Testimony of the
Biotechnology Industry Organization (BIO)

Hearing of the New Hampshire House
Science, Technology and Energy Committee
February 11, 2014

Regarding New Hampshire House Bill 1220:

"AN ACT RESTRICTING THE ADDITION OF CORN-BASED ETHANOL GASOLINE ADDITIVES TO NO MORE THAN 10 PERCENT OF THE MIXTURE OF GASOLINE"

The Honorable David Borden, Committee Chair
The Honorable Charles Townsend, Committee Vice-Chair
And the Members of the Science, Technology & Energy Committee:

Chairman Borden, Vice Chairman Townsend, and Members of the Committee, the Biotechnology Industry Organization ("BIO") appreciates this opportunity to provide comments on HB 1220, legislation to restrict the addition of corn-based ethanol gasoline additives to no more than 10 percent of the mixture of gasoline. This proposal is of significant concern to BIO and its members in the State of New Hampshire and throughout the country.

BIO is the world's largest biotechnology organization with more than 1,100 member companies worldwide. BIO represents leading technology companies in the production of conventional and advanced biofuels, renewable chemicals, biobased products and other sustainable solutions to energy and climate challenges. BIO also represents the leading developers of new crop technologies for food, feed, fiber, and fuel.

BIO opposes HB 1220 because of the impact such legislation would have on research, development and commercialization of advanced and cellulosic biofuels and other innovative products of industrial biotechnology in New Hampshire and throughout the country. House Bill 1220 is unnecessary and ill-advised. It needlessly restricts consumer choice; risks exposing New Hampshire residents to higher gas prices and increased emissions of greenhouse gases (GHGs) and other pollutants; and puts at risk New Hampshire's future job growth in biotechnology.

The national adoption of ethanol and other biofuels has played an important role in reducing U.S. dependence on foreign sources of petroleum, in reducing transportation fuel costs to the consumer, and in beginning to reduce the carbon intensity of the nation's transportation fuels.

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It has also paved the way for promising next generation cellulosic and advanced biofuels being developed in the State of New Hampshire and throughout the country.

Cellulosic and advanced biofuels, which can be produced from forest residues, algae, municipal solid waste, or other renewable sources of biomass, offer some of the most promising solutions to high gas prices, U.S. dependence on foreign petroleum, and job losses in resource-dependent regions of the country, such as New Hampshire. Innovative advanced biofuels developers – including Mascoma Corporation, one of the country's leading cellulosic biofuels developers, based right here in New Hampshire – already face a very challenging environment trying to secure private capital to commercialize their technologies.

Actions by the State of New Hampshire and other governments to limit conventional ethanol as a gasoline additive only exacerbate the financing challenge for advanced biofuels by destabilizing the policy environment for all biofuels. For example, the recent proposal by the U.S. Environmental Protection Agency (EPA) to limit conventional biofuel volumes in 2014 under the federal Renewable Fuel Standard (RFS) has resulted in suspension of commercialization plans by several leading cellulosic biofuel developers.[i, ii] Recent actions by the State of Florida to limit biofuels use prompted one of the country's leading algae biofuels developers to abandon plans for commercial production in that state.[iii]

House Bill 1220 also introduces two additional specific obstacles to advanced biofuels. First, the likely outcome of the proposal would be to effectively limit ALL ethanol in the state to 10 percent mixtures. Fuel retailers in the state are unlikely to take the extraordinary step of sourcing only non-corn ethanol for blends above 10 percent. Such separation is likely not practicable. Instead, New Hampshire will likely be closed to future growth of advanced and cellulosic ethanol, effectively ensuring the state's continued reliance on conventional biofuel. Secondly, the language of the proposed legislation explicitly limits one of the most promising early-stage sources of cellulosic biofuel. Ethanol from the residues of corn and other agricultural crops represents one of the best near-term opportunities to deploy cellulosic technology. Three of the first five U.S. commercial cellulosic biorefineries will use corn residue as their feedstock. The successful demonstration of cellulosic technology using these widely available feedstocks will enable expansion to the next wave of renewable biomass feedstocks, including forest and pulp and paper residues, which offer significant potential in New Hampshire. The first commercial wood waste biorefineries are now in the testing phase in Mississippi and Florida. Their technologies could be rapidly deployed throughout the country through licensing at underperforming or idled paper or saw mills, including in New Hampshire.

