Environmental and Energy Study Institute

April 29, 2013

The Honorable Fred Upton
Chairman, Committee on Energy and Commerce
U.S. House of Representatives

The Honorable Henry Waxman
Ranking Member, Committee on Energy and Commerce
U.S. House of Representatives

RE: Comments on the Renewable Fuel Standard Assessment White Paper: Agricultural Sector Impacts

Dear Chairman Upton and Ranking Member Waxman:

Thank you for providing an opportunity for stakeholders to comment on this white paper.

The Environmental and Energy Study Institute (EESI) is dedicated to promoting an environmentally and economically sustainable society. EESI was founded by a bipartisan Congressional caucus almost 30 years ago, and, since then, as an independent not-for-profit organization, EESI has remained committed to providing Congress with the information, analysis, and expertise that it needs to address the nation's complex and difficult environmental and energy challenges. EESI seeks to advance energy efficiency and renewable energy (including sustainable biomass energy), based upon a growing body of knowledge and experience. Energy efficiency and renewable energy technologies can produce vital "win-win's" for public and environmental health, energy security, a prosperous, sustainable economy, and for mitigating and adapting to a rapidly changing climate.

EESI fully supports the Renewable Fuel Standard (RFS) goal of displacing finite, polluting, petroleum-based fuels with cleaner, more environmentally sustainable advanced and cellulosic biofuels. Advancing public and environmental health and mitigating harmful climate change must be a top national priority. The RFS is contributing importantly to that.

We also believe the RFS needs to be left **AS IS** to achieve that goal -- including allowing for substantial volumes of conventional ethanol.[1] In our view, the success of advanced/cellulosic biofuels depends in significant part on the continued success of conventional ethanol production, infrastructure, marketing, and distribution systems. We note that some of the new cellulosic biofuel plants now under construction are designed to be integrated with conventional ethanol facilities -- with co-generating heat and power, the same feedstock suppliers, the same transportation, logistics, distribution systems. Dozens more cellulosic ethanol plants are planned based on this model. However, it is doubtful that

[1] For additional background information with references, see EESI's August 2012 Issue Brief http://www.eesi.org/issue-brief-requests-waive-renewable-fuel-standard-aftermath-2012-heat-wave-and-drought-20-sep-2012

these types of integrated biorefineries will remain economically viable if Congress pulls the plug on conventional ethanol at this time. We would also note that the overall efficiency of ethanol production has increased significantly -- a very important gain as the industry seeks to embrace an increasing variety of feedstocks and technologies.

Public and environmental health is also a critical concern for us. The presence of aromatics in gasoline and its related toxic air emissions in urban areas are of special concern. In this respect, conventional ethanol is already playing a critical role. Ethanol blends today have helped improve air quality for millions of people in cities across the United States. Using higher blends of ethanol in the future (e.g. E30 - E85) in highly efficient, ethanol-optimized engines remains one of the best ways to provide the high octane needed in fuels while reducing emissions of harmful aromatic air toxics from transportation fuels. This is especially critical in urban areas where most people live and where toxic emissions from transportation fuels today are concentrated. Given what scientists are learning about the public health impacts of exposure to polycyclic aromatic hydrocarbons (PAH's), produced by the combustion of aromatics, the United States should be moving away from the use of aromatics in fuels, not away from the RFS and biofuels.

We also observe that the RFS thus far has been a tremendous win-win for rural economic development, job creation, consumers, and energy security. The ethanol industry was growing and producing jobs over the past five years when other industries were cutting employment.[2] Lower cost ethanol saved consumers money at the pump at a time when they needed it most. It helped buffer the impact of price spikes in the global petroleum market.[3] The U.S. is more energy secure today because it is much less dependent on petroleum, thanks in part to the RFS and improving vehicle fuel efficiency.

