U.S. Department of Energy, Vehicle Technologies Program - Advanced Vehicle Testing Activity (AVTA)

VSATT Update – 02/04/09

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Advanced Vehicle Testing Activity

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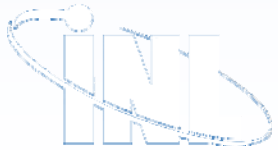


HEV Candidate Test Vehicles

- **Obtain two of each HEV test model**
- **One of each HEV model will be tested on test track (Phoenix) and dynamometer (Argonne's APRF) when new**
- **Two of each HEV model 160,000-mile accelerated tested with data loggers**
- **Each HEV battery will be tested at beginning (BOT) and end (EOT) of the 160,000-mile accelerated testing per the DOE *FreedomCAR Battery Test Manual for Power-Assist Hybrid Electric Vehicles***
- **2009 HEV test vehicle candidates:**
  - **Honda Insight**
  - **Toyota Prius**
  - **Ford Fusion**
  - **Saturn 2 mode VUE**
- **2010 Probable HEV vehicle test candidates:**
  - **Mercedes S400 Bluetec Hybrid**
  - **Lexus 250h**

PHEV Candidate Test Vehicles

- **Obtain PHEV test models of unknown numbers per model**
- **One of each PHEV model will be tested on test track (Phoenix) and dynamometer (Argonne's APRF)**
- **Each PHEV will be 5,440-mile accelerated tested and fleet tested if possible with data loggers**
- **Depending on manufacturer/converter, each PHEV battery will be tested at BOT and EOT for the 5,540-mile accelerated testing, and at the end of extended fleet testing per the DOE *Battery Test Manual for Plug-in Hybrid Electric Vehicles***
- **2009 PHEV test candidates include:**
  - **Ford OEM Escape**
  - **Toyota OEM Prius**
- **2010 PHEV test candidates will likely include one OEM PHEV and one converter PHEV**

EV Candidate Test Vehicles

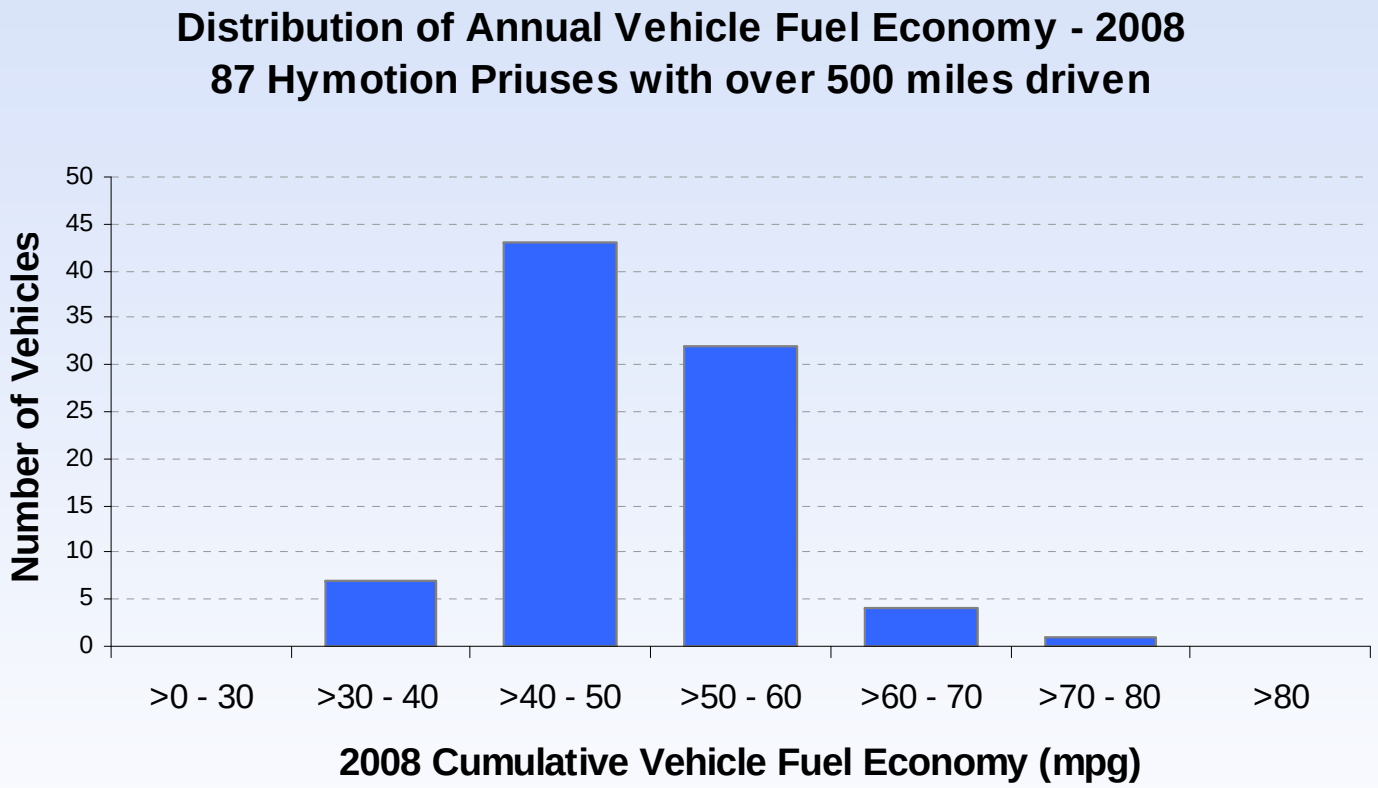
- Obtain groups of pure EV test models
- One of each EV model will be tested on track (Phoenix) and dynamometer (Argonne's APRF) when new
- Depending on capabilities, each EV will be 5,440-mile accelerated tested and fleet tested with data loggers
- Each EV battery will be tested at BOT and EOT for the 5,540-mile accelerated testing, and at extended intervals during fleet testing to one or more DOE EV test manuals
- 2009 PHEV test candidates include:
  - BMW Mini E
  - Mitsubishi I Miev
  - Magna/Ford Focus EV
  - Renault EV?
- 2010 PHEV test candidates include:
  - Nissan EV-02 (maybe '09)
  - Ford Transit Connect
  - Chrysler EV
  - Hi-Pa Drive Ford F150
  - Toyota iQ derivative

