



National Clean Diesel Campaign

In-Use Performance

Retrofit Technology Verification Workshop

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Presentation Overview

- Why In-Use Performance is Key
- In-Use Experience in Verification
- What is the In-Use Program
- In-Use Program Schedule Framework
- Coordination with ARB
- Benefits of the In-Use Program
- EPA and In-Use Operation

Why In-Use Performance is Key

- Huge interest in retrofit field experience
- Confidence that technology has been proven out in real-world
- Manufacturers are the link to our greater understanding of in-use operation
- Helps us evaluate our own verification process
- Increased field experience win-win situation

In-Use Experience in Verification

- **Manufacturer in-use experience – sheds most light for Verification**
- **Helps Speed up Verification**
 - Fine-tune and update your system as needed
- **Example: SCR**
 - Not just challenges with system but outside influences, interactions w/engine, other consumables
 - Driver inducements, SCR performance worked out
 - Datalogging for various technologies proves to be useful tool later on

In-Use Experience in Verification

- Manufacturers providing real-world information enable EPA to make better engineering decisions:
 - BP data
 - Temperature profiles
 - Technologies with electronic strategies
 - Driver inducements
- Continuous learning process. The more we know, the more we can help.
- **Aids in Scope Selection**
 - Knowing target market, Matching technology with intended scope
 - Aids marketing & selling of system to potential OEMs

What is the In-Use Program?

- Verify reduction levels of retrofit technology in normal field operation
- Test four devices Phase 1, four devices Phase 2
 - (25% aged, 75% aged)
- 75% success rate to achieve compliance
- Test cycles like verification or other approved method
- Represent applications with most sales, and diverse selection of applications verified

Background:

General Schedule Framework

1.	Company reports to EPA whether they've met sales threshold (500 units nationally)
2.	EPA sends a formal email letter requesting an in-use test plan
3.	Before testing can begin, EPA must approve proposal – devices selected, appropriate engine, test procedures, test location, schedule.
4.	Company begins testing
5.	Company submits results in a report format.

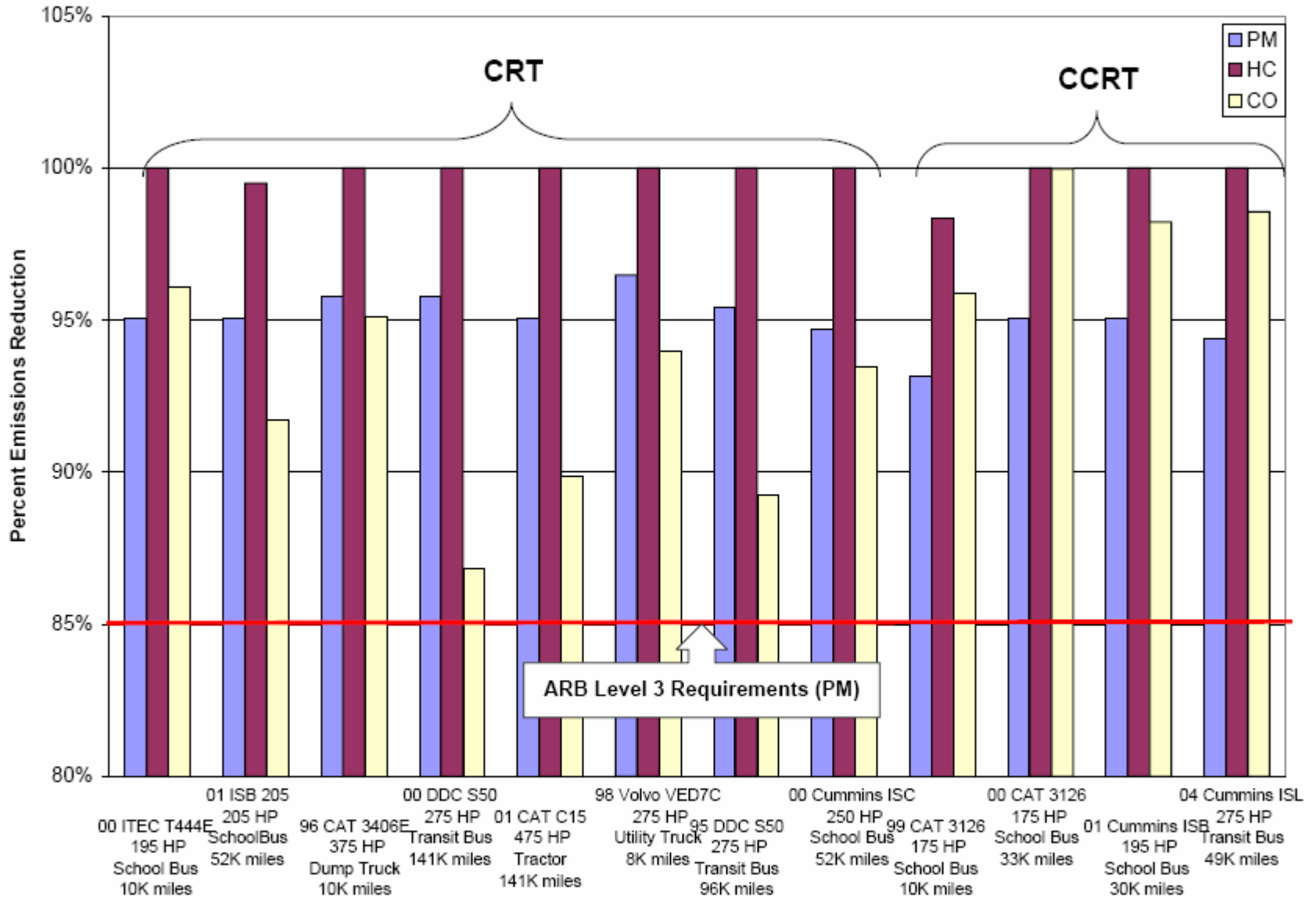
Coordination with ARB

- Weekly coordination meetings with ARB staff
- In-Use requirements for EPA & ARB are similar:
 - 4 devices Phase 1 (25% aged)
 - 4 devices Phase 2 (75% aged)
- EPA & ARB agree to
 - 2 devices within CA, 2 outside CA for each phase to fulfill requirements
- Similar Reporting Format

