

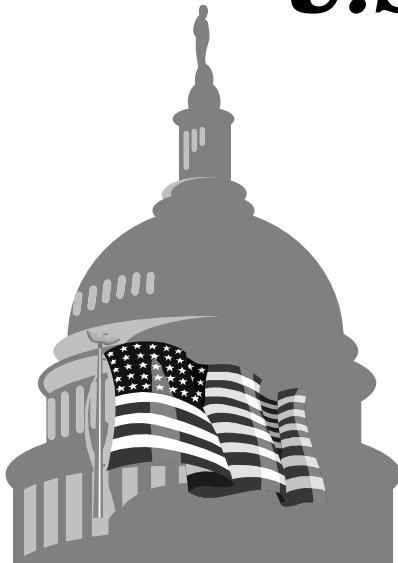
# **Alternative Fuel Vehicles**

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**Dennis Smith**

***National Clean Cities Program***

***U.S. Department of Energy***



***Alexandria, VA.***

***June 12, 2002***





**Planning for the Future ...**

# ***Which Options to Consider ??***

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- **Methanol / Ethanol**
- **Natural Gas**
- **Propane**
- **Electric, Hybrid, Fuel Cell**
- **Bio-Fuels**
- **Improved Diesel**



# **U.S. Government Supports AFVs**

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- **Use Domestic Fuel Resources**  
*(Homeland Energy Security)*
- **Improve Air Quality**
- **Provide Good Long-Term Investment**
- **Promote Economic Development**
- **Reduce vulnerability from Crude Oil Price Spikes and Shortages**

# U.S. Government AFV Policy

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- **Fuel Taxes**
  - ✓ Highway Tax
  - ✓ Ethanol Production Tax Credit
- **Energy Policy Act (1992)**
  - ✓ Vehicle and Refueling Tax Deductions
  - ✓ Vehicle Acquisition Requirements for Federal, State, and Fuel Provider Fleets
- **Proposed Energy Bill (2002)**
  - ✓ Tax credits for AFVs and Refueling Stations
  - ✓ 30 to 50 cents/gal fuel tax credit
- ***Voluntary National Clean Cities Program***

# National Clean Cities Program

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..... **A voluntary, locally based government industry partnership program**

- **Currently 77 Active Cities**
- **Over 4,400 Stakeholders**
- **96 million gallons of petroleum displaced per year**
- **19,000 metric tons of emissions reduced per year**



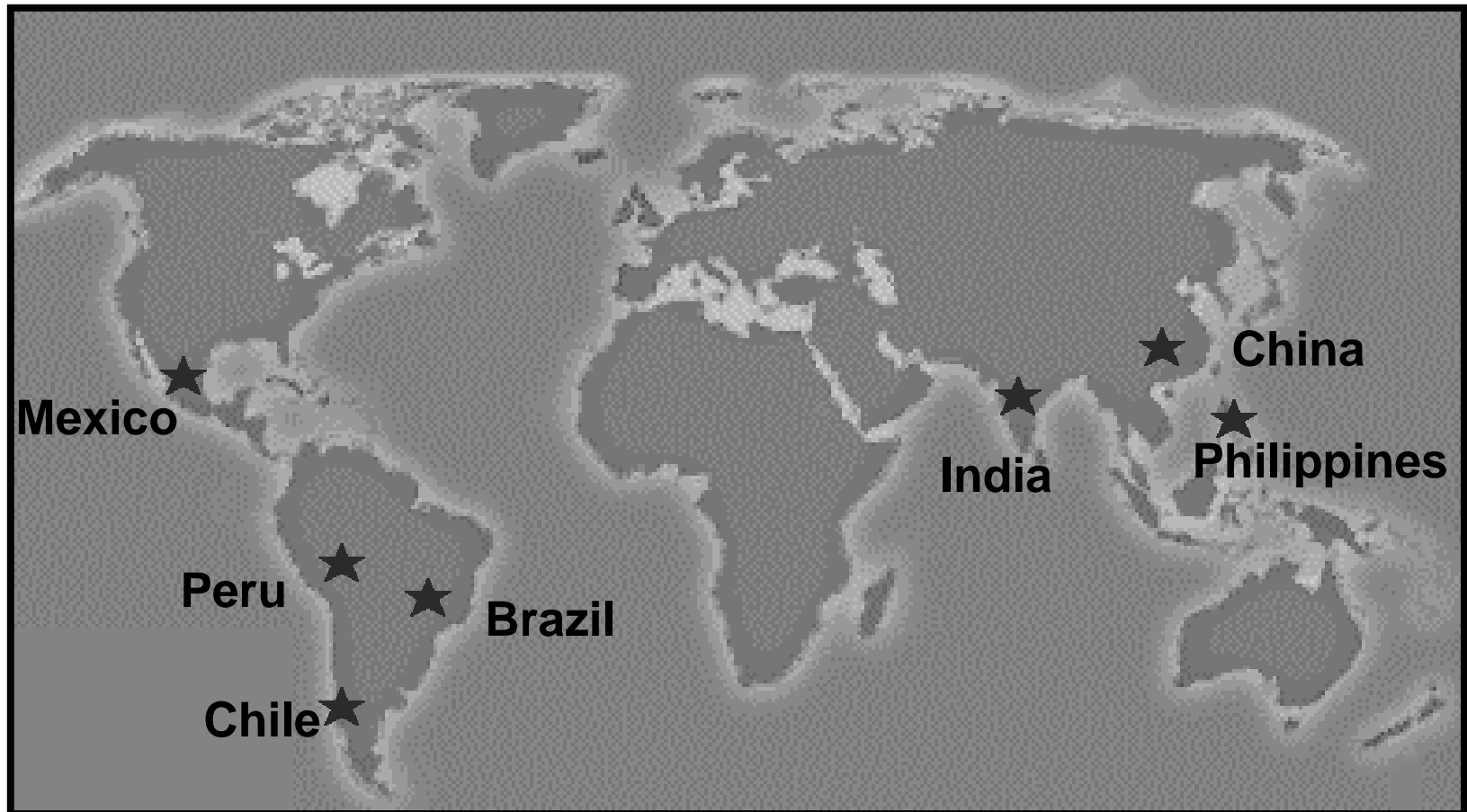
# Alternative Fuel Vehicles (AFVs) in the U.S.

