Evergreen Oil, Inc.

dedicated to the protection of the environment

Evergreen Oil, Inc. Supports Including Re-Refined Oil as Part of the State's Calculations for Greenhouse Gas Reductions in the Transportation Sector

Evergreen Oil, Inc. Produces "Closed Loop" Re-Refined Oil

Evergreen Oil, Inc. (Evergreen) operates the only fully licensed part "B" re-refinery in the Western United States[1] dedicated to the production of virgin-like quality lube base oils, from used lube oil. Evergreen's re-refinery is located in Newark, California.

Evergreen's base oils have passed the laboratory and engine test requirements ensuring they meet all American Petroleum Institute (API) standards for the same cold-start pumpability, rust erosion, engine wear, and high performance standards as virgin oil; as well as warranty requirements for new automobiles. Evergreen's base lubes are used in California government fleet vehicles as well as fleets in Minnesota, Vermont, Washington, and New York. The California cities of Los Angeles, Thousand Oaks, Santa Monica, San Francisco, Chula Vista and Sacramento all use re-refined oil in their fleets.

"Closed loop" recycling, from engine to re-refinery and back to the engine is the essence of Evergreen's business. *Used motor oil is a renewable resource*. Motor oil never wears out; it only gets dirty, and can be re-refined into new lubricating oil in an endless recycled loop which saves energy and reduces greenhouse gas (GHG) emissions.

The United States Generates 1.3 Billion Gallons of Used Oil Annually which Could be Re-Refined

The United States generates approximately 1.3 billion gallons of waste oil each year, of which Californians generate more than 100 million gallons. Nationally, only 10% of that used oil is re-refined. Evergreen re-refines approximately 11% of California's used oil. Approximately 48% is refined for energy recovery and burned as low sulfur diesel, leaving the rest to be burned as fuel. The majority of used oil burned as fuel, is shipped out-of-state (approximately 35 million gallons), untested and untreated, releasing toxic pollutants into the environment[2].

---

[1] There are only two used oil re-refineries in the United States: Evergreen and Safety-Kleen. Safety-Kleen's re-refinery is located in East Chicago, Indiana.

[2] While numbers are not precise, according to the LLNL report, approximately 17% of California's used oil is unaccounted for.

Headquarters
2355 Main Street, Suite 230
Irvine, CA 92614
Tel: (949) 757-7770 Fax: (949) 474-9149
Customer Service: (800) 972-5284

Operations - North
6880 Smith Avenue
Newark, CA 94560-4224
Tel: (510) 795-4400
Fax: 510) 796-2559

Website: **www.evergreenoil.com**

Re-Refined Oil can help the Transportation Sector Meet AB 32's Green House Gas Reductions

California recognizes that re-refining used oil as compared to refining virgin crude oil saves both energy and greenhouse gas emissions. In response to a law suit filed by the State of California, over GHG emissions, ConocoPhillips agreed to pay $10 million for projects that would curb greenhouse gases in an attempt to compensate for releasing an additional 500,000 tons of carbon dioxide a year subsequent to the expansion of its Rodeo refinery in 2009[3]. California has not, however, recognized that re-refining used motor oil, an indispensable part of vehicle transportation, saves energy and reduces GHG emissions in the transportation sector.

Transportation contributes 39% of California's gross GHG emissions. Targeting this sector is one of the key elements in the state's efforts to reduce GHG emissions. According to the American Petroleum Institute (API), more than one billion gallons of motor oil are sold in the United States annually. Motor oil, and the refining of oil, is an integral, indispensable part of the transportation emissions profile.

Studies Conclude that Re-Refined Oil Reduces GHGs and Conserves Energy

Recent studies have concluded that re-refined oil, compared to virgin crude, both significantly reduces greenhouse gases, and conserves energy.

According to the U.S. Environmental Protection Agency (EPA), by re-refining its used oil[4] the nation would save 2.5 million gallons of oil per day. The same study concludes one gallon of re-refined used motor oil will yield the same 2.5 quarts of lubricating oil obtained from refining 42 gallons (one barrel) of virgin crude oil.

The American Petroleum Institute has concluded that it takes 50-85 percent less energy to produce a lubricant through re-refining used oil than to produce that same volume by refining virgin crude[5].

