



DOCKET	
08-ALT-1	
DATE	FEB 27 2009
RECD.	FEB 27 2009

February 27, 2009

California Energy Commission
 Dockets Office, MS-4
 Re: Docket # 08-ALT-1
 1516 Ninth Street
 Sacramento, CA 95814-5512

Subject: Advisory Committee Meeting

Dear Madam/Sir:

Darling International Inc. ("Darling") appreciates the opportunity to submit comments regarding the Investment Plan for the Alternative and Renewable Fuel and Vehicle Technology Program, Docket # 08-ALT-1. Darling requests the California Energy Commission to allocate a significant portion of the 2009-2010 AB 118 funds to biodiesel processing and distribution. Darling believes that all forms of biodiesel production, and more specifically biodiesel production from California sourced animal fats and used cooking oils provides California with the fastest and best path forward in its efforts to reduce carbon emission intensity.

Darling is the largest and the only publicly traded independent rendering company in the United States. Rendering companies such as Darling recycle meat and slaughter byproducts and used cooking oil from the restaurant and fast food industry to produce animal fats, recycled cooking oil and animal proteins that are used as animal feed ingredients, by the oleo-chemical industry and to make biofuel. Darling was established in the year 1882, making the company more than 126 years old, and operates rendering and restaurant grease recycling facilities across the United States. In California, Darling operates recycling facilities in San Francisco, Los Angeles, Fresno and Turlock. Darling also has collection stations in San Diego and Santa Ana.

Darling estimates that California annually produces enough fat and used cooking oil to manufacture approximately 80,000,000 gallons of biodiesel annually. Every agency (EU, EPA, CARB) has concluded that biodiesel from animal fat and used cooking oil represents the best commercially available renewable fuel in terms of improving carbon intensity. The EU has concluded the carbon reduction associated with

recycled animal fats and used cooking oils to be 83%. Other agencies, such as the California Energy Commission, are currently estimating the benefit to be closer to a 92% reduction. No other commercially developed fuel can create such an immediate and substantial impact on carbon intensity reduction. Using the conservative 83% reduction calculation, that means California has a ready to use biofuel which could lower carbon emissions by almost 670,000 metric tons per year. Obviously, vegetable based biodiesel plants (while not quite as good in terms of carbon intensity reduction) will contribute significantly to further reductions in total carbon emission.

The calculations to date do not consider the additional benefits which the California animal fat and used cooking oil industry provide to the carbon equation. It is often overlooked that “rendering” of meat industry waste products and on-farm animal mortalities significantly reduces the potential carbon emissions associated with their disposal. In California, the rendering industry processes 2.4 billion pounds of raw materials annually¹. Animals that die on the farm make up about 22% of the volume (which includes more than 500,000 cattle) rendered in the state. Animal by-products collected from animal slaughter and when meat is processed, contributes about 60% of this total and used cooking oil collected from California restaurants accounts for about 13%. If not rendered, these materials would be difficult to dispose of without damaging the environment or endangering human and animal health.

When deceased animals or animal by-products are rendered, the recycling process effectively captures the carbon contained in the animal and waste material. Alternative disposal methods, such as disposal in already crowded landfills, composting, or letting the animal decompose in a field, all result not only in carbon dioxide but also in substantial methane and some nitrous oxide being released. Darling, using a chemical analysis approach, estimates that for each deceased adult cow, the potential carbon dioxide equivalent emissions would be about 880 pounds per animal. This and subsequent greenhouse gas estimates are conservative because they assume the carbon in the raw material is converted only to carbon dioxide. The global warming potential would be much greater if potential methane and nitrous oxide production, which may both be substantial, had been considered.

Considering all services the rendering industry provides in California, the industry uses 25 million therms of natural gas² to process its raw materials and capture almost 960,000 metric tons of carbon dioxide equivalents for recycling. Accounting for natural gas combusted (using the EPA constant of 11.7 pounds carbon dioxide per therm) for processing, the California rendering industry prevents greenhouse gas production each year by capturing and recycling the equivalent of more than 823,000 metric tons of carbon dioxide equivalents more than it emits from burning natural gas.

