

Bernstein Energy: US Marginal Economics - Despite the Recovery in Prices the Small Producer Has Already Been Hurt

Please see the Disclosure Appendix for the ratings and price targets of the companies covered in this report.

Highlights

- Onshore marginal producers in the US are still hurting, as commodity prices have spent a long time at, or below, the breakeven price since this time last year. Between November of 2008, and May of this year, oil averaged \$48/bbl, around breakeven levels for marginal oil producers, and gas prices are still well below breakeven levels. This means that declines in onshore US production from shut-ins and accelerated decline rates will continue for some time, despite the oil price having recovered.
- A breakeven survey of around 100 E&P companies in Texas, Oklahoma, Kansas and Arkansas for Oklahoma's Marginal Well Commission found that the average breakeven price was \$44.73/bbl for oil, with a roughly normal distribution. Thus at oil prices of around \$45/bbl, we can infer that around half of the marginal producers surveyed would either breakeven or lose money. For gas the data suggests that the mean breakeven price for the Mid-Continent marginal gas producers surveyed was \$4.66/mcf, well above current natural gas prices.
- Much of the incentive to run these marginal wells comes from tax breaks such as the Small Producers Tax Exemption, or the Marginal Well Tax Credit which the current administration is considering repealing. This would end the use of the expensing of intangible drilling costs, percentage depletion, the marginal well tax credit, the enhanced oil recovery credit, and the manufacturing tax deduction. According to the Oklahoma Marginal Well Commission, these policies would ensure that more Oklahoma marginal wells will be shut in or plugged.
- So far this year, US oil production has looked robust, with offshore project ramp-ups such as Thunder Horse, Shenzi and Tahiti all contributing to increased output. However, the ramp up of these projects is obscuring the decline in onshore US production that is evident in states like California. Due to the lagged production data, this has been hard to verify, but in an attempt to discern the likely trend in onshore US production we have disaggregated these new offshore projects to reflect the trend for US onshore production, which is clearly suffering today due to the recent period of underinvestment.
- We believe that onshore production in the US has been declining, and this should become evident as the year progresses and the negative effect of a sustained period of reduced investment and oilfield activity shows up in total US volumes. This should also be clear in other mature areas of the oil industry and it is likely that at the end of this year and into early 2010, the supply of oil could actually drop below demand. This supports our \$80/bbl oil price assumption for 2009, and our overall overweight stance on the energy space, with a preference for the higher beta names.

Investment Conclusion

It may seem odd to feel sorry for oil producers, with oil prices having moved north of \$70/bbl. However, from November 2008 through to May, oil averaged \$48/bbl. To the marginal producers this low oil price period was critical, with half of the marginal producers being at their breakeven oil price, or below. This has meant that for many marginal producers, cashflow has been a major issue, especially when you consider

that these producers also produce natural gas, which has been below the marginal breakeven price for a much longer period than oil.

The Oklahoma marginal Well Commission's survey, suggests that, within Texas, Oklahoma, Kansas and Arkansas, marginal oil producers have been finding life difficult, which will not improve if the new US administration takes away marginal well tax relief. The Commission worries that if this happens, shut-ins, and high decline rates will continue, even if the oil price stabilizes at these levels. Additionally, with banks still being reluctant to lend to cashflow-negative producers, a swift return to marginal oil production growth is unlikely, which implies that onshore US production has further to fall.

Indeed, despite 400kbb/d of new US oil production coming onstream this year from major projects in the Gulf of Mexico, such as Thunder Horse, overall US production has only increased by around 150kbb/d since this time last year, as the base onshore production has started to decline. As these new offshore fields reach their peak capacity, then the underlying onshore decline rates will become more apparent and overall US supply will fall. Coupled with declines in other mature locations around the globe, real tightness in supply could be on the horizon around the end of 2009 and 2010, which will further support oil prices over the next 12 months. Amongst the integrated oils we continue to prefer TOTAL and ENI, but across energy we continue to recommend positions more skewed towards oil and gas leveraged names.

Details

In this call we continue our series of reports examining the fate of the marginal producer in the US. We have leveraged a recent study completed by Oklahoma's Marginal Well Commission to look at the break-even economics faced by small producers in the US. We also include the commission's analysis about the break-even economics of gas producers, which has implications for our thesis on the US and global gas market.

