Maritime Diesel Emission Control Technologies

Projects

- U.S. Navy Work Boat / Barge
- Blue and Gold Ferry
- Port Container Handling Equipment
- Paceco Corp.
- Vycon Flywheel
- Railpower Hybrid Diesel RTG Crane
Commercial Harbor Craft Diesel Emission Control Technologies

U.S. Navy Work Boat / Barge

- **Engines:** (2) 2-stroke DDC 12V-71 engines (1974)
- **Technology:**
  - Rebuilt engine with Clean Cam Technology (CCT) System (combustion chamber and injector modifications and turbocharger addition)
  - Rypos active diesel particulate filter (DPF)
- **Fuel:** low sulfur diesel
- **Preliminary Results:**
  - CCT: 38% reduction of PM, 71% reduction of NOx
  - DPF: 76% reduction of PM, small reduction of NOx
  - CCT + DPF: 85% Reduction of PM from baseline
  - 74% Reduction of NOx from baseline
- Durability and final emission testing to be done this fall
Blue and Gold Passenger Ferry

- Engines: (2) 2-stroke DDC Series 60 engines
- Technology:
  - Cleaire Longview silicon carbide diesel particulate filter (DPF) for propulsion engine
- Previous testing: problems with backpressure and temperature
- Working with Cleaire, BAAQMD, and U.C. Riverside to facilitate new testing

Port Container Handling Equipment Diesel Emission Control Technologies
Identification and Demonstration of Emission Control Systems for Port Container Handling Equipment

- Project part of ARCO SEP funds
- **Equipment:** RTG cranes, top-picks, side-picks, reach stackers
- **Goal:** Identify, install, and demonstrate retrofit emission control devices that may lead to verification
- **Project steps:**
  - Collection Of Key Operating Parameters Necessary To Determine Emission Control System Applicability
  - Data log exhaust temperatures (completed)
  - Solicitation Of Technology Providers (in progress)
  - Terminal Operator/Equipment Solicitation
  - Demonstration and Emission Testing
  - Final Report

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Paceco Corp.

- **Engines:**
  - RTG cranes with a rated power of 225 kW to 450 kW
  - Pre-1996 or certified Tier 1, 2, or 3 PM

- **Technology:**
  - Mitsui Engineering and Shipbuilding Diesel Particulate Filter (MES-DPF)

- **Verified for:**
  - Level 1 control (= 25% PM reduction)

- **Fuel:** CARB diesel (15 ppm sulfur limit)
- Also verified by U.S. EPA
 Vycon

- Engines: on RTG cranes
- Technology:
  - 2 flywheels that store energy when the crane lowers a load and releases energy when the crane lifts a load;
  - Reduces peak load
- Flywheels installed on RTG crane in POLB
- Preliminary findings include fuel savings and possible PM reduction
- Working with Vycon and U.C. Riverside to develop a testing protocol for possible verification

 Railpower

- Engines: on RTG cranes
- Technology:
  - Hybrid diesel generator set and battery pack
- Demonstrating in Vancouver, Canada