COMMENTS OF LEADING ENVIRONMENTAL STAKEHOLDERS CONCERNING NESCAUM'S ECONOMIC ANALYSIS OF A PROGRAM TO PROMOTE CLEAN TRANSPORTATION FUELS IN THE NORTHEAST/MID-ATLANTIC REGION

October 31, 2011

Introduction and Overview

As leading energy and environmental advocacy organizations in the region, the Conservation Law Foundation (CLF), Environment America, ENE (Environment Northeast), the Natural Resources Defense Council (NRDC), and the Union of Concerned Scientists (UCS),[1] appreciate the opportunity to submit the following written comments to NESCAUM and the eleven participating states regarding the recently completed "Economic Analysis of a Program to Promote Clean Transportation Fuels in the Northeast/Mid-Atlantic Region" (the "Economic Analysis" or "Analysis") and the development of a regional Clean Fuels Standard ("CFS").

We recognize the imperative facing all states and regions to develop cleaner alternatives to petroleum fuels in a way that is economically beneficial. The Economic Analysis demonstrates that a regional CFS is a viable tool for significantly advancing the goals of offering consumers lower-carbon choices in the transportation marketplace and reducing the region's costly dependence on oil. As a result, the states should use the results of the Economic Analysis to shape the CFS as they turn expeditiously to policy development. As the states move to the actual policy development, they must do so in a manner that is sensitive to current economic realities, solicits and respects various stakeholder input, all while moving the region towards a more sustainable transportation future. If successful, our region will be a model for the rest of the country.

The Need for a CFS

For decades American Presidents have called upon the United States to end its dependence on foreign oil; nevertheless, our appetite for petroleum has grown. Our region has been too dependent upon petroleum to the detriment of our economy and our environment. Between 2000 and 2008, total annual expenditure on gasoline and diesel in the Northeast and Mid-Atlantic states increased by 133%. In 2008, the region spent more than $100.7 billion on transportation fuel, nearly all of which was imported from other regions and countries. Roughly eighty-five percent (85%) of those dollars were sent out of region to oil-producing regions and countries.[2] Reliance on petroleum produced in foreign nations influences our foreign policy and undermines our national security. Furthermore, for decades the vast majority of the world's climate scientists have warned us that burning petroleum and other fossil fuels is leading to catastrophic climate change.

It is time for a change. Just as we have diversified the fuels we use to generate electricity, we need to start pursuing policies that will diversify our transportation fuels sector. The CFS offers the Northeast and Mid-Atlantic states the opportunity to develop cleaner, renewable, and local alternatives to petroleum fuels in a way that provides economic and environmental benefits and keeps more of our energy dollars at home.

[1] The Appendix attached hereto provides additional information about each of the five organizations submitting these comments.

[2] ENE analysis of EIA data, state and federal gasoline and on-road diesel tax rates, and information from the National Association of Convenience Stores.

The NESCAUM Economic Analysis demonstrates that a regional CFS is an economically viable tool for significantly advancing the goal of offering consumers lower-carbon choices in the transportation marketplace. The states should use the results of this Analysis to shape the CFS as they turn expeditiously to policy development, and we encourage all states to participate in taking this essential step forward. The economic benefits and costs are important considerations for any new policy. Indeed, it is critical to ensure that the CFS will balance economic and environmental benefits and costs before policymakers will adopt it. For the reasons outlined in detail below, armed with the encouraging data from the Economic Analysis, the states can—and, indeed, should—now move forward with delivering a CFS. In short, the Economic Analysis relies on accepted modeling tools, takes a predominantly conservative approach with its assumptions, and provides results that account for both program costs and program benefits in a reasonable and responsible manner. The results are encouraging.

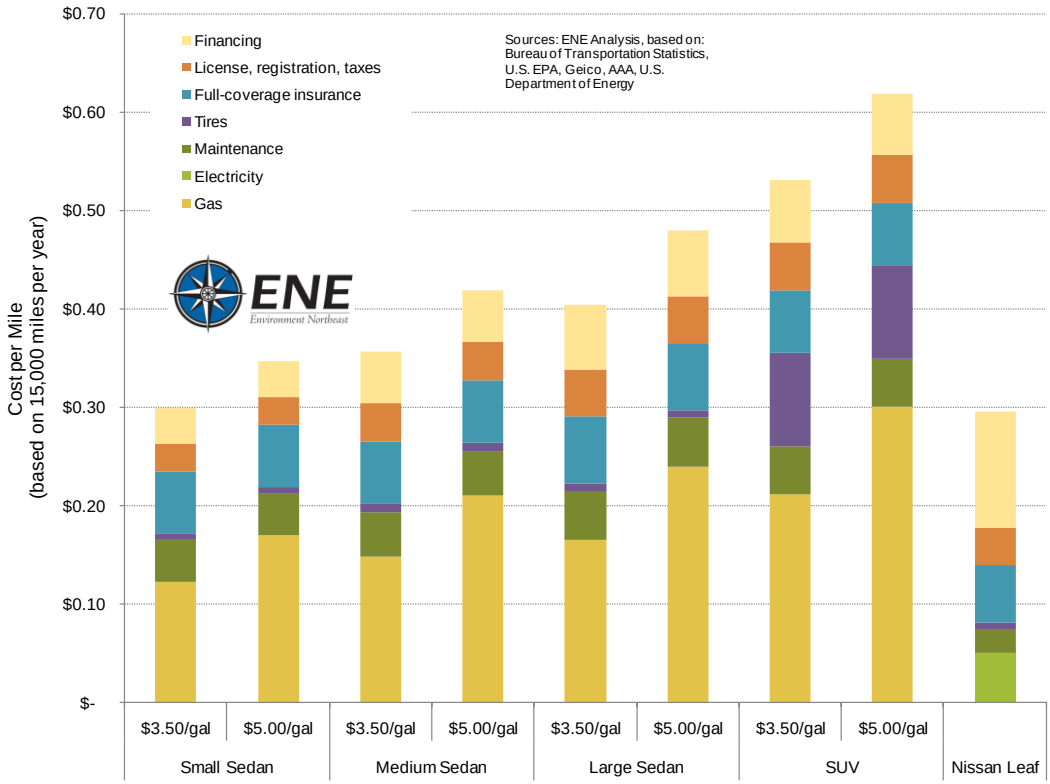
Benefits of a CFS

Economic Benefits

NESCAUM's Economic Analysis provides a thorough, transparent and conservative view of the economic impacts of three different potential compliance paths for a Clean Fuels Standard, relying on the widely accepted VISION-NE and REMI economic models. NESCAUM ran multiple reference cases and several different scenarios that reflect reasonable CFS compliance paths, and analyzed the impact of the CFS under assumptions of high and low oil prices, different discount rates, and high and low costs of alternative fuels and infrastructure.

