

# **AN AUTO INDUSTRY PERSPECTIVE ON THE ETHANOL BLENDWALL**



**Mobile Source Technical Review Subcommittee  
Washington, D.C.  
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*Presented by: Dominic DiCicco*



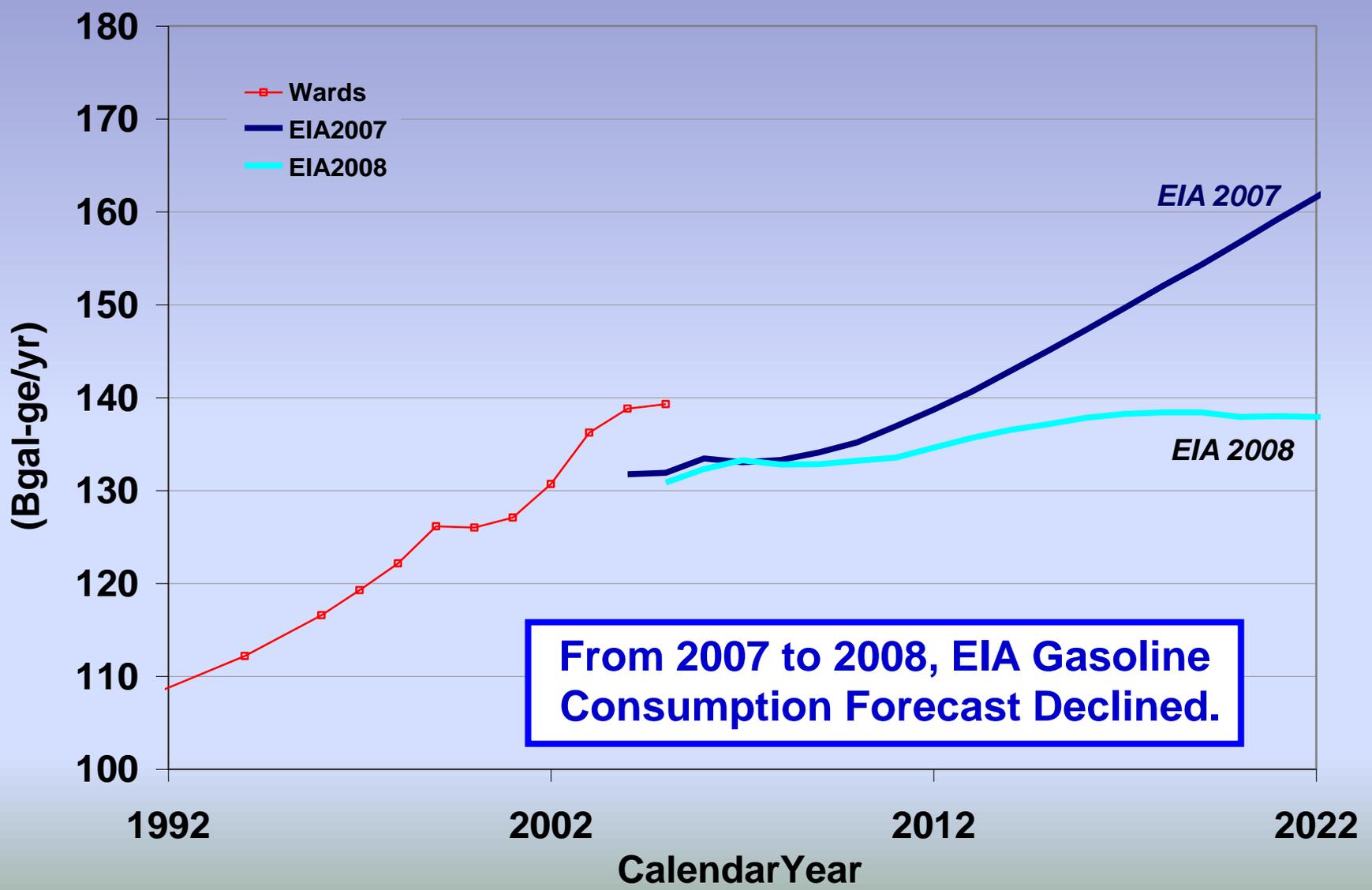


# AGENDA

- **Fuel Consumption Forecasts and Vehicle Fuel Efficiency**
- **Ethanol Use Scenarios**
- **E85 Infrastructure and Value to Customer**
- **Fuel Quality**
- **The Legacy Fleet and Concerns**
- **Flexible Fuel Vehicle Challenges**
- **Summary and Recommendations**



