SMID-Cap E&Ps

SMALL & MID CAP RESEARCH

Optimizing Well Performance in the Marcellus

- **Marcellus/Utica Trip Takeaways.** We hosted a trip with Range Resources' (*RRC*) Marcellus Operations team and held meetings with the management teams of Gulfport Energy (*GPOR*), Rex Energy (*REXX*), CONSOL Energy (*CNX*), EQT (*EQT*) and Rice Energy (*private company*) in Pittsburgh earlier this week. Our discussions focused on the current state of the Marcellus and Utica including the impact and implementation of reduced cluster spacing (RCS) completions, the progress of infrastructure in the Utica and Marcellus, improving well results with a focus on optimal lateral placement and concerns regarding basis differentials in the region.
- **'RCS' Everywhere.** Reduced Cluster Spacing (*RCS*) completions (*tighter spacing between fracs stages resulting in more perfs per lateral*), which was first discussed in early in 2012, has become almost universally adopted in the Marcellus. CNX stated that when it first utilized RCS in two wells in early 2012, there was not a big improvement in IP but noted that after 15 months of production history the wells have produced 20% and 40% above the type curve, respectively. REXX reported that using 'Super-Fracs' (*also RCS*) on 20 wells in Butler County has also resulted in a flattening of the curve increasing EUR estimates, and initial application of the completion technique in the Utica has resulted in some of the best IP-rates on a lateral foot basis in the play. The other operators, which include RRC, Rice Energy and CNX, are widely implementing the technique across the basin with spacing varying from 150-225 feet between stages. EQT has already incorporated RCS into its published type curves and expects to utilize the technique across 90-100% of its undrilled inventory in its three core Marcellus regions.
- **Utica/Marcellus Infrastructure On Pace.** MWE, a primary midstream provider in both the Utica and Marcellus, stated that infrastructure build out in the Utica appears to be on pace with the Cadiz I plant (*125MMcf/d of processing capacity*) having come online at the end of May and Seneca I and II (*200MMcf/d of processing capacity each*) expected come online as scheduled in 4Q13. In the Marcellus, MWE's Houston processing complex is running on all cylinders with 355 MMcf/d of processing capacity and 60 MBbl/d of fractionation capacity. A 38 mbbld/d de-ethanizer is being built at Houston and Mariner West to Sarnia should be commissioned before the end of August 2013 with an expected initial capacity of 50 mbbl/d.

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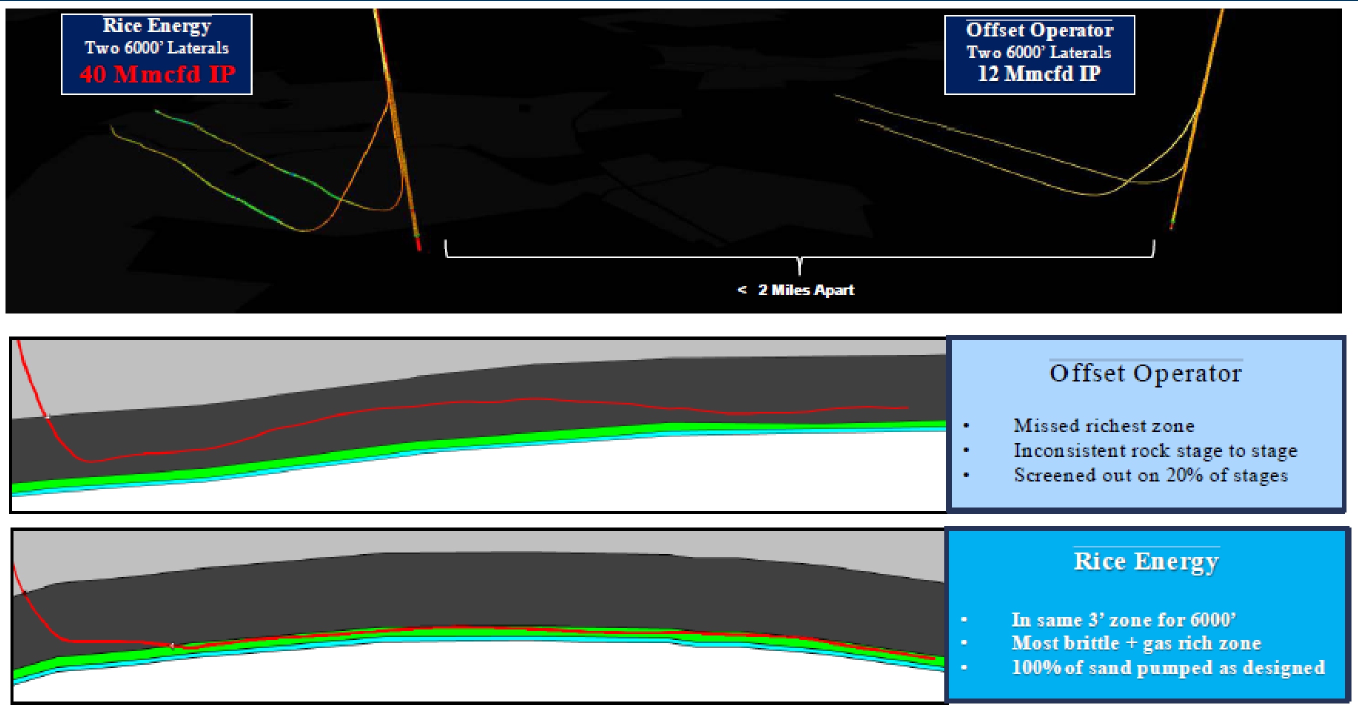
Rotary Steerables Providing Next Step Change in the Marcellus