Other Electric Drive/Infrastructure Work '09

- **Lead Acid HEV *Ultra Battery* develop, lab testing, and 100,000-mile accelerated testing in a mule vehicle**
- **Bi-directional PHEV fast charge test to document infrastructure requirements, costs, and feasibility**
- **Testing support for DOE's PHEV Technology Acceleration and Deployment Activity**
- **Testing support for DOE's American Recovery and Reinvestment Act electric drive demonstrations**
- **Continue National PHEV Fleet Demonstration, expanding to 200 PHEVs with data loggers**
- **Continue NEV testing support to CARB**
- **Expand time of day PHEV charging studies**
- **Continue PHEV infrastructure charging study**
- **Continue HEV battery testing**

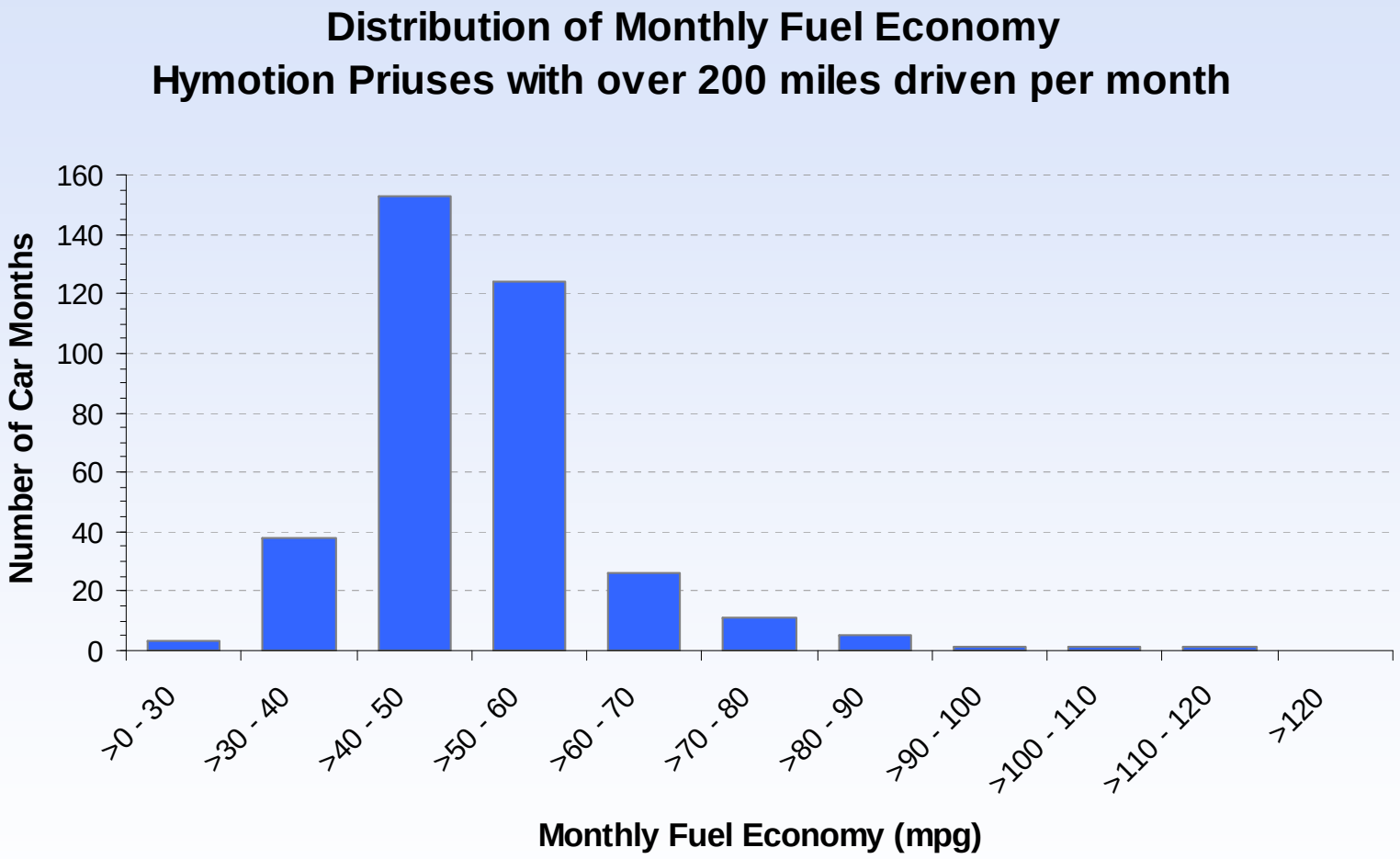
Overall Hymotion Prius Fleet (V2Green Data Logger) Summary Report for 2008