Additionally, we have taken a closer look at the production of California's largest and oldest fields, to see what impact lower oil prices and reduced drilling is having on volumes, since this is a mature producing region with a significant amount of production sourced from marginal wells. Finally, we have disaggregated total US supply to isolate the trend for onshore production, by splitting out the recent ramp up in offshore projects such as Thunder Horse, Shenzi and Tahiti.

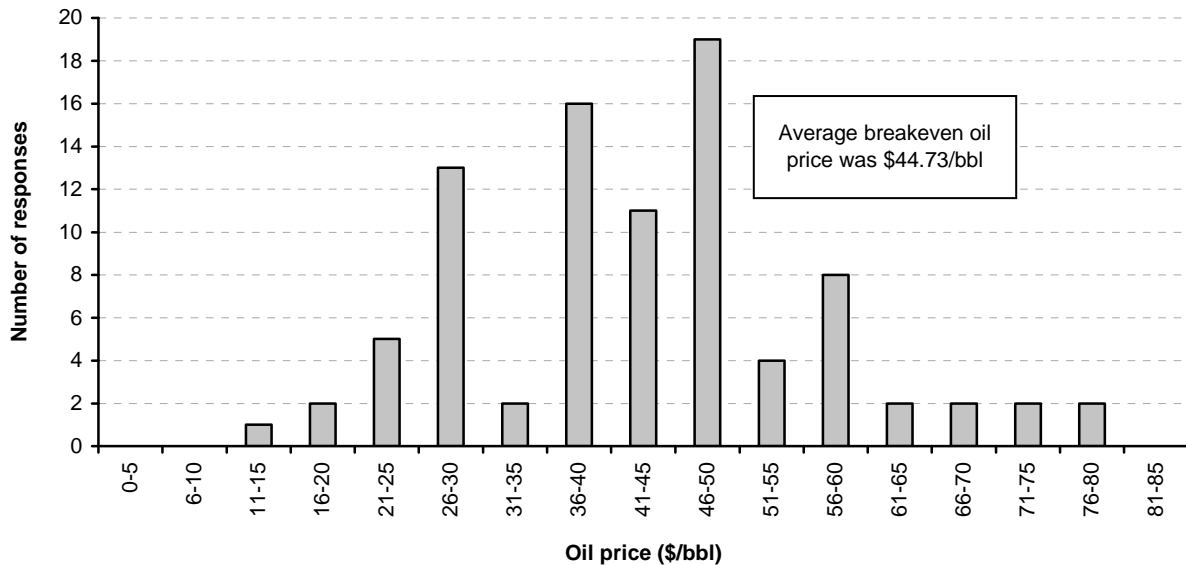
At what oil price do marginal well operators break-even?

Spears and Oklahoma's Marginal Well Commission recently completed a study looking at the break-even economics of around 100 E&P companies in Texas, Oklahoma, Kansas and Arkansas. The sample included operators with as few as 5 wells, all the way up to operators with thousands of wells. The question posed to these oil producers was very simple – what oil price did they need to sustain their current business, but not necessarily expand it through additional drilling?

From the 100 marginal producers surveyed, 89 responded with their estimated breakeven oil prices. The sample average was \$44.73/bbl with a roughly normal distribution (**Exhibit 1**). Thus at oil prices of around \$45/bbl, we can infer that around half of the marginal producers surveyed would either breakeven or lose money.

Notably, oil prices averaged \$48/bbl from November through May, which suggests that a significant amount of marginal well operators were either breaking even or losing money over a period of seven months. In fact, based on the survey carried out by Spears and Oklahoma's Marginal Well Commission, we estimate that up to a third of the producers surveyed were struggling to make profits during this period (**Exhibit 2**).

Exhibit 1
Breakeven oil price from a survey of 100 Mid-Continent producers (89 respondents)



Source: Spears and Oklahoma Marginal Well Commission and Bernstein analysis

With limited cashflow from operations, this has meant that some producers have already gone bankrupt, and for those who are just breaking-even, the ability to reinvest during the current period of rising commodity prices has been severely hampered.