# EIA Gasoline Consumption Forecasts

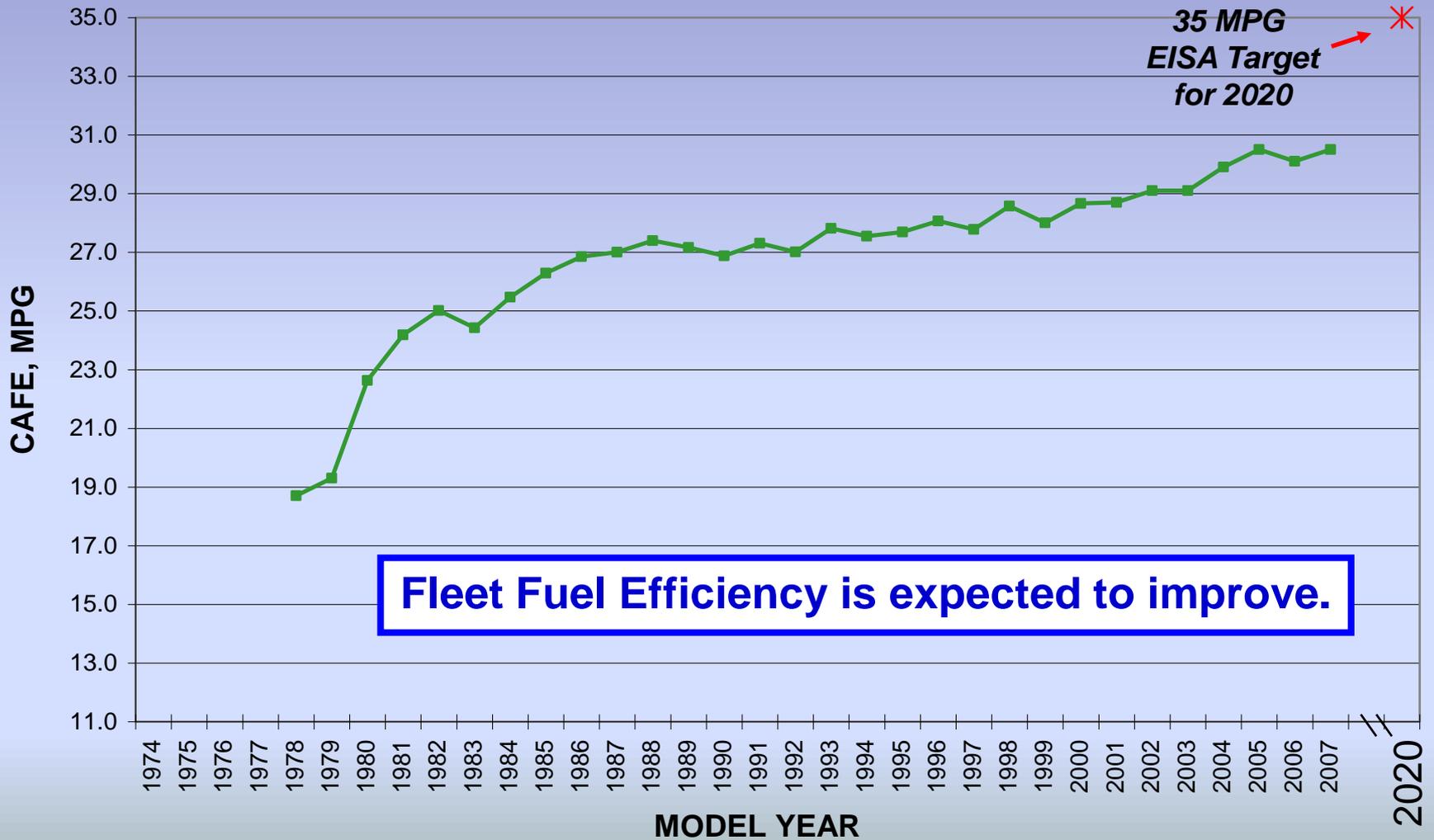


**From 2007 to 2008, EIA Gasoline Consumption Forecast Declined.**

Early Indications for EIA 2009 data are not showing increases.



