Driving Trucking's Success

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RE: Comments on Economic Analysis of the LCFS Program

To Whom It May Concern:

The American Trucking Associations[1] ("ATA") is writing to comment on the Northeast States for Coordinated Air Use Management's ("NESCAUM") recently published Final Report entitled *Economic Analysis of a Program to Promote Clean Transportation Fuels in the Northeast/Mid-Atlantic Region*.[2] ATA is concerned with the conclusions reached in this Economic Analysis and the impacts that a low carbon fuel standard ("LCFS") will have upon the trucking industry and other consumers of transportation fuels in the region. Unrealistic assumptions about the costs of biodiesel, alternative-fuel vehicles, and refueling infrastructure have resulted in conclusions that are disconnected from reality when applied to the trucking industry. Moreover, we are concerned that the Economic Analysis does not contain any discussion of the potential impacts upon the trucking industry's operations, as the largest consumer of diesel fuel.[3]

[1] ATA is a united federation of motor carriers, state trucking associations, and national trucking conferences created to promote and protect the interests of the trucking industry. Directly and through its affiliated organizations, ATA encompasses every type and class of motor carrier operation.

[2] *See* NESCAUM, *Economic Analysis of a Program to Promote Clean Transportation Fuels in the Northeast/Mid-Atlantic Region* (August 2011), http://www.nescaum.org/topics/clean-fuels-standard (hereinafter the "Economic Analysis").

[3] Section 4.3.4 of the Economic Analysis discusses the impacts by industry group; however, the section does not discuss the impacts of the LCFS on the trucking industry.

A. Background

The trucking industry depends upon a plentiful supply of diesel fuel to deliver virtually all consumer goods in the United States. Last year the trucking industry required over 35 billion gallons of diesel fuel and 14 billion gallons of gasoline to deliver more than 80 percent of the freight bill and 67.2 percent of the freight tonnage in the United States. Trucking companies are very sensitive to the price and quality of the fuel they consume; fuel is the second highest operating expense for most trucking companies.

The trucking industry comprises more than 600,000 companies that compete against each other and operate on razor thin margins. More than 97 percent of the industry qualifies as small businesses, operating fewer than 20 trucks. In this highly competitive environment, it is difficult to pass on increased operating costs, including the often unpredictable, fuel price increases caused in part by federal and state mandates to use biodiesel.

B. Reducing the Carbon Footprint of the Trucking Industry

ATA is committed to reducing the trucking industry's carbon footprint. In 2008, ATA members approved a sustainability plan for the trucking industry, which could reduce annual carbon emissions by more than 90 tons, or roughly 20 percent of the trucking industry's total domestic carbon emissions.[4] The sustainability plan includes enacting a national speed limit of 65 mph for all motor vehicles; embracing more productive trucks that can safely transport more cargo; investing in highway infrastructure to alleviate congestion; and encouraging participation in the U.S. Environmental Protection Agency's SmartWay program. The sustainability plan also called for new federal fuel efficiency standards for heavy-duty trucks, which were recently promulgated by the U.S. Environmental Protection Agency and the U.S. Department of Transportation National Highway Traffic Safety Administration.

Notwithstanding our demonstrated commitment to reducing the trucking industry's carbon emissions, we are reluctant to support an LCFS, on the grounds that it is a very expensive solution as applied to the trucking industry and is unlikely to have a meaningful impact on global climate change.

We have previously submitted comments to NESCAUM on the policy arguments against a regional LCFS and will not repeat those arguments herein.[5] The remainder of

[4] A copy of ATA's sustainability recommendations may be viewed through the following link: http://www.trucksdeliver.org/recommendations/index.html

[5] ATA's comments to NESCAUM on the LCFS were submitted on November 10, 2009. ATA also participated in NESCAUM's public stakeholder meeting on September 22, 2011.

these comments focuses upon the recently published Economic Analysis and provides insights into the impacts of an LCFS on the trucking industry that were not reflected in the Economic Analysis.

C. Low Carbon Fuels for Trucking

With respect to fuel, there are few options available to the trucking industry to reduce carbon intensity by 10 percent. The Economic Analysis discusses electrification, natural gas, and biofuels as likely pathways to reduce carbon intensity; however, each of these paths presents challenges for the trucking industry.

