Inside China: Understanding China’s Current and Future Automotive Industry

“Focus on the Future”
UM Automotive Research Conferences

WELCOME!

Bruce M. Belzowskki
Assistant Research Scientist
Automotive Analysis
University of Michigan Transportation Research Institute
bbl@umich.edu
Automotive Analysis Division
University of Michigan
Transportation Research Institute

Affiliate Program
- Supporting Members
- Research Partners

Funding
- Globalization
- Powertrains
- IT

Research

Conferences
- 5 Annual Conferences

UMTRI
Automotive Analysis
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### Affiliates, Members, and Research Partners

#### Suppliers
- Chevron
- Visteon
- Denso
- Dana
- Delphi
- Peterson Spring
- Continental
- TRW
- Valeo

#### Suppliers
- Michelin
- Continental
- JCI
- BorgWarner
- Yazaki
- Eaton
- BASF
- Dow
UMTRI-AAD Affiliate Program

For 2010, we have re-designed our Affiliate program by focusing the funding received from our Affiliates on 3 main annual research projects that look at the current and future direction of the global automotive industry:

1. Automotive powertrains and emissions focused on technology and regulatory/policy forecasting through our Powertrain Strategies for the 21st Century study

2. The role of information technology in the automotive industry through our Automotive CIO study

3. The globalization of the automotive industry based on a focused, country level analysis of a developing or developed market.
UMTRI-AAD Affiliate Program

• Affiliates have access to all three reports (IT, Globalization, Powertrain)

• Supporting companies form the advisory boards for each study

• Results are presented at our annual conferences on powertrains, information technology, and globalization.

• We are also open to focusing on other areas of research based on client requests.
Upcoming UMTRI-AAD Conferences

• **November 10, 2010 (Wednesday):** *Inside China: Understanding China’s Current and Future Automotive Industry.* This 3rd annual conference will provide in depth analysis of China’s automotive industry and its future direction.

• **February 16, 2011 (Wednesday):** *Automotive Safety: How Far Have We Come and Where Are We Going?*

• **April 20, 2011 (Wednesday):** *Inside India: Understanding India’s Current and Future Automotive Industry.*

• **July 13, 2011 (Wednesday):** *Powertrain Strategies for the 21st Century.* This 3rd annual conference will focus on current powertrain topics and their effects on the future of the industry.
Panelists

- Ken DeWoskin, Senior Advisor, Deloitte China
- Deborah Swenson, Professor of Economics, University of California, Davis
- Felicia Chang, Founder/Partner, Global Wave Today
- Steven Syzdek, VP and GM of Stoneridge Asia Pacific
- Jinyun Liu, co-director of the Center for China Employment and Labor Relations in the University of Michigan’s Institute for Research on Labor, Employment, and Economy
- Dennis Assanis, Director of the Michigan Memorial Phoenix Energy Institute
Morning Schedule

• 9am
  – Bruce Belzowski
  – Ken DeWoskin
  – Deborah Swenson

• 10:30am Break

• 10:45am
  – Felicia Chang

• 11:30am Q&A

• Noon-1:30pm Lunch
Afternoon Schedule

• 1:30pm  
  – Steven Syzdek  
  – Jinyun Liu

• 2:35pm  Break

• 2:45pm  
  – Dennis Assanis

• 3:20pm  Q&A

• 4:00pm  Adjourn
Conference Questions

• What role is the Chinese government playing in its auto industry?

• What is China’s capacity to design and build battery electric vehicles?

• How are China’s trade and foreign investment policies playing out in the auto industry?
Conference Questions

• What are the main vehicle segments in China today, and how will China’s growing middle class affect the auto industry?

• How will China’s real estate development affect its auto industry?

• What challenges are foreign manufacturers and suppliers facing today in China?
Conference Questions

• How are current labor issues affecting China’s auto industry? How will they affect the future of the industry?

• What connections are the UM building with China?
Powertrain Strategies for the 21st Century: A Global Perspective

July, 2010

Bruce M. Belzowsk
Assistant Research Scientist
Automotive Analysis
University of Michigan Transportation Research Institute
Global Fleet Statistics

• Major Countries: U.S., Western Europe, Japan, South Korea, China, Brazil, Russia, India

• Central Question: If the goal is to reduce dependence on oil, then a country would need to eliminate gasoline and diesel fueled engines. How long will it take to turnover a country’s fleet of vehicles to alternative powertrains/fuels?