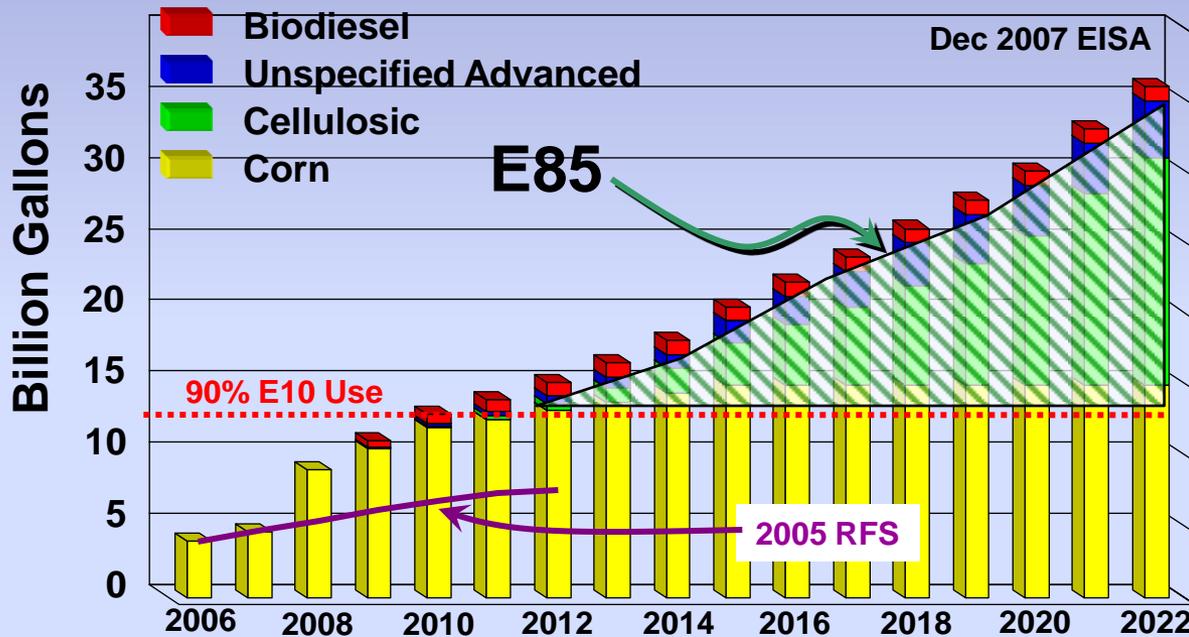
# Industry Improving GHG and Energy Security





# Scenario 1 - E10/E85 Ethanol Use

In 2008, ~190k Ford FFV vehicles were produced for U.S. Streets.  
 Total FFVs across the U.S. is ~7 million (& growing) out of ~242 mln registrations.



## Ford's FFV part...

2010 MY
Fusion* / Milan*
Crown Victoria / Grand Marquis / Town Car
Escape* / Mariner*
Expedition / Navigator
F150
E-Series

\* Denotes New Offerings for 2010MY

**If All auto manufacturers participated, achieving EISA renewable fuel volume mandates would be much easier.**

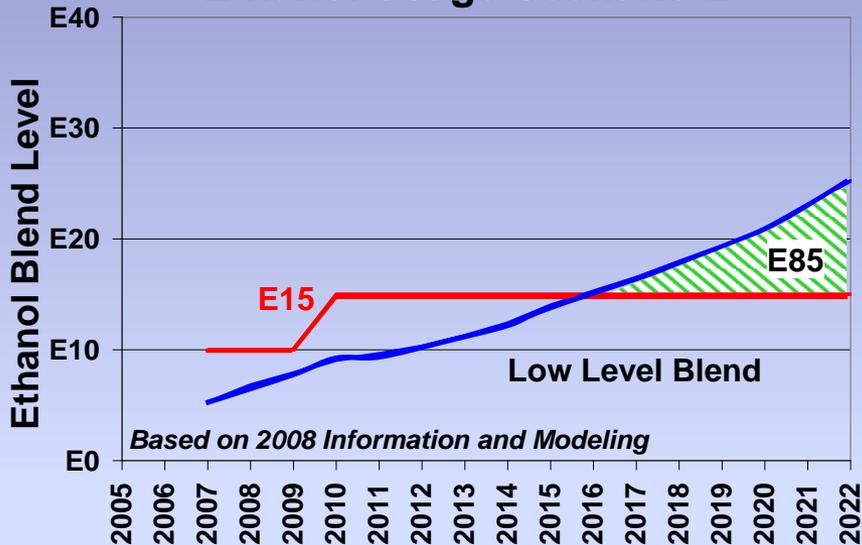
US 2009 Fuel Economy Guide

lists the following additional E85 FFV manufacturers: Chrysler, GM, Mercedes-Benz, Mitsubishi, Nissan, Toyota

