford F-150 5.4L, 1998 Dodge Caravan 3.3L, 1998 Ford F250 5.4L, 1999 Ford Crown Victoria 4.6L V8, 1999 Honda Civic 1.6L I4, 1999 Toyota Corolla 1.8L I4, 1999 Toyota Corolla (unspecified engine), 2000 Chevrolet Astro 4.3L V6, 2000 Ford E350 4.6L V8, 2000 Ford F450 6.8L V10, 2000 Honda Odyssey, 2000 WorkHorse UCBC 4.3L V6, 2001 Chevrolet Express 3500 6.0L V8, 2001 Chevrolet K2500 8.1L V8, 2001 Chrysler PT Cruiser 2.4L I4, 2001 Ford Explorer 4.0L, 2001 Ford Focus 2.0L, 2001 Ford E250 5.4L V8, 2001 Ford E250 4.6L V8, 2001 Toyota Tacoma, 2002 Chevrolet K2500 6.0L V8, 2002 Dodge Ram 5.2L V8, 2002 Dodge Ram 1500 4.3L, 2002 Ford E250 5.4L V8, 2003 Buick LeSabre 3.8L V6, 2003 Dodge Dakota 3.9L V6, 2003 Ford Focus 2.0L, 2003 Ford E150 4.6L V8, 2003 Ford F150 5.4L V8, 2003 Ford F250 5.4L V8, 2003 Ford F450 5.4L V10, 2003 Ford Taurus 3.0L V8, 2003 Nissan Altima 3.5L V6, 2003 Toyota Camry 2.4K I4, 2004 Chevrolet Astro 4.3L, 2004 Chevrolet Express 3500 6.0L V8, 2004 Dodge Caravan 2.4L, 2004 VW Golf GTI 1.8L I4 Turbo, 2005 Chevrolet Astro 4.3L, 2005 Chevrolet Express 3500 6.0L V8, 2005 Chevrolet Impala 4.0L, 2005 Chevrolet Malibu 1.8L, 2005 Crown Victoria 4.6L V8, 2005 Dodge Caravan 3.8L, 2005 Ford Escape 4.6L Hybrid, 2005 Toyota Prius INZ-FXE, 2005 Ford Ranger 5.4L V8, 2006 Chevrolet Express 6.0L V8, 2006 Chevrolet K2500 6.0 V8, 2007 Buick Lucerne 3.8L V6, 2007 Chevrolet Impala (non-flex fuel), 2007 Chevrolet Impala (flex fuel), 2007 Chrysler Town & Country 3.3L V6, 2007 Ford F150 5.4L V8, 2007 Ford Fusion, 2007 GM Silverado 4.8L V8, 2007 Honda Accord 2.4L I4, 2007 Toyota Camry (unspecified engine), 2007 Toyota Camry 2.4L I4, 1994 Briggs & Stratton 12.5-hp (side-valve) (two engines tested), 1994 Kohler 12.5-hp (overhead-valve), Honda generator 196cc, Honda generator (used) 163cc, Briggs and Stratton generator 249cc, Kohler generator 725cc (2-cyl), Poulan leaf blower 25cc, Stihl line trimmer 28.4cc, Briggs and Stratton power washer 158cc (6 engines tested), Honda generator 196cc (4 engines tested), Weed Eater blower 23cc (8 engines tested), Stihl line trimmer 31.4cc (4 engines tested).

and over a million collective miles driven with higher ethanol blends further confirm that E-15 will not cause or contribute to the failure of an emission control device or system.

1. Automobiles Used in America are Fully Capable of Using up to Fifteen Percent Ethanol

In reviewing the many studies submitted as part of the Waiver Application and these comments, EPA should recognize that the results of the studies confirm and are consistent with automotive industry knowledge that, based on past upgrades necessary to meet stringent U.S. vehicle emission and automotive industry standards, America's automotive fleet is fully capable of using fuels containing up to fifteen percent ethanol.

a. Vehicles Have Long Been Upgraded to Accommodate Modified Fuels and Satisfy Enhanced Emission Requirements

Automobile manufacturers in the United States have regularly upgraded vehicle fuel systems to accommodate ever-changing fuels and increasingly stringent emission standards. For example, the phasing out of leaded gasoline in the mid-1970s necessitated replacement of many common fuel system components to withstand the significantly higher content of aromatic hydrocarbons in unleaded gasoline. Similarly, when EPA granted the waiver for "Gasohol" (ten percent ethanol) in 1978, automotive manufacturers made the necessary modifications to vehicle fuel systems and promptly warranted their new vehicles as capable of using E-10. Manufacturers made further upgrades following the 1990 amendments to the Clean Air Act, which established stringent new emissions requirements, including real time diurnal SHED testing for evaporative emissions, and extension of the useful life over which emission control must be maintained from three years to ten years or 100,000 miles. Importantly, the upgraded fuel system materials that were low enough in permeation to meet these new emissions requirements were also significantly more durable and highly resistant to any negative effects of alcohol fuel blends. Automobile manufacturers began introducing vehicles

with these superior materials, and that were certified to meet these new regulations, in the early 1990s. Vehicles designed to use an array of different fuels and blends combined with designs and equipment necessary to meet stringent emission requirements has created a robust fleet in the United States easily capable of accommodating a fifteen percent ethanol-gasoline fuel blend.

b. Materials Have Long Been Qualified Per Industry Standard
Using Fifteen Percent Methanol

During the 1980s, the automotive industry undertook significant efforts to design vehicles capable of using a range of oxygenates, including ethanol and methanol. During this time, the Society of Automotive Engineers established SAE Cooperative Research Project Group 2 to develop and exchange information relative to materials and test methods for use with oxygenated fuel blends and gasoline. In September 1990, this group published the SAE Cooperative Research Report titled “Gasoline/Methanol Mixtures for Materials Testing,” which led to the industry standard SAE J1681, published in September 1993. This internationally recognized standard established a fifteen percent methanol blend (“CM15”--a blend of 47.5% Iso-Octane, 47.5% Toluene, and 15% Methyl Alcohol) as the basic fuel for qualification of automotive fuel system materials. As methanol has significantly more aggressive characteristics and effects on fuel system materials and components than ethanol, materials qualified for use with a fifteen percent methanol blend are fully capable for use with fifteen percent ethanol. In 2000, SAE J1681 was updated to include additional types of fuels and oxygenates, however, the standard retains a fifteen percent methanol blend as the most basic fuel recommended for qualifying all materials worldwide. Accordingly, materials used in vehicles manufactured within at least the last fifteen years, which represent more than eighty percent of the vehicles in use today, should be fully capable of using a fuel containing up to fifteen percent ethanol.