The CFS will create a market for cleaner, in-region renewable alternative fuels and for natural gas (NGVs) and electric vehicles (EVs). Biofuels, NGVs and EVs will help stem the outflow of money for the purchase of foreign oil and promote a market for low-carbon fuels and cleaner electricity that can be produced locally. The CFS will help spur investment in alternative fuel infrastructure throughout the region. The chart below demonstrates one example, showing the cost per mile of driving various vehicles, demonstrating that consumers will save with EVs over the life of the vehicle.

Figure 1. Consumer Cost-per-mile Comparison: EVs and Conventional Light Duty Vehicles



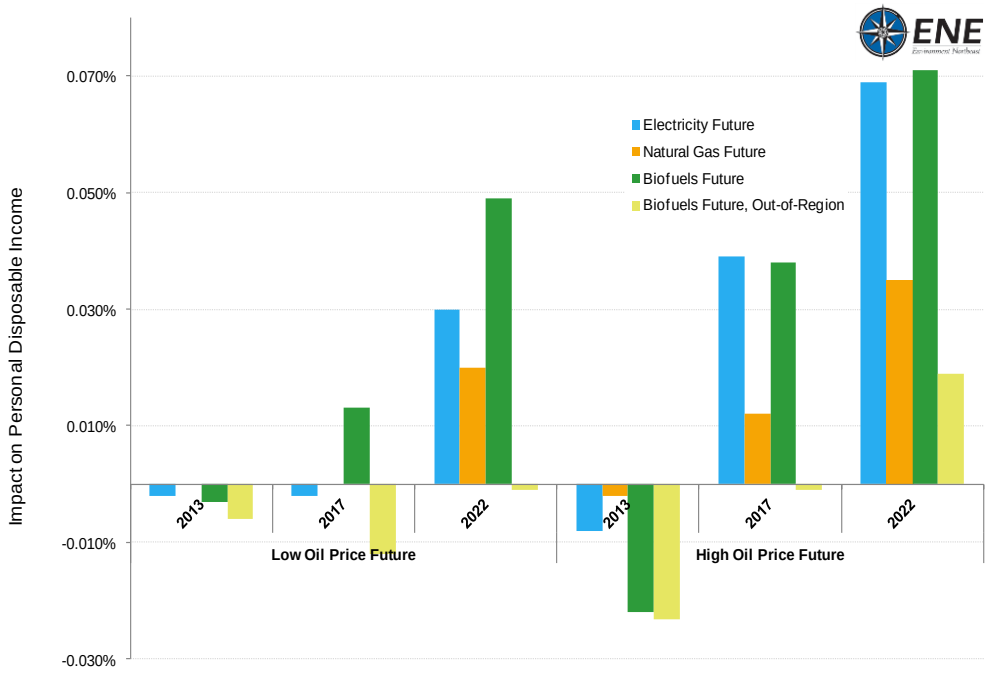
The growing markets for clean alternative fuels, NGVs, EVs, and renewable power can also provide a welcome economic boost for the region, starting and attracting companies, creating and retaining jobs, and growing the region's clean energy sector. The NESCAUM Economic Analysis shows that we can grow our economy *and* have cleaner fuels:

- Consumers can save money—the cost of many alternative fuels will frequently be less than that of the gasoline and diesel they replace.
- The cumulative net benefit to the region could be as high as $22 to $41 billion over 10 years, not including the potential health benefits associated with improved air quality.[3]
- The CFS could create as many as 20,000 to 50,000 job-years of employment, boost Gross Regional Product by $17-$29 billion, and increase total disposable personal income by $7-$15 billion.[4]
- Utilities, construction, manufacturing, forestry, and agriculture are projected to benefit from the CFS because they supply key goods and services needed to produce alternative fuels.
- We can reduce the impacts of petroleum price volatility on customers.

[3] NESCAUM, 2011, "Economic Analysis of a Program to Promote Clean Transportation Fuels in the Northeast /Mid-Atlantic Region," ("Economic Analysis") at ES-9.
[4] *Id*. at ES-11.

The Economic Analysis shows that the CFS can begin to change this problematic economic dependence on petroleum and can also increase consumers' personal disposable income, as shown in the chart below.[5]

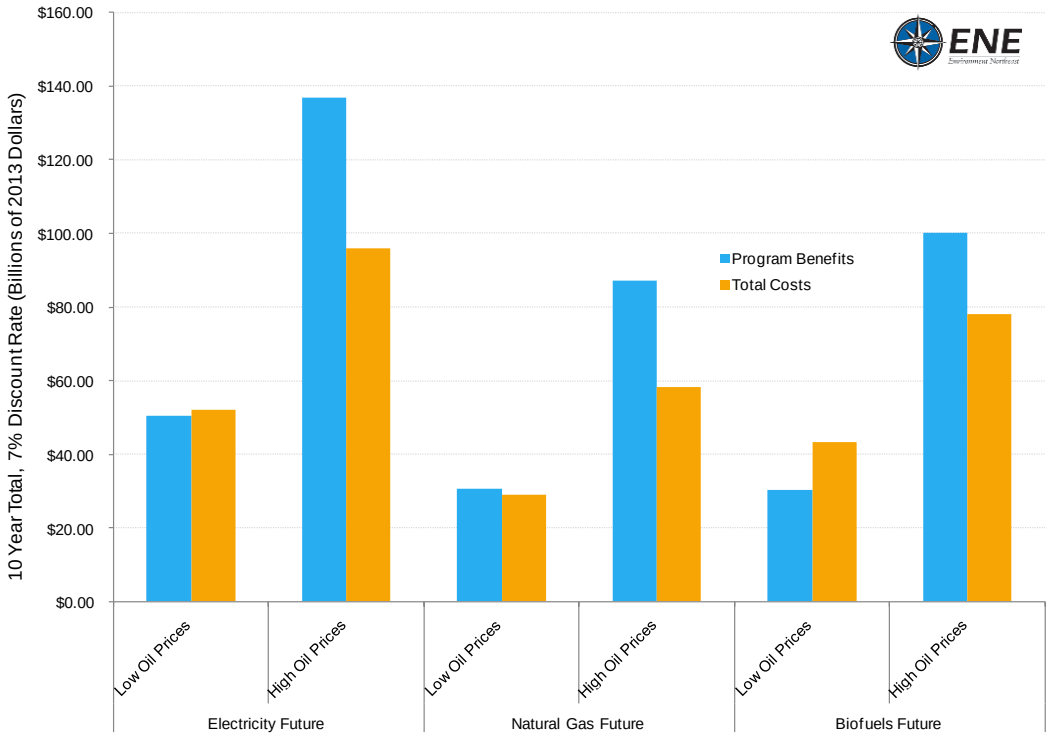
Figure 2. CFS Impact on Disposable Income.