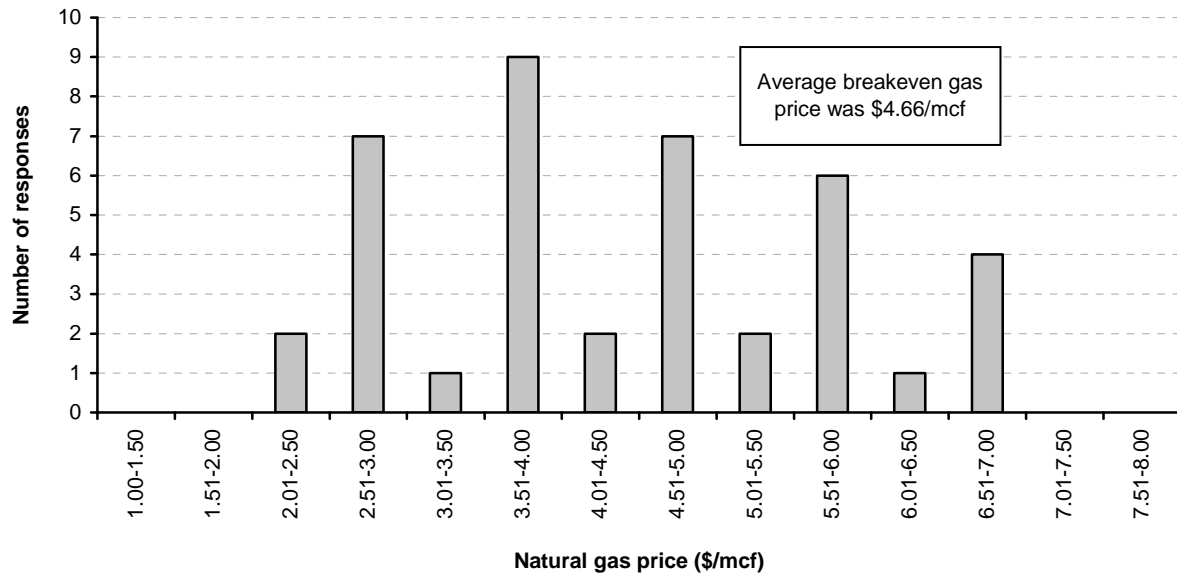
Exhibit 2
Sample of breakeven prices of marginal oil producers vs. the oil price



Source: Spears and Oklahoma Marginal Well Commission, Bloomberg and Bernstein estimates

The survey also encompassed gas producers, although the level of responses was much lower at only 41 out of 100 operators, versus 89 for oil. Thus, the sample derived did not have a distribution that was approximately normal. Nonetheless, the data suggests that the mean breakeven price for the Mid-Continent marginal gas producers surveyed was \$4.66/mcf (**Exhibit 3**), although it was not clear what proportion of those wells were conventional versus unconventional.

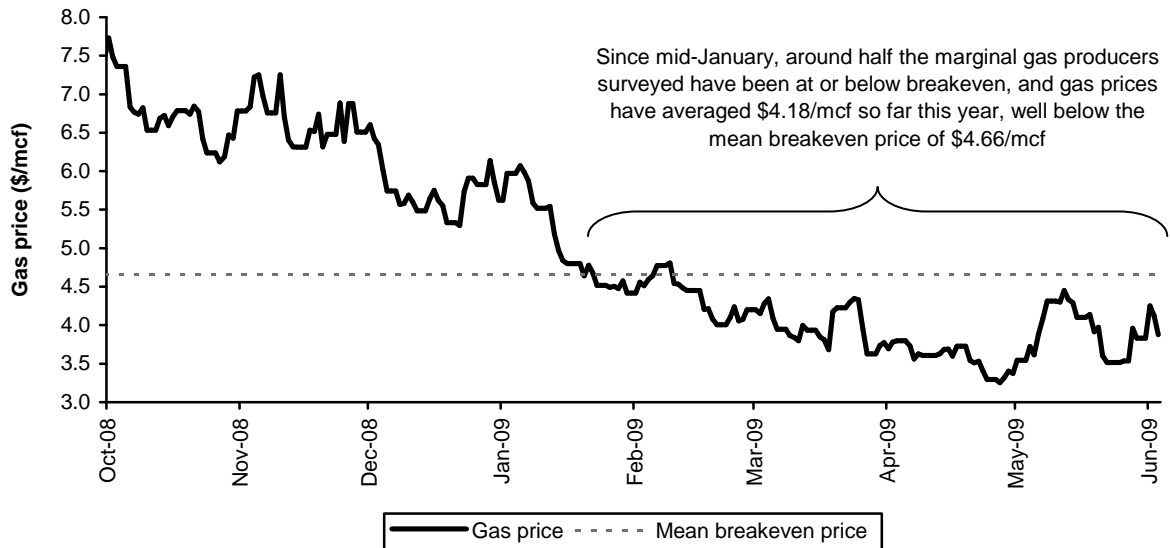
Exhibit 3
Breakeven natural gas price from a survey of 100 Mid-Continent producers (41 respondents)



Source: Spears and Oklahoma Marginal Well Commission and Bernstein analysis

We estimate that at least half the marginal well operators have been at breakeven or losing money since January – in fact the average gas price during this period has been \$4.18/mcf and prices are now back below \$4/mcf, which suggests that marginal gas producers face poorer economics than marginal oil producers.