The RFS started the nation in a positive new direction toward strengthened economic, energy, environmental, and climate security. It would not have happened by itself without Congressional action. However, the nation still has a significant way to go to achieve the goals set by the RFS. The advanced biofuels industry is just starting to ramp up to commercial scale. Yet, if Congress intervenes now and reduces the scope and magnitude of the RFS, much of this progress will be lost. Tens of billions of dollars worth of public and private investment will be stranded and lost. Tens of thousands of people will lose their jobs. The nation will face increased energy insecurity and the higher costs of oil dependence. Premature death and suffering will increase due to urban airsheds fouled with toxic petroleum-based air pollutants. And, climate change mitigation in the transportation sector will be reduced and delayed unnecessarily and dangerously. And what is gained by the elimination of the RFS?

1. **What has been the impact of the RFS on corn prices in recent years? What has been the impact on soybean prices? Have other agricultural commodity prices also been affected?**

Many factors affect corn and soybean prices. Of course, rising demand for conventional corn and soy-based biofuels can create upward pressure on prices for those commodities. The question is <u>how much</u> pressure does the RFS exert compared to other factors? In our assessment, after reviewing many analyses, other factors in aggregate likely have played much bigger roles driving up corn and soy prices (and increasing harmful price volatility) than the RFS.

[2] http://ethanolrfa.org/page/-/PDFs/2012%20Ethanol%20Economic%20Impact.pdf?nocdn=1
[3] http://www.card.iastate.edu/publications/dbs/pdffiles/12wp528.pdf

First, it is important to note that relatively little corn produced in the U.S. is used for direct human consumption. Most is used for animal feed in the U.S. or is exported for animal feed. About a third of the corn crop is used for biofuel (net after accounting for the Dried Distillers Grains (DDG's), a high-protein co-product of ethanol production also used for animal feed). Indeed, the protein and the corn oil are available for other uses, as the only the corn starch is used to produce ethanol. About ten percent is used for corn sweetener, other processed foods ingredients, other bio-based products, seed, and carry-over stocks.[4]

In 2012-13, the largest factor affecting prices was the devastating drought across the Midwest and Great Plains. Were it not for the drought, corn and soybean prices likely would have remained stable or declined with a bumper crop -- despite increasing U.S. and global demand for food, animal feed, and renewable fuels. However, the drought dramatically reduced available livestock forage and feed, sending prices soaring, and creating tremendous hardship for poultry, livestock, and dairy producers and ethanol producers.

Extreme weather events in crop-producing areas around the world have had an increasing impact on grain and oil seed prices and price volatility over the past several years. In turn, responses by various governments to these crop failures (e.g., grain hoarding, price controls, and export bans) have often contributed even more to price spikes and volatility.

After extreme weather anomalies, the next biggest factors affecting the price of corn and soybeans are petroleum and natural gas prices. Petroleum and natural gas account for a significant portion of the cost of corn and soy production. During the past several years, since the RFS was enacted, these prices have been highly volatile.

Growing global demand for meat and dairy is also a significant factor. By far, most corn and soybeans produced in the U.S. are used for animal feed for dairy, poultry, and meat production. Global demand for these products has been growing steadily, thanks to rising incomes in China and other developing countries. That, and increasing demand due to continuing global population growth, exert continuing upward pressure on corn and soy prices, as well as prices for other grains and food commodities.

Another factor that likely has had a significant impact on all commodity prices (and especially price volatility) over the past five years has been the speculative flow of tens of billions of dollars into commodity markets. Investors, seeking higher returns than could be found on declining or slow growing stock markets, flooded commodities markets with new investments through new investment vehicles.

Changes in the price of corn and soy inevitably affect the prices of other crops. When consumers face higher prices for meat, dairy, or processed foods with corn- or soy-based ingredients, they begin seeking less expensive nutritional substitutes. When the prices of corn and soy animal feed spike, many dairy and livestock producers switch to other grains and forage (where available) or they reduce the size of their herds and flocks. High prices for corn and soy also influence planting decisions by grain producers, resulting in less acreage planted in other grains in regions where that makes economic sense. Each of these supply and demand factors can contribute to increasing prices for other agricultural commodities.

It should be noted that ethanol producers, like livestock producers, are also sensitive to the price of corn, and respond in a similar fashion. When the supply is short and the price is too high to be

[4] http://www.ncga.com/uploads/useruploads/woc_2012.pdf

profitable, they use less of it and produce less ethanol. The RFS was designed to allow significant flexibility for fuel blenders to adjust the amount of ethanol they blend year-to-year and adjust for years like 2012 when the corn harvest fell short. With the 2012 drought, dozens of ethanol plants shut down and ethanol production declined by ten percent or more. This reduced demand from the ethanol sector, and other "demand destruction," helped to ease corn prices significantly from the August 2012 high.

