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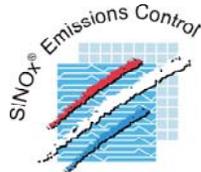
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Ford Motor Company
BMW North America
Volkswagen of America
Robert Bosch Corporation
Detroit Diesel Corporation
Cummins
Noxtech (diesel generator)

8th Diesel Engine Emissions Reduction Conference



AGENDA

Loews Coronado Bay Resort
San Diego, California

August 25-29, 2002

Organized by
U.S. Department of Energy

Chair: John W. Fairbanks

11:55 – 12:05 **“A Parametric Study Showing the Effect of Temperature and Hydrocarbon Species on the Product Distribution from a non-Thermal Plasma Reactor”**
by Galen Fisher, Craig DiMaggio, Joachim Kupe, et. al. – Delphi Corporation, Flint, MI; Delbert Lessor, Monty R. Smith, and Darrell Herling – Pacific Northwest National Laboratory, Richland, WA

Thursday P.M **Session 11 1:10-5:00 – Diesel Engine Exhaust Aftertreatment, Part II**

Chair: Gurpreet Singh, U.S. Department of Energy

1:10 – 1:30 **“Measuring ‘Real World’ Heavy-Duty Diesel Emissions with a Mobile Laboratory”** by Matt Barth, David Cocker, Wayne Miller, et. al. – University of California at Riverside, Riverside, CA

1:30 – 1:50 **“NO_x Adsorbers for Heavy-Duty Truck Engines – Testing and Simulation”**
by N. Hakim, J. Hoelzer, and Y. Liu – Detroit Diesel Corporation, Detroit, MI

1:50 – 2:10 **“Update on Modeling for Effective Diesel Engine Aftertreatment Implementation – Master Plan, Status, and Critical Needs”** by B. Bolton, X. Fan, N. Hakim, et. al. – Detroit Diesel Corporation, Detroit, MI

2:10 – 2:30 **“Expanded Capacity Microwave-Cleaned Diesel Particulate Filter”** by Dick Nixdorf – Industrial Ceramic Solutions, LLC, Oak Ridge, TN

2:30 – 2:50 **“‘Rypos Trap’ Active Diesel Particulate Filter System: Field Demonstrations”** by Frank DePetrillo, Zachary Nardi, Amin Saeid, et. al. – Rypos, Medway, MA

2:50 – 3:10 **“Investigation of Diesel Soot Oxidation Process and Catalysts Degradation”**
by Alex Yezerets and Neal Currier – Cummins, Columbus, IN

3:10 – 3:25 ***Break***

3:25 – 3:45 **“Thermolysis Characterization of Urea Selective Catalytic Reduction”** by Howard L. Fang and Herbert M. DaCosta – Cummins, Columbus, IN

3:45 – 4:05 **“Active Soot Filter Regeneration”** by Bruce Bunting, Arvind Suresh, and John Chi – Cummins, Columbus, IN

4:05 – 4:25 **“A Systematic Investigation of Parameters Affecting Diesel NO_x Adsorber Catalyst Performance”** by Danan Dou, Thomas R. Pauly, Ken Price, et. al. – Delphi Corporation, Flint, MI

4:25 – 4:45 **“Performance of Johnson Matthey EGRT™ Emission Control System for NO_x and PM Emission Reduction in Retrofit Applications”** by S. Chatterjee, R. Conway, and S. Viswanathan – Johnson Matthey, Malvern, PA

4:45 – 5:00 **Workshop Wrap-Up and Adjourn** by John Fairbanks – U.S. Department of Energy, Washington, D.C.

Thursday, August 29, 2002

Thursday A.M. Session 10 7:45-12:05 – Diesel Engine Exhaust Aftertreatment, Part I

