

Presentation

**Portable Equipment
Industry Analysis
Plan**

Presented at:

CARB / Industry Workshop

February 14, 2001

Sacramento, California

BOOZ-ALLEN & HAMILTON INC.

**BOOZ-ALLEN & HAMILTON IS ASSISTING CIAQC ANALYZE ISSUES
RELATED TO REGULATING EMISSIONS FROM PORTABLE
EQUIPMENT**

- Enhanced understanding of equipment populations
- End-user refueling practices and patterns
- DPF technology and application issues
- Profile rental equipment and construction markets
- *Focus is on existing in-use equipment*

**Hopefully this work will prove useful to CARB staff as they begin to
craft specific regulatory proposals**

ASSIST CIAQC (AND CARB) WITH ENHANCED UNDERSTANDING OF PORTABLE EQUIPMENT POPULATION (BEYOND INVENTORY)

- Detailed listing of equipment by type and end-use application
- List of equipment manufacturers and model numbers
- Where and how is equipment used:
 - Geographic profile (urban vs. suburban vs. rural settings)
 - Large vs. small projects (EIR vs. non-EIR projects)
 - Annual hours of operation
 - by type of project
 - by ownership classification

END-USER REFUELING PRACTICES AND PATTERNS

- On-site storage vs. wet-hose
- Centralized vs. retail refueling
- Dual fuel storage and availability requirements prior to 2006? (which users, which applications?)
- Large companies vs. owner operators
- Large projects vs. small projects

DPF TECHNOLOGY AND APPLICATION ISSUES

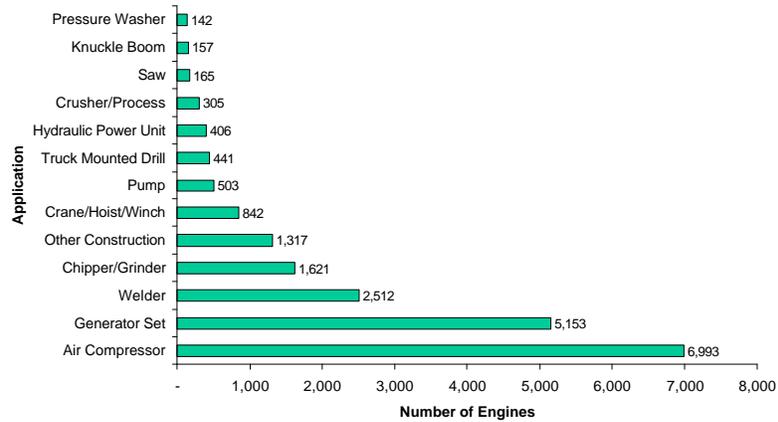
- Enhanced understanding of usage patterns and load profiles for various equipment types (i.e., exhaust temperature profiles)
- Other technical considerations
 - Profile of baseline emissions and level of engine technology
 - by age of equipment
 - by type of equipment
 - Packaging considerations
 - Capital and operating costs
- DPF manufacturers' perspective of portable equipment market
 - Applications engineering efforts to date—and going forward
 - which products and applications represent biggest market?

PROFILE OF RENTAL EQUIPMENT AND CONSTRUCTION MARKETS

- Number of impacted companies
- Size distribution of companies
 - Number of employees
 - Revenues
- Financial profile

THE PORTABLE EQUIPMENT POPULATION IS DOMINATED BY AIR COMPRESSORS, GENERATORS AND WELDERS

(1997 Data: South Coast Basin Only)



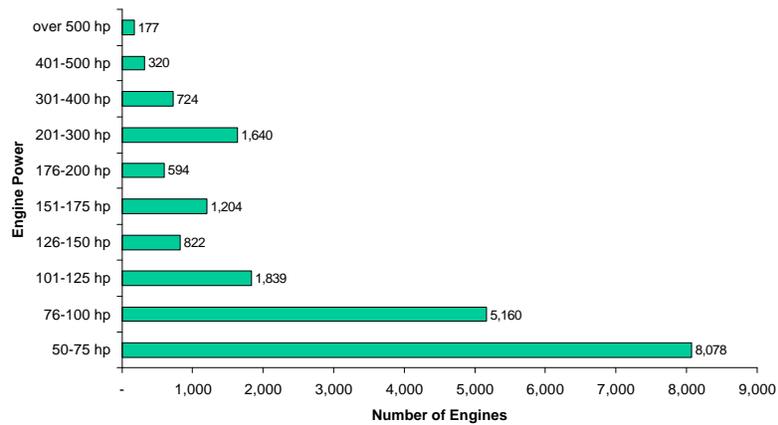
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A LARGE PORTION OF THE POPULATION IS LESS THAN 175 HP

(1997 Data: South Coast Basin Only)



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THERE ARE NUMEROUS MODELS AND MANUFACTURERS OF PORTABLE EQUIPMENT

Air Compressors

- Ingersall-Rand
- (Maco) Sullair
- Atlas Copco
- Lindsay
- Airman
- Kaeser
- Grimmer Schmidt
- Comp-air

Generator Sets

- Ingersall-Rand
- MultiQuip
- Caterpillar
- Aggreko
- Wacker
- Cummins
- Coleman

Welders

- Miller Electric
- Lincoln Electric

Chipper/Grinder

- Vermeer
- Diamond Z
- Mountain Town Manufacturing

Crane/Hoist

- Bucyrus-Erie
- Manitowoc
- American
- Lorain
- Lima
- Gottwald
- Grove

Pumps

- Schwing America
- Reed Manufacturing
- Mayco
- Olin
- Thomsen

Truck-Mounted drills

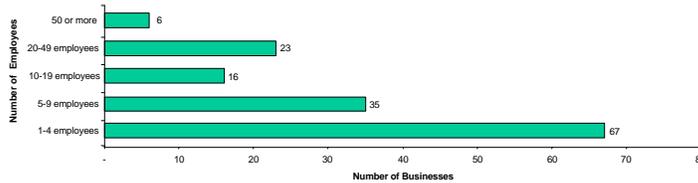
- Canadian Foremost
- Ingersall-Rand
- Vermeer

Hydraulic Power Units

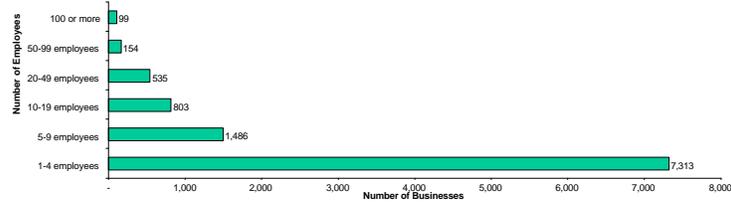
- Portaco
- Stanley
- Hydraulic Tools
- Enerpac

THERE ARE A LARGE NUMBER OF SMALLER RENTAL EQUIPMENT AND CONSTRUCTION FIRMS THAT PARTICIPATE IN THIS INDUSTRY

Distribution of District Construction Equipment Rental Firms by Size



Distribution of District Construction Firms by Size



NEXT STEPS

- Gather equipment population and activity data
 - start with CARB Emissions Inventory
 - PSR, other industry databases
 - models and specs direct from equipment manufacturers
- Interviews with:
 - Equipment Rental Companies
 - Construction Companies
 - Owners / Operators
 - Fuel distributors serving this industry
- Gather financial data for impacted parties
- Discussions with DPF manufacturers