

New York Diesel Retrofit Program Update



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NYSDEC

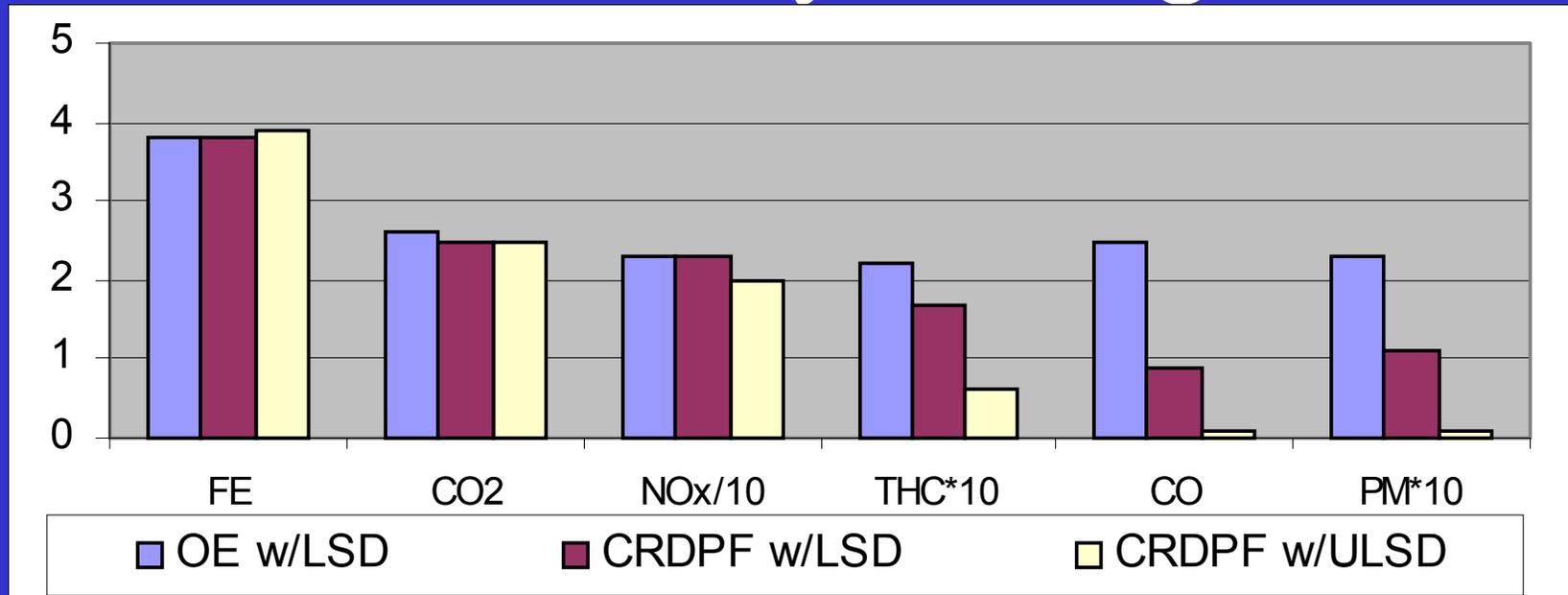
December 3, 2003

New York City Transit

- Entire 4500 bus fleet to be retrofitted
- 2700 CRT retrofits completed
- ULSD for entire NYCT bus fleet
- Engine repowering (replace 2 stroke diesel with 4 stroke diesel engines)

NYTA ULSD w/CRDPF

Durability Testing



	FE	CO2	NOx/10	THC*10	CO	PM*10
	MPG	Kg/mile	g/mile	g/mile	g/mile	g/mile
OE w/LSD	3.8	2.6	2.3	2.2	2.5	2.3
OE w/ULSD	3.8	2.5	2.3	1.7	0.9	1.1
CRDPF w/ULSD	3.9	2.5	2	0.6	0.1	0.1

Shown above are results after 12 months of in-field operation

Staten Island Ferry Boat Project

- \$6.8 million NYSERDA and Environmental Defense retrofit program
- ULSD, SCR and DPF
- Possible Bio-Diesel
- One boat pilot program expanding to entire seven boat fleet
- Currently data logging one boat



NYC Private Ferry Services

- Part of the \$6.8 million NYSERDA and Environmental Defense retrofit program
- Test retrofits
- Perform cost/benefit analysis to determine best strategy
- Expanding to entire NYC ferry fleet



7 WCT Diesel Emissions Reduction Project

- Retrofitted 8 pieces of construction equipment with DOCs
- 10 pieces of equipment using ULSD fuel
- 500 gallons ULSD consumed per day
- Portable emissions monitoring system (PEMS) used to measure real time emissions and engine data

WTC PATH Station Rebuild

- Caterpillar 2,000 kW generator running on ULSD
- 2 Caterpillar 996G front end loaders running on ULSD and DPFs

NYCDOT Asphalt Truck Project

- 27 Diesel asphalt delivery trucks received CRT retrofits and ULSD fuel
- Funded by Consent Decree
- Operating out of Brooklyn Army Terminal

NYC Sanitation

- **Plans to retrofit 260 sanitation trucks over the next three years with DPFs and ULSD**
- **Acquired four compressed natural gas street sweepers**
- **Currently 4 trucks undergoing testing with ULSD, CRTs and DPFs**
- **Funded by consent decree**

NYSDOT Snowplow Project

- Converting diesel powered snow plows to CNG/Diesel hybrid system
- Also use fuel catalyst and DOC



New York Power Authority

- \$6 million NYPA funded plan to install pollution control systems on 1,000 NYC school buses
- Program designed to offset emissions of air pollutants from ten small natural gas-fired turbines in NYC
- Currently 59 buses retrofitted with DOCs
- Currently no ULSD or DPFs in use

NYSERDA

New York State Clean Air School Bus Program

- \$5 Million retrofit program
- Including plan to retrofit 209 school buses in NYC
- Total retrofit of 2,194 diesel school buses
- DOCs, DPFs
- Funded by Clean Water/Clean Air Bond Act



Obstacles

- Lack of ULSD supplies, infrastructure
- Bond Act does not cover fuel purchases
- Unforeseen events (S.I. Ferry accident)

Funding

- Volunteerism
- CMAQ
- Consent Decree
- Conformity Offsets
- Bond Act