Chair: Patrick Sutton, U.S. Department of Energy

- 7:45 – 8:05 **“Low Emissions Potential of EGR-SCR-DPF and Advanced Fuel Formulations: A Progress Report”** by Magdi Khair, Southwest Research Institute, San Antonio, TX
- 8:05 – 8:25 **“Evaluation of a NO_x Adsorber System on a Light-Duty Diesel Vehicle”** by R. Mital, J. Li, S. C. Huang, et. al. – Cummins, Columbus, IN; John A. Anderson – Argonne National Laboratory, Argonne, IL
- 8:25 – 8:45 **“Urea Selective Catalytic Reduction and Diesel Particulate Filter System for Diesel Sport Utility Vehicle Meeting Tier II Bin 5”** by Brendan Carberry, Robert Hammerle, Paul Laing, et. al. – Ford Motor Company, Dearborn, MI
- 8:45 – 9:05 **“Durability of NO_x Adsorbers”** by Jim Parks, Bill Epling, Aaron Watson, et.al. – EmeraChem, Knoxville, TN
- 9:05 – 9:25 **“NO_x Adsorber Development”** by Steve Faulkner – Caterpillar, Peoria, IL
- 9:25 – 9:45 **“Lean NO_x Catalyst Development for Diesel Engine Applications”** by Paul Park, Carrie Boyer, Christie Ragle, et. al. – Caterpillar, Peoria, IL; Chris Aardahl, Jerry Birnbaum, Ken Rappe, et. al. – Pacific Northwest National Laboratory, Richland, WA
- 9:45 – 10:05 **“Plasma-Activated Lean NO_x Catalysis for Heavy-Duty Diesel Emissions Control”** by Chris Aardahl, Jerry Birnbaum, Ken Rappe, et. al. – Pacific Northwest National Laboratory, Richland, WA; Paul Park – Caterpillar, Peoria, IL
- 10:05 – 10:20 **Break**
- 10:20 – 10:40 **“A Non-Thermal Plasma Application for the Royal Navy”** by Lt. Cdr. Derek E. Hughes – Warship Support Agency, Ministry of Defence, Foxhill Bath, United Kingdom
- 10:40 – 11:00 **“Noxtech’s Plasma-Assisted Catalyst Program”** by Ralph Slone, B. Bhatt, and Victor Puchkarev – Noxtech, Irvine, CA
- 11:00 – 11:20 **“Temperature-Transient Effects in Plasma Catalysis”** by John Hoard – Ford Motor Company, Dearborn, MI; Paul Park – Caterpillar, Peoria, IL
- 11:20 – 11:40 **“On-Board Plasmatron Generation of Hydrogen-Rich Gas for Diesel Aftertreatment and Other Applications”** by L. Bromberg, Daniel R. Cohn, John Heywood, et. al. – Massachusetts Institute of Technology, Cambridge, MA
- 11:40 – 11:55 **“Performance Evaluation of the Delphi Non-Thermal Plasma System Under Transient and Steady-State Conditions”** by Joseph Bonadies, Joachim Kupe, Galen Fisher, et. al. – Delphi Corporation, Flint, MI; Darrell R. Herling, Monty R. Smith, John G. Frye, et. al. – Pacific Northwest National Laboratory, Richland, WA

8th Diesel Engine Emissions Reduction Conference

August 25 – 29, 2002

San Diego, California

CONFERENCE SCHEDULE AT A GLANCE

Note: All sessions take place in the Commodore Ballroom, C, D, E.

SUNDAY, AUGUST 25, 2002

- 1:00 – 6:00 p.m. Registration, Cay’s Atrium
- 5:00 – 6:30 p.m. Hosted reception (heavy appetizers) and cash bar, Bay Terrace
- 6:30 – 7:55 p.m. Session 1 – Diesel Engine Emissions Reduction Strategies
- 7:55 – 9:15 p.m. Session 2 – Applied Thermoelectric Generator R&D

MONDAY, AUGUST 26, 2002

- 7:00 – 8:00 a.m. Breakfast, Constellation Ballroom
- 8:00 – 12:00 noon Session 3 – Diesel Engine Policy at the State, National, and International Level
- 12:00 – 1:00 p.m. Lunch, Bay Terrace
- 1:00 – 5:25 p.m. Session 4 – Fuels and Lubrication
- 6:00 – 7:00 p.m. Dinner and Presentation of Recognition Awards to Sponsors, Bay Terrace

TUESDAY, AUGUST 27, 2002

- 7:00 – 8:00 a.m. Breakfast, Constellation Ballroom
- 7:45 – 12:00 noon Session 5 – Environmental Science and Health Impacts
- 12:00 – 1:00 p.m. Lunch, Bay Terrace
- 1:00 – 2:45 p.m. Session 6 – Environmentally Concerned Public Sector Organization Panel
- 3:00 – 5:00 p.m. Session 7 – Emissions-Related Technologies and Regulations
- 6:30 – 9:30 p.m. Evening Excursions

WEDNESDAY, AUGUST 28, 2002

- 7:00 – 8:00 a.m. Breakfast, Constellation Ballroom
- 8:00 – 12:00 noon Session 8 – Emerging Diesel Engine Technology
- 12:00 – 1:00 p.m. Lunch, Bay Terrace
- 1:00 – 4:00 p.m. Ride ‘n Drive
- 6:00 – 7:00 p.m. Dinner, Constellation Ballroom
- 7:00 – 9:20 p.m. Session 9 – Combustion and HCCI Development