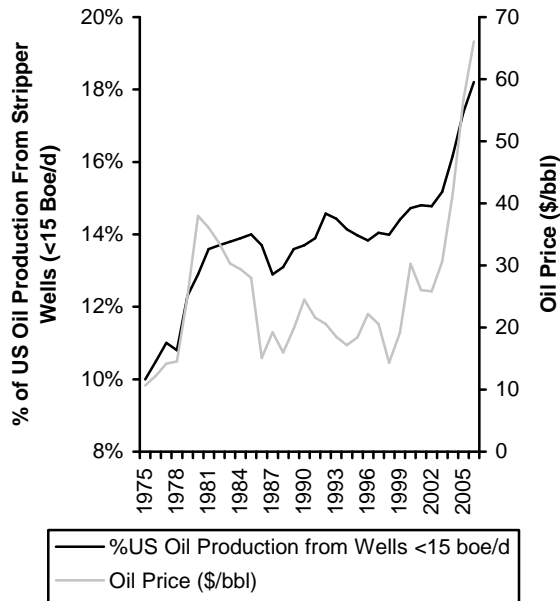
Exhibit 4
 Sample average breakeven price of marginal gas producers vs. the gas price



Source: Spears and Oklahoma Marginal Well Commission, Bloomberg and Bernstein estimates

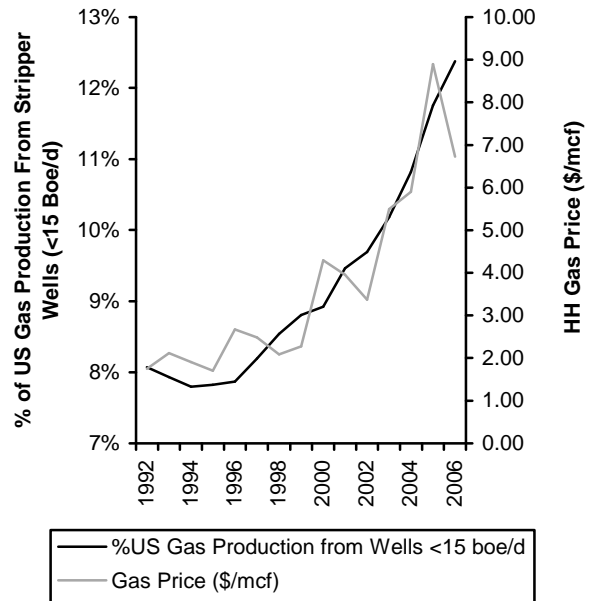
The implications of this survey are clear – marginal oil and gas producers in the US have been, and continue to be under severe pressure, although the recent rally in oil prices and stagnant gas prices have improved the outlook for oil producers, while marginal gas producers continue to face severe pressure. The ultimate goal of Oklahoma's Marginal Well Commission is to prevent marginal wells being shut-in or plugged, and we share their concerns that a significant amount of US oil output could be shut-in as a result of the recent extended period of low oil prices. Indeed, historically the US has sourced a large amount of production from marginal wells (**Exhibit 5** and **Exhibit 6**), which slowly strip the oil or gas from mature fields that have been depleted to the point where they have very low reservoir pressure, and individual wells produce less than 10 barrels per day of oil or 60,000 cubic feet of gas (definitions vary and can be slightly higher at 15 bbl/d of oil or 90 mcf/d of gas).