1. Electric Trucks

While electrification may be a potential solution for passenger cars it will not work for the heavy, over-the-road, segment of the trucking industry. The batteries simply are not powerful enough to propel an 18-wheeler loaded with freight for an entire work day. Moreover, the batteries weigh so much that they would severely limit the amount of freight that can be transported and likely would require multiple trucks to transport an equivalent amount of freight as today's diesel truck.

Given the cost of batteries and the fact that Class 8 electric trucks are not currently available for over-the-road trucking operations, it is unreasonable for NESCAUM to assume that the costs of electric trucks will be equivalent to the cost of a diesel truck.[6] The Economic Analysis did not consider the hurdles surrounding the creation of a robust recharging infrastructure and the impact to truck productivity resulting from the time needed to recharge the truck. Some trucking companies use a "slip seat" operation, meaning the truck has different drivers during different times of the day and night and, therefore, is in almost continuous operation each day. This type of operation does not lend itself to overnight charging.

Heavy duty, Class 8, electric trucks are simply not available. The NESCAUM report should include this fact in its discussion of electrification to ensure that policymakers understand these real world limitations.

2. Natural Gas

ATA believes that in an industry as diverse as trucking, some companies will choose natural gas as an attractive alternative to diesel; while others may be engaged in heavy-haul or irregular route applications and may not be able to substitute natural gas for diesel. NESCAUM's Economic Analysis does not distinguish between compressed

[6] *See* Economic Analysis at p. 28.

natural gas (CNG) and liquefied natural gas (LNG).[7] These fuels have different energy densities, different cost structures, different refueling apparatus, and different carbon intensities. These are important distinctions that should have been analyzed.

The Economic Analysis fails to accurately characterize the lack of a competitive refueling infrastructure for natural gas trucks. Few trucking companies have the luxury of using a slow fill overnight refueling system. As such, the assumptions underlying the cost of building a "fast fill" natural gas refueling infrastructure are unrealistically low. NESCAUM estimates that the cost of upgrading a natural gas refueling station is $370,000 and the cost of a new refueling station is $1 million,[8] while we offer no opinion on the accuracy of the cost estimate provided for a CNG station servicing passenger cars, the cost of a fast fill truck refueling station necessary for over-the-road trucking operations can exceed $2 million.[9]

NESCAUM also assumes that the cost of a natural gas vehicle would be equivalent to the conventionally-fueled vehicle.

> Natural gas vehicle incremental costs are $0 on the low-end, representing a case where market demand for NGVs increases such that manufacturers realize economies of scale production.[10]

Natural gas trucks sell at a significant premium to their diesel counterparts. Today, a spark-ignition natural gas truck sells at a $30,000 premium compared to a comparably equipped diesel truck.[11] For heavy applications, the High Pressure Direct Injection LNG-fueled truck costs between $70,000 and $90,000 more than its diesel counterpart, depending upon the LNG storage tank configuration. Given this enormous premium, NESCAUM's assumption that the price of a natural gas vehicle will be equivalent to its diesel counterpart is unreasonable and unsupported. While we expect the price

[7] NESCAUM's analysis focuses on CNG. ATA believes that many trucking operations looking at natural gas will choose LNG to take advantage of its higher energy density and increased operating range. The cost of an LNG liquefaction facility is approximately $75 million. NESCAUM should estimate how many such facilities will have to be built in the region and include those costs in its analysis.

[8] *See* NESCAUM Economic Analysis at p. 28.

[9] Source: Clean Energy Fuels Corp., www.cleanenergyfuels.com

[10] NESCAUM Economic Analysis at p. 28. *Note* the chart on p. 29 indicates a heavy-duty natural gas vehicle premium of $30,000 as the high end of the range, but makes no reference to the current premiums, which in some cases are three times higher than the incremental cost estimate NESCAUM uses.

[11] Currently, the largest available spark-ignition natural gas engine is a 9-liter engine with a maximum of 320 horsepower. This engine is not powerful enough to pull a fully loaded truck over steep terrain. A 12-liter spark-ignition engine is expected to be introduced in 2012-2013; however, no pricing information is available on this product.

differential between the two technologies to narrow over time due to economies of scale, we have no evidence to indicate that the premium for the natural gas truck will be eliminated. The Economic Analysis should include a discussion of these real world premiums rather than misleading the policymakers with a hopeful assertion that the price premium will disappear.