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- Alternative Fuel Vehicles (2002 estimates)
  - 110,000 CNG vehicles
  - 10,400 Electric vehicles
  - 269,000 Propane vehicles
- Alternative Fuel Refueling Stations
  - 1,280 Natural gas stations
  - 592 Electric rechargers
  - 3,353 Propane stations
  - 240 E85 stations
- Approximately 43 light-duty models available in 2002
- 100 medium/heavy-duty models available in 2002

# Clean Cities Around the World

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# Clean Cities Lessons Learned

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- Incentives to encourage purchases are key
- Accurate Technical Information is Critical
- **Flexible modeling and planning tools are Essential**
- Drivers & mechanics must be educated to allay safety concerns
- Ask advice from those with successful track records, anticipate challenges.
- Concentrate efforts on Niche markets first
- Every Little Bit Helps - Even Baby Steps
- There is NO Magic Bullet !

# Niche Markets Have Much Potential

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# Niche Markets are Large Fuel Users

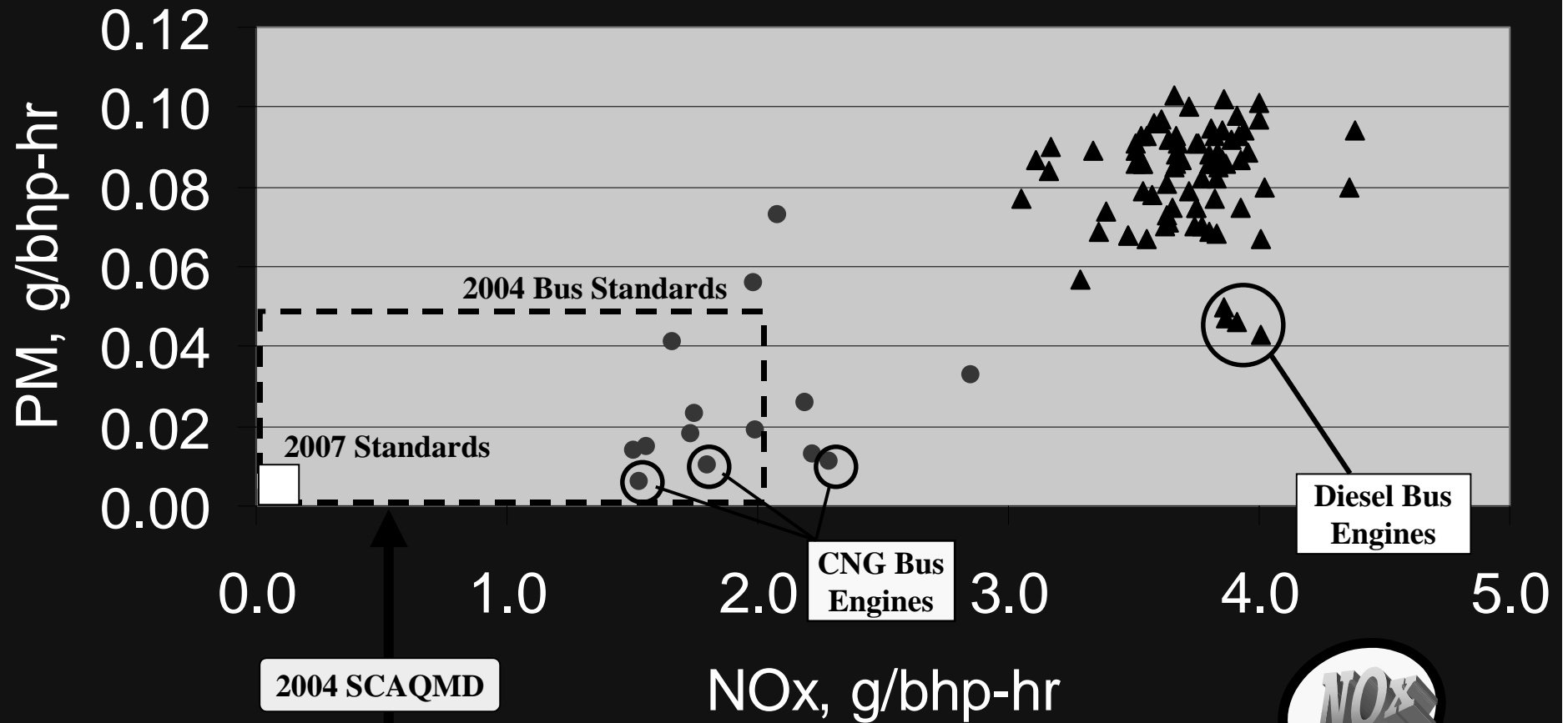
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| Vehicle                    | Total Population of Vehicles in U.S. | Fuel Use per Year for Total Population (million gal) |
|----------------------------|--------------------------------------|--|
| Transit Buses              | 50,000                               | 500  |
| School Buses               | 500,000                              | 824  |
| Average HDVs               | 3,927,700                            | 17,260   |