THURSDAY, AUGUST 29, 2002

- 7:00 – 8:00 a.m. Breakfast, Constellation Ballroom
- 7:45 – 12:10 p.m. Session 10 – Diesel Engine Exhaust Aftertreatment, Part I
- 12:10 – 1:10 p.m. Lunch, Bay Terrace
- 1:10 – 5:00 p.m. Session 11 – Diesel Engine Exhaust Aftertreatment, Part II

**8th Diesel Engine Emissions Reduction Conference
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AGENDA

Sunday, August 25, 2002

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

Sunday P.M. Session 1 6:35-7:55 – Diesel Engine Emissions Reduction Strategies

Chairs: Ken Howden and John Fairbanks, U.S. Department of Energy

6:35 – 6:55 **“Overview of the Office of Technology Development”** by Richard Moorer, Deputy Assistant Secretary for Technology Development – U.S. Department of Energy, Washington, D.C.

6:55 – 7:25 **“California’s Strategies for Internal Combustion Engines Emissions Reduction”** by Dr. Alan Lloyd, Chairman – California Air Resources Board, Sacramento, CA

7:25 – 7:55 **“Fuels of the Future for Cars and Trucks”** by Dr. James Eberhardt – U.S. Department of Energy, Washington, D.C.

Session 2 7:55-9:15 – Applied Thermoelectric Generator R&D

Chair: Gary Yowell, California Energy Commission

7:55 – 8:15 **“Prospects for a Broadened Use of Thermoelectric in Vehicles”** by Lon Bell – BSST, Irwindale, CA

8:15 – 8:35 **“Nano-Structured Thermoelectric Materials”** by Dr. Rama Venkatasubramanian, E. Siivola, K. Coonley, et. al. – Research Triangle Institute, Research Triangle Park, NC

8:35 – 8:55 **“Quantum Materials Development and Scale-Up”** by Peter Martin and Larry Olsen – Pacific Northwest National Laboratory, Richland, WA; Saeid Ghamaty and Norbert Elsner – Hi-Z Technology, San Diego, CA

8:55 – 9:15 **“Quantum Dot Technology”** by Ted Harmon – MIT Lincoln Laboratory, Lexington, MA

Monday, August 26, 2002

Monday A.M Session 3 8:00-12:00 – Diesel Engine Policy at the State, National, and International Level

Chair: Robert McCormick, National Renewable Energy Laboratory

8:00 – 8:10 **Administrative Remarks** by John Fairbanks – U.S. Department of Energy, Washington, D.C.

10:15 – 10:30 **“Thermoelectric Technology for Automotive Applications”** by Aleksandr S. Kushch, John C. Bass, and Mark Hauerbach – Hi-Z Technology, San Diego, CA; Richard A. Berstrand, Lew Plummer, David Furrow, et. al. – PACCAR Technical Center, Mount Vernon, WA

10:30 – 10:45 **“Attaining Tier 2 Emissions Through Diesel Engine and Aftertreatment Integration – Strategy and Experimental Results”** by R. Aneja, B. Bolton, N. Hakim, et. al. – Detroit Diesel Corporation, Detroit, MI

10:45 – 11:10 **“Cummins/DOE Light Truck Diesel Engine Progress Report for 2002”** by John Stang, David Koeberlein, and Michael Ruth – Cummins, Columbus, IN

11:10 – 11:35 **“Advances in Diesel Engine Technologies for European Passenger Vehicles (invited)”** by Dr. Klaus Shindler – Volkswagen, Wolfsburg, Germany

11:35 – 12:00 **“Overview of Ride ’n Drive Procedures”** by Kenneth Howden – U.S. Department of Energy, Washington, D.C.

