

MOVES Emission Analysis Overview

Constance Hart

**EPA Mobile Source Present
and Future Models Workshop
- November 6, 2002 -**



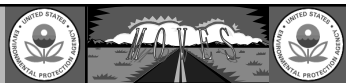
Analysis of Factors Important for CO₂/CH₄ – MOVES GHG

- **ERG analyzed several thousand tests (mostly EPA)**
- **CO₂ driven mainly by vehicle power and weight; insensitive to start, fuel parameters, mileage**
- **CH₄ influenced by start**



On-Board Shootout

- On-board testing on 18 LDVs, 15 Buses (Sensors/EPA), 3 Nonroad engines (AEI/EPA), including dyno correlation
- EPA, ENVIRON, NCSU, UC Riverside analyzed results
- Modal binning and power-based approaches showed promise



Modal Binning Proof-of-Concept

- NCSU analyzed 500,000 seconds of data from dyno, on-board, IM, RSD
- Assessed several concepts from shootout:
 - Modal binning (NCSU)
 - Vehicle Specific Power (VSP) binning (EPA)
 - VSP over different averaging periods (Environ)
- Answered Questions:
 - Use of IM240 data
 - Use of RSD data
 - Averaging periods
 - Appropriate Weighting (time, weight or trip)



Physical Model Assessment

- **Dr. Edward Nam undertaking a simplified CMEM which:**
 - **Allows calibration to new data**
 - **Produces binned emission rates for MOVES**