7/30/03

DRAFT Agenda

9th DIESEL ENGINE EMISSIONS REDUCTION CONFERENCE

Newport Marriott
Newport, Rhode Island

August 24-28, 2003

Organized by
U.S. Department of Energy

Chair: John W. Fairbanks

9th Diesel Engine Emissions Reduction Workshop
August 24-28, 2003
Marriott Newport
Newport, Rhode Island

PRELIMINARY AGENDA

Sunday, August 24, 2002

3:00 – 10:00 p.m. Registration

5:00 – 6:30 p.m. Hosted reception (heavy appetizers) and cash bar

Plenary Session – A VIEW FROM THE BRIDGE
Session Chairs: John Fairbanks and Ed Wall,
U.S. Department of Energy

6:30 – 6:35 p.m. *Welcome Aboard!*
John Fairbanks
U.S. Department of Energy
Washington, D.C.

6:35 – 6:55 p.m. *DOE's Role in the Future of Transportation Technologies*
Sam Baldwin, Chief Scientist, Office of Energy Efficiency and Renewable Energy *(invited)*
U.S. Department of Energy
Washington, D.C.

6:55 – 7:15 p.m. *NESCAUM presentation (title TBD)*
Jan Reitsma, Director, Rhode Island Department of Environmental Management *(invited)*
Providence, Rhode Island

7:15 – 7:35 p.m. *Global Climate Change and the Transportation Sector: An Update on Issues and Mitigation Options*
J. J. Dooley
Joint Global Change Research Institute
Battelle Pacific Northwest National Laboratory
Richland, Washington

7:35 – 8:05 p.m.	*Overview of the Global Climate & Energy Project Program* Christopher Edwards Stanford University Palo Alto, California
8:00 – 8:20 p.m.	*Energy Independence for North America – Transition to the Hydrogen Economy* Eberhardt James J. U.S. Department of Energy Washington, D.C.
8:20 – 8:40 p.m.	*SCAQMD Clean Transportation Programs* Bogdanoff Michael South Coast Air Quality Management District Diamond Bar, California
8:40 – 9:00 p.m.	*Development of the Cummins 5.9 Liter for the Gale Banks Engineering Dodge Dakota Sidewinder* Mike Ruth Cummins Columbus, Indiana
9:00 p.m.	*Adjourn for the evening*

Session 1 – EMERGING DIESEL TECHNOLOGIES
Session Chair: *TBD*

Monday, August 25, 2003

7:30 – 7:40 a.m. *Administrative Remarks*
John Fairbanks
U.S. Department of Energy
Washington, D.C.

7:40 – 8:00 a.m. *Reduction of Emissions from a High-Speed Ferry*
Gregory Thompson
West Virginia University
Morgantown, West Virginia

8:00 – 8:20 a.m. *Caterpillar, Inc., HTCD Program*
David M. Milam
Caterpillar, Inc.
Peoria, Illinois

8:20 – 8:40 a.m. *PowerTrap™: Ultrafine PM Control without Performance Penalties*
Peter Kukla
Per-Tec Ltd.
University of Manchester
Manchester, United Kingdom

8:40 – 9:00 a.m. *Development and Deployment of Advanced Emission Controls for the Retrofit Market*
Edgar Brad
Cleaire Advanced Emission Controls
San Leandro, California

9:00 – 9:20 a.m. *Fuel Additive Strategies for Enhancing the Performance of Engines and Engine Oils*
Benjamin Kaufman
Chevron Oronite Technology Center
Beacon, New York

9:20 – 9:40 a.m. *Transient, Real-Time, Particulate Emission Measurements in Diesel Engines*
Sreenath Gupta
Argonne National Laboratory
Argonne, Illinois

9:40 – 10:00 a.m. *Break*

Session 2 – FUELS AND LUBRICATION, PART 1
Session Chair: *TBD*

Monday, August 25, 2003

10:00 – 10:20 a.m. *The Non-Petroleum Based Fuel Initiative*
Bunting Bruce
Oak Ridge National Laboratory
Oak Ridge, Tennessee

