

MECA Diesel Retrofit Technology Workshop

*June 17, 2009
Southeast Diesel Collaborative
Fourth Annual Partners Meeting*

Manufacturers of Emission Controls Association (MECA)
www.meca.org
www.dieselretrofit.org



Strategies to Reduce Emissions from In-Use Diesel Engines

- Retrofit – Installing a verified emission control device on an existing diesel engine
- Refuel
- Repair/Rebuild
- Repower
- Replace

Verified Diesel Retrofit Technologies (as of June 2009)

- U.S. EPA
 - 19 verified retrofit technologies
 - 18 on-road, 1 nonroad
 - www.epa.gov/otaq/retrofit/verif-list.htm
- California ARB
 - 46 verified retrofit technologies
 - 19 on-road, 15 off-road, 12 other (for TRUs, stationary engines)
 - www.arb.ca.gov/diesel/verdev/vt/cvt.htm

Diesel Retrofit Technology Highlights

- Many proven and commercial diesel retrofit technologies are available spanning a variety of applications
 - On-road vehicles (long-haul trucks, drayage trucks, school buses, transit buses, garbage trucks, emergency vehicles)
 - Off-road engines and equipment (construction equipment, port equipment, mining equipment, marine engines, locomotives, transport refrigeration units)
 - Stationary diesel engines
- Larger variety of passive and active DPFs now available
 - Hybrid DPFs
 - DPFs for EGR engines
- Retrofit technologies can help reduce global warming
 - Filter technologies provide reductions in black carbon
- Retrofit technologies provide multi-pollutant co-benefits
 - Catalyzed devices reduce hazardous air pollutants (HAPs)
- ULSD availability enables the lowest emissions and ensures reliability

Diesel Retrofit Technology Highlights

- Funding for retrofits increasingly available at federal and state levels (DERA, CMAQ, SEPs, state incentives)
 - American Recovery and Reinvestment Act of 2009
- Cities/projects using “clean construction” requirements expanding
- Regulations/programs stimulate technology advances and help define market opportunity
 - EPA’s Voluntary Diesel Retrofit Program
 - ARB’s Diesel Risk Reduction Program
 - State retrofit programs
 - Tighter emission standards on new engines worldwide
- Verification process needs adequate technical resources
 - Demonstration programs/funding help fill the retrofit verification pipeline
 - EPA Emerging Technologies Program
 - ARB/SCAQMD Off-Road Showcase Program
 - Texas NTRD funding for NOx retrofits

Summary/Issues

- Retrofit technology provides a cost-effective option for cleaning up PM and NOx emissions from a range of in-use diesel fleets
- A variety of retrofit technologies have been verified by both the U.S. EPA and California ARB for on-road and off-road diesel vehicles and equipment
- Significant experience with retrofit technologies exists for on-road vehicles; retrofit experience is growing for many off-road applications

Summary/Issues

- Application engineering is a necessary step to matching a diesel engine with the correct retrofit solution
 - Even “passive” solutions need maintenance (e.g., filter cleaning, urea for SCR)
 - Retrofit technologies are generally compatible with biodiesel (typically, B20 or less; biodiesel blend needs to meet existing specifications)
- **Successful Retrofits Require a Cooperative Effort Between Fleet Owners, Vehicle Operators, and Technology Providers**

www.dieselfretrofit.org

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MECA Diesel Retrofit Technology
for *Clean Air*



The purpose of this web site is to provide useful information related to diesel retrofit emission control technology. By making this information available, MECA hopes to assist interested stakeholders in establishing and operating more effective diesel retrofit programs.

The **Manufacturers of Emission Controls Association (MECA)** is a non-profit association incorporated in Washington, DC. MECA's mission is to provide technical information on emission control technology, thereby facilitating the establishment of strong and effective state, federal, and international air quality programs that promote public health, environmental quality, and industrial progress.

For an overview of this website, please refer to our [Site map](#).

For more information, contact MECA:

1730 M Street, NW	tel: (202) 296-4797
Suite 206	fax: (202) 331-1388
Washington, DC 20036	e-mail: info@meca.org

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Panel Presentations

- Diesel Retrofit Technologies: A Cost Effective Emissions Reduction Strategy – Marty Lassen, Johnson Matthey
- Retrofit Application Engineering – Scot Nair, Donaldson
- Emission Retrofit Applications – Diesel Particulate (PM) Emissions (A Brief Introduction) – Larry Tatarowicz, Engine Control Systems
- Retrofit Technologies for Non-road Diesel Engines – Gail Plummer, Cleaire