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Dear Long Beach City Council, 03-22-05

On tonight's agenda is an item about Fats Oil and Grease (FOG) clogging up Long Beach's waterways. I'd like to suggest a way the city of Long Beach can alleviate this problem while saving money.

The back page of the latest issue of *The Wave* had an article about Fats Grease And Oil (FOG) clogging up LB's sewer system. The article stated that the sewer treatment process is more expensive because FOG clogs filtration units used to clean the water. The article stated that the primary cause of FOG is food preparation establishments that do not have adequate grease control devices or maintenance measures in place. One possible cost cutting measure would be to reduce the amount of FOG coming from food preparation establishments. This would reduce the money coming out of the budget for sewage treatment.

Food prep establishments have to pay a fee to tallow companies to come and take FOG material away from their establishments. Perhaps, if the companies did not have to pay this fee, they could use the money to bring their grease control devices up to code.

I think that LB should offer a tallow collection service for free or at much lower cost than tallow companies charge. This service should be offered to LB food preparation establishments that have up-to-code grease control devices installed. I think that LB should use the tallow to fuel city owned vehicles that run on diesel. This is **not** crazy talk.

Attached to these comments is an article that ran in the *San Francisco Chronicle* during February of 2005. The article is about some guy who makes his living purchasing diesel Mercedes sedans and converting their engines to accept the FOG (called SOV in biofuel jargon) that comes directly from the bin in the back of Mcdonald's and like establishments. It is a long article but worth the read. Here are some things that I learned that are relevant to my suggestion.

- Diesel engines can run on recycled FOG by one of two means:
  - The diesel engine inside the vehicle can be modified OR
  - The FOG, called SOV, can be modified.
- The modification of SOV involves a system that costs fewer than $1,000.00 and is about twice the size of a home beer brewing kit.
- Once SOV is modified it is called biodiesel and it can go into **regular** diesel engines just like diesel fuel does.

So my suggestion basically breaks down like this:

1. LB should build its own giant SOV modification kit or purchase a number of smaller consumer models.
2. LB should purchase a vehicle meant for the collection of tallow.
3. LB should start collecting tallow from LB food preparation establishments at little or no cost as long as the establishments are within compliance for grease disposal.

4. LB should turn the tallow into biodiesel.
5. LB should use the biodiesel to run its own fleet of diesel vehicles.
6. LB should burn the biodiesel for fuel in its own trash-to-fuel plant.
7. If LB does not have a large enough fleet of diesel vehicles to warrant a biodiesel program, it should set up a City of LB fueling station at the Port of Long Beach and sell the fuel to the diesel trucks that take containers to and from the Port.

Here are the cost cutting measures and other benefits of LB running a biodiesel program:
With less FOG clogging the sewage treatment systems, the cost of sewage treatment decreases.
With biofuel running LB's diesel vehicles, the cost of fueling the vehicles decreases.
If the city sells biodiesel to big rigs, the pollution associated with the big rigs idling their engines by the Port decreases because biodiesel has an emissions rate that is dramatically smaller than diesel fuel (though if the program catches on the entire Port area will smell like one big McDonald's/KFC).
If LB sells biodiesel to big rigs, it makes a profit.

Please don't dismiss this idea out of hand just because it is out of the box and the idea was sparked by an article about some hippy in the Bay Area. City officials have **got** to be creative when it comes to addressing balancing the budget without dramatically decreasing the quality of life in LB. At least put a task force together of food preparation establishment owners, LB Water Dept officials, the city officials in charge of maintaining city owned vehicles and citizens to study the feasibility of the suggestion. I would volunteer my time for such a task force.

Sincerely,

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The Mercedes Wrangler is riding the eco-range

- Larry Gallagher, Special to SF Gate
Wednesday, February 9, 2005

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You will know him by his smell, that cloying, almost-familiar odor of french fries gone wrong, a smell that can pique and puncture your appetite in the same instant. He'll be wearing the same outfit -- black leather jacket, T-shirt, blue jeans -- but he'll be driving a different car every time you see him, a different turbocharged Mercedes Benz diesel from the early Reagan years.