2. All Relevant Scientific and Technical Information Demonstrates that Use of E-15 Will Not Cause or Contribute to the Failure to Meet Applicable Emissions Standards

Every published and peer-reviewed study of vehicles representative of today's American automotive fleet confirms that such vehicles can meet all applicable emission standards while using higher ethanol blends, including E-15. The Waiver Application includes copies of relevant studies, as well as a description of the scope, methodology, and findings of each of these studies. While we will not repeat such information here, we incorporate our Waiver Application by reference and encourage EPA to again review the Waiver Application and appended studies regarding the strong scientific basis for the requested waiver. The scientific studies clearly and consistently demonstrate that E-15: (a) will not cause tailpipe emissions to exceed applicable standards; (b) will not cause evaporative emissions to exceed applicable standards; (c) is compatible with fuel systems materials; (d) has no negative impact on driveability; and (e) does not cause emissions to exceed applicable emission standards over the long-term or useful life of vehicles.

a. E-15 Does Not Cause Tailpipe Emissions to Exceed Applicable Standards

The Waiver Application includes a comprehensive study of higher-ethanol blends undertaken by the U.S. Department of Energy ("DOE") in consultation with the Coordinating Research Council and EPA. *See Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1*, prepared by Oak Ridge National Laboratory for the U.S. Department of Energy (October 2008) ("DOE Study"). This peer-reviewed study evaluated the effects of E-15 and E-20 on a representative fleet of sixteen motor vehicles (including the most common vehicles and those anticipated to be most susceptible to impacts from higher-ethanol blends). The DOE Study concluded that when E-15 and E-20 were compared to traditional gasoline, there were no significant

changes in vehicle tailpipe emissions. The Department of Energy issued an update to the DOE study in February 2009. *See Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1 - Updated*, prepared by Oak Ridge National Laboratory for the U.S. Department of Energy (February 2009) (“Updated DOE Study”). A copy of the Updated DOE Study is included as Attachment B to these comments. The Updated DOE Study reached conclusions almost identical to those in the original report but with increased statistical confidence: that when E-15 and E-20 were compared to traditional gasoline, there were no significant changes in vehicle tailpipe emissions as ethanol content increased.

DOE’s results were consistent with other prior studies, including a study by the Energy & Environmental Research Center and the Minnesota Center for Automotive Research that studied the effects on motor vehicles of eight ethanol blends ranging from E-10 to E-85 and found that exhaust emissions levels for all vehicles at all levels of ethanol blend were within the applicable Clean Air Act standards. *See Optimal Ethanol Blend-Level Investigation, Final Report*, prepared by Energy & Environmental Research Center and Minnesota Center for Automotive Research for American Coalition for Ethanol (October 2007). A 1999 study of fifteen older passenger cars and light duty trucks conducted by the Minnesota Center for Automotive Research reached similar results, finding that regulated emissions from both E-10 and E-30 were well below federal standards. *See Use of Mid-Range Ethanol/Gasoline Blends in Unmodified Passenger Cars and Light Duty Trucks*, prepared by Minnesota Center for Automotive Research (July 1999). Other studies included in the Waiver Application, such as that conducted by the Rochester Institute of Technology, found that use of higher ethanol blends such as E-20 resulted in a decrease in both regulated and unregulated emissions. *Report to the U.S. Senate on E-20 Ethanol Research*, prepared by the Rochester Institute of Technology (October 2008). Accordingly, abundant and clear scientific evidence supports that higher-ethanol blends, including E-15, do not cause or contribute to the failure of representative vehicles to meet applicable emission standards.

b. E-15 Does Not Cause Evaporative Emissions to Exceed Applicable Standards

As discussed in section II.B.1 above, in the 1990s automobile manufacturers significantly upgraded the materials used in their automobiles in order to meet stringent U.S. evaporative emissions requirements. The upgrades resulted in fuel systems that are highly capable of accommodating a wide array of different fuels and blends, including E-15. Further, as noted in Growth Energy's Waiver Application, based on research by the National Renewable Energy Laboratory, and confirmed by research by the University of Stockholm, the volatility, and thus the potential for evaporation, of E-10 and E-15 is almost identical. Based on the extensive materials compatibility testing undertaken by the State of Minnesota, it is clear that higher-ethanol blends up to E-20 have no discernable effect on representative metals, elastomers, plastics, fuel pumps, and sending units and therefore will not impair materials and lead to evaporative emissions. *See The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel*, Results of Materials Compatibility and Driveability Testing, prepared by the State of Minnesota and the Renewable Fuels Association (March 2008). Moreover, two independent studies included in the Waiver Application confirm that higher blends including E-15 and E-20 do not result in a discernable increase in evaporative emissions compared to commercially available fuels. *See Fuel Permeation from Automotive Systems: E-0, E-6, E-10, E-20 and E-85*, prepared by the Coordinating Research Council, Inc. (CRC Report No. E-65-3) (December 2006); *Blending of Ethanol in Gasoline for Spark Ignition Engines: Problem Inventory and Evaporative Measurements*, prepared by Stockholm University et. al. (2004-05). Again, abundant and clear scientific data supports that higher-ethanol blends, including E-15, do not cause or contribute to the failure of representative vehicles to meet applicable emission standards.