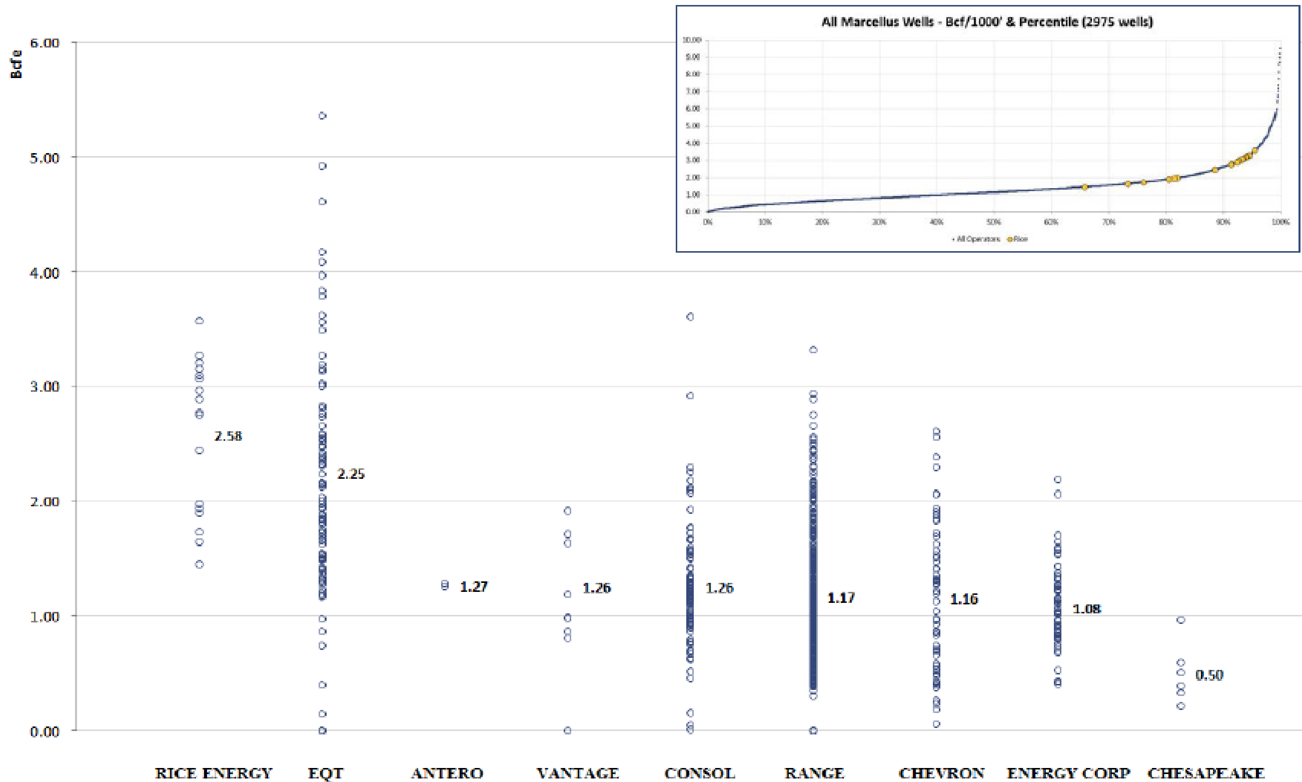
Rice Energy (*private company*) emphasized how its focus on geo-steering and optimal lateral placement has resulted in a big uptick in EUR's in the Marcellus. CNX noted the use of rotary steerables enables the company to now keep 99% of the wellbore within the targeted zone compared to 85% without the tool. In addition, the technology allows for a sharper turn from the kick-off point to make a 90 degree turn; 500 feet vs. 1,000 ft. CNX noted that this sharper turn exposed the lateral to an additional ~300 ft of net pay. These improvements have enhanced well performance and effectively increased EUR's by greater than 1 Bcf per 1,000 feet of lateral (*see* *Exhibit 2*). Notably, these enhancements come at a price with costs exceeding the day rate on a horizontal rig (*~$40k/day for BHI's AutoTrack tool*) though its use has resulted in cutting lateral drill times to 5-6 days (*for a 6,000-8,000' lateral*) today from 12+ days in 2011.