In short, CFS economic benefits modeled by NESCAUM show that pursuit of this policy is in the interest of the people of our region. Under all three fuel futures modeled by NESCAUM, if future oil prices are high, the CFS benefits will exceed the costs. If future oil prices are low, the costs and benefits are roughly equivalent, while reducing demand for gas and diesel by 4 to 6 billion gallons in 2022, even before considering GHG and other environmental benefits.[6] Including a value on GHG reductions will not only enhance the benefits of a regional CFS but also will provide a more comprehensive and complete economic picture of the program.[7] Adoption of the CFS will also reduce expenditures by the region on transportation fuels over the next ten years.[8]

[5] *Id.* at 63.
[6] *See id.* at 51. The NESCAUM Analysis does provide a forecasted range of the value of GHG reductions, but the data depicted in the Figure 2 chart do not include those forecasts.
[7] *See id.* at 49.
[8] *Id*. at 51.

Figure 3. Costs and Benefits of a Regional CFS (7% Discount Rate)



Environmental Benefits

The CFS will result in a more diverse and lower carbon fuel mix that includes advanced biofuels, electricity, and natural gas that will loosen the stranglehold of petroleum on our society. Under some modeled scenarios, alternative fuels are projected to grow to be as much as 27% of our transportation fuel supply by 2022. The Economic Analysis shows that over 10 years, a CFS could achieve a cumulative reduction in gasoline and diesel use in the region of 14 to 40 billion gallons, and an annual reduction in GHGs between 5 and 9%.[9] Further, ENE's analysis shows that the CFS could result in 158 million fewer tons of GHG emissions over 10 years. [10]

[9] *Id.* at ES-7.

[10] ENE analysis of the emissions impact of a 10% reduction in the carbon intensity of transportation fuels in the 11 Northeast and Mid-Atlantic states. Data sources include: EIA, U.S. Department of Transportation Federal Highway Administration Highway Statistics, U.S. Census Bureau, U.S. Environmental Protection Agency, and the California Air Resources Board.

The NESCAUM Economic Analysis is Conservative and Credible

The assumptions used in the NESCAUM economic analysis are conservative and possibly even over-estimate the costs of the CFS. The following sections provide additional detail that describes the conservative nature of many of the NESCAUM assumptions in the Economic Analysis.

NESCAUM, the states and all stakeholders should be mindful that it is not uncommon for initial modeling to over-estimate the cost of this type of innovate program. For example, RGGI initial modeling over-estimated the cost of the program. State sponsored modeling estimated CO2 allowance prices of approximately $1 to $12/ton.[11] Actual prices are now $1.89/ton.[12] The same was true for Acid Rain Program Costs.[13] In 1990, power companies estimated that it would cost $1000-$1500 per ton to reduce SO2 and that electricity prices would increase by 10%. The actual costs, measured in 2010, are an order of magnitude lower, at $100-$200 per ton, and electricity prices have fallen. The benefits of the Acid Rain program have exceeded costs by a factor of 30 to 1. The Office of Management and Budget, and other independent researchers, have confirmed these conclusions.[14]

Electric Vehicles

NESCAUM follows a reasonable approach in making assumptions regarding plug-in electric vehicle penetration and pricing. By basing vehicle penetration on the Zero Emission Vehicle (ZEV) program, NESCAUM has chosen one of the strongest determinants for the number of plug-in vehicles that will be sold in the region. The long-standing ZEV program serves as a minimum sales requirement to move plug-in electric vehicles to broad commercial scale.

Plug-in electric vehicles penetration has the potential to ramp up significantly beyond minimum requirements as production costs and sales prices decrease. As production ramps up, the most expensive component parts will drop in price, helping to make the vehicles more competitive. In parallel, the CFS policy can reduce consumer prices for plug-in vehicles by converting credits for the production of low-carbon electricity fuel into electricity or vehicle rebates for plug-in vehicle owners.

The United States has also made complementary investments in battery manufacturing to bring down plug-in electric vehicle costs dramatically. Until recently, the U.S. was considered an insignificant world player in the manufacturing of advanced batteries for vehicles. By 2012, due largely to federal and state investments, the U.S. factories are expected to hold 20 percent of global advanced battery manufacturing capacity.[15]

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[11] http://www.env-ne.org/public/resources/pdf/RGGI_Emissions_Cap_Level.pdf
[12] The most recent RGGI auction results are available at: http://rggi.org/market/co2_auctions/results
[13] http://blogs.edf.org/climate411/2010/12/02/there-they-go-again/
[14] *See* http://www.epa.gov/capandtrade/documents/ctresults.pdf
[15] U.S. Department of Energy. The Recovery Act: Transforming America's Transportation Sector: Batteries and Electric Vehicles. July 14, 2011. http://www.whitehouse.gov/files/documents/Battery-and-Electric-Vehicle-Report-FINAL.pdf.

