

**JOINT ENVIRONMENTAL STAKEHOLDER COMMENTS
ON THE PROPOSED ADOPTION OF A LOW CARBON FUEL STANDARD
FOR THE NORTHEAST AND MID-ATLANTIC STATES**

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**CITIZENS FOR PENNSYLVANIA'S
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The Conservation Law Foundation (CLF), Environment America, ENE (Environment Northeast), Natural Resources Defense Council (NRDC), and Citizens for Pennsylvania's Future (PennFuture) are pleased to submit these comments in support of a Low Carbon Fuel Standard (LCFS) in the Northeast and Mid-Atlantic states. We recognize that a regional LCFS is an essential component of the region's strategy to address the urgent dual imperatives of energy independence and global warming: the region is dangerously dependent on imported oil, and this dependence carries an unacceptably large price for our energy security and with respect to greenhouse gas (GHG) emissions.

The growing threats of global warming, air and water pollution, and rising energy costs are a few of the many problems that result from our current over-reliance on petroleum-based fuels. Alternative fuels, in conjunction with an array of other energy-related strategies, have the potential to help mitigate these problems – if public policy prioritizes those fuels that can deliver the greatest benefit for the environment and society.

A regional LCFS will provide a much-needed boost for cleaner alternatives to oil, from low-carbon biofuels to plug-in electric vehicles, and will help ensure that we do not turn to higher carbon alternatives to our current fuel mix, such as coal-to-liquids and tar sands.

We commend the leadership of the eleven states – Connecticut, Delaware, Maine, Maryland, Massachusetts, Pennsylvania, New Hampshire, New Jersey, New York, Rhode Island and Vermont – that have committed to develop the framework for a regional LCFS. Consistent with the Letter of Intent (dated December 31, 2008) that was signed among the environmental commissioners of these states, we urge you to continue to work in collaboration with the Northeast States for Coordinated Air Use Management (NESCAUM) to adopt a memorandum of understanding (“MOU”) that sets out the core elements of the regional LCFS by the end of this year.

The following comments discuss some of the key considerations that should be taken into account as part of the design of the regional LCFS, including (1) the need for proper lifecycle accounting of GHG emissions; (2) the importance of accounting for emissions associated with indirect land use changes in connection with biofuels; and (3) collateral environmental policies that should be adopted in order to avoid any significant negative impacts from the increased deployment of alternative fuels. Our comments also seek to address some of the principal additional issues that have been raised during recent stakeholder meetings, including unwarranted calls to delay work on the regional LCFS, statements that improperly conflated the purposes of the federal Renewable Fuels Standard (RFS) and the LCFS, flawed arguments suggesting that an LCFS is unaffordable, and ill-founded suggestions that an LCFS will accomplish little more than shifting high-carbon fuels to other markets.

Background Regarding the Joint Environmental Stakeholders:

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 low carbon fuels and other solutions that reduce GHG emissions while increasing energy security and reliability. CLF has a principal place of business at 62 Summer Street, Boston, Massachusetts.

ENE: ENE (Environment Northeast) is a non-profit organization at the forefront of efforts to combat global warming and promote clean energy and clean air solutions in New England and Eastern Canada. ENE researches, develops and advocates innovative policies that tackle the region's environmental challenges while promoting sustainable economies.

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 play a key role in helping the nation wean itself off of oil while reducing global warming emissions.

NRDC: The Natural Resources Defense Council 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 335,000 of whom live in the eleven Northeast and Mid-Atlantic states proposing an LCFS. 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 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 nearly three decades to reduce emissions and energy use from transportation and encourage the transition to cleaner vehicles and fuels.

PennFuture: Citizens for Pennsylvania's Future (PennFuture) was created in 1998 with funding from the Pew Charitable Trusts and the Heinz Endowments to work on environmental issues that affect Pennsylvania. PennFuture has offices in Pittsburgh, Harrisburg, Philadelphia, Wilkes-Barre and West Chester and a staff that includes attorneys, media professionals, government relation experts, outreach professionals and administrative support. PennFuture works to create a just future where nature, communities and the economy thrive. We enforce environmental laws and advocate for the transformation of public policy, public opinion and the marketplace to restore and protect the environment and safeguard public health. PennFuture advances effective

solutions for the problems of air and water pollution, sprawl and global warming; mobilizes citizens; crafts compelling communications; and provides legal services and policy analysis.

