



Robert L. Greco, III

Group Director: Downstream and Industry Operations

1220 L Street, NW
Washington, DC 20005-4070
USA
Telephone 202-682-8167
Fax 202-682-8051
Email greco@api.org
www.api.org

June 21, 2013

The Honorable Fred Upton
Chairman
Committee on Energy and Commerce
House of Representatives
2125 Rayburn House Office Building
Washington, DC 20515

The Honorable Henry Waxman
Ranking Member
Committee on Energy and Commerce
House of Representatives
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Upton and Ranking Member Waxman,

API appreciates the opportunity to respond to your questions in the Committee on Energy and Commerce white paper examining the energy security impacts associated with the Renewable Fuel Standard (RFS).

For reasons explained below, the RFS has not delivered the energy security or other benefits envisioned by the Energy Independence and Security Act (EISA) of 2007. The RFS has not unfolded as expected, and we agree that several implementation challenges have emerged that received little if any consideration prior to passage of EISA. The life-cycle impacts of biofuels on air quality, water and land were not fully comprehended at the time when the law passed. There is insufficient supply of domestic advanced biofuels, including cellulosic, and the approaching blendwall could result in severe fuel supply disruptions in the U.S.¹ Meanwhile, the overall energy landscape has changed dramatically. Thanks to technology advances, our nation's energy security is enhanced significantly. According to EIA, U.S. crude and natural gas reserves in year 2022 are projected to be, respectively, 23% and 62% higher than what was projected in 2007. The House Energy and Commerce Committee's review is timely. Congress should repeal the RFS as it has become an infeasible mandate.

Please find below our responses to the questions for stakeholder input raised in the white paper:

- 1. How vulnerable is the United States currently to major oil supply and price disruptions? In the context of rising domestic oil production and falling demand, how important is it to adopt new and strengthen existing policy measures to further reduce our dependence on oil?**

¹ NERA Economic Consulting, "Economic Impacts Resulting from Implementation of RFS2 Program", October, 2012.

U.S. oil supply security has been steadily improving over the last several years. According to EIA, U.S. crude oil imports from countries outside North America (excluding Canada and Mexico), have declined from 6.9 million barrels per day in 2005 to 5.1 million barrels per day in 2012; a decline of over 25%. This trend is projected to continue. Historical evidence suggests that higher oil production capacity, either domestically or in other parts of the world, puts downward pressure on both crude oil prices and price volatility, and allows oil markets to better respond to unexpected supply and demand shocks.

It is crucial for the United States to continue to adopt policy measures that reduce its dependence on imported oil from volatile regions of the world. The three most effective measures in this regard would be approval of the Keystone XL pipeline, improving the permitting and regulatory environment for oil and natural gas currently being developed on federal lands and waters, and for the U.S. government to allow greater access to federal areas that are currently off-limits to exploration and development. The Keystone XL pipeline would allow the transport of over 830 thousand barrels per day of Canadian crude oil upon full phase-in from our friendly neighbor to the north. If federal permitting and regulations were more efficient, similar production gains currently being realized on nonfederal land could possibly be achieved on federal lands and waters. According to the Congressional Research Service, crude oil production from non-federal lands increased 35% from FY2007 to FY2012 while at the same time crude production from federal lands and waters was essentially unchanged.² Finally, according to Wood Mackenzie, allowing oil and natural gas development in the eastern GOM, the Atlantic, the Pacific, parts of the Rockies and parts of Alaska could increase U.S. oil and natural gas production by over 10 million barrels of oil equivalent per day by 2030.³

Significant energy security benefits of improving the efficiency of federal permitting and regulations and approving the Keystone pipeline would begin to be realized in the near term and energy security benefits associated with access to federal lands currently off limits would commence within a 5 to 7 year period. These three policy measures, if enacted, would produce enormous energy security benefits for the United States and arguably represent some of the most cost effective ways to strengthen U.S. energy security.