Recent European studies concluded that the average CO2 equivalent burned of re-refined oil produces 42% less greenhouse gas emissions than the equivalent burden of virgin base

---

[3] Connecticut, Delaware, Massachusetts, Maine, New Hampshire, New Mexico, Oregon, Rhode Island, Vermont, and Washington have joined litigation seeking refinery reductions in GHG emissions. GHG emissions from refineries in California are estimated to be 35 MMTCO2E. Global-warming pollution from Midwest oil refineries alone is expected to grow by as much as 40 percent during the next decade. Oil refineries pumped more than 250 million tons of carbon dioxide into the air in 2004 constituting, along with chemical plants, the second greatest source of GHG. According to estimates from the Department of Energy, annual carbon emissions from petroleum refineries will increase to more than 415 million tons by 2030. On the other hand, the US Department of Energy has concluded that it takes one-third less energy to re-refine used oil than to refine virgin crude into motor oil.

[4] The U.S. generates approximately 1.3 billion gallons of used oil annually, of which only 10% is re-refined.

[5] Improving Used Oil Recycling in California, Lawrence Livermore National Laboratory (2008), p. 12.

oil (Groupement Europeen de I'Industrial Regeration 2007). A similar study by the Commonwealth of Massachusetts concluded that by purchasing 72,000 gallons of re-refined motor oil, a year, the state reduced greenhouse gas emissions by 270 tons (Executive Office for Administration and Finance 2007).

The U.S. Department of Energy (DOE) in its "Used Oil Re-refining Study to Address Energy Policy" (Chapter 7, 2006) cites energy conservation as justification for recommending re-refining used oil compared to refining virgin crude. In so doing, it states: "re-refining [is] the best solution from both energy resource preservation and environmental conservation perspectives." The study concludes by saying that compared to crude oil refining to produce virgin lubricating oil, producing lubricating oil from used motor oil requires one-third the energy of refining crude oil, while conserving valuable crude oil, a non-renewable resource.

Safety-Kleen, the other U.S. re-refinery, commissioned ENSR (2008) to estimate the greenhouse gas (GHG) emissions of its East Chicago, Indiana re-refinery. ENSR compared re-refining with lubricant production from virgin crude. The study concluded that re-refining to base lubricant produces approximately 20 percent of the emissions relative to the production of an equivalent by volume of lubricant from virgin oil, and that its re-refining prevents emission of approximately 300,000 metric tons of greenhouse gases that would be created if the re-refined oil was burned---equivalent to taking 200,000 cars off the road every year.

Boughton[6] and Horvath (2004) and GEIR (2005) cite increased air quality as justification for recommending re-refining over direct burning of used oil (RFO).

The California Integrated Waste Management Board (CIWMB) concluded that re-refining to the equivalent quality of base lube oil is the "highest and best use" for used oils because re-refining provides the greatest measure of energy savings, environmental protection and sustainability.

Lawrence Livermore National Laboratory (LLNL) recently studied the benefits of re-refined oil and identified re-refining as the "highest and best use" of the resource. In so doing, the report focuses on the energy and greenhouse gas savings along with the "closed-loop" nature of re-refining. (p. 21, 29)

Re-Refined Oil should be Part of ARB's Transportation Plan

AB 32 requires the California Air Resources Board (ARB) to adopt plans indicating how emission reductions will be achieved from significant sources of GHG emissions via "regulations, market mechanism and other actions" by January 1, 2009. Evergreen believes that regulations requiring all state fleets to use re-refined oil should be

[6] Bob Boughton is a senior staffer for the California Department of Toxic Substances Control (DTSC).

promulgated. Evergreen also believes that ARB should endorse and promote the market mechanism of creating higher economic incentives for re-refined oil.

ARB's scoping analysis projected GHG transportation sector emissions are expected to increase from current levels to 225.4MMTCO2E by 2020. This forecast is dominated by increases in emissions from on-road transportation, i.e., passenger cars and heavy duty trucks. In forecasting on-road transportation emissions, ARB staff used 2007 fuel sales data obtained from the Californian Board of Equalization and estimated 2020 emissions based on the growth in projected vehicle miles traveled (VMT) derived from EMFAC200. *Staff analysis did not include either motor oil refining or the re-refining of used motor oil in its analysis.* Evergreen believes this was a significant omission.

As pointed out above, re-refining used oil to the equivalent of virgin quality oil uses one third less energy than refining motor oil from virgin crude. This suggests that any analysis of reducing GHG emissions from the transportation sector should take into account not just fuels, but the motor oil indispensable to vehicle transportation. Indeed, regulations and market mechanisms aimed at reducing transportation GHG emissions would be incomplete without considering the GHG benefits of re-refined versus virgin oil.

ARB Regulations Should Include Re-refined Oil

As of 2004, California State agencies annually purchased approximately 189,890 gallons of re-refined oil. The Department of General Services (DGS) maintains approximately 7,000 vehicles with re-refined oil. However, according to the Governor's Performance review, released August 3, 2004, California is not certain how many vehicles are contained in its fleet.