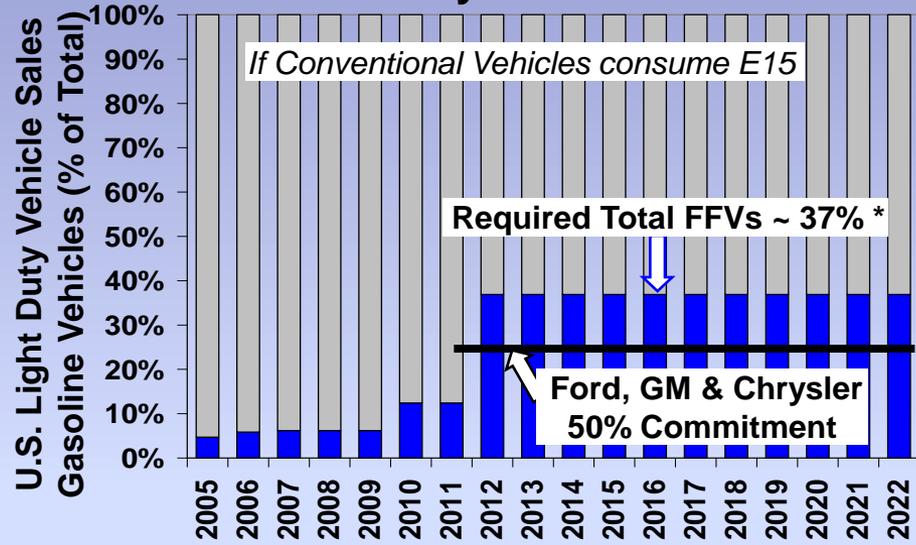


# Scenario 2 - E15/E85 Ethanol Use

## Ethanol Usage Scenario 2



## Needed Industry New Vehicle Build Mix



\* Assumes FFVs use E85 for half of energy requirements.

## Key Enablers for Reaching the goals of the Renewable Fuel Standard:

- Even with increasing the cap to E15 in the existing car park...still requires E85 use
- ~ 37% (or more) of new vehicle production in 2012 and later must be FFVs
- Need to facilitate the process for approving FFV capability
- Address new motor vehicle and legacy fleet concerns with respect to >E10 use