His saddlebag is light, just the essentials of modern life: a toothbrush, a change of clothes, a cell phone and a laptop loaded with 6,000 MP3s to keep him company through those long, lonely hours on the trail. His range covers the 900 miles of I-5 from the Southern California desert to the rain forest of the Pacific Northwest. He corrals the old diesels in the wilds of greater Los Angeles, before they are put out to pasture, and, riding the jet stream of supply and demand, leads them to their new lives as veggiemobiles for eco-hipsters in Seattle.

Meet Brian Friedman, the very model of the modern Mercedes Wrangler.

To understand the social and mechanical forces that have created a niche market for a Mercedes Wrangler, you must first be subjected to two facts and three theories. Fact #1: Around the turn of the last century, German inventor Rudolf Diesel designed an internal combustion engine to run on peanut oil. Fact #2: Built to withstand higher compression and with fewer moving parts, the modern descendants of that engine tend to run longer than their gasoline-powered peers. Theory #1: The best cheap passenger diesels available in this country are Mercedes from the early '80s. Theory #2: There were a lot more rich people in LA 25 years ago than there were in Seattle. Theory #3: There are a lot more eco-hipsters in Seattle today than there are in LA.

I met Friedman a few weeks ago on a street corner in San Francisco, where he was showing one of his recent acquisitions to a friend of mine. He was then in transit north, but the next time he passed through town, I cornered him long enough to get his story. "This was not the plan," he began. Like many a frontiersman before him, he had once believed in the system, had tried to make a go of it on the inside. He was a legitimate business owner, opening up what he claims was the first salon in the country to offer tattooing and piercing under the same roof, in San Jose.

Five years later, he moved to San Francisco and opened up a salon called Anubis Warpus, on Haight Street. For 15 years, he claims, he tried to play by the rules, only to have some bureaucrats at the state Employment Development Department decide to make an example of him. He's cagey about the details, wants to bury that part of his past. "Let's just say I believe the whole system is corrupt," he says.

Three years ago, he walked away from his business. At the age of 36, he had decided to kick it all in the head and get off the grid, literally and metaphorically. "It's not like I wanted to be a hermit or anything," Friedman says. "I was just trying to figure out a way to hang out with my friends, live in an Airsteam, that sort of thing. It had just gotten to the point where it became impossible to be part of a system I no longer believed in."

As part of his new future, Friedman began researching technologies that would allow him to live outside of the mainstream without losing too many of the comforts of modern life. It was only a matter of time before he stumbled on the world of biofuels, types of fuel derived from biological raw materials. With his new streamlined economic profile, the idea of tapping into free sources of vegetable oil for vehicle fuel had an instant appeal; it allowed him to indulge his love for driving without supporting the increasingly problematic petroleum industry.

To run a modern diesel engine on veggie oil, he learned, you either modify the oil or modify the engine. To

do the former, you cook it up with lye and methanol to settle out the glycerine. The stuff at the top of the stew pot is what is known as biodiesel, and you can pour it into the tank of any diesel and drive off.

Straight veggie oil, or SVO, as it is known in the biz, needs to be heated before it will run with any kind of predictability, so all conversions involve some device to heat the oil before it hits the injectors. But once you've licked that problem, you can back up to the oil Dumpster at any restaurant and fill up your tank with free fuel. (OK, it's more complicated than that. You've got to pour the stuff through filters to reduce the amount of french fry debris, water and drowned rodents that get sucked through your fuel system. And you've got to get the permission of the restaurant owner and avoid the renderer. But you won't have to lay out any hard currency for a tankful.)

Friedman's first vehicle was a Datsun truck. "I wouldn't recommend it," he says, and leaves it at that. He had heard that Mercedes diesels were more robust but was intimidated by the price of replacement parts. Eventually, he located the right salvage yard in LA and made the upgrade.

