November 10, 2009

Arthur Marin
Executive Director
Northeast States for Coordinated Air Use Management
89 South Street, Suite 602
Boston, MA 02111

RE: Low Carbon Fuel Standards

Dear Art:

On behalf of the Consumer Energy Alliance, I would like to thank you for the opportunity to speak at both of the Low Carbon Fuel Standards public meetings hosted by Northeast States for Coordinated Air Use Management (NESCAUM) last month and for the opportunity to submit written comments regarding NESCAUM's current development of a Northeast – Mid-Atlantic Low Carbon Fuel Standard.[1]

Consumer Energy Alliance (CEA) is a nonprofit, nonpartisan organization that supports the thoughtful utilization of energy resources to help ensure improved domestic and global energy security and stable prices for consumers. We seek to help improve consumer understanding of our nation's energy security, including the need to reduce reliance on imported oil and natural gas, maintain reasonable energy prices for consumers, properly balance our energy needs with environmental & conservation goals and continue efforts to diversify our energy resources.

CEA is made up of more than 125 affiliated organizations and over 265,000 grassroots members and our mission is to expand the dialogue between the energy & consuming sectors to improve overall understanding of energy security and the thoughtful development and utilization of energy resources to help create sound energy policy and maintain stable energy prices for consumers.

As you and the staff at NESCAUM consider the issues that have been raised – both by the LCFS Report published by the Northeast States Center for a Clean Air Future (NESCCAF) in July 2009[2] as well as the public meetings hosted by NESCAUM[3] – Consumer Energy Alliance suggests that you consider the logistical issues raised within the transportation sector, the high costs and low GHG emissions reductions that can be achieved by a LCFS compared with ongoing federal initiatives, several pertinent facts about the production and importation of fuels derived from the Canadian oil sands and the various options that exist for increasing the development of low carbon fuels that will not have the tremendous negative economic impacts that implementation of a LCFS will bring.

[1] The eleven states currently participating in discussions with NESCAUM are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont.
[2] Northeast States Center for a Clean Air Future, "Introducing a Low Carbon Fuel Standard in the Northeast; Technical and Policy Considerations" (July 2009).
[3] NESCAUM hosted LCFS Public Meetings in Boston, MA on October 22, 2009 and Newark, NJ on October 27, 2009.

Transportation Sector Logistical Issues

As you know, any state contemplating the imposition of a Low Carbon Fuel Standard will have to make a policy decision regarding the use of corn-based ethanol as a compliance option. As we have seen in the development of California's LCFS, this policy decision has been wrapped into a debate over the use of indirect land use factors in determining the lifecycle GHG value for corn-based ethanol.

If indirect land use factors are not considered in determining the lifecycle GHG value for corn-based ethanol (ie., corn-based ethanol will be allowed as a compliance option for the LCFS) then most experts agree that utilization of higher blend rates will be the cheapest available compliance mechanism to meet the LCFS. However, use of ethanol as the primary compliance mechanism raises significant logistical issues within the transportation sector.

If NESCAUM recommends an LCFS that requires a 10% reduction in the GHG content of the gasoline supply over 10 years (as all major LCFS proposals have called for) and accepts the EPA estimates that corn ethanol has a lifecycle GHG value roughly 20% lower than gasoline, fuel sellers will need to blend enough ethanol into the fuel mix to ensure a 40% ethanol blend (E-40). Further, if NESCAUM assumes that the fuel baseline contains a 10% ethanol blend (E-10) – which is currently the standard fuel mix throughout the Northeast and Mid-Atlantic, then fuel sellers will need to achieve a 50% ethanol blend (E-50) in order to meet the 10% GHG reduction.

Although ethanol can be blended at a 50% rate – an E-50 blend will require the use of flex fuel vehicles that are able to handle the corrosive effects of the ethanol and gasoline stations will have to replace all of their regular gasoline pumps with new pumps designed to handle the E-50 blend.

According the US Department of Transportation, there are currently 28.5 million cars registered in the 11 states that are currently working with NESCAUM to develop its regional LCFS proposal [4]– and less than one percent of those cars are flex fuel vehicles.[5] Turning the fleet over to flex fuel vehicles will take a dramatic change in the current manufacturing plans of all major auto producers – both domestic and imports. Last year, only 1.4% of all cars sold in the United States were flex fuel vehicles (we do not have the percentage of cars sold into the Northeast and Mid-Atlantic region) – and those cars are projected by US DOT to last an average of 13 years of service.[6] Even if all of the automobile producers were to produce 100% flex fuel vehicles beginning in 2010, there would still be a large number of non-flex fuel vehicles on the road in 2020 that would be damaged by use of an E-50 blend.