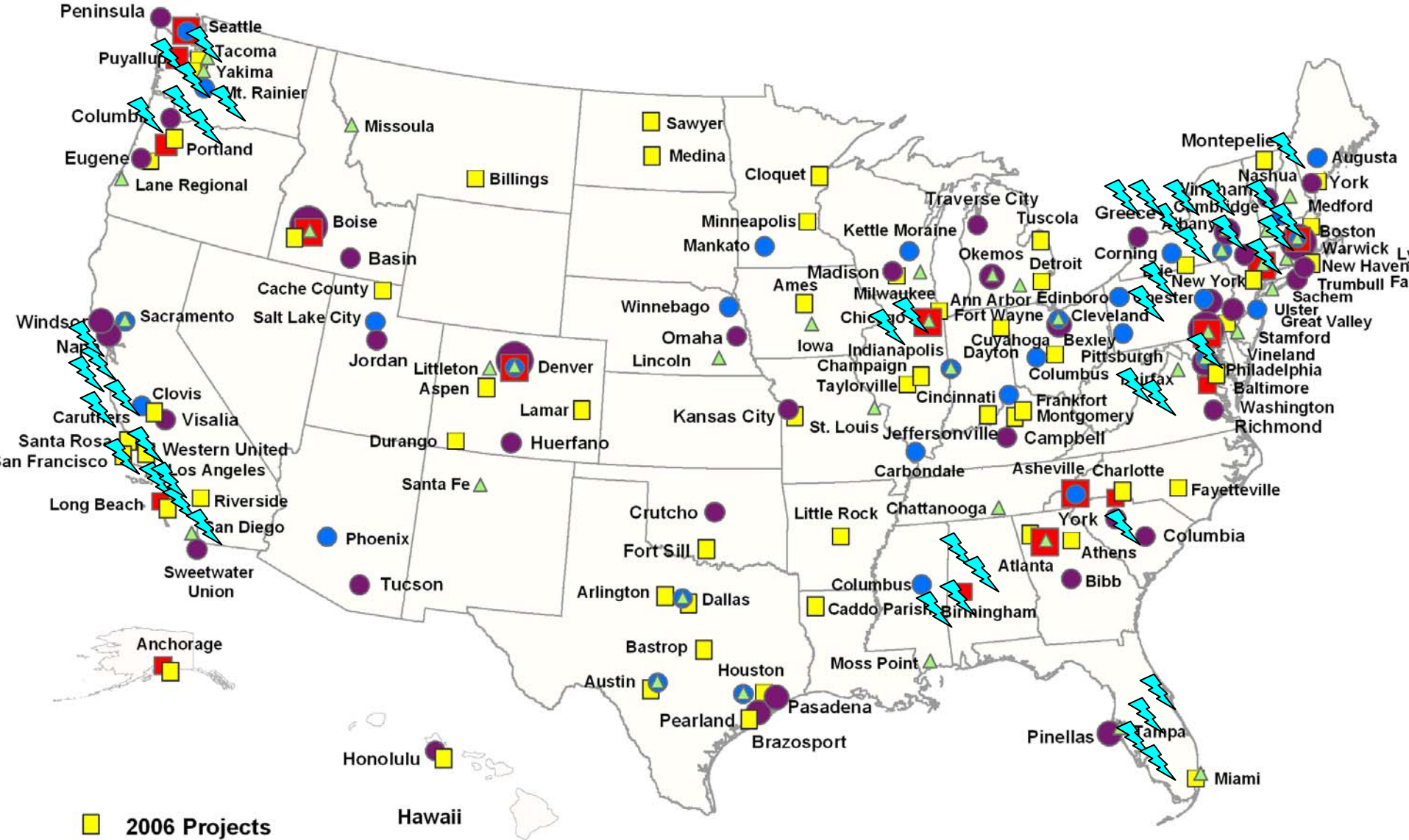
Benefits of the In-Use Program

1. Increased confidence and understanding of real-world operation for future decisions
2. Potential to increase levels of reduction on Verified List
3. Promoting Technologies at conferences and special events
 - Johnson Matthey completed in-use program
 - ECS phase 1 data

Johnson Matthey Filter In-Use Results



EPA Funded Retrofit Projects (as of 12/11/2007)



- 2006 Projects
- 2005 Projects
- ▲ 2004 Projects
- 2003 Projects

⚡ In-Use Devices Tested/Proposed to date

Benefits of the In-Use Program

4. Provides flexibility with device selection
 - Larger pool of devices nationally to select from
5. Manufacturer selects test engine and technologies to test

EPA & In-Use Operation

- School bus testing with portable devices under real-world conditions
- Oakridge National Lab
 - Engine dyno testing to evaluate verification procedures & filter efficiency
- GSA Contract with SwRI
 - Confirm the durability and performance of selected devices
 - FTP, SET tests

School Bus Testing Filters

- Cleaned
- Loaded



Questions?



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