1:00 – 4:00 **Ride ’n Drive**

Wednesday P.M. Session 9 7:00-9:20 – Combustion and HCCI Development

Chair: Frank Stodolsky, Argonne National Laboratory

7:00 – 7:20 **“A Mixed Mode HCCI/DI Engine Based on a Novel Diesel Fuel Atomizer”** by Giorgio Rizzoni, Yann Guezennec, and Shawn Midlam-Mohler – Ohio State University, Columbus, OH

7:20 – 7:40 **“Diesel HCCI Development at Caterpillar”** by Kevin Duffy – Caterpillar, Peoria, IL

7:40 – 8:00 **“HCCI Combustion: Detailed Analysis and Performance Experiments”** by Salvador Aceves – Lawrence Livermore National Laboratory, Livermore, CA; Robert Dibble – University of California, Berkeley, CA

8:00 – 8:20 **“Combustion: The Sources of Emissions at Low Loads and the Effects of GDI Fuel Injection”** by John Dec and Magnus Sjöberg – Sandia National Laboratories, Livermore, CA

8:20 – 8:40 **“Simultaneous Low-Engine-Out NO_x and PM with Highly Diluted Diesel Combustion”** by Robert Wagner, Johnney Green, Jr., Thang Dam, et. al. – Oak Ridge National Laboratory, Oak Ridge, TN

8:40 – 9:00 **“Optical Diagnosis and Modeling Tools Applied to Diesel HCCI”** by Cathy Choi – Caterpillar, Peoria, IL

9:00 – 9:20 **“High-Energy, Pulsed Laser Diagnostics for Real-Time Measurements of Reciprocating Engine PM Emissions”** by Peter O. Witze – Sandia National Laboratories, Livermore, CA

- 2:20 – 2:40 **“Development of a Dimethyl Ether (DME)-Fueled Shuttle Bus”** by Jennifer Stefanik, Elana Chapman, Shirish Bhide, et. al. – Pennsylvania State University, University Park, PA; Ed Heydorn – Air Products and Chemicals, Inc., Lehigh Valley, PA
- 2:40 – 3:00 **“Investigation of the Effects of Fuels and Aftertreatment Devices on the Emission Profiles of Trucks and Buses”** by Dave Smith – BP, La Palma, CA
- 3:00 – 3:15 *Break*
- 3:15 – 3:35 **“Fuel Additives for Improved Performance of Diesel Aftertreatment Systems”** by David Human – Ethyl Corporation, Richmond, VA
- 3:35 – 4:05 **“Status of APBF-DEC NO_x Adsorber/DPF Projects (All Platforms)”** by Brian West – Oak Ridge National Laboratory, Oak Ridge, TN; Matthew Thornton and Shawn Whitacre – National Renewable Energy Laboratory, Golden, CO
- 4:05 – 4:25 **“The Impact of Lubricant Formulation on Emissions from a Medium-Duty Diesel Engine”** by Shawn Whitacre – National Renewable Energy Laboratory, Golden, CO
- 4:25 – 4:45 **“Natural Oils – The Next Generation of Diesel Engine Lubricants?”** by Joe Perez – Pennsylvania State University, University Park, PA; Shawn Whitacre – National Renewable Energy Laboratory, Golden, CO
- 4:45 – 5:05 **“Hydrogen as a Candidate Fuel for Trucks”** by Jay Keller – Sandia National Laboratories, Livermore, CA
- 5:05 – 5:25 **“Concentrations and Size Distributions of Particulate Matter Emissions from Catalyzed Trap-Equipped Heavy-Duty Diesel Vehicles Operating on Ultra-Low Sulfur EC-D Fuel”** by Mridul Gautam, Sandeep Mehta, Dan Carder, et. al. – West Virginia University, Morgantown, WV; Miriam Lev-On and Chuck LeTavec – BP, La Palma, CA; Keith Vertin and Teresa Alleman – National Renewable Energy Laboratory, Golden, CO

Tuesday, August 27, 2002

Tuesday A.M. Session 5 7:45-12:00 – Environmental Science and Health Impacts

Chairs: Joe Mauderly, Lovelace Respiratory Research Institute
Douglas R. Lawson, National Renewable Energy Laboratory

- 7:45 – 8:05 **“DOE’s Studies of Weekday/Weekend Pollution in Southern California”** by Douglas R. Lawson – National Renewable Energy Laboratory, Golden, CO
- 8:05 – 8:25 **“Office of Heavy Vehicle Technologies Weekend/Weekday Ozone Study in the South Coast Air Basin”** by Eric M. Fujita, William R. Stockwell, and David E. Campbell – Desert Research Institute, Reno, NV; Douglas R. Lawson – National Renewable Energy Laboratory, Golden, CO
- 8:25 – 8:40 **“Physical and Chemical Characteristics of Diesel Exhaust Particles”** by David Kittelson, Peter McMurry, Kihong Park, et. al. – University of Minnesota, Minneapolis, MN; Herbert Tobias and Paul Ziemann – University of California at Riverside, Riverside, CA

