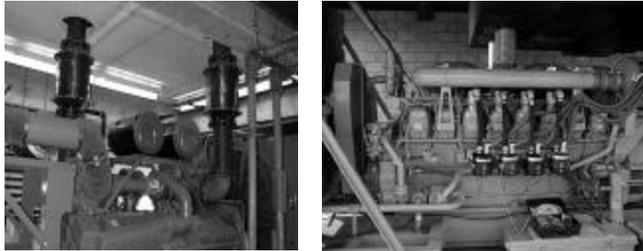


PUBLIC CONSULTATION MEETING TO DISCUSS REGULATORY
APPROACHES TO REDUCE EMISSIONS FROM STATIONARY DIESEL-
FUELED ENGINES

**Presentation of the Methods and Key Assumptions for
Estimating the Costs for In-Use Stationary Engines**



November 19, 2002



California Environmental Protection Agency

Air Resources Board

*Presentation of the Methods and Key Assumptions for Estimating the
Costs for In-Use Stationary Engines*

Analysis Overview

- Approach
- Preliminary results
- Key assumptions



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Approach

- **Identified representative sample**
 - ◆ Emergency Standby Engines - survey data
 - ◆ Prime Engines - Diesel Risk Reduction Plan
- **Determined level of control to comply with ATCM**
 - ◆ Annual hourly use
 - ◆ Estimated PM emission rate - Offroad Model
 - ◆ 25% of engine owners will reduce hours to meet the next lower hourly use limit

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Approach continued

- **Determined capital and installation cost per engine**
- **Annualized cost based on expected life of control equipment**
- **Determined emission reductions with reduced hours and installed control equipment**

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Anticipated Compliance Approach and Expected Emissions Reductions

■ **Emergency standby engines**

- ◆ Limit operating hours ~ 83% (9,450 engines)
- ◆ Retrofit with a DOC ~ 11% (1,200 engines)
- ◆ Retrofit with a DPF ~ 5% (540 engines)
- ◆ New engine+DPF ~ 1% (150 engines @100+ hours)
- ◆ Expected PM emissions reduction ~ 40%

■ **Prime engines**

- ◆ Retrofit with a DPF - 100% (1,360 engines)
- ◆ Expected PM emissions reduction ~ 85%

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Preliminary Expected Costs per Engine

■ **Emergency standby engine (11,000 engines)**

- ◆ Average total cost per engine
 - DOC ~ \$5,700 (1,200 engines)
 - DPF ~ \$28,700 (540 engines)
 - New Engine + DPF ~ \$93,900 (150 engines)
- ◆ Average amortized cost per engine (10 yrs, 7%)
 - DOC ~ \$800
 - DPF ~ \$4,100
 - New Engine + DPF ~ \$13,400

■ **Prime engine (1,360 engines)**

- ◆ Average cost per engine ~ \$18,500
- ◆ Average amortized cost per engine ~ \$2,600 (10 yrs, 7%)

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Key Assumptions

- **Retrofit control technologies and cost**
 - ◆ Do nothing = \$0
 - ◆ DOCs ~ \$10/hp
 - ◆ Active and Passive DPFs ~ \$38/hp
 - ◆ New Engine + DPF ~ \$175/hp
- **PM emission rates based on the OFFROAD Model**