The NESCAUM analysis assumes that 100% of battery electric vehicles (BEV) and 1/3rd of plug-in hybrid electric vehicle (PHEV) owners will install a level 2 home charger at an expense of more than $2000. Yet many BEV and PHEV owners will opt to use level 1 charging equipment at a much lower cost. Both the Nissan Leaf and Chevy Volt come ready to charge using a Level 1 charger. NESCAUM assumes heavy reliance on public charging facilities. The Analysis assumes that the need for public charging stations will increase by 0.5% annually from 0.65 per 1000 vehicles to 5.15 per 1000 vehicles. It is more likely that people will do most of their charging at home (80%) and at work (15%), with public charging making up only 5% of all charging needs. As a result, it is more likely that the number and cost of public infrastructure will be considerably lower than modeled.

Because it presumes a high reliance on Level 3 public charging, NESCAUM's Economic Analysis also assumes very high costs for EV charging stations, at $92,000 per station. Emerging experience from U.S. cities shows that a more realistic set of assumptions for installation costs, based on the deployment of Level 2 charging infrastructure, would be considerably lower.[16] NESCAUM's Analysis also assumes that every BEV and PHEV owner will need to install a smart meter at the cost of $400. Alternatively, it may be more cost-effective to track electricity use by electric vehicles through software and meters installed in the vehicle, rather than a separate meter in the house. The software/meter may be more easily and cheaply installed by the auto-manufacturer and track the vehicle's charging behavior wherever it travels.

Biofuels

The assumptions on biofuel availability and pricing are reasonable and span a range of outcomes from conservative to more optimistic. The conservative approach, based on EIA's analysis, reflects rigorous up-to date projections based on actual market conditions, and reflects the substantial waiver of the cellulosic biofuel volume mandates under the RFS. The conservative approach also reflects very conservative carbon intensity determinations, minimally in compliance with the RFS and less optimistic than many peer-reviewed studies or EPA's own analysis.

The more optimistic scenario, reflecting full compliance with RFS volume mandates for cellulosic biofuel, is also reasonable. The RFS, as well as USDA programs that support feedstock production, USDA and DOE loan guaranties, and numerous other policies in the federal government, provide a great deal of support for cellulosic biofuel technology. The implementation of a regional CFS in the Northeast and Mid-Atlantic would amplify this support. Studies like the recent national Academies of Science study do not take into account all of this support.[17] Taken together, these policies create an environment in which the rapid commercialization of low carbon biofuels is feasible.

The initial delays in commercialization of low carbon biofuels reflect the unexpected collapse of the availability of financing in 2008-2010. While this has delayed the commercialization of cellulosic biofuels, as financial markets have stabilized there have been announcements of commercial facilities

[16] *See generally* *http://projectgetready.com/docs/Plugging%20In%20-%20A%20Stakeholder%20Investment%20Guide.pdf* at 17.

[17] National Research Council, Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy. 2011 http://www.nap.edu/openbook.php?record_id=13105&page=R1

being developed by Poet, BP, Coskata, INEOS, Fulcrum, RENTECH, Enerkem, Abengoa, Bluefire, Fiberight and DuPont Danisko. These recent announcements reflect the biofuels commercialization interest on the part of major players in the oil, chemical and biofuels sectors, which together with many independent start-ups have the expertise and infrastructure to rapidly commercialize the new clean fuel production technology.

Further, the carbon intensity scores and costs for advanced and cellulosic biofuels are hard to project, since they are not in commercial production, but the estimates used in the Economic Analysis are reasonable, and backed up by thorough research and authoritative references.

Natural Gas

The Economic Analysis provides a scenario for meeting CFS targets through significant adoption of natural gas as a transportation fuel ("Natural Gas Future"). The Analysis demonstrates that natural gas fuel can play an important role in reducing oil use and corresponding pollution in the transportation sector. However, NESCAUM's Economic Analysis should have noted that complementary policies related to responsible natural gas extraction are likely needed to realize the potential benefits of natural gas fuels.

Significant controls on the process of shale natural gas extraction are necessary to prevent pollution and ensure the benefits delivered by a CFS. Recent studies suggest that shale gas has the potential to have higher emissions of GHG than conventional natural gas sources.[18] Regulations proposed by U.S. EPA and being considered in some states could address this problem by cutting methane emissions from shale gas well completion and rework. The Economic Analysis should acknowledge that increased extraction and distribution of shale gas could result in higher emissions unless additional, complementary policies are established. The assumed emissions parity between shale and conventional natural gas may only be achieved with such additional policies. As NESCAUM and the states develop the details of the CFS, it is essential that the current and evolving science around carbon intensities of shale gas and the potential for various forms of pollution associated with its extraction be taken into account.

The necessary infrastructure identified in the Natural Gas Future scenario is generally lower than in other fuel scenarios. These low infrastructure cost estimates are based, at least in part, on the assumption that low-carbon intensity biogas will be a significant source of "natural" gas used to comply with the CFS. Because biogas has very low carbon intensity, less gas and, therefore, fewer infrastructure investments will be needed to meet the carbon reduction target. Due to somewhat optimistic assumptions about biogas penetration, it is possible that actual infrastructure costs will be somewhat higher if biogas ultimately accounts for less of the overall gas market than estimated in the Analysis. We recommend that NESCAUM and the states revisit this issue as the details of the overall policy are developed.

[18] Zeller, Tom, "Studies Say Natural Gas Has Its Own Environmental Problems," *New York Times*, April 11, 2011. Available at http://www.nytimes.com/2011/04/12/business/energy-environment/12gas.html?pagewanted=all.

The Economic Analysis Underestimates the Benefits of Reduced Oil Dependence

The Economic Analysis shows substantial net economic benefits from a regional CFS. However, we believe the benefits have been underestimated based on the conservative assumptions identified above as well as the categories of unaccounted-for benefits discussed below. Full accounting of the benefits would further demonstrate that the benefits of a CFS substantially outweigh its potential costs.

