Reliance Industries (RELI.BO)

Shale Gas Showing Signs of Shining Through

- **Production ramping up smartly** — RIL's Eagle Ford JV (Pioneer: 42%, RIL: 45%) has made rapid progress, with CY12-13 production guidance having been recently upped by ~15-30%. The proportion of liquids in overall production has also risen from ~45% in 2010 to ~65% presently, helping offset the relatively weak US gas price environment. RIL has also gained, albeit notionally, on its investment, with recent Eagle Ford transactions being concluded at 2x the valns paid by RIL (on the $/acre metric). RIL's two other JVs, with Chevron (Marcellus) and Carrizo (Marcellus) have, however, yet to show meaningful contribution, with info/guidance also being relatively limited.
- **Pioneer JV most successful so far** — Pioneer has upped its production guidance (net) for CY12/13 to 26-30/40-45 kboepd vs 19-24/32-41 a year back, and expects production to grow 3x from current levels by CY14E. The JV's acreage is located in the liquids-rich window, resulting in better project economics (Pioneer has indicated IRRs of c80% for condensate-rich wells), as opposed to the other two Marcellus JVs (largely dry gas). This has also increased attractiveness of the basin, with acquisition costs of Eagle Ford acreages seeing a significant increase – while RIL had bought into this acreage in Jun-10 at an acquisition cost of US$11K/acre, recent transactions (Mitsui, GAIL) have happened at considerably higher valns of US$19-23K/acre. Pioneer is also exploring new technologies which could lead to savings of ~10% for some wells drilled.
- **Global gas integration could benefit RIL** — RIL stands to benefit if and as the US mkt becomes more fully integrated into the emerging global gas mkt following commencement of LNG exports. Conversely, if US gas demand were to rise at a faster pace (environmental rules, gas-related industrial demand), leading to tightening of the gas dd-ss balance which could impact the arbitrage economics and therefore limit LNG exports, RIL could once again stand to gain, as this could drive Henry Hub prices up.
- **Significant contribution from FY14E** — At $85 crude/$4.5 gas, Pioneer's guidance could imply ~US$420m EBITDA net to RIL in FY14E (~5% of our standalone forecast).

■ Company Update

Buy	**1**
Price (16 Nov 11)	Rs842.00
Target price	Rs1,001.00
Expected share price return	18.9%
Expected dividend yield	1.2%
Expected total return	**20.1%**
Market Cap	Rs2,757,107M
	US$54,456M

Price Performance
(RIC: RELI.BO, BB: RIL IN)

Statistical Abstract

Year to 31 Mar	Net Profit (RsM)	Diluted EPS (Rs)	EPS growth (%)	P/E (x)	P/B (x)	ROE (%)	Yield (%)
2010A	162,360	49.65	4.3	17.0	2.0	12.3	0.8
2011A	202,860	61.97	24.8	13.6	1.8	14.1	1.0
2012E	230,077	70.29	13.4	12.0	1.6	14.3	1.2
2013E	239,829	73.27	4.2	11.5	1.4	13.2	1.2
2014E	251,612	76.87	4.9	11.0	1.3	12.4	1.2

