



**Statement of Jerry Taylor
President & Chief Executive Officer
MFA Oil Company**

**Co-Founder
MFA Oil Biomass LLC**

**Testimony Before
Committee on Small Business Subcommittee on Agriculture,
Energy and Trade**

Small Business Innovators: On the Cutting Edge of Energy Solutions

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Chairman Tipton, Ranking Member Critz, and members of the Subcommittee, thank you for the invitation to testify today on how small businesses are serving as innovators on the cutting edge of energy solutions.

I am Jerry Taylor, President and Chief Executive Officer of MFA Oil Company. I also serve on the boards of Mid America Biofuels, the National Cooperative Refining Association and the National Council of Farmer Cooperatives.

Formed in 1929, MFA Oil Company is a farmer-owned energy cooperative in the State of Missouri with 40,000 members. Before ethanol as we know it today, MFA Oil Company was producing fuel grown by our farmers. Prior to the oil embargo of the 1970s, MFA Oil was one of the early producers of gasohol, which started America on the long road towards energy security and energy independence. MFA Oil was able to make that bold move because of its long history in Missouri and strong relationship with the region's farmers.

From those days of gasohol, MFA Oil today supplies fuels, lubricants, and propane to customers in Missouri, Arkansas, Oklahoma, Kansas, Indiana, Kentucky and Iowa. Through a subsidiary, MFA Oil operates Break Time convenience stores in Missouri and Arkansas, and Jiffy Lube and Big O Tire franchises in Missouri. MFA Oil also is an investor in a biodiesel production facility in Missouri, offers E-85 at over 50 locations, and has a 10 percent ethanol blend at more than 300 MFA Oil fueling stations.

In 2008, we began laying the groundwork to expand our energy services and take on America's most important, but most difficult renewable energy sector – biomass.

Our pursuit of this expansion was spurred in part by Proposition C, a 2008 ballot initiative approved by Missouri voters. Proposition C repealed the state's existing voluntary renewable energy and energy efficiency objective and replaced it with an expanded, mandatory renewable electricity standard of 15 percent by 2021. This commitment has triggered significant activity among electricity providers including among coal plants to assess co-firing coal with biomass products.

Beyond Missouri's renewable energy law, we saw an opportunity in the fact that much of the state has a high rate of underutilized, marginal farm land combined with a significant density of poultry farmers who are very vulnerable to a rise in heating costs necessary to heat poultry barns.

MFA Oil Company's biomass initiative took a major step in 2011 when we partnered with Aloterra Energy LLC to form MFA Oil Biomass LLC (MFAB), a separate small business with the mission of leading the cooperative into the renewable energy field. MFAB is utilizing our existing knowledge in farming and in the energy markets to form a completely vertically integrated renewable energy supply chain. This vertically integrated system provides farmers an energy crop source, unique harvesting and planting equipment for the crop's rhizomes, specialty harvesting services for the mature crop, processing technology, and marketing services to get the best return for the farmer and the cooperative.

One hundred seventy-five farming families have dedicated acres to the new energy crop and MFAB anticipates this number will grow to over 1,600 as our projects scale up to maturity at 50,000 acres per region. These families will be the backbone that will help reduce our dependence on foreign oil by displacing the current fossil fuels that are used for agricultural heating and power plants.

Our Crop

MFAB recognized early on that having a versatile feedstock, something able to be used in multiple products, was critical to success. MFAB's extensive research confirmed the potential of *Miscanthus x. Giganteus* as not just a viable feedstock but one with incredible potential. *Miscanthus Giganteus* is rated to grow from hardy zones 4-9, and unlike other similar species, it can grow in temperatures as low as 43° F. A *Miscanthus Giganteus* stand is estimated to last 15-20 years or more after the initial planting.

Miscanthus Giganteus is a C4 warm season perennial grass that is non-invasive, drought and pest resistant, and needs less fertilizer than food crops, which translates into less run-off into the region's water systems. In fact, a Biomass Crop Options and Supply Chain Feasibility study performed by Missouri Biomass Farmer Supply Chain Consortium and funded by the Missouri Agricultural and Small Business Development Authority (MASBDA) found that *Miscanthus*'s qualities lead to minimal run-off into water systems, causing it to be well-equipped for growing on marginal land. As such, the target farm is marginal and/or underproductive land that is not used for row crop production.

The grass is also extremely efficient in sequestering carbon from the air which is an added benefit as carbon markets further develop. We are in the process of confirming third party studies showing that *Miscanthus* has a ratio of 53:1 in terms of carbon sequestered per acre versus the carbon emitted in farming/harvesting the crop itself. Furthermore, producers have found that by planting *Miscanthus*, their

soil quality has improved due to decreased compaction and increased soil organic matter. This latter information has dramatic consequences for America's farmers.

Regarding efficiencies, third party studies (and we are confirming with our own teams) establish Miscanthus as having a 36:1 energy-in to energy-out ratio, making it very efficient and the consumers of this product will therefore not have to address assertions that energy or biobased products sourced from Miscanthus are not truly renewable. Lastly, at 10-15 tons per acre, Miscanthus doubles its nearest competitor in tonnage and increases the farmer's return. It is also projected to produce three times more gallons of ethanol per acre than corn.