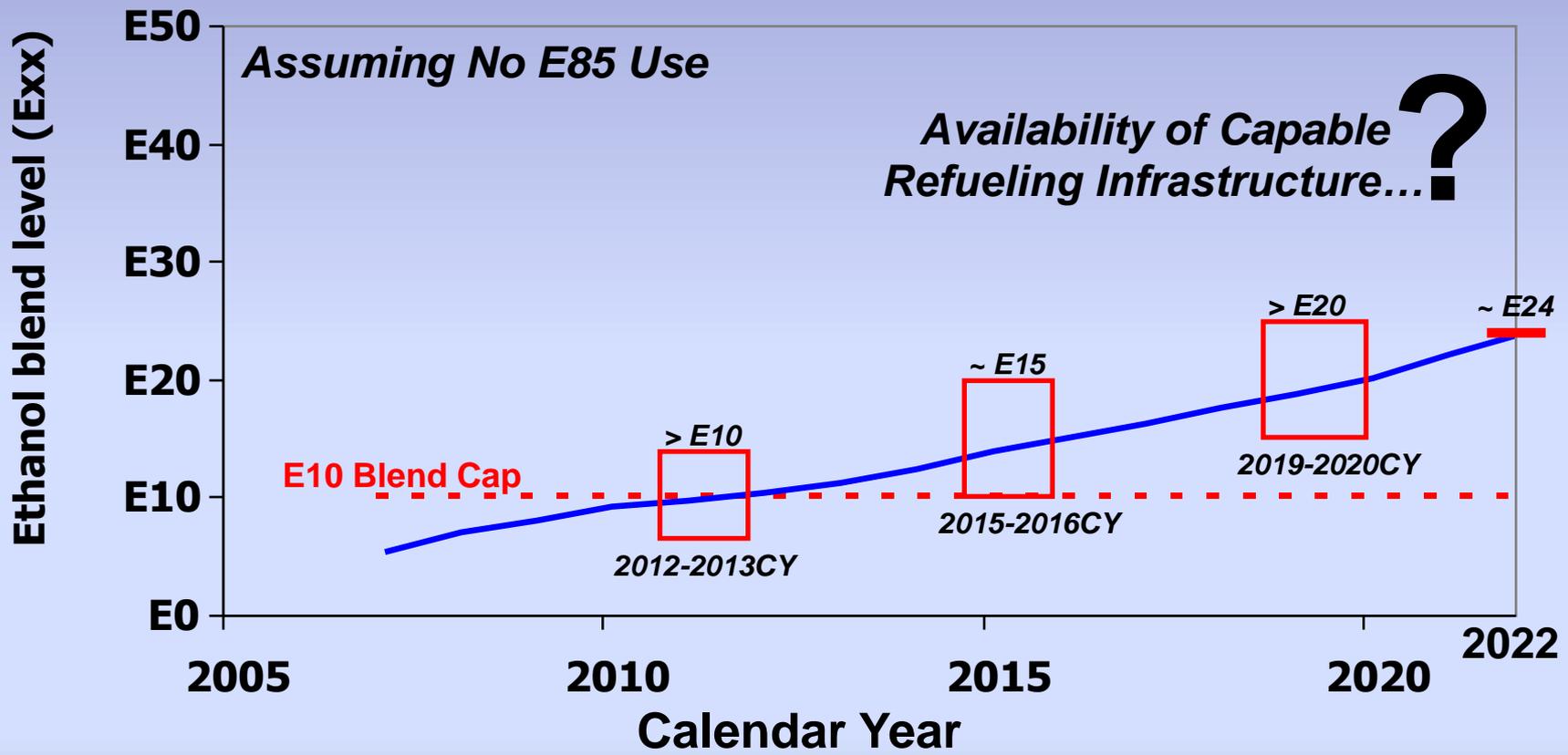
**Need to encourage continued FFV building & expand E85 distribution.**





# Scenario 3 - What % EtOH Is Needed by 2022?

As ethanol blend levels increase, automotive engineering and hardware requirements approach a full FFV.



