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October 31, 2011

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Submitted electronically to cfs@nescaum.org

**RE: API Comments on NESCAUM’s “Economic Analysis of a Program to Promote Clean Transportation Fuels in the Northeast/Mid-Atlantic Region”**

API appreciates the opportunity to comment on NESCAUM’s “Economic Analysis of a Program to Promote Clean Transportation Fuels in the Northeast/Mid-Atlantic Region” released in August 2011. In 2010, when NESCAUM presented their “Economic Analysis of the Northeast / Mid-Atlantic Low Carbon Fuel Standard: Draft Data and Assumptions, Part I and II”, several stakeholders, including API, provided thorough analyses and comments. Stakeholders expressed serious concerns about the unrealistic assumptions used by NESCAUM in their 2010 study. API is disappointed that stakeholder input was largely ignored. Specifically in the August 12, 2010 letter to NESCAUM, API had assessed that “*NESCAUM has established three unrealistic scenarios, where targets are met but costs and scale of technologies employed for achieving that reduction are vastly understated.*” The August 2011 NESCAUM analysis suffers from the same shortcomings.

On October 14, 2011, IHS CERA published a study titled “Assessment of the NESCAUM Economic Analysis of a Clean Transportation Fuels Program for the Northeast/Mid-Atlantic Region” commissioned by the Consumer Energy Alliance. API agrees with the IHS CERA assessment which shows that, the NESCAUM scenarios are based on unrealistic assumptions of supply and costs of next generation biofuels, electric and natural gas/CNG vehicles. NESCAUM’s economic analysis contains no evidence to support their overly optimistic technological and cost assumptions, which contradict credible sources such as EIA and the National Academy of Sciences. As a result, the NESCAUM conclusions of economic benefits and projected job growth for the region lack credibility. We are especially concerned that NESCAUM did not describe the shortcomings of their analysis in a transparent way for policy makers and State Governors and did not quantify the high risk for the region’s economic prosperity if the proposed scenarios did not materialize. Based on data from EIA and the National Academy of Sciences, NESCAUM proposes an infeasible and non-transparent program. API cautions the Northeast / Mid-Atlantic States that the deficiencies contained within



NESCAUM's analysis preclude any discussion of how such a public policy would impact the region.

In August of 2010, API submitted comments on NESCAUM's draft data and assumptions to the economic analysis; these were supported by two reports from third parties.<sup>1</sup> The comments were specific and detailed and meant to help NESCAUM realize flaws in their early assumptions in order to produce a more realistic and useful analysis in their 2011 study. Unfortunately, the vast majority of the 2010 comments to NESCAUM from API and the other contributors (Charles River Associates, International, Sierra Research, Inc. and MathPro, Inc.) were ignored. NESCAUM chose to adopt only a few of the suggestions, most notable including a scenario in which the Renewable Fuels Standard as prescribed in EISA2007 is not fully met.

Of primary concern to API and the third party reviewers of NESCAUM's approach has been the use of three unrealistic future scenarios. As Sierra noted in their comments submitted in August 2010, the use of the three scenarios, as presented, does not aid in performing an economic analysis of an LCFS performance standard because each scenario has been defined by NESCAUM as a "success story." In each scenario, large amounts of electricity, biofuels or natural gas and their corresponding infrastructures and vehicle technologies replace gasoline and diesel at little or no cost – to meet the requirements of the LCFS. Through observation of the design of NESCAUM's scenarios, Sierra was able to rightly conclude that the only possible outcome of analysis would be one in which each future scenario was "found to both reduce greenhouse gas emissions and reduce costs in the transportation sector relative to both of the reference cases."<sup>2</sup> As API noted in its 2010 comments, scenarios used should be built based on realistic feasibility assessments of each of the proposed technologies. Additionally, API commented that NESCAUM should include a full discussion of all assumptions behind key data inputs, in order to insure complete transparency of their analysis.