Source: Powered by dataCentral

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Fiscal year end 31-Mar	2010	2011	2012E	2013E	2014E
Valuation Ratios					
P/E adjusted (x)	17.0	13.6	12.0	11.5	11.0
EV/EBITDA adjusted (x)	9.9	7.6	6.7	6.6	6.1
P/BV (x)	2.0	1.8	1.6	1.4	1.3
Dividend yield (%)	0.8	1.0	1.2	1.2	1.2
Per Share Data (Rs)					
EPS adjusted	49.65	61.97	70.29	73.27	76.87
EPS reported	49.65	61.97	70.29	73.27	76.87
BVPS	419.43	462.95	523.24	586.50	653.37
DPS	7.00	8.00	10.00	10.00	10.00
Profit & Loss (RsM)					
Net sales	1,924,610	2,481,700	3,312,207	3,130,251	3,028,363
Operating expenses	-1,723,770	-2,236,520	-3,039,360	-2,866,471	-2,755,455
EBIT	**200,840**	**245,180**	**272,847**	**263,781**	**272,907**
Net interest expense	-19,970	-23,280	-26,353	-20,436	-17,964
Non-operating/exceptionals	24,600	30,520	46,984	56,276	59,638
Pre-tax profit	**205,470**	**252,420**	**293,478**	**299,620**	**314,581**
Tax	-43,110	-49,560	-63,401	-59,792	-62,969
Extraord./Min.Int./Pref.div.	0	0	0	0	0
Reported net income	**162,360**	**202,860**	**230,077**	**239,829**	**251,612**
Adjusted earnings	162,360	202,860	230,077	239,829	251,612
Adjusted EBITDA	305,810	381,260	393,066	378,117	388,652
Growth Rates (%)					
Sales	35.7	28.9	33.5	-5.5	-3.3
EBIT adjusted	8.6	22.1	11.3	-3.3	3.5
EBITDA adjusted	29.1	24.7	3.1	-3.8	2.8
EPS adjusted	4.3	24.8	13.4	4.2	4.9
Cash Flow (RsM)					
Operating cash flow	**146,624**	**369,944**	**133,382**	**354,938**	**368,667**
Depreciation/amortization	104,970	136,080	120,219	114,336	115,745
Net working capital	-120,706	31,004	-216,914	774	1,310
Investing cash flow	**-93,310**	**-136,063**	**-501,552**	**-274,150**	**-232,900**
Capital expenditure	-93,310	-136,063	-195,550	-274,150	-232,900
Acquisitions/disposals	0	0	-306,002	0	0
Financing cash flow	**-47,652**	**-16,720**	**-46,555**	**-51,754**	**-50,424**
Borrowings	-114,057	49,051	-30,000	-30,000	-30,000
Dividends paid	-49,248	-30,056	-37,316	-37,316	-37,316
Change in cash	**5,662**	**217,161**	**-414,725**	**29,035**	**85,343**
Balance Sheet (RsM)					
Total assets	**2,510,065**	**2,847,194**	**2,793,997**	**3,003,037**	**3,204,899**
Cash & cash equivalent	218,902	423,928	597,941	608,198	672,653
Accounts receivable	116,602	174,419	173,633	190,500	205,314
Net fixed assets	1,653,987	1,555,260	1,296,839	1,421,403	1,513,058
Total liabilities	**1,138,358**	**1,331,791**	**1,081,250**	**1,083,195**	**1,066,179**
Accounts payable	272,381	368,582	180,226	168,375	155,423
Total Debt	624,764	673,815	643,815	613,815	583,815
Shareholders' funds	**1,371,706**	**1,515,403**	**1,712,747**	**1,919,842**	**2,138,720**
Profitability/Solvency Ratios (%)					
EBITDA margin adjusted	15.9	15.4	11.9	12.1	12.8
ROE adjusted	12.3	14.1	14.3	13.2	12.4
ROIC adjusted	9.3	11.6	12.8	12.0	11.4
Net debt to equity	29.6	16.5	2.7	0.3	-4.2
Total debt to capital	31.3	30.8	27.3	24.2	21.4

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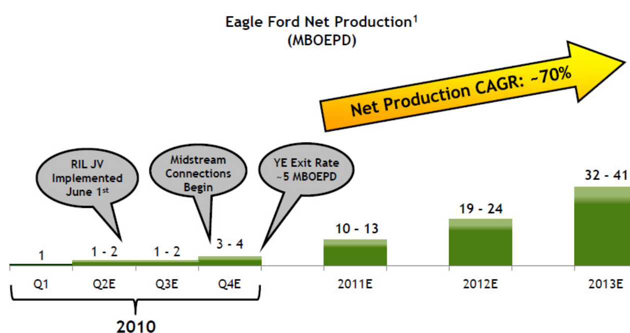
Shale Gas Showing Signs of Shining Through

We take a closer look at the progress made by RIL's three shale gas JVs in the US – Pioneer (Eagle Ford), Chevron (Marcellus), and Carrizo (Marcellus). Going forward, we expect the overall contribution from these JVs to become significant, with Pioneer to drive a larger part of the earnings accretion in the near term.