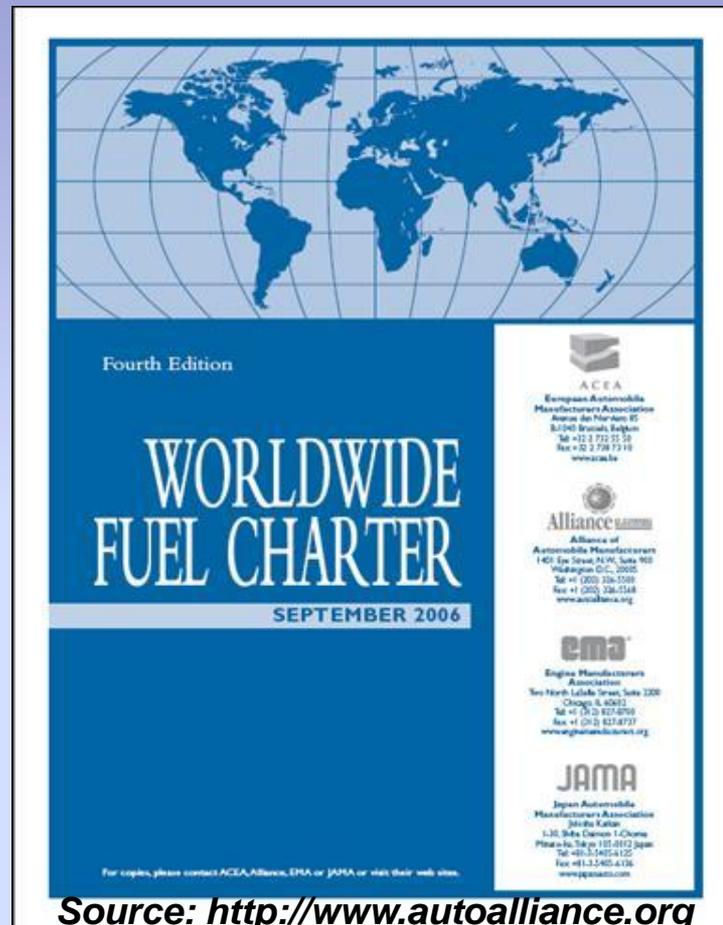
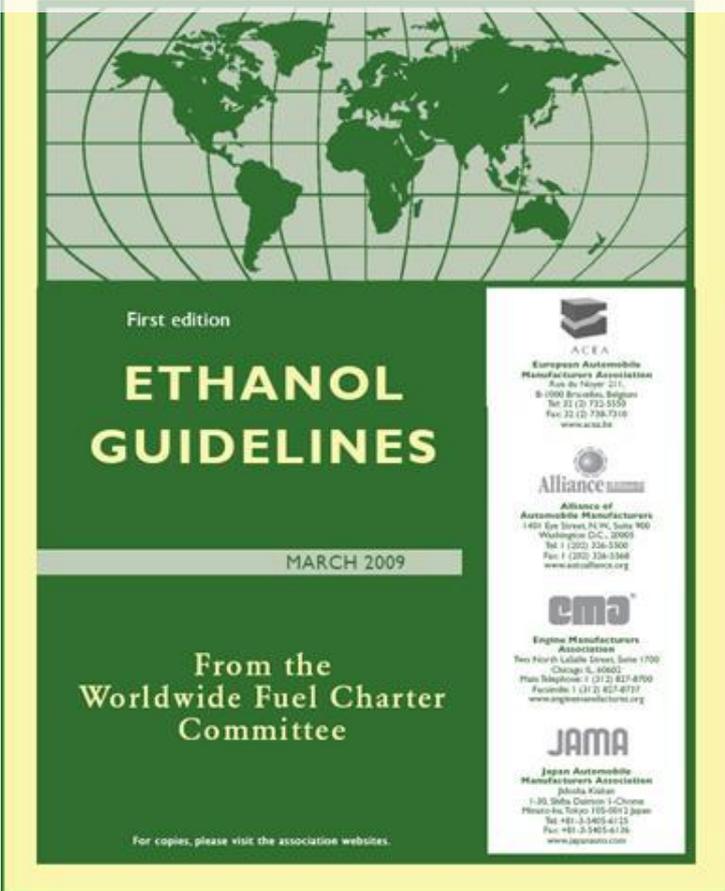
**About 25% of the fuel volume needs to be ethanol by 2022.**