The Economic Analysis understates potential CFS program benefits because it did not fully quantify the benefits of reduced dependence on oil. By reducing the region's oil consumption and by diversifying the transportation fuel supply, the CFS will likely save citizens in the region from large future cost outlays. These savings are direct benefits provided by the CFS and should be quantified. Below, we discuss examples of benefits that were left out of the Economic Analysis: (1) health care costs that could be avoided when petroleum dependence is reduced; (2) savings from less frequent and less severe fuel price spikes; and (3) consumer savings from insulating against oil market volatility. In addition, a full accounting of oil subsidies is not captured by the Economic Analysis.

Improved Public Health

An analysis of health impacts – and associated costs – caused by petroleum-based air pollution was outside the scope of the Economic Analysis. However, an assessment of the societal costs from these health effects further supports the rationale for adopting a regional CFS. Air pollution generated by high-carbon transportation is a major threat to public health. Exposure to this pollution is associated with cardiovascular disease and respiratory diseases such as lung cancer, asthma, bronchitis, and chronic obstructive pulmonary disease.[19] These health impacts come at a high monetary cost to society, which should be incorporated and prioritized in planning and policy cost-benefit analyses.[20] Health impact costs can be quantified (and indeed have been) through combined epidemiological and economic analysis.[21] For example, the National Academies of Science determined that, in 2008, the national cost of health outcomes resulting from traffic-related air pollution was between $50-80 billion, based on such factors as health care costs and premature death.[22] The implementation of a CFS and consequent deployment of cleaner alternatives would reduce the number of premature deaths and years of life lost and therefore decrease these costs to society, a result which supports and strengthens the conclusions of NESCAUM's Economic Analysis.[23]

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[19] Itamar Hite, David Katoshevski, Michael Ruzal-Mendelevich & Eran Sher, "Environmental and Health Risk Associated with Air Pollution Emitted by Public Transportation, and a New Methodology for Reducing the Risk," in *Proceedings of Social and Behavioral Sciences* 20 (2011), p. 688.

[20] Donald R. McCubbin & Mark A. Delucchi, "The Health Costs of Motor-Vehicle-Related Air Pollution," in *Journal of Transport Economics and Policy*, Volume 33 Part 3 (September 1999), p. 253.

[21] *Id.* at 265.

[22] Committee on Health Impact Assessment, Board on Environmental Studies and Toxicology, Division on Earth and Life Sciences, National Research Council, Improving Health in the U.S.: The Role of Health Impact Assessment (The National Academies Press, 2011), Table 2-1.

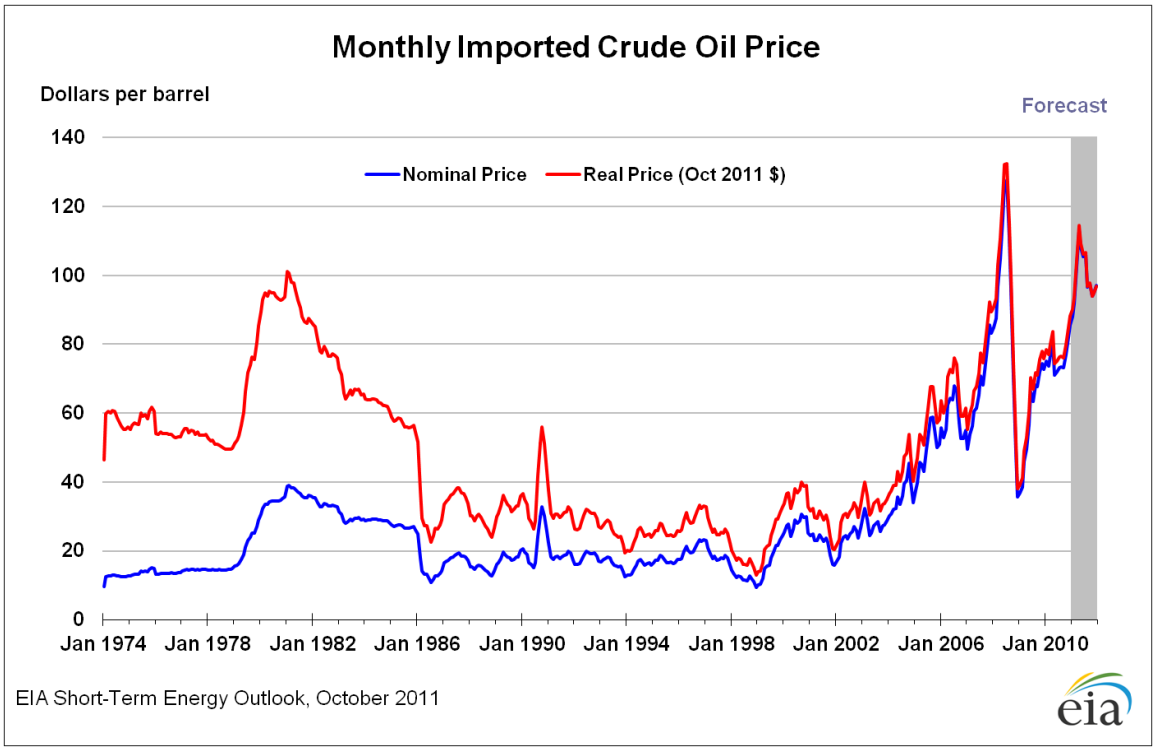
[23] James Woodcock et al., "Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport," in *Lancet* 374 (2009), p. 1938.

Minimization of the Impacts of Fuel Price Spikes

As the region reduces the proportion of fuel produced from oil, the region will become less affected by spikes in oil prices. Under a CFS, the cost of oil becomes a smaller share of the total cost of fuel. With greater reliance on clean fuel alternatives that can be produced domestically, oil price gyrations—determined by the world oil market – will have smaller impact on the cost of driving in the Northeast and Mid-Atlantic.

The oil market has a history of volatility. Figure 4, from the Energy Information Administration, details how prices of crude oil imported into the U.S. have fluctuated dramatically. In recent memory, large fluctuations have occurred since 2005 due to factors such as Gulf Coast hurricanes and civil unrest in the Middle East and North Africa.

Figure 4. Historical Crude Oil Price Fluctuations



Under a CFS, large fuel price spikes are likely to be less severe. Since oil will be a smaller portion of total fuel supply, oil prices are likely to rise more gradually and allow consumers to shift away from petroleum fuels and toward alternatives.