I. Proper Lifecycle Accounting of Greenhouse Gas Emissions Is Critical to an Effective LCFS.

A critical underpinning of a LCFS that actually reduces the carbon intensity of the fuel pool is proper accounting of GHG emissions across the lifecycle of each fuel. The GHG, or carbon intensity, scoring allows low-carbon fuels to be distinguished in the marketplace. In the Letter of Intent, the eleven states noted the superior structure and purpose of a LCFS as compared to the existing federal fuel standard, saying:

“Unlike a renewable fuel standard, [the LCFS] allows other fuels (besides ethanol) to be used for compliance, rewards fuels with the lowest lifecycle GHG emissions and discourages the development of high-carbon fuels such as liquid coal.”

As a technology-neutral performance standard, the LCFS allows any fuel to be sold but is intended to encourage innovation and deployment of truly low carbon alternatives to petroleum. To accomplish this objective, all GHG impacts of a fuel should be included in the carbon intensity scoring. For biofuels, the GHG accounting must include factors such as indirect land use (as discussed in the following section). For electricity, the generation emissions should define the fuel’s score. Proven pathways to use renewable electricity, such as solar and wind, to power vehicles should be rewarded over high-carbon generation like coal. Similarly, unconventional fuels such as tar sands, oil shale and liquid coal must be distinguished from conventional gasoline and diesel due to higher production emissions for these unconventional sources of petroleum. Without such distinctions, the carbon benefits of ultra low carbon alternatives such as sustainable, cellulosic biofuels; clean grid electricity; and unforeseen future innovations will be blunted and their development and deployment stalled. Like any market, the most efficient outcomes depend on clear and accurate information. The fuels market is no different; it needs very clear GHG signals to encourage a shift to low carbon alternatives.

II. Inclusion of Indirect Land Use Emissions is Essential to Getting Biofuels Right

Starting with the Letter of Intent, the Northeast and Mid-Atlantic states’ efforts to develop an LCFS has been clear from the beginning on the importance of accounting for the full lifecycle inventory of greenhouse gas emissions caused by biofuel production, including both direct emissions and indirect emissions from land use change (ILUC). This is a laudable commitment that is critical to achieving real reductions in greenhouse gas emissions from transportation fuels. Succumbing to the ethanol industry’s call to exclude these emissions from the regulation would effectively ignore or assign a zero value to these real emissions. Ignoring the ILUC emissions would undermine the environmental benefits of the LCFS and set a poor precedent for any future policies attempting to reduce global warming pollution from transportation and other sectors.

Moving ahead with a rule but delaying or omitting the inclusion of indirect land use effects in the model would imply that farmland is limitless, and would ignore the major impacts of agriculture and deforestation on the climate. The eleven states have an opportunity to help get biofuels right by differentiating between poor-performing, conventional biofuels and the best-performing, advanced biofuels that altogether avoid these tradeoffs.

A. The ethanol industry’s demand to ignore indirect land use change contradicts the science.

In California, before the United States Environmental Protection Agency (EPA), and now in NESCAUM’s public meetings, the ethanol industry repeatedly has demanded that regulators ignore emissions from ILUC. Yet, numerous scientific, peer-reviewed publications, the California Air Resources Board (CARB), and U.S. EPA’s proposed analysis all have shown a carbon debt is incurred when land use changes as a result of biofuels displacing food, feed, or fiber production. To date, not a single peer-reviewed study has concluded that the indirect land-use effect does not exist or is zero. More than 200 scientists and economists with expertise regarding biofuels, land use change, and climate change support inclusion of ILUC impacts in LCFS programs like this:

“Failure to include a major source of pollution, like indirect land use emissions, will distort the carbon market, suppress investment in truly low carbon fuels, and ultimately result in higher emissions.”¹

The ethanol industry has portrayed the overall science and modeling as too uncertain to develop a reasonable estimate, arguing that the ILUC factor is not ready for prime-time. U.S. EPA put it well when it wrote in its Notice of Proposed Rulemaking (NPRM) that, “[a]though uncertainties are associated with [estimates of effects and extent of RFS-related land use change], it would be far less scientifically credible to ignore the potentially significant effects of land use change altogether than it is to use the best approach available to assess these known emissions.”² The ethanol industry’s protests about the uncertainty miss the important point that this uncertainty is only about the magnitude of these emissions not whether they are real or significant.