Exhibit 5
US oil production from marginal wells vs. the oil price



Source: EIA, Bloomberg and Bernstein estimates

Exhibit 6
US gas production from marginal wells vs. the gas price



Source: EIA, Bloomberg and Bernstein estimates

Notably the US has around 420,000 marginal wells which constitute over 85% of all US oil wells. These marginal wells contribute around 18% of total US oil production, or over 900,000 bbl/d by mid 2008, and are primarily located in mature producing regions such as Texas, Oklahoma or California (**Exhibit 7**). The profitability of these marginal wells is many times lower than from a well in a newer field, where the reservoir pressure is still high, as the scale of production is so small. As such, much of the incentive to run these wells comes from tax breaks such as the Small Producers Tax Exemption or the Marginal Well Tax Credit, the latter which the current administration is considering repealing. If this goes ahead, it would be another blow for marginal well operators that are already struggling to breakeven, and you would likely see increased shut-ins and more rapid plugging of such wells.

Exhibit 7

The 15 biggest US states for stripper (marginal) wells, ranked by the total number of stripper wells (2006 data)

State	# Oil Stripper Wells	Total # Oil Wells	Stripper Well Production (Mbbbls)	Total Production (Mbbbls)	% Production from Stripper Wells	% of Marginal Wells Out of Total Wells	Average Production per Stripper Well (bbl/d)
TX	118,864	136,738	140,155,694	332,164,914	42%	87%	3.23
CA	33,101	47,197	61,834,952	218,291,918	28%	70%	5.12
OK	29,343	31,016	18,619,038	49,579,172	38%	95%	1.74
LA	16,347	18,635	9,181,707	55,004,399	17%	88%	1.54
KS	14,154	15,586	18,328,782	35,665,016	51%	91%	3.55
NM	12,329	15,456	14,203,870	46,302,370	31%	80%	3.16
OH	10,491	10,557	2,769,022	3,511,125	79%	99%	0.72
WY	8,575	10,712	11,967,944	38,210,159	31%	80%	3.82
KY	4,758	4,778	1,331,479	1,460,592	91%	100%	0.77
CO	3,623	4,655	4,172,920	13,533,681	31%	78%	3.16
MI	3,479	3,656	2,962,784	4,790,803	62%	95%	2.33
WV	3,096	3,137	674,898	1,095,212	62%	99%	0.60
NY	2,895	2,909	284,763	295,305	96%	100%	0.27
MT	2,816	4,199	3,142,669	36,256,246	9%	67%	3.06
ND	1,776	3,344	3,745,176	37,911,720	10%	53%	5.78
FG	331	2,837	539,702	432,901,489	0.1%	12%	4.47

Source: EIA and Bernstein analysis

The conclusions of the Oklahoma Marginal Well Commission are best expressed by the cover letter of the presentation, which conveys their deep concerns over the fate of the marginal producer in the US:

"The results of the survey clearly demonstrate that with current oil and gas prices, the marginal well producers are struggling to make profits, and natural gas operators are losing money. One of the Marginal Well Commission's main goals is to prevent wells from being shut in or plugged.

With the current tax policy proposed by President Obama's administration, the burden on the independent oil and gas operator, and the current market price of oil and gas, the industry is facing very difficult times that will halt drilling activity, end most maintenance work and ensure layoffs of thousands. The aforementioned budget proposes \$31.5 billion in new taxes on the independent producer. These new tax increases include repeals of the expensing of intangible drilling costs, of percentage depletion, of the marginal well tax credit, of the enhanced oil recovery credit, and of the manufacturing tax deduction.