When oil supply disruptions are severe enough to cause large and rapid price spikes, the magnitude of the spike is likely to be lower in the CFS region than in areas without the policy. In a non-CFS region, prices could escalate quickly due to a lack of oil alternatives. Conversely, the CFS region will have more alternatives available, as well as the infrastructure to support fuel switching. The fuel diversity will

enable rapid shifts away from oil, which will temper price escalations. Of course, users of alternative fuels will avoid most oil price spike impacts in connection with their fueling costs.

Insulation from Oil Market Volatility

Clean, alternative fuels also have the potential for greater price stability because the alternative fuel supplies are largely separate from the oil market. Consider electricity, for example. Oil is used to produce less than 1 percent of electricity in the United States.[24] Going forward, electricity prices are expected to remain decoupled from oil prices. The Energy Information Administration (EIA) forecasts gasoline prices to increase by 32 percent from 2012 to 2035 and electricity prices to drop from 2012 and then rise about 6% above 2012 prices by 2035.

Natural gas prices for fueling heavy trucks have also recently been decoupled from oil due to domestic supply increases. EIA projects natural gas prices for transportation to increase about 13 percent in the same period of gasoline's 32 percent increase.

Biofuels are another example. Biofuel pricing closely follows oil pricing today because biofuels are a small portion of the fuel mix. As the share of biofuels increase, however, this linkage will be attenuated, as consumers are able to shift between biofuels and fossil fuels, and next generation biofuel production costs drop.

In summary, increased fuel diversity resulting from a CFS provides a hedge against costly global oil price volatility. Under a more complete CFS economic analysis, NESCAUM would quantify the benefits of the reduced vulnerability to oil price swings.

Petroleum Subsidies

NESCAUM's analysis excludes from consideration the impact of a significant number of direct and indirect federal and state subsidies, specialized tax deductions, and other public expenses that transfer costs from oil companies to the public at large. The direct costs of oil industry subsidies include policies such as the manufacturers tax credit, percentage depletion allowances, enhanced oil recovery credit, deductions for intangible drilling costs, and many others. Overall, artificial tax credits cost the federal government up to $45 billion over a 10 year period.[25] Further, at the state level gasoline is exempted from sales taxes, at a cost of billions per year.[26]

These high costs are dwarfed by the massive public expenditures spent on indirect consequences of oil dependence. These expenditures include: military expenses to protect oil producing facilities and shipping lanes for oil, military and foreign aid expenses to oil-producing nations, and the cost of

[24] Energy Information Administration, Annual Energy Review, October 19, 2011 Release. Available at http://www.eia.gov/totalenergy/data/annual/showtext.cfm?t=ptb0802b

[25] Center for American Progress, *Eliminating Tax Subsidies for Oil Companies*, available at http://www.americanprogress.org/issues/2010/05/oil_company_subsidies.html

[26] International Center for Technology Assessment, *The Real Price of Gasoline*, available at http://www.icta.org/doc/Real%20Price%20of%20Gasoline.pdf p. 8

maintaining the Strategic Petroleum Reserve. Estimates of the total cost to the public of these public expenditures range from between $88.5 billion to $140.8 billion per year.[27]

By reducing our overall dependence on oil, a CFS could significantly reduce these sources of externalized costs, providing large additional benefits to the public that are not currently accounted for in the NESCAUM analysis.

The Economic Analysis Appropriately Characterizes Alternative Fuels

Infrastructure Assumptions

The Economic Analysis appropriately captures the infrastructure cost associated with supporting volumes of biofuel consumption. Given the variety of biofuel technologies coming to market, not just ethanol and biodiesel but also butanol, and drop-in hydrocarbon fuels, the assumptions that FFVs are required for biofuel usage beyond E15 may turn out to be conservative. Moreover, any costs associated with infrastructure required to enable larger volumes of biofuel consumption may be reduced by Federal policies that support more widespread infrastructure to accommodate biofuels required for RFS compliance (for example support for E85 stations).

Emerging Markets for Alternative Fuels

The principal challenge limiting the rapid expansion of the advanced and cellulosic biofuels industry has been the difficulty of accessing investment capital to finance commercial scale production. This challenge has been exacerbated by uncertainty about the durability of some federal fuels policies, in particular the tax credits for cellulosic biofuels scheduled to expire in 2012. An independent regional policy framework like a CFS can contribute to policy certainty and support investments in the sector. A regional CFS will complement the California LCFS and provide investors a durable assurance that demand for low carbon fuels will expand steadily over time, independent of the federal policy landscape or oil price variability. This will support the investments that more rapidly bring advanced and cellulosic biofuels to large scale production, which will in turn drive the technology advancement that will develop supply chains, bring down costs, etc.

The CFS Can Encourage Rapid Growth of the Emerging Plug-in Electric Vehicle Market in the Northeast and Mid-Atlantic

Plug-in electric vehicles are on-road in the regional states but greater sales under a CFS can make them a significant contributor to transportation fuel diversity. The Chevrolet Volt and Nissan LEAF are just two examples of over fifty plug-in electric vehicle models that are expected to be introduced by 2015.[28] The CFS can help expand the plug-in vehicle market by reducing costs of electricity use in vehicles and by spurring innovation in advanced vehicles.

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[27] *Id*. at 19.

[28] Baum and Associates, "Fall 2010 Electric Vehicle Forecast Summary," September 2010, http://baum-assoc.com/Documents/Fall%202010%20ev%20forecast%20summary.pdf

The CFS also will help reduce up-front costs of vehicles and charging infrastructure and plug-in vehicle operating costs. In a CFS market, electric transportation fuel providers will generate revenue that should be passed on to the consumers to defray costs, making plug-in electric vehicles more cost-competitive. Electricity providers using smart-charging techniques to charge vehicles with excess power capacity can also realize benefits to all ratepayers due to lower costs of generation asset management.

Technology-neutral performance standards like a CFS provide a market signal that drives innovation in the automotive sector. We have seen the success of strong, long-term standards – for example, in federal programs for new vehicles that raise fuel efficiency and cut GHG emissions.