2. How has the RFS contributed to improved energy security? To what degree should the reduction in U.S. oil imports be attributed to the RFS?

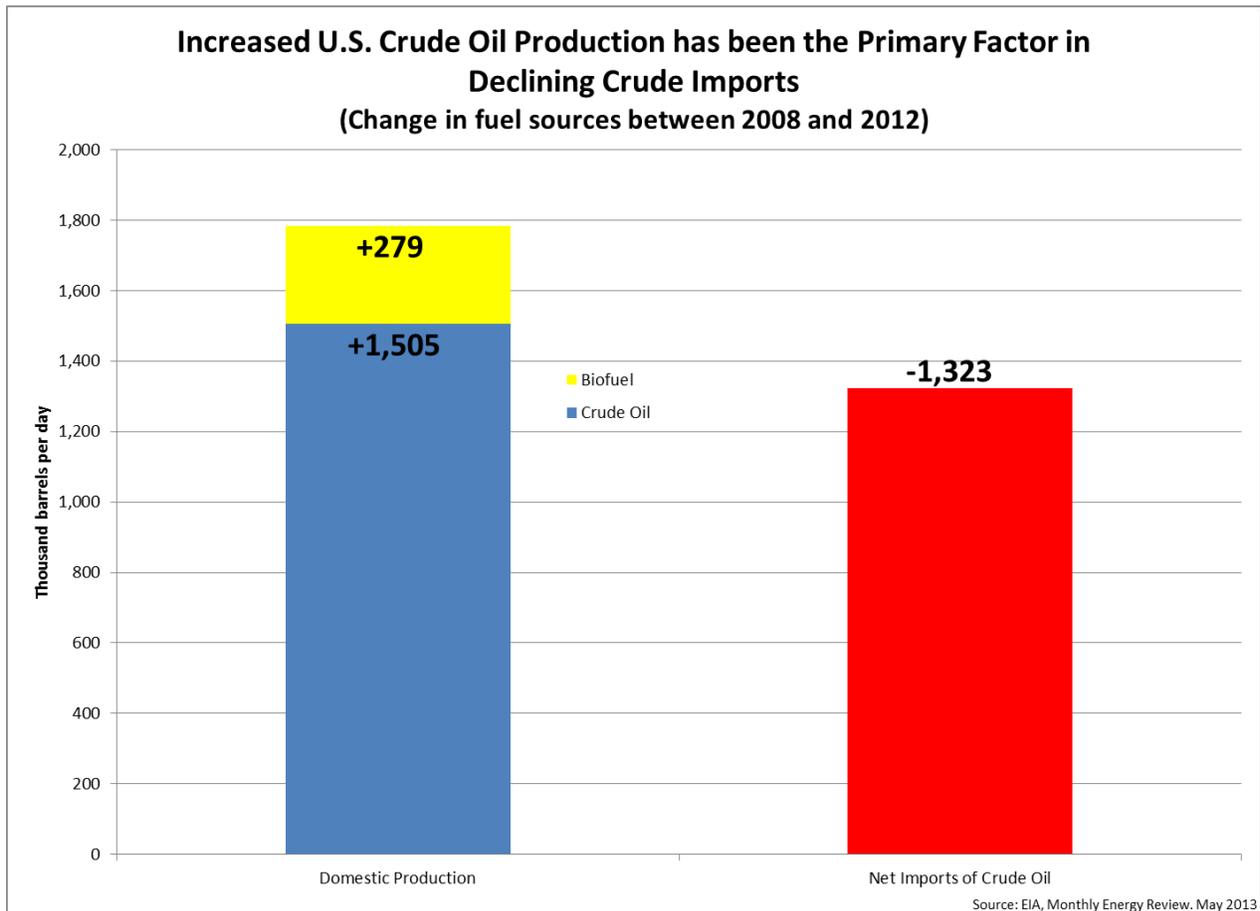
Responses to Questions 2 and 3 have been combined following Question 3.

