Oil & Gas Price – Futures and Impacts

Challenging Times Ahead

2016 Gas/Electric Partnership Conference

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Agenda

❖ Crash in Oil Prices
❖ Brent – WTI Price Differential
❖ Global Demand & Supply Overview
❖ Production Overview
❖ Impact of Low Prices on Industry
❖ Future Outlook of Prices
❖ Key Reason for Weak Outlook
❖ Natural Gas Price Overview
❖ LNG Capacity Overview
❖ Future Considerations
OPEC's inaction, shale's resilience, demand slowdown, strong dollar, and lifting of Iran actions took oil to 13-year low


- **2015**: Global economic slowdown and weak demand majorly from China
  - Sep 2015: China’s Manufacturing PMI falls to record low of 47.2
  - Oct 2015: China records slowest growth since 2008-09 recession
- **April 2015**: Agreement between P5 + 1 and Iran to lift Nuclear Sanctions
  - Jan 2016: Sanctions lifted
- **Mar 2015**: US dollar gaining record strength
  - Fastest rise in 40 years
- **2015**: Resilient production from Shale after reaching peak

- **Oct – Nov 2014**: OPEC boosted oil output to a 14-month high and decided to maintain production
- **2014**: US records highest production in 100 years, majorly due to shale boom

- **Dec 2015**: US Fed increases interest rates
  - First time in 10 years
- **Dec 2015**: OPEC again decides to keep output high

Source: EIA
Note: Year low indicates the lowest Brent price in last X years
Lifting of US crude oil export ban has narrowed the Brent-WTI spread and thus reduced the pressure on domestic oil prices.
Unplanned outages kept oil prices in check until 2013; surplus production started dampening prices starting 2014

In 2010, global liquids supply and demand were nearly balanced. However, starting 2011, if unplanned production outages worldwide are also considered, supplies started to exceed consumption.

In 2015, global liquids supply potential exceeded total consumption by about 5 million barrels per day—about 4 in terms of unplanned outages and rest in terms of excess inventories.

Source: EIA, “Short Term Energy Outlook,” Jan 16
US, Iraq, and Saudi Arabia drove supplies in last few years; production has largely remained resilient with slight corrections in last few quarters.

Major Contributors of Increased Oil Supply (MMbbl/d)

Note: Values include lease condensate at well level; RoW refers to rest of world. Source: EIA, “Short Term Energy Outlook,” January 2016 Release.
Low prices have led to equity erosion, impairments & bankruptcies for companies, and budget deficits and product taxes for exporting nations

- Since 1st July 2014, the S&P E&P Industry Index has crashed by 68%
- Many oil and gas companies as a result of the crash have now become penny stocks

- Impairments for US E&Ps cross $130 B
- US Fed increasing interest rates to further increase pressure on industry lending

- Huge budget deficits for oil exporting countries have forced them to remove subsidies and impose VAT on petroleum products
- Russia, UAE, Venezuela and others face a deficit of up to 20% of their GDP

- US oil rig count fell by 63%
  (Jan 2015 – Jan 2016)
- US natural gas rig count in January first week fell to a 16 year low

- 25 US oil companies have filed for bankruptcies since beginning of 2015
- S&P estimates that 50% of energy junk bonds are "distressed" having risk of default

- Global E&P players reduced capital spending by $130 B in 2015 and deferred/cancelled key projects.
Most agencies forecast the prices testing the $20 mark in near term and industry readjusting to a new normal around $50 in longer term

|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| **EIA**          | 2016 Average WTI - $38/bbl  
“Prices are expected to be volatile throughout 2016, predicting WTI range to be $25 - $56 in April and $22 - $82 in December”  
2017 Average WTI - $47/bbl  
“Inventories are forecast to continue rising in 2016, before the global oil market becomes more balanced in 2017.” |                                                                                                                                                                                                                                                                                                                         |
| **Morgan Stanley** | Predicts price hitting a low of $20 – 25/bbl and 2016 Average WTI - $47.5/bbl  
“Given the continued US dollar appreciation, $20-25 oil price scenarios are possible simply due to the currency”  
Expects a recovery by 2017, with average price around $75/bbl |                                                                                                                                                                                                                                                                                                                         |
| **JPMorgan**     | Forecasts average WTI price in 2016 at $31.25/bbl  
“The modal view is that oil markets are set to remain heavily oversupplied in 1H2016, but a muted recovery should develop in 2H2016”  
Forecasts average WTI price in 2017 at $43.25/bbl |                                                                                                                                                                                                                                                                                                                         |
| **Barclays Bank** | “We now expect Brent and WTI to both average $37/barrel in 2016, down from our previous forecasts of $60 and $56, respectively” |                                                                                                                                                                                                                                                                                                                         |
| **Goldman Sachs** | Predicts the low of $10 – 25/bbl in the near term and WTI price to be $40-45 in 6 – 12 months  
“While not our base case, the potential for oil prices to fall to such levels, which we estimate near $20 a barrel, is becoming greater as storage continues to fill” | Forecasts average WTI price in 2017 at $60/bbl                                                                                                                                                                                                                 |
| **Standard Chartered** | Predicts price going as low as $10/bbl in short term  
“We think prices could fall as low as $10/bbl before most of the money managers in the market conceded that matters had gone too far” |                                                                                                                                                                                                                                                                                                                         |
Oversupply factors continue to keep pressure on oil price along with weak global economic outlook led by major emerging countries

