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RFS Compliance: Death Spiral or Investment in E85?


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Abstract

The American Petroleum Institute (API) commissioned NERA Economic Consulting to study “the economics and compliance issues related to the implementation of the Renewable Fuel Standard (RFS2).” NERA’s October 2012 report finds that ethanol and biodiesel blend walls create insurmountable barriers to the amount of biofuels that can be consumed in the United States. Once these blend walls are hit, producers of gasoline and diesel will only be able to comply with biofuel blending mandates by reducing domestic sales of gasoline and diesel. NERA argues that such cuts will make it even more difficult to meet blending mandates in subsequent years, thus leading to further reductions in gasoline and diesel sales. This series of fuel sales reductions leads to an upward “death spiral” in fuel prices, with severe harm to the US economy.

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The American Petroleum Institute (API) commissioned NERA Economic Consulting to study “the economics and compliance issues related to the implementation of the Renewable Fuel Standard (RFS2).” NERA’s October 2012 report finds that ethanol and biodiesel blend walls create insurmountable barriers to the amount of biofuels that can be consumed in the United States. Once these blend walls are hit, producers of gasoline and diesel will only be able to comply with biofuel blending mandates by reducing domestic sales of gasoline and diesel. NERA argues that such cuts will make it even more difficult to meet blending mandates in subsequent years, thus leading to further reductions in gasoline and diesel sales. This series of fuel sales reductions leads to an upward “death spiral” in fuel prices, with severe harm to the US economy.

The NERA conclusions have been used as the basis for congressional testimony by the petroleum industry, and in a petition to the Environmental Protection Agency for reduced biofuel mandates . NERA estimates that the loss to the economy would equal \$770 billion, which is almost 5 percent of current US GDP. If the findings of the NERA report are correct, then EPA would have grounds to lower mandates due to the severe economic harm that they would cause.

The economic impacts in NERA’s report are driven by the mechanism through which the biofuel mandates are implemented. Each year, EPA calculates the percentage of biofuel that must be blended with motor fuel based on mandated volumes and projected fuel consumption from Energy Information Administration. EPA then calculates the Renewable Volume Obligation (RVO) for obligated parties as the product of the percentage of biofuel and their individual volumes of fuel sold. The NERA study argues that the only option open to obligated parties to meet their RVO when blend walls limit consumption is to decrease fuel sales. NERA assumes that every obligated party would have the same incentive to reduce sales so that the aggregate impact of each decision would be a dramatic increase in the price of fuel.

The NERA findings rely on the assumption that obligated parties simply have no available options to meet their RFS obligations beyond blend wall levels short of cutting fuel sales. But is this true?

The RFS contains separate mandates for cellulosic biofuel and biomass-based diesel, as well as overall mandates for advanced biofuel and total renewable fuels. The advanced fuel mandate can be met by cellulosic biofuels, biodiesel, and other advanced biofuels;

and the overall mandate can be met by advanced biofuels and other renewable biofuels, the most important of which is corn ethanol.

One big problem with the current mandate schedule is that production of cellulosic biofuels will fall far short of targets. EPA has the authority to, and for the first time is likely to, reduce both the advanced mandate and the overall RFS volume mandate by at least the amount that the cellulosic biofuel mandate is reduced in both 2014 and 2015. To make the calculations simple, assume that 100 million gallons of cellulosic biofuel will be available in 2014 and that 200 million gallons will be available in 2015. This means that the advanced mandate and total RFS mandate could be reduced by 1.65 billion gallons in 2014 and by 2.8 billion gallons in 2015. Further suppose that EPA freezes the biodiesel mandate at 1.28 billion gallons. If biodiesel production meets its own mandate, this means that the effective mandate for ethanol for 2014 would be about 14.6 billion gallons in 2014 and 15.8 billion gallons in 2015. To meet these mandates would require 13 billion gallons of ethanol consumed in 10 percent blends (E10) with the balance consumed in higher ethanol blends, such as E85, and by using any banked RINs from 2013 or borrowed RINs from 2016.

We estimate that to consume 2.8 billion gallons of E85 ethanol in 2015 would require 5,000 more fueling stations selling E85. These stations would need to be located where the flex vehicles are, and E85 would need to be priced low enough to save drivers money. The question becomes, is it more reasonable to assume, as NERA does, that obligated parties will choose a compliance path that leads to a death spiral in fuel prices or that they will choose to finance investments in E85 infrastructure?

Consider what would happen under the death spiral scenario—higher domestic prices for gasoline and diesel would lead to increased profits for oil companies because the increase in price would more than compensate for the lost sales. This would seem to create a win-win outcome for oil companies with both higher profits and RFS compliance. However, such an outcome would not be stable, so it will not materialize.

To see why, consider a billion-gallon gasoline producer who must decide whether to join other obligated parties and cut domestic sales by 10 percent (100 million gallons) or to generate additional RINs by investing in E85. Assume that the aggregate cut in sales increases gasoline price by \$1.00 per gallon. To generate additional RINs, this producer can enter into a partnership with a blender and retail gas stations whereby the producer agrees to pay for 50 strategically located E85 installations costing \$150,000 each. The total cost of this investment would be \$7.5 million. With competitively priced E85, sales at these 50 stations would generate about 20 million RINs per year from sales of about 27 million gallons of E85.

Suppose that the blender providing E85 to the retail station has agreed to split the additional RINs from E85 equally with the producer. This means that the gasoline producer would pocket 10 million RINs from investing in E85 infrastructure, at a cost of 75 cents per RIN on a limited one-year horizon. However, the real payoff from obtaining the 10 million additional RINs is that the producer could sell another 90 million gallons of gasoline in the domestic market at the \$1.00 higher per gallon price. If this producer had cut domestic sales by exporting an additional 100 million gallons of gasoline, then selling 90 million gallons at a one-dollar higher price would increase profits by \$90 million. If the cut in sales had been accomplished by reducing refinery output, then about 5 million more barrels of crude could have been refined. At a crack spread of \$6 per barrel, this represents about \$30 million in additional profit. Either way, this small gasoline producer would find it more profitable to comply with the RFS by investing in E85 and expanding gasoline sales rather than by cutting sales. The benefits of this strategy grow as the investments in E85 installations generate RINs for many years. Of course what holds for one producer will hold for all, which demonstrates that the NERA compliance strategy is not feasible unless obligated parties formed an illegal cartel to reduce sales to boost prices.

Some may think it is not realistic to expect obligated parties to invest in E85 retail infrastructures when they do not own the stations. However, if the alternative is a cut in gasoline sales that can only be maintained if oil companies act together and form a cartel, then perhaps this investment is not so far-fetched. Of course, from the oil company perspective, the best situation would be if EPA reduces mandates to easily-achievable levels that would provide them with cheap ethanol and no compliance costs.

If Congress and the Administration want to reverse course and discontinue support for renewable transportation fuels, then Congress should eliminate mandates and send a clear signal to investors to not expect any more public support. Because it is so difficult for Congress to make any decision, EPA could unilaterally cut mandates dramatically as a stop gap measure. The sooner this signal is sent the better, so that investment will be made elsewhere in the economy. However, if renewable transportation fuels are supposed to continue to grow, then EPA needs to send a clear signal as soon as possible that investments allowing for greater consumption of ethanol in the transportation sector should be made quickly. This signal should take the form of mandates that are set beyond blend wall levels, which can be met if investments are made and a commitment by the EPA to keep on increasing biofuel mandates. The sooner that EPA sends these signals the better so that investments E85 can be made as efficiently as possible.