2008 Model estimate based on vehicle fleet size combined with EISA mandates and CAFE improvements.



# Maintain a Keen Eye on Fuel Quality...

NEW DOCUMENT – Released March 2009

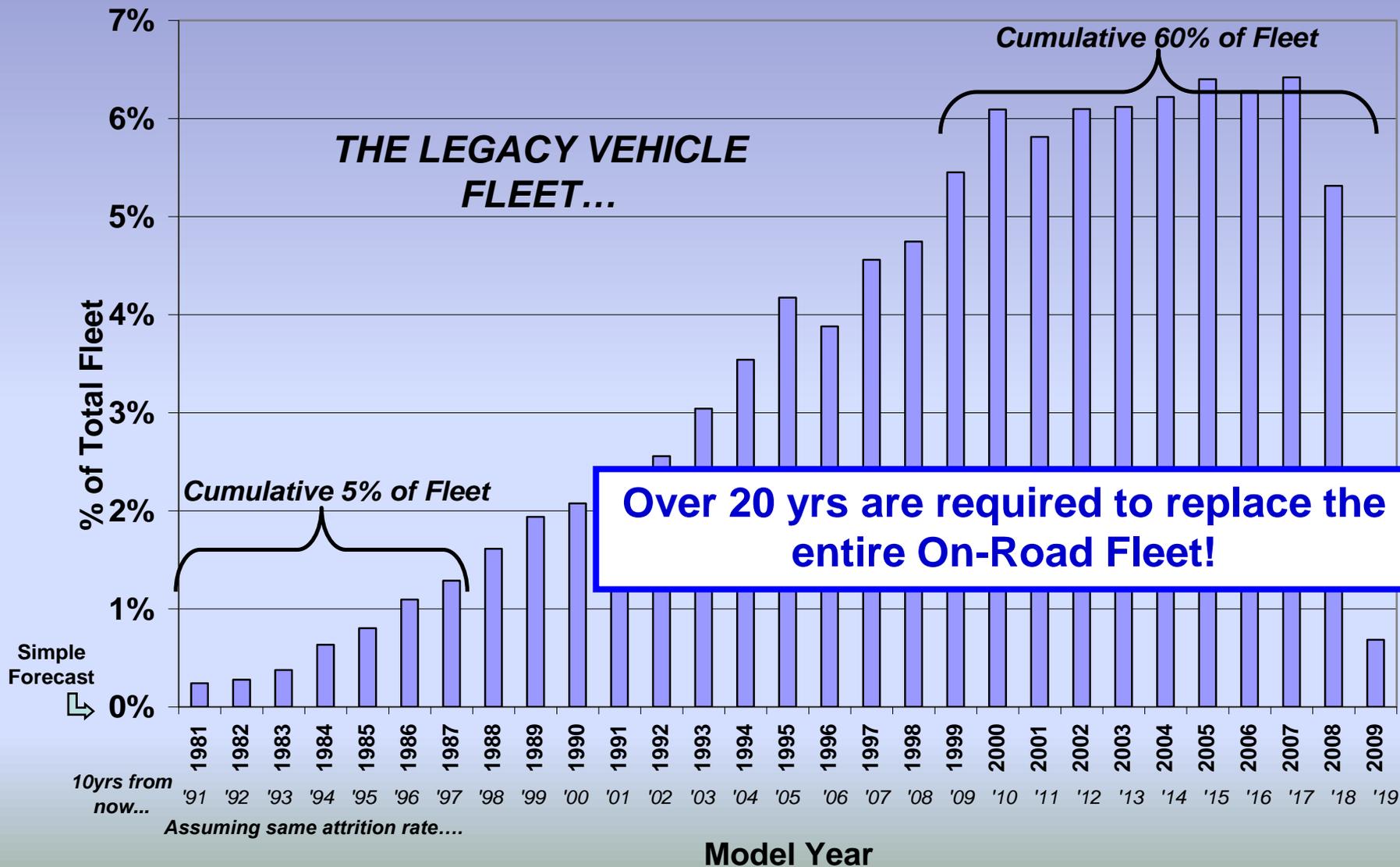


Source: <http://www.autoalliance.org>

**ASTM Fuel Standards are in the right direction, but DO NOT ADDRESS ALL manufacturers<sup>1</sup> needs for the vehicle and regulatory environment of today!**