3. In the context of rising domestic oil production and falling demand, to what extent does the RFS currently contribute to energy security and to what extent will it further contribute going forward?

² Wood Mackenzie, "U.S. Supply Forecast and Potential Jobs and Economic Impacts (2012-2030)," September 7, 2011 Available at: http://www.scribd.com/doc/63727337/U-S-Supply-Forecast-and-Potential-Jobs-and-Economic-Impacts-2012-%E2%80%93-2030?access_key=key-1fvm6u4lgsz0ibozrto8

³ Congressional Research Service, "U.S. Crude Oil and Natural Gas Production in Federal and Non-Federal Areas," March 7, 2013 Available at: <http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/20130228CRSreport.pdf>

Over the past 5 years, U.S. net imports of crude oil have fallen sharply, primarily as a result of increased domestic crude oil production. More specifically, between 2008 and 2012 (start of the RFS2 to current) domestic production of crude oil has increased by more than 1.5 million barrels per day.⁴ Net imports of crude oil over the same period have fallen by more than 1.3 million barrels per day.⁵ As shown in the figure below, the decrease in net imports of crude oil has mirrored the increase in domestic crude oil production. By way of contrast, the RFS has provided only marginal, if any, contribution to declining crude imports and energy security. The economic downturn and increased energy efficiency also played roles in the decline of crude imports though consumption of crude oil has returned to pre-recession levels.



With respect to displacement of petroleum products, it is important to understand that most alternative fuels mandated by the RFS do little to diversify the set of transportation fuels in the market. Their impacts are limited, comprising roughly 7% of the motor gasoline market and 1.5% of the of the diesel (ULSD) market (adjusted for energy equivalence) in 2012. E85 has been an insignificant factor altogether, comprising only 0.03% of total gasoline consumption in 2012 due primarily to low consumer acceptance. Finally, it should be noted that since the U.S.

⁴ U.S. EIA Monthly Energy Review May 2013.

⁵ U.S. EIA Monthly Energy Review May 2013.

has become a net exporter of finished gasoline and ULSD, there is a diminished potential for the RFS to displace finished imported products. While the U.S. currently imports unfinished petroleum blendstocks, these typically originate from stable European countries and hence pose no security threat.

Going forward, increasing domestic production of crude oil will continue to increase U.S. energy security; the RFS, however, will likely have little, if any, positive impact. The RFS will likely continue to have little, if any, impact on the importation of finished petroleum products, as the EIA projects the U.S. to continue to be a net exporter of petroleum products (which includes finished motor gasoline and ULSD). EIA's estimate of the highest level of annual ethanol consumption (in 2020), is the equivalent of just 8.7% of total motor gasoline consumption projected for that year.⁶ Similarly, EIA's estimate of the peak level of biodiesel demand (reached in 2015) is the equivalent of 2.3% of total ULSD consumption projected for that year.⁷ The future, as projected by EIA, remains consistent with the current reality -- the RFS has not been and will not be a meaningful contributor to energy security.

In fact, the impact of the RFS on energy security is likely to turn negative, if it hasn't already. This is due to inefficient and costly fuel shuffling of ethanol. The U.S. imports ethanol from Brazil (over 403 million gallons in 2012) and exports domestically produced ethanol to other countries, driven entirely by the RFS. Sugarcane ethanol imported from Brazil qualifies as advanced biofuel, and is required in increasing amounts to meet the RFS. Corn ethanol will soon reach its effective cap within the RFS. The RFS requires increasing amounts of sugarcane ethanol to meet the advanced biofuel mandate, leading to increased dependence on Brazil to meet the RFS, potentially decreasing energy security in the future. Additionally, the impending blendwall, created by the RFS, has the potential to create new energy security problems. As noted by NERA, consequences of the blendwall may be rationing of fuel supplies because refiners and importers are forced to reduce fuel imports and increase fuel exports to remain in compliance. The constriction of fuel supply in the market place could result in severe negative impacts across the economy.