In reference to the 2011 NESCAUM study, the assumptions deployed were not always made clear – an example is the extent to which local policy initiatives are included in the baseline. In other areas, such as in the case of the prices for biofuels (Table 2-4) the assumptions deployed are incorrect and inconsistent. As noted by NESCAUM, the prices for biofuels used throughout the analysis reflect average production costs, rather than retail prices for biofuels. While the lack of an actual market for these fuels prohibits the use of a specific real world retail price, it is not clear why NESCAUM felt it was appropriate to use production costs, rather than modeling retail costs.

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<sup>1</sup> Comments and corresponding reports can be found under the header "Comments from American Petroleum Institute" here: <http://www.nescaum.org/documents/stakeholder-comments-on-the-economic-analysis-of-the-northeast-mid-atlantic-low-carbon-fuel-standard-draft-data-and-assumptions-parts-i-and-ii/>

<sup>2</sup> Sierra Research, Inc, "Review of NESCAUM's Draft Data and Assumptions for LCFS Economic Analysis." August 27, 2010.



API appreciates that in the 2011 study, NESCAUM does not use the AEO High Growth and Low Growth models, opting instead to use the High Oil Price scenario and the Reference scenario. However, it is incorrect and misleading for NESCAUM to misrepresent the AEO Reference Case by renaming it as the “Low Oil Price” scenario in their analysis, when the AEO has indeed a “Low Oil Price” scenario that is separate from the AEO Reference Case. This renaming seems intentionally misleading and disingenuous.

As highlighted by API in August of 2010, the margin of uncertainty used in the NESCAUM assumptions was not sufficiently wide to include a full range of outcomes, especially those in which the overly optimistic assumptions were not met. NESCAUM does not appear to have made any effort to use any pessimistic assumptions or even any realistic assumptions in their proposal.

The highest benefits in the final analysis are achieved in the “high oil price case” under three future unrealistic scenarios that deploy biofuels and alternative vehicles in varying proportions. NESCAUM calculates net cumulative program benefits for 10% Carbon Intensity (CI) reduction over the 10 year period would range between \$22 billion and 41 billion. These figures are miniscule and represent 0.1% of the cumulative 10 year regional economy of over \$4 trillion per year.

NESCAUM initially included full compliance with all contributing and existing policy programs in its initial draft assumptions. In the 2011 study, NESCAUM corrected this issue in part by offering reduced compliance with the RFS and ZEV programs under certain conditions – the “Low Oil Price” case reflects the AEO estimated compliance with the RFS, while the “High Oil Price” case reflects full compliance with the RFS. A similar pattern was followed for the ZEV requirements, though it is not clear what levels of compliance were assumed for each case. For all other existing policy programs, however, NESCAUM appears to have retained full compliance. More importantly, NESCAUM did not include the cost of those programs in the cost assessment of the LCFS. As Sierra and API noted, if a separate policy program, like the RFS is responsible for meeting a portion of the LCFS program goal, and that portion was not achieved solely by the LCFS, than the costs borne by the other program should be proportionally included in the cost assessment for the LCFS. To clarify, if the LCFS is directly responsible for 8% of the CI reduction, and the RFS is responsible (through increased biofuel production for instance, that may have happened regardless of the implementation of a LCFS) for 2% of the CI, than the cost associated with the RFS for that 2% gain should be included in the total costs of the LCFS.

NESCAUM fails to provide a credible conceptual model that would support their projections of cellulosic biofuel production and use in the region. The National Academy of Sciences October 2011 report “Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy” provides a detailed scientific assessment of the

current and projected status of costs and potential production of cellulosic biofuels.<sup>3</sup> That report identifies numerous economic, environmental, policy and social barriers to attaining the RFS2 mandates, and states that those mandates are unlikely to be met unless those barriers are resolved. The NAS report indicates that biofuels would only become economic with a ‘breakeven’ crude oil price of between \$111 and \$191 / barrel. That report includes several analyses of potential regional cellulosic biofuel production, and all indicate that production in the Northeast / Mid-Atlantic States will be far less than is predicted by this NESCAUM report.

