Issues

Short Term

• Oil - How far will prices fall? When will prices rebound and how far will they recover?

• Gas – same questions

• US oil production – when will US output peak and how far will it fall?

• US drilling activity – How far will rig count fall? When will drilling activity rebound and how far will it recover?

• US well costs – How far will they fall? When and how much will they recover?

Longer-Term

• Roll of US as “swing” oil producer

• Outlook for US oil and gas exports
Global Oil Market

- Energy forecasters have recently raised their estimates of oil consumption and its future rate of growth.

- The EIA now forecasts that global oil demand will grow 1.1% in 2015, up 1.0 million bpd to an average of 93.1 million bpd, and 1.2% in 2016, to 94.2 million bpd.

- These increased estimates for oil use are encouraging given the outlook for continued sluggish economic growth in Europe and Japan and economic slowdowns in other key markets such as China, Russia and Brazil.
Global Oil Market

- OPEC’s surplus production capacity is expected to increase from an average of 2.0 million bpd in 2014 to 2.3 million bpd in 2015 and 2.7 million bpd in 2016.

- Utilization of OPEC’s oil production capacity is projected to range from 92%-94% during this period.
US Oil Production

• The EIA currently expects US lower-48 oil production to reach 7.4 million bpd in Q2 2015 (up from 7.1 million bpd in Q4 2014), then decline to 7.2 million bpd in Q4 2015 and Q1 2016.

• After that point the EIA sees US oil production returning to a ~9% CAGR annual growth rate through the end of 2016 as it projects that an expected recovery in oil prices will drive a recovery in drilling activity.

• Our forecast for 2015 is more bearish than the EIA because we expect US oil production to fall more sharply in the second half of the year.

• Post-2015 we forecast that US oil production will grow at a rate ranging from 400,000-600,000 bpd per year; the EIA currently forecasts that US oil production will grow around 450,000 bpd per year.
US Oil Exports

- In January the Commerce Department announced that any “lightly processed” condensate would be considered a refined product and therefore eligible for exports.

- US crude oil exports averaged almost 450,000 bpd in Q4 2014, up almost 125% from the year-ago level.

- Some see US crude oil exports reaching 1.0 million bpd by the end of 2016.
US NGL Market

- US production of natural gas liquids averaged 2.96 million bpd in 2014, up 13.6% for the year; the outlook calls for NGL production to grow 8% in 2015 (to 3.2 million bpd) and 9% in 2016 (to 3.5 million bpd).

- NGL prices have weakened in line with the decline in crude prices. The price of an NGL “barrel” is currently about $20, down from about $37 as of mid-2014.
US Oil Prices

• We project that oil markets will begin to tighten in the second half of 2015. Spot WTI prices are projected to rally from ~$50/bbl at present to ~$60/bbl by the end of 2015, and then reach $70 by the end of 2016.

• In terms of annual averages, spot WTI prices are expected to average $54/bbl in 2015 (down 42%) and $65/bbl in 2016 (up 20%).

• Our view is that the equilibrium price of WTI over the long-term will be ~$75/bbl.

• There are suggestions that US shale oil production become part of the world’s “swing” production going forward. If so, this suggests that oil prices might become more volatile in the future, ranging from $50 to $150.
US Gas Market

- US gas output is now projected to reach 72.8 bcf/d in 2015 (up 3.7% from 70.2 bcf/d last year) and 74.4 bcf/d in 2016 (up 2.2%).

- Gas inventories are projected to bottom out around 1,600 bcf in mid-April, about 800 bcf more than the year-ago level when gas withdrawals were about 35% higher-than-average.

- We project that about 2,150 bcf will be put into storage this summer, about 23% less than last year.
US Gas Exports

- Overall US gas exports are projected to average 4.7 bcfd in 2014, up 17% for the year, and 5.7 bcfd in 2016, up 20%.

- Pipeline exports are projected to average 4.5 bcfd in 2015, up 11%, and 4.9 bcfd in 2016.

- US LNG exports are projected to average 0.25 bcfd in 2015, up 500%, and 0.80 bcfd in 2016, as new export facilities begin coming onstream.

- The global LNG market is currently oversupplied, with the spot price of LNG having fallen sharply due to slow LNG demand growth, new LNG supply coming on line, and lower oil prices.