Before Friedman had finished converting his first Mercedes, he had friends lining up to buy it off him. He started looking through the auto listings on the West Coast and found an abundance of them in Southern California -- people seemed happy to unload them. "I didn't even have to talk them down," he says. And even though it is not uncommon for a diesel engine to log half a million miles, once they get in the vicinity of 200K, dealers won't touch them. Nor was there much of a demand from righteous hippies. "In LA, they think it's a joke. They look at me as if I should be embarrassed to be running on veggie oil."

Friedman found a lot more enthusiasm among his slacker friends in San Francisco, but few had enough money to shell out even a few thousand dollars for a 25-year-old car. So he went online and searched through the Web sites of biodiesel collectives up and down the West coast and found Seattle to be the epicenter of the clamoring, where there were enough people with enough money to justify the time and effort. The last piece of the chain had fallen into place.

Friedman figures he spends about half his time driving and half his time doing conversions, but he prowls the Internet around the clock, seven days a week. His base of operations in LA is an Airstream parked in the parking lot of a friend's shop. When he finds a Mercedes, he buys it with cash and performs whatever mechanical repairs are needed to prepare it for the long journey north. So loathe is he to spend any money on "dino diesel" that he just dumps SVO into the tank before he does the conversion, which you can actually get away with if you don't mind getting stuck on the side of the road from time to time. (You can also still run the converted cars on regular diesel, FYI.)

San Francisco is usually the first layover on the freedom trail, but he has got secure couches in Sacramento and Portland, too. He has a chain of waste-oil Dumpsters up and down the corridor. He also has a woman in each of these towns, although none of them knows about the others. (I made this last bit up, but it might help us sell the movie rights.) He has family in Seattle. When he gets to town, he takes a few days to catch his breath, tries to unload some of his inventory, performs conversions. Then he catches the Southwest cattle car and the cycle begins all over again.

So far, Friedman has sold 15 cars this way. "I could sell another 15 today if I could get my hands on them," he says. His latest car, he adds, sold within 20 minutes of his posting it on Craigslist. "Literally. I got the call after 15 minutes, and five minutes later the guy was running after me with the money so I wouldn't sell it to somebody else." In the beginning, he would do the conversions before he sold the car, but in time he learned that he was shooting himself in the foot. "People were suspicious. They thought the car must have been damaged." Now he has people test drive the car before he converts them, and offers the SVO conversions on the side. So far, everyone has taken him up on it.

Even within the world of biofuels, the Mercedes Wrangler stays on the frontier, a maverick's maverick. In the beginning, Friedman experimented with some of the SVO conversion kits available on the market. Most required two fuel tanks, one for SVO and one for biodiesel, which is used to start and stop the engine. Other systems heated the fuel in the tank by running coolant lines back from the block, but Friedman didn't like the vulnerability of all that rubber hosing under the chassis. "I got the best in the industry," he says, and he still wasn't satisfied. He believed he could come up with a system that was

simpler, cheaper and less prone to mechanical failure.

He combed the Internet to find truck parts he could rig to solve the problems of fuel flow and filtering, the two main problems that plague SVO operations -- especially those that run on WVO, as old frier oil is known. He started experimenting with heat exchangers, which take hot water from the block and use it to heat the incoming fuel. For cold starting, he employs electric fuel-line heaters as well.

When you do business with the Mercedes Wrangler, you become part of an ever expanding matrix of alternative-fuel researchers. He keeps in touch with all the people who have bought cars from him, and when he figures out a new trick, he helps them with the retrofit. "It's hard to say, 'This is how it is,' because it's changing day to day," Friedman says. "I mean, I've run into ridiculous problems. I just look at it like it's free schooling."

As important as he thinks the biodiesel thing is, Friedman sees it as just a warm-up act for an even bigger development, a little detour for a couple years to let the rest of the world catch up, a few years to monkey around with internal combustion engines before moving on to the grand prize: a biofuel that can power gasoline engines.