Innovation in domestic vehicle manufacturing is already happening to meet upcoming standards that reach the equivalent of 35.5 mpg in 2016. That innovation is putting people to work. A recent joint report by the United Auto Workers, National Wildlife Federation and NRDC titled "Supplying Ingenuity: U.S. Suppliers of Clean, Fuel-Efficient Vehicle Technologies"[29] found that over 150,000 U.S. workers are employed today to make automotive components that boost vehicle efficiency and cut emissions to meet near-term standards. Those workers are spread across 43 states and 300 companies. As the standards continue improve, reaching the equivalent of 54.5 mpg in 2025, more jobs are expected to be created—potentially another 150,000.[30]

The Northeast and Mid-Atlantic region is part of the auto jobs story, particularly for parts that go into plug-in electric vehicles. Today, 25 companies across CT, DE, MA, MD, NJ, NY and RI are employing over 2000 workers to develop and manufacture advanced automotive battery materials, batteries and plug-in electric vehicles charging infrastructure. These jobs are likely to increase with the CFS, yet NESCAUM did not include them in the Economic Analysis.

A regional CFS will encourage the creation of more jobs in the region to supply electric vehicle technologies and the feedstocks, facilities and infrastructure for other clean, alternative fuels. The CFS would bolster sales of alternative fuel vehicles and fuels, and put engineers to work supplying the needed ingenuity to meet consumer demands.

Absence of Alternatives with Comparable Environmental and Economic Benefits

Our organizations are aware of no alternative programs or policies that have comparable potential to dramatically reduce the region's costly dependence on oil. However, we believe that *complementary* programs could be pursued to help strengthen and augment the CFS. Continued advancement of the Northeast EV corridor, ongoing collaboration with respect to the regional Transportation Climate Initiative, implementation of the federal RFS, and achievement of the most recent federal new vehicle CAFE fuel efficiency and GHG emissions standards likewise are expected to be helpful complements to a regional CFS program. But none of these other programs carries the tremendous potential of the CFS to

[29] Available at www.nrdc.org/transportation/autosuppliers/.
[30] UAW, NRDC and Center for American Progress, "Driving Growth: How Clean Cars and Climate Policy Can Create Jobs," March 2010. Available at http://www.nrdc.org/energy/drivinggrowth.asp.

provide the opportunity to achieve truly significant reductions in oil dependence while ushering in a new marketplace for cleaner alternative fuels that can be produced locally.

Oil Industry Attacks of the Economic Analysis Are Misplaced, and Only Serve to Underscore the Program's Potential for Reducing Oil Dependence

The oil industry has recently attacked the Economic Analysis as being unrealistic, charging that the Analysis uses assumptions that are not based on today's market, thereby supposedly leading to "unreasonable and unattainable results."[31] We strongly disagree.

The oil industry – unsurprisingly focused on business-as-usual scenarios where clean alternative fuels have difficulty gaining market share – ignores the impact that a CFS could have for transforming the regional transportation fuel pool. The Economic Analysis reasonably assumes that the CFS takes us in a new direction, away from the pollution and risks of oil, with the CFS program itself fostering new investment in, and deployment of, clean fuels.

The market-based CFS policy provides a long-term signal to alternative clean fuel entrepreneurs, giving the certainty needed to bring their products to market in larger volumes. EVs are already starting to hit the road and cellulosic biofuels are being produced in small volumes, with the potential for significant growth given appropriate market signals. The CFS would provide a more even playing field for cleaner fuels in the transportation fuels market.

The Economic Analysis looks at the costs and benefits of aggressively reducing oil dependence and cutting carbon pollution. The Analysis looks at multiple scenarios, and reasonably concludes that the program can operate cost-effectively to cut pollution and oil dependence while opening up opportunities to invest in American ingenuity vis-à-vis clean fuels development.

Historic Investment in Clean Fuels is Paltry Compared to Oil Exploration and Production

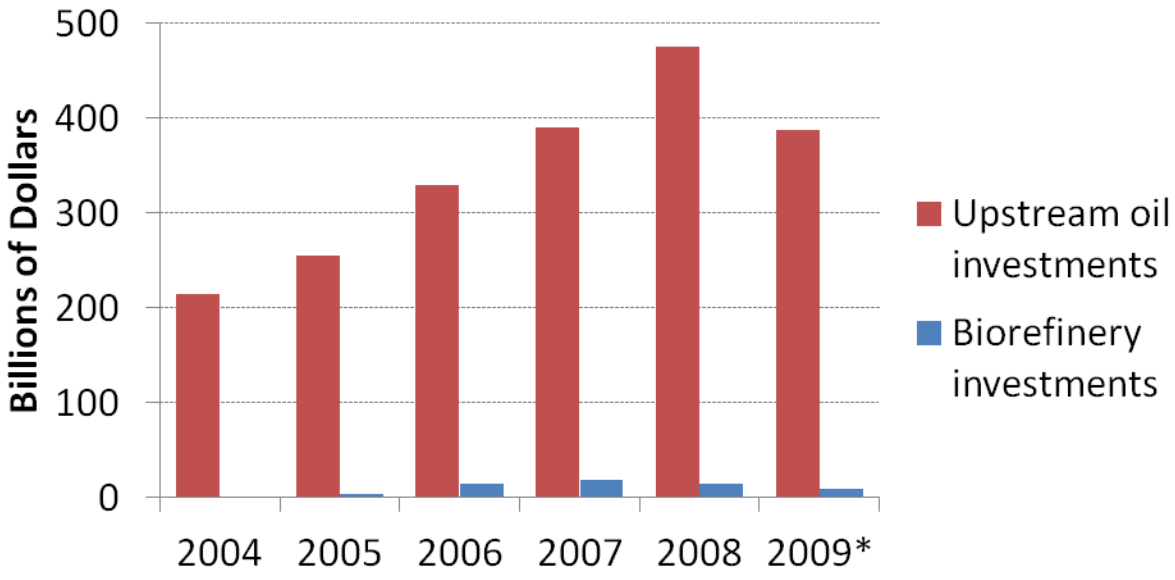
We cannot depend on the oil industry to break our dependency on oil, especially in the absence of incentives to do so. The CFS is critical to encouraging the fuels sector, including the oil industry itself, to increase investments in alternatives to oil.