4. How do the costs and benefits of the RFS compare to those of other federal policies to diversify fuels used in the transportation sector, diversify transportation options, and reduce oil dependence through other means?

The RFS is a costly federal policy that is imposing net costs on society, not benefits. It has not lead in any meaningful way to diversification of the transportation fuels market as explained below. Furthermore, according to a study by NERA Economic Consulting⁸, the gasoline pool will soon reach (or has already reached) the ethanol blendwall where no further ethanol can be blended above 10% by volume. This fact, in conjunction with the ever increasing mandated volumes dictated by the RFS, is projected to lead to a breakdown in the motor fuel markets and impose significant wide-spread economic harm to the wider U.S. economy, according to NERA. The RFS program has outlived its useful purpose, particularly in the face of rising domestic oil

⁶ U.S. EIA, Annual Energy Outlook 2013, May 2013.

⁷ U.S. EIA, Annual Energy Outlook 2013, May 2013.

⁸ NERA Economic Consulting (October, 2012): "*Economic Impacts Resulting from Implementation of the RFS2 Program*" <http://www.api.org/news-and-media/news/newsitems/2013/march-2013/nera-study-concludes-rfs-program-is-broken-and-a-threat-to-consumers>

and natural gas production and declining U.S. demand for gasoline, and it needs to be scrapped. NERA concluded that by 2015, the cost of gasoline could increase by 30% and the cost of diesel could rise to a level that would cause wide spread economic harm resulting in a reduction of \$2,700 in annual average household income and a \$770 billion contraction of GDP. These costs are driven by the unworkable RFS mandate volume requirements that exceed the transportation fuel markets absorption capacity.

The RFS has not achieved significant diversification in the transportation sector. The renewable fuels produced for compliance with the RFS do not function as standalone fuels. Lack of diversification is signified by the current mix of feedstocks and biofuels production. The majority of renewable fuels (ethanol and biomass-based diesel) in the U.S. is produced with conventional feed stocks of corn and soybeans and is blended with petroleum fuels. Simply put feedstock diversification (i.e. switchgrass, algae, forest waste) and drop-in fuels have not developed. The technology forcing aspirations of the RFS have failed to develop economically competitive and commercially available volumes of alternative transportation fuels. Even though the U.S. EPA has taken action to reduce cellulosic ethanol volumes mandated in the RFS, earlier this year a U.S. Court of Appeals admonished EPA for requiring an unreasonably high volume of cellulosic biofuel be used – even though commercial production has been non-existent and the Agency subsequently reset the volume to 0 gallons for the 2012 compliance year. Additionally, EIA has lowered its forecast for cellulosic ethanol production for the foreseeable future, reflecting the inability of the RFS to drive commercial production. In fact, a barrel of oil is far more versatile, providing energy for power plants, heavy machinery and aviation and maritime transportation as well as petrochemicals for the development of other products.

Currently, there are no other federal policies in place analogous to the RFS that attempt to increase the production (and consumption) of bio and alternative fuels⁹. Some have advocated the imposition of a national low carbon fuel standard (LCFS). The state of California has enacted a LCFS in an attempt to reduce CO₂ emissions by 10% by limiting the carbon intensity (CI) of transportation fuels. In an analysis of the LCFS, the Boston Consulting Group¹⁰ (BCG) concluded that reaching the 10% goal was “virtually impossible with current fuel technologies” and challenges confront implementation. The BCG study concluded that full implementation of the LCFS depends on likely “infeasible” assumptions and could negatively impact California’s economy. Science Applications International Corporation (SAIC) conducted a study¹¹ of a proposed LCFS for the 11 states in the Northeast and Mid-Atlantic. In the study’s timeframe, it was concluded that a 10% CI reduction was not possible, while sustaining full energy needs, and there would be negative impacts on the economy.