There are other costs associated with natural gas trucks that are not addressed in the Economic Analysis, including maintenance shop retrofits, mechanic training, driver training and personal protective equipment for LNG refueling, weight penalties for certain tank configurations, and an immature resale market. NESCAUM should consider these costs as part of its Economic Analysis.

3. Biofuels

ATA has consistently advocated for the development of alternatives to petroleum-based fuels for our transportation needs. For this reason, ATA has supported the voluntary use of high quality biofuels in segments of the trucking industry where the operational and economic issues surrounding biofuels can be overcome.[12] As an industry that is dependent upon diesel fuel, we will focus our comments on NESCAUM's assumptions and conclusions relating to the use of biodiesel.

The NESCAUM Economic Analysis concludes that the LCFS program could "achieve overall net savings on transportation costs when oil prices are high and near parity at low oil prices."[13] NESCAUM's cost assumptions for biofuels are so different from actual biodiesel costs that they render the conclusions on this fuel pathway erroneous. The Economic Analysis uses $2.28 and $3.15 as the per gallon production cost for soy-derived biodiesel.[14] As demonstrated below, these prices have no basis in reality and will mislead policymakers trying to understand the impact of an LCFS on consumers.

Biodiesel is significantly more expensive to produce than ultra low sulfur diesel ("ULSD") fuel. Below is an example of the current biodiesel production costs, using soybean oil as a feedstock.

[12] In addition to the high cost of biodiesel, trucking companies are concerned with the alternative fuel's cold weather performance, reduced energy content, and increased maintenance costs.

[13] NESCAUM Economic Analysis at ES-2.

[14] NESCAUM Economic Analysis at 22.

Biodiesel Feedstock Costs:

Soybean oil 57 cents per pound[15]
7.3 pounds of oil are required to make a gallon of biodiesel
Cost of transporting oil to production facility 3 cents per gallon
Cost of feedstock is ($0.57) * (7.3) + $0.03 …… **$ 4.16/gallon**

Biodiesel Production Costs:

Production costs vary between 45 and 73 cents per gallon, as detailed below:

• Methanol (12%-20% by volume)	$ .10 - .20
• Catalyst	$ .10 - .12
• Electricity	$ .01
• Natural Gas (boiler - heat)	$ .08 - .10
• Labor and Overhead	$ .05 - .10
• Maintenance	$ .03 - .05
• Insurance & Taxes	$ .03 - .05
• Depreciation	$ .05 - .10

Average production cost……. **$ 0.59/gallon**

Biodiesel Transportation Costs:

The cost of transporting biodiesel to a blending facility adds between 5 and 15 cents per gallon, depending upon the length of transport.
Average transportation cost for finished biodiesel . . . . . **$ 0.10/gallon**

Total wholesale per gallon cost of biodiesel (spot). . . . . $ 4.85/gallon

ULSD spot market price: **$ 3.15/gallon**[16]

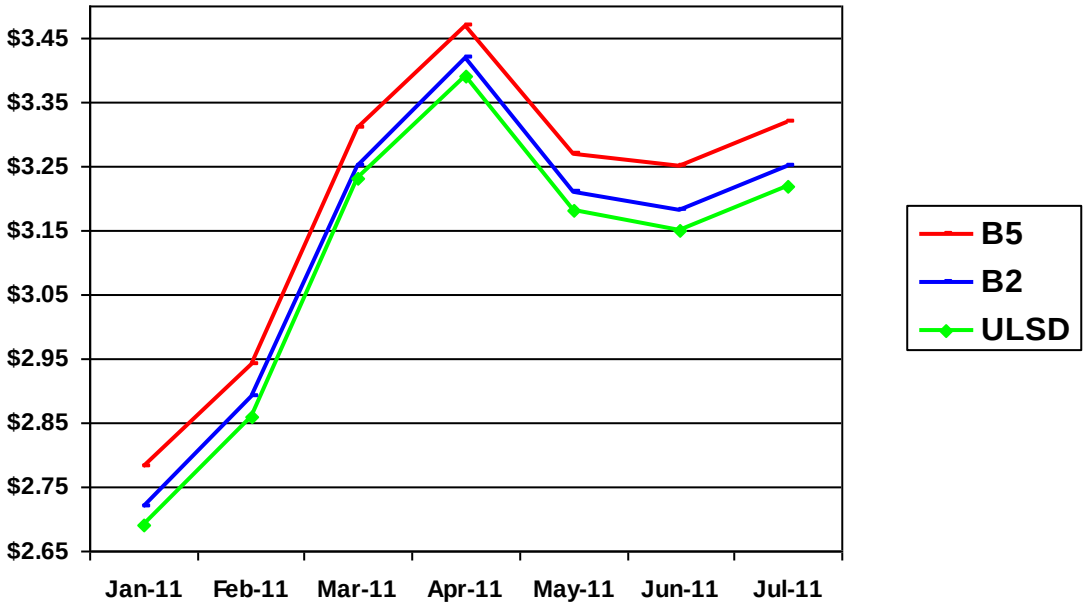
This means that the cost of biodiesel is about $1.70 per gallon more than ULSD. While a $1 per gallon federal blender's tax credit has helped to overcome a portion of this cost differential, that federal tax credit is due to expire at the end of 2011.

