



Alternative Fuel Vehicles and Air Quality Initiatives in the SIP Process... and Beyond

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**10th National Clean Cities Conference & Expo
Ft. Lauderdale, FL May 5, 2004**

Argonne National Laboratory

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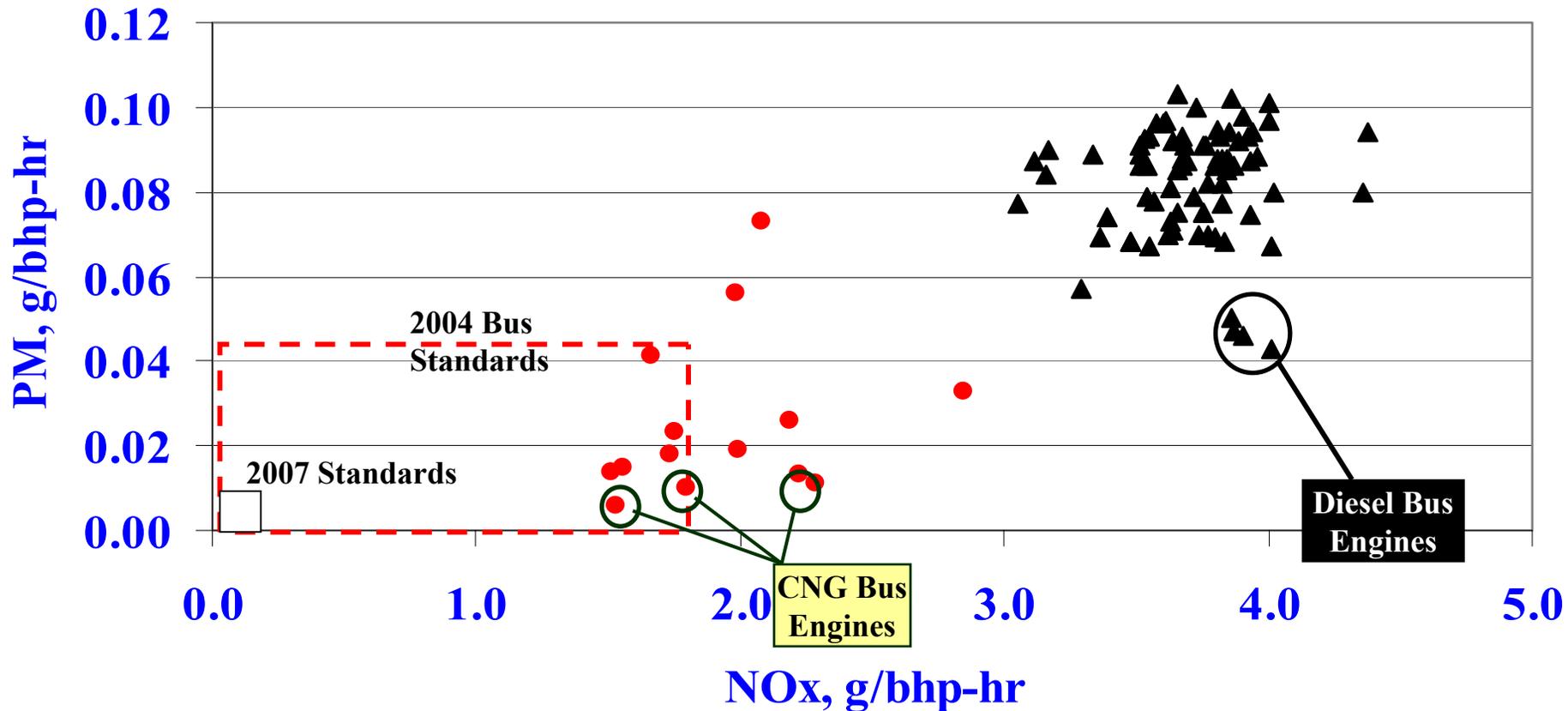
Just how do AFVs help air quality?

- Extremely low NMHC emissions, especially with NGV, LPG, and electrics (or FCVs), and gaseous fuels generate virtually no evaporative hydrocarbons
- No morning cold starts mean less VOC added to the precursor “soup”
- NOx can be lower than emissions from diesel-powered counterparts
- Recent evidence shows lower NOx from most FFVs operating full-time on E85
- Fleet operations are often densest near urban center, where NMHC reductions are of greatest value

How about a specific example?

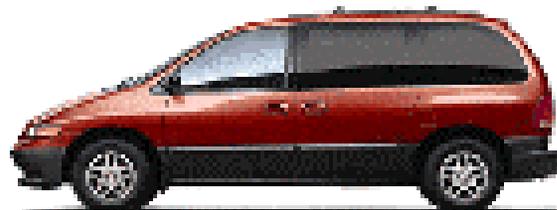
Recent HDE Emission Certification Data

▲ Diesel Engines ● CNG Engines



What need (and limitations) did EPA identify?