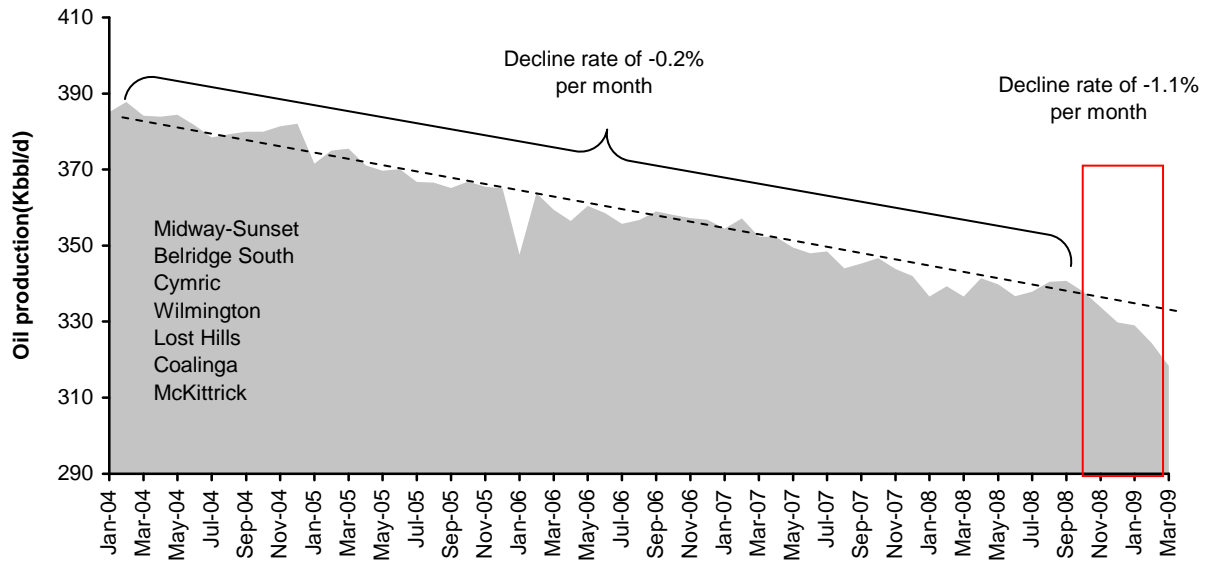
These policies would ensure that more Oklahoma marginal wells will be shut in or plugged. The Oklahoma oil and gas industry employs more than 76,000 workers, provides more than 322,000 direct and indirect jobs in the state of Oklahoma, and generates more than \$2 billion in taxes to the state of Oklahoma. The independent oil and gas operators contribute 68% of American oil production and 82% of the overall American natural gas production. In the state of Oklahoma, 68% of all oil production comes from marginal wells and \$1.08 billion in gross production tax comes from marginal wells."

What is happening on the ground today - Taking a closer look at California's production

As one of the largest oil producing states and the state with the second highest number of marginal wells in the US (according to 2006 data), California should provide a good indicator of the level of production shut-ins resulting from lower oil prices. Although production data for most states is quite lagged, and California is no exception, the state does provide an online database which contains production data for individual fields. This data tends to be more up-to-date and we have isolated the volumes from the largest and oldest fields in California to test whether any accelerated decline is apparent.

Notably, during the period January 2004 to September 2008, the average monthly decline rate was 0.2%. Since October last year this has increased to a monthly decline rate of 1.1% (**Exhibit 8**).

Exhibit 8
Oil output from California's largest oil fields



Source: DOGGR and Bernstein estimates

The fields included in our analysis are some of the oldest producing fields in California, and constitute around 60% of total oil volumes from the state. The two largest, Midway-Sunset and Belridge South, have produced around 3 billion barrels of oil to date combined, and peaked production at around 340 Kbb/d, versus the current level of only 170 Kbb/d. Clearly both fields are in the latter stages of mature decline and would require significant maintenance and drilling to manage decline rates.

Indeed, the Belridge South field is a veritable pin-cushion, being covered with numerous nodding-donkeys that extract the oil from the mature reservoir (**Exhibit 9**). This means that maintenance costs are higher on this field and more drilling activity is required to manage the decline rate, which in turn needs higher oil prices.