The same situation arises for gasoline pumps. In order to handle gasoline with an ethanol blend over 10%, gasoline storage tanks and pumps that are currently utilized by gasoline stations will need to be replaced with special tanks and equipment – which are currently projected to cost between $50,000 and $200,000 per location.[7] Given that there are currently only 101 E-85 ethanol pumps in the 11 state region (including none in Maine, Vermont, New Hampshire and Rhode Island)[8], there will a tremendous logistical hurdle to

[4] US DOT, Federal Highway Administration (http://www.fhwa.dot.gov/policyinformation/statistics/2007.mv1.cfm).
[5] US DOT, FHA (http://www.nhtsa.dot.gov/cars/rules/rulings/CAFE/alternativefuels/index.htm#content) .
[6] US DOT, NHTSA (http://www-nrd.nhtsa.dot.gov/Pubs/809952.pdf).
[7] National Association of Convenience Stores (http://www.nacsonline.com/NACS/Magazine/PastIssues/2007/January2007/Pages/cover_story.aspx).
[8] E85 Refueling Location Search (http://www.e85refueling.com/).

ensure that the 20,660 gas stations in these 11 states are capable of handling the E-50 blend that will be necessary to meet the LCFS[9].

If indirect land use factors are going to be considered in determining the lifecycle GHG value for corn-based ethanol (as in California), then corn-based ethanol will not be a compliance option and fuel sellers will be forced to buy credits generated through the use of natural gas vehicles, electric vehicles or the production and blending of cellulosic ethanol.

As the NESCCAF Report details, successful implementation of a LCFS designed to achieve a 10% GHG reduction through the use of advanced fuels (cellulosic ethanol) and/or advanced technology vehicles (natural gas and electric) will require a very rapid commercialization of technologies that are presently in the pre-commercial stage and that

> While the outlook of these technologies is promising, the volumes that would be required in order to meet a 10 percent LCFS by 2020 greatly exceed the volumes that have been produced to date.[10]

We would respectfully add that the volumes necessary to meet a 10 percent LCFS are not only substantially higher than volumes produced to date – they also greatly exceed current projections of possible production by 2020 as well.

GHG Emissions Reduction and Cost Comparison

NESCAUM's current consideration of Low Carbon Fuel Standards is taking place against a backdrop that includes several other programs designed to reduce greenhouse gas (GHG) emissions from the transportation sector.

Taken together, a series of recent federal policy changes – including increased CAFE standards, the proposed implementation of federal GHG tailpipe emission standards and the proposed implementation of the renewable fuels requirements contained in the Energy Independence and Security Act of 2007 – will significantly reduce carbon emissions from the transportation sector without significantly raising gasoline, diesel or jet fuel prices.

In order to place the potential GHG reductions and costs of implementing an LCFS in perspective, we have compared the proposed CAFE and GHG tailpipe emissions standards (EPA and DOT) and the proposed RFS II regulations (EPA) with an LCFS analysis. The totals for these three programs are:

- Together, the proposed CAFE Standards for MY 2012-2016 and GHG Tailpipe Emission Standards will reduce GHG emissions from the transportation sector by 21 percent. EPA and DOT estimate that the program will add $1,091 to the cost of each new vehicle, and that that consumers will save more than $3,000 over the lifetime of the vehicle (primarily in reduced fuel purchases).

[9] US Department of Commerce, Economics and Statistics Administration, Census Bureau.
[10] NESCCAF, "Introducing a Low Carbon Fuel Standard in the Northeast: Technical and Policy Considerations" (July 2009), p. xx.

- EPA projects that the RFS II regulations will reduce GHG emissions from the transportation sector by 7.3% and will raise gasoline prices between 2.7 and 10.9 cents per gallon.

- A Low Carbon Fuel Standard that will require a 10 percent GHG intensity reduction in the national fuel pool will reduce carbon emissions by 7% (or less) and will raise gasoline prices between 60 cents and $12.67 per gallon.

As discussed in greater detail below, a Low Carbon Fuel Standard is a very expensive and inefficient GHG emissions reduction method that will generate lower GHG reductions at a higher cost than either the CAFE/Tailpipe Standards program announced by EPA and DOT or the RFS II program currently being developed by EPA.

GHG Tailpipe Emissions and CAFE Standards

- CAFE

In order to comply with provisions of the Energy Independence and Security Act of 2007 (EISA) that require the industry-wide fuel economy average of all new passenger cars and light trucks be at least 35 miles per gallon by 2020, the National Highway Traffic Safety Administration (NHSTA) published proposed regulations in May 2008 to establish CAFE standards for MY 2011-2015.