10:20 – 10:40 a.m. *APBF-DEC NO_x Adsorber/DPF Project: Passenger Car Platform*
Dean Tomazic
FEV Engine Technologies
Auburn Hills, Michigan

10:40 – 11:00 a.m. *APBF-DEC NO_x Adsorber/DPF Project: SUV/Pick-Up Platform*
Cynthia Webb
Southwest Research Institute
San Antonio, Texas

11:00 – 11:20 a.m. *APBF-DEC NO_x Adsorber/DPF Project: Heavy-Duty Line Haul Platform*
Mike May
Ricardo Inc.
Burr Ridge, Illinois

11:20 – 11:40 a.m. *Demonstration of the Low-Emission Potential for Urea-Selective Catalytic Reduction and Diesel Particulate Filter Technologies*
Magdi Khair
Southwest Research Institute
San Antonio, Texas

11:40 – 12 noon *The Chemical States and Compounds of Lube Phosphorous in Diesel Exhaust*
Bruce Bunting
Oak Ridge National Laboratory
Oak Ridge, Tennessee

12 noon *Adjourn for lunch*

Session 3 – FUELS AND LUBRICATION, PART 2
Session Chair: *TBD*

Monday, August 25, 2003

1:00 – 1:20 p.m. *Emissions from Heavy-Duty Diesel Engine with EGR using Oil Sands Derived Fuels*
Stuart Neill
National Research Council Canada
Ottawa, Ontario, Canada

1:20 – 1:40 p.m. *Development and Demonstration of Fischer-Tropsch Fueled Heavy-Duty Vehicles with Control Technology for Reduced Diesel Exhaust Emissions*
Michael May
Ricardo, Inc.
Burr Ridge, Illinois

1:40 – 2:00 p.m. *Fuel Formulation Effects on Diesel Fuel Injection, Combustion, Emissions, and Emission Control*
Boehman André
Pennsylvania State University
State College, Pennsylvania

2:00 – 2:20 p.m. *A Review of Vegetable Oil Research at Penn State*
Joseph Perez
Pennsylvania State University
State College, Pennsylvania

2:20 – 2:40 p.m. *The Impact of Oil Consumption Mechanisms on Diesel Exhaust Particle Size Distributions and Detailed Exhaust Chemical Composition*
David Foster
University of Wisconsin
Madison, Wisconsin

2:40 – 3:00 p.m. *Impact of the Fuel-Borne Catalyst MMT on Diesel Particulate Filters and LNT Performance*
David Human
Ethyl Petroleum Additives
Richmond, Virginia

3:00 – 3:20 p.m. *Break*

Session 4 – WASTE HEAT UTILIZATION
Session Chair: *TBD*

Monday, August 25, 2003

3:20 – 3:40 p.m. *Thermoelectric Energy Recovery from the Exhaust of a Light Truck*
Karri Madhav
Clarkson University
Potsdam, New York

3:40 – 4:00 p.m. *Scale-Up of $Si/Si_{0.8}Ge_{0.2}$ and B_4C/B_9C Superlattices for Harvesting of Waste Heat in Diesel Engines*
Peter Martin
Pacific Northwest National Laboratory
Richland, Washington

4:00 – 4:20 p.m. *Potential Thermoelectric Applications in Diesel Vehicles*
Crane Douglas
BSST, LLC.
Irwindale, California

4:20 – 4:40 p.m. *Recent Progress in the Development of High-Efficient Thermoelectrics*
Elsner Norm
Hi-Z Technology, Inc.
San Diego, California

4:40 – 5:00 p.m. *Design and Development of e-Turbo™ for SUV and Light Truck Applications*
S. M. Shahed
Garrett Engine Boosting Systems
Torrance, California

5:00 – 5:20 p.m. *Diesel Engine Waste Heat Recovery Utilizing Electric Turbocompound Technology*
Ulrich Hopmann
Caterpillar, Inc.
Peoria, Illinois