Exhibit 1: Execution and Well Performance



Source: Rice Energy

Exhibit 2: EUR per 1,000 Feet Distribution By Well



Source: Rice Energy and PA DEP data. ** Data from Washington and Greene Counties, PA.*

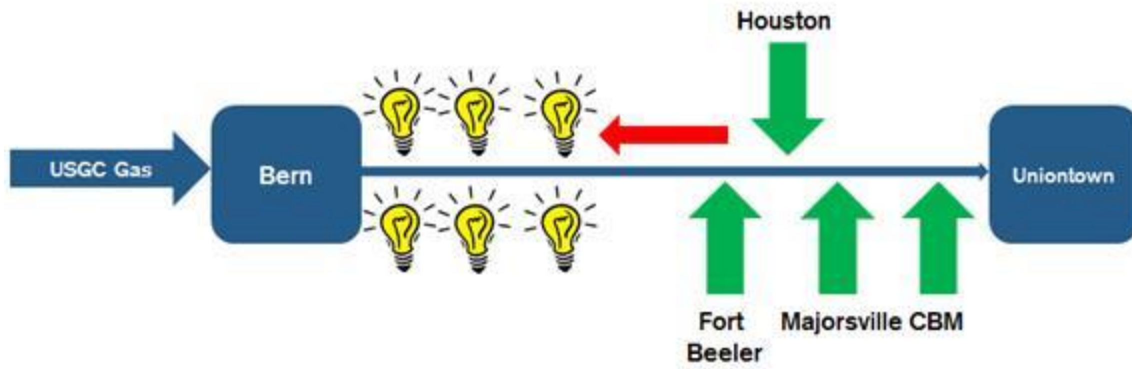
Looking to Improve on Appalachian Natural Gas Basis

EQT said their commercial team is continuously looking to get to the best market on basis. Similar to Rice Energy (*private*), they can back haul some production to the Gulf Coast. EQT said they have not signed up for any firm contracts on the NGL front. GPOR said they continue to evaluate firm capacity with a lot of gas coming online in the region, but they believe operators are giving up a lot of value by signing up for firm capacity now. Rice Energy said that transport within the basin was about $0.20-0.30/Mcf, but for expansion projects out of the basin, you're looking at $0.40-0.50/Mcf. REXX has 85MMcf/d of firm transport coming from Dominion.