- 8:40 – 8:55 **“Measurement of On-Road and Lab Diesel Particle Size”** by Jason Johnson, David Kittelson, and Winthrop Watts – University of Minnesota, Minneapolis, MN
- 8:55 – 9:15 **“Overview of Detailed Chemical Speciation and Particle Sizing for Diesel Exhaust, Both Real-Time and Filter-Based Measurements”** by Chol-Bum Kweon, Shusuke Okada, David E. Foster, et. al. – University of Wisconsin, Madison, WI; Deborah S. Gross – Carleton College, Northfield, MN
- 9:15 – 9:35 **“Development of Remote Sensing Instrumentation for NO_x and PM Emissions from Heavy-Duty Trucks”** by Ralph N. McGill – Oak Ridge National Laboratory, Oak Ridge, TN
- 9:35 – 9:55 **“Comparative Toxicity of Combined Particle and Semi-Volatile Organic Fractions of Gasoline and Diesel Engines”** by Joe Mauderly, JeanClare Seagrave, Jacob McDonald, et. al. – Lovelace Respiratory Research Institute, Albuquerque, NM; Kristen Nikula – Pharmacia, St. Louis, MO; Steven Seilkop – SKS Consulting Services, Siler City, NC; Michael Gurevich – U.S. Department of Energy (retired), Miami Beach, FL
- 9:55 – 10:15 **“In Vitro Genotoxicity of Gasoline and Diesel Engine Vehicle Exhaust PM_{2.5} Particulate and Semi-Volatile Organic Compound Materials”** by W. Wallace, M. Keane, M. Cui, et. al. – Centers for Disease Control and Prevention, Morgantown, WV
- 10:15 – 10:30 *Break*
- 10:30 – 10:50 **“Pro-Inflammatory Cytokine Responses to Exposure to Diesel Soot”** by JeanClare Seagrave, Cindy Knall, and Joe Mauderly – Lovelace Respiratory Research Institute, Albuquerque, NM
- 10:50 – 11:10 **“Air Resources Board’s Study of Emissions from Diesel and CNG Heavy-Duty Transit Buses”** by Alberto Ayala, Norman Y. Kado, Robert A. Okamoto, et. al. – California Environmental Protection Agency, Sacramento, CA
- 11:10 – 11:40 **“A Comparison of Two Gasoline and Two Diesel Cars with Varying Emission Control Technologies”** by Peter Ahlvik – Ecotrafic, Göteborg, Sweden
- 11:40 – 12:00 *Discussion*

Tuesday P.M. Session 6 1:00-2:45 – Environmentally Concerned Public Sector Organization Panel

Chair: Patricia Monahan, Union of Concerned Scientists

- 1:00 – 2:45 **Panel Discussion**
Diane Bailey – Natural Resources Defense Council; Vandana Bali – Coalition for Clean Air; Jim Kliesch – American Council for an Energy Efficient Economy; Patricia Monahan – Union of Concerned Scientists; Dave Park – Northeast States for Coordination Air-Use Management; Kathryn Phillips – Center for Energy Efficiency and Renewable Technology; Stefan Rodt – German Federal Environmental Agency
- 2:45 – 3:00 *Break*

Session 7 3:00-5:00 – Emissions-Related Technologies and Regulations

Chair: Gary Yowell, California Energy Commission

- 3:00 – 3:20 **“Heavy-Duty Diesel Emissions Regulations and Technology Solutions”** by Pranab Das – International Truck & Bus, Melrose Park, IL
- 3:20 – 3:40 **“Parametric Study of NO_x Adsorber Regeneration in Transient Cycles”** by Scott Sluder and Brian West – Oak Ridge National Laboratory, Oak Ridge, TN
- 3:40 – 4:00 **“Evaluation of Passive and Active Particulate Filters for Removal of Particulate Emissions from Diesel Engines”** by K. E. Kelly, D. A. Wagner, J. S. Lighty, et. al. – University of Utah, Salt Lake City, UT; B. Holden – Naval Facilities Engineering Service Center, Port Hueneme, CA; B. Bretecher–Cummins, Inc., Columbus, IN; K. Sahay – California Air Resources Board, Sacramento, CA
- 4:00 – 4:20 **“Emissions from Idling Trucks for Extended Time Periods”** by John Storey, Sam Lewis, Dean Edwards, et. al. – Oak Ridge National Laboratory, Oak Ridge, TN; Han Lim – U.S. Environmental Protection Agency, Ann Arbor, MI
- 4:20 – 4:40 **“Size-Resolved Chemical Composition of Aerosol via Single-Particle, Real-Time Mass Spectrometry”** by Alla Zelenyuk, Dan Imre, and James E. Wegrzyn – Brookhaven National Laboratory, Upton, NY
- 4:40 – 5:00 **“Development of a Sub-Grid Model of a Diesel Particulate Filter”** by George G. Muntean, David Rector, Delbert L. Lessor, et. al. – Pacific Northwest National Laboratory, Richland, WA
- 6:30 – 9:30 **Evening Excursions**