Breakdown of Hymotion Fleet FE

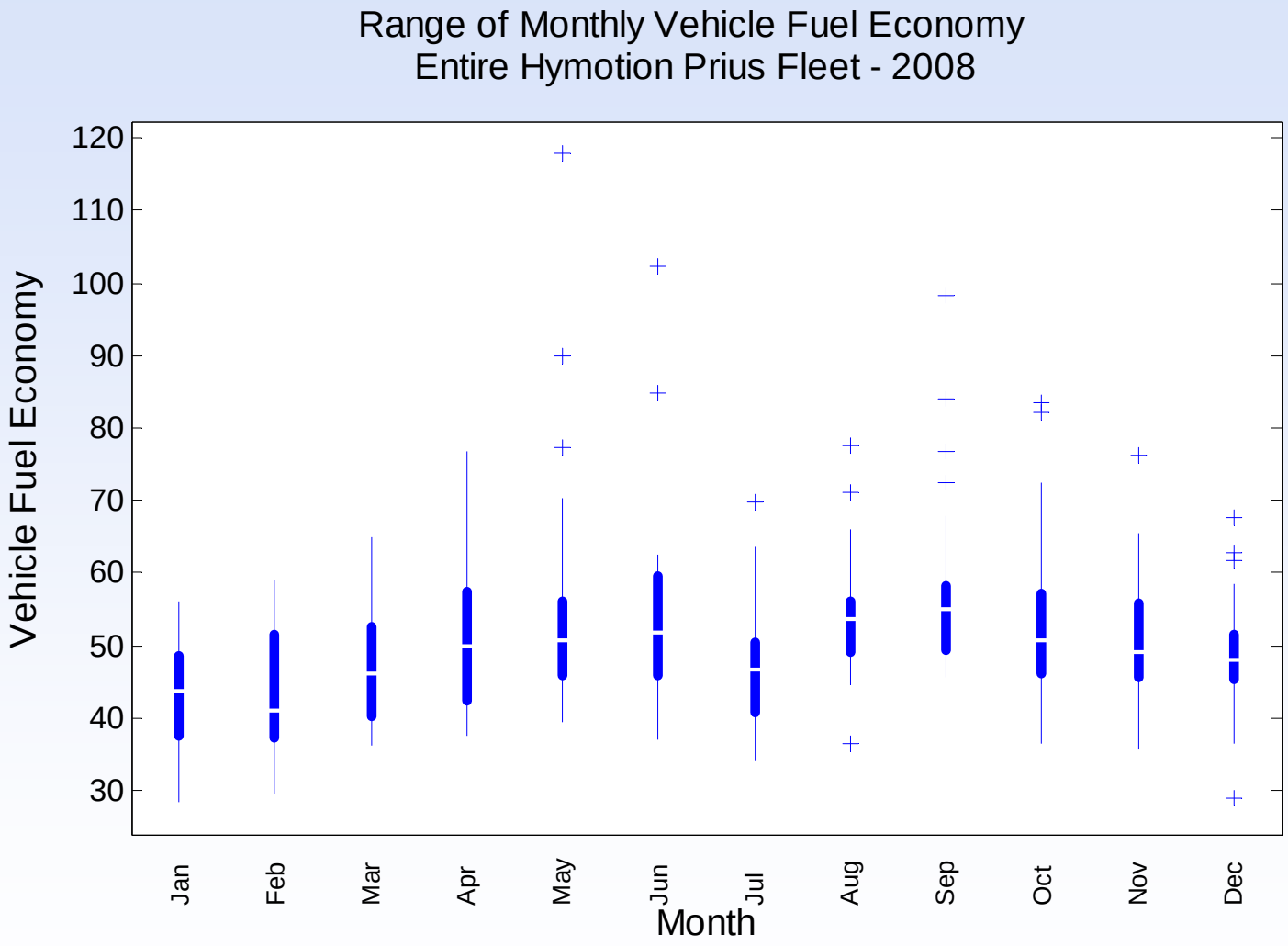


Fleet cumulative FE = 50 mpg

Breakdown of Hymotion Fleet FE

