

# **Agriculture and Aviation: Partners in Prosperity**

*Putting Aviation at the Forefront of the President's Biofuels Targets*

Part II. Industry Recommendations

January 2012

Published by Airlines for America™ and The Boeing Company



## Preface

This report serves as Part II of the FARM to FLY initiative report, *Agriculture and Aviation: Partners in Prosperity: Putting Aviation at the Forefront of the President's Biofuels Targets*. In July 2010, the U.S. Department of Agriculture (USDA), Air Transport Association of America, Inc. (ATA) (since renamed "Airlines for America" or "A4A"), and The Boeing Company (Boeing) signed a resolution formalizing their commitment to work together on the "FARM to FLY" initiative to "accelerate the availability of a commercially viable and sustainable aviation biofuel industry in the United States, increase domestic energy security, establish regional supply chains, and support rural development."<sup>1</sup>

To advance the initiative, each organization designated personnel to serve on the FARM to FLY Working Team to pursue actions that promote the commercial-scale production of sustainable feedstocks and the development of aviation biofuel production and distribution facilities. The entire FARM to FLY team contributed to the preparation and publication of the main report, which identifies the opportunities and advances in meeting the FARM to FLY objectives and summarizes relevant USDA programs. Although the content of Part II was informed by discussions among the entire team, A4A and Boeing developed the recommendations that make up the body of Part II. These recommendations are respectfully offered to government and other interested stakeholders, for consideration.

---

<sup>1</sup> <http://www.airlines.org/Documents/FarmToFlyResolution071410.pdf>

## **Recommended Actions**

While there has been a great deal of progress made toward laying a strong foundation for the deployment of aviation biofuels, additional steps are needed to support the commercial viability of this new industry. This support must be aimed to achieve proof of commercialization – to validate the business model for all elements of the supply chain. Fundamental support across the supply chain will help scale up production of aviation biofuel.

While a foundation must be laid for all supply-chain elements to become self-sustaining, having at least two successful commercial-scale projects in appropriate parts of the country is a necessary precursor to private investment and scalable production on a broader national scale. Having two successful projects would promote and encourage the flow of private capital into the sector and facilitate a transition from government supported to self-sustaining independence. Thus, the focus needs to be on ensuring that existing federal biofuels programs and additional authorities become enablers of an aviation biofuel supply chain, with particular emphasis on achieving success in at least two commercial-scale projects in the near term. Recommended steps to accelerate commercial viability are discussed below.

### **1. Ensure Would-Be Aviation Biofuel Suppliers and Aviation Biofuel Users have Meaningful Access to Existing Programs**

Current laws provide grants and federally guaranteed loans that jump-start construction of biofuel processing facilities in the United States. Indeed, Congress mandated efforts to reduce America's dependence on foreign oil by significant amounts (2 percent production, 25 percent consumption) by requiring that the United States produce 6 million gallons of cellulosic biofuels in 2010, and then increase annual production to 36 billion total gallons of biofuel per year by 2022.

While additional programs need to be created and existing programs need to be amended to accelerate this process, key legislation has already been enacted to support the development of home-grown biofuels and the USDA, DOE, DOT, and the U.S. military are implementing those programs. Indeed, President Obama issued a memorandum to USDA, DOE, DOT, and the Environmental Protection Agency (EPA) “to develop a comprehensive approach to accelerate the investment in and production of American biofuels” by implementing key provisions of the Energy Title of the *2008 Farm Bill*.

Congress has made it clear that jet fuel must be included in this major national effort. The Congressional Conference Report “encouraged the Secretary of Agriculture and the Secretary of Energy to give equal consideration to projects . . . that would perform innovative and beneficial research and commercial development of renewable aviation fuels” when implementing energy provisions of the *2008 Farm Bill*.<sup>16</sup> Focusing the power of the U.S. agricultural industry on the production of alternative fuels benefits national security, creates jobs in rural America (building and operating processing facilities), and increases farm income. One day soon, home-grown fuels will be less costly to produce than petroleum-based fuels or at least cost-competitive with them, depending of course on the market price of petroleum, the regionalization of production,

---

<sup>16</sup> Conf. Rpt. 110-627, on H.R. 2419; p. 911, May 13, 2008

and the maturity of biofuel technology. The political backing for a renewable aviation fuel program from congressional members who support farmers, rural development, job creation, independence from foreign oil, trade balance, and the military is considerable.