He tells me about one called magnegas. It seems that some scientist has figured out a way to generate a combustible gas by running a specific modality of electricity through human and industrial waste streams. In the process, the feedstock is rendered harmless, and the resulting fuel can be burned in an automobile engine with negligible pollution. To top it off, the process is alleged to yield more energy than it consumes. Friedman shows me a scrap of paper he has been carrying around in his wallet for some years, on which he has scrawled the formula for producing magnegas: 30.8 volts AC, 81.6 amps, 140-amp welding power supply, plus a few other indecipherable terms and numbers.

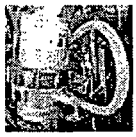
Sound too trippy to be true? The company with the patents for the process is marketing it only as a way to clean up hazardous waste, but Friedman thinks there's more to that story than meets the eye. It could change the face of civilization as we know it. Or it could be squashed by the powers that be. He's not discounting either possibility. "I don't want to say too much about it, because I don't want to sound like a complete raving idiot," he says to me before he disappears in a puff of canola smoke. "But you should look into it."

After a ten-year hiatus from journalism, during which he studied Zen, raised organic vegetables, sold sheepskin products, built decks, and recorded a cd, Larry Gallagher is once again pursuing his course of world domination through prose. For more about Larry, see larrygallagher.com

URL: http://sfgate.com/cgi-bin/article.cgi?file=/g/a/2005/02/09/mrcedeswrang.DTL

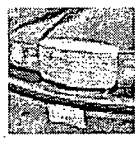
The Mercedes Wrangler is riding the eco-range

Brian Friedman shows how he fills the tank on his bio-diesel Mercedes when he's on the road. SFGate.com photo by James Irwin



SFGate.com / James Irwin

The Mercedes Wrangler is riding the eco-range
Brian Friedman shows off the bio-fuel processing unit that he will install (for $600) in his customers' diesel-powered autos. The processor allows motorists to burn waste cooking oil in their engines. SFGate.com photo by James Irwin



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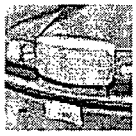
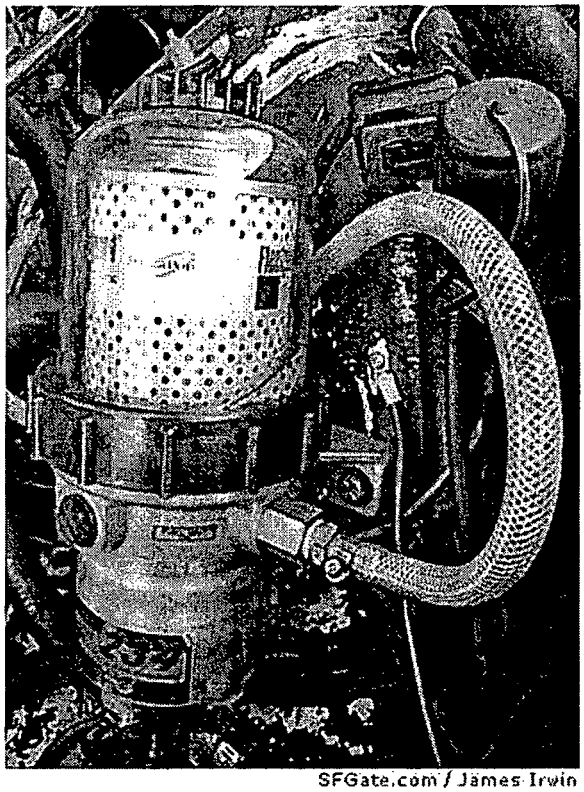
The bio fuel processor that Brian Friedman installed was manufactured in Michigan by DAVCO Technology. SFGate.com photo by James Irwin .