The Northeast and Mid-Atlantic states’ commitment to address ILUC impacts should be memorialized in the MOU, and through the ensuing rulemaking process the eleven-state effort should address uncertainty through sensitivity analysis, periodic review of the science, updating of the modeling to incorporate the best-available data, and providing producers with the opportunity to develop customized lifecycle pathways based on their own individual data. While ILUC is an “inconvenient truth” for the ethanol industry, there is no reason to deny that it exists.

¹ National Scientists and Economists Statement on Biofuels and Land Use: A Letter to U.S. Legislators and Regulators (signatories updated as of 10/23/09), submitted to NESCAUM by Union of Concerned Scientists.

² U.S. EPA, “Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Proposed Rule,” *Federal Register*, Vol. 74, No. 99, May 26, 2009, pg. 25027.

B. Other governments have recognized the real problem from land use change and are moving to account for indirect land use change emissions.

Other government agencies, such as the CARB, U.S. EPA and the European Union (EU), are incorporating indirect land use change into their estimates. CARB adopted an LCFS for California in April of this year, which includes an ILUC emissions value for each different food-based feedstock pathway. This accounting system provides a working model that the eleven Northeast and Mid-Atlantic states easily could build on.

The U.S. EPA, which is required by law to evaluate ILUC impacts, has spent over two and a half years estimating the indirect land use change factor by relying on agricultural-sector and macroeconomic modeling. The results of this regulatory effort are on track to be finalized early next year, but could be sidetracked by some in Congress who are attempting to legislate the outcome of EPA's rulemaking. While it remains to be finalized, EPA's approach may also provide a model to build off of.

The EU, despite claims by ethanol lobbyists suggesting otherwise, is currently developing an EU "Low Carbon Fuel Standard" with clear Directives to address ILUC impacts:

The Commission shall, by 31 December 2010, submit a report to the European Parliament and to the Council reviewing the impact of indirect land use change on greenhouse gas emissions and addressing ways to minimise that impact. The report shall, if appropriate, be accompanied by a proposal, based on the best available scientific evidence, containing a concrete methodology for emissions from carbon stock changes caused by indirect land use changes, ensuring compliance with this Directive, in particular Article 7b(2). (Fuel Quality Directive, Article 7d, para 6).³

Even China, concerned over impacts from crop-based biofuels on food supplies, has moved to limit production of ethanol from corn. China's State Council states that non-staple crops, rather than corn, will be used to make ethanol and that arable land would not be used to grow crops to produce ethanol.⁴

These agencies are also acting in response to the science showing that some biofuels can have real and large impacts on agricultural lands and forests. The remedy – accounting for these emissions – is not only precautionary in nature, but representative of proper accounting of significant life cycle emissions from biofuels.

³ Clarification e-mail from Ian Hodgson, Clean Air and Transport Unit, Environment Directorate General, European Commission. April 15, 2009.

⁴ Sun Xiaohua, "China: biofuels boom won't compromise food security." July 6, 2007, *Science and Development Network*. <http://www.scidev.net/en/news/china-biofuels-boom-wont-compromise-food-securit.html>.

C. The eleven states should evaluate whether there are other significant effects for other fuels, but preliminary estimates suggest these will be insignificant in comparison to the ILUC emissions factor.

Both the Renewable Fuels Alliance (RFA) and New Fuels Alliance (NFA) argued at the recent NESCAUM meetings and before CARB earlier this year that LCFS GHG accounting should consider indirect effects of other fuels, most notably petroleum, electricity, and natural gas. We agree with this principle, but have yet to see any peer-reviewed science that suggests that other fuels have large indirect sources of GHG emissions.

In California, CARB evaluated the direct land use change from conventional petroleum-based fuels, as requested by NFA, and has found the impact to be insignificant (i.e. on the order of less than 1 percent, as shown in Figure 1-1). The increased production of corn ethanol has been shown to have a significant impact on corn prices and land use. In contrast, as a first-order estimate, increases in electricity and natural gas under a LCFS program likely would not have a significant impact on demand with respect to their overall markets. Figure 1-2 below compares the additional demand potentially created for alternative fuels, including additional electricity, propane, natural gas, and corn. The results show that the increased demand for corn ethanol is significant relative to U.S. production. Secondary impacts on the energy market for electricity and natural gas, by comparison, are likely to be insignificant to very small.