In the near term, there is no current commercial scale cellulosic biofuel production. Several plants are in construction phase, none in the Northeast/Mid-Atlantic region. It is unlikely that commercial scale cellulosic plants will commence before 2014, and collectively these will produce less than 100 million gallons/year. Assuming ‘optimal’ plant capacity of 20-40 million gallons per year, it would require the construction of 75-150 cellulosic biorefineries to reach 3 billion gallons of regional production by 2022, or about 1 per month for 7 years. Given the estimated capital investment of 850 million dollars for the first plant according to the National Academy of Sciences, the uncertainty of their economic viability, the complex biofuel feedstock supply trains and the complexities of permitting major industrial facilities in this region, it would seem that such a pace of development would be highly unlikely during the next decade and beyond.

Finally, the NAS report projects that for 16 billion gallons of cellulosic biofuels, 30-60 million acres of land will be needed. Therefore, to meet the NESCAUM volume of 3 billion gallons of cellulosic ethanol, land area equal to that of the entire state of New Jersey (low end estimate) or Massachusetts, Connecticut plus Rhode Island combined (high end estimate) would be needed.

NESCAUM assumes an increase of 0.5 gCO<sub>2</sub>e per mega joule per year of the gasoline and diesel CI in their high oil price scenario. This results in a 5% increase of baseline CI between 2013 and 2022 (gasoline CI increases from 96 to 101 gCO<sub>2</sub>e/MJ). NESCAUM attributes this increase to higher percent of HCICO at high oil prices. There is no evidence for this increase. East Coast refineries over the years have been running more and more of light, low sulfur crudes, as refining conversion capacity in the region continues to decline. Because of their structural make-up, East Coast refineries have limited crude processing capabilities, independent of crude oil prices.

NESCAUM assumes that alternative fuel vehicle use will be substantially higher than EIA projects for all the projected scenarios. EIA projects less than 10,000 battery electric vehicles in the entire nation per year in 2022, but in the same time frame and in the Northeast

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<sup>3</sup> National Research Council, “Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy.” 2011. [http://www.nap.edu/catalog.php?record\\_id=13105](http://www.nap.edu/catalog.php?record_id=13105)



alone, NESCAUM's analysis assumes 250,000-300,000 vehicles per year will be available in the biofuel and natural gas scenarios, and a staggering 800,000 in the electricity future scenario. Likewise for natural gas powered vehicles, EIA projects that less than 1% of energy used for transportation in the U.S. will come from natural gas, yet NESCAUM projects 12% will be used for transportation in the Northeast.

As NESCAUM notes, "the policy scenarios and sensitivity cases portrayed in this analysis are not intended as forecasts or predictions of likely outcomes. Rather, each scenario depicts a unique "what if?" trajectory of fuel technologies, infrastructure, and consumer choices that illustrate how a given LCFS target could theoretically be met within a specified timeframe." Policy makers need to understand and make no mistake that the analysis presented by NESCAUM on the imposition of a LCFS on the Northeast and Mid-Atlantic states is seriously flawed. According to credible sources such as EIA and the National Academy of Sciences, the three scenarios modeled by NESCAUM would not materialize. As illustrated above and in comments previously submitted by API and other stakeholders, the costs of the program assumed by NESCAUM are grossly understated.

NESCAUM is proposing an opaque LCFS program that is technically infeasible over the next decade. In practice, the compliance mechanism NESCAUM is proposing is designed to pass these very significant costs onto gasoline and diesel consumers. If the goal is to promote biofuels or to electrify the fleet, consumers are better served if the regulations are direct, cost effective and transparent; NESCAUM has failed to provide these requirements.

API appreciates the opportunity to provide these comments, and we look forward to working with NESCAUM in the near future.

Sincerely,

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