Our Model

We use the phrase "vertical integration" frequently in our daily work. This model grew out of two years of research and frustration in trying to understand the best way to enter into the biomass industry. Growing, harvesting, and processing crops whose sole use is an energy source is something that is in its infancy. MFAB's owners realized that to develop farmer support we had to understand each aspect of our supply chain and be able to answer every question to ease farmer concerns and gain commitment. After extensive research, we came to the conclusion that the only way to control our destiny in this nascent industry was to rely on ourselves and become experts in each area of our own supply chain that we controlled. Also, the economics of biomass – high volume and low margins – dictates this model for survival.

From our vertically integrated model and emphasis on making Miscanthus inexpensive to plant evolved our approach to our biomass acres as "oil fields" of liquid fuel biomass reserves. Focusing on a true "feedstock first" viewpoint, we are agnostic as to conversion technologies. We are only interested in what makes economic sense and what has the best risk-reward profile.

MFA Oil is already supplying fuel, including propane to thousands of farmer members and non-members in each state where we operate. Therefore, MFAB is well positioned to introduce a new fuel source to existing customers and to create new fuel markets. MFAB is developing biomass supply and heating systems for existing MFAB members that already purchase propane – specifically Farm to Fuel – a new start up that has designed and is producing a high efficiency biomass furnace. With approximately 100 of our pellet stoves in operation today, many customers are already transitioning their heating systems to be compatible with our pellets. Last, if necessary, locating our facilities near transportation infrastructure allows MFAB to access international pellet markets.

Most other entities in this industry are focused on one technology and biomass is an afterthought. In contrast, MFAB is not only developing the biomass but is also simultaneously developing multiple biomass markets in pellets, biobased products, biobased chemicals, and we are making solid advancements in fiber based processes to replace a host of petroleum products ranging from Fiberglass to car parts. While this is occurring, we are also supplying significant test tonnage to liquid fuel companies developing their different types of liquid fuel technologies.

Our future plans entail building biorefineries inside our biomass reserve areas that make multiple higher value products that each replace part of a barrel of oil. This allows a conservative and methodical approach, instead of betting our future on the success of a specific conversion technology. Dedicated

energy crops require the cultivation of farmer relationships and a vertically integrated model that assures the farmer that all of the pieces are in place for success. Our emphasis is on working in partnership with our farmers from soil to market.

We believe in starting with the farmers and the feedstock – the rest will follow. We would not leverage our future on an unproven technology, but instead started with proven markets and the proven technology of solid fuel pellets. It was the only thing that made sense to us and our farmers. We put forward a fully detailed business model to progressively scale up each project to 50,000 acres. At maturity our three project areas will have 150,000 acres and produce 1.8 million tons of biomass per year. In liquid fuel language, this would create a 20 year reserve of 93,000,000 barrels of liquid fuel, using the same language and conversion methods of the oil and gas industry. (150,000 tons * 12 tons per acre = 1,800,000 tons * 15.5 MMBTU/ton = 27,900,000 MMBTU / 5.8 MMBTU per barrel of crude oil = 4.66 million barrels of crude oil * 20 year life of crop = 93 million barrels of crude oil equivalent)

Keys to Our Success

I believe our story is one about the entrepreneurial spirit inherent in American agriculture—we saw a need, assessed our options, and then applied know-how, skill and hard work to develop a solution. It is also a story of the role that cooperatives play in bringing individual farmers and ranchers together to seize new opportunities in the marketplace that, on their own, they would never be able to take advantage of. As a co-op, we are able to work hand-in-hand with producers as valued, trusted business partners, allowing farmers to boost their earnings from the marketplace and diversify their income streams.

It is also a story illustrating a broader point about the success of farmer cooperatives in delivering value for their producer-owners, fostering economic growth in their communities, and delivering safe and abundant food, fiber and fuel to consumers here in the U.S. and around the globe.

The impact of farmer cooperatives therefore extends far beyond the farm gate. For example, co-ops have a unique and deep seated relationship with their local communities— after all, the co-op's owners and the co-op's board of directors are made up of farmers and ranchers who themselves are part of the community.

For these rural communities, farmer-owned cooperatives are much more than just a local employer. They add significant value to the tax base through their own operations and the value they bring to their members' operations. In many rural areas, the cooperative has become the social and economic hub of a community, sponsoring the local little league team and creating scholarships for deserving high school students. To that point, the MFA Foundation sponsors approximately \$750,000 in student scholarships each year.

When a farmer co-op board makes a business decision, their perspective is how it will impact Main Street, not Wall Street. This perspective helps in fostering a focus on building the business to be sustainable in the long term and on the value provided to the farmer-owners. It is this fact that makes farmer co-ops vital in ensuring that America as a whole will benefit from this country's call for increased domestically produced renewable fuels.

