Global supply and market impacts of US unconventional oil production growth

Andrew Slaughter,
Vice-President, Energy Insight, IHS

Presentation to EIA 2013 Energy Conference
June 18th 2013
Washington, DC
Today’s Themes

- US unconventional oil – where, how, how much?
- US position in global oil supply growth
- Market implications
- Can tight oil go global?
Tight Oil plays in North America - diverse and distributed

- IHS estimates that tight oil adds over 40 billion barrels to North American recoverable supply
Price and technology drove success in US unconventional oil and gas plays

Step 1: Higher prices enabled investment in technology

- Gas prices began to rise in early 2000s -- gas supply bubble worked off and concerns grew over future gas supply
- Tight gas sand work in the Rockies develops slick water fracturing
- Horizontal drilling rolled out in earnest and combined with hydraulic fracturing in the Barnett Shale

Step 2: Technology transformed uneconomical and inaccessible resources into viable large-scale unconventional plays

- Shale gas boom unleashed in multiple basins
- New supply led to fall in gas prices
- Oil prices remained strong and supported migration of horizontal drilling and multi-stage fracturing technology to tight oil plays, beginning with the North Dakota Bakken
- Multiple tight oil plays now developing
The US oil and gas business environment has enabled a rapid pace of development to scale

- Regulatory frameworks in the main allow horizontal drilling and fracturing to safely proceed

- Mineral ownership in the U.S. resides with private individuals, not just government, allowing for access to resources on private lands
  - Mineral owners are stakeholders in success
  - Acreage leaseholdings are distributed among many operators

- Intense competition for leases and acreage price escalation causes companies to develop plays very quickly to protect land investments

- Infrastructure, human resources, rigs, services and fit-for-purpose equipment are all readily available
How big and how competitive is the US tight oil resource?

Tight oil resources are larger than US proved oil reserves—and much can be produced at a wellhead price of up to $60.

- 31 billion barrels of proved US oil reserves in 2011
- 30.6 billion barrels of tight oil resources requires $60 per barrel to generate 10% return
- 14 billion barrels of tight oil resources requires $90 per barrel to generate 10% return

Source: IHS CERA.
Unconventional natural gas and crude oil has revitalised US hydrocarbon production

US Production History

Thousands b/d oil equivalent


Crude Oil  Natural Gas
Tight Oil is driving US crude oil production towards 8 mbd

US crude oil production outlook

Source: IHS CERA
United States is the largest source of new liquids supply since 2008

Source: IEA, IHS CERA, national government data.
Note: Liquids includes ethanol and biodiesel for the United States and Canada, and ethanol for China and Columbia.

Copyright © 2013HS Inc. All Rights Reserved.
North America will sustain its position as a leading contributor to liquids growth

Year-On-Year World Crude Oil Supply Growth

Sources: IHS CERA, with some historical data from International Energy Agency and US EIA.
Growing supply contributes to higher OPEC spare capacity

OPEC Spare Crude Oil Production Capacity

Thousands of barrels per day

Sources: IHS CERA
Strong North American supply will reshape trade patterns

North America Offshore Crude Imports

Thousands of barrels per day

Sources: IHS CERA, with some historical data from US EIA.
Can lessons learned migrate to new regions of unconventional oil development?

Source: IHS CERA.

Copyright © 2013 HS Inc. All Rights Reserved.
Many plays outside North America could be sources of significant development

Source: IHS CERA.

148 play areas
~ 500 billion barrels potentially technically recoverable
Unconventional oil and gas E&P: Above ground factors more challenging outside North America

Source: IHS CERA.

Copyright © 2013HS Inc. All Rights Reserved.
In conclusion

- North America has led the world in unconventional gas and oil development
  - Uniquely favourable business environment factors helped accelerate development scale and timing
  - The rest of the world has high scope for both unconventional gas and oil
  - Above ground factors will limit the speed of development in most places relative to North America but long-term prospects are positive

- Expansion of supply options opens up new options for markets and trade
  - Shifting patterns of crude oil trade as US import needs decline
  - Spill over effects into refined products trade
  - Consolidates non-OPEC role in future investment and supply growth