c. E-15 is Compatible with Fuel Systems and Does Not Cause Emissions to Exceed Applicable Standards

Four recent studies completed by the State of Minnesota tested a broad range of representative materials including nineteen metals, eight elastomers, and eight representative plastics found in automotive, marine, and small engine fuel system components, as well as twenty-four fuel pumps and nine sending units. *See, The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel, Results of Materials Compatibility and Driveability Testing*, prepared by the State of Minnesota and the Renewable Fuels Association (March 2008). The study tested all materials using E-10 and E-20 specially formulated to present a worst-case fuel, and found that higher-blend fuels up to twenty percent ethanol do not impair materials used in fuel systems. Since Growth Energy submitted its Waiver Application, the Minnesota Center for Automotive Research released an additional study regarding the effects of E-20 to that of E-10 and E-0 over a 400-hour test on eight fuel pump models and three sending unit models. This new study concluded that E-20 did not cause any greater negative effects than E-0 or E-10. *See An Examination of Fuel Pumps and Sending Units During a 400 Hour Endurance Test in E20*, prepared by the Minnesota Center for Automotive Research (March 2009). A copy of this study is included as Attachment C to these comments. Also since submittal of the Waiver Application, the Rochester Institute of Technology released an updated report regarding its study on the effects of higher ethanol blends. *See E-20 Ethanol Test Evaluation Status Report*, prepared by the Rochester Institute of Technology (2009) (“Updated RIT study”). The Updated RIT study included approximately 400 vehicles of all types, consumption of more than 100,000 gallons of E-20 with more than 1.5 million miles driven and found “no significant issues” associated with extensive use of E-20. A copy of this study is included as Attachment D to these comments. Accordingly, the findings further support that higher-ethanol blends will not degrade system components or cause emissions to exceed applicable standards.

d. E-15 Does Not Impact Driveability

Multiple third-party studies submitted with the Waiver Application, including paired-vehicle studies, real-world driving studies, and studies on legacy vehicles, confirm that higher ethanol blends ranging from E-15 to E-30 result in no difference in driveability when compared to E-0. *See, e.g., Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1 – Updated* (February 2009) (no significant changes in vehicle driveability); *Demonstration and Driveability Project to Determine the Feasibility of Using E20 as a Motor Fuel* (part of the larger report: *The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel* (March 2008) (neither E-20 nor E-0 presented any driveability or operational issues); *Report to the U.S. Senate on E-20 Ethanol Research*, (October 2008) (E-20 has no impact on driveability after 75,000 collective miles driven); *Use of Mid-Range Ethanol/Gasoline Blends in Unmodified Passenger Cars and Light Duty Trucks* (July 1999) (no difference in driveability between E-10 and E-30).

e. E-15 Does Not Cause Emissions to Exceed Applicable Emission Standards Over the Long-Term or Useful Life of Vehicles

The Waiver Application also contains sufficient scientific and technical information for EPA to conclude that higher-ethanol blends containing up to fifteen percent ethanol will not result in long-term increases of emissions that exceed applicable standards. Consistent with virtually every past agency waiver decision, long-term exhaust emissions testing (50,000-mile durability testing) is not necessary or required for EPA approval of the requested waiver. Of the eleven waiver requests that EPA has granted since 1979, only one applicant conducted 50,000-mile durability testing. *See Ethyl Corp. v. EPA*, 51 F.3d 1053, 1056 (D.C. Cir. 1995). EPA has routinely waived durability testing in the case of oxygenated fuels such as ethanol. *See, e.g., Sun Refining and Marketing Co.; Conditional Grant of Application for Fuel Waiver for 15% MTBE*, Decision Document at 13-14 53 Fed. Reg. 33,846 (Sept. 1, 1988) (concluding that 50,000-mile durability testing is not required for 15% MTBE because the agency was

“unaware of any long-term deteriorative effects on exhaust emissions associated with oxygenates” and finding that “[t]he vast majority of data indicate that the effect of oxygenates on exhaust emissions over time has not been a significant issue”); *see also* ARCO; Grant of Application for Fuel Waiver for Arconol (TBA, 0-7%), Decision Document, 44 Fed. Reg. 10,530 (Feb. 21, 1979) (50,000-mile durability testing was not required to grant waiver for fuel containing up to 7% of the oxygenate tertiary butyl alcohol); *see also* Synco 76 Fuel Corp.; Grant of Application for Fuel Waiver, Decision Document at 7, 47 Fed. Reg. 22404 (1982) (granting waiver for EN-81-20, a fuel containing ten percent ethanol plus a proprietary additive, without requiring 50,000-mile durability testing, and stating that the agency’s experience with ethanol blends indicated only an instantaneous effect on emissions). Given EPA’s long-standing position that ethanol will not have long-term effects, and of making waiver decisions without requiring 50,000-mile durability testing, it would be arbitrary and capricious for EPA to take a contrary position regarding E-15. *See, e.g., ANR Pipeline Co. v. Federal Energy Regulatory Commission*, 71 F.3d 897, 901 (D.C. Cir. 1995) (declaring any agency action that departs from established precedent without a legitimate basis and a reasoned explanation to be arbitrary and capricious).