Figure 1-1: Comparison of land conversion requirements to produce one billion gallons (of gasoline equivalent). The bars (from left to right) show the land impacts from California crude oil, Canadian tar sands, and corn ethanol. Sources: CARB LCFS ISOR. Estimates for tar sands are based on preliminary estimates from the Canadian Boreal Initiative.

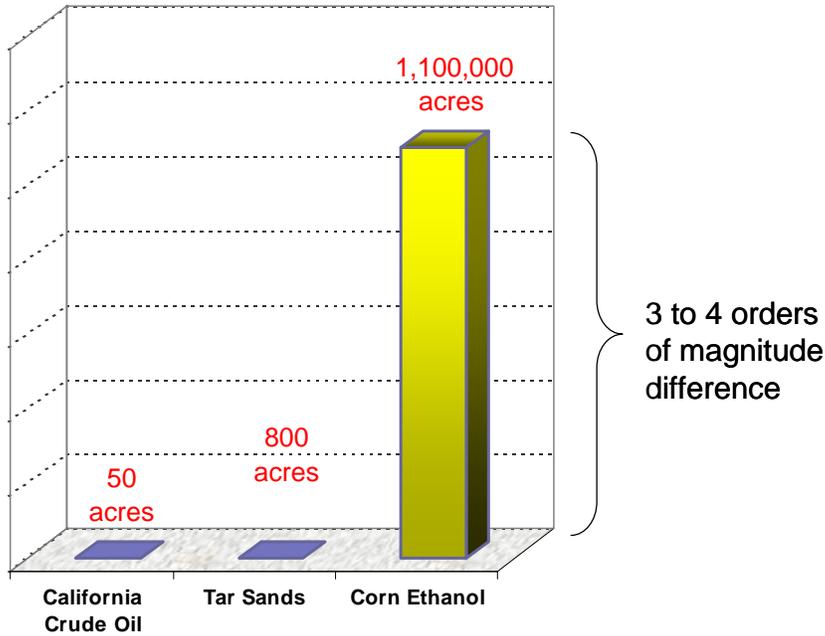
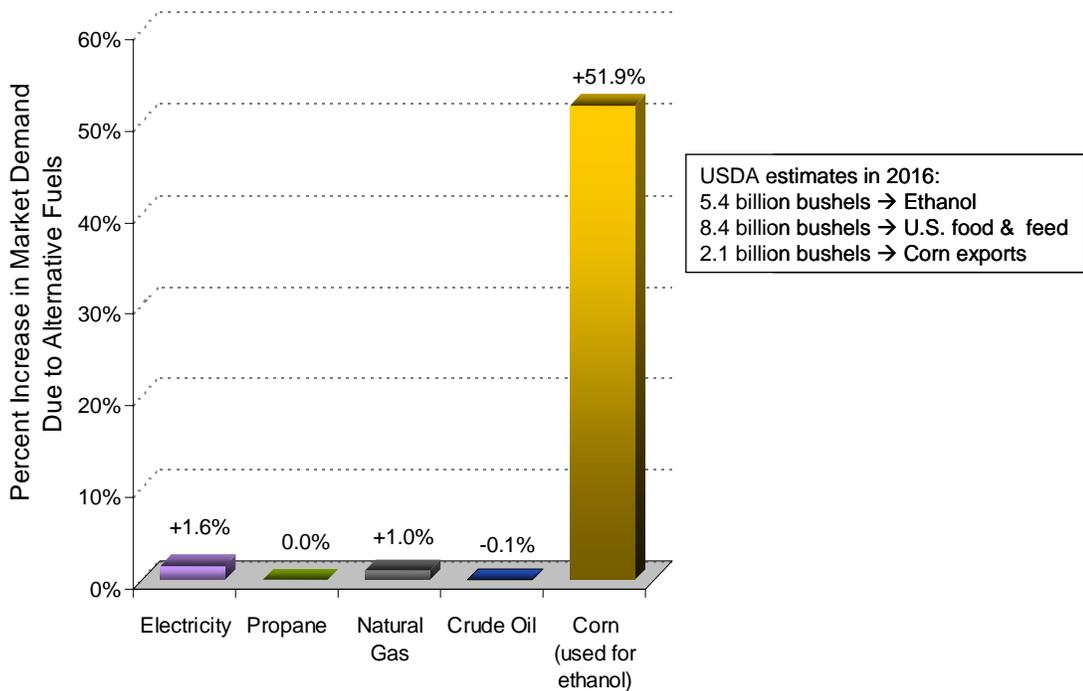


Figure 1-2: Comparison of alternative fuel demand relative to market size. Sources: CARB LCFS Initial Statement of Reasons; USDA (2007), *Ethanol Transport Backgrounder: Expansion of U.S. Corn-Based Ethanol from the Agricultural Transportation Perspective*. Agricultural Marketing Service, September 2007.