This legislation also ignores the fact that conventional ethanol continues to play an important role in the development of new technologies by supporting the growth of the infrastructure for commercial levels of advanced and cellulosic biofuels to be developed, produced and distributed. Passing HB 1220 would send the industry and its investors a negative message and would chill investment in research and development for advanced and cellulosic biofuels – as well as other promising biobased technologies, such as renewable chemicals. For example, Dartmouth's Lynd Research Lab has become one of the nation's leading advanced biofuel research facilities, and now supports more than 20 scientists and engineers working to solve advanced biofuel challenges. State legislation restricting biofuels risks discouraging future growth of these and other public and private research endeavors in the state.

Similarly, Stratham-based Itaconix Corporation is developing a range of environmentally friendly, renewable chemicals and polymers for use in textiles, personal care, paints and sealants, and many other markets that currently depend on petroleum-derived chemical ingredients. As with biofuels, renewable chemical developers, such as Itaconix, are utilizing readily available biomass feedstocks today to prove out the technology before transitioning to next generation feedstocks like wood. By limiting access to these transitional feedstocks, House Bill 1220 risks sending the unintended signal to companies like Itaconix and their investors that New Hampshire is hostile to innovative, emerging job engines such as industrial biotechnology. In combination with the state's proposed labelling law for biotech food ingredients, HB 1220 risks creating the impression that New Hampshire is even more broadly opposed to technology and innovation – putting at risk the state's ability to attract the associated high-paying jobs in research and advanced manufacturing. New Hampshire's bioscience industry already employs more than 5,100 people, spanning 258 businesses.

The proposed legislation also hurts New Hampshire consumers. Limiting biofuel blends in gasoline sold in New Hampshire would limit consumer access to lower-cost alternative fuels such as E85. Simply having an alternative fuel in any market helps drive down the price for consumers at the pump. The production and use of renewable fuel has kept oil costs between $15 and $40 per barrel lower than they would have been.[iv] This translates to a reduction in gasoline prices at the pump between $0.50 and $1.50, saving U.S. consumers between $700 billion and $2.6 trillion during 2013.[v] Price supports for advanced biofuels under the RFS compliance mechanisms will ensure that new fuels will also present significant value to consumers.

By comparison, current studies show that production of biofuel has a relatively small effect on corn and food prices – "the contribution of ethanol subsidies to food inflation is largely imperceptible in the United States"[vi] – while it saved approximately $34 billion in oil import in 2010 alone.[vii] Indeed, the U.S. Environmental Protection Agency (EPA) has consistently

denied requests to waive RFS volume requirements based on asserted impacts on grain prices, finding no evidence of impacts on state economies.

The limits imposed by HB 1220 are also unnecessary. Allowing New Hampshire consumers to choose higher biofuel blends, such as E85 or E15, will not limit their ability to access E10 or even ethanol-free gasoline. Higher ethanol blends are made available alongside traditional blends, not in their place. In fact, allowing refiners to meet their federal RFS obligations through higher blends, such as E85, provides them greater flexibility to offer ethanol-free gasoline, for example, to retail markets that demand it.

House Bill 1220 would also establish a disturbing precedent of limiting market access to new transportation fuel entrants. Sale of transportation fuel is heavily controlled by major oil companies through marketing agreements with branded retailers. As with advanced ethanol, emerging "drop-in" advanced biofuels, such as biobutanol and renewable hydrocarbon fuels, will require enforcement of fuel choice laws, such as the RFS, to provide investors with confidence that there will be market access for these new fuels when they are commercialized. Actions by states to limit market access to new fuel entrants substantially erode this confidence, further complicating the already challenging task of securing private capital for first-of-a-kind biorefineries.

This proposal would also preclude the sale of mid-level biofuel blends, such as E30, which will be vital to achieving increasingly stringent fuel efficiency under new Corporate Average Fuel Economy (CAFÉ) standards.