Dealing with Too-Rich Gas in the Pipeline

After TETCO issued two critical notices, focus has been on industry's challenge in meeting pipeline specifications (*1,100 BTU, 12.5% C2+*) with Dominion South natural gas trading at a 10% discount to NYMEX (. RRC gave investors a clear depiction of the issue with less dry gas coming up from Gulf Coast (*1.5-2.0 Bcf/d*), the rich gas coming out of the Marcellus containing high levels of ethane (*above spec*) is backing up against the six interruptible power plants behind delivery points. While there is a point where dry gas is delivered later in the TETCO line (*Uniontown always meets spec*), RRC and Chesapeake Energy (*CHK*) are both buying gas off of Rockies express to keep gas flowing east to keep 'above spec' gas from flowing west. This issue should see some relief as Mariner West is commissioned this July-August, but problems could intermittently persist until ATEX comes online in 1Q14. Exhibit 3 illustrates the issues experienced at TETCO with rich 'above spec' gas moving back line to power plants.

Exhibit 3: **TETCO Line with Delivery Points**



Source: Range Resources and Credit Suisse

Company Takeaways

Range Resources (RRC) – $91 TP, Outperform

RRC reported 2Q13 production of 910 MMcfe/d, ahead of our 901 MMcfe/d estimate and the consensus estimate of 904 MMcfe/d, and well above 2Q13 guidance of 880–890 MMcfe/d. Natural gas production was in line with our estimate at 713 MMcf/d while NGLs of 23.2 MBbls/d beat our estimate by 7%. However, oil production of 9.5 MBbls/d was 2% below our estimate. On pricing (*including hedges*), natural gas at $4.20/MMBtu was in line with our estimate of $4.24/MMBtu. Oil price at $85.09/Bbl was 2% below and NGL prices were 5% below our estimates of $86.93/Bbl and $34.85/Bbl, respectively.

On our investor trip, RRC reiterated that it expects to see production grow at a long term rate of 20–25% with cash flow growth expected to be greater than that. RRC recognizes three major productive zones across its acreage which include the Marcellus, the Upper Devonian and the Utica/Point Pleasant. It currently expects the Upper Devonian to be slightly richer than the Marcellus although its productiveness remains unclear. In the Utica, the company estimates a depth of about 10,000' in Beaver County, noting that there were some tests being conducted below 11,500'. RRC highlighted that it had moved to more widely utilizing the RCS completion method, with frac stages set apart by 200' (*vs. 300' prior*). The company noted that it had seen improvements in IP rates as a result of RCS completions. RRC is now completing 8–9 frac stages (*vs. 2–3 frac stages*) per day with one completion crew. The company expects to provide updates on its Super-Rich Marcellus wells during its 2Q13 earnings call, which we suspect may include improved EUR's driven by longer laterals.

RRC noted that its firm transportation is expected to increase to 920 MMcf/d in 2015 from 795 MMcf/d in 2013. RRC noted that with the startup of Mariner West and East and the ATEX line, ethane should no longer be a cap to production growth. RRC's midstream provider, MarkWest Energy (*MWE*), expects to see pressure on natural gas prices over the next couple of years until an inflection is seen in demand. MWE's Cadiz I came online at the end of May with the Seneca I and II expected to come online as scheduled in 4Q13. The company expects Mariner West to be commissioned in July or August of this year with an initial de-ethanization capacity of 38 Mbbl/d, which should ramp to 68 MBbl/d by mid-spring 2014. In the Utica, MWE noted that most of the volumes are expected to be fractionated at the Houston plant until the startup of the Hopedale fractionator in 1Q14. MWE is currently constructing a rail yard a mile away from the Houston plant that will have the capacity to ship a unit train (*80-110 rail cars*) per day, which will allow flexibility to ship to customized markets depending on the product.

Gulfport Energy (GPOR) – $72 TP, Outperform

Based on logs from its Wagner, Boy Scout and Groh wells, it has identified that the Point Pleasant is the better interval due to its porosity and water saturation as well as lower clay content, unlike the Utica which has less porosity that acts as a natural frac barrier in the south. The company is currently drilling at a cost of $1,200 per lateral foot with science, but sees the cost trending down towards $1,000 (*corresponds to ~$10MM per well*). It pointed out that it was encouraged by the longer laterals and has drilled wells with laterals as long as 9,500 ft. GPOR currently has 13 gross Utica wells on production and plans to drill 55 wells this year with 35 2013 wells producing by year-end. With the 14 wells that it drilled last year, the company anticipates a total of 49 wells producing by YE13. It currently expects its seventh rig to come online at the end of July noting that the rig had already been contracted. The company is testing different frac interval sizes as well as completion recipes, with the Clay well targeting 140' stages compared to its estimate of optimal 225'

spacing. The company also estimates that slickwater completions would reduce stage costs to $100k/stage (*from $125k*) and could potential reduce well resting periods.