NFA also has raised questions regarding the potential for greater use of electricity and natural gas indirectly causing increased use of coal by other sectors. As shown above, this is unlikely since the price of electricity and natural gas would not be expected to be affected in any significant manner. In addition, GHG emissions from the electric sector are capped under the Regional Greenhouse Gas Initiative and are expected to be capped federally soon. Federal legislation also is expected to cap most other significant sources of GHG emissions except land-use. As a result, the potential for economic factors to induce indirect emissions is greatly reduced. A complementary approach could be to place a cap on the agricultural sector. However, to date there are no plans to do so for the foreseeable future.

III. Collateral Environmental Policies Should be Adopted in Order to Avoid Unintentional Impacts.

A commitment to reduce carbon intensity (and corresponding GHG emissions) must be central to the design of any LCFS. But accurate carbon accounting alone is not enough to ensure that a LCFS will avoid unintentional negative environmental consequences that may arise in connection with the broader deployment of alternative fuels. Alternative fuels vary significantly with respect to their impacts on ecosystems, air emissions, and impacts on water resources. Thoughtful collateral policies are needed to ensure that unintentional negative impacts are minimized or avoided.

We therefore recommend that the MOU reflect a commitment to adopt collateral policies to protect against unintentional impacts to natural resources and public health. The MOU should set the stage for development and adoption of metrics to ensure that the LCFS provides incentives for broadly sustainable alternative fuels, while avoiding unintended support for fuels that require deforestation, destruction of ecosystems, negative impacts on agricultural lands, increased emissions of criteria air pollutants or unnecessary waste or pollution of water resources.

From a process perspective, California has embraced a practical approach that could serve as a useful model here. Having adopted a LCFS program in April 2009, CARB currently is working to develop policies to address collateral environmental impacts on a separate track, but closely associated with, its LCFS program.⁵

Following is a brief discussion of some of the most important collateral environmental issues that we believe should be addressed.

⁵ CARB expects to release draft collateral environmental policies in December 2009, leading to final policies by 2011.

A. The Northeast/Mid-Atlantic LCFS should include collateral policies to protect ecosystems that supply feedstocks for alternative fuels.

Beyond significant issues regarding the release of stored carbon, extraction of biofuel feedstocks from forests and other ecosystems can have serious deleterious effects if not properly and sustainably managed. Alternative fuels may increase the potential to degrade biodiversity, habitat, water quality, and soil quality if fuel feedstocks are grown, harvested, or produced in an unsustainable manner. Explicit rules must be developed to ensure that sensitive and unique natural resources in the Northeast/Mid-Atlantic region and beyond are not sacrificed to alternative fuel production.

As discussed above, forests and other vegetated landscapes absorb and sequester a significant amount of carbon, which is stored in the trees, plants and soils. Healthy, thriving ecosystems not only will support a broader abundance of natural resources and maintain biodiversity, but also are better situated to continue to store carbon.

The eleven state effort should incorporate basic sustainability metrics into a LCFS reporting system that could then be used to provide marketplace differentiation – at least on a voluntary basis. This would signal to investors that there exists a future opportunity for the commercialization of alternative fuels that would be considered highly desirable in the marketplace.

B. The regional LCFS should ensure protection of air quality and public health.

While the LCFS is aimed primarily at reducing greenhouse gas emissions, it also should be designed so as not to undermine – and preferably to promote – state and federal criteria air pollution reduction goals. It is important to consider that an LCFS could support increased deployment of biofuels with associated emissions such as nitrogen oxides, as well as fuels derived from a variety of waste feedstocks that could result in emissions of criteria air pollutants or hazardous air pollutants (HAPs) from refineries or through end use. It is therefore important to ensure that the LCFS will not contribute to elevated public health and air quality risks at the state and local level.

Accordingly, the Northeast/Mid-Atlantic LCFS should require a comprehensive public health analysis of the fuels and infrastructure used for compliance. To avoid an unintended worsening of air quality and threats to public health from new fuel production or fueling infrastructure, the LCFS should include requirements for state and local review to ensure that the appropriate mitigation measures are taken. Specifically, the LCFS should provide a mechanism in which each fuel pathway is reviewed to determine whether emissions from the fuel pathway will hinder progress towards achieving state or federal air quality standards or toxic air contaminant reduction goals, and determine what mitigation measures are needed to address any identified impacts.

