National Conference of State Legislatures
The Transportation Energy Challenge

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President and CEO
Global Automakers

August 8, 2011
San Antonio, Texas
Our Members:

- ISUZU
- KIA
- PEUGEOT
- MITSUBISHI MOTORS
- NISSAN
- ASTON MARTIN
- SUZUKI
- Mahindra
- SUBARU
- Ferrari
- TOYOTA
- Mclarens
- Bosch
- ADVICS
- DENSO
- Maserati
- HYUNDAI
- HONDA
The Energy Challenge Today

• Energy challenge is huge
• National Energy Policy
• Climate Change
• Energy Security
World Population Growth, Actual and Projected, 1950-2050

- 3 Billion (1960)
- 6 Billion (2000)
- Over 9 Billion (2050)
World Oil Consumption
U.S. Population

Total U.S. Population (Millions)
U.S. Vehicle Miles Traveled

Highway VMT (billions)
U.S. Vehicle Population

Predicted U.S. Vehicle Population Growth

Vehicle Stock (in millions)

Year

2010  2020  2030  2040  2050

0   50   100   150   200   250   300   350
U.S. Oil

![U.S. Oil Consumption Graph](image)
Brief History of U.S. Auto Policy
The 1970s

• Detroit: 85% of the U.S. market
• Oil Embargo
• Market share of light duty trucks was 15%
• Market share of Cars was 85%
1973: Oil Embargo
1975: "Energy Policy & Conservation Act" and creation of the CAFÉ
2004: CA develops own GHG standards for model years 2009-2016
2007: The Supreme Court rules EPA can regulate CO2 and other GHG emissions
Greenhouse Gas/Fuel Economy Rulemaking
2012 – 2016 MY

On May 19, 2009:
• Stakeholders agreed to harmonize the Corporate Average Fuel Economy/GHG emission standards for 2012 through 2016 model years.

• DOT and EPA work together to create a harmonized federal program for 2012 through 2016 model years.

• California agreed to accept compliance with the national program as compliance with California standards.

Standard for 2016 = 35.5 MPG
Greenhouse Gas/Fuel Economy Rulemaking
2017 – 2025 MY

In May, 2011
• Stakeholders agreed to continue to support a single national policy to increase fuel efficiency and decrease GHG pollution from motor vehicles for 2017-2025 MY.

Proposed standard for 2025 MY = 47 to 62 MPG
Currently:
• Support for one national program
• 54.5 MPG combined standard
• Progress has been made
Future Standards

Fleet Standards

- CAFE/GHG Standard
- Under consideration

MPG

Model Year


18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62

31.1 35.5 54.5

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The New Standards Will Require:

- Advanced Technologies
- $50.5 billion by 2016
- $300 – 400 billion by 2025
Near Term Improvements

<table>
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<th>Improvements to the Internal Combustion Engine</th>
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<td>Cylinder deactivation</td>
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<td>Cooled exhaust gas recirculation (EGR)</td>
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<td>Increased transmission speeds (6-speed, 8-speed)</td>
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Technology Transition

- Improved Vehicle Fuel Economy & Emissions
- IC Engine and Transmission Improvements
- Hybrid Electric Vehicles
- Battery Electric Vehicles
- Hydrogen Fuel Cell

Petroleum
Renewable Fuels
Electricity
Hydrogen
The Consumer

- Consumer is king
- Satisfying consumer needs
- Value Proposition
Hybrid Sales

US Annual Hybrid Sales

Sales Volume

Calendar Year

0

50,000

100,000

150,000

200,000

250,000

300,000

350,000

400,000

1999

2000

2001

2002

2003

2004

2005

2006

2007

2008

2009

2010
Phases of Consumer Acceptance

- The Hybrid take-rate in 2010 was 2.50%.
- Common misperception that hybrids are "Mainstream."
Moving Forward

- We must do this together
- We want to be part of the solution
- All of this is extremely challenging and we can’t do it alone
Questions

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