5:20 p.m. *Adjourn for reception and dinner followed by a poster session*

Session 5 – DIESEL AND CNG BUS EMISSIONS
Session Chair: Doug Lawson, National Renewable Energy Laboratory and Peter Ahlvik, Ecotraffic

Tuesday, August 26, 2003

7:30 – 8:00 a.m. *State of the Art in Diesel Emission Control*
Timothy Johnson
Corning, Inc.
Corning, New York

8:00 – 8:20 a.m. *Summary of the Swedish Experiences on CNG and "Clean" Diesel Buses*
Peter Ahlvik
Ecotraffic
Stockholm, Sweden

8:20 – 8:40 a.m. *Comparison of Exhaust Emissions, Including Toxic Air Contaminants, from Diesel School Buses in Compressed Natural Gas, Low-Emitting Diesel, and Conventional Diesel Engine Configurations*
Warren Slodowske
International Truck and Engine Company
Chicago, Illinois

8:40 – 9:00 a.m. *Comparison of Clean Diesel Buses to CNG Buses*
Dana Lowell
New York City Transit
New York, New York

9:00 – 9:20 a.m. *CNG and Diesel Transit Bus Emissions in Review*
Alberto Ayala
California Air Resource Board
Sacramento, California

9:20 – 9:40 a.m. *Heavy-Duty Vehicle In-Use Emission Performance*
Markku Ikonen
VTT Processes
Espoo, Finland

9:40 – 10:00 a.m. *Comparative Study on Exhaust Emissions from Diesel- and CNG-Powered Urban Buses*
Thierry Seguelong
Aaqius & Aaqius
Paris, France

10:00 – 10:20 a.m. *State-of-the-Art and Future Developments in Natural Gas Engine Technologies*
Mark Dunn
Westport Innovations, Inc.
Vancouver, British Columbia, Canada

10:20 – 10:30 a.m. *Break*

Session 6 – ENVIRONMENTALLY CONCERNED PUBLIC SECTOR ORGANIZATION PANEL

Tuesday, August 26, 2003

10:30 – 12 noon *Panel Discussion*

Panel Moderator: Michael Block
NESCAUM
Boston, Massachusetts

Panelists:

Thomas Lanni
Senior Research Scientist
New York State Department of Environmental Conservation
Albany, New York

John Heywood
Sun JAE Professor of Mechanical Engineering and Director, Sloan Automotive Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts

Richard Kassel
Senior Counsel
Natural Resources Defense Council
New York, New York

Drew Kodjak
Program Director
National Commission on Energy Policy
Washington, D.C.

David Park
Northeast States for Coordinated Air-Use Management
Boston, Massachusetts

John DiCicco (invited)
Senior Fellow
Environmental Defense
Washington, D.C.

David Friedman (invited)
Senior Transportation Engineer
Union of Concerned Scientists
Berkeley, California

12 noon *Adjourn for lunch*

Session 7 – COMBUSTION AND HCCI REGIMES
Session Chair: *TBD*

Tuesday, August 26, 2003

1:00 – 1:20 p.m. *Diesel Engine Alternatives*
Tom Ryan
Southwest Research Institute
San Antonio, Texas

1:20 – 1:40 p.m. *Exploring Low NO_x and Low PM Combustion Regimes*
Robert Wagner
Oak Ridge National Laboratory
Oak Ridge, Tennessee

1:40 – 2:00 p.m. *Advanced Research in Diesel Fuel Sprays Using X-Rays from the Advanced Photon Source*
Christopher Powell
Argonne National Laboratory
Argonne, Illinois

2:00 – 2:20 p.m. *New Diesel Combustion Regime: Particulate Analysis with the Single-Particle Laser Ablation Time-of-Flight Mass Spectrometer*
Dan Imre
Pacific Northwest National Laboratory
Richland, Washington

2:20 – 2:40 p.m. *Real-Time Simultaneous Measurements of Size, Density, and Composition of Single Ultrafine Diesel Tailpipe Particles*
Alla Zelenyuk/Imre
Pacific Northwest National Laboratory
Richland, Washington