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Brian Friedman drives up and down the coast in his self-modified Mercedes, demonstrating the benefits of bio-diesel fuels. SFGate.com photo by James Irwin

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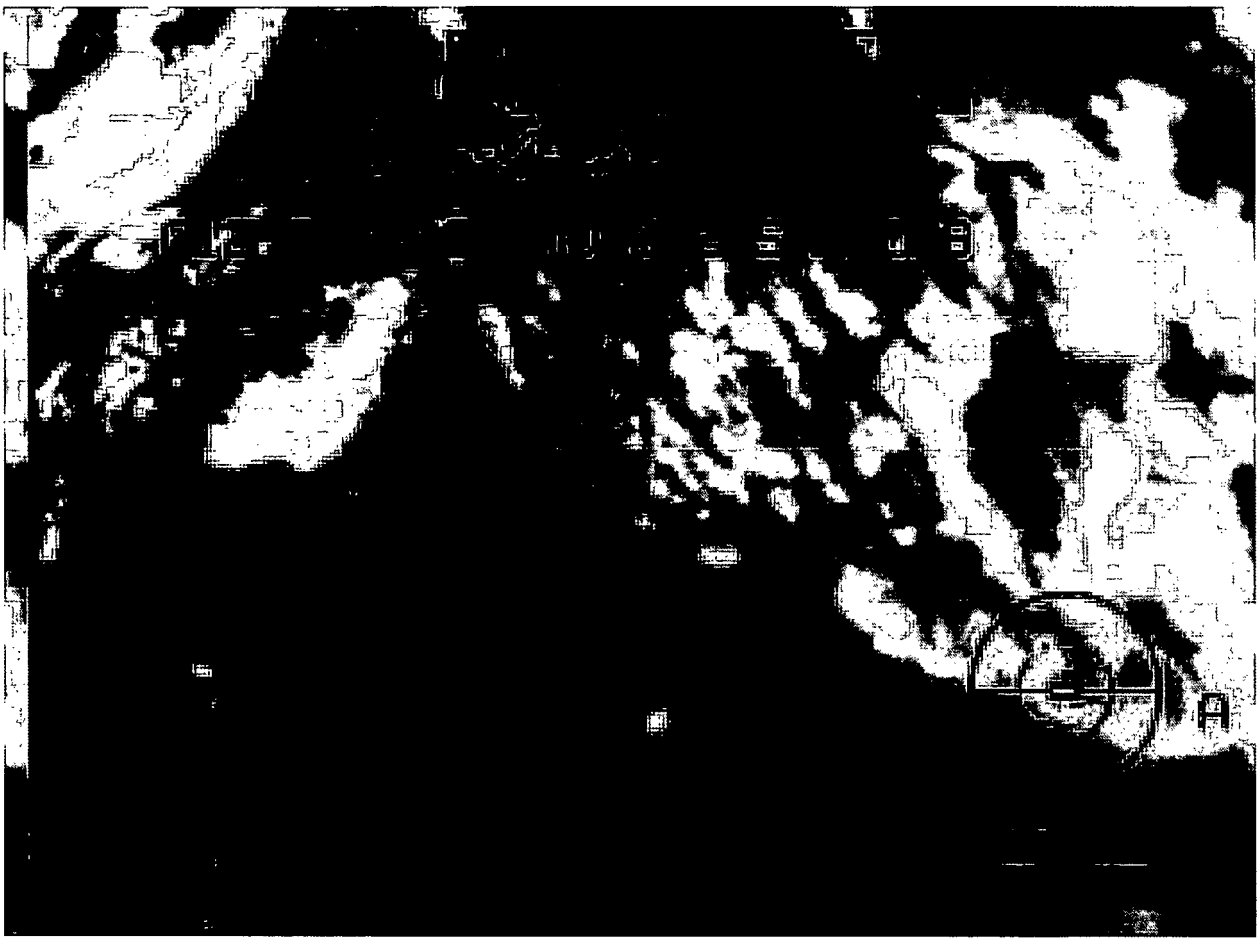

