

City of Oakland Renewable Diesel

Equipment Services Division, OAKLAND PUBLIC WORKS

8th largest City in CA
1800 vehicles

100% Renewable Diesel use since 2015



280 diesel vehicles

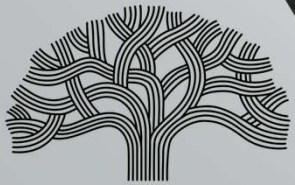
- 40 Code 3 Fire Apparatuses
- Construction/offroad equipment

911 emergency generator

EOC emergency generator

Police Administration Building

34 other emergency generators



CITY OF OAKLAND
PUBLIC WORKS

Traditional Renewable Diesel feedstocks



Waste animal fat from the food processing industry



Waste fat from the fish processing industry



Vegetable oil residues (stearin, PFAD and spent bleaching earth oil)



Technical corn oil



Tall oil pitch



Soybean oil



Crude palm oil



Camelina oil



Jatropha oil



Rapeseed oil



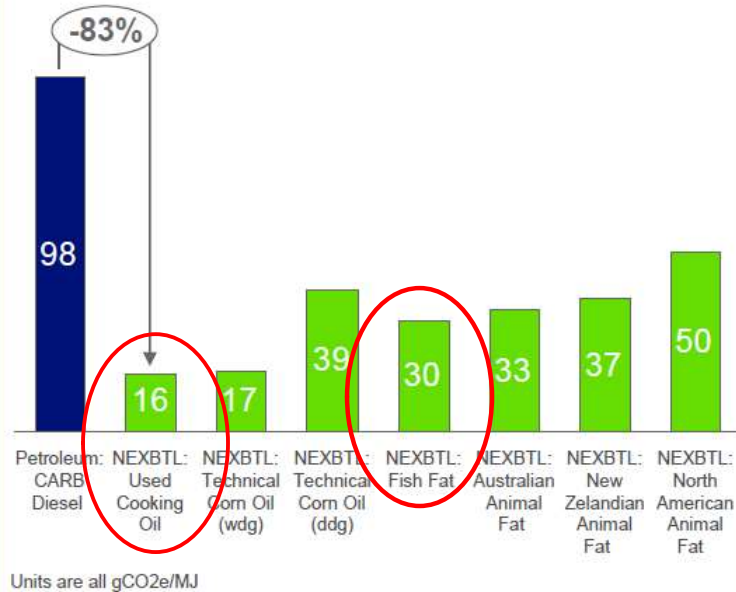
Used cooking oil

Cutting Edge: Municipal Solid Waste & Woody Biomass

Why is RD Feedstock Important?

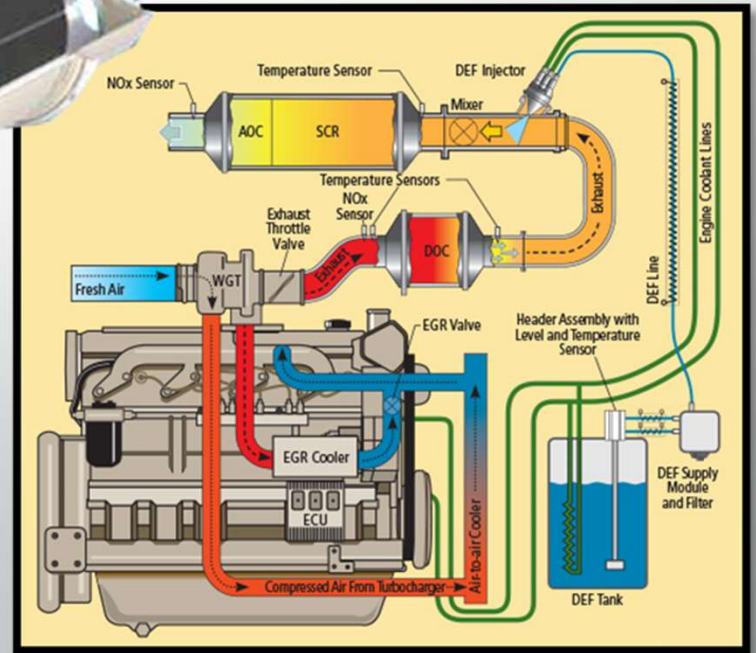
GHG Emission Reduction

Carbon Intensities of different feedstock under CARB LCFS:



- Average emission reductions with 100% NEXBTL diesel
 - NOx-emissions: -10 %
 - PM-emissions: -30 %
 - CO-emissions: -35 %
 - THC-emissions: -40 %
 - PAH compounds: reduced significantly
- Standard service interval
- No changes in fuel logistics
- No operability issues with blend or 100 % NEXBTL
- Average daily low temp in 2009 was app. negative (-) 20 °C
- Winter grade NEXBTL had cloud point of negative (-) 25 °C
- There are approximately 1400 urban buses in the Helsinki area

Less PM = Cleaner DPF = Less Downtime = Lower Costs



Renewable Diesel and a “Circular Economy”

Circular Economy Concept Transforms ‘City Waste to City Fuel’



Gather used cooking oil and waste greases from City of Oakland

Refine waste products into Renewable Diesel

Return RD to Oakland to use in City of Oakland vehicles



Thank You!



Can French Fries Power City Fleets?

In Oakland, a circular economy is making it possible.