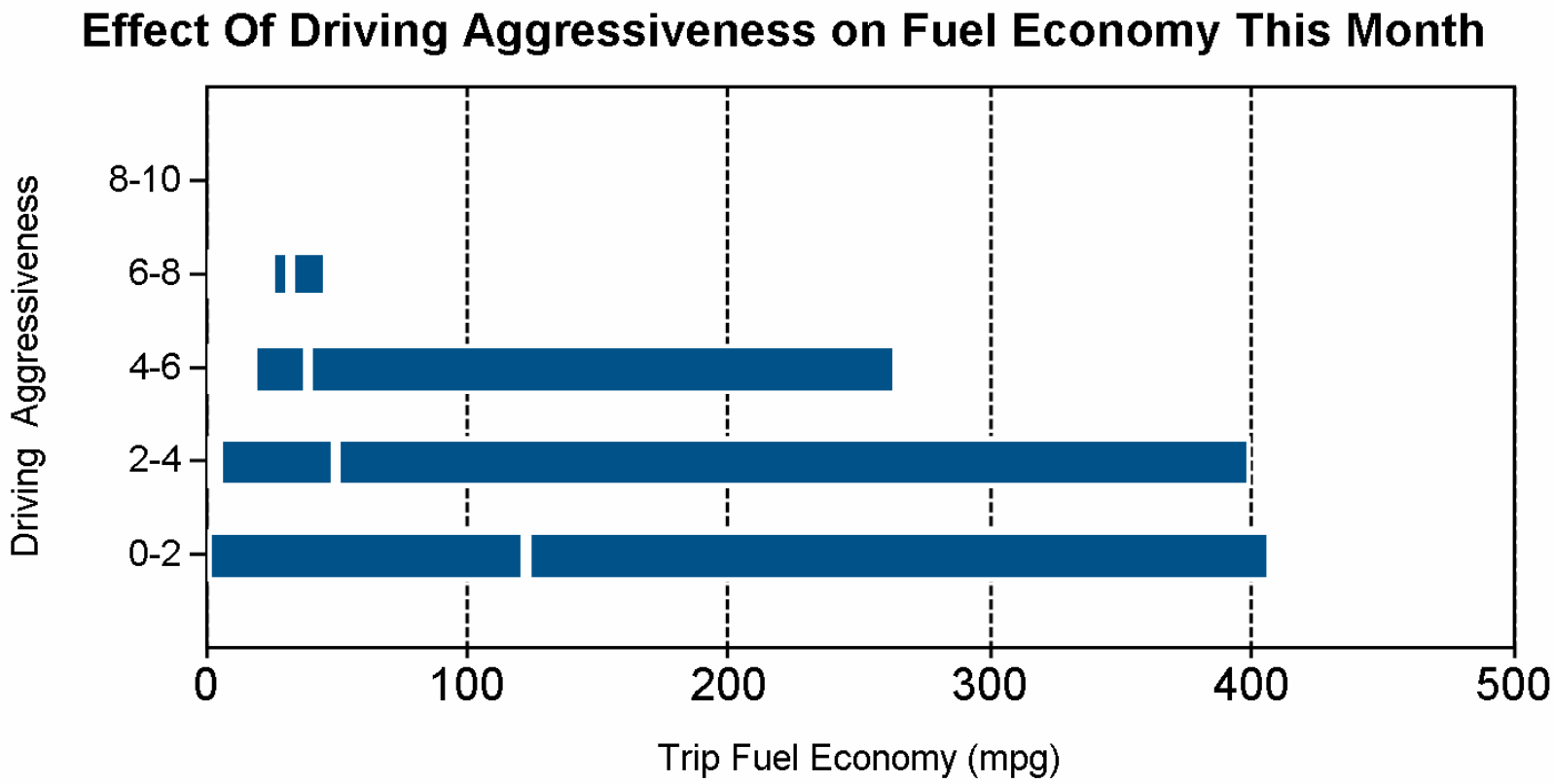


Breakdown of Hymotion Fleet FE



>200 mi / month

Impact of Aggressiveness



