U.S. Petroleum and Biofuels Outlook

Rail Energy Transportation Advisory Committee
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Overview

• Crude oil & petroleum products
  – Recent developments
  – Tight oil, shale plays – historic and projected growth
  – Movements between regions

• Biofuels
  – Status
  – Producing vs. consuming regions
  – Projected growth
Dramatic increase in carloads of crude oil and petroleum products

Recent developments in petroleum production

• Drilling technologies unlocking new hydrocarbon resources
  – Directional Drilling – allows well to access more of reservoir
  – Fracking – fracturing of the rock using high-pressure fluid in order to unlock hydrocarbons

• Increased crude oil production changing movement patterns
  – Increased domestic production in Midwest
  – Increased crude oil and product imports from Canada
  – Increased product exports to Mexico

• Infrastructure
  – Many new discoveries located inland
  – Lack of petroleum industry infrastructure – pipelines, ports, rivers
EIA projects tight oil will drive U.S. crude oil production growth

AEO2012 Early Release.
Tight oil production for selected plays – historical and projected

Historical

- Eagle Ford (TX)
- Bakken (MT and ND)
- Granite Wash (OK and TX)
- Bonespring (TX)
- Monterey (CA)
- Woodford (OK)
- Niobrara (CO and WY)
- Spraberry (TX)
- Austin Chalk (TX)

Projected

- Monterey
- Avalon/Bonespring
- Niobrara
- Spraberry
- Austin Chalk
- Woodford
- Eagle Ford
- Bakken

Source: HPDI, Texas RRC, North Dakota department of mineral resources, and EIA, through April, 2012.

Bakken Formation (Montana & North Dakota)

Wells Drilled by Type and Location

Rail Volume Trends


Source: North Dakota Pipeline Authority.
Eagle Ford (South Texas)

- As of 2010, development focused on gas wells.
- Oil zone to the north mostly untapped.
- Tight oil production could rival Bakken.

Crude oil net shipments between regions – pipeline and tanker/barge only

Source: U.S. Energy Information Administration
Petroleum product shipments between regions – pipeline and tanker/barge only

Source: U.S. Energy Information Administration
Ethanol logistics

• Ethanol comprises roughly 10 percent of the finished gasoline consumed in the United States – “blend wall”

• Ethanol production is exceeding demand and U.S. exports of ethanol reached record levels in 2011

• 39 percent of the 2011/2012 corn crop was used to produce ethanol

• Ethanol is transported by rail, barge, and truck to blenders and gasoline bulk terminals throughout the United States
  – Ethanol’s properties have limited its suitability for pipelines
  – Sufficient railcar capacity available?
  – EIA does not survey ethanol shipments between regions; net receipts by region are calculated and serve to balance regional supply and demand.
Ethanol moves by rail from the Midwest to the regions where gasoline is consumed

Source: U.S. Energy Information Administration.
Ethanol rail car data reporting is out-of-date

• AAR stopped reporting ethanol data in its monthly Rail Time Indicators reports. AAR cites STB as the source but data is over a year old. AAR’s Railroads and Ethanol fact sheet dated June 2012 stated:
  – Railroads carried nearly 325,000 carloads of ethanol in 2010
  – Accounting for 1.1 percent of total carloads
  – 15-20 percent of ethanol rail movements originate on non-Class I railroads (short lines)
  – Ethanol is shipped in 30,000-gallon tank cars. ~63,000 are in service.
  – Almost all tank cars are owned by shippers or leasing companies, not by railroads
AEO2012 projections of biofuels production and net imports

For more information


Short-Term Energy Outlook | www.eia.gov/steo

Annual Energy Outlook | www.eia.gov/aeo

International Energy Outlook | www.eia.gov/ieo

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