On the midstream side, the company highlighted that with MWE's Seneca I and II processing plants expected in 4Q13, it would be able to hit guidance this year and maintained comfortable with 2Q13 production guidance of 8500-9000 boe/d. Moreover, GPOR highlighted that it has temporary capacity and infrastructure in place should there be further delays from MWE. GPOR said that it is feeling out markets for NGLs and condensate, with plans to have something in place by late August (*potential for an update on the 4Q13 call*). Finally, it is also looking to ship ethane internationally resulting in better pricing than shipping to Mt. Belvieu. The company highlighted that it had seen strong demand from Europe and India.

REX Energy (REXX) – $15 TP, Neutral

In 2013, REXX plans to drill 21 wells in its Butler Operated Area with another 11 wells in the Utica. It noted that it will be drilling a four-well pad testing stacked laterals and expects to see well costs decline 5–7% from $6.5MM due to multi-well pad drilling. In Butler County, the company identifies four separate reservoirs; namely the Utica/Point Pleasant, the Marcellus/Hamilton, the Upper Devonian/Burkett and the Upper Devonian/Rhinestreet. It highlighted that in the Utica, the Point Pleasant thins out as you move towards the south. It also noted that it had tested the Rhinestreet which could potentially be another zone further down the line and is currently targeting the Burkett while drilling into the Upper Devonian. REXX currently has 340 Upper Devonian locations included in its drilling inventory. The company believes that well returns in the Burkett will be similar to those in the Marcellus and highlighted that the Burkett thickens towards the southeast while losing some organic content. It has used the 'Super-Frac' completion method on 20 wells in the Butler operated area which has resulted in an increase in EURs. It is currently spacing fracs at 150 ft with 30 ft between perfs which has resulted in the flattening of type curves. In the Utica, the company expects to provide EUR's after it has six months of production history from three wells in its Warrior North and South projects. It is currently estimating well costs in the Utica at $8.8MM for a 4,500' lateral. The company is currently drilling the fifth well on the J Anderson pad and anticipates that the wells will be drilled to an average lateral length of 4,200' and expects the wells to be on production in late 4Q13. REXX expects to have results from the Brace West 2H well in Warrior North (*Carroll County*) for its 2Q13 conference call

The company highlighted that it had no midstream issues in the Warrior North, with 15 mmcfe/d of firm processing capacity at BlueRacer's Natrium facility and its wells being placed directly into sales. REXX currently has priority on 100 MMcf/d of processing capacity out of Bluestone with about 200 MMcf/d in total capacity. In addition, it has 85 MMcf/d of firm transport coming from Dominion (*D*). With regards to C3+ pricing, REXX has remained consistent at ~50% of WTI NYMEX in the past few quarters. It noted that there could be potential midstream build out of a Y-grade pipeline to the coast in order to handle increase production volumes in the Marcellus.

CONSOL Energy (CNX) – Not Rated

CNX expects to drill 121 Marcellus wells and 27 Utica wells in 2013. The company has a 50/50 JV in the Marcellus with NBL, noting that it needs to see three months of gas prices above $4.00/Mcf for the JV carry to kick in. With regards to RCS completions, CNX mentioned that it had drilled 2 wells utilizing the RCS method ~15 months ago. While CNX did not see a material improvement in IP rate, but highlighted that one of the wells is producing 40% above the type curve while the other is 20% ahead. CNX spends ~$7MM for a 6,000' lateral well (*its typical lateral length*) on average and 2-3 days of additional