In a study by CRA¹² to assess potential economic impacts of a nation-wide LCFS, it concluded that fuels and vehicles would become more expensive, transportation costs would increase and higher costs would reduce consumption, employment, investment, and economic output. By 2025, CRA estimated 2.3 to 4.5 million job losses and a GDP decline of \$410 to \$750 billion.

⁹ Note: CAFE regulations will improve fuel efficiency and reduce GHG emissions for 2017-2025 model year vehicles. The U.S. DOE in recent years has guaranteed over \$1 billion in loans for biofuels and auto technology/manufacturing.

¹⁰ http://www.cafuefacts.com/wp-content/uploads/2012/07/BCG_report.pdf

¹¹ http://www.secureourfuels.org/wp-content/uploads/2012/03/FINALCEA_LCFS_REPORT-MASTER_DRAFT_DOCUMENT_3-23-2012.pdf

¹² Charles River Associates (June 2010): *Economic and Energy Impacts Resulting from a National Low Carbon Fuel Standard*. <http://consumerenergyalliance.org/wp/wp-content/uploads/2010/06/CRA-LCFS-Final-Report-June-14-2010.pdf>

According to the CRA study, an important conclusion was that a nation-wide LCFS would cause a price shock that will dramatically increase the cost of transportation fuel within 5 years of implementation. A study by Barr¹³ concluded that implementation of a LCFS in the U.S. would result in increased GHG emissions as a result of crude “shuffling” that shifts imports and exports of crude oil. According to the crude shuffling analysis in the Barr report, crude transportation distances nearly triple and related GHG emissions nearly double.

Both the RFS and LCFS represent policies that pick “winners and losers” and are impractical and ineffective ways to diversify fuel use in the transportation sector. In addition, the end results of both a RFS and a LCFS are similar in that both are likely to impose large costs on the transportation sector with adverse ripple effects throughout the entire economy.

Biofuel and alternative fuels are valued components of the motor fuels markets and will continue to be used in the absence of outdated and harmful mandates such as the RFS. However, federal consumption mandates contained within the RFS are unworkable and could cause damage to the economy. Furthermore, the National Academy of Science¹⁴ concluded that consumption mandates in the RFS would increase the price of transportation fuels if the price of renewable fuel exceeded gasoline (see retail fuel price chart below).

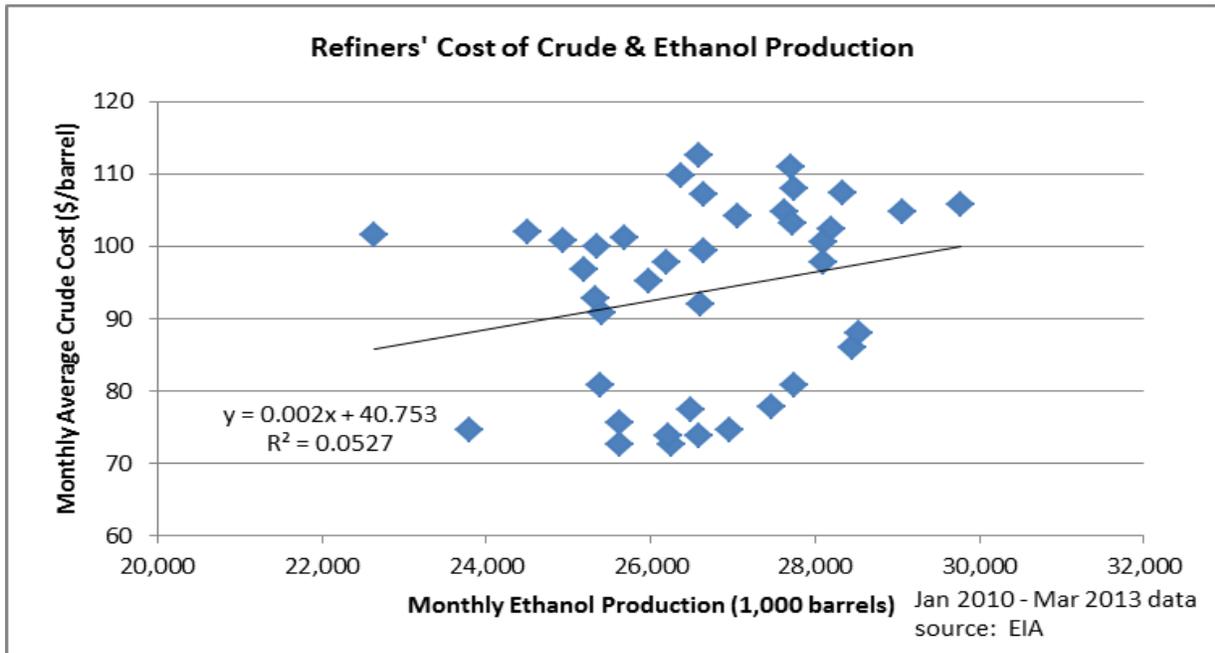
5. What has been the impact of the RFS on oil prices? What has been the impact on gasoline and diesel fuel prices? What has been the impact on oil and fuel price volatility? How will these impacts change in the years ahead?

