

Bio Energy Company Writing Samples

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**The formal names of the companies were changed in these documents.

**** For Immediate Release ****

EDITORS: For review copies or interview requests, contact: Debbi Stumpf 317-919-8662
DebbiStumpf@gmail.com

Company 1 Technologies Leads Green Energy Advancements with Bio-Fuel Development

Location | Date- Company 1 has developed a proprietary method for processing 100% renewable bio-diesel fuel that results in a high-quality renewable and affordable fuel source.

Biodiesel, made from recycled cooking oil, agricultural oils, and animal fats, was the first EPA-designated advanced biofuel to be produced on a commercial scale nationwide. Biodiesel is a clean burning alternative fuel, produced from domestic, renewable resources. It is a diesel replacement that is reducing dependence on imported oil and creating green jobs while improving our environment.

Biodiesel reduces life-cycle carbon emissions by over 50 percent compared to petroleum diesel. Pure biodiesel contains no petroleum or petroleum byproducts. It is sourced from renewable natural resources by converting feedstocks into advanced biofuels and renewable chemicals that meet or exceed the strict specifications of the U.S. Environmental Protection Agency ASTM D6751 standards. Company 1's biodiesel is QAP Q CERTIFIED.

Company 1 biodiesel production supports Green Energy Initiatives through the use of natural, energetic processes that can be harnessed with reduced environmental impact. Biodiesel's primary advantages lie in lower emissions, higher fuel cetane number and flash point. In addition Company 1 biodiesel has excellent lubrication properties that reduce friction within engine components.

Biodiesel provides similar horsepower and miles per gallon, when compared to traditionally processed diesel, yet offers greater engine protection with smoother running engines and reliable operation. Unlike conventional diesel fuel, biodiesel is a 100% renewable fuel, that provides a practical and cost-effective ways to address climate change caused by greenhouse gasses.

Company 1 is committed to creating positive environmental impact through manufacturing high quality biodiesel. We are creating a network of advanced biodiesel manufacturing plants throughout the United States with distribution channels that meet our clients' needs.

The company will also be working to expand on its advanced technology with plans to make biofuels out of additional waste materials. Company 1 utilizes a supply chain model that greatly reduces transportation and handling costs. By optimizing operations within the service regions, we keep logistics cost down eliminating unnecessary travel which results in a low-cost solution.

In consideration of the overall carbon footprint of our products, from feedstocks through the refining process, we ensure that Company 1 biodiesel maintains sustainability while providing high quality biodiesel products that exceed EPA standards.

Company 1 pioneered their proprietary biodiesel process which demonstrates that using enzymes as a catalyst, requires less energy and the use of fewer processing chemicals with a greater variety of feedstock. The use of enzymes in the production of biodiesel is now economically feasible on a commercial scale.

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For More Information Contact: (Contact Information Removed)

Company 1 Business Plan

Company 1 Executive Summary

Objective

Company 2, Company 3, Company 4, Company 5 and Company 6, all possessing various assets, capabilities and technologies related to biodiesel production, distribution and equipment manufacturing will be acquired and merged under a single entity called Company 1 and combine their various capabilities to provide the next generation of biodiesel to the fuel industry.

Players

Company 2, Company 3 and Company 5 are biodiesel producers have technology, EPA licenses and pathways, production experience, facilities and equipment to contribute to produce biodiesel. Company 4 sources feedstock and arranges biodiesel sales. Company 6 is an equipment provider to the industry and has developed various technical capabilities for biodiesel production.

This combination of entities will facilitate the transition from the traditional chemical production of biodiesel to an enzyme-based mode, and from a virgin and used cooking oils feedstock to lower grade fats and greases. Both strategies will reduce the cost of production and reduce environmental impacts.

Plan

The initial plan is to upgrade and/or construct and operate four biodiesel facilities in 4 states that will produce a total of 40 million gallons of biodiesel. They will be the first production scale biodiesel plants to be run entirely on low grade feedstocks.

The growth comes from becoming tightly aligned with major petroleum distributors to provide guaranteed long-term offtake of production. As importantly, we will also align with major sources of low-grade feedstock that are currently being land applied or land filled as waste oils.

Structure

Company 1 will acquire the assets, technologies, and know-how of the other related companies and direct and fund the organization. The operations will be consolidated and focused on the single mission to expedite growth rapid implementation of the technology.

Company 1

Biodiesel Marketplace

Historical Perspective

Biodiesel was invented over a century ago and has been in use around the world for many years. Biodiesel is made from renewable feedstock oils like soybean oil. With the advent of cheap petroleum and worldwide distribution in the early 1900's, biodiesel has been obscured by big petroleum. Also, because of its traditional cost disadvantage to petroleum and the dominance of the petroleum distribution infrastructure, biodiesel had gained no modern market share.