According to the Office of Fleet Administration (OFA), "California estimates it owns between 70,000 and 80,000 pieces of mobile equipment, approximately 90 percent of which are passenger vehicles,[7] the vast majority of which neither re-refine their used motor oil nor use re-refined oil in their vehicles.

There are numerous facts which suggest that an ARB regulation requiring, where possible, all state fleets to re-refine their used oil, and use re-refined oil would be consistent with AB 32's mandate: the California Integrated Waste Management Board (CIWMB) defines "highest and best use" as "closed-loop recycling"; the Lawrence Livermore National Laboratory Report (LLNL), commissioned by the CIWMB, concluded that re-refining is the "highest and best use" of the resource; re-refining is "closed loop" recycling; and re-refining consumes significantly less energy, than refining, *and reduces GHG emissions.*

[7] This figure was reached by reviewing the Office of Risk and Insurance Management, Department of General Services' self-reported billing records and the Department of Motor Vehicles' exempt plate vehicle registration records. Because state agencies have not accurately reported their vehicle inventories, OFA has had to categorize 17,978 of the 70,000 vehicles in their inventory as "unknown."

Economic Incentives for Re-Refined Oil

Evergreen's preferred *market mechanism* for increasing the use of re-refined oil is the creation of an economic preference for re-refined lube oil products over virgin products.

Section 48651 of the Public Resources Code directs the CIWMB to pay the same recycling incentive ($0.04 per quart) to every industrial generator, curbside collection program, and certified used oil collection center for used lubricating oil *irrespective* of whether that oil is re-refined, made into low-sulfur diesel and burned, or shipped out-of-state, untested and untreated, for burning. Because re-refined oil saves energy and reduces GHG emissions it would be consistent with the polices promulgated by AB 32 to support a tiered incentive program[8] for California's used oil; ensuring that re-refined oil is paid the highest incentive. Because refined oil is far cleaner than unrefined used oil, Evergreen believes that a lesser incentive should be paid for refined oil. Refined oil has fewer toxic metals than unrefined oil, and has a sulfur content significantly lower (less than half) than the sulfur standard adopted by the California Air Resources Board (ARB). Accordingly, Evergreen believes that given AB 32's mandate (that ARB recommend market mechanisms to reduce GHG emissions) support for a tiered incentive program, ensuring that IWMB has the flexibility and budget to consider additional or other incentive options[9], would be appropriate.

Under current law, more than 35 million gallons of California's used oil is shipped directly out-of-state, without testing or treatment, for burning. Because of California air pollution laws, that same oil *cannot* be burned in California. The net effect of the current policy not only ensures the same economic incentive for this oil as for re-refined, it supports emitting both pollution and GHGs in neighboring states. ARB support for stopping this exportation of GHGs would be consistent with AB 32[10].

Conclusion

---

[8] Evergreen does not support mandating re-refined base lube in oil products. Evergreen believes that such a mandate would be not be politically viable.

[9] As a matter of policy, Evergreen recommends that Section 48652 of the Public Resources Code be amended to read: "(a) The board shall set the recycling incentive in subdivision (a) of section 48651 at not less than four cents ($0.04) per quart. The amount may be set at an amount higher than four cents ($0.04) if the board determines that a higher amount is necessary to promote the collection and recycling of used lubricating oil and sufficient funds are available in the fund. (b) The board shall consider additional incentive options that promote the recycling of used lubricating oil into re-refined lubricating oil...Incentive options shall include, but are not limited to, increasing the recycling incentive set pursuant to subdivision (a) up to an additional half cent (($0.05) per quart."

[10] California law requires in-state used oil facilities to test their oil to ensure that it: does not contain polychlorinated biphenyls (PCBs) at a concentration of 5 ppm, or greater; a flash point above 100 degrees Fahrenheit; or a concentration total halogens of 1000 ppm or less. In the event the used oil fails these tests, it is incinerated in order to protect public health and the environment. Under current law, California pays a $0.16 per gallon incentive to generators of used oil who directly ship their oil, *untested* to out-of-state facilities which burn the oil potentially releasing toxic air pollution, which, by law cannot be released in California.

The above testimony is respectfully submitted. Should the ARB have any questions, Evergreen would be happy meet with the board and discuss these issues.

Contacts:

Gary Colbert
President
Evergreen Oil
6880 Smith Avenue
Newark, CA 94560
(510) 608-0155

Robert Sulnick
Arroyo Hondo Consulting, LLC
40 A Camino Cerrado
Santa Fe, New Mexico 87506
(505) 455-2698

Deborah Mattos
Mattos & Associates, Inc.
1015 K Street, Suite 200
Sacramento, CA 95814
(916) 447-1191