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Hannah Janda
hannah.janda.efp@gmail.com

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ENSC 230 – Energy and the Environment: Economics and Policy

The Energy Independence and Security Act Mandates Biofuel Diversity

By Hannah Janda

hannah.janda.efp@gmail.com

In 2007, Congress passed the Energy Independence and Security Act (EISA) to lessen our dependency on foreign oil and cut GHG emissions through the production of clean renewable fuels and increased energy efficiency. Before 2007, corn used in the production of ethanol was slowly but steadily rising without displacing corn used for food, and thus the price of corn remained fairly stable. After 2007, though, the EISA mandates called for an increase to 36 billion gallons of biofuels by 2022. With the ethanol subsidy of 51 cents per gallon, the mandates have created a rapid increase in ethanol production since 2007, helping to lower the stocks-to-use ratios for corn. This ratio reflects the excess of supply against demand, and a lower than normal ratio means that price becomes very sensitive to disturbances in supply (Energy).

Between 2007 and 2011, the corn produced for food purposes fell by almost 3 billion bushels, and by 2011, 37% of the nation's corn crop had been switched to ethanol production – a fact that helped the cost of corn to triple its pre-2007 levels. As prices skyrocketed, more farmers switched acreages away from other grains to produce corn, leading to smaller harvests of other grains like soybeans, wheat, and rice and more than doubling their world prices in this period (Feed). With all grain prices rising, the effects of these increases were inevitably seen in the U.N. aggregate index of food prices, which by September of 2011 had risen by 68% over 2007 prices. Though this increase in the food price index is not completely due to the high amounts of corn production being used for ethanol, it did play a part. Added to this scenario were a couple of droughts limiting stock levels, and an indirect consequence was that by 2011, global food prices soared, contributing to an estimated 70 million people going into poverty from 2010 to 2011 (FAO).

As opponents of EISA around the world are asking the U.S. to end EISA altogether, or to at least end the ethanol mandates which are helping to drive these trends of rising prices, it is becoming apparent that something must be done differently if we wish to continue to increase biofuel production without causing harm to world markets. However, in the face of climate change, we can't waste time by starting over with a new policy that may never happen. I believe that we must take steps to meet the biofuel mandates with biofuels other than corn-based ethanol.

Changing the types of biofuel supported rather than eliminating EISA is important because there are provisions within EISA that are essential, not only to America's energy independence, but also to help lower our GHG emissions worldwide. EISA calls for improved vehicle fuel economy, which saves a lot of energy. It also requires the funding of research and development grants for biofuel technologies, including studies for the use of algae as feedstock for biofuels. It calls for improved standards for appliances and lighting, and for improved efficiency in all buildings nationwide, which are responsible for considerable energy use and GHG emissions. There are also provisions for funding

the development of solar, geothermal, and other alternative energies, which could enhance our energy independence (Energy). Another important provision within EISA is to implement the smart grid, which will enable us to use information and communications technology to gather and improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity nationwide (Smart). So, I believe EISA is critical to lowering our emissions significantly. To overturn the act altogether would sacrifice many beneficial initiatives that are now underway.

Although we need to remedy the pressure put on global food prices by corn-ethanol production, it would be better to increase our biofuel diversity instead of eliminating EISA. There are several kinds of feedstocks that could be used to make ethanol other than corn. The other crop currently being produced for the large-scale production of ethanol is sugarcane. Since importing sugar-based ethanol from other countries would help lower GHG emissions but not increase energy independence, we could instead import the sugarcane and do the refining here. This would be cheaper to produce at around 85 cents a gallon rather than the \$1.05 per gallon for corn ethanol. However, this option is blocked by the U.S. quotas on imported sugar. Although removing these quotas could negatively impact U.S. sugar producers, importing sugar could be a valuable alternative to corn ethanol with little global detriments (The Economic).

Another course of action would be to increase the subsidies for the production of cellulosic ethanol, switchgrass biofuel, algae-based biofuels, and biodiesel made from soybean and vegetable oil, or other similar feedstocks. This increased subsidy would better counter the externalities on production that are preventing these industries from competing with corn ethanol. Increasing our biofuel diversity may be the best course of action in the long run, as these products are the next logical step toward what will become the advanced biofuels that we need anyway. Currently, biodiesel and sugar-based ethanol are the only two biofuels commercially available. Increasing the subsidies for the development of these other biofuels would hasten their advancement toward large-scale production as well.

Perhaps a combination of these ideas should be required to meet the EISA mandates on time without increasing corn ethanol production. In any event, it would be a big mistake to do away with EISA altogether or even to end the biofuel mandates that help these new clean fuel markets. Still, something must be done to change the current trends involving corn, so increasing the subsidies for the other types of biofuels will expand our biofuel diversity in a way that will increase our energy independence without harming global food markets.

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