drilling allows it to add another 2,000-3,000' of lateral length. CNX estimates that longer laterals adds $2-2.5mm of costs and has not seen any degradation in recoveries per 1000k' of lateral on the longer wells. It is now moving to 5-6 wells per pad with all of its acreage currently HBP'd. The company has an Upper Devonian well, the NV39F, drilled and expects to report production in its 2Q13 operations update. CNX has seen efficiency gains from using rotary steerable tools, estimating that they can now keep 99% of the wellbore in the targeted zone (*85% prior*) and can execute a 90 degree turn in 500 ft (*vs. 1,000 ft without the use of rotary steerables*) resulting in an extra ~300 ft of lateral pay. The company currently has 160,000 gross acres of which 70,000 acres is considered to be the core in the Utica. With any acquisitions, CNX would have to offer the additional acreage to its JV partner. The company noted that it has heard that acquisition costs in the Utica were going for $15-16k/acre although it did not comment on what it was paying for the parcels that it has been acquiring. In the Utica, CNX and HES have a 50/50 partnership where HES operates in four counties in Ohio Utica (*Guernsey, Belmont, Harrison and Jefferson*) and CNX operates remaining (*Tuscarawas, Noble, Portage, Mahoning Counties, OH*). The JV is currently utilizing a top-hole rig in order to reduce drilling costs and has drilled 55 wells to date.

EQT Energy (EQT) – Not Rated

EQT currently holds 560,000 acres in the Marcellus with roughly half the acreage categorized as "core" and broken up into central Pennsylvania (*80,000 acres*), southwest Pennsylvania (*95,000 acres*) and northern West Virginia (*90,000 acres*), with the company seeking to increase its position in the southwest PA and northern WV. It currently estimates wells costs in the Marcellus at $6.5 MM (*30% drilling, 60% completion, 10% location*) including the cost for RCS completions and intends to use this method on 90-100% of its future wells in the core areas. EQT has seen the RCS method add $1.0–1.25MM to well costs and includes these costs in its current type curve estimates. It is currently drilling 10 wells per pad in the Marcellus (*averaging 6 wells per pad YTD*) and could eventually increase to 20 wells per pad. In the Utica, EQT holds 13,000 acres in Guernsey county, OH and estimates $9.4MM well costs with one well per pad. The company is looking to expand its position in the Utica, but highlighted that it had not found an attractive deal for an acquisition. It expects to release initial results from the Utica in 3Q13 while continuing to work on expanding its acreage this year before deciding on how to proceed in developing the asset. In the Upper Devonian, EQT plans to drill 11 test wells in 2013 utilizing 4,800' laterals on average across the regions in SW PA and N WVA off of the Marcellus pads. It noted that it was landing its laterals in the Genesee formation in the Upper Devonian and is undecided as to whether it will utilize the RCS method on these wells. The company expects improved activity out of its position in central PA as it is shooting more seismic in order to help avoid faulting. EQT does not expect to drill in its non-core properties which make up about 50% of its total Marcellus position. It currently expects to be cash flow neutral in its upstream business by 2015 and anticipates ~20% production growth rate.

On the midstream side, the company highlighted that it is currently running a year ahead on building its midstream gathering capacity and expects to continue to fund its development. It currently owns transmission and storage in Equitrans. EQT noted that it has not signed up for any firm contracts on NGLs. While it is always looking to increase interstate capacity, the company highlighted that is looking to get capacity to the mid-Atlantic and the Southeast.

Rice Energy (Private)

Rice Energy anticipates a 59% annualized growth rate through 2017 with the expectation of being cash flow positive in 2015. The company acquired 46,000 net acres in the Utica

with 90% of its acreage in Belmont County, and is currently seeing acreage going for $6,000-6,500 per acre. The company is still looking to pick up additional acreage and has plans to drill one Utica well will this year. In the Marcellus, Rice Energy has ~27k net acres in Washington and Greene Counties and achieved 200 mmcf/d of gross production from 26 wells. is settling in at around 200' per stage for its RCS completions and highlighted that well performance increases significantly with better execution on the drilling side. Rice highlighted that the focus on geo-steering is increasing recoveries by at 1 Bcf per 1,000' of lateral versus its peers. Finally, the company highlighted that Northeast natural gas demand will be saturated and that midstream providers will come up with solutions to get gas to the Gulf Coast at a price of $0.30-$0.50/Mcf from Marcellus.