Instead of requiring 50,000-mile durability tests, EPA has expressly stated that “reasonable theoretical judgments as to the emission effects of the fuel may be utilized as an alternative to direct testing of vehicles” and has relied on fuel volatility specifications, limited durability emissions testing, and data regarding materials compatibility and driveability in making such judgments. *See, e.g., Sun Refining and Marketing Co.; Conditional Grant of Application for Fuel Waiver for 15% MTBE*, Decision Document at 13, 53 Fed. Reg. 33,846 (Sept. 1, 1988). Based on emissions testing completed as part of multiple studies submitted with the Waiver Application that demonstrate no significant impact on emissions from use of E-15 and other higher ethanol blends, there is no evidence to suggest that long-term emissions from use of these fuels would increase above applicable standards. The similarity in Reid vapor pressure between E-15 and E-

10, and the studies included in the waiver application that show no increase in evaporative emissions, also support this conclusion. Further, the materials compatibility studies included in the Waiver Application as well as the recently completed endurance testing of fuel pumps and sending units completed by the Minnesota Center for Automotive Research also support this conclusion. Further, all driveability studies included in the Waiver Application demonstrate no negative effects from use of higher-ethanol blends. Similarly, the findings of the Rochester Institute of Technology study that demonstrated no emissions increases after 75,000 collective miles on 10 legacy vehicles with significant mileage further supports that E-15 does not increase regulated vehicle emissions on either a short- or long-term basis. In fact, both the recent Minnesota Center for Automotive Research endurance study and the Rochester Institute of Technology legacy vehicle study suggested cleansing properties and potentially lower emissions associated with long-term use of higher-ethanol blends. Since submittal of the Waiver Application, the Rochester Institute of Technology released an updated report regarding its study on the effects of higher ethanol blends. *See E-20 Ethanol Test Evaluation Status Report*, prepared by the Rochester Institute of Technology (2009) (“Updated RIT study”). The Updated RIT study included more than 400 vehicles of all types, consumption of more than 100,000 gallons of E-20 with more than 1.5 million miles driven and found “no significant issues” associated with extensive use of E-20 and that “emissions may be reduced through use of E-20 in older conventional vehicles.” Accordingly, the studies and information submitted in support of the Waiver Application and these comments provide more than sufficient technical and scientific data for EPA to conclude that long-term emissions will not increase above applicable standards and to grant the requested waiver.

f. Third-Party Scientific Data and Studies Overwhelmingly Support that EPA Grant the Requested Waiver

The table below summarizes recent independent, third-party studies by various federal, state, and non-governmental organizations and makes clear the abundance of scientific data that supports EPA granting the requested waiver:

Report	Persons/Entities Who Prepared Report	Number of Vehicles/Engines/Materials Involved	Fuels Tested	Summary of Findings
<i>Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1 – Updated</i> (February 2009)	Oak Ridge National Laboratory for the U.S. Department of Energy	16 vehicles; 28 small non-road engines	E-15, E-20	No significant changes in vehicle tailpipe emissions, vehicle driveability, or small non-road engine emissions as ethanol content increased.
<i>Optimal Ethanol Blend-Level Investigation, Final Report</i> (October 2007)	University of North Dakota Energy & Environmental Research Center and Minnesota Center for Automotive Research for American Coalition for Ethanol	4 vehicles	E-0, E-10, E-20, E-30, E-40, E-50, E-60, E-70, E-85	Exhaust emissions levels for all vehicles at all levels of ethanol blend were within the applicable Clean Air Act standards.
<i>The Effects of E20 on Metals Used in Automotive Fuel System Components</i> (part of the larger report: <i>The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel</i> (March 2008)	The State of Minnesota and the Renewable Fuels Association	19 representative metal materials found in automotive, marine, and small engine fuel system components.	E-0, E-10, and E-20	18 of the 19 metals were compatible with both E-10 and E-20. (The incompatible metal, Zamak 5, was an unplated sample, not currently used in vehicles).

<p><i>The Effects of E20 on Elastomers Used in Automotive Fuel System Components</i> (part of the larger report: <i>The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel</i> (March 2008))</p>	<p>The State of Minnesota and the Renewable Fuels Association</p>	<p>8 representative elastomers found in automotive, marine, and small engine fuel system components.</p>	<p>E-0, E-10, and E-20</p>	<p>E-20 caused no statistically significant greater change in properties than E-0 or E-10.</p>
<p><i>The Effects of E20 on Plastic Automotive System Components</i> (part of the larger report: <i>The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel</i> (March 2008))</p>	<p>The State of Minnesota and the Renewable Fuels Association</p>	<p>8 representative plastics found in automotive, marine, and small engine fuel system components.</p>	<p>E-0, E-10, and E-20</p>	<p>E-20 caused no statistically significant greater change in properties than E-0 or E-10.</p>
<p><i>The Effects of E20 on Automotive Fuel Pumps and Sending Units</i> (part of the larger report: <i>The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel</i> (March 2008))</p>	<p>The State of Minnesota and the Renewable Fuels Association</p>	<p>24 fuel pumps and 9 sending units.</p>	<p>E-0, E-10, and E-20.</p>	<p>E-20 has similar effect on fuel pumps and sending units to those of E-10 and E-0.</p>
<p><i>Demonstration and Driveability Project to Determine the Feasibility of Using E20 as a Motor Fuel</i> (part of the larger report: <i>The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel</i> (March 2008))</p>	<p>The State of Minnesota and the Renewable Fuels Association</p>	<p>80 vehicles (40 pairs).</p>	<p>E-0 and E-20.</p>	<p>Neither E-20 nor E-0 presented any driveability or operational issues.</p>