C. Collateral policies should be adopted to encourage low carbon fuels that minimize water pollution and waste.

Water is a critical and limited resource with implications for sustainability of human populations, natural resources, and even for the sustainability of fuel production itself. Absent adoption of collateral policies to encourage conservation of water resources, a regional LCFS program could lead to significantly increased water use and pollution in connection with biofuel feedstock production and refining, power plants used to support vehicle electrification, certain methods of natural gas extraction, etc.

For example, increased use of corn for ethanol yields higher crop prices, prompting farmers to plant corn on marginal agricultural lands that require heavy irrigation and fertilization. Figure 2-1 below reflects the staggering amounts of water that *can* be needed for corn-based ethanol production. In addition, the increased scale and intensity of corn production can result in water quality problems from the runoff of fertilizer. But as Figure 2-1 also reflects, many fuels, including biofuels, can be produced with significantly lower water consumption impacts – and should be given the right incentives or mandates to ensure that water is not wasted. We therefore recommend consideration of collateral policies that promote water conservation and minimize pollution of water resources in connection with the production of lower-carbon fuels.

Figure 2-1 (Source: Argonne National Laboratory, Consumptive Water Use in the Production of Ethanol and Petroleum Gasoline,” January 2009)

Table 1. Consumptive Freshwater Use for Ethanol and Petroleum Gasoline Production		
Fuel (feedstock)	Net water consumed ^a	Major factors affecting water use
Corn ethanol	10–324 gal/gal ethanol ^d	Regional variation caused by irrigation requirements due to climate and soil types
Switchgrass ethanol	1.0–9.8 gal/gal ethanol ^d	Production technology
Gasoline (U.S. conventional crude) ^b	3.4–6.6 gal/gal gasoline	Age of oil well, production technology, and degree of produced water recycle
Gasoline (Saudi conventional crude)	2.8–5.8 gal/gal gasoline	Same as above
Gasoline (Canadian oil sands) ^c	2.6–6.2 gal/gal gasoline	Geologic formation, production technology

^a In gal of water per gal of fuel specified.

^b PADD II, III, and V combined.

^c Including thermal recovery, upgrading, and refining.

^d All water used in ethanol conversion is allocated to the ethanol product.

IV. Responses to Issues Raised by Other Stakeholders

A. The LCFS is a necessary companion policy to the federal Renewable Fuels Standard (RFS).

The Northeast/Mid-Atlantic LCFS and the federal Renewable Fuels Standard (RFS) are distinct policies with complementary – not duplicative – goals. The federal RFS is a volumetric mandate solely for biofuels that is based on fuel type and independent of environmental performance. While the RFS is a tool for biofuel development, it does not advance other low carbon technologies nor does it address the upstream emissions of high-carbon fuels such as liquid coal, tar sands, and oil shale. By contrast, the LCFS is fuel-type neutral, flexible, and performance-based so that the market, not government, picks the winners. An LCFS allows manufacturers to produce and retailers to purchase the mix of fuels that most cost-effectively meets the standard. In this way, the LCFS will create market incentives to develop low carbon fuels in a technology-neutral manner that rewards the low carbon outcome rather than favoring specific fuels or technologies.

While a new RFS provision requires a minimum level of lifecycle greenhouse gas (GHG) performance, it has not yet been implemented, affects only biofuels, and does not provide incentives for carbon reductions beyond that threshold. In comparison, the LCFS encourages best performance in reducing carbon intensity, and will reward continuous innovation and improvement. The value of the LCFS is that it addresses upstream GHG emissions and uses market mechanisms to promote cleaner fuels at the lowest cost.

B. The LCFS should be implemented without delay.

Time is of the essence in the fight against global climate change.

From an investment perspective, we must realize that both the private and public sector are now confronting investment decisions about fueling and transportation infrastructure that will dictate how successfully, and at what cost, we transition to a low carbon transportation future. If the policies of today signal a preference for investments that perpetuate a high-carbon future, our costs for making the transition at a later date will be vastly higher. We must adopt policies today that will send the right investment signals for tomorrow and well into the next decade.