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Companies Mentioned *(Price as of 11-Jul-2013)*

CONSOL Energy Inc. (CNX.N, $28.23)
Chesapeake Energy Corp. (CHK.N, $21.29)
EQT Midstream Partners, LP (EQM.N, $44.52)
Gulfport Energy (GPOR.OQ, $50.63, OUTPERFORM[V], TP $72.0)
MarkWest Energy Partners, LP (MWE.N, $65.96)
Range Resources (RRC.N, $77.73, OUTPERFORM, TP $91.0)
Rex Energy Corp. (REXX.OQ, $18.26, NEUTRAL[V], TP $15.0)

Disclosure Appendix

Important Global Disclosures

I, Mark Lear, CFA, certify that (1) the views expressed in this report accurately reflect my personal views about all of the subject companies and securities and (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

3-Year Price and Rating History for Gulfport Energy (GPOR.OQ)

GPOR.OQ Date	Closing Price (US$)	Target Price (US$)	Rating
26-Sep-11	23.56		R
15-Dec-11	27.78	41.00	O *
29-Feb-12	33.62	42.00	
08-May-12	23.13		R
26-Oct-12	31.81	40.00	O
15-Nov-12	30.95	49.00	
17-Dec-12	39.02		R
19-Dec-12	37.42	49.00	O
11-Feb-13	38.68		R
12-Feb-13	39.69	49.00	O
13-Feb-13	39.93	57.00	
07-Mar-13	42.36	60.00	
24-Apr-13	50.13	59.00	
23-May-13	48.90		R
12-Jun-13	48.63	72.00	O

** Asterisk signifies initiation or assumption of coverage.*

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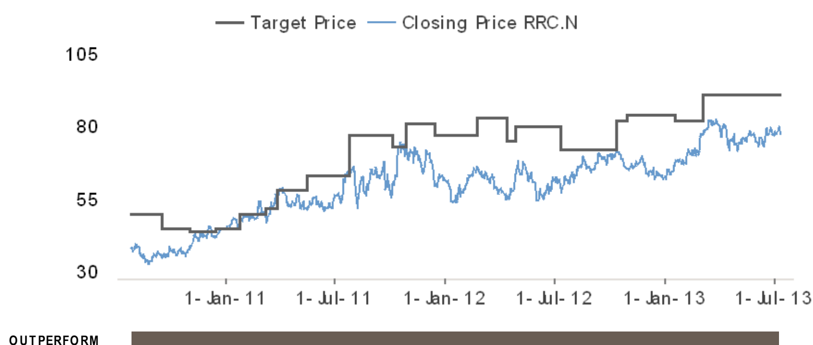
3-Year Price and Rating History for Range Resources (RRC.N)

RRC.N Date	Closing Price (US$)	Target Price (US$)	Rating
28-Jul-10	38.20	50.00	O
17-Sep-10	35.07	45.00	
02-Nov-10	38.94	44.00	
15-Dec-10	41.99	45.00	
25-Jan-11	46.54	50.00	
08-Mar-11	49.02	52.00	
28-Mar-11	55.08	58.00	
28-Apr-11	54.92		*
16-May-11	51.60	63.00	O
26-Jul-11	64.59	77.00	
06-Oct-11	60.71	73.00	
27-Oct-11	71.15	81.00	
15-Dec-11	59.71	77.00	
23-Feb-12	66.07	83.00	
13-Apr-12	55.86	75.00	
27-Apr-12	63.91	80.00	
11-Jul-12	58.76	72.00	
12-Oct-12	71.73	82.00	
29-Oct-12	66.10	84.00	
18-Jan-13	68.27	82.00	
05-Mar-13	78.53	91.00	

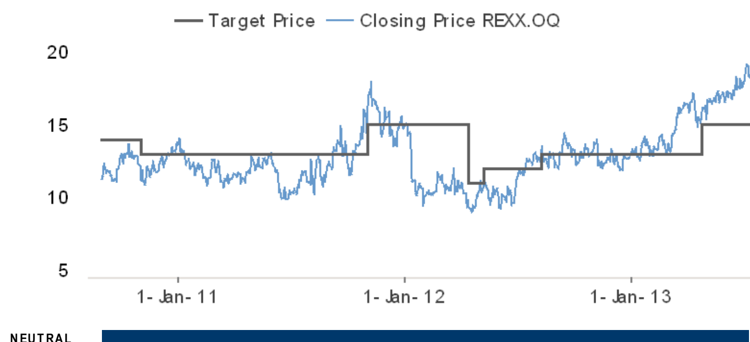
** Asterisk signifies initiation or assumption of coverage.*