• What paths will individual countries take to a more fuel efficient fleet?

• Light duty vehicles only, no commercial vehicles.
Global Fleet Statistics

- Powertrain technologies included in the analysis:
  - Compressed Natural Gas (CNG)
  - CNG / Diesel Hybrid
  - Diesel / Electric Hybrid
  - Gasoline / Electric Hybrid
  - Gasoline / CNG Hybrid
  - Gasoline / Liquefied Petroleum Gas (LPG) Hybrid
  - Pure Electric
  - Ethanol (E85)
  - Ethanol (E85) / Electric Hybrid
  - Hydrogen
  - Fuel Cell
Analysis Strategy

• Analysis based on:

  • Vehicles in Use predictions from average of 1977 to 2009 fleets

  • Vehicle Sales predictions from Growth and Scrappage estimates

  • IHS Global Insight production estimates for fuels and powertrains

  • Vehicles in Use, Vehicle Sales, Growth, and Scrappage for New and Old Powertrains/Fuels
Turning Over a Large Fleet

U.S. Fleet Statistics

• Number of Vehicles
  • Light Duty Vehicles: 237 million

• Drivers:
  • Regulation: Historically ambivalent, currently aggressive
  • Innovation: Currently very aggressive

• Trends
  • Significant increase in hybrids using different fuels, especially ethanol
U.S. Fleet Assumptions

• Assumptions:
  • Alternative powertrains/fuels include: CNG, CNG/Electric, Diesel/Electric, Pure Electric, Flexfuel (E85), Flexfuel/Electric, Gas/Electric
Turnover of the U.S. Fleet

% of Fleet Turnover

- Less Aggressive NPT Intro
- Moderately Aggressive NPT Intro
- Very Aggressive NPT Intro
- Total Fleet

Sources: IHS GlobalInsight and Euromonitor

Automotive Analysis
Moving Away from Diesel
Western Europe Fleet Statistics

• Number of Vehicles (2009)
  • Light duty vehicles: 240 million

• Drivers:
  • Regulation: Historically aggressive, currently very aggressive (CO2 emissions)
  • Innovation: Currently very aggressive (Pure electrics and fuel cells)

• Trends
  • Current market share for pure diesel predicted to decrease with advent of multiple fuels and hybrids
Western Europe Fleet Assumptions

• Assumptions:
  • Alternative powertrains/fuels include: Diesel/CNG, Diesel/Electric, Pure Electric, Flexfuel (E85), Flexfuel/Electric, Fuel Cell, Gas/CNG, Gas/CNG/Electric, Gas/LPG, Gas/LPG/Electric, Gas/Electric
Turnover of the Western European Fleet

% of Fleet Turnover

- Less Aggressive NPT Intro
- Moderately Aggressive NPT Intro
- Very Aggressive NPT Intro
- Total Fleet

Sources: IHS GlobalInsight and Euromonitor

Automotive Analysis
What If We Do Something?
China Fleet Statistics

• Number of Vehicles
  • Light Duty Vehicles: 27 million

• Drivers:
  • Regulation: Emissions, Euro-1, Incentive plans to stimulate sales of more fuel efficient vehicles.
  • Innovation: Very aggressive in developing pure electrics and hybrids.

• Trends
  • Combining a small gas powered strategy with a pure electric development strategy.
China Fleet Assumptions

• Assumptions:
  • Alternative powertrains/fuels include: CNG, Pure Electric, FlexFuel/Electric, Gas/CNG, Gas/CNG/Electric, Gas/LPG, Gas/Electric
Turnover of the Chinese Fleet

% of Fleet Turnover

- Less Aggressive NPT Intro
- Moderately Aggressive NPT Intro
- Very Aggressive NPT Intro
- Total Fleet

Sources: IHS GlobalInsight and Euromonitor

100% Alt PT

# of Vehicles (000)


0 500000 1000000 1500000 2000000 2500000 3000000 3500000 4000000 4500000

Automotive Analysis
Conclusions

• All countries can and will set their own path for oil independence

• Nearly all countries will be challenged to turnover their fleets by 2050

• Countries that take a more aggressive path, even if they have very large fleets, can have an effect

• Can countries keep up the momentum to complete the process of turning over their fleets?
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