The RFS, while mandating consumption of biofuels in the U.S., has had little if any impact on crude oil prices. The overall energy content of mandated biofuel volumes as a percentage of total liquid transportation fuel remains relatively small, at around 5% or less. Crude oil is traded on a global market and the energy content of mandated biofuel consumption in the U.S. is too small to have any impact on global crude markets. According to a study by Knittel and Smith¹⁵ (MIT study), ethanol production has a “minimal” impact on crude oil prices. The figure below illustrates that during the period January, 2010 to March, 2013, there was very little correlation between monthly ethanol production and U.S. refiners’ acquisition cost of crude.

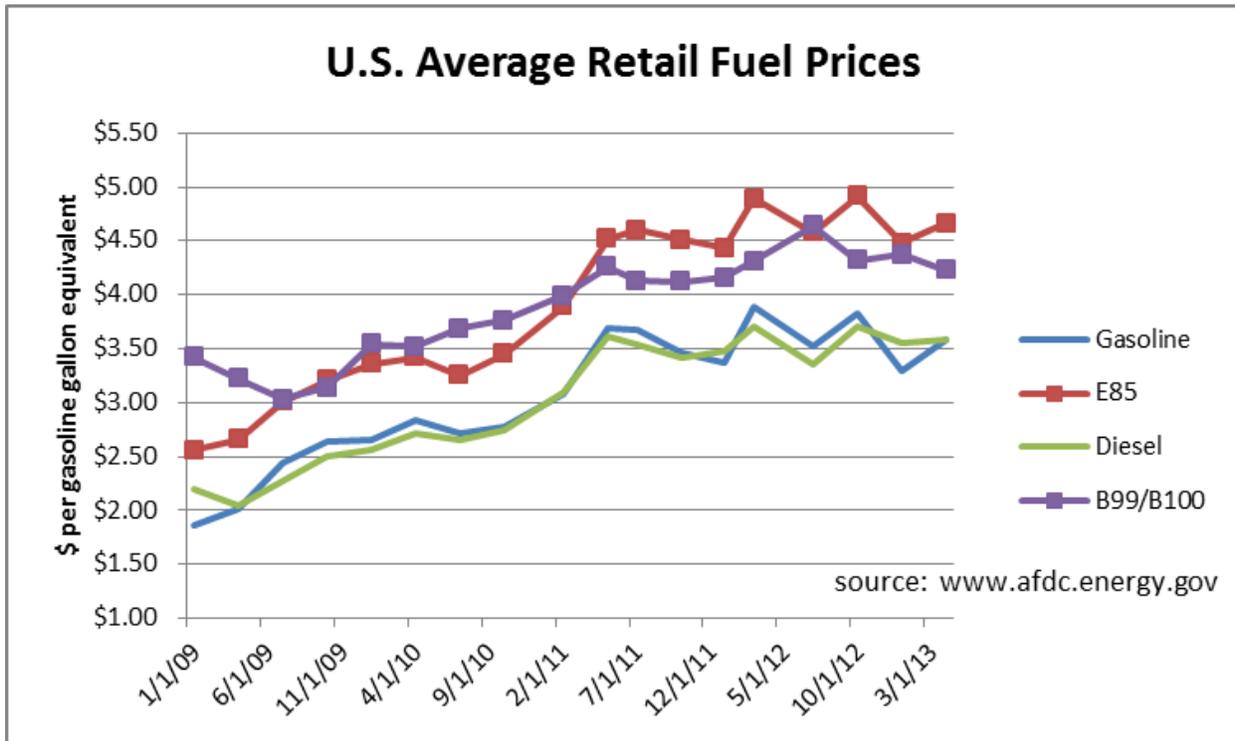
¹³ http://www.secureourfuels.org/wp-content/uploads/2011/04/Crude_Shuffle_Report_0616101.pdf

