

Sean Edgar 18-8-6

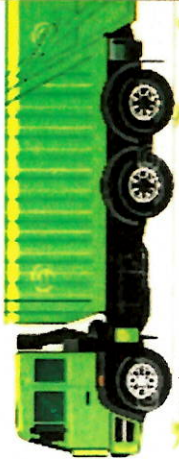
AGENDA ITEM 18-8-6 FUNDING PLAN/HVIP TESTIMONY — WRITTEN COMMENT #15

SEAN R. EDGAR, CLEANFLEETS.NET

Waste Collection, Recycling, Transfer & Support Operations
Diesel Engine Inventory (2016)

8.9-liter
opportunity

Collection-Class 7 & 8 - 12,896 (Statewide)
Inc. 4,200 (South Coast & San Diego Co)



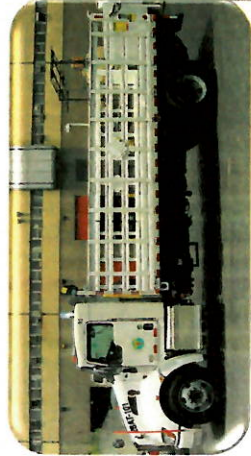
12-liter
opportunity

Class 8 - 1,420 (Statewide)
Inc. 620 (South Coast & San Diego Co)



8.9-liter
opportunity

Class 4 to 6 - 1,290 (Statewide)
Including 500 (South Coast & San Diego Co)

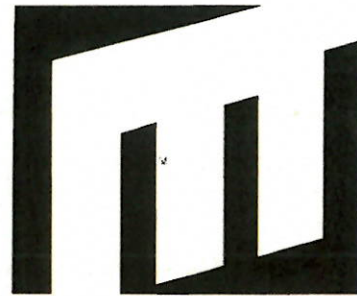
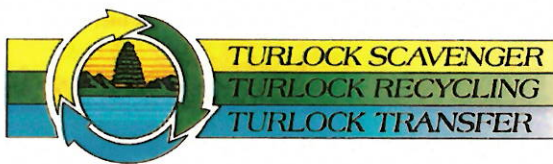


COMMENT # 15

CALMET SERVICES, INC.

SOUTH SAN FRANCISCO
SCAVENGER
COMPANY, INC.

BLUE LINE
TRANSFER, INC.



MarBorg
INDUSTRIES



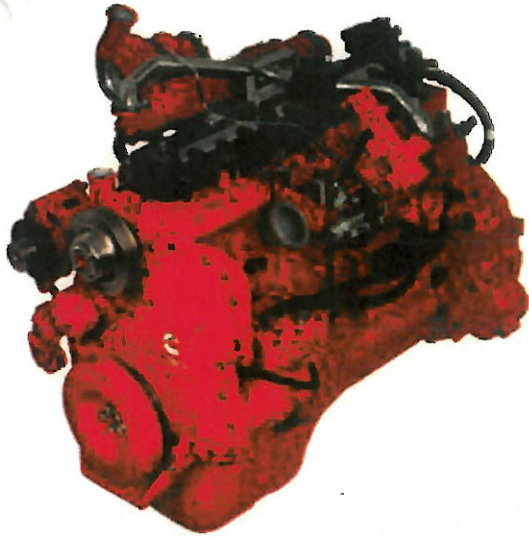
October 22, 2018

California Air Resources Board Members
1001 I Street, Sher Auditorium
Sacramento, CA 95814

Re: **Agenda Item 18-8-6 (10/25/18):**
REFUSE INDUSTRY WILL SUPPORT IF AMENDED-Proposed Fiscal Year 2018-19 Funding Plan for
Clean Transportation Incentives (Relating to the Hybrid Voucher Incentive Program, or "HVIP")

Chair Nichols and Board Members:

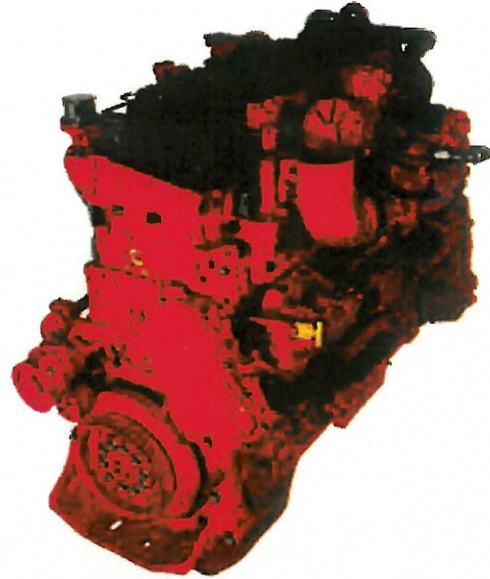
The signatories to this letter operate and maintain refuse and recycling collection vehicles from Sacramento to San Diego and nearly all counties in between. We are environmental stewards in our recycling operations and we were the first privately operated fleet to accept the challenges and embrace the changes under your Board's Diesel Risk Reduction Plan adopted in September 2000. We consider ourselves pioneers in deploying the more costly natural gas engines and most of us have benefitted from the Hybrid Voucher Incentive Program (HVIP) because it enables us to do early replacement of our aging diesel vehicle fleet in a streamlined fashion.



L9N™

L9N Specifications

NOx emission	0.02 g / bhp-hr. (90% below EPA)
Maximum Horsepower	320 HP 239 kW
Peak Torque	1,000 LB-FT 1,356 Nm
Governed Speed	2200 RPM
Type	4-cycle, spark-ignited, in-line 6 cylinder, turbocharged, CAC
Engine Displacement	540 CU IN 8.9 LITERS
Number of Cylinders	6
Operating Cycles	4
Net Weight (dry)	1,625 lb 737 KG
Fuel Type	CNG / LNG / Biomethane
Aftertreatment	Three-Way Catalyst
Base Warranty	2 Years, 250,000 Miles (402,336 KM) Truck 2 Years, Unlimited Miles Transit/Shuttle



ISX12N™

ISX12N Specifications

NOx emission	0.02 g / bhp-hr. (90% below EPA)
Maximum Horsepower	400 HP 298 kW
Peak Torque	1,450 LB-FT 1,966 Nm
Governed Speed	2100 RPM
Type	4-cycle, spark-ignited, in-line 6 cylinder, turbocharged, CAC
Engine Displacement	762.2 CU IN 11.9 LITERS
Number of Cylinders	6
Operating Cycles	4
Net Weight (dry)	2,650 lb 1,202 KG
Fuel Type	CNG / LNG / Biomethane
Aftertreatment	Three-Way Catalyst
Base Warranty	2 Years, 250,000 Miles (402,336 KM)

(+1,025 LBS)



With nearly the full range of HDVs covered, the combination of new near-zero-emission natural gas engine technology and RNG provide the single best opportunity for America to achieve immediate and substantial NOx and GHG emission reductions in the on-road heavy-duty transportation sectors.

80,000 pounds over long distances and up steep grades, as routinely needed for goods movement trucking throughout our nation's interstate highway system. Notably, when near-zero-emission HHDVs with this engine begin to roll out in 2018, some large operator fleets will already be using significant volumes of ultra-low-GHG RNG to supplement (or entirely replace) fossil gas use.

With nearly the full range of HDVs covered, the combination of new near-zero-emission natural gas engine technology and RNG provides the single best opportunity for America to achieve immediate and substantial NOx and GHG emission reductions in the on-road heavy-duty transportation sectors. Equally important, major reductions of cancer-causing toxic air contaminants can immediately be realized in disadvantaged communities adjacent to freeways and areas of high diesel engine activity, where relief is most urgently needed.

While the opportunity and potential benefits to widely deploy near-zero-emission heavy-duty NGVs are quite large, significant challenges must be systematically and expediently addressed. This White Paper describes recommended actions for government and industry stakeholders that will help meet these challenges and immediately begin broad deployments of near-zero-emission heavy-duty NGVs, using progressively greater volumes of ultra-low-GHG RNG. First and foremost, national, state and local incentive funding programs should be established or strengthened that 1) subsidize the higher costs to produce and deploy these new-generation heavy-duty NGVs, and 2) help produce and transport RNG, where the economics and logistics are most conducive. Recommendations are provided about how to allocate available incentive funds toward deployments that can immediately and cost effectively achieve large reductions for key pollutants.