The USDA-administered programs will jump-start projects using agricultural outputs to protect farm income, enhance our environment, and help get rural America out of the recession. These programs are critical, particularly in light of the Federal Reserve Bank reports documenting the unfortunate collapse of financing opportunities in rural America. The USDA and DOE funding can help overcome the persistent lack of credit and financing opportunities.

## **2. Implement, Maintain and Augment Programs in the 2008 Farm Bill and Employ them to Support Aviation Biofuel**

There are several programs related to alternative fuels production under the *2008 Farm Bill*. The reauthorization of that bill, which expires December 31, 2012, provides the administration and the Congress with a unique opportunity to expand existing programs, address the lack of credit and investments in rural America, and provide additional grants to jump-start the biofuels industry. Such programs are critical to support a sustainable aviation biofuels industry.

The following *2008 Farm Bill* programs will need to be maintained and augmented as legislation is rewritten and the U.S. farm program reauthorized:

- **Biomass Research and Development Initiative (*Section 9008 of the 2008 Farm Bill*):** The program has over \$100 million available for advanced research on strategic guidance, feedstock development, biofuels, and bioproducts.
- **Biorefinery Assistance Program (*Section 9003 of the 2008 Farm Bill*):** The Biorefinery Assistance Program (BAP), administered by USDA/Rural Development, provides loan guarantees for the construction or retrofitting of rural biorefineries to “assist in the development of new and emerging technologies for the development of advanced biofuels...made from renewable biomass, other than ethanol from corn kernel starch.” The program guarantees up to 90 percent <sup>17</sup> of a private loan, under certain circumstances, to construct first of kind /scaled to commercial level or retrofit commercial-scale biorefineries producing advanced biofuels. From Fiscal Year 2009 through 2011 YTD, just over \$415 million has been obligated in loan note guarantees. This partnership will leverage an estimated \$1.5 billion in total project development towards the construction of commercial scale advanced biofuel facilities, including one project that has successfully produced aviation biofuel.

---

<sup>17</sup> [http://www.rurdev.usda.gov/BCP\\_Biorefinery\\_Financing.html](http://www.rurdev.usda.gov/BCP_Biorefinery_Financing.html)

(1) If the loan amount is equal to or less than \$125 million, 80 percent for the entire loan amount unless all of the conditions specified in paragraphs (d)(1)(i) through (d)(1)(iii) of this section are met, in which case 90 percent for the entire loan amount.

(i) Equity of 40 percent, excluding qualified intellectual property;

(ii) Feedstock and off-take contracts of at least 1 year in duration; and

(iii) Collateral coverage ratio, total discounted collateral value divided by total loan request, exceeding 1.5 to 1.

- **The Bioenergy Program for Advanced Biofuels (“BPAB” – Section 9005 of the 2008 Farm Bill):** BPAB gives the Agriculture Secretary broad discretion – and \$300 million – to create a program to provide production payments to eligible advanced biofuel producers) “to support and ensure an expanding production of advanced biofuels.”
- **Marketing Assistance Loans and Loan Deficiency Payment Programs (2008 Farm Bill):** Marketing-assistance loans that are made by the USDA Commodity Credit Corporation (CCC) provide interim financing to facilitate the orderly distribution of commodities throughout the year. Instead of selling immediately at harvest, a nonrecourse loan allows a producer who grows an eligible crop to store the production and pledge the crop itself as collateral. The loan proceeds help producers become market drivers and pay bills when they come due, without having to be price takers and sell the harvested crop at the time of year when prices tend to be lowest. Later, when market conditions are favorable, a producer can sell the crop and repay the loan.

The final rule on these programs, published in the Federal Register on April 7, 2009, requires USDA to give growers additional confidence in producing biofeedstocks for the emerging aviation biofuel fuel market by diversifying the source of biofeedstocks from which it draws. The USDA should use its authority to expand the list of eligible crops and explicitly recognize crops that have proven aviation biofuel applications to include algae, camelina, castor, jatropha, salicornia, perennial grasses, herbaceous and woody biomass, and oilseed crops. The USDA should also use its authority to create a price support system for biomass from forest, wetland, and algal sources that can be converted into aviation fuels.

- **Biomass Crop Assistance Program (“BCAP” – Section 9011 of the 2008 Farm Bill):** BCAP is the only energy program primarily dedicated to the expansion of the diversity of cellulosic feedstock for commercial conversion. The program has demonstrated, through project area proposal submission and matching payment distribution, that demand for feedstock support exists.