3-Year Price and Rating History for Rex Energy Corp. (REXX.OQ)

REXX.OQ Date	Closing Price (US$)	Target Price (US$)	Rating
31-Aug-10	11.31	14.00	N
03-Nov-10	11.20	13.00	
03-Nov-11	16.61	15.00	
13-Apr-12	9.37	11.00	
08-May-12	11.02	12.00	
09-Aug-12	13.51	13.00	
24-Apr-13	15.90	15.00	

** Asterisk signifies initiation or assumption of coverage.*



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Neutral (N) : The stock's total return is expected to be in line with the relevant benchmark* over the next 12 months.

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Market Weight : The analyst's expectation for the sector's fundamentals and/or valuation is neutral over the next 12 months.

Underweight : The analyst's expectation for the sector's fundamentals and/or valuation is cautious over the next 12 months.

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Underperform/Sell*	15%	(38% banking clients)
Restricted	3%	

**For purposes of the NYSE and NASD ratings distribution disclosure requirements, our stock ratings of Outperform, Neutral, and Underperform most closely correspond to Buy, Hold, and Sell, respectively; however, the meanings are not the same, as our stock ratings are determined on a relative basis. (Please refer to definitions above.) An investor's decision to buy or sell a security should be based on investment objectives, current holdings, and other individual factors.*

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Price Target: (12 months) for Rex Energy Corp. (REXX.OQ)

Method: Our $15 price target for REXX is based on our proved developed plus projects net asset value (NAV) estimate, which is based on long-term prices of $80.00 per barrel oil and $4.50 per million Btu (MMBtu) in 2016 and beyond. Our NAV is derived from our discounted cash flow model, which values total proved developed reserves (220 billion cubic feet equivalent or Bcfe) at $2 per million cubic feet equivalent (mcfe) to which we assign an NAV of $2 per share. To this estimate we add another $13 per share for unbooked discoveries totalling 1,411 Bcfe.

Risk: Risks to achievement of our $15 target price for REXX are (1) a protracted downturn in oil and gas prices, (2) higher than expected decline rates in producing wells, (3) rising well costs, and (4) infrastructure constraints that would impede REXX from getting its production to market.

Price Target: (12 months) for Range Resources (RRC.N)

Method: Our $91 target price is based on parity to our risked (proved developed plus) net asset value (NAV) estimate, which in turn is based on long-term prices of $80.00 per barrel (Bbl) oil and $4.50 per million Btu (MMBtu) in 2016 and beyond. Our NAV is derived from our discounted cash flow model, which values proved developed reserves to which we assign an NAV of $16. In addition, we add undeveloped and unproved reserve potential for Marcellus, Midcontinent and W. Texas Permian valued at $75 per share.

Risk: Risks to our target price of $91 for RRC include: 1) natural gas nad oil prices, 2) adverse drilling results at its Marcellus Shale play in Appalachia and the Mississippian Lime, 3) the possibility of external financing needs to achieve growth targets.

Price Target: (12 months) for Gulfport Energy (GPOR.OQ)

Method: Our $72 price target for GPOR is derived from our 'Proved-Developed (PD) Plus' net asset value estimate, which is based on long-term prices of $80.00 per barrel crude oil and $4.50 per MMBtu natural gas. Our NAV estimate values total proved developed reserves (6 MMBoe) at $59.63 per barrel of oil equivalent (Boe) which equals $6.00 per share net of debt. To this estimate we add another $66.10 per share for undeveloped and unbooked reserves totaling 1,411 MMboe.

Risk: Risks to achieving our $72 per share target price for GPOR are (1) a protracted downturn in oil prices, (2) the lack of hedging leaves the company more exposed to commodity price volatility, (3) higher than expected decline rates in producing wells, (4) the inability to procure the necessary equipment and services required to complete and turn new wells into production and (5) infrastructure constraints that would impede the company from delivering production to the market.

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See the Companies Mentioned section for full company names

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