Pioneer production guidance increased; liquids content significantly higher than earlier anticipated

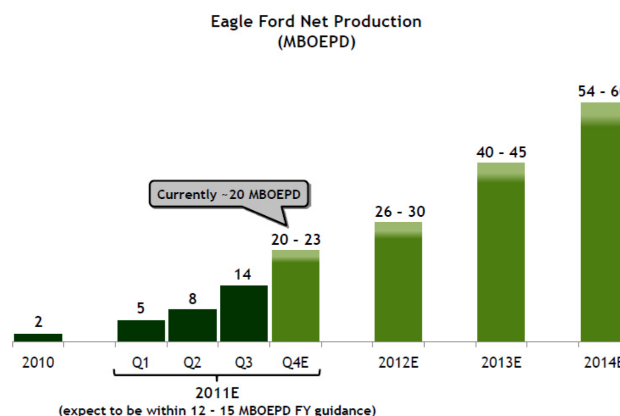
The proportion of liquids in the Pioneer-RIL JV's overall product mix has been rising from ~45% in 2010 to ~65% presently. With rising proportion of condensate in the product-mix making economics favourable, Pioneer has increased the production guidance from its Eagle Ford acreage by ~15-30% to 26-30/40-45 kboepd over CY12/13E vs 19-24/32-41 kboepd a year back (see Figure 1 and Figure 2 below). This acreage could be the biggest driver of near-term value accretion for RIL, given its presence in the liquids-rich window, which will continue to drive development and production from the field despite the subdued gas price environment.

Figure 1. Pioneer – Net Production Guidance as of Jun'10



Source: Pioneer Natural Resources

Figure 2. Pioneer – Net Production Guidance as of Nov'11



Source: Pioneer Natural Resources

With ~1,750 well locations in the acreage and favourable well economics, gross production in the field has been ramping up quickly. Besides, Pioneer is looking to employ lower-cost techniques such as using white sand proppants in shallower areas[1], which can potentially bring down costs of drilling new wells by cUS$0.7m or ~10% (for ~30% of the drilling programme). Basing our assumptions on data disclosed by RIL and Pioneer, as well as our own estimates, we derive a base-case NPV of US$1.1bn (Rs16/sh) net to RIL from the Pioneer JV alone, with further upsides possible from a higher crude gas price environment, an accelerated development programme, lower costs, etc.

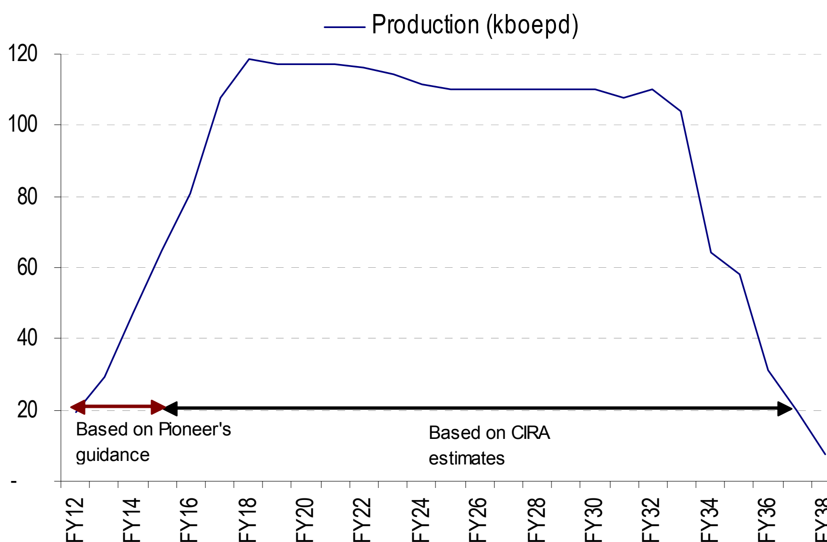
Our NPV calculation is based on the following key assumptions:

- **Production ramp-up –** As shown above, Pioneer's production guidance from its Eagle Ford acreage has increased in the last one year. We use the new (upgraded) guidance for our forecasts, with production (net to RIL) ramping up from current levels of ~21 kbpd to ~64 kbpd by FY15E and plateau production of ~110-120 kbpd by FY18E (see Figure 3).