<i>Fuel Permeation from Automotive Systems: E-0, E-6, E-10, E-20 and E-85</i> (CRC Report No. E-65-3) (December 2006)	Coordinating Research Council, Inc.	10 vehicles.	E-0, E-6, E-20 and E-85	No statistically significant difference in evaporative emissions rates from permeation between E-6 and E-20.
<i>Report to the US Senate on E-20 Ethanol Research</i> , (October 2008)	Rochester Institute of Technology	10 legacy vehicles with accumulated mileage between 30,000 and 120,000 miles.	E-0, E-20	E-20 presented no fuel-related failures or significant vehicle problems when compared to E-0. Regulated tailpipe emissions decreased when using E-20 instead of E-0.
<i>Use of Mid-Range Ethanol/Gasoline Blends in Unmodified Passenger Cars and Light Duty Trucks</i> (July 1999)	Minnesota Center for Automotive Research	15 older vehicles (model years 1985-1996).	E-10, E-30	No difference in driveability between E-10 and E-30. Regulated exhaust emissions from both fuels were well below federal standards.
<i>Blending of Ethanol in Gasoline for Spark Ignition Engines: Problem Inventory and Evaporative Measurements</i> (2004-05)	Stockholm University et. al.	Fuel evaporative emissions testing.	E-0, E-5, E-10, and E-15	E-15 had lower total hydrocarbon emissions and lower evaporative emissions than E-10 and E-5.
<i>An Examination of Fuel Pumps and Sending Units During a 400 Hour Endurance Test in E20</i> (March 2009)	Minnesota Center for Automotive Research	8 fuel pump models and 3 sending unit models	E-0, E-10, E-20	E-20 did not cause any greater negative effects on fuel pumps and sending units than E-0 or E-10.
<i>E-20 Ethanol Test Evaluation Status Report</i> (2009)	Rochester Institute of Technology	400 vehicles of all types	E-0, E-20	E-20 presented no fuel-related failures or significant vehicle problems when compared to E-0. Regulated and unregulated tailpipe emissions decreased when using E-20 instead of E-0.

Importantly, not one of these studies concludes that an ethanol blend of up to fifteen percent will cause or contribute to the failure of an emission control device or system to meet an applicable emission standard, which is the only relevant criterion for a waiver application under section 211(f)(4). Having been presented with such consistent conclusions, EPA cannot simply choose to ignore this evidence. See *Consumers Union of United States, Inc. v. Consumer Product Safety Commission*, 491 F.2d 810, 812 (2nd Cir. 1974) (restating that it is arbitrary and capricious for an agency to “ignore evidence placed before it by interested parties”); *Crutchfield v. U.S. Army Corps of Engineers*, 214 F. Supp. 2d 593, 620 (E.D. Virginia 2002), *rev’d on other grounds*, 325 F.3d 211 (4th Cir. 2003) (citing same principle). Indeed, the Supreme Court held in *Motor Vehicle Manufacturers* that an agency’s action may be set aside as arbitrary and capricious if, among other things, the agency’s decision “runs counter to the evidence before the agency.” *Motor Vehicle Mfgs.*, 463 U.S. at 43 (citations omitted). Any conclusion that E-15 would cause or contribute to the failure of emission control devices to meet applicable standards clearly would run counter to the abundance of available evidence regarding the negligible impacts of higher-ethanol blends including E-15.

III. EPA Has Authority to Issue a Conditional Waiver, But Need Not Do So Here

EPA requested comments on the legal and technical aspects regarding the possibility that E-15 could be approved for a subset of gasoline vehicles or engines that would be covered by the waiver, while other vehicles or engines would continue using fuel blends with no greater than ten percent ethanol content. The evidence presented in the Waiver Application makes clear that a conditional waiver of this type is not necessary; nonetheless, EPA does have the legal authority to grant a waiver subject to conditions.

A. EPA Has the Legal Authority to Grant a Conditional Waiver for E-15

EPA's authority to grant a 211(f)(4) waiver subject to certain conditions is well established. In its first waiver decision in 1978, the agency discussed its authority to grant conditional waivers noting that that it may grant a waiver "conditioned on time or other limitations," so long as "the requirements of section 211(f)(4) are met." *See Ethyl Corp., Denial of Application for Fuel Waiver for MMT (1/16 and 1/32 gpg Mn)*, 43 Fed. Reg. 41,424 (Sept. 18, 1978). The legislative history of section 211(f)(4) also makes clear EPA's authority to grant conditional fuel waivers. The 1977 Senate Report regarding section 211(f)(4) states that "the administrator's waiver may be under such conditions or in regard to such concentrations as he deems appropriate consistent with the intent of this section." Senate Report No. 95-125, 95th Congress, 1st Session 91 (1977). Indeed, EPA has placed conditions on four of the eleven waiver applications it has granted since 1977. *See Sun Petroleum Products Co.; Conditional Grant of Application for Fuel Waiver for 0-5.5% methanol/TBA*, 44 Fed. Reg. 37,074 (June 25, 1979); *E.I. DuPont de Nemours & Co.; Conditional Grant of Application for Fuel Waiver for 5% methanol/2% cosolvent alcohols, specified corrosion inhibitor*, Decision Document, 51 Fed. Reg. 39,800 (Oct. 31, 1986); *Texas Methanol Corp.; Conditional Grant of Application for Fuel Waiver for Octamix (5% methanol, 2.5% cosolvent alcohols, specified corrosion inhibitor)*, Decision Document, 53 Fed. Reg. 33,846 (Sept. 1, 1988); *Sun Refining and Marketing Co.; Conditional Grant of Application for Fuel Waiver for 15% MTBE*, Decision Document, 53 Fed. Reg. 33,846 (Sept. 1, 1988). These conditions have taken various forms, from restrictions on the chemical composition and additive concentration of the waiver fuel and requirements to meet ASTM and seasonal volatility standards, to specific testing protocols and mandates that a fuel manufacturer take "all reasonable precautions" to guard against unauthorized uses of the waiver fuel. Accordingly, EPA has the authority to grant waivers subject to a broad range of

conditions that ensure that the fuel or additive will not cause or contribute to the failure of any emission control device or system.