Waste Sector (Organics, Recycling, MSW)



Class 7 - 12,000 in CA still on diesel

Class 8 - 3,000 in CA - all on diesel

Incremental CNG truck cost compared to Diesel truck



\$40,000 per truck average - 15,000 Class 7 and 8 trucks from Diesel to CNG



\$600 million for 15,000 trucks (2015/16-2020/21) - \$100 million year

CNG Fleet with RNG Off-Take Agreement



Demand 15,000 trucks - 50 dge/day/truck - 200 million dge per year



- RNG Supply - 100 million dge from Organics/HSAD (minus 21 carbon intensity)



- RNG Supply - 417 million dge from Landfills (13 carbon intensity)

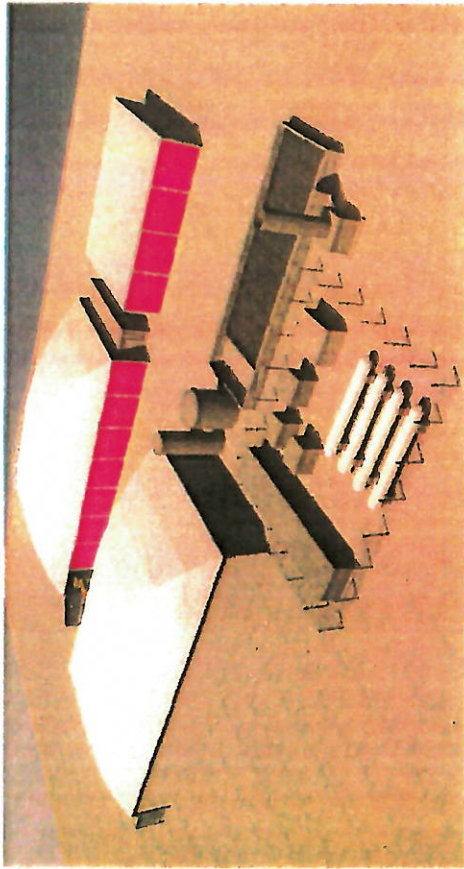


- RNG Supply - 36 million dge from Wastewater Plants (9 to 34 carbon intensity)