¹⁴ National Academy of Science, Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy, 2011.

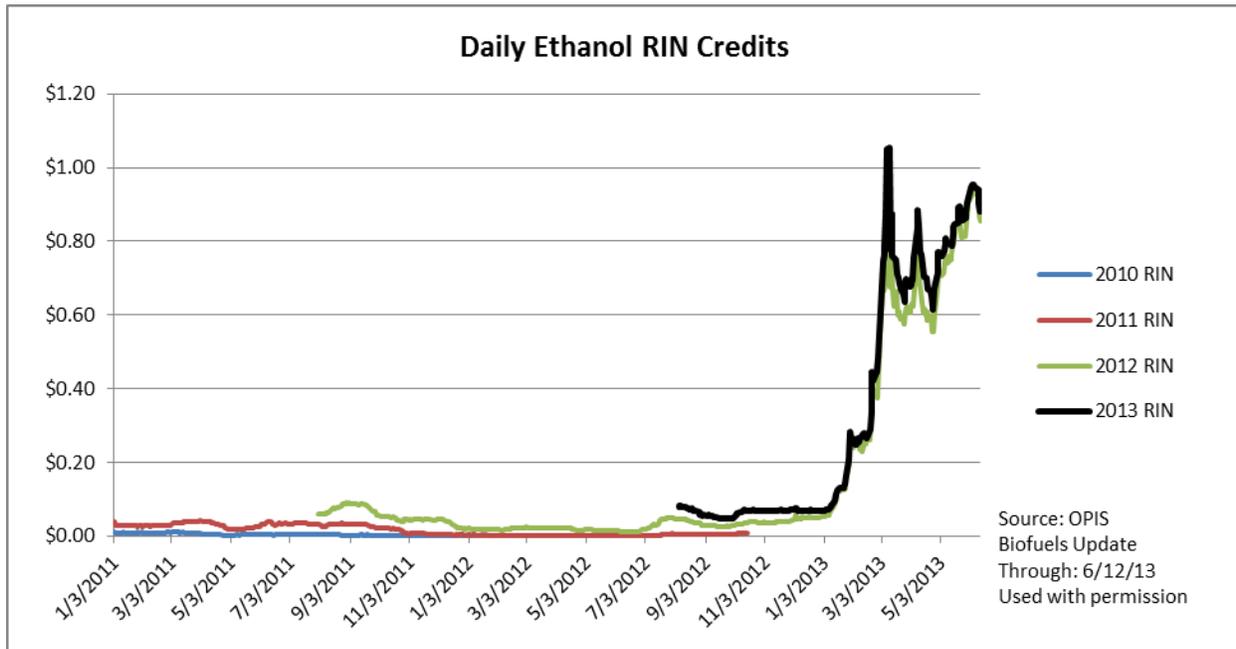
¹⁵ Knittel, C. and A. Smith (2012): “*Ethanol Production and Gasoline Prices: A Spurious Correlation*,” MIT Center for Energy and Environmental Policy Research. <http://web.mit.edu/ceep/www/publications/workingpapers/2012-006.pdf>



With respect to the impact of the RFS on product prices, an analysis of historical energy equivalence data illustrates that on average the cost of renewable fuels exceeds petroleum gasoline and diesel. The following chart illustrates that average retail prices for E85 and B99/B100 exceeded the retail prices of gasoline and diesel, on a gasoline gallon equivalent (GGE). As mandates force the blending of renewables into petroleum fuels, the higher cost renewables put upward pressure on blended fuels.