- **Alternative Fuel Vehicle emission credits are relatively small on a per vehicle basis**
- **Currently there are limited numbers of operating alt fuel vehicles**
- **State and Regional Air Quality staff are very busy with multiple programs**
- **Thus, need to minimize the effort needed to calculate emission reduction benefits**



What policy drove DOE/EPA Coordination on AFVs?

Voluntary Measures Policy (VMEP) enacted on October 23, 1997

- **Goal: Respond to the public demand for programs using voluntary measures, market incentives, and other innovative strategies for progress toward Clean Air Goals**
- EPA supports flexibility and innovation for community based environmental protection and progress toward attainment, short of new state-level regulation
- Regions wish to provide consistent policy and reward community and citizen action
- Funding eligibility under CAA Section 105 and CMAQ

VMEP has been a key facet in the continuing evolution of mobile source regulation

- **Credit generation is from *voluntary* effort, which may be seasonal or episodic**
- **Means of quantifying the benefit must be reliable and defensible**
- **Must be accompanied by any necessary adjustments for compliance and/or programmatic uncertainty**

SIP flexibility

- **Traditional v. Voluntary Reductions**
 - Enforceable - Verifiable
 - Permanent - over time period utilized
 - Quantifiable - Quantifiable
 - Surplus - Surplus
- **SIP submission - streamlined requirements**
 - No backstop or contingency measures
 - States given up-front credit

Policy in action

- **State submits good faith credit estimate of VMEP program**
 - Technical supporting information is required
 - addresses the applicable criteria pollutants
- **State commits to evaluation of voluntary program and to reporting data**
- **State commits to remedying any shortfalls depending on the timeframe needed**
- **SIP submittal may contain several strategies**

Voluntary Measures - Cap

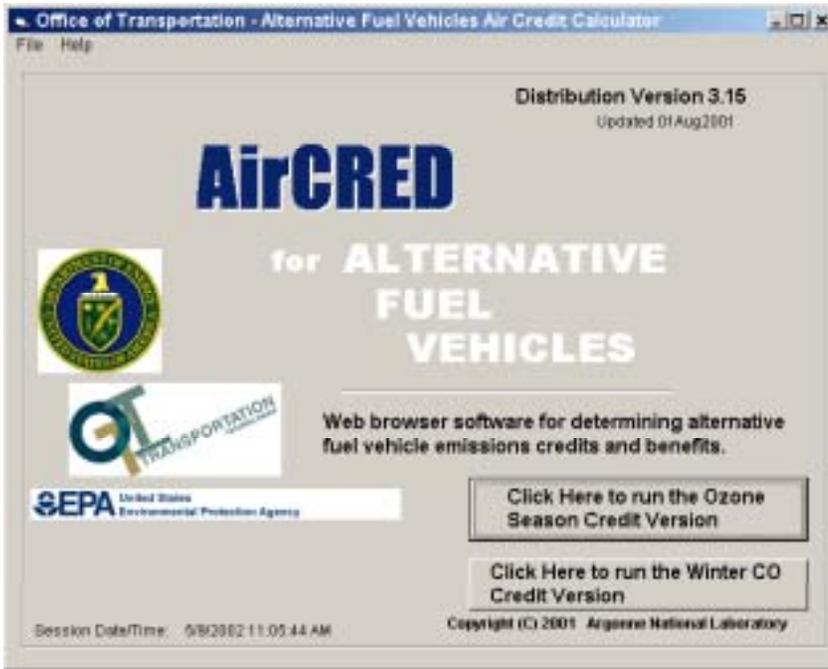
- **Policy: Limited to 3% of an applicable plan**
 - Example 15% plan
 - 3% of required reductions (100 tons = 3 tons)
- **Cap would be imposed for 5 years and reviewed as EPA gains experience**

How may AFV emission credits be obtained?

- **Manufacturer Emission Credit**
- **DOE EPACT Credit**
 - DOE EPACT only
- **EPA Clean Fuel Fleet Credit**
 - For Clean Fuel Fleet Requirements Only
- **Voluntary Measures Credit**
 - Anything measurable below existing standards
 - For public, private, individual or area entities

What sort of assist could Clean Cities provide?

- **In order to minimize the effort in calculating emission benefits, EPA and DOE developed a user-friendly emission software tool (in Visual Basic run off a standard PC) to calculate emission benefits with a minimal amount of data input**
- **Based on existing EPA data**



www.aircred.anl.gov

CONCLUSIONS/OBSERVATIONS

- Mobile source emissions estimation at a fine grain is still needed because most measures we define as voluntary produce only small additional reductions
- Mobile source emissions assessment tools usable by the AFV fleet owner/manager are regularly requested
- Voluntary efforts like Clean Cities need a boost from consistent, reliable quantification on an ongoing basis of the benefits they provide
- Because some portion of each fleet turns over annually, only regular updating of benefit estimates with current data can meet this need; *today's regulatory models are not structured to do that*