2:40 – 3:00 p.m. *Diesel HCCI Development at Caterpillar*
Kevin Duffy
Caterpillar, Inc.
Peoria, Illinois

3:00 – 3:20 p.m. *Break*

3:20 – 3:40 p.m. *Mixed-Mode Diesel HCCI with External Mixture Formation*
Yann Guezennec
Ohio State University
Columbus, Ohio

3:40 – 4:00 p.m.	*Detailed Modeling of HCCI and PCCI Combustion and Multi-Cylinder HCCI Engine Control* Salvador Aceves Lawrence Livermore National Laboratory Livermore, California
4:00 – 4:20 p.m.	*Overview of Detailed Speciation and Particle Sizing for Diesel Exhaust, Both Real-Time and Filter-Based Measurements* David Foster University of Wisconsin Madison, Wisconsin
4:20 – 4:40 p.m.	*Non-Sooting, Low-Flame Temperature Mixing,Controlled DI Diesel Combustion* Lyle Pickett Sandia National Laboratories Livermore, California
4:40 – 5:00 p.m.	*Shell Gas-to-Liquids in the Context of a Future Fuel Strategy – Technical Marketing Aspects* Richard H. Clark Shell Global Solutions (US), Inc. Houston, Texas
5:00 – 5:20 p.m.	*Effects of Fuel Type and Engine Speed on Required Intake Temperature and Completeness of Combustion in an HCCI Engine* John Dec Sandia National Laboratories Livermore, California
5:20 p.m.	*Adjourn for Wine and Cheese Tasting and Heavy Hors d'Oeuvres*

Session 8 – DIESEL ENGINE DEVELOPMENT AND DURABILITY
Session Chair: *TBD*

Wednesday, August 27, 2003

7:30 –7:50 a.m. *State-of-the-Art and Emerging Truck Engine Technologies for Optimized Performance, Emissions, and Life-Cycle Costs*
Michael Schittler
DaimlerChrysler AG
Stuttgart, Germany

7:50 – 8:10 a.m. *Recent Developments in BMW's Diesel Engine Technology*
Fritz Steinparzer
Bayerische Motoren Werke AG
Munich, Germany

8:10 – 8:30 a.m. *Development of Simultaneous Reduction System of NOx and PM from a Diesel Engine*
Tetsu Watanabe
Toyota Motor Corporation
Toyota City, Japan

8:30 – 8:50 a.m. *Performance and Durability of PSA Peugeot Citroën's DPF System on a Taxi Fleet in the Paris Area*
Thierry Seguelong
Aaqius & Aaqius
Paris, France

8:50 – 9:10 a.m. *Combination of Diesel Fuel System Architectures and Ceria-Based Fuel-Borne Catalysts for Improvement and Simplification of the Diesel Particulate Filter System in Serial Applications*
Michael Civiello
RHODIA Electronics & Catalysis, Inc.
Cranbury, New Jersey

9:10 – 9:30 a.m. *DPF: A Success for Faurecia Exhaust Systems*
Robert Parmann
Faurecia Exhausts Systems
Bavans, France

9:30 – 9:50 a.m. *Break*

9:50 – 10:10 a.m. *Cummins/DOE Light Truck Diesel Engine Progress Report – 2003*
John Stang
Cummins
Columbus, Indiana

10:10 – 10:30 a.m. *Advanced Diesel Engine and Aftertreatment Technology Development for Tier 2 Emissions*
Brian Bolton
Detroit Diesel Corporation
Detroit, Michigan

10:30 – 10:50 a.m. *The Development and On-Road Performance and Durability of the Four-Way Emission Control SCRT™ System*
Andrew Walker
Johnson Matthey PLC
Royston, United Kingdom

10:50 – 11:10 a.m. *Variable Change Motion for 2007-2010 Diesel Engines*
Josef Maier
AVL Powertrain Engineering, Inc.
Plymouth, Michigan

