

House Committee on Small Business  
Subcommittee on Agriculture, Energy and Trade

Hearing on “Small Business Innovators: On the Cutting Edge of Energy  
Solutions”

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Written Testimony  
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Good morning Chairman Tipton, Ranking member Critz and other distinguished members of the Committee. Thank you for the privilege to address you today. My name is Ralph Tommaso and I am the CEO and Co-founder of Greenworks Holdings. My partner, Dave Dunham, and I are very proud of what we have built and feel that Greenworks is the culmination of our years in the biofuels space and our platform for cutting edge innovation and change moving forward. A little over one year ago we had 30 employees primarily in Pennsylvania; today we have 153 employees in the Northeast and Southeast.

When Dave and I each separately began our businesses in Eastern Pennsylvania in early 2005, we set out to change the way fat, oil and grease wastes were used in this country. We envisioned wastes being diverted from the food industry and into clean-burning energy to fuel the American Economy.

Prior to our entry into the waste oil business, used cooking oil was predominantly diverted to the animal feed industry in the form of pet food and poultry feed. The processes used to divert the waste oil to animal feed, drove me to eat only organic foods not fed with “waste oil enhanced” feed, and to find alternative outlets for such waste oils, which include the oils gathered from wastewater treatment facilities. I knew that we needed to do something to evoke a change in the way the U.S. recycled these waste products.

In 2004, I read a study produced by the University of Georgia which proved that foodservice waste greases and animal fats were superior fuels to #4 and #6 oils used in heating applications. Moreover, when compared to emissions of Fuel Oil #2, emissions were lower with the waste greases especially with regard to SO<sub>2</sub> and CO<sub>2</sub> emissions<sup>1</sup>. I knew this would be a better use for waste grease, so we refined our process and by 2006, we were selling our biofuel, recycled from waste cooking oil, to two New York City skyscrapers. Since 2006 we have brought our fuels to universities, dye houses, and district heating plants. Our biofuel products that are derived from restaurant grease are approved by the

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<sup>1</sup> Adams, Thomas, T, et. al, [A Demonstration of Fat and Grease as an Industrial Boiler Fuel](#), The University of Georgia, Engineering Outreach Service (Athens, GA June 30, 2002).

U.S. Environmental Protection Agency (EPA) under the Renewable Fuel Standard 2 (RFS2).

This early success of being able to produce and sell the biofuel, only drove us to further improve our processes and expand our reach, taking on additional feedstocks. We feel that every ounce of fat, oil and grease that is diverted to our process is one less ounce that enters the American Food Supply Chain or left as waste. As such, our growth is dependent upon the feedstocks we can procure. Harvesting, collecting or growing raw materials to convert into biofuels is the challenge that we face as a company every day. The thought that the United States consumes over 18.5 million barrels of oil a day is daunting to an industry as new as ours. As the demand for our biofuels grows, Greenworks continues to sign-up additional restaurants to sell us their used cooking oil. We currently have over 17,000 restaurant partners and we're growing by around 500 a month, and yet that is not enough.

In 2010, we started to search out other sources of raw material. We found it in grease traps, the slimy sludge found in sewer pipes, by-products of other industries such as oil-seed processing and soap production, waste water treatment plants, and from food processing operations. It was then that we found catfish oil. To put it in perspective, what we found was the biofuel equivalent of the Canadian tar sands--millions of gallons of degraded fats and oils in solid form.

Catfish processing facilities design and build football field sized retention ponds to collect and process wastewater. This water, generated when the plant is washed and sanitized daily, catches all the small pieces of fats and solids that are left over in the filleting process. Over a period of years, this fat has accumulated on the surface of these ponds, 3-10 feet deep, 100ft wide and 300 ft long. Upon a long and competitive battle with other biofuel companies, we were awarded 100% of the bids for this accumulated fat, a total of 12 ponds and up to 60 million gallons of feedstock!

Competing for the contracts was the easy part. Next we came to the intensive process of extracting the fats and oils and turning them into a usable finished fuel product.

What we did next reminds me of those final table episodes of the World Series of Poker, where the guy goes all in with a pair of 6's. Never expecting to win all the bids, we were now faced with the daunting task of figuring out how to live up to the promises we made to these catfish plants. Some of these plants expressed to us that the money that they were going to receive from us over the next 3-5 years were the only profits that they were expecting to earn. We knew that these fish processors and their families were counting on our success, perhaps even more than we were.