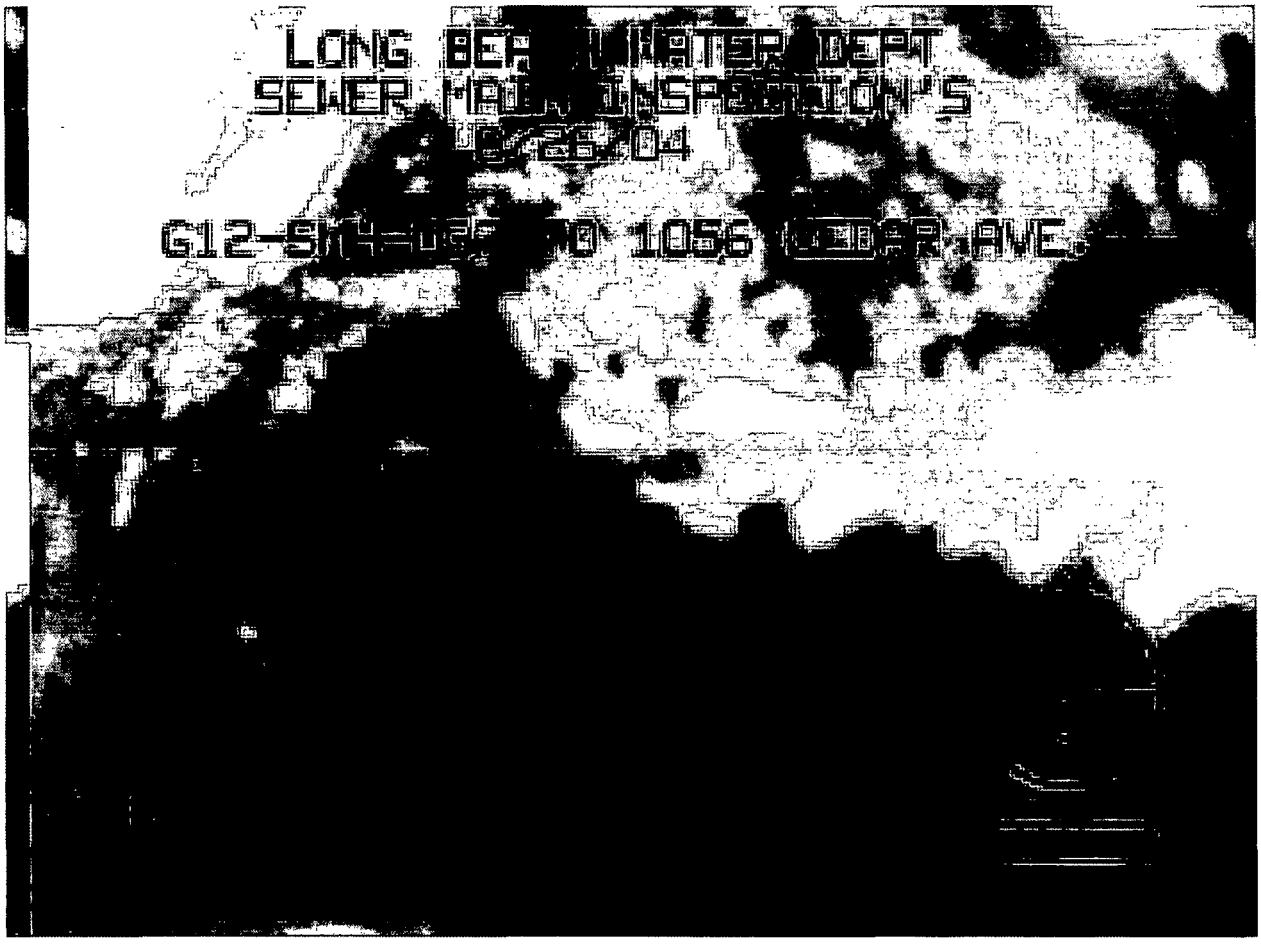
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