1. There is No Scientific Evidence to Support That a Waiver for up to Fifteen Percent Ethanol Should Exclude Legacy Vehicles

EPA has requested comment on the possibility of granting a waiver for up to fifteen percent ethanol but excluding certain older or “legacy” vehicles from using such fuel. There is no scientific basis for such exclusion. As discussed in section II.B.1 above, automotive industry standards in place since the early 1990s have mandated qualifying all materials with a fifteen percent methanol blend. Assuming automobile manufacturers have followed their established standard for qualifying materials, materials used in automobiles in the last two decades should be capable of accommodating ethanol blends up to fifteen percent. More importantly, studies Growth Energy submitted to EPA with the Waiver Application show that regulated emissions from legacy vehicles using higher-ethanol blend fuels, including E-20 and E-30, were well below applicable standards. For example, the Minnesota Center for Automotive Research study evaluated the impacts of E-30 on fifteen cars and light duty trucks from model years 1985-1996 and found emissions from all vehicles to be below federal standards. *Use of Mid-Range Ethanol/Gasoline Blends in Unmodified Passenger Cars and Light Duty Trucks*, prepared by Minnesota Center for Automotive Research (July 1999) at 7. Similarly, the recent Rochester Institute of Technology Study evaluated the effects of E-20 on ten legacy vehicles with between 30,000 and 120,000 miles and found that after 75,000 collective miles driven, vehicles’ regulated emissions decreased when using E-20. *Report to the U.S. Senate on E-20 Ethanol Research*, prepared by the Rochester Institute of Technology (October 2008) at 1. Further, the Updated RIT study, included approximately 400 vehicles of all types, consumption of more than 100,000 gallons of E-20, and more than 1.5 million miles driven, and expressly found “that “emissions may be reduced through use of E-20 in older conventional vehicles.” *E-20 Ethanol Test Evaluation Status Report*, prepared by the Rochester Institute of Technology (2009).

These studies support that there is no basis to exclude legacy vehicles from any waiver allowing up to fifteen percent ethanol.

2. There is No Scientific Evidence to Support That a Waiver for up to Fifteen Percent Ethanol Should Exclude Small Non-Road Engines

EPA has requested comment on the possibility of granting a waiver for up to fifteen percent ethanol but excluding certain small non-road engines from using such fuel. There is no scientific basis for such exclusion. The DOE Study evaluated a representative group of twenty-eight small non-road engines using E-0, E-10, E-15, and E-20 and found no statistically significant impact on operations from higher-blend ethanol, including E-15. This study concluded, among other things, that “residential Class I as well as commercial engines exhibited no sensitivity to ethanol from a durability perspective” and that “no materials compatibility issues were observed.” *Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1 - Updated*, prepared by Oak Ridge National Laboratory for the U.S. Department of Energy (February 2009) at xix. There is no other published independent third-party study that contains any results to the contrary. Accordingly, there is no basis to exclude small non-road engines from the requested waiver allowing up to fifteen percent ethanol. Growth Energy also would like to reiterate that it is not seeking a mandate for use of E-15, only the ability to offer such a fuel in the American market. Growth Energy supports continued availability of E-0 and E-10 for use in small non-road engines to accommodate an owner’s choice or a manufacturer’s recommendation.

3. EPA May Grant a Waiver for Ethanol Blends up to Fifteen Percent

EPA requested comment on whether an appropriate level of scientific and technical information exists in order for the Administrator to grant a waiver for an ethanol-gasoline blend greater than ten percent and less than or equal to fifteen percent by

volume. The available scientific and technical information supports a section 211(f)(4) waiver not only for E-15 but also, as Growth Energy has specifically requested in its Waiver Application, for ethanol blends *up to* fifteen percent, specifically including blends between ten and fifteen percent ethanol.

In previous 211(f)(4) waiver decisions, EPA has concluded, for oxygenates generally and ethanol specifically, that favorable emissions testing results for fuels with higher levels of a given oxygenate generally may be extrapolated to fuels with lower levels of the same oxygenate. *See, e.g.,* ARCO; Grant of Application for Fuel Waiver for Methanol/GTBA (up to 3.5% oxygen), Decision Document at 6, 46 Fed. Reg. 56,361 (1981). For example, EPA has concluded, on the basis of ethanol's chemical properties, that emissions data for E-10 could be extrapolated to lower blends such that waiver approval of E-10 also applied to all blends between E-0 and E-10. *See* Gas Plus, Inc.; Interpretation of Grant of Application for Fuel Waiver for 0-10% anhydrous ethanol ("gasohol"), 47 Fed. Reg. 14,596 (Apr. 5, 1982). In the case of E-15, this principle of extrapolation means the favorable emissions data for ethanol blends containing more than fifteen percent ethanol discussed in Growth Energy's Waiver Application further supports the substantial amount of favorable test data specifically on E-15. Similarly, this data, plus the favorable emissions test data presented specifically for E-15, provides EPA sufficient grounds to grant a waiver for any intermediate percentage between E-10 and E-15.

4. Implementation of Any Conditional Waiver

EPA requested comments on what measures would be needed or prudent to ensure that E-15 would be used in only an approved subset of vehicles or engines under a conditional waiver. To the extent EPA were to decide to grant a conditional waiver, practical and common-sense measures, such as labeling fuel pumps, could be used to implement any conditional waiver. From a practical standpoint, the risk of fueling a small engine or vehicle with E-15 would be no greater than the current risk of misfueling with E-85 or certain low-sulfur diesel. EPA, however, adequately limits use of these

fuels through labeling programs. *See, e.g.*, 40 C.F.R. 80.570 (setting forth sulfur-content labeling regulations for diesel fuel, which require informing consumers that for diesel fuel with certain levels of sulfur, “federal law *prohibits* use” and that the fuel “may damage these vehicles and engines”) (emphasis in original).

As set forth elsewhere in this document and in Growth Energy’s Waiver Application, there is substantial evidence that the use of E-15 will not cause emissions problems or damage in *any* motor vehicles or non-road vehicles and engines. Thus, even if EPA determines that the waiver criteria have not been met for a certain subset of engines (e.g., small non-road engines), the available evidence at the very least establishes that the risk of harm from an inadvertent misfueling with E-15 is minimal. For this reason, if EPA chooses to grant a waiver for E-15 limited to a subset of vehicles or engines, implementation should be managed with measures that are consistent with past EPA practice and are not unduly expensive or cumbersome in nature.