It should also be noted that high corn and soy prices can also produce positive impacts. Higher prices encourage farmers around the world to produce more. Higher prices allow more farmers to be more profitable, which in turn allows them to invest in new crop varieties, equipment, technologies, and other improvements that will increase future yields while reducing future costs. Global production responds. Farmers in Brazil and Argentina were quick to see the economic opportunity in the U.S. drought and responded quickly to the shortfall in the U.S. 2012 crop and produced bumper crops. And, in the U.S. in 2013, farmers are expected to produce a bumper crop of corn this year as the drought has subsided. In turn, more production at home and abroad will eventually result in easing price pressures.

As a matter of public policy, after this difficult drought year (and in anticipation of more extreme weather to come as the climate changes), it seems the question for Congress is not whether to abandon the RFS. Rather, Congress should consider which direction in energy and agricultural policy is of greater importance for the United States strategically and budgetarily: 1) keeping the price of meat and dairy cheap (with cheap corn and soybeans), with all of the harmful public health, budgetary, environmental , and climate change impacts that come from excessive U.S. meat consumption, and returning to greater dependence on costly, highly volatile global petroleum markets, or 2) continuing to implement a robust RFS, with all of the energy, economic, environmental, and climate benefits that come with it, while letting the price of meat, dairy, and corn-based ingredients rise modestly.

2. How much has the RFS increased agricultural output? How many jobs has it created? Have any jobs been lost? What is the net impact on the agriculture sector?

The RFS has contributed to both an increase in agricultural output, and, more importantly, to an increase in the value of U.S. agricultural output. It has created new demand for both conventional crops and for new feedstocks such as crop residues, perennial grasses and other bioenergy crops, forestry residues, and urban biogenic waste streams. The RFS is creating demand for local feedstocks that can be found in every region of the country.

For every ethanol plant, hundreds of direct and indirect jobs have been created. More than 200 plants have been built so far, each with its own associated staff on site, construction workers and engineers, feedstock suppliers and processers, equipment and materials suppliers, truckers, barge and rail operators, and people who work in businesses and communities that grow around biofuel plants. Hundreds more biorefineries and hundreds of thousands of new employees will be needed to achieve the RFS goal by 2022, according to the USDA. This is a big plus for the U.S. manufacturing sector.

If renewable fuel production and use continues to expand rapidly, if the average fuel economy of the U.S. vehicle fleet continues to improve, and if overall fuel demand remains flat or declines (all of which, we would argue, are wise and necessary national policy goals), then we would expect to see a decline in employment in the oil industry, accompanied by an equal or greater increase in employment in the biofuels sector and a significant improvement in public health and environmental outcomes.

3. **Was EPA correct to deny the 2012 waiver request? Are there any lessons that can be drawn from the waiver denial?**

EESI urged the EPA to deny the waiver request.[5] In our assessment, granting the waiver request would have done relatively little to ease the hardship for poultry, dairy, livestock, and processed food producers, but would have had a devastating impact on both the conventional ethanol industry and the advanced biofuel industry. A waiver would have created tremendous uncertainty among advanced biofuel investors, developers, and producers at a time when the industry was just beginning to construct the first commercial scale plants.

The impacts of the 2012 drought have presented the EPA and the industry with the first test of the flexibility that Congress built into the RFS. The reassuring indicator that the EPA made the right call is that corn and soy prices have moderated significantly since the summer, and the market for Renewable Identification Numbers (RINs) has picked up.

4. **Does the Clean Air Act provide EPA sufficient flexibility to adequately address any effects that the RFS may have on corn price spikes?**

Yes. The RFS gives the EPA administrator the authority to adjust renewable fuel blending volume requirements year-to-year based on the EPA's assessment of the industry's capacity to produce the required amount of biofuels. The RFS gives the EPA administrator the authority to waive the standard when there is evidence that it is causing harm. The RFS allows blenders to accumulate additional RINs in years of surplus, and to use or sell surplus RINs when renewable fuel supplies are tight. The RFS also allows blenders to delay fulfilling volume requirements from one year to the next.