11:10 – 11:30 a.m. *Diesel Exhaust Emissions Control for Light-Duty Vehicles*
Rahul Mital
Cummins
Columbus, Indiana

11:30 – 11:50 a.m. *Analytical Tool Development for Aftertreatment Sub-Systems Integration*
Brian Bolton
Detroit Diesel Corporation
Detroit, Michigan

11:50 a.m. *Adjourn for Lunch*

Session 9 – ENVIRONMENTAL SCIENCE AND HEALTH IMPACTS
Session Chair: Frank Stodolsky, Argonne National Laboratory

Wednesday, August 27, 2003

6:30 – 6:50 p.m. *The Weekend Ozone Effect: The Weekly Ambient Emissions Control Experiment*
Douglas Lawson
National Renewable Energy Laboratory
Golden, Colorado

6:50 – 7:20 p.m. *Gasoline Vehicle Exhaust Particle Sampling Study*
David Kittelson
University of Minnesota
Minneapolis, Minnesota

7:20 – 7:40 p.m. *DOE's Gasoline/Diesel PM Split Study: Characterizations of the Variations in Chemical Composition of $PM_{2.5}$ in the South Coast Air Basin*
Eric Fujita
Desert Research Institute
Reno, Nevada

7:40 – 8:00 p.m. *Relationship between Composition and Toxicity of Engine Emission Samples*
Joe Mauderly
Lovelace Respiratory Research Institute
Albuquerque, New Mexico

8:00 – 8:20 p.m. *The Effect of Changes in Diesel Exhaust Composition and Aftertreatment Technology on Lung Inflammation and Resistance to Viral Infection*
Jacob McDonald
Lovelace Respiratory Research Institute
Albuquerque, New Mexico

8:20 – 8:40 p.m. In Vitro *Genotoxicity of Particulate and Semi-Volatile Organic Compound Exhaust Materials from a Set of Gasoline and a Set of Diesel Engine Vehicles Operated at 30°F*
William Wallace
Centers for Disease Control and Prevention
Morgantown, West Virginia

8:40 – 9:00 p.m.	*Comparison of Direct Exposure of Human Lung Cells to Modern Engine Exhaust Particles* John Storey Oak Ridge National Laboratory Oak Ridge, Tennessee
9:00 – 9:20 p.m.	*An Engine Exhaust Particle Sizer for Transient Emission Particle Measurements* Tim Johnson TSI, Inc. Shoreview, Minnesota
9:20 p.m.	*Adjourn for the evening*

Session 10 – UREA, NO_X ADSORBER, AND NON-THERMAL PLASMA NO_X REDUCTION
Session Chair: *TBD*

Thursday, August 28, 2003

7:30 – 7:50 a.m. *SCR Systems for Heavy-Duty Trucks: Progress towards Meeting Euro 4 Emission Standards in 2005*
Georg Huethwohl
PUREM Abgassysteme GmbH & Co. KG
Menden, Germany

7:50 – 8:10 a.m. *Urea SCR and DPF System for Diesel LDT/SUV Meeting Tier II Bin 5*
Robert Hammerle
Ford Motor Company
Dearborn, Michigan

8:10 – 8:30 a.m. *Ensuring the Availability and Reliability of Urea Dosing for On-Road and Non-Road*
Glenn Barton
Hilite International
Auburn Hills, Michigan

8:30 – 8:50 a.m. *Selective Reduction of NO_x in Oxygen-Rich Environments with Plasma-Assisted Catalysis: Catalyst Development and Mechanistic Studies*
Charles Peden
Pacific Northwest National Laboratory
Richland, Washington

8:50 – 9:10 a.m. *Heavy-Duty NO_x Emissions Control: Reformer-Assisted vs. Plasma-Facilitated Lean NOx Catalysis*
Christopher Aardahl
Pacific Northwest National Laboratory
Richland, Washington