Exhibit 9
Satellite images of the Belridge South oil field in California



Source: Google Earth

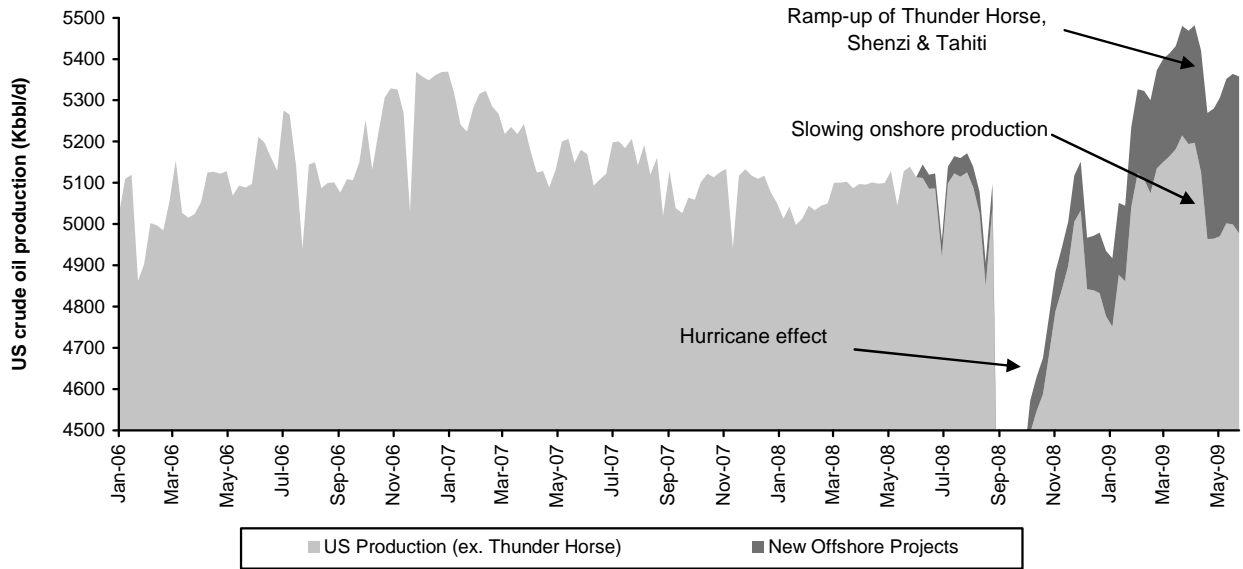
In summary, mature producing regions such as California should have seen sustained pressure on marginal well economics over the past 7 months that will have forced the shut-in of uneconomic wells, thus reducing overall volumes as can be observed in the last few months.

US production still looks robust, but offshore ramp-ups are obscuring onshore declines

Every week the EIA produces a US crude oil production estimate that comes out along with the much anticipated weekly crude (and product) inventory data. This is an estimate, and the actual monthly production figure is significantly lagged due to the amount of time it takes to collect the data from the many producers in the US.

So far this year, US oil production has looked robust, with offshore project ramp-ups such as Thunder Horse, Shenzi and Tahiti all contributing to increased output. However, these large deepwater projects have been under development for quite some time and were bound to hit the market regardless of the commodity cycle. We believe that the ramp up of these projects is obscuring the decline in onshore US production that is evident in states like California. Due to the lagged production data, this has been hard to verify, but in an attempt to discern the likely trend in onshore US production we have disaggregated these new offshore projects to reflect the trend for US production, had these projects not come online (**Exhibit 10**).

Exhibit 10
Disaggregated US oil production



Source: EIA, Company reports and Bernstein estimates

Clearly, the trend for US oil production would be much more bearish if these new offshore projects had not ramped up in the last few months. As a result, we believe that onshore production in the US has been declining and this should become evident as the year progresses and the negative effect of a sustained period of reduced investment and oilfield activity shows up in total US volumes.

Disclosure Appendix

Ticker Table

Ticker	Rating	CUR	10/06/2009 Closing Price	Target Price	YTD Rel. Perf.	EPS			P/E			Yield
						2008A	2009E	2010E	2008A	2009E	2010E	
BP	M	USD	52.16	48.00	27.8%	6.69	3.26	6.27	7.8	16.0	8.3	6.9%
BP/LN	M	GBp	533.00	525.00	17.6%	60.27	36.04	69.20	8.8	14.8	7.7	6.1%
COP	M	USD	45.76	54.00	4.6%	-11.16	3.30	7.17	NM	13.9	6.4	4.1%
CVX	M	USD	70.22	70.00	11.2%	11.67	3.98	8.32	6.0	17.6	8.4	3.5%
E	O	USD	50.16	59.00	21.1%	7.14	4.10	6.52	7.0	12.2	7.7	7.2%
ENI.IM	O	EUR	17.95	22.00	23.5%	2.43	1.52	2.42	7.4	11.8	7.4	7.5%
FP.FP	O	EUR	41.61	46.00	23.2%	4.71	3.49	5.13	8.8	11.9	8.1	5.3%
TOT	O	USD	58.27	62.00	21.6%	6.92	4.71	6.92	8.4	12.4	8.4	5.1%
MRO	O	USD	32.69	34.00	35.7%	4.95	2.50	4.04	6.6	13.1	8.1	2.9%
RDS/A	M	USD	55.05	56.00	20.2%	8.52	3.58	6.46	6.5	15.4	8.5	5.5%
RDS/B	M	USD	56.68	56.00	26.5%	8.52	3.58	6.46	6.7	15.8	8.8	5.4%
RDSA.LN	M	GBp	1684.00	1849.00	9.5%	230.27	118.42	213.89	7.3	14.2	7.9	5.5%
RDSA.NA	M	EUR	19.73	21.00	21.4%	2.90	1.32	2.39	6.8	14.9	8.3	5.8%
RDSB.LN	M	GBp	1725.00	1849.00	16.2%	230.27	118.42	213.89	7.5	14.6	8.1	5.4%
RDSB.NA	M	EUR	20.29	21.00	25.9%	2.90	1.32	2.39	7.0	15.4	8.5	5.7%
XOM	M	USD	73.84	71.00	8.7%	8.69	3.58	6.75	8.5	20.6	10.9	2.1%
SPX			939.15			65.47	58.78	72.73	14.3	16.0	12.9	3.0%
MSDLE15			939.90			92.35	76.27	90.28	10.2	12.3	10.4	4.9%