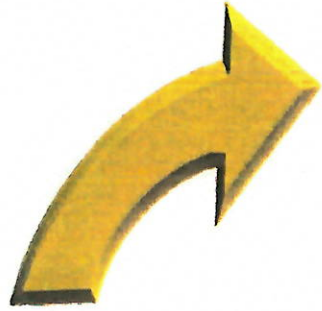
ANAEROBIC DIGESTION FACILITY



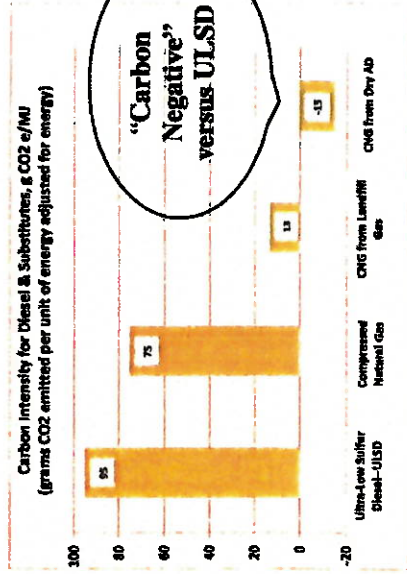
ORGANIC WASTE



PERSPECTIVE VIEW - FRONT



BIOGAS CONDITIONING AND COMPRESSION



CARBON NEGATIVE FLEET

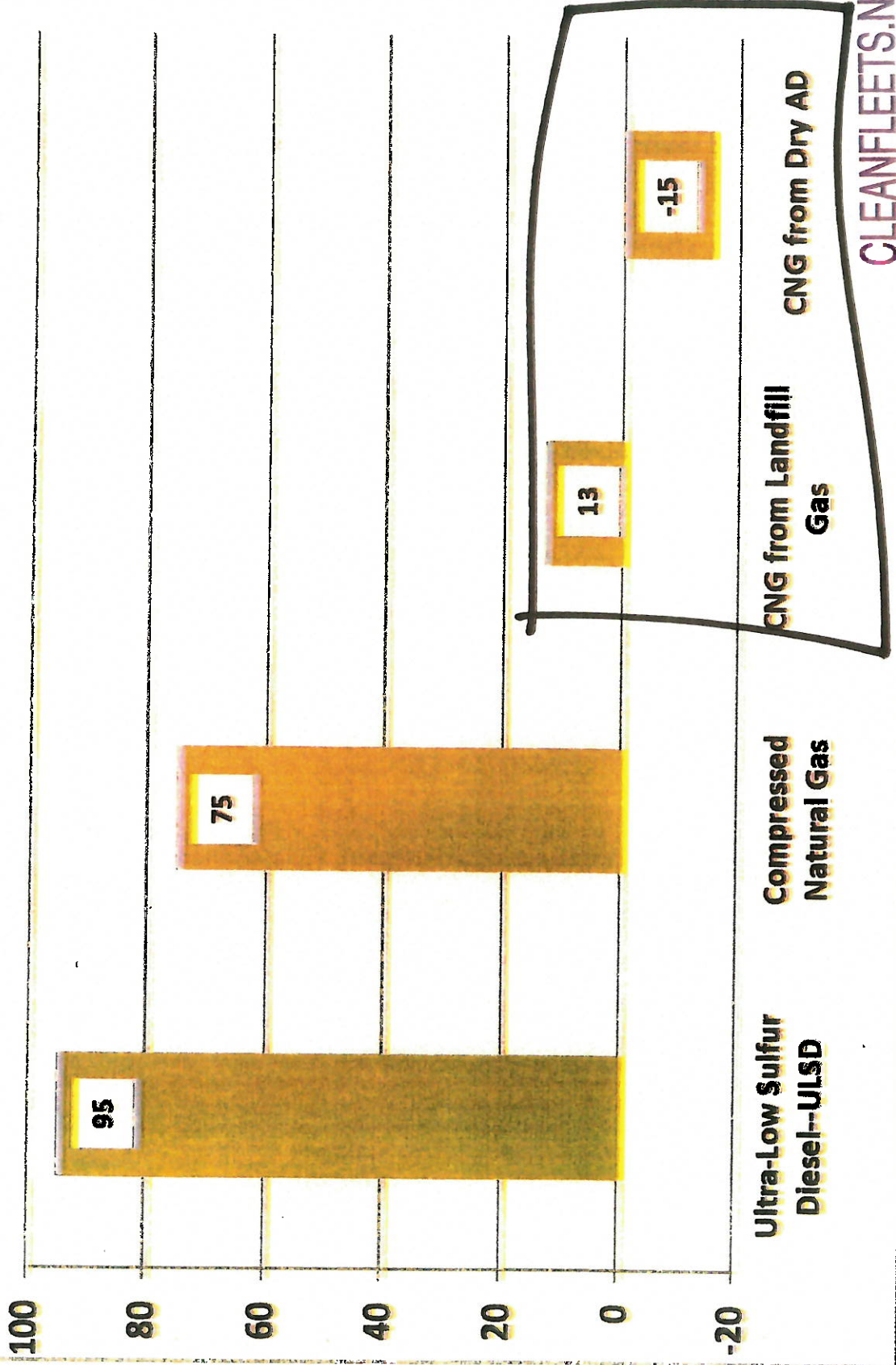


WASTE COLLECTION TRUCK



CLEANFLEETS.NET
1822 21ST STREET
CAGOMAMITO, CA 94001

**Carbon Intensity for Diesel & Substitutes, g CO2 e/MJ
(grams CO2 emitted per unit of energy adjusted for energy)**



CLEANFLEETS.NET

1822 21ST STREET 11-18-14