The oil industry claims that modeled CFS targets are unattainable partly because of the unavailability of advanced biofuels supplies, but this criticism must be taken in light of the industry's lack of any demonstrable commitment to achieving a clean energy path. To date, oil company investments in alternative fuels remain dwarfed by their traditional investments in oil production. As shown in Figure 5, the International Energy Agency estimates that oil companies spent on average $340 billion annually on oil exploration and extraction over 2004 to 2009. By contrast, $10 billion annually has been spent in

[31] IHS Inc., prepared for the Consumer Energy Alliance, "Assessment of the NESCAUM Economic Analysis of a Clean Transportation Fuels Program for the Northeast/Mid-Atlantic Region: Final Report of Key Conclusions", October 11, 2011.

investments on biofuels, with less than $2 billion of this coming from oil companies.[32] This vast disparity in investments indicates that we need the CFS to ensure we move to clean fuels.

Figure 5: Global investments over 2004-2009.



Source: NRDC Analysis based on data from International Energy Agency. http://www.iea.org/ebc/files/impact.pdf

*Specific oil company investments in biofuel facilities are difficult to ascertain, but various media reports suggest these are less than $2 billion annually over the time period.

Next Steps

Given the Economic Analysis's demonstration that CFS benefits are expected to outweigh costs under a variety of scenarios, it is increasingly evident that the region should pursue development of a CFS program without delay. With the potential to reduce oil dependence in the region by up to 29 percent over ten years, the CFS program is the single most promising tool for meaningfully responding to the circumstances that give rise to daily news headlines about oil price spikes, national security concerns tied to oil dependence, and the environmental consequences of such extensive reliance on high-carbon fuels. Further, a CFS program would open the door to meaningful market share for clean fuels that can

[32] International Energy Agency (2009). http://www.iea.org/ebc/files/impact.pdf Oil company investments in biofuel facility investments are more difficult to estimate, but media reports suggest this is likely less than $10 billion over this time period.
http://online.wsj.com/article/SB10001424052970204731804574386960944758516.html

be produced in our region. These are just a few of the significant benefits that can be secured through development and deployment of a regional CFS.

Fortunately, much work has been done by the Mid-Atlantic and Northeast states already to develop a CFS program framework. The states do not need to, and should not, start from scratch. We recommend that the states utilize the framework-in-progress that preceded the release of NESCAUM's Economic Analysis, and adapt that draft framework to take into account NESCAUM's results as well as the stakeholder feedback that is currently being elicited. While there was some discussion of CFS program design elements (e.g., regarding how any alternative compliance mechanism should be structured) in connection with the public stakeholders meetings convened by NESCAUM this Fall, we believe that NESCAUM and the states have more than an ample basis to move forward with the preparation and release of a draft program framework without delay. The subsequent release of a draft program framework can be expected to provide a helpful degree of focus to a next round of stakeholder feedback.

Accordingly, we respectfully ask that the states move forward swiftly to identify a timeline for releasing and soliciting feedback regarding the CFS program framework and the ensuing development of a model rule.

Conclusion

The most costly thing we can do is continue our heavy reliance on oil. The business-as-usual favored by the oil companies will line their pockets at the expense of consumers, our security, our economy and our environment.

The criticism that has emerged, unsurprisingly, from oil industry stakeholders only serves to underscore the program's potential for cutting through the Gordian Knot of the region's economically and environmentally costly oil dependence. As is evident from NESCAUM's thoughtful economic analysis, the Northeast and Mid-Atlantic states stand to gain enormously from adoption of a regional CFS. We therefore respectfully urge the Northeast and Mid-Atlantic states to move forward with program development and deployment without delay.

Appendix: Organization Overviews

CLF: Founded in 1966, Conservation Law Foundation is a nonprofit, member-supported organization that works to solve the environmental problems threatening the people, natural resources and communities of New England. CLF's advocates use law, economics and science to design and implement strategies that conserve natural resources, protect public health, and promote vital communities in our region. In the face of the threat of global warming, CLF and its members have a significant interest in the deployment of cleaner fuels and other solutions that reduce GHG emissions while increasing energy security and reliability. CLF has offices in Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

ENE: ENE (Environment Northeast) is a non-profit organization that researches and advocates innovative policies that tackle our environmental challenges while promoting sustainable economies. ENE is at the forefront of efforts to combat global warming with solutions that promote clean energy, clean air and healthy forests.

Environment America: Environment America is a federation of state-based, citizen-funded environmental advocacy organizations in 28 states, including most of the Northeast and Mid-Atlantic States. It combines independent research, practical ideas and tough-minded advocacy to overcome the opposition of powerful special interests and win real results for the environment. Environment America draws on 30 years of success in tackling environmental problems. The Environment America federation's state organizations have been strong advocates for a range of environmental solutions, including policies to shift the nation's energy priorities and reduce the pollution that causes global warming. It has a strong interest in ensuring that this region plays a key role in helping the nation wean itself off of oil while reducing global warming emissions.

NRDC: The Natural Resources Defense Council (NRDC) is a national, nonprofit organization of scientists, lawyers and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has 1.3 million members and online activists, some 350,000 of whom live in the eleven Northeast and Mid-Atlantic states proposing a Clean Fuels Standard. NRDC is headquartered at 40 West 20th Street, New York, New York but also serves its members from offices in Washington, Chicago, Los Angeles, San Francisco, Livingston, Montana and Beijing. At the top of the list of organizational and member priorities are curbing global warming and creating the clean energy future. To these ends, NRDC has worked for decades to reduce emissions and energy use from transportation and encourage the transition to cleaner vehicles and fuels.

UCS: The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world. UCS combines independent scientific research and citizen action to develop innovative, practical solutions and to secure responsible changes in government policy, corporate practices, and consumer choices. Founded in 1969 as a collaboration between students and faculty members at the Massachusetts Institute of Technology, UCS is now an alliance of more than 250,000 citizens and scientists. UCS members are people from all walks of life: parents and businesspeople, biologists and physicists, teachers and students. Our achievements over the decades show that thoughtful action based on the best available science can help safeguard our future and the future of our planet.