North America Oil & Gas Market Outlook: Prospects for Recovery

USAEE
Houston, Texas
May 13, 2010
Our integrated research results in internal consistency
Beyond 2012 tightening of the supply/demand balance puts upward pressure on prices

**Upward price risk**
- Political turmoil in key producing nations
- Attack on Iran nuclear facilities
- Inadequate upstream investment

**Downward price risk**
- Recovery from financial crisis lags expectations
- Slower than expected GDP growth to 2015
- Iraq supply wildcard

Source: History - Thomson Datastream, Forecast - Wood Mackenzie

Source: Wood Mackenzie
Is recent recovery of SUV share of US passenger vehicle percent share of sales sustainable?

Source: Autodata; EIA

- High price effect
- “Cash for clunkers”
- Gasoline price falls
- Still 50% of sales

Source: Autodata; EIA
Gasoline recovery in the US is not an “oil” story, as every drop will be met by increased ethanol consumption
However, we do not expect the US Renewable Fuel Standard to be met in full.
Refining margins in 2009 were downright frigid…
...but margins recover in the medium term
Recovery of refining margins (and oil demand) depends on Asia

Singapore Dubai Cracking $/bbl (Real $2009)

Source Wood Mackenzie
Global supply and demand fundamentals point towards sustained pressure of light – heavy crude price differentials

- Recent narrowing of the differential driven by global recession
  - Oil demand falling nearly 2 million barrels per day
  - Drop in absolute oil price and sparing of heavy oil production (Saudi Arabia) tighten the differential

- We expect higher absolute oil prices to widen the differential to widen, but not to levels experienced during the recent refining boom years

- Fundamental analysis suggests a structural tightening going forward

WTI - Maya Price Differential (Real 2009 US$)

Source: Platts, Wood Mackenzie
Shale gas growth represents a paradigm shift

- Wide spread resource base accessed with established technologies

- Bank of prospective plays set to keep price upside in check, but price volatility and cycles look likely

- Emerging issue is richness of gas shale
  - NGL content can vary dramatically across a play
  - Broadly not as wet as conventional gas
  - Likely slows demise rather than saves North American NGL feedstock assets

Source: Wood Mackenzie
LNG imports rise through 2012 then decline as global demand recovers

- Through 2012, North America offers competitive netbacks compared with Europe
- Thereafter liquid US market used as a sink to support higher prices elsewhere
- Cove Point, Golden Pass and Gulf LNG Energy attract disproportionate volumes due to their earmarked supply
What Might It All Mean?

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<th>Observations</th>
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<tr>
<td>Some recovery in gasoline demand</td>
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<td>Downward pressure on utilization rates as global capacity additions outpace demand growth</td>
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<td>Carbon legislation impacts:</td>
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<td>‒ Decrease in hydrocarbon-based energy volumes – universal</td>
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<td>‒ Increase in operating costs – potentially selective</td>
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<th>Questions</th>
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<td>How likely is it alternatives (e.g., imports, ethanol) fill not only incremental demand, but also displace existing NA refinery gasoline supply?</td>
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<td>What are the signposts for when and where refinery closures might occur?</td>
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<td>Will geography, rather than complexity, be the key margin driver?</td>
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<td>How sensitive is your operation’s cost structure to the price of carbon, relative to competition?</td>
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<td>Which refiners can export surplus production?</td>
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<td>How much of the carbon cost ultimately is borne by consumers?</td>
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