From a scientific perspective, with each passing week the literature demonstrates even greater urgency. Recent research underscores the need for policies that achieve near term emissions reductions. It now appears that the Intergovernmental Panel on Climate Change may have underestimated the impacts of climate change and the rate at which it is occurring.⁶ Moreover, there is increasing evidence suggesting that, left unchecked,

⁶ Brahic, Catherine. "Sea Level Rise could Bust IPCC Estimates", NewScientist. March 10, 2009. Available from: <http://www.newscientist.com/article/dn16732-sea-level-rise-could-bust-ipcc-estimate.html?DCMP=OTC-rss&nsref=online-news>

effects of greenhouse gas emissions will be largely irreversible and potentially abrupt.⁷ In light of these warnings from the scientific community, there is a clear need to accelerate emissions reductions through wise policy choices and timely implementation of climate regulations and programs such as the LCFS.

Critics of the LCFS have argued that full lifecycle GHG accounting is in its infancy and that the eleven states should delay the LCFS until the science is more certain. We recognize there are challenges around carbon accounting. Continued study is certainly needed. However, there is sufficient scientific evidence of fuel pathway lifecycle GHG emissions to move ahead with the LCFS now. The California Air Resources Board's direct emissions analysis is sufficiently sound and rigorous for regulatory purposes in the early years of the program. The Northeast and Mid-Atlantic region can adjust and recalibrate as new evidence dictates.

With regard to indirect emissions, it is clear that some fuel pathways have such significant indirect emissions that their expanded use will in fact dramatically increase GHG emissions. Sound science dictates that these significant indirect effects be factored into the carbon intensity calculations. Just because it is difficult to quantify or solve cannot be sufficient reason to pretend that this pollution does not exist. That is the approach that has put us in our current predicament, and it is a practice that cannot be continued.

As the science of lifecycle analysis evolves and new studies improve our understanding of both direct and indirect emissions, lifecycle emissions metrics used for compliance should be improved accordingly through an open, transparent, process that is based on the best peer-reviewed science. Until then, the Northeast and Mid-Atlantic states should follow the basic approach used in California of employing the best information currently available, using default values for various fuel pathways, and allowing fuel producers to alter these values if they can demonstrate lower carbon emissions to the satisfaction of program administrators.

The LCFS is a complex and labor-intensive policy and the Northeast and Mid-Atlantic states have done an admirable job of avoiding major delays. Recent warnings from scientific experts, however, make clear the fact that we cannot afford to delay emissions reductions. We urge the Northeast and Mid-Atlantic states to move forward with LCFS design and implementation, based on the best available science, as quickly as practicable.

C. The potential for “leakage” should be addressed, but the Northeast/Mid-Atlantic LCFS should not be held up by such concerns.

The Northeast and Mid-Atlantic states should continue to develop the LCFS, while being mindful of issues around fuel “shuffling” or “leakage.” Although leakage must be considered, it is by no means a reason for delay. Geographic leakage – the concern that

⁷ Statement of Dr. R.K. Pachauri, Chairman, IPCC; Director General, The Energy and Resources Institute; Director, Yale Climate and Energy Institute. U.N. Headquarters, New York, September 22, 2009.

regulated entities would simply move higher carbon products to areas not covered by the LCFS, resulting in no net benefit – is a concern for all climate policies with limited geographic scope, and the LCFS is no different. Nevertheless, we believe that implementing a regional LCFS will provide meaningful benefits by stimulating market demand for low carbon fuels. Moreover, as noted during the recent stakeholder meetings, one of the goals of this regional effort is to stimulate the development of a national LCFS that would be broader in geographic scope.

Some have also raised important leakage questions around whether home heating fuels should be included in the LCFS. If home heating oil is excluded from the LCFS, a producer of diesel distillate could shift sales of its fuel from the transportation sector to homes that heat with oil. The important precedential value of the regional LCFS exists whether or not the eleven states ultimately decide to include heating oil or other thermal fuels.

D. Economic impact of the LCFS.

In developing the LCFS, the eleven states and NESCAUM must analyze the potential economic implications of the policy.