Although NHSTA completed and released a final environmental impact statement and prepared a final rule for MYs 2011-2015 in 2008, the final rule was held in abeyance by a January 7, 2009 announcement by DOT that the Bush Administration would not finalize the rulemaking because the financial difficulties of the automobile industry would a thorough review of all matters affecting the industry by the new Administration.

On January 26, 2009, President Obama issued a memorandum requesting that NHTSA divide its rulemaking into two parts – a final rule adopting CAFE standards for MY 2011 and a separate rule establishing standards for MY 2012 and later.

In accordance with the memorandum issued by President Obama, NHTSA published a final rule for MY 2011 that the Agency estimates will raise the industry-wide combined average (for both passenger cars and light trucks) to 27.3 mpg, save 887 million gallons of fuel over the lifetime of the MY 2011 cars and light trucks and reduce CO2 emissions by 8.3 million metric tons during that period.

NHTSA and EPA issued a joint-proposal to establish a national program consisting of new CAFE standards for MY 2012-2016 and a first-ever GHG emissions standards under the Clean Air Act (see below). The CAFE standards proposed by NHTSA will require passenger cars and light trucks to meet an estimated combined average mpg level of 34.1 by MY 2016. When combined with EPA's proposed GHG standards, the joint program overall is expected to result in improvement levels equivalent to 35.5 mpg.

Over the lifetimes of the passenger cars and light trucks sold in MY 2012-2016, NHTSA projects that the proposed CAFE standards will save 61.6 billion gallons of fuel and reduce CO2 emissions by 656 metric tons. NHTSA estimates that the proposed standards would lead to increases in average new vehicle prices, ranging from $476 per vehicle in MY 2012 to $1,091 per vehicle in MY 2016 and that the lifetime benefits of the standards would total over $200 billion – including fuel savings. EPA estimates that the total MY lifetime costs of the national program are less than $60 billion and that consumers would save more than $3,000 due to fuel savings over the lifetime of a MY 2016 vehicle.

- Tailpipe GHG Standards

The California Air Resources Board (CARB) has established standards to regulate greenhouse gas (GHG) emissions from new passenger cars, light-duty trucks and medium-duty vehicles. CARB approved the GHG standards for motor vehicles on September 24, 2004, and California's Office of Administrative Law approved the regulations on September 15, 2005.

CARB's regulations cover large volume motor vehicle manufacturers beginning in the 2009 model year, and intermediate and small manufacturers beginning in the 2016 model year and controls greenhouse gas emissions from two categories of new motor vehicles— passenger cars and the lightest trucks (PC and LDT1) and heavier light-duty trucks and medium-duty passenger vehicles (LDT2 and MDPV).

The regulations add four new greenhouse gas air contaminants (carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and hydrofluorocarbons (HFCs)) to California's existing regulations for criteria and criteria-precursor pollutants and air toxic contaminants. There are separate fleet average emission standards for the two vehicle size categories and within each category the sales-weighted average of a manufacturer's vehicles is required to comply with the standard.

The regulations establish a manufacturer declining fleet average emission standard for these gases (expressed as grams of carbon dioxide equivalent per mile (''gpm'')), with separate standards for each of the two categories of passenger vehicles noted above. CARB places the declining standards into two phases: near-term standards phased in years, and mid-term standards, phased in from the 2013 through 2016 model years.

Manufacturers may receive credits for meeting the standards before model year 2009, for surpassing the standards in later model years, and for selling alternative fuel vehicles. These credits may be banked for later use, transferred between vehicle categories, or sold to another manufacturer. If a manufacturer fails to meet the standard in a particular model year, it will begin to accrue debits. At that point, a manufacturer will have five years to make up for the debits, either by generating credits, or by purchasing credits from another manufacturer.

On December 21, 2005, CARB submitted a request to EPA seeking a waiver of Section 209(a)'s prohibition for its motor vehicle GHG standards. EPA denied the waiver request on March 6, 2008. Following a request for reconsideration, EPA granted CARB a waiver on July 8, 2009 allowing the regulations to take effect.

- National CAFE and Tailpipe GHG Standards

As discussed above, EPA and DOT issued a Joint Notice of the intent to propose regulations in September 2009 that will effectively make the California tailpipe GHG standards nationwide. In the notice, EPA and DOT indicated that a suite of near-term technologies provides a strong technical basis to proceed with the consideration of a proposal containing MY 2016 GHG standards that would on average achieve 250 gram/mile CO2. According to EPA and DOT, the combined 2012-2016 standards would reduce CO2 emissions from the US light-duty fleet by approximately 21 percent by 2030 over the level that would occur in the absence of a national program.

