Global Oil Supply and Demand: Prospects for a Greater Balance

Tight Oil Production Trends

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The opinions expressed here are my own and do not necessarily reflect the views of Schlumberger.
Remarkable Growth of Tight Oil Production

EIA, US Field Production of Crude Oil, 1900-2016
Process & Technical Improvements

Every Day Improvements

- Derisked geology
- Fewer drilling and fracking surprises
- Lease consolidation
- Infrastructure buildout

Factory Mode Drilling

- Pad drilling, creeping rigs
- Supply chain optimization
  “Amateurs talk strategy; professionals study logistics”

Even More Brute Force

- Longer laterals
- More closely spaced fractures
- More water, more sand, finer sand
Process & Technical Improvements
Continue Through Business Cycles

Well Cost ($ millions)

U.S. Shale Gas & Tight Oil Plays

https://www.eia.gov/petroleum/weekly/archive/2016/160602/includes/analysis_print.cfm
Depletion of $50 Barrels? Resources Now Developed Seriatim

Entire curve profitable in 2014
March 2014
June 2015
Aug 2016
Bakken
Three Forks

Only a small portion profitable in 2017

Breakeven ($/bbl)

Resource (billion bbl)

Depletion of $50 Barrels? Production Trends During a Period of Rapid Process & Technical Improvements

After Rystad, 8 August 2017
This seems to some as portentous as the 1971 announcement: “The Texas Railroad Commission announced a 100 percent allowable for next month.”
Primary Recovery – High GOR Oil

reservoir pressure

Oil + Dissolved Gas

Dew Point Line

Critical Point

Solution Gas Drive

Bubble Point Line

% Liquid

C1/NGL/Crude

Separator pressure

Temperature

Pressure
Tight Oil Wells Produce Less Oil and More Gas After Depressurization to the Bubble Point

Clark, Society of Petroleum Engineers Paper 133719
After 2025, Growth of Tight Oil Production is Not Inevitable

Tight oil expected to make up most of U.S. oil production increase through 2040
EIA Today in Energy, February 13, 2017
Primary Recovery

Spindletop
Beaumont, Texas
10 January 1901

Well Depth: 1139 feet
Initial Production: 100,000 bbl/day

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