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<tr>
<th>Demand Factors</th>
<th>Impact on Price</th>
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<td>❖ Economic outlook for developing countries like Russia, Brazil, China and others continue to be weak</td>
<td>• China’s GDP growth in 2016 to be the lowest in 25 years; Russia &amp; Brazil face recession fears</td>
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<td>❖ OPEC members significantly increasing taxes on refined products to offset decreasing revenue from oil</td>
<td>• Have started imposing VAT, removing subsidies on petroleum products, significantly cut social spending</td>
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<td>❖ Low gasoline price has led to record savings, expected to increase consumer spending and fuel sales</td>
<td>• US average retail gasoline price are now below $2/gallon, lowest in 6 years</td>
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<td>❖ Higher investments in renewables, strict pollution norms, climate concerns, push towards public transport</td>
<td>• The recent Paris Climate Summit reinforced all nations to reduce carbon emissions</td>
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<th>Supply Factors</th>
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<td>❖ Focus on costs, efficiency and variable production profile of shales makes US supplies highly responsive</td>
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<td>❖ OPEC’s decision to continue production hoping to impact high cost producers resulting in over supply</td>
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<td>❖ Sanctions on Iran getting lifted will lead to further supply in the market</td>
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<td>❖ High inventory levels will keep the pressure on price. Global inventories rose by a notional 1 billion barrels in 2014-15 with the fundamentals suggesting a further build of 285 mb over the course of 2016</td>
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US gas prices briefly breached 2012 lows in late 2015; start of LNG exports and recovery in oil prices to ease pressure on domestic gas prices

Huge supply growth from shales took gas prices to record lows ($1.82/MMBtu)

Switch from gas to oil and improved natural gas demand led to recovery in prices

Low oil prices and less inventory withdrawals took gas prices slightly below 2012 lows

US LNG supplies (Cheniere) and a recovery in oil prices to offset production gains and higher inventories. US Oil-to-gas ratio to fall below 15 for the first time in 5 years

Source: EIA, “Short Term Energy Outlook”, Jan 2016 Release
30% increase in LNG export capacity by 2017 to keep a pressure on oil-indexed gas prices internationally

Asian LNG market could possibly experience a downward shift in oil indexation of natural gas prices after supplies from Australia and the US enter the market.

According to DOE/Oxford Economics study on LNG, the reduced spread between Henry Hub and oil-indexed Asian gas market to impact investments in US LNG but still the market remains attractive for US exporters, supporting domestic gas prices.

Access to capital remains a key consideration in near-term, while policy reforms and cost saving measures to determine future industry dynamics

- **Reduced borrowing base**
  Expiration of hedges and sustained weakness in oil prices will force lenders to reduce the borrowing bases of E&P companies

- **Oil price discounts**
  Major oil producers will continue to undercut each other by offering discounts to big buyers of oil

- **Reforms and privatization**
  Like Saudi Arabia’s decision to list Saudi Aramco, other nations may also follow in initiating reforms

- **Talent shortage**
  Companies could miss out opportunities during price recovery periods due to shortage of talent after significant layoffs

- **Higher bankruptcies and lower valuation mismatch**
  Bankruptcies may rise due to increasing financial stress while reducing valuation mismatch may give a push to M&A deals

- **Fallout of narrowed Brent-WTI spread**
  Reduced spread or higher WTI prices to eat into the margins of US refiners

- **Impact on future supplies**
  Deep capex cuts to impact the future supplies, even posing a long-term challenge to cover the typical decline of 4-5 MMbbl/d from mature fields

- **Sustained cost & efficiency focus**
  Continued focus on cost and efficiency to support players operating in high cost basins, keeping oil prices under check
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