Furthermore, as New Hampshire Department of Environmental Services Commissioner, Thomas Burack, testified at the January 29, 2013 hearing by this Committee on HB 362, the Clean Air Act limits states' legal authority to control the composition of fuel offered for sale. As Commissioner Burack noted, efforts by the legislature to restrict biofuel blends could result in litigation brought by industry, the federal government, or both.[viii]

Finally, placing limits on blending of biofuels will necessarily increase emissions of GHGs and other pollutants resulting from combustion of transportation fuel in New Hampshire, in defiance of its commitment to reduce GHG emissions under the Regional Greenhouse Gas Initiative (RGGI). Renewable fuel use in the U.S. slashed greenhouse gas emissions by 33.4 million metric tons in 2012[ix] and is expected to reach 138 million metric tons per year when the RFS is fully implemented in 2022.[x] In practice, greenhouse gas reductions are likely to be even more significant. Many cellulosic and other advanced biofuel pathways approved by EPA already substantially exceed the minimum GHG reductions required by the law. For example, the INEOS Bio process, which is being commercialized at a new biorefinery in

Vero Beach, Florida, reduces greenhouse gas emissions up to 109% — a net carbon savings. Future feedstock and conversion technology improvements will drive GHG reductions even further. In contrast, lifecycle GHG emissions for petroleum are increasing with time. "Well-to-Wheel GHG emissions" of gasoline produced from Canadian tar sands, for example, emit 14% to 20% more GHGs than the weighted average of transportation fuels sold or distributed domestically. The GHG reductions produced by biofuels are a vital part of the nation's effort to combat climate change. It is crucial we maintain the opportunities for biofuels growth to achieve these environmental gains.

Companies like Mascoma and the more than 80 BIO members developing next generation biofuels, renewable chemicals and biobased products are looking to revitalize communities suffering from loss of jobs in industries like forestry and paper. A recent report, *U.S. Economic Impact of Advanced Biofuels Production: Perspectives to 2030*, indicates that cellulosic and advanced biofuels production under the RFS could create over half a million jobs in the U.S., many of which would be tied to sustainable sources of renewable biomass like wood.[xi]

BIO urges the Committee to oppose HB 1220. The proposed limit on corn-based ethanol as a gasoline blend would hurt consumers at the pump and would undermine investment in the continued research, development and production of advanced and cellulosic biofuels in New Hampshire and beyond.

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[i] http://thehill.com/blogs/congress-blog/energy-environment/196891-wavering-policy-spells-disaster-for-renewable-fuel;

[ii] http://biomassmagazine.com/articles/9920/industry-says-rfs-proposal-will-chill-cellulosic-investments

[iii] http://eqmaglive.com/EQ-ARTICLE-20298-Algenol-Cancels-Plans-for--500-Million-Algae-to-Ethanol-Facility.html#.Uvmqyk-YbZ4

[iv] Philip K. Verleger, "Doubling World Oil Prices: The Success of International Energy Agreements," The Petroleum Economics Monthly, Vol. XXX, No. 8, Aug. 2013.

[v] Philip K. Verleger, "Commentary: Renewable Fuels Legislation Cuts Crude Prices." PKVerlegerLLC.com, Sept. 23, 2013. http://www.pkverlegerllc.com/assets/documents/130923_Commentary1.pdf

[vi] Babcock, B.A. and Fabiosa, J.F. "The Impact of Ethanol and Ethanol Subsidies on Corn Prices: Revisiting History." CARD Policy Briefs, Center for Agricultural and Rural Development, Iowa State University, April 2011.

[vii] See Urbanchuk, J.M. :Contribution of the Ethanol Industry to the Economy of the United States," Renewable Fuels Association, February 2011.

[viii] http://des.nh.gov/organization/commissioner/legal/testimony/2013/documents/hb362-20130129.pdf

[ix] Renewable Fuels Association, "Battling for the Barrel: 2013 Ethanol Industry Outlook." Washington, DC: February 2013, p.18.

[x] US EPA, "Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis." Washington, DC: EPA-420-R-10-006, February 2010.

[xi] http://bio.org/ind/advbio/EconomicImpactAdvancedBiofuels.pdf