This projection is in line with a CARB analysis, which projects that if all 50 states utilized the California standards, greenhouse gas emissions would be reduced by a total of 434 million metric tons (MMT) of carbon dioxide equivalent (CO2e) through 2016 – an average of 243 gram/mile CO2.

In this analysis, CARB also projected that if all 50 states utilized future CARB standards for the years 2017 to 2020, cumulative greenhouse gas emission reductions were estimated to be 1283 MMT. Estimates for federal standards over the same period (based on the then proposed standards for MY 2011-2015 with projections resulting in the minimum EISA stringency of 35 mpg in 2020) would yield 207 MMT and 716 MMT of cumulative reductions in 2016 and 2020, respectively.

Renewable Fuel Standards

In response to provisions in the Energy Independence and Security Act of 2007, EPA proposed regulations for expanding the Renewable Fuels Program (RFS) on May 26, 2009. In addition to increasing the volume of renewable fuels mandated from 2012 to 2022, the renewable fuel provisions of EISA (known as RFS 2) also require EPA to conduct a lifecycle GHG analysis for renewable fuels and sets lifecycle GHG emissions targets to be met by renewable fuels.

The lifecycle GHG analysis considers the entire production cycle of the fuel in assessing the fuel's impact on greenhouse gas emissions (versus measuring only the greenhouse gas emissions that may be reduced through displacement of petroleum-based fuels with fuels or fuel additives produced from grains, waste materials, forest products, etc) for comparison with a baseline established as the average lifecycle greenhouse gas emissions for gasoline and diesel sold or distributed in 2005.

EPA estimates that the greater volumes of biofuel mandated by RFS2 will reduce lifecycle GHG emissions from transportation by approximately 6.8 billion tons of CO2 equivalent emissions when accounting for all the emission changes over 100 years and then discounting this emission stream by 2%. This is equivalent to an average annualized emission rate of 160 million metric tons of GHG emissions per year over the entire 100 year modeling timeframe. EPA estimated a total reduction of 4.5 billion tons of GHG, or an annual average reduction of 150 MMT GHG over the shorter 30 year period.

EPA projects that gasoline costs will rise under the RFS 2 program between 2.7 cents per gallons and 10.9 cents per gallon by 2022 depending on the price of crude oil. EPA projects that diesel prices will fluctuate between a 0.1 cent per gallon reduction and 1.2 cents per gallon rise – again depending on the

price of crude oil. EPA notes that these costs represent the nationwide average impacts including the costs of producing and distributing renewable fuels, gasoline and diesel, as well as blending costs – but do not take into account tax subsidies or tariffs for renewable fuels.

Low Carbon Fuel Standards

A study published by Stephen Holland, Jonathon Hughes and Christopher Knittel in the American Economic Journal for Economic Policy finds that an LCFS is an inefficient means to reduce GHG emissions because ethanol is the only available compliance option (as electric and natural gas vehicles are not able to meet the volumes required in time for the standard to be met without ethanol).[11]

According to Holland, Hughes and Knittel, implementation of an LCFS designed to reduce GHG emissions by 10 percent over a 10 year period will produce a net reduction in GHG emissions from the transportation sector by 7% and will result in gasoline price increases between 60 cents per gallon and $12.67 per gallon depending on the availability of ethanol to meet the increased demand.

Further, a recent report by the National Energy Technology Laboratory (NETL) concluded that a Low Carbon Fuel Standard is a very inefficient mechanism to reduce GHG emissions from the transportation sector, noting:

> Opportunities for lowering the life cycle GHG emissions from transportation-related fuels will best be achieved through improved vehicle efficiency (e.g., gallons of fuel consumed per mile traveled) or alternative sources of transportation fuels. For example, improving the average gasoline-powered light-duty passenger vehicle efficiency from 21.6 miles per gallon (MPG) to 28.6 MPG, a 7 MPG increase, reduces the lifecycle GHG emissions by 20%.[12]

Finally, a recent study by the John Marshall Institute concludes that an LCFS is "prohibitively expensive, a highly inefficient means to reduce GHG emissions, [and] likely to produce reactions in the global market that offset its intended environmental benefits …"[13]

Reducing GHG Emissions from Canadian Oil Sands Production

While Consumer Energy Alliance applauds the goals typically associated with proposals to enact Low Carbon Fuel Standards – such as lowering GHG emissions from the transportation sector, increasing the use of natural gas and electric vehicles and commercially developing the production of cellulosic ethanol – we are strongly opposed to efforts to implement Low Carbon Fuel Standards for the sake of discriminating against fuels derived from unconventional sources such as heavy oil, oil shale and the Canadian oil sands.