| UPS Medium Trucks          | 57,000                               | 57   |
| Private Fleet Light Trucks | 2,330,000                            | 1,255  |
| FFVs using E85             | 750,000                              | 404  |
| Total Vehicles             | 7,614,700                            | 20,300   |

# 2001 HDE Emission Certification Data

PM

▲ Diesel Engines • CNG Engines



NOx

# *Consider a Dual Strategy*

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- ✓ **Retrofit Technologies for existing vehicles that will remain in service**
- ✓ **Cleanest Available (and reasonable) Technologies for all new vehicle purchases**

# *Separating Myth from Fact ...*

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*Myths*

**can result from:**

- **Mis-Information**
- **Partial Information**
- **Selective Data Screening**
- **Anecdotal Stories**
- **Enthusiastic Salespeople**

# TIPS

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- **Sound bites on clean fuel options are often oversimplified and may be misleading - dig in and study the details!**

# TIPS

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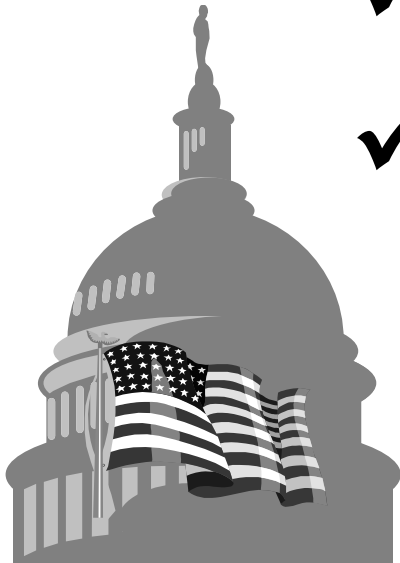
- **Some “clean” fuel technologies are much more advanced than others.**
- **Avoid the ‘Brochure Test’**



# *[www.ccities.doe.gov](http://www.ccities.doe.gov)*

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- ✓ **AFV Case Studies**
- ✓ **Fact Sheets & Tools**
- ✓ **AFV Fleet User HELP**
- ✓ **Special Events**



# *Tools We Need ....*

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**Chris Saricks**

**Argonne National Labs**