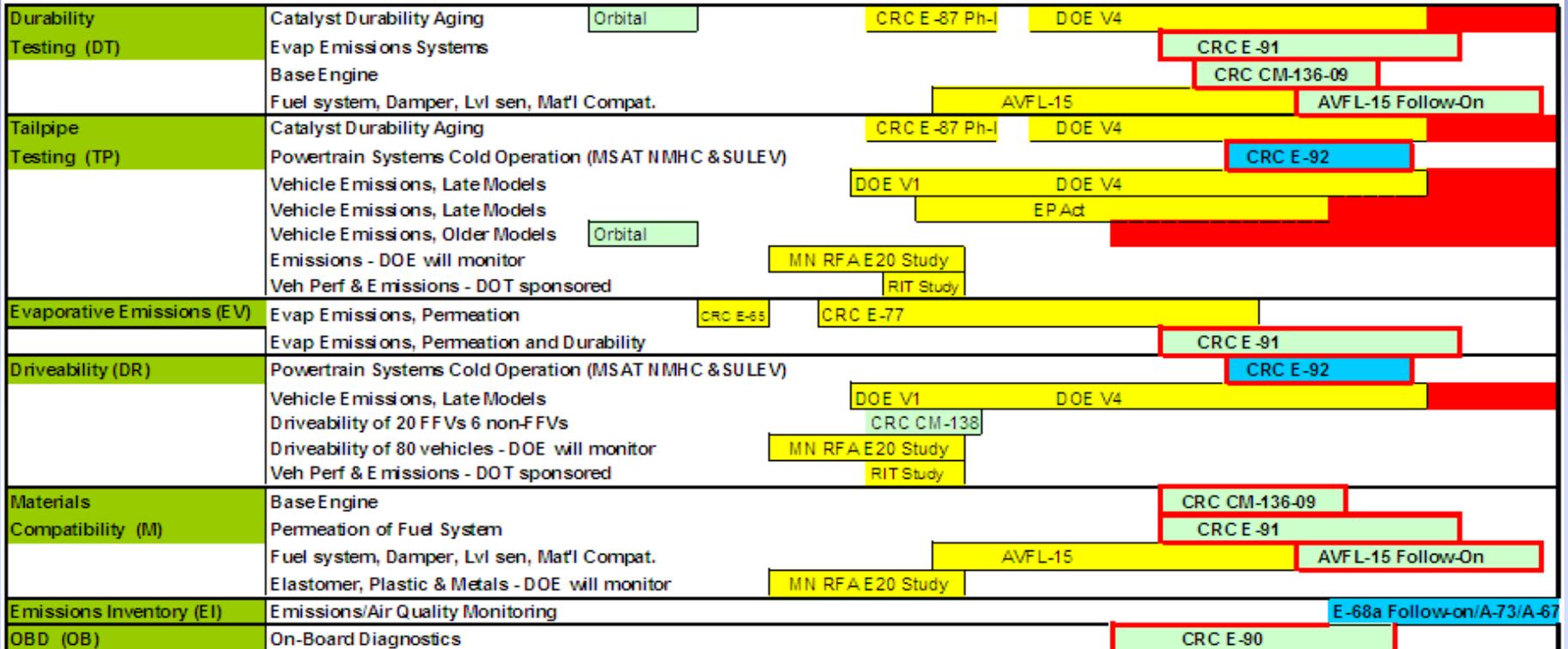
# The Legacy Fleet...& Model Year Distribution





# Potential Concerns with >E10 in Legacy Fleet

## Test Programs



Note: 2003 Australian Orbital Study: preliminary data for catalyst durability, emissions tests & materials compatibility.

Key:   
 Comprehensive   
 Comprehensive in development   
 Preliminary, partial or screening   
 Gap

Programs with Red Borders are Unfunded

**Other Stakeholders also are concerned...**

**Environmental Impact, Customer Safety & Satisfaction, Vehicle Operation, and Manufacturer Reputation are of utmost concern.**



# How does Ford “FFV” a New Vehicle Model?

## FFVs Provide Fueling Options:

They operate on gasoline, E85 or any blend in between

## Upgraded FFV Engine Components:

Valves and Valve Seats, Spark Plugs, Fuel Injectors, DI Fuel Pump, Cylinder Head Gaskets

2010 Ford Fusion

## Engine Control Computer:

Adjusts engine calibration for proper performance and to meet emission requirements on all fuel blends; OBD-II, cold start

## Upgraded FFV Fuel System Components:

Low Permeability Fuel Tank, Higher Flow Fuel Pump, Fuel Delivery Lines

Development/certification testing more than doubled:

Evaporative and Emission testing more difficult

**Ford, GM and Chrysler commitment to double FFV production.**



# Flexible Fueled Vehicle Challenges...

**Producing a specific vehicle model for FFV capability requires:**

- Research and Development
- Engineering
- Duplicate Certification and Other Testing
- Higher overall costs
- Different Federal vs. State Requirements
- Resources
- Compliance and Cycle Plan
- Consumer Demand

Ultimately from the manufacturer perspective....

**What are the drivers to produce FFVs?**

**Overcoming these challenges requires cooperation!**



# SUMMARY and RECOMMENDATIONS

## SUMMARY

- Attractive E85 pricing is needed
- Lack of E85 infrastructure and consumer value is hindering wide spread ethanol consumption
- Concerns exist with respect to >E10 capability for the Legacy Fleet
- Engineering for FFVs make sense when considering >E10
- FFVs carry additional costs – testing complexity and technical hurdles
- In our haste.... *We must not forget about fuel quality!*

## RECOMMENDATIONS ...to achieve Dec 2007 EISA Objectives

Establish workgroup reporting to the MSTRS for the following:

1. Develop Comprehensive Proposals for both Infrastructure and Vehicles
2. Identify All Hurdles
3. Suggest Nationally Aligned Policy Actions to overcome existing challenges