[11] Holland, Hughes and Knittel, Greenhouse Gas Reductions under Low Carbon Fuel Standards? American Economic Journal: Economic Policy 2009, 1:1, 106-146 (http://aeaweb.org/articles.php?doi=10.1257/pol.1.1.106)
[12] NETL, "Development of Baseline Data and Analyses of Lifecycle Greenhouse Gas Emissions of Petroleum Based Fuels" (November 26, 2008).
[13] George C. Marshall Institute, "Economic, Environmental and Energy Security Consequences of a National Low Carbon Fuel Standard" (http://www.marshall.org/pdf/materials/644.pdf).

Differences in the GHG emissions generated in different types of oil production depend on how much energy is required to produce and process the oil. For example – while some oil is just pumped out of reservoirs, other reservoirs need injections of water or steam to retrieve the oil. Light oil requires less energy than heavy oil to be refined into transportation fuels.

Other factors in determining the overall GHG emissions from oil production include the amount of natural gas contained in the oil that may be flared or vented, GHG emissions associated with upgrading and refining the product, transporting the product to the retail distributor and the GHG emissions associated with combustion in a vehicle's engine (which accounts for over 75% of all GHG emissions).

Despite repeated claims about the high GHG intensity of fuels derived from the Canadian oil sands, the energy used in oil sands production – as well as GHG intensity – has declined by 32% since 1990[14] and a recent study conducted by Jacobs Consultancy has found that overall lifecycle GHG emissions of fuels derived from the oil sands are comparable to conventional oil production (both domestic and imported slates).

Further, the development of new in-situ extraction methods are currently under development and testing that will significantly reduce GHG emissions levels – including technologies that heat bitumen with electric current instead of steam, use underground combustion to warm the bitumen and reduce or eliminate the use of steam by adding solvents to the extraction process. These advances in extraction processes, as well as enactment of GHG regulations by the Government of Alberta in 2007 requiring a 12% reduction in GHG intensity will provide significant additional reductions that are projected to drive the lifecycle GHG emissions from oil sands productions below the levels of conventional imports.

In addition to the lifecycle GHG emissions comparability of the Canadian oil sands to conventional crudes is the fact that neither a Northeast and Mid-Atlantic regional LCFS nor a nationwide LCFS would actually have a negligible effect on production of Canadian oil sands. As discussed at the NESCAUM public LCFS meeting in Boston on October 22, 2009, less than 4% of the fuel consumed in the Northeast and Mid-Atlantic is derived from Canadian oil sands (meaning that a complete prohibition of such fuels would have a minimal impact on the regions fuel supply) and producers will simply shift those supplies to other markets in the event of such a ban.

Increasing the Production and Use of Alternative Transportation Fuels

As discussed above, Consumer Energy Alliance strongly endorses the goal of increasing the production and use of alternative transportation fuels such as cellulosic ethanol, other advanced biofuels, and advanced vehicle technologies such as natural gas and electric vehicles. However, we believe that directly incentivizing the development and commercialization of these important technologies is a far more efficient and far less costly means to bring them online.

It is clear to us that there is a strong national interest in the development of these technologies – and a logical set of hurdles that will have to be overcome for each of these technologies. Such hurdles include basic technical and scientific gaps as well as an inability to secure the financing necessary for research, development and deployment.

[14] George C. Marshall Institute, Economics of a National Low Carbon Fuel Standard, p. 26 (http://www.marshall.org/pdf/materials/642.pdf)

It is also clear to us that neither mandates for the use of any of these technologies or efforts to take current transportation fuels off the table (such as Low Carbon Fuel Standards) will effectively hasten the development of these technologies – and could have dramatic negative impacts on transportation costs and the overall economy.

We feel that specific programs designed to overcome these hurdles will be the most effective means to advance these transportation priorities. Incentives that should be advanced – both in the Northeast and Mid-Atlantic region and Nationwide – should include tax credits, RD&D grants and loan guarantees.

Conclusion

On behalf of the Consumer Energy Alliance, I appreciate the opportunity to provide these comments and look forward to working with you and the NESCAUM staff as you continue your deliberations on the development of a Northeast – Mid-Atlantic Regional Low Carbon Fuel Standard.

If you have any questions about the points that we have raised in these comments, please feel free to call me directly at 202-674-1750.

Sincerely,

Michael Whatley
Vice President