



Subject: IMET's Comment on **Proposed Amendments to the Regulation to REDUCE EMISSION OF DIESEL PM & NOx from IN-USE ON-ROAD DIESEL-(Truck/Bus)**

To: California Air Resource Board, Clerk
1001 I Street, Sacramento, CA 95814

Date: July 7 2014

From: Julius J. Rim, Ph.D., Inventor of GreenPower Muffler system
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IMET's Comments:

(Overview) :

Reduction of both PM and NOx from In-Use On-road diesel engines can be achieved successfully by retrofitting all old diesel trucks with IMET-GreenPower "DPF- H-EGR" retrofit system.

This retrofit technology actually demonstrated under CARB's Executive Order # C-503-1 for almost 2 years and achieved the reduction of both PM and NOx to meet the 2007 MY Engine Rule. (IMET expects to receive CARB's conditional verification approval as a PM & NOx retrofit technology soon).

In view of new information and scientific analysis, Dr. Rim requests CARB and EPA to abandon or drop the 2010- NOx regulation, but support the 2007 PM-NOx rule. It is because the US-EPA 2010-NOx rule-Urea-SCR process can not be considered the Best Available Control Technology (BACT) because toxic by-products are produced after the catalysts are aged in 2-5 years of time or longer.

Comment 1:

Please do not allow or offer any Exemptions (c), because there is now a new breakthrough technology developed. IMET-GreenPower system can retrofit all those diesel engines shown in the Exemption (c) to be made compliant to the EPA 2007 engine rule (PM-NOx):

Ref 1: (c) Exemptions:

- (1) **solid waste collection vehicle**
- (2) **Vehicles owned or operated by a municipality,**
- (3) **Vehicles subject to the fleet rule for public transit agencies**
- (4) **Vehicles subject to the rule for mobile cargo handling equipment at ports_** and intermodal rail yards commencing with title 13, CCR, section 2479;
- (7) **Off-road vehicles equipped with engines subject to title 13, CCR, sections 2401, 2411, 2421, 2432, and 2449;**
- (11) Except as **drayage trucks** commencing with title 13, CCR, section 2027 until January 1, 2023;
- (12) Trucks with a GVWR of 19,500 lbs or less with a pick-up bed used exclusively for personal, non-commercial, or non-governmental use; and
- (13) Except for two-engine sweepers, other **two-engine on-road vehicles** that are subject

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to title 13, CCR, section 2449, including but not limited to, water well drilling rigs, workover rigs, and cranes, -----

Comment 2 :

Regarding Ref: P.20-(4): "Any engine with a diesel particulate filter that meets PM BACT prior to January 1, 2014, **does not have to be upgraded to a 2010 model year emissions equivalent engine until January 1, 2023** as long as the vehicle remains in the fleet".---

2.1: Please, Amend as below:

- Do not wait for reduction of NOx emission until Jan 1, 2023.
- Start PM- NOx reduction retrofit program **now** with IMET- GreenPower "DPF-H-EGR" retrofit system to be compliant to the 2007-engine rule.

2.2: Respectably, Dr. Rim requests CARB to abandon 2010-NOx rule, but support 2007 PM-NOx rule as final for scientific reasons below:

- The recent study in Europe by Dr. Ole Raaschou-Nielson et al; (The Lancet Oncology 14(9) (2013) pp 813-822) showed **no association between lung-cancer and NOx concentration**. Therefore, there is no reason to treat NOx gas as if it is carcinogenic like PM. (There is no reason to reduce NOx by 95% or higher by use of Urea-SCR which can generate toxic byproduct). In this case, the cure is worse than just NOx harmful gas.
The VERT's (Europe) maximum requirement for NOx level is not more than 75% of NOx-reduction, while the USA's 2010 NOx rule requires 95% or higher NOx reduction.
- **Byproducts of Urea-SCR are toxic gases of ammonia and N2O, easily generated when the catalysts are simply aged in many years.** The longer the catalysts are aged, the more toxic gases generated from 2010 MY-engines of Urea-SCR.
In reality, Dr. Rim had noticed pungent odor-causing head-ache at night in the air of the ports of Los Angeles & Long Beach, and suspected the presence of toxic products of ammonia and NO2 in addition to regular diesel-pollution.

2.3: Do not scrap diesel trucks/equipment too prematurely (not now & not in 2023).
Extend the life-span of in-use old diesel engines by retrofitting them with **IMET-GreenPower muffler system. GreenPower Engine Oil additive increases durability.**

Notes on GreenPower "DPF-H-EGR" retrofit technology:

- IMET-GreenPower Muffler Retrofit system, patented in the USA in 2005 & 2009, has been demonstrated successfully for in-use trucks in California ports to meet the 2007 PM & NOx regulation (ref: CARB-Executive Order 503-1).
- It can potentially increase fuel-efficiency by 15-20% by recovery of muffler waste heat.
- Award-Winning technology from the Port of Los Angeles for Ocean Going Vessel.
- The GreenPower technology was successfully tested in Japan and in California with truck engines. **Test results showed reduction of both PM & NOx.**
- The Society of Automotive Engineer (SAE)'s Automotive Innovation Technology Competition Finalist Winner 2011