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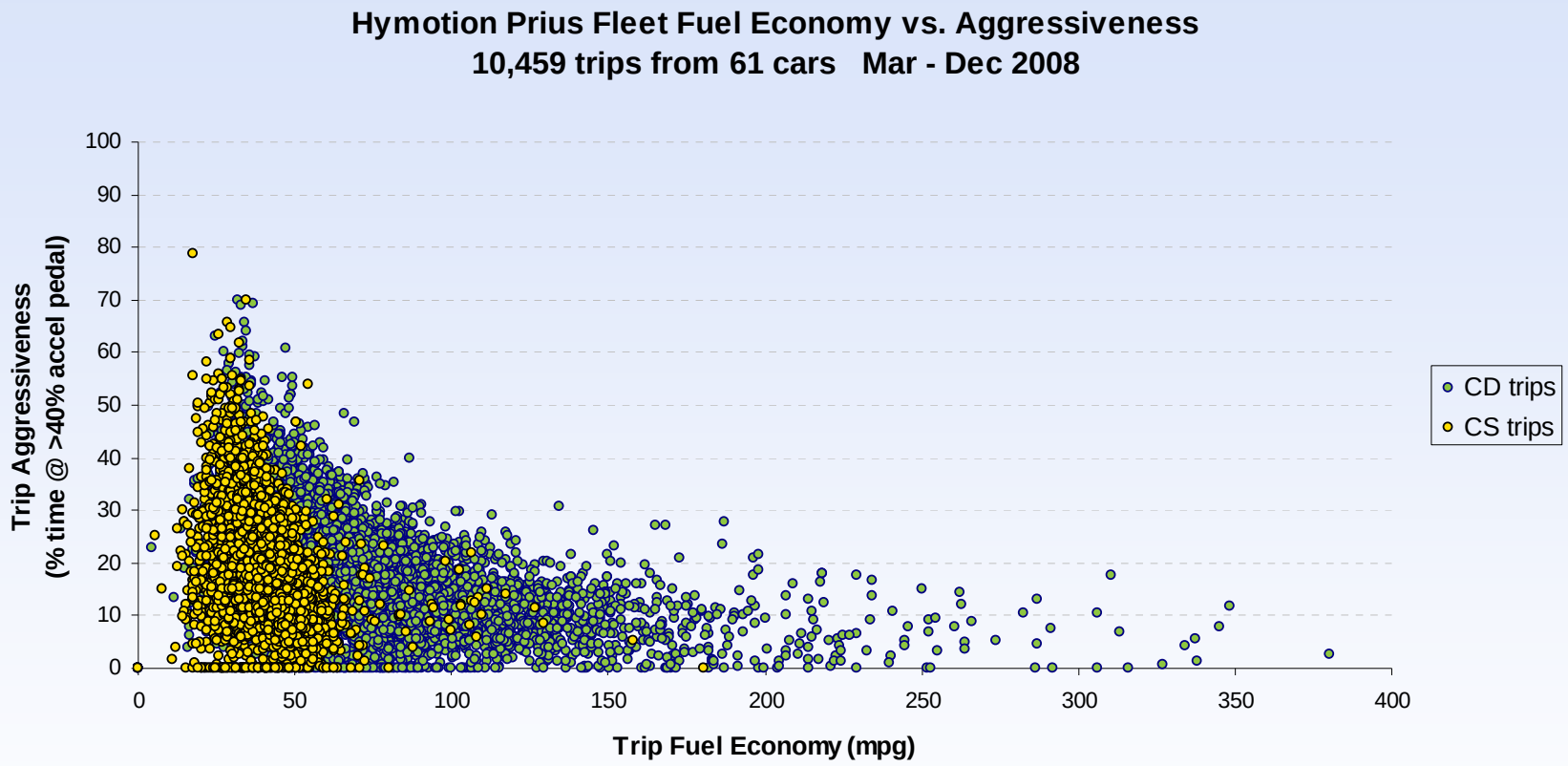
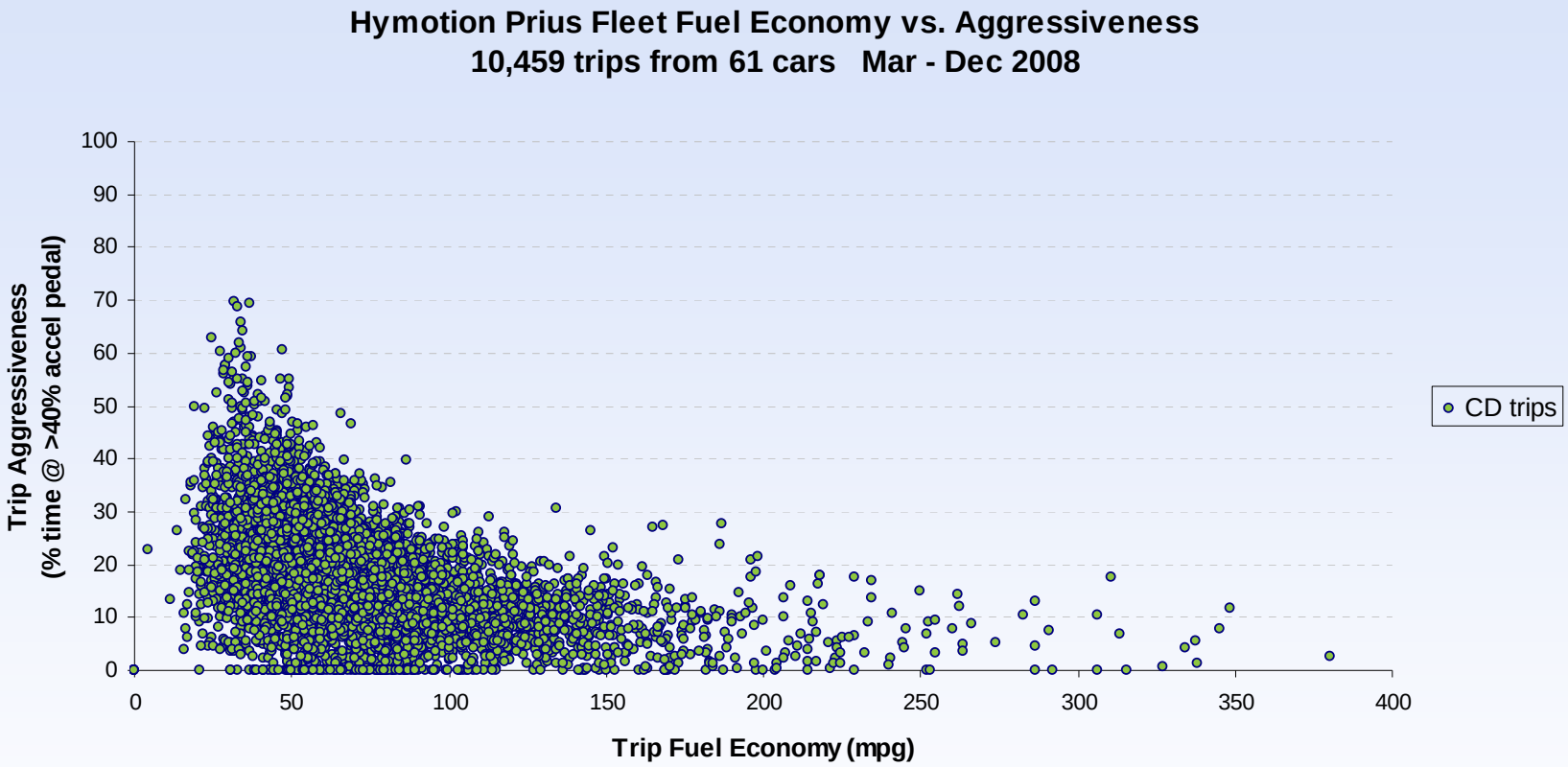