- In Asia the landed price for LNG has fallen from the year-ago price of a~$20/mmbtu to ~$6.60/mmbtu at present.
US Gas Market

• The EIA now forecasts that US gas use will average 74.3 bcfd in 2015 (up 1.4%).

• Gas demand in the residential and commercial sectors is projected to fall 6.2% and 6.4%, respectively, in 2015; however, gas use in the industrial and power sectors is projected to increase 5.6% and 5.5%, respectively, this year.

• On a “per btu” basis spot gas prices are currently about $0.75/mmbtu (35%) higher than spot coal prices, well-below the $3.66/mmbtu price differential a year ago at this time.
US Gas Prices

- US spot gas prices have traded below $3/mmbtu since the start of this year as gas storage withdrawals have been slow – a function of both low seasonal demand (a one-off issue) and continued growth in US gas production (an ongoing feature of the market).

- Spot gas prices are expected to remain near current levels before rallying with the onset of the winter of 2015/2016. It is expected in 2015 US spot gas prices will average $3.25/mmbtu, down 25% from 2014.

- Longer-term, we see gas prices remaining in the $3.50-$4.00 range given breakeven prices in the key US gas plays.
US Drilling

- Rig count is expected to fall through mid-2015 and then hold steady in the second half of 2015 as operator cash flow remains tight.

- US rig count will average 1,130 active rigs in 2015, down 39%. In this scenario US well count is projected to total 25,000 new wells in 2015, down 44%, while footage drilled is forecast to reach 250 million feet, down 35%.

- In light of the expected improvement in oil prices and the reduction in breakeven prices (from ~$60/bbl in 2014 to $45-$50/bbl by the end of 2015), US drilling activity is expected to rise over the course of 2016.

- We project that US rig count will increase ~15% from the end of 2015 to the end of 2016.
US Drilling

• Under normal circumstances we estimate that the industry has a ~1 month backlog of “drilled-but-uncompleted” wells; in 2014 this would have been 1,600-1,800 horizontal wells on average.

• Based on anecdotal evidence we estimate that currently 30%-40% of all new horizontal wells are not being completed.

• This would suggest that the backlog of uncompleted horizontal wells is on track to approach 4,000-5,500 wells by year-end 2015.

• The level to which oil prices need to recover in order to trigger the exercise of these deferred completions will vary by region and operator.

• In general, we expect that oil prices of ~$60 will cause backlogs begin to come down in most regions.
Canada Drilling

• We forecast Canadian activity in 2015 to average 245 active rigs (down 35% for the year), accounting for about 7,300 new wells drilled (down 36%) and 54 million feet of hole (down 36%).

• CAPP found that Canadian operators are on track to reduce their oilsands investment by 24% to $20 billion in 2015, down from $26 billion in 2014.

• We project that Canadian drilling activity will fall ~5% from the end of 2015 to the end of 2016.
International Drilling

• International drilling activity is forecast to average 1,188 active rigs (down 9%) in 2015, and total of 12,500 new wells (down 9%) and 100 million feet of hole drilled (down 8%).

• On a regional basis, International activity in 2015 is expected to realize the following changes: Mid East (unchanged), Africa (-7%), the Far East (-8%), Europe (-15%), and Central and South America (-19%).

• We project that International drilling activity will increase ~5% from the end of 2015 to the end of 2016.
US Drilling Costs

Index of US Spot Prices, Rig Count, and Average Well Costs

Drilling and Completion Cost Index: Spot Pipe Cost Index

Drilling and Completion Cost Index: Land Rig Rate Index

Drilling and Completion Services Cost Index: Stimulation Services Cost Index

Spears & Associates
US Drilling Costs

Drilling and Completion Services Cost Index:
- Cementing Services Cost Index
- Technical Services Cost Index
- Drilling and Completion Fluids Cost Index
- Production Equipment Cost Index
Summary

• US oil prices have bottomed and are poised to recover to ~$60/bbl by the end of this year and ~$70 by the end of 2016.

• US oil production is nearing a peak and will fall by ~1 million bpd over the next four quarters.

• The majority of the cuts to be made in rig activity have already taken effect. After bottoming out in 2H 2015 US rig count will rise ~15% from Q4 2015 to Q4 2016.

• US well costs will fall ~20% from Q4 2014 to Q4 2015 and then partially recover in 2016.