We decided to build two plants, one in Alabama and one in Mississippi to process all the material locally. Each plant was designed to process 20 million gallons per year from a material that was the consistency of dirt. Through trial and error, borrowing technologies from each of our other plants and tricks from the petroleum industry, we were able to produce a biofuel that resembles melted chocolate. The process is continuous for 18 hours a day, with large front loaders scooping the fatty mud into waiting trailers. At the plant, it goes thru a series of melting, screening, heating, pressure, then a series of pharmaceutical grade centrifuges that polish the fuel to ensure a consistent quality. Our hope for the catfish based products is to be able to participate in the RFS2 either as a feedstock or as heating oil if and when the new heating regulations drafted by the EPA are approved. Presently we are working with EPA to certify that the final product qualifies as "biogenic waste oil/fat or grease" so that it may be used as a feedstock in renewable diesel processes that create hydrocarbon fuels.

The process we have developed with the catfish industry can be applied to fish processing plants around the world. Not only does the process capture waste oil that can be used to displace a petroleum product, it also reduces the waste that is ultimately processed by the local waste water treatment facilities. The processing facilities have seen that electricity consumption has reduced because the amount of pumping has been reduced by reducing waste, thereby helping the economic situation for the catfish producers and helping to provide a cleaner environment. We are presently in discussions to share our proprietary process with Vietnamese and Alaskan fisheries. We hope that we can expand our efforts to reduce more waste in fisheries in other regions, such as in the Northeastern United States.

By teaming up with the catfish industry in Mississippi and Alabama, our operation employs 25 people full time in Alabama and will employ the same in Mississippi by June 1. Dozens of jobs have been saved in the catfish industry due the new harvesting of oil by Smarterfuel South. Smarterfuel South has provided approximately \$4 million in construction trade during the last six months. The efforts have revitalized two Southern towns with double digit unemployment. We've brought hope to a depressed area that was starving for work and thirsty for something to believe in. We don't take the commitments we've made to these towns and these people lightly. We deal with ever changing regulations around our product and its applications, which causes us concern not only for the success of our company, but for the people that believe in us and their family's own success.

Running a business is tough. There are layers of regulations and laws at the Federal, state, county and town level. Small businesses need stable policies with reasonable time frames for permits and approvals. In an effort to participate in the regulatory and legislative process, we are members of the Advanced Biofuel Association and along with a handful of colleagues have created an ad hoc group to have more direct representation in Washington. These experts tell

us that at the Federal level the driving policy is the Renewable Fuel Standard 2 (RFS2).

The RFS2 was written with just transportation and home heating in mind. But, the point of the policy, as we understood it, is to reduce the nation's dependence on foreign oil, reduce greenhouse gas emissions and other toxic emissions from petroleum products. Petroleum based fuels are used in more than just transportation or home heating. While our product is not a transportation fuel, its application as an industrial fuel or for large scale heating reduces harmful emissions and ash residues which has enormous implications for our environment. The narrow definitions imposed by the RFS2 statute, creates tremendous barriers to innovation in the biofuel space. In order to be approved as a transportation fuel, the fuel has to either be a perfect hydrocarbon, that is have no oxygen molecules in the carbon chain, or be an already approved fuel additive such as biodiesel or ethanol, which enjoyed tax incentives and other incentives for many years. The policy needs to have some more flexibility in the applications for use if more innovative work is to be done in the biofuel space. It is nearly impossible for a small business, not backed by a large corporation, to develop a new biofuel technology and have to work through all of the millions of dollars of testing and development to-be approved as a transportation fuel. The fuel needs to have a market and be able to compete while working through the years and years of testing that is required to become a transportation or aviation product.

Our main challenge is regulatory uncertainty and the fluxuating and more often than not tightening policies under the RFS2.

If the RFS2 is modified, we recommend that it be expanded such that biofuels may be used in applications beyond transportation or home heating. At the time that the RFS2 was being written, there was concern that biofuels would be used in electricity applications and get credit not only under the RFS2 but also under the Renewable Electricity Product Tax Credit. If the concern is to not allow biofuels in the electricity market and count toward the biofuel mandate, then perhaps only exclude electricity. Petroleum is used in a multitude of applications. Reducing petroleum consumption helps the environment, adds to the effort of national security, helps create jobs and save jobs

Manufacturing industries uses petroleum products and many facilities need to reduce emissions given new EPA regulations. As the RFS2 presently stands, if a manufacturer were to use biofuels in their process for something other than transportation or space heating (assuming the biofuel is Biodiesel), the credits generated by the biofuel, called Renewable Identification Numbers (RINs) are valueless because they would have to be retired. The obligated parties purchase RINs to demonstrate compliance with the statute. Retiring the RINs makes them valueless to the obligated parties and significantly reduces the value of the biofuel. Biofuels represent a potentially cost effective way for the manufacturing

industry to reduce harmful emissions, thus saving manufacturing jobs while simultaneously creating and preserving jobs in the biofuels industry.

We believe in what we are doing to create jobs and improve the environment in innovative ways. If the government is going to be involved, there needs to be recognition of small businesses efforts and needs for approvals in a more expeditious manner and an effort toward regulatory certainty.

Thank you for this opportunity to share with you our innovative efforts at Greenworks Holdings, LLC.