The LCFS will accelerate the development of low-carbon fuels and supporting infrastructure for those fuels in the Northeast, and will reduce our current reliance on petroleum-based fuel sources – a dependency that currently sends economic benefits out of the region, either to foreign countries or other regions of the United States. These changes will result in significant economic benefits for the region. As a new and growing sector, clean alternative fuels can be an economic engine in the Northeast and Mid-Atlantic states, starting and attracting companies, creating and retaining jobs, and growing the states' clean energy sectors. For example, cleaner electric supply in the region can facilitate a switch from conventional engines to plug-in hybrid electric and battery electric vehicles. Clean electricity offers a form of energy that is manufactured in the Northeast and Mid-Atlantic from low carbon resources indigenous to the region. Advanced biofuels provide another example of economic opportunity. The Massachusetts Advanced Biofuels Task Force estimated the potential economic impact of growing the advanced biofuels industry in that state alone to be between 2,500 and 9,800 jobs, and \$550 million to \$2 billion in annual gross state product by 2025.⁸ Additional economic benefits of the LCFS may include cost savings to consumers (if alternative fuels are less expensive than fossil fuels), increased state tax revenues, lower health care costs from cleaner air, and reduced energy price volatility. While many of these benefits have not been quantified, they should be part of a more comprehensive analysis of the economic impact of the LCFS.

⁸ Expressed as permanent, annual economic potential. Commonwealth of Massachusetts. *Advanced Biofuels Task Force Report*. 2008 PAGE?. Available from: http://www.mass.gov/?pageID=eoeaterminal&L=4&L0=Home&L1=Energy,+Utilities+%26+Clean+Technologies&L2=Alternative+Fuels&L3=Clean+Energy+Biofuels+in+Massachusetts&sid=Eoeea&b=terminalcontent&f=eea_biofuels_report&csid=Eoeea

While it is difficult to predict all of the economic costs and benefits associated with an LCFS, we do know that the cost of inaction will be extremely high. Some stakeholders argue that without relatively inexpensive low-carbon fuels, attainment of an LCFS is likely to be prohibitively costly. We disagree with this assessment. The costs of inaction far outweigh the costs of the LCFS. As a market-based tool, the LCFS will promote the cheapest low-carbon resources and most efficient production processes, and could bring significant local economic development benefits.

A report released in May 2008 by researchers at Tufts University, commissioned by NRDC, presents two ways of estimating the costs of inaction on climate change. The results of comprehensive modeling indicate that doing nothing on climate change will cost the U.S. economy more than 3.6 percent of GDP – or \$3.8 trillion annually (in 2008 dollars) – by 2100.⁹ The second approach, a detailed bottom-up analysis – finds that just four categories of climate change impacts – hurricane damage, real estate losses, increased energy costs, and water costs – will add up to a price tag of 1.8 percent of U.S. GDP, or almost \$1.9 trillion annually (\$2008), by 2100. Critics of a national LCFS have suggested that compliance costs would range between \$65.5 billion and \$760 billion annually.¹⁰ If correct, this means that the cost of reducing GHG emissions and avoiding the most harmful effects of climate change through an LCFS is between 1.8 and 20 percent of what climate change will cost us if we do nothing.

We encourage the eleven states and NESCAUM to follow up on their pledge to undertake a detailed economic analysis of the economic impact of the LCFS. This analysis should include the impact on transportation fuel providers, including refiners, oil producers, importers, biofuel producers, and providers of electricity, hydrogen, and natural gas. The analysis should also estimate the cost of using alternative fuels, including production, transportation, and fueling costs, and costs directly related to the regulation itself, such as metering, recordkeeping, and reporting costs. These costs should then be compared to the traditional fuels they will displace.

V. Conclusion

CLF, ENE, Environment America, NRDC and PennFuture appreciate the opportunity to provide these comments. We are encouraged by the Northeast and Mid-Atlantic states' commitment to move forward with this important policy and urge you to consider the key issues we have raised in these comments in order to ensure the long-term integrity of the LCFS. While the regional LCFS is not the only policy tool in the eleven states' arsenals, it is an important component of an overall strategy to reduce GHG emissions from our dependence on oil. Again, we applaud the leadership of the Northeast and Mid-Atlantic states in putting our region on a path to low carbon fuels. We underscore our recommendation that the eleven states move ahead with the development of an MOU by year's end that lays the groundwork for an LCFS consistent with the comments above.

⁹ Natural Resources Defense Council. *The Cost of Climate Change: What We'll Pay if Global Warming Continues Unchecked*. May 2008. Available from <http://www.nrdc.org/globalwarming/cost/contents.asp>

¹⁰ M. Canes and E. Murphy. *Economics of a National Low Carbon Fuel Standard*. George C. Marshall Institute. 2009. Available from: <http://www.marshall.org/pdf/materials/642.pdf>.