In the early 2000's the movement to produce renewable fuels to reduce environmental impacts and to do so in locations outside the politically charged Middle East to increase energy independence led to the rediscovery of biodiesel. By 2008, the United States Congress had moved to introduce laws requiring the use of biodiesel in the fuel supply that targeted 5% of petroleum diesel usage by 2022. This became known as the RFS II or Renewable Fuels Standards legislation. The program is administered by the EPA and the IRS. The EPA issues the permits to build and to operate the biodiesel facilities and the IRS registers the production as it relates to fuel excise taxes.

Congress created a system to mandate the use of fuels by requiring "obligated parties" primarily oil producers and refiners to purchase biodiesel in "wet" gallons or to buy "RINs" or carbon credits to cover the mandated fuel quantities each year to create a market for the fuel. The fuel is typically blended with petroleum diesel and sold by traditional distributors and retailers across the USA. Each year the EPA releases a mandate that determines the amount of biodiesel and other renewable fuels that is required in that calendar year. Generally, the mandate increases each year creating and increasing demand for renewable fuel. While the EPA adjusts the mandates annually, it cannot cancel the program as it is law, but the law could expire, but it is highly unlikely years of green energy development would be abandoned by Congress.

Biodiesel Economics 101

Since biodiesel has traditionally cost more to produce than the cost to produce its petroleum counterpart, the not only had to create the market for the fuel, they had to create an economic model to ensure it would be produced because there was no built-in profit margin.

They used two approaches to make the economics viable for producers. Keep in mind producers are paid directly by purchasers of biodiesel for the value of the fuel based on the price of heating oil, but the price of heating oil is normally much lower than the cost of producing biodiesel. So, they created a "RIN" renewable identification number for each gallon of biodiesel produced and gave the producers RINs (a marketable commodity) to sell to the obligated parties. The obligated parties purchase the RINs to cover their requirement and hence create a demand and a value for the RIN convertible to cash for the producer. Also, in addition to the RIN producers and blenders are normally eligible for a \$1 per gallon IRS tax credit on all fuel produced and blended with petroleum. Hence, the revenue model for biodiesel is; the price of heating oil plus the value of the RIN plus the value of the \$1 tax credit. This allows the industry to exist under cost disadvantages to petroleum. The IRS tax credit is paid directly to the recipient. It is typically paid on a monthly cycle but can be filed weekly as well for cash flow purposes.

The RIN is a bit more complicated. The RIN is ultimately purchased by the obligated parties (big oil) but they typically buy them from RIN traders who accumulate RINs from various producers and bundle them for sale in large blocks to the oil companies. These traders, charge a fee for their service of about 3%. Typically RINs are sold weekly (depending on volume) and payment for the RINs is settled the following week at the market price on the sale date less the trader's fee.

Company 1

Technology Overview

Technology Background

Biodiesel, having been made for over a century is relatively easy to make from virgin oils like soybean oil. The process is known as transesterification. The simple way to understand how transesterification works is to understand the word itself. The word simply means “to trade alcohols”.

Oils like the soy oil that we use in food and cooking everyday are generally classified as triglycerides, meaning they had three glycerides in the molecule attached to fats. These glycerides, while helpful for food and cooking, make it difficult for a modern engine to use as fuel because the glycerides are thick and raise the flash point for combustion.

To solve this problem the process separates the glycerides known as glycerol (aka alcohol) from the fats in the molecule and reattaches (or “trades”) a new alcohol in its place (usually methanol) which makes the fuel thin and lowers the flash point to aid in combustion for use in engines.

While the base reaction is simple, the process to purify the fuel for use in modern engines and to certify the fuel for use requires additional technology, and various approaches are readily available.

Our Technology Advantage

While virgin oils are nice, they are also expensive, and they “compete” with the food supply and raise the cost of food in general. This has led to the successful use of “used” oils in biodiesel production. While this has lowered the input cost of production, it also has required more elaborate technology and extra process steps to “clean up” the oil and to convert the oil to biodiesel because besides being “dirty” it is also degraded.

The current technology in use in the biodiesel industry is primarily adapted for virgin oils like soy, or used oils called UCO or yellow grease (used cooking oil). Only about 30-40% of all biodiesel is produced from non-virgin oils because of the available supply of UCO and the difficulty in using waste oils.

Our facilities have never used virgin oils for cost reasons. Rather, we have been developing our approach to use lower grade waste oils like brown grease and FOG. Brown grease comes from grease traps and FOG comes from wastewater treatment facilities. Both are significantly cheaper feedstocks (like \$1 per gallon cheaper) and available in large quantities. Most of these waste oils are land filled or land applied, both are problematic and will be disallowed by the EPA beginning in 2018.

The technology to use these waste oils allows for a cost of production low enough that it eliminates the dependence on the \$1 IRS blenders credit to make biodiesel profitably and reduces the dependence on the RIN for the same reason.

There are three components of the technology: first, cleaning up waste oils, second producing crude biodiesel using enzymes rather than traditional methods, and third distilling the biodiesel for purification and sulfur reduction requirements.

We have an operating clean up function running at a wastewater treatment facility in a southern state, we have enzyme production running in two additional locations, and we have two test distillation units currently running.