Wednesday, August 28, 2002

Wednesday A.M. Session 8 8:00-12:00 – Emerging Diesel Engine Technology

Chair: Ron Graves, Oak Ridge National Laboratory

- 8:00 – 8:30 **“Diesel Emission Control: Last 12 Months in Review”** by Timothy V. Johnson – Corning Incorporated, Corning, NY
- 8:30 – 8:50 **“French Perspective on Diesel Engine Vehicles and Emissions”** by Stéphane Nino – Aaqius & Aaqius, Levallois-Perret, France
- 8:50 – 9:10 **“European Diesel Engine Technology”** by Stephen Brueckner – AVL Powertrain Engineering, Inc., Plymouth, MI
- 9:10 – 9:30 **“Diesel Engine Waste Heat Recovery Utilizing Electric Turbocompound Technology”** by Ulrich Hopmann – Caterpillar, Peoria, IL
- 9:30 – 9:50 **“Electric Turbocompound Development for Automotive Applications”** by Chris Middlemass – Honeywell, Detroit, MI
- 9:50 – 10:15 **Break**

- 8:10 – 8:40 **“Global Climate Change and the Unique Challenges Posed by the Transportation Sector”** by James Dooley – Joint Global Climate Change Research Institute, College Park, MD
- 8:40 – 9:00 **“Meeting the CO₂ Challenge”** by Douglas Graham – Ricardo, Inc., Plymouth, MI
- 9:00 – 9:20 **“EPA’s Perspective on the 2007 Heavy-Duty Truck Diesel Engine Emissions Compliance”** by Byron Bunker – U.S. Environmental Protection Agency, Ann Arbor, MI
- 9:20 – 9:40 **“The U.S. Navy’s Concerns for Diesel Engine Emissions and Associated Technologies”** by Michael Osbourne – NAVSEA, Arlington, VA
- 9:40 – 10:00 **Break**
- 10:00 – 10:20 **“Maritime Energy and Emissions Program: Background, Status, and Lessons Learned”** by Dan Gore – U.S. Maritime Administration, Washington, D.C.
- 10:20 – 10:40 **“2007-2009 Emission Solutions for Heavy-Duty Diesel Engines”** by Jeffrey A. Leet – Southwest Research Institute, San Antonio, TX
- 10:40 – 11:00 **“Reducing California Vehicle Fuel Consumption with the Promotion of High-Efficiency Clean Diesel Technology”** by Richard McCann and Eric Cutter – M. Cubed, Davis, CA
- 11:00 – 11:20 **“A Summary of the South Coast Air Quality Management District Incentive Programs”** by Fred Minassian – South Coast Air Quality Management District, Diamond Bar, CA
- 11:20 – 11:40 **“A Possible Role for Diesels in California”** by James D. Boyd – California Energy Commission, Sacramento, CA
- 11:40 – 11:50 **“NO_x Credit and Selective Catalytic Reduction”** by Daniel Sloan – Emission Credit Brokers, Houston, TX
- 11:50 – 12:00 **“California Trucking Industry Perspective on the Battle for Clean Air”** by Stephanie Williams – California Trucking Association, Sacramento, CA

Monday P.M. Session 4 1:00-5:25 – Fuels and Lubrication

Chair: Kevin Stork, U.S. Department of Energy

- 1:00 – 1:20 **“Renewable Diesel Fuels: Status of Technology and R&D Needs”** by Robert McCormick – National Renewable Energy Laboratory, Golden, CO
- 1:20 – 1:40 **“Fuel Requirements for HCCI Engine Operation”** by Thomas Ryan III and Andrew Matheaus – Southwest Research Institute, San Antonio, TX
- 1:40 – 2:00 **“Opportunities for the Early Production of Fischer-Tropsch Diesel Fuel in the United States”** by John Shen – U.S. Department of Energy, Germantown, MD
- 2:00 – 2:20 **“An Evaluation of Shell Gas-to-Liquids Diesels – The Environmental Benefits”** by Richard H. Clark, Jim D. Evans, and Ian G. Virrels – Shell Global Solutions (U.S.), Inc., Houston, TX