O – Outperform, M – Market-Perform, U – Underperform, N – Not Rated

Valuation Methodology

Our target prices for the Global Integrated Oils are calculated by applying our estimates for 2010 cashflow per share (CFPS) to a 12 month forward price-to-cashflow (P/CF) multiple. This P/CF multiple is generated through the relationship, and historically strong correlation between 12 month forward P/CF multiples and Return on Average Capital Employed (ROACE) within the Global Integrated Oils group. Our calculation utilizes this relationship and an estimated 2010 ROACE to generate the target P/CF multiple. Individual company target price calculations are summarized in **Exhibit 11**. A key assumption is that investors continue to reward companies with higher returns, as has been the case historically. We use \$55/bbl WTI and \$6.50/mcf for US gas in 2009 and \$80/bbl in 2010.

Exhibit 11

Target price methodology summary for the Majors

Target Price = P/CF Multiple x 2010 CFPS			
Ticker	Adjusted P/CF Multiple	2010 CFPS	Target Price
BP (US)	4.5	10.58	48
BP (UK)	4.5	116.77	525
CVX	4.8	14.67	70
COP	4.2	12.97	54
ENI (EUR)	4.1	5.32	22
ENI (US)	4.1	14.35	59
MRO	4.0	8.57	34
TOT (EUR)	5.1	8.99	46
TOT (US)	5.1	12.14	62
RDSA LN	4.9	375.28	1849
RDSB LN	4.9	375.28	1849
RDSA NA	4.9	4.20	21
RDSB NA	4.9	4.20	21
RDS/A US	4.9	11.33	56
RDS/B US	4.9	11.33	56
XOM	6.9	10.36	71

Source: Bernstein Estimates

Risks

Oil prices forecasts are heavily dependent on GDP expectations. As such should GDP be stronger than expected or weaker than expected it could materially change the outlook for oil demand and prices and for the cash flow generation of the peer group. In addition supply disruptions caused by weather or terrorism remain a material risk and would place further upward pressure on pricing.

The greatest risk to our target prices for the Majors is a significant decline in crude oil prices, as the Majors commonly trade in line with commodity prices. Additionally, downward revisions to production volume targets could adversely impact share prices.

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12-Month Rating History as of 06/10/2009

Ticker	Rating Changes		
BP	M (RC) 03/03/09	O (RC) 09/05/07	
BP/.LN	M (RC) 03/03/09	O (RC) 09/05/07	
COP	M (RC) 09/05/07		
CVX	M (RC) 05/23/07		
E	O (RC) 11/21/08	M (IC) 05/26/04	
ENI.IM	O (RC) 11/21/08	M (IC) 05/26/04	
FP.FP	O (IC) 05/30/03		
MRO	M (RC) 05/13/09	O (RC) 01/29/08	
RDS/A	M (RC) 03/16/09	O (RC) 05/23/07	
RDS/B	M (RC) 03/16/09	O (RC) 05/23/07	
RDSA.LN	M (RC) 03/16/09	O (RC) 05/23/07	
RDSA.NA	M (RC) 03/16/09	O (RC) 05/23/07	
RDSB.LN	M (RC) 03/16/09	O (RC) 05/23/07	
RDSB.NA	M (RC) 03/16/09	O (RC) 05/23/07	
TOT	O (IC) 05/30/03		
XOM	M (RC) 02/19/09	O (RC) 07/02/08	M (RC) 11/17/06

Rating Guide: O - Outperform, M - Market-Perform, U - Underperform, N - Not Rated
 Rating Actions: IC - Initiated Coverage, DC - Dropped Coverage, RC - Rating Change

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