The Oil Battle
Explaining the Fight for a Slowing Market

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Price will settle at the marginal price of production of non-conventional crudes in the US, well below the price averaged 2011 to mid-2014.
Conclusion and Reasons

Price will settle at the marginal price of production of non-conventional crudes in the US, well below the price averaged 2011 to mid-2014.

1. Productivity increasing in non-conventional oil in U.S. basins with huge reserves
2. Saudi Arabia increases production
3. Countries such as Libya and Iran with shut-in capacity will increase production as soon as those factors disappear
4. Other large producers (Iraq) are increasing production to regain market share.
Crude oil price, real - since 2002

Source: Energy Information Administration
Crude oil price, real - since 1986

Source: Energy Information Administration

Data Extraction: 25 September 2015
Crude oil price, real - since 1900

Average Price
1900-2002
$27 per barrel

Source: Energy Information Administration
Data Extraction: 25 September 2015
Production, USA

Source: International Energy Agency

Million barrels per day


7.5 | 8.5 | 9.5 | 10.5 | 11.5 | 12.5 | 13.5
Drilling & Price, USA

Source: Baker Hughes and EIA
Growth in US production result of important gains in productivity in shale formations as technology matures. Producers have cut days needed to drill a well and developed fracturing techniques to increase initial production.
Shale reserves

Source: Institute for Energy Research from EIA data
Shale reserves

Source: Institute for Energy Research from EIA data
Production, OPEC

Million barrels per day

Source: International Energy Agency
Production, Saudi Arabia

Source: International Energy Agency
Along with increased output, **Saudi Arabia has doubled** the number of active drilling rigs:

- **Jan 2011**: 59 active drilling rigs
- **Jun 2015**: 121 active drilling rigs
- Since the price drop, rigs in Saudi Arabia have increased from 104 to 121

*Source: Baker Hughes*
Production, Kuwait

Source: International Energy Agency
Production, Iraq

Source: International Energy Agency
Production, Iran

Source: International Energy Agency
Production, Libya

Source: International Energy Agency
Production, Russia

Source: International Energy Agency
Supply, absolute

Source: International Energy Agency
Supply, changes OECD

Source: International Energy Agency
Supply, changes OECD

2002-2011
Average -0.316 million b/d

2012-2015
Average 1.212 million b/d

Source: International Energy Agency
Supply, absolute

Source: International Energy Agency
Supply, changes No OPEC/OECD

Source: International Energy Agency
Supply, changes No OPEC/OECD

Source: International Energy Agency

- **2002-2011**
  - Average 0.615 million b/d

- **2012-2015**
  - Average 0.050 million b/d
Supply, absolute

Source: International Energy Agency
Supply, changes OPEC

Source: International Energy Agency
Supply, changes OPEC

2002-2011
Average 0.774 million b/d

2012-2015
Average 0.455 million b/d

Source: International Energy Agency
Supply, changes

Source: International Energy Agency
Supply, changes

2002-2011
Average 1.268 million b/d

2012-2015
Average 1.803 million b/d

Source: International Energy Agency
Demand, absolute

Source: International Energy Agency
Demand changes, OECD

Source: International Energy Agency
Demand changes, OECD

Source: International Energy Agency

2002-2011
Average -0.23 million b/d

2012-2015
Average -0.15 million b/d
Demand, absolute

Source: International Energy Agency
Demand changes, Non-OECD

Source: International Energy Agency
Demand changes, Non-OECD

Source: International Energy Agency
Demand, net changes

2002-2011
Average 1.22 million b/d

2012-2015
Average 0.99 million b/d

Source: International Energy Agency
Supply & Demand, changes

Million barrels per day

Source: International Energy Agency
Supply & Demand, absolute

Source: International Energy Agency
Supply & Demand, absolute

Source: International Energy Agency
Supply & Demand, balance

Source: International Energy Agency
Stockpiles, OECD

Source: International Energy Agency
Stockpiles, USA

Source: International Energy Agency
Closing perspectives

• Market is in a **competitive process** to find an **equilibrium price** set by the cost of production in the **marginal production areas**
  – Price setting mechanism is developing
  – External non-economic factors that can affect price still remain

• Large **spare capacity in OPEC**, for non-economic reasons, will be re-introduced at almost any price

• Demand **growth from Non-OECD is sluggish** at best

• Process of finding a competitive equilibrium price **may lead to seemingly very low prices**
  – In historical context these prices are not so low
Hemispheric Oil Balance

• The Western Hemisphere is split into:
  – South America and North America

• The regional oil balance of supply and demand is derived by each component sub-region.
  – In turn, each sub-regional balance is derived from the component countries

• Data from the International Energy Agency
  – Quarterly from 2005-Q1 till 2015-Q3
While supply has increased slightly from 6.8 to 7.6 mbd, demand has grown significantly from 4.3 to 6.1 mbd.
South America’s exportable surplus – or oil balance – has fallen precipitously as supply stagnates and demand grows. In 2005, the balance stood at 2.5 mbd; now it is below 1.5 mbd. Indeed, the oil balance has deteriorated by the full amount of demand growth.

Source: International Energy Agency
South America: Argentina

Demand: 0.8 mbd
Supply: 0.6 mbd

Source: International Energy Agency
In 2010, Argentina became a net importer as supply declined by 25% and demand grew by 40%.
South America: Brazil

**Source:** International Energy Agency

Supply: 2.6 mbd

Demand: 3.2 mbd
South America: Brazil

Million barrels per day

Supply: 2.6 mbd
Demand: 3.2 mbd
Balance: -0.6 mbd

Brazil has remained a net importer at around 0.5 mbd throughout the past decade.

Source: International Energy Agency
South America: Colombia

Supply: 0.9 mbd
Demand: 0.3 mbd

Source: International Energy Agency
Following important growth in supply between 2008 and 2012 from 0.5 to 1.0 mbd along with stable demand at 0.3 mbd has yielded an expanded balance of 0.7 mbd.
South America: Ecuador

Million barrels per day

Supply: 0.5 mbd
Demand: 0.3 mbd

Source: International Energy Agency
South America: Ecuador

Stagnant supply at 0.5 mbd and growing demand by 75% has shrunk Ecuador’s exportable surplus from 0.35 to 0.20 mbd

Source: International Energy Agency
South America: Venezuela

Source: International Energy Agency

Supply: 2.6 mbd

Demand: 0.7 mbd
Dwindling production of crude oil had shrunk Venezuela’s exportable surplus from 2.5 to 1.9 mbd.
## South America

<table>
<thead>
<tr>
<th>2015 Q3</th>
<th>Supply</th>
<th>Demand</th>
<th>Balance</th>
<th>Status</th>
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<tr>
<td></td>
<td>million barrels per day</td>
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<tr>
<td>Argentina</td>
<td>0.63</td>
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<td>0.66</td>
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<td>Others</td>
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<td>South America</td>
<td>7.57</td>
<td>6.14</td>
<td>1.44</td>
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**Source:** International Energy Agency