In addition to the biodiesel production cost data presented above, the following real world data tells a compelling story on the cost premium associated with biodiesel blending.

[15] Source: www.cnbc.com (August 3, 2011).

[16] Wall Street Journal, p. C8 (August 3, 2011).

Biodiesel Price Comparison (Minnesota-Rack)[17]



Date	1/11	2/11	3/11	4/11	5/11	6/11	7/11
B5	2.78	2.94	3.31	3.47	3.27	3.25	3.32
B2	2.72	2.89	3.25	3.42	3.21	3.18	3.25
ULSD	2.69	2.86	3.23	3.39	3.18	3.15	3.22

The pricing data in the Minnesota Biodiesel Price Comparison chart above was provided by the Oil Price Information Service ("OPIS") and provides additional evidence that biodiesel is significantly more expensive than ULSD. The data demonstrate that for the first seven months of 2011, B2 blends sold for approximately 3 cents/gallon more than ULSD. The Minnesota data further reveals that the B5 blends sold for approximately 8 to 10 cents/gallon more than ULSD. These numbers are in-line with the biodiesel production costs provided above. Clearly, an LCFS that relies in part upon biodiesel to reduce the carbon intensity of transportation fuels will adversely impact fuel consumers. Yet, the NESCAUM Economic Analysis ignores this reality.

The Economic Analysis references the state biofuel mandates in Pennsylvania and Massachusetts; [18] however, fails to mention that the reason Massachusetts has not implemented its biodiesel mandate is due to concerns that it would

[17] Source: Oil Price Information Service (OPIS).

[18] NESCAUM Economic Analysis at p. 13.

be too costly for businesses and consumers.[19] We certainly think that Massachusetts' decision is relevant to describing the economic impact that an LCFS will have upon a NESCAUM member state. We also believe that this fact further undermines the conclusion that the LCFS will save consumers money.

D. Greenhouse Gas ("GHG") Benefits

While an LCFS may lower the carbon intensity of the fuel sold within the region, climate change is a global phenomenon and NESCAUM should be careful to appropriately characterize the benefits from a regional initiative such as the LCFS.

Unlike other criteria pollutants (*i.e.*, particulate matter, NOx) that are of concern to the trucking industry, the impact of GHG emissions on the environment is not dependent upon their point of emission. While the impact of particulate matter is limited to a finite area surrounding the location from which the pollutant is emitted, the emission of GHGs will have an equivalent impact upon climate change whether it is emitted in Connecticut, Kansas or Kazakhstan. For this reason, GHG regulation should not be addressed at the individual state or regional level.

1. Fuel Shuffling

The LCFS proposes to reduce emissions of GHG by lowering the carbon intensity of transportation fuels used in the 11-state NESCAUM region.

Reducing the carbon intensity of the fuel consumed in the Northeast may actually increase total U.S. carbon emissions. While this may sound counterintuitive, the interplay between the existing federal Renewable Fuel Standard[20] ("RFS") and the proposed LCFS suggests that the short-term impact of the LCFS will simply increase the amount of renewable fuel that is transported into participating states for consumption, as described more fully below. If the ultimate focus of the LCFS is to reduce total carbon emissions, then additional transportation of biofuels over long distances should be minimized.