BCAP provides USDA with “such sums as are necessary” to provide owners and operators of agricultural and forest lands with payments to cover 75 percent of the cost of establishing a perennial energy crop, and annual payments up to five years (for non-woody) and 15 years (for woody) to maintain those crops. Matching payments to assist in the delivery of biomass is available to assist in the transportation of the materials to qualified energy conversion facilities. Multiple project areas announced will produce feedstocks which will be available for aviation biofuel production.

- **Crop Insurance Coverage for Energy Crops (Section 12023 of the 2008 Farm Bill):** The 2008 Farm Bill directed the Risk Management Agency (RMA) to research and develop “a policy to insure dedicated energy crops,” defined as crops “grown expressly for the purpose of producing a feedstock for renewable biofuel, renewable electricity or biobased product, and is not typically used for food, feed or fiber.” RMA has recently awarded a contract to conduct this research.

- **National Institute of Food and Agriculture (NIFA):** The 2008 Farm Bill created the National Institute of Food and Agriculture, to fund competitive, peer-reviewed research efforts. NIFA also offers a series of sustainable bioenergy grants through its Agriculture and Food Research Initiative, also mandated by the Farm Bill and operates the Plant Feedstock Genomics for Bioenergy program. Both competitive grant programs support research and development of bioenergy.

### **3. Leverage U.S. Government Resources to Support Promising Aviation Biofuel Deployment Projects**

The President has announced that the federal government should support four Aviation Biofuel Development Projects. The USDA has a lead role in biofuel development for the U.S. government. Given that role, USDA should leverage statutory and funding authorities and resources and build synergy among the key agencies that are participating in the FARM to FLY coalition (the Department of Commerce, DOD, DOE, DOT, and EPA) in order to promote the rapid development and deployment of aviation biofuel. The USDA should also use these authorities to prioritize the establishment development of this new industry and facilities that produce aviation-quality biofuel.

The USDA and partnering agencies should target and fund the construction and/or establishment of commercial operations by selecting one or more promising aviation-biofuel production projects located in diverse regions of the country. Fuel-consuming members of the FARM to FLY coalition in commercial air, as well as the DOD, have indicated they will purchase competitively priced aviation biofuels. We can achieve the critical mass needed to establish a foothold for this new industry by utilizing the following programs:

- Incentives to farmers to encourage production of biomass that can be converted into “drop-in” jet fuel
- Grants to fund research and demonstration projects related to improving the yield, efficiency, economic viability, and sustainability of aviation-biofuel production
- Grants, technical assistance, and collaborative partnerships between USDA Agricultural Research Service (ARS), biomass producers, and producers of aviation biofuel to ensure a reliable supply chain for commercial scale aviation biofuel production
- Loan guarantees to fund the construction of energy crop production-and-logistics facilities as well as commercial-scale jet-fuel processing facilities
- Inclusion of federal lands for harvesting forestry biomass residuals under the Healthy Forests Initiative (HFI) for jet biofuels and accompanying co-products
- Grants through the USDA’s CCC to supplement loan guarantees, under section 9003 of the *2008 Farm Bill*, to provide funding for the grant provisions authorized but not funded by Congress, and grants to increase funding for other aspects of Title IX

- Explicit designation of price supports for the following biofeedstocks, within regional supply chains with high jet-fuel demand:
  - a. Agricultural crops such as camelina, castor, jatropha, algae, sorghum, agriculture residue, halophytes, and salicornia should be included as eligible crops under USDA Commodity Programs, Marketing Assistance Loans, Loan Deficiency Payment Programs and Crop Insurance Programs
  - b. Biomass from forest, wetland, or algal sources designated for aviation biofuels should also be considered for price supports under an analogous program
- Creation of a mechanism to accelerate inclusion of promising new crops (e.g., eucalyptus and poplar) in the aforementioned programs as they are developed and their usefulness demonstrated.

These and other programs aimed at establishing regional biofeedstock centers could be brought into line with and complement the FARM to FLY vision of aligning aviation drop-in fuels with desired research outcomes.

### **Flying into the Future**

The goal of the FARM to FLY resolution is to “accelerate the availability of a commercially viable and sustainable aviation biofuel industry in the United States, increase domestic energy security, establish regional supply chains, and support rural development.” Developing and supporting a strong energy policy will make this resolution achievable.

In the near term, accelerating the commercial production of aviation biofuels will strengthen those elements of the agricultural sector involved in the growth of biomass, the “green” technologies that process the biomass, and those who build the logistical infrastructure needed in select areas. Over time, the investments we make today will lessen our reliance on liquid petroleum fuels.