Removed trips < 1 mi

Impact of Aggressiveness



CD trips only
Removed trips < 1 mi

Impact of driving behavior and external conditions

Selected 250 ideal trips randomly from all 2008 according to these criteria:

Charge depleting operation only
Trips > 3 miles
First 2 miles removed from all trips

No A/C usage
Amb temp 60 to 90 deg F

Cum FE =
93 mpg
over 1500 mi

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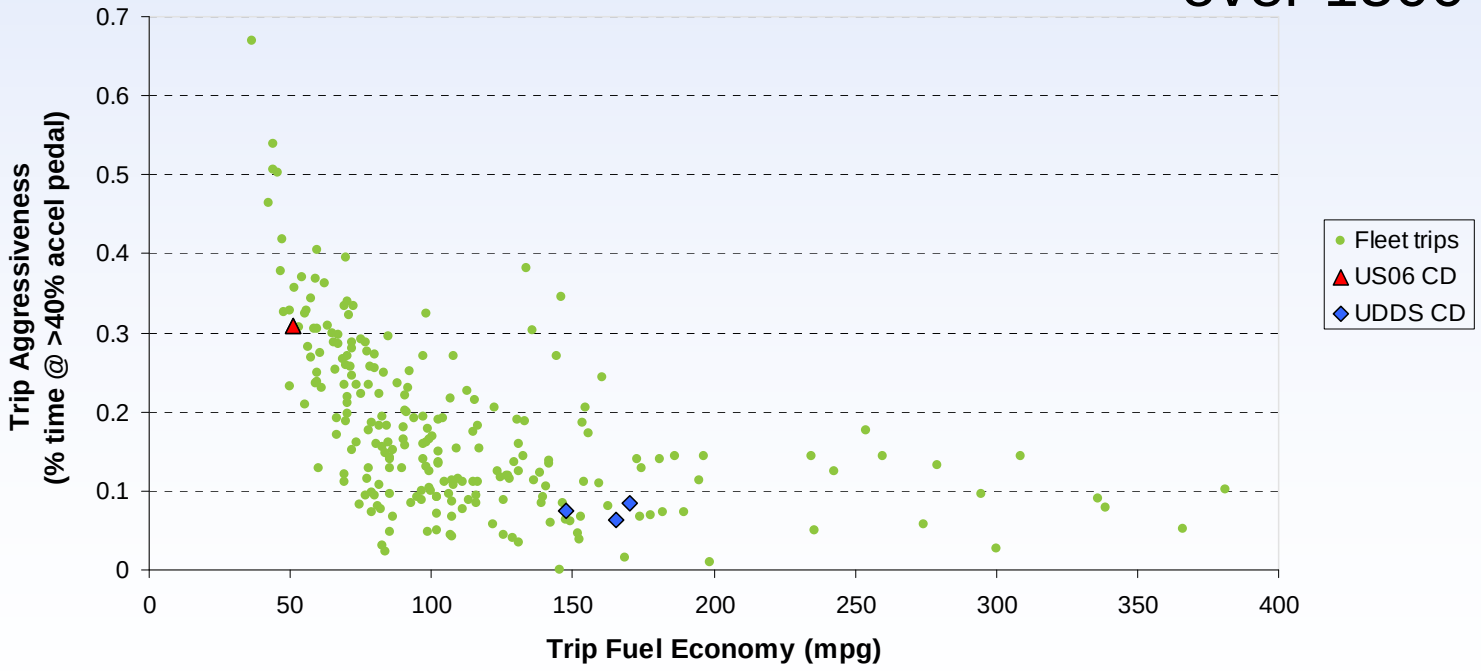