There is also an established health benefit associated with rendering as opposed to disposing of animal mortalities and by-products through abandonment or other non-rendering

¹ Source: Annual rendering census conducted by the Pacific Coast Renderers Association for the June 30, 2007 to July 1, 2008 fiscal year.

² See *id.*

methods. These benefits include the biosecure removal of diseased animals from the environment and processing carcasses and slaughter house waste to destroy infectious and food pathogens (such as E.coli and salmonella) that may threaten human and animal health. The rendering process uses process temperatures that exceed 240 F (115 C) and process times of more than 30 minutes to achieve this pathogen destruction.

The greenhouse gas reduction benefits that result from capturing carbon in recycled animal fats and used cooking oils to be used as biodiesel feedstock have not been previously quantified. Based on industry data for annual natural gas usage by rendering facilities in California³, direct emissions of about 2.6 pounds of carbon dioxide equivalents result for each gallon of recycled animal fat and used cooking oil produced. Using internal data, Darling estimates that natural gas usage accounts for about 70% of all direct and indirect emissions associated with the collection, processing and transport of materials for rendering. Combining the industry data for natural gas usage with Darling's estimates for other direct and indirect emissions, Darling estimates that the rendering industry captures 20.0 lb of carbon dioxide equivalents for each gallon of recycled fat used to make biodiesel. Once captured, these carbon emissions are recycled rather than being released into the environment, resulting in a critical control over the production of substantial quantities of greenhouse gases. When combined with the recognized environmental benefits of substituting petroleum diesel with biodiesel, the global warming potential for California would be reduced by an additional 712,000 metric tons of carbon dioxide equivalents, for a combined reduction of almost 1.4 million metric tons per year.

Additionally, it has been demonstrated that biodiesel substantially reduces particulate emissions, and lowers the emissions of all potentially harmful emissions except for NOx. While various studies have come to very different conclusions, it is fair to conclude that NOx emissions associated with biodiesel will be approximately the same or slightly higher. However, since animal fat is much more saturated than vegetable oils most studies have concluded that animal fat based biodiesel will have a lower NOx profile than does vegetable based biodiesel.

The biodiesel industry needs the assistance from the State of California in three ways:

First, is continued implementation of the low carbon fuel standard.

Second, is utilization of a significant portion of AB 118 funding for 2009 and 2010 to assist biodiesel facilities in the construction of low carbon intensity biodiesel plants. It costs approximately 30-40% more to construct biodiesel plants which have the capability to transform animal fats and used cooking oils into biodiesel. An investment of only \$40-50 million dollars could provide the incentive necessary to convert a substantial portion of the California animal fat and used cooking oils into biodiesel.

Third, the biodiesel industry requires some capital to develop the supply chain through bulk terminals and large fleet users. Additional biodiesel distribution is

³ See *id.*

required to move biodiesel from the producer to the end user (as most end users will utilize the product in a 5-20% blend).

A chicken and the egg problem has developed regarding biodiesel distribution. Since there has been only a small amount of biodiesel produced, the distribution system is reluctant to install the necessary tankage and blending systems. Darling believes that incenting California production of low carbon fuel is the first part of the answer. The second would be to provide capital assistance for fuel blenders and users to install the necessary tanks and blending equipment. It is difficult to determine an exact dollar figure required to encourage development of the necessary biodiesel distribution infrastructure. We expect, however, that allocating similar amounts to biodiesel processing and to distribution could provide California with both a significant low carbon intensity fuel and the infrastructure to facilitate its distribution throughout the State.

Darling understands that The California Energy Commission is now defining its investment plans for approximately \$172MM dollars to be distributed in 2009/2010. Darling believes that if the primary objective of AB 118 and AB 32 is the immediate and sustained reduction of carbon emissions, there is no better "fast track" forward than investment in biodiesel processing (particularly processing from animal fat and used cooking oils produced within the State of California) and distribution.

I am available to discuss these issues further or to answer questions.

Sincerely,

A handwritten signature in cursive script, appearing to read "C. Ross Hamilton".

C. Ross Hamilton, Ph. D.
Director Government Affairs and Technology
rhamilton@darlingii.com