9:10 – 9:30 a.m. *Dynamometer Evaluation of Plasma-Catalyst for Diesel NO_x Reduction*
John Hoard
Ford Motor Company
Dearborn, Michigan

9:30 – 9:50 a.m. *Break*

9:50 – 10:10 a.m. *Noxtech's Plasma-Assisted Catalyst System Development and Demonstration*
Ralph Slone
Noxtech
Irvine, California

10:10 – 10:30 a.m. *NO_x Adsorber Regeneration Phenomena in Heavy-Duty Applications*
Brian West
Oak Ridge National Laboratory
Oak Ridge, Tennessee

10:30 – 10:50 a.m. *Comparison of 4-Way NO_x Adsorber Catalyst Performance on Fibrous and Conventional Substrates*
Neil Currier
Cummins
Columbus, Indiana

10:50 – 11:10 a.m. *Measurement and Characterization of NO_x Adsorber Regeneration and Desulfation*
Shean Huff
Oak Ridge National Laboratory
Oak Ridge, Tennessee

11:10 – 11:30 a.m. *NO_x Adsorber Catalyst Durability: Light- and Heavy-Duty Perspective*
Jim Parks
EmeraChem
Knoxville, Tennessee

11:30 – 11:50 a.m. *Complementary Experimental Tools for Understanding DPF Behavior*
Aleksey Yezerets
Cummins
Columbus, Indiana

11:50 a.m. *Adjourn for lunch*

Session 11 – AFTERTREATMENT
Session Chair: *TBD*

Thursday, August 28, 2003

1:00 – 1:20 p.m. *Use of a Diesel Fuel Processor for Rapid and Efficient Regeneration of Single-Leg NO_x Adsorber Systems*
Ralph Della Batta
Catalytica Energy Systems, Inc.
Mountain View, California

1:20 – 1:40 p.m. *Bifunctional Catalysts for the Selective Catalytic Reduction of NO by Hydrocarbons*
Christopher Marshall
Argonne National Laboratory
Argonne, Illinois

1:40 – 2:00 p.m. *Lean NO_x Catalysis Development for Diesel Engines*
Dennis Endicott
Caterpillar, Inc.
Peoria, Illinois

2:00 – 2:20 p.m. *Fuel-Borne Reductants for NO_x Aftertreatment*
John Thomas
Oak Ridge National Laboratory
Oak Ridge, Tennessee

2:20 – 2:40 p.m. *Hydrogen Generation from Plasmatron Reformers and Use for Diesel Exhaust Aftertreatment*
Leslie Bromberg
Massachusetts Institute of Technology
Cambridge, Massachusetts

2:40 – 3:00 p.m. *Diesel Reformers for On-Board Hydrogen Applications*
Mark Mauss
Hydrogen Source
Windsor, Connecticut

3:00 – 3:20 p.m. *Break*

3:20 – 3:40 p.m. *Measurement of In-Use Emissions from Heavy-Duty Diesel Vehicles: The State-of-the-Art*
Mridul Gautam
West Virginia University
Morgantown, West Virginia

3:40 – 4:00 p.m.	*Diesel Particulate Filter Overview: Material, Geometry, and Application* Martin Murtagh Corning, Inc. Corning, New York
4:00 – 4:20 p.m.	*New Cordierite Diesel Particulate Filters for Catalyzed and Non-Catalyzed Heavy-Duty Applications* Gregory Merkel Corning, Inc. Corning, New York
4:20 – 4:40 p.m.	*Non-Thermal Plasma-Based Technologies for the Aftertreatment of Automotive Exhaust Particulates and Marine Diesel Exhaust NO_x* Roy McAdams Accentus PLC Abingdon, United Kingdom
4:40 – 5:00 p.m.	*Recent Diesel Emission Mitigation Activities of the Maritime Administration's Energy Technologies Program* Daniel Gore U.S. Maritime Administration Washington, D.C.
5:00 – 5:10 p.m.	*Closing Remarks* John Fairbanks U.S. Department of Energy Washington, D.C.
5:10 p.m.	*Adjourn Meeting*