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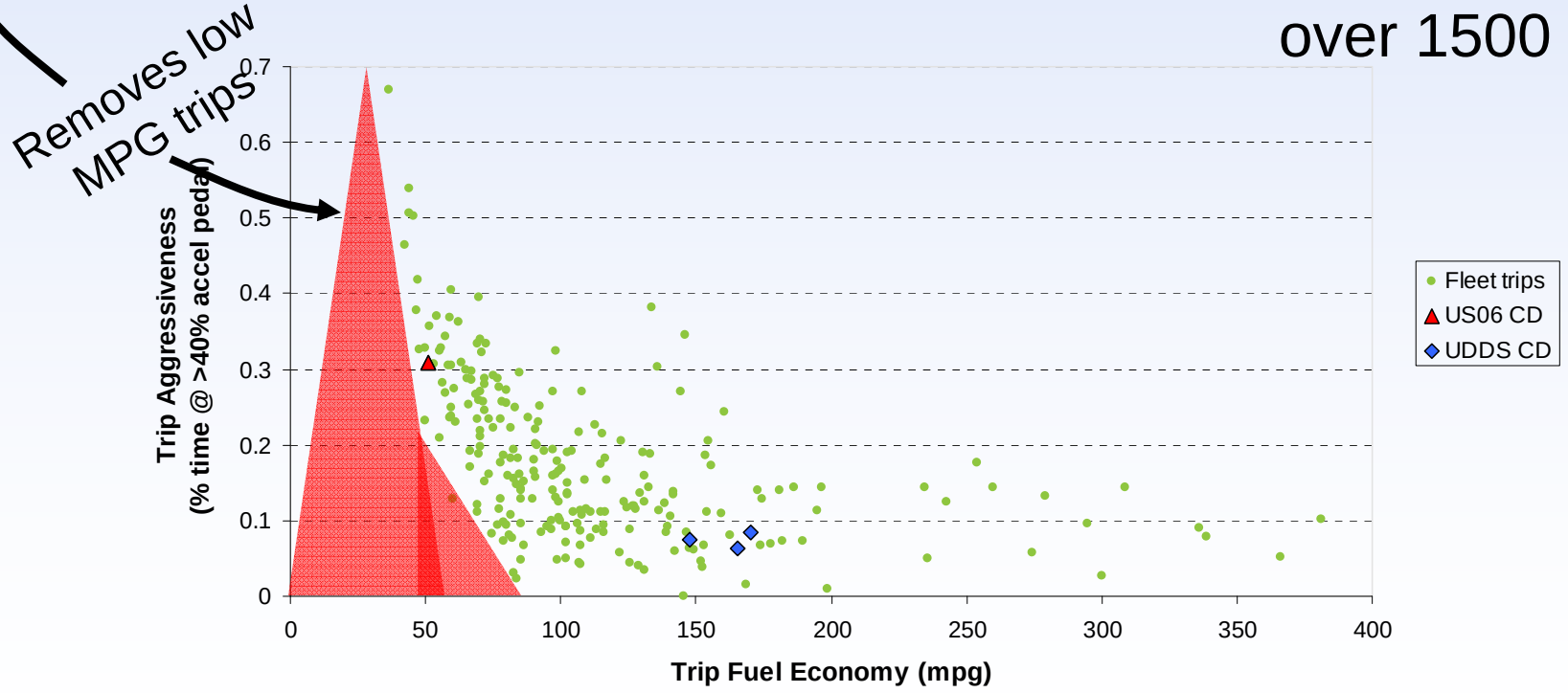
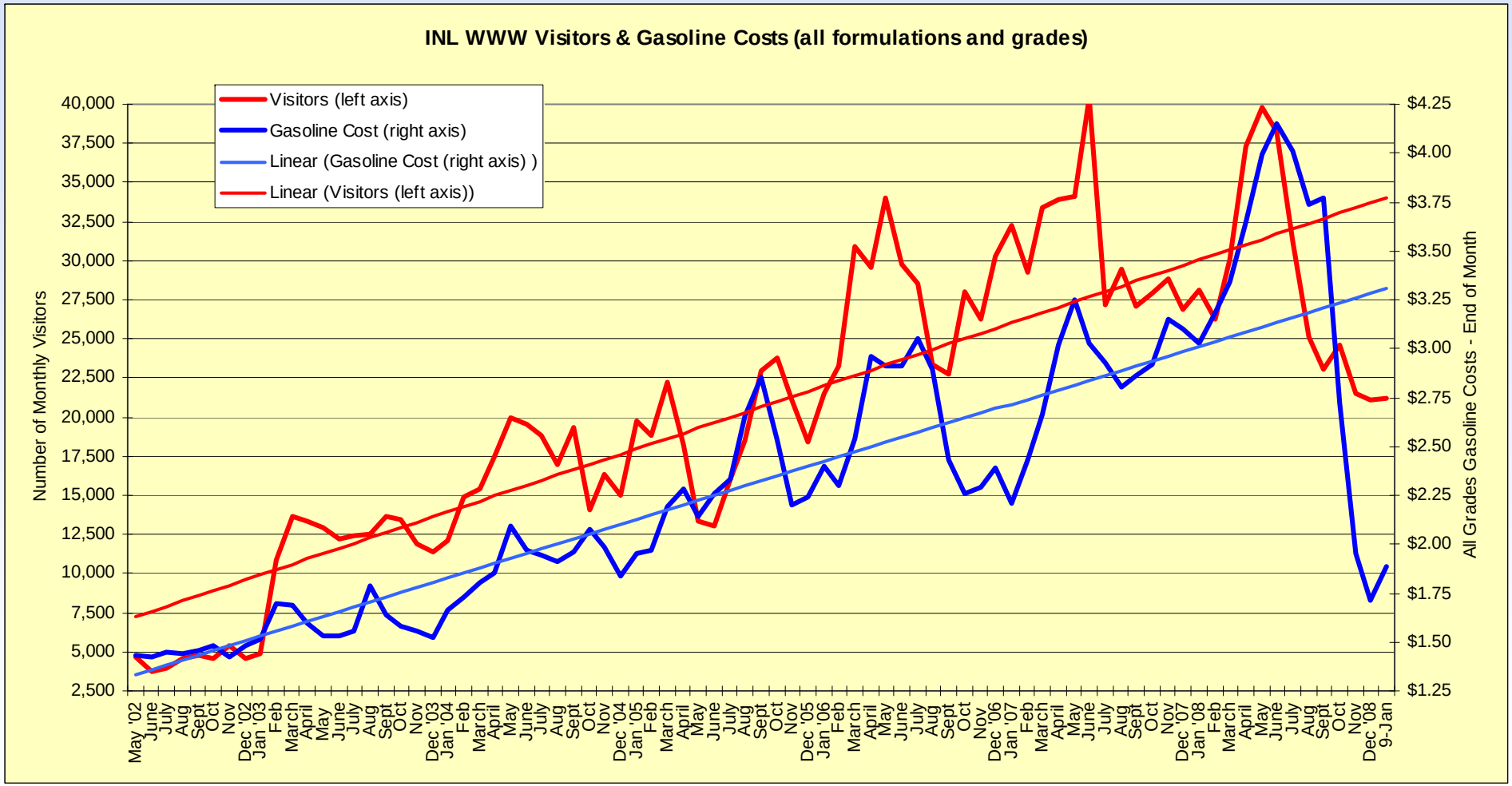


Continue to influence U.S. gasoline prices



Acknowledgement

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Lee Slezak, David Howell, and Pat Davis

Additional Information

http://avt.inl.gov
or
http://www1.eere.energy.gov/vehiclesandfuels/avta/

INL/CON-09-15358