Liquid Fuels Outlook And Challenges

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Liquid Fuels Outlook Affected By Energy Independence and Securities Act of 2007

EISA 2007 has brought two major changes to transportation fuels:

- Increased Corporate Average Fuel Economy (CAFE).

- Increased and Diversified the Renewable Fuels Standard (RFS)

- These changes will have a significant impact upon U.S. liquid fuel production and consumption.
CO2 Emissions in Transportation Sector Lower with EISA
(million metric tons carbon dioxide equivalent)
Liquid Fuels Consumption and Domestic Supply

Consumption

Domestic supply

History

Projection

Net Imports

60%

61%

54%

million barrels per day

AEO2008

AEO2007

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New Light-Duty Vehicle Fuel Efficiency (miles per gallon)

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The Transportation Sector Dominates Liquid Fuels Consumption.

million barrels per day

History

Projection

Transportation

Industrial

Residential and Commercial

Electric Power

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U.S. Sales of Unconventional Light-Duty Vehicles, 2015 and 2030 (thousand vehicles sold)

Hybrids

Flex Fuel

Turbo Direct Injection Diesel

Gaseous

Electric

Fuel Cell

2015

2030

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Motor Fuels Demand
(million barrels per day)

* Motor Gasoline includes E85
EISA 2007 Expands the Renewable Fuel Standard (RFS) Mandate
(billion credits, ethanol equivalent gallons)
Advanced Biofuels Mandate

billion credits

2006 2010 2020 2030

Legislated RFS

RFS with Paragraph 7 Adjustments

Liquids from Biomass (BTL)

Net Ethanol Imports

Cellulosic Ethanol

Ethanol from Other Feedstocks

Biodiesel

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EIA
Meeting the Renewable Fuels Standard

billion credits

Legislated RFS
RFS with Paragraph 7 Adjustments
Liquids from Biomass (BTL)
Biodiesel
Net Ethanol Imports
Cellulose Based Ethanol
Corn Based Ethanol
Ethanol from Other Feedstocks

2006
2010
2020
2030

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Motor Fuels by Source
(billion gallons)

- Biofuel Content of Diesel
- Fossil Fuel Content of Diesel
- Biofuel Content of Gasoline
- Fossil Fuel Content of Gasoline

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Distribution of Ethanol Volumes Requires E85 Sales (billion gallons)

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Motor Fuels Prices Include Costs to Encourage E85 Sales
(2006 cents per gallon)

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Summary

• EISA 2007 will have a significant impact on liquid fuels production and use.
  – Lower petroleum imports
  – Lower CO2 Emissions

• The CAFE-induced shift towards diesel will alter demand growth in motor gasoline.

• The RFS, made up of four mandates, met by a combination of ethanol, diesel production and imports.

• By 2022 the RFS is expected to surpass 32 billion gallons of ethanol-equivalent credits.
  – Cellulosic ethanol, as an emerging technology, is projected to be insufficient to meet RFS target – triggering waivers and modifications as provided by law.

• RFS implementation is in its early phases and significant uncertainties remain.
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