Another negative impact of the RFS on refined products is the impact of the RFS compliance mechanism. Obligated parties demonstrate compliance with the RFS by submitting biofuel Renewable Identification Numbers (RINs) to the EPA. The value of RINs, as reported by OPIS, has increased significantly in recent months and likely corresponding to arriving at the E10 blendwall. The acquisition of RINs for compliance represents and added cost to manufacturing gasoline and diesel.



The NERA study concluded that the RFS, in its current form, will reach a point where biofuels cannot be incorporated into transportation fuels at the volumes necessary to meet annual RIN obligations. Effectively, a shortage of RINs will develop. Refiners and importers can only supply as much gasoline and diesel for U.S. consumption as they have RINs to cover the obligation that supplying such a fuel incurs. Thus the result of the blend-wall will be to limit supplies of transportation fuel for U.S. consumption. The behavior of the current market for RINs is indicating that this may now be starting to happen. Should this trend continue, as projected by NERA, this could eventually lead to domestic fuel supply reductions and increased volatility in refined product markets. By 2015, NERA estimates that gasoline costs could increase 30% and diesel costs could reach a point where significant harm is incurred by the U.S. economy. The RFS was instigated in a very different environment of declining U.S. crude production and rising crude imports that no longer exist. It has outlived its usefulness, and should be repealed so as to avert its large impending costs.

6. Could the RFS be modified to enhance energy security further? Should the range of qualifying fuels be expanded? If so, how? If not, why not?

The best option for improving energy security is to repeal the Renewable Fuel Standard. The purported energy security benefits of the program are not valid. The RFS has no definition or metrics of what biofuels provide energy security benefits. Changing the range of qualifying biofuels does not change the marginal contribution biofuels have made to enhanced energy security.

The goal of energy security is to reduce volatility in the energy markets that expose the U.S. to economic damage from supply inadequacy, and the potential for such damage to compromise

the independence of U.S. foreign policy. The Renewable Fuels Standard has had no measurable success in achieving this goal to date. As we reach the 10% ethanol blendwall, the RFS changes from having a marginal energy security impact to a severely negative impact. As the NERA report shows, the RFS places an artificial limit the volume of petroleum fuels that can be supplied to the domestic market, which can only harm our energy and economic security. As explained above, the NERA report shows that RFS implementation beyond the blendwall forces refiners and importers to reduce domestic supply of transportation fuels, resulting fuel cost increases, and fuel rationing, ultimately resulting in severe economic harm. Congress should allow markets, not mandates, to pick winners and losers. Repealing the RFS, as well as increasing domestic access to oil and natural gas, and approving the Keystone XL pipeline, are key steps Congress should take to ensure our nation's energy, and economic security.

As previously stated, the RFS contains unfulfilled aspirational goals and numerous unintended environmental consequences and other adverse impacts. Again, we appreciate the opportunity to provide these responses. If you have any questions, please don't hesitate to contact us.

Sincerely,

A handwritten signature in black ink that reads "Robert L. Greco" followed by a stylized monogram.

Bob Greco

Group Director: Downstream and Industry Operations

API is a national trade association that represents all segments of America's technology-driven oil and natural gas industry. Its more than 500 members – including large integrated companies, exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms – provide most of the nation's energy. The industry also supports 9.2 million U.S. jobs and 7.7 percent of the U.S. economy, delivers \$86 million a day in revenue to our government, and, since 2000, has invested over \$2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.