To aid in the implementation of any conditional waiver, Growth Energy encourages EPA to also institute an educational campaign to inform consumers about E-15 consistent with the educational campaign EISA now requires for alternative fuels. EISA 2007, sec. 105, *codified at* 49 U.S.C. § 32908(g). Growth Energy suggests that EPA consider creating, as part of any such campaign, a website explaining the benefits and permitted uses of E-15. The website address also could be included on E-15 shipping manifests and pump labels. In addition to explaining E-15, this website could help educate consumers generally about the renewable fuel standard, greenhouse gas emissions and other environmental issues facing the transportation sector, and how biofuels are a critical part of America’s overall 21st century energy strategy.

IV. The Petroleum Blend Wall Impedes Use and Development of Renewable Fuels

The petroleum blend wall creates current challenges for the ethanol industry and America's efforts to produce and use renewable fuels. Because EPA long-ago elected to limit the base blend of ethanol in gasoline to only ten percent, ethanol distribution is essentially limited to a maximum of ten percent of the nation's gasoline supply. In theory, that translates to approximately 13.8 billion gallons of the approximately 138 billion gallons of gasoline currently used in the United States. EPA incorrectly hypothesizes that the blend wall will only impact the domestic renewable fuels industry once 100 percent of the transportation fuel system is penetrated by E-10, and will not impact the renewable fuel industry until 2013. Both assumptions are incorrect. Current annual ethanol production capacity in the United States is approximately 12.5 billion gallons. Based on practical and logistical constraints, and absent a federal mandate compelling use of E-10, it is not possible to blend ten percent ethanol with every gallon of gas used in the United States. Accordingly, the petroleum blend wall is *today* a significant market barrier that continues oil's ninety percent monopoly of the American marketplace, continues the need for imported foreign oil, artificially depresses ethanol prices, and unnecessarily precludes investment into new or expanded ethanol production.

Importantly, the petroleum blend wall directly hinders the country's ability to meet Congress's direct mandate for increased use of renewable fuels. Congress first established the Renewable Fuel Standard ("RFS"), now codified in section 221(o)(2)(B) of the Clean Air Act, as part of the Energy Policy Act of 2005. The original RFS established minimum volumes of renewable fuels that had to be incorporated into gasoline sold or introduced into commerce in the United States for calendar years 2006–2012. With the passage of the Energy Independence and Security Act of 2007 ("EISA"), Congress greatly increased the volumes of renewable fuels that must be sold or used in

the United States. The RFS now requires 12.95 billion gallons of renewable fuel in 2010, increasing annually to 20.5 billion gallons in 2015, and 36 billion gallons in 2022, more than three times the current level. 42 U.S.C. § 7545(o)(2)(B).

The mandates of EISA and the potential development and growth of the ethanol industry, however, stand to be thwarted by the petroleum blend wall. Presently, there are only two viable means by which EPA can get past the blend wall and ensure a sufficient volume of ethanol to meet RFS mandates: (1) substantially and immediately increase the use of flex fuel vehicles (“FFVs”); or (2) introduce mid-level ethanol blends, such as E-15, for general use. Relying on the first of these options (increased use of E-85 and FFVs) as the sole means of meeting the RFS mandate, particularly in the near-term, is unworkable and unrealistic for numerous reasons. Less than four percent of all vehicles on the road today in the United States are FFVs capable of running on E-85. RFS 2 Notice, 74 Fed. Reg. at 25,011. Further, only approximately 1,900 retailers (out of approximately 160,000 U.S. gas stations) even carry E-85, meaning that only four percent of the nation has “reasonable access” to E-85. *Id.* (defining “reasonable access” as one-in-four pumps offering E-85 in a given area). Accordingly, it is not possible to meet the RFS requirements and overcome the present blend wall relying solely on the use of E-85 by FFVs because there are not enough FFVs on the road and there is insufficient E-85 infrastructure.

To satisfy RFS volumes, billions of dollars would need to be rapidly and successfully deployed for E-85 infrastructure and tens of millions of new FFVs would need to be produced and purchased. E-15, by contrast, may be used immediately in the existing vehicle fleet and deployed through the same infrastructure used today to deploy E-10. With appropriate production, infrastructure, and usage incentives, FFVs can play an important role in meeting the long-term RFS mandates. Use of FFVs, however, is simply not a realistic solution for meeting the near-term RFS mandates. It will take years before there are enough FFVs on the road or adequate E-85 infrastructure in place to have a meaningful impact on the production mandates of EISA 2007. The base blend must be

increased now while necessary E-85 infrastructure and deployment of FFVs are expanded over time.

Accordingly, immediate introduction of mid-level ethanol blends, as requested in Growth Energy's Waiver Application, is the most viable means for EPA to overcome the blend wall and achieve the renewable fuel levels mandated by Congress. Introducing E-15 nationwide will allow the consumption of over nineteen billion gallons of ethanol. RFS 2 Notice, 74 Fed. Reg. at 25,014. This will allow renewable fuels to advance more than half-way to the RFS mandate of thirty-six billion gallons by 2022 and push back the petroleum blend wall. Deferring the blend wall in this manner will allow time to develop comprehensive solutions, such as expanding the E-85/FFV infrastructure and commercializing cellulosic and other advanced biofuels. Deferring the blend wall also will re-open the opportunity for immediate investment into renewable fuels that are currently constrained by concerns regarding the blend wall. These concerns threaten investment, and thus research and development activities, and the long-term possibility of cellulosic and advanced biofuels. E-15 is thus an essential first step to an effective long-term solution. While it is critical to retain and accelerate the rate of production of FFVs, simply relying on E-85 and the minimal number of FFVs in the market will have little or no short-term effect on the blend wall.