5. **What has been the impact, if any, of the RFS on food prices?**

Slight. See answer to question one. Other factors have a much bigger aggregate impact on food prices – such as the 2012 drought, oil and gas prices, other crop failures due to extreme weather events, etc. The cost of energy in food production, processing, packaging and transport is huge. This hinges largely on oil and gas prices.

6. **What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?**

Again, the RFS has some effect on corn prices, but other factors in aggregate likely have a bigger impact on corn prices.

The most important factor for lowering corn prices is for the drought to subside (as it has) and for pastures and corn producers to have a good growing season and harvest.

Corn ethanol will likely reach its maximum cap under the RFS by 2015, and thus, will not exert any additional upward pressure on corn prices from that time on (all else staying equal).

Corn ethanol is likely to remain a competitive player in the biofuels market for some years to come (up to the statutory cap of 15 billion gallons per year), until the advanced and cellulosic biofuel industry is

[5] http://files.eesi.org/101212_EESI_Comments_to_EPA.pdf

fully up and running, producing biofuels at a lower price. Two of the key advantages of cellulosic biomass are that it can be produced with fewer resource inputs, and it can be produced on marginal land. So, over time, cellulosic biofuel will likely become cheaper to produce than corn ethanol which has relatively higher input costs and is grown on more expensive land. This may free up some corn production capacity to be used for other purposes.

7. **What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?**

Cellulosic biomass and biofuel production offer many opportunities for rural communities:

- Diverse feedstocks can be grown or harvested all over the country – not just in the Midwest. More rural communities in more regions of the country will be able to benefit.
- Cellulosic biomass can be grown on marginal land, allowing currently unproductive and depleted land to be put to higher economic use. Thus, cellulosic biomass production can occur alongside conventional agricultural production on higher value land.
- Using perennial grasses and energy crops as buffers between conventional row crops and watersheds and in flood plains can help clean up rivers and streams and rural water supplies, reduce soil erosion, mitigate flooding, and produce a new revenue stream for farmers. Cellulosic biomass production will require new employees, farm implements, trucking, processing, logistics, products, supplies and services, all of which will contribute to the growth of rural communities.

The USDA estimates that more than 400 biorefineries will need to be built in addition to the existing fleet to fulfill the RFS.

8. **Will the cellulosic biofuels provisions succeed in diversifying the RFS?**

Certainly. But the future of the cellulosic and advanced biofuel industry is in large part dependent on the continued success of the corn ethanol industry. Cellulosic ethanol is going to depend on much of the same ethanol infrastructure and distribution systems now used by the corn ethanol industry. Some of the first cellulosic ethanol plants will be operating next door to corn ethanol facilities as a way to reduce costs, using the same biomass suppliers, co-generating heat and power, sharing distribution systems, etc.

9. **What is the scale of the impact of the RFS on international agricultural production and global land use changes?**

Again, in our view, the RFS may be a factor, but a relatively small one, in international agricultural production and global land use change. Based on our understanding and observations, other factors are key drivers of international landuse change. How big or small a factor it is in driving land use change or prices is difficult to quantify with any degree of scientific rigor. We do not believe that it is as big a factor as many have made it out to be. We believe there is sufficient capacity on earth to **sustainably** meet basic human needs for food, feed, fiber, fuel, clean water, and healthy, functioning ecosystems using existing agricultural and abandoned lands, while preserving remaining natural forests and grasslands. However, while the argument for pursuing a robust, more sustainable RFS is compelling for many solid environmental, climate, energy, and economic reasons, the same cannot be said for policies that promote a return to petroleum dependence and unlimited global demand for meat. This is not

sustainable. We recommend that Congress turn its attention to developing and strengthening policies such as the RFS to help our nation avoid making such a mistake.

These are all topics worthy of much more discussion than we have been able to give here. We would be happy to pursue these issues at greater length with you and your staff.

Sincerely,

Carol Werner
Executive Director