A key factor to our success occurred when MFAB was able to leverage our co-op relationships and our vertically integrated biomass model with the U.S. Department of Agriculture (USDA) and their Biomass Crop Assistance Program (BCAP). In FY2011, USDA approved \$14.6 million in BCAP funding for three project areas – central Missouri, southwest Missouri and northeast Arkansas. This money is going to local farmers to establish *Miscanthus Giganteus* to be used as an energy feedstock. Leveraging BCAP funding, MFAB has signed up over 12,708 acres with its farmers to grow *Miscanthus Giganteus*.

It is hard to articulate just how difficult it was, and still is, to educate farmers on a strange new plant called *Miscanthus Giganteus*. This was not an attempt to plant a known crop in a new industry, but an unknown crop in a non-existent industry. Add to that a crop that was at the time too expensive (at \$1400 per acre) and being planted by hand. And we were asking farmers to spend capital without a return on investment for three years. Farmers are risk adverse and rightfully so.

To that end, the BCAP funding was critical to bridging the gap with our producers to take that leap of faith. What it did was make it possible for us to invest in cutting edge technology to quickly mature the industry and brought the costs down to below \$750 per acre. Within a few short years, the costs should be worked down to roughly \$250 per acre with an estimated net return on investment to the producer at \$400 per acre. All this occurring on land that had been underutilized or earning very little. At that point, federal investment in the form of BCAP is no longer needed to sustain our efforts.

Our Potential

The four-year goal of MFAB is to establish approximately 50,000 acres of *Miscanthus Giganteus* in each of its three project areas. The 50,000 acre goal will enable each area to process approximately 600,000 tons of biomass per year. Each ton contains about 15,500,000 BTUs, which means at full maturity each project area can produce enough energy to power 65,000 homes or produce 1,600,000 barrels of renewable liquid fuels each year.

For all three project areas combined, third party feasibility studies prepared by Environ International Corporation anticipate a \$150 million annual economic impact from growing this new energy crop, while creating 2,700 new jobs.

Additionally, we have seen our potential fuel pellet markets serving agricultural heating needs explode. To keep up with demand, MFAB has purchased a pellet stove company and is rapidly developing this market. Displacing only 35 percent of the propane market in southwest Missouri and northwest Arkansas would create an annual pellet market of 600,000 tons. MFAB has also completed extensive side by side comparisons to propane with Tyson growers with outstanding results for the *Miscanthus* pellets.

The existence of MFAB backed by our committed farmers has led to dozens of meetings with technology providers from around the U.S. as well as international companies, all seeking to leverage our existing acres and assess establishing liquid fuel plants in our project areas. This has triggered several interactions with our state economic development agencies and we are currently assessing the use of several funding sources to accelerate our manufacturing projects.

Beyond the quickly developing liquid fuel and biobased chemicals markets, MFAB is implementing a model to assist small towns across the U.S. in complying with EPA wastewater discharge requirements. Rather than requiring small towns to build multi-million dollar water treatment facilities, MFAB is working with state level environmental agencies to help municipalities comply with regulations by using *Miscanthus Giganteus* to filter the water in conjunction with drip line technologies. This has enormous implications for America's small towns to save money in a tough economic period and to properly clean water to the standards of the EPA without massive capital expenditures.

Another benefit is the reclamation of mine land. Mining companies across the Midwest are working with MFAB to plant *Miscanthus* to increase organic matter, sequester carbon, improve soil drainage and water retention, reduce soil erosion, reduce nutrient leaching, increase wildlife habitat, and reduce water runoff. Hundreds of thousands of acres of mine land are currently sitting idle, but are also continuing to contaminate nearby communities, which is why the planting of *Miscanthus* is critical to stabilizing soil and creating a new source of biomass for regional "green" projects.

Regarding power needs, the city of Columbia, Missouri, has instituted a self-mandated 15 percent renewable energy requirement and the University of Missouri is putting in place a biomass boiler, which will be online June 2012.

MFAB also is working with the Missouri based USDA – Agricultural Research Service, the University of Missouri, and Arkansas State University on several research projects related to *Miscanthus*. We have taken on the role of bringing industry to the table as advisors and to assess new projects and opportunities for the region's businesses and farmers. This includes potential joint projects with the corn growers associations using corn stover, retrofitting underutilized regional power plants to burn biomass, and assessing technologies of Missouri-based companies to commercialize liquid fuel projects. Additionally, we are exploring joint projects with Missouri equipment dealers to assess harvesting and storage techniques and to spur local equipment sales, as well as a 200 ton *Miscanthus* pellet test burn with the City of Columbia to test equipment.

Our farmer-owners see incredible opportunities as this endeavor takes off. They recognize the potential to offer America's rural communities permanent manufacturing jobs, a new cash crop for farmers, a local source for green heating, renewable liquid fuel sources, biobased chemicals, green building materials, water treatment systems, soil reclamation systems, and consumer packaging.

In closing, meeting the food and energy needs of a growing world population is a daunting task but one that will be accomplished by fostering American agriculture's pioneering spirit. MFAB has harnessed that spirit to advance opportunities for our farmer members.

Again, thank you for the opportunity to be with you today and I am happy to respond to any questions.