V. Bringing E-15 to the Market is the Most Effective and Efficient Means of Satisfying the Requirements of the RFS

EPA requested comments on what additional steps would have to be taken to bring E-15 to market should a waiver be granted. EPA correctly notes in the Request for Comments that this issue "is not a specific criterion by which to evaluate a waiver request under section 211(f)." Rather, as outlined in section II above, the agency may only consider the effect on regulated emissions in deciding whether to grant Growth Energy's Waiver Application. To deny the Waiver Application on the basis of potential logistical

or implementation considerations would be arbitrary and capricious and would exceed EPA's statutory authority regarding waiver decisions.

Specifically, EPA requested comments on what effect an E-15 waiver would have on items ranging from agency programs to independent standards bodies. Growth Energy acknowledges that certain programmatic and standards changes may be warranted but does not anticipate that these changes would present any significant problems with bringing E-15 to market, particularly given the similarity of E-15 to E-10, which has been an integral part of the United States' fuel market for many years. Governmental and independent standards bodies routinely evaluate and certify new products and there is no reason to believe that applicable standards could not be updated based on E-15 within a reasonable schedule. As EPA itself acknowledges in the Request for Comments, the United States has implemented numerous successful fuel programs over the last several decades. Many of these, such as the elimination of lead from gasoline in the 1980s and the introduction of reformulated gas in the mid-1990s, involved a fuel or fuel additive change that was of a much greater difference from existing fuels than would be experienced with the approval of ethanol-gasoline blends with up to fifteen percent ethanol. Introduction of each of these new fuels raised implementation issues, similar to those EPA has identified in the Request for Comment, that were successfully addressed. Introduction of E-15 will be no different. Indeed, EPA has shown through past fuel program changes that it is fully capable of implementing whatever regulatory or policy changes may be necessary following approval of the Growth Energy Waiver Application. Independent standards bodies also are equally adept at addressing new fuels and, in fact, Underwriters Laboratories has already acknowledged that existing fuel pumps are capable of using E-15. *See Underwriters Laboratories Announces Support For Authorities Having Jurisdiction Who Decide To Permit The Use Of Existing UL Listed Gasoline Dispensers With Automobile Fuel Containing Up To A Maximum Of 15% Ethanol*, Underwriters Laboratories Press Release (Feb. 19, 2009), available at <http://www.ul.com/newsroom/newsreel/nr021909.html>.

Congress, in EISA, empowered and directed EPA to implement an unprecedented increase in the volume of alternative fuels used in this country over the next several years. In doing so, Congress anticipated that such a significant shift away from a fuel system based almost exclusively on petroleum-based fuels would raise implementation issues and empowered EPA to “promulgate regulations to ensure that gasoline sold or introduced into commerce in the United States . . . on an annual average basis, contains the applicable volume of renewable fuel determined in accordance with [the Renewable Fuel Standard].” 42 U.S.C. § 7545(o)(2)(A)(i). Thus, even if the approval of Growth Energy’s Waiver Application were to necessitate new or revised regulations to facilitate the introduction of E-15 into the market, EPA already has the authority and direction to accomplish such changes. What EPA cannot do is deny Growth Energy’s Waiver Application on the basis of hypothetical concerns that fall beyond the limited statutory considerations upon which EPA must make its waiver determination. Given the long-standing use of ethanol-containing fuels in the United States, the similarity in composition and use of E-15 to such fuels, the results of the many studies included in the Waiver Application regarding higher-ethanol blend fuels, and the challenges with E-85 discussed in section IV above, implementation and use of E-15 is the most efficient and effective way to ensure compliance with Congress’s mandate for use of renewable fuels in the RFS.

VI. Unfounded Claims and Anecdotes Are Not Relevant to EPA’s Consideration of the Waiver

Since submittal of the Waiver Application, Growth Energy is aware of numerous unfounded claims and anecdotes regarding alleged problems with the use of E-15 coming from individuals and special interest groups such as those that benefit from artificial limits on growth in ethanol usage. Such claims include arguments that are: (1) based on selective aspects of studies that are taken out of context to suggest conclusions contrary

to the actual findings of the studies; (2) based on studies of vehicles that are not representative of the current American fleet; (3) based on anecdotes; or (4) without any basis in fact or science. While many of these claims are outside the scope of what EPA needs to consider to grant the requested waiver, Attachment A to these comments includes responses to such claims and the scientific and technical bases for such responses. We hope that this information will be helpful to EPA as it evaluates comments regarding the requested waiver. In completing its review of the Waiver Application, we request EPA give weight to well designed, peer-reviewed, and published studies such as those included in the Waiver Application and keep in mind one very important fact--there are no published scientific studies regarding the impact of E-15 on vehicles representative of the current American fleet that support denial of the requested waiver.

V. Conclusion

The Clean Air Act provides for introduction of new fuel blends under section 211(f)(4) if such fuels do not cause or contribute to the failure of emission control devices or systems. Growth Energy's Waiver Application and these comments include recent comprehensive and independent studies representative of the American fleet that specifically evaluate the effect of higher ethanol blend fuels on emission control devices and systems. Included studies are based on thousands of hours of testing, more than one million miles driven, and evaluation of hundreds of vehicles (including over one-hundred different types of vehicles and engines) regarding exhaust and evaporative emissions, materials compatibility, and vehicle driveability for both E-15 and blends with greater than fifteen percent ethanol. Many of the studies include extensive statistical analysis of the data and have been subject to peer-review. Every relevant study included in the Waiver Application, as well as updates to those studies and new studies included with these comments, confirms that vehicles and engines in today's American fleet can meet

all applicable emission standards while using higher ethanol blends including E-15. Fuels containing up to fifteen percent ethanol do not cause or contribute to the failure of emission control devices or systems. The evidence is consistent and overwhelming. EPA should grant the requested waiver.