The federal RFS requires obligated parties to blend 800 million gallons of biodiesel this year. That quantity is expected to increase to a billion gallons in 2012. By not specifying where the renewable fuel must be consumed, the federal RFS allows for the renewable mandate to be met in the most economically efficient manner (*e.g.*, close to

[19] *See* Boston Globe, "State Suspends Mandate for Wider use of Biofuels" (July 2, 2010).

[20] In 2005, Congress enacted a renewable fuels standard. In 2007, Congress increased the amount of renewable fuel that is required to be used in the United States to 36 billion gallons by 2022.

where the renewable fuel is produced). State/Regional renewable fuel mandates distort these economic efficiencies, as fuel must be transported from the location where the feedstock is plentiful or the biofuel is refined to a location where it is mandated for consumption.[21] In this regard, the LCFS will actually increase the carbon profile of the fuel by forcing the fuel to be transported to specific points of consumption rather than being consumed close to where it is produced. The proposed LCFS causes this unintended consequence and will actually increase the carbon emissions and reduce the GHG benefits of the federal program, as biodiesel and other biofuels are forced to be transported from the Midwest to the Northeast to comply with the LCFS.

In this regard, the LCFS does not compliment the federal RFS, but rather erodes some of its GHG reduction benefit.[22] This phenomenon is not addressed in the Economic Analysis.

2. Value of Carbon Reductions

The NESCAUM Economic Analysis includes an estimate of the economic value of reducing GHG emissions ranging from $24 per ton to $107 per ton.[23] While we are not experts on the price of carbon, we note that the Economic Analysis ignored the current price of carbon under the Northeast and Mid-Atlantic States Regional Greenhouse Gas Initiative ("RGGI"). No explanation is provided as to why this real world, geographically relevant, price for carbon was not even mentioned in the Economic Analysis. We note that the price of carbon under the RGGI has never exceeded $3.51 since RGGI began holding auctions in 2008 and most recently was as low as $1.89.[24] Using higher estimates for the price of carbon biases the report's conclusions by overstating the program benefits.

E. Reality Check

The NESCAUM Economic Analysis concludes that consumers will save money under the program.

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[21] While the LCFS is less prescriptive than some existing state biofuel mandates, because biofuel substitution is the likely compliance path for the foreseeable future, the LCFS will operate in a similar manner to a state renewable fuel mandate.

[22] Since biodiesel does not move by pipeline, it will be transported into the Northeast states by rail and truck. As such, biodiesel produced in Indiana will have a higher carbon intensity if consumed in Vermont than if it were to remain in Indiana.

[23] Economic Analysis at p. 32.

[24] *See* RGGI auction results: http://www.rggi.org/market/co2_auctions/results. *Note* in California, futures for carbon allowances recently traded at $18 per ton, http://www.businessweek.com/news/2011-10-21/california-regulators-approve-design-for-carbon-trading-system.html

> For all scenarios, the costs of low carbon fuels are less than the cost of gasoline and diesel they replace.[25]

If this were true, there would be no need to mandate a reduction of transportation fuel carbon intensity as these low-cost alternatives would be embraced by consumers. Unfortunately, this is not the case and the LCFS actually will increase the cost of transportation fuels for the trucking industry and other transportation fuel consumers.

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NESCAUM should redo its Economic Analysis. The current version is based on unrealistic assumptions that invalidate the conclusions reached and is likely to mislead policymakers considering the LCFS program. With respect to the impact of the LCFS on the trucking industry we believe that Economic Analysis should reflect the following issues to ensure that policymakers arrive at an informed decision:

- Production costs of biodiesel are significantly higher than ULSD and even low percentage blends of biodiesel sell at a significant premium to ULSD.
- High percentage blends of biodiesel, such as those required to achieve a 10% reduction in carbon intensity, have a fuel economy penalty, do not perform well in cold weather and can result in increased maintenance costs.
- Distinguish between CNG and LNG equipment and refueling infrastructure costs.
- Properly account for the costs associated with building out a natural gas refueling infrastructure and the premium associated with natural gas vehicles.
- Properly account for less obvious costs of running natural gas trucks (*e.g.*, training, facility retrofits, personal protective equipment).
- Recognize that electric trucks are not available for heavy duty over-the-road trucking applications.
- Properly account for the increase in GHG emissions from fuel shuffling.

If you have any questions concerning the matters raised in these comments, please contact the undersigned at (703) 838-1910.

Respectfully submitted,

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[25] NESCAUM Economic Analysis at p. ES-8.