[1] Refer to Pioneer's 3QCY11 earnings presentation dated Nov 2, 2011 for further details

- **Reserves, recovery, and production profile –** We assume gross recoverable reserves of 10 tcfe for the field (4.5 tcfe net to RIL), in line with what the two companies have indicated in the past. We assume a recovery of ~6 bcfe/well, with ~40% of a well's total potential recovered within the first year of operation itself, and the remaining recovered over the subsequent 4-5 years, implying a long tail.

Figure 3. RIL–Pioneer JV – Production ramp-up assumptions (net to RIL)



Source: Citi Investment Research and Analysis, Pioneer Natural

- **Product mix –** As mentioned earlier, the proportion of liquids in the overall product-mix has been rising, from ~45% in 2010 to ~65% presently (9MCY11 avg was ~60%). We assume the overall product mix to remain in this ratio going forward also (~42% oil, ~24% NGL, and balance gas).

- **Price assumptions –** We assume the JV to get WTI-linked prices for its crude (LT assumption of US$85/bbl), and Henry Hub-linked prices for gas (LT assumption of US$5.25/mmbtu). NGL's are typically priced at a discount to crude (we assume a 50% discount to WTI).

- **Opex and other costs –** We assume the JV to incur an opex of ~US$13/boe comprising: 1) lifting cost of US$9/boe, 2) transportation + gathering cost of US$2/boe, and 3) SG&A expenses of US$2/boe. In addition, the JV is also liable to pay royalty and other production taxes on this production, to the extent of 32% of revenues (this is in line with taxes applicable on the acreage).

Meaningful contribution to RIL: 5% of FY14E EBITDA

Contribution from shale gas assets is set to become meaningful, with EBITDA from the Pioneer JV alone equivalent to ~5% of our standalone FY14E EBITDA forecast for RIL

Using the assumptions above, we calculate an NPV of US$1.1bn for RIL's stake in the Pioneer JV (IRR of 17%), which translates into a valuation of Rs16/sh. In FY14, we expect this acreage to contribute ~US$950m to RIL's revenues and ~US$420m to its EBITDA (~5% of our FY14E standalone EBITDA forecasts). At plateau production (FY18E), this JV could contribute ~US$2.4bn to RIL's revenues and ~US$1.1bn to its EBITDA.

Figure 4. RIL – Pioneer JV – Key assumptions

Total gross production (over life of field)	tcfe	10					
Total gross production (over life of field)	mmboe	1,876					
RIL's stake in the field		45%					
Product mix							
Oil		42%					
NGL		24%					
Gas		33%					
		FY13E	**FY14E**	**FY15E**	**FY16E**	**FY17E**	**FY18E (Plateau)**
RIL's share of production	kboepd	32	48	64	81	108	118
Gas price	US$/mmbtu	4.3	4.5	5.3	5.3	5.3	5.3
WTI Price	US$/bbl	85.0	85.0	85.0	85.0	85.0	85.0
Income	US$m	629	949	1,298	1,631	2,177	2,389
-Oil	US$m	417	626	834	1,049	1,399	1,536
-NGL	US$m	119	179	238	300	400	439
-Gas	US$m	92	145	225	283	378	414
Operating costs	US$m	152	228	305	384	513	563
Royalty+Production taxes	US$m	201	304	415	522	697	765
EBITDA	US$m	276	417	578	726	968	1,061
EBITDA margin	*%*	*44%*	*44%*	*45%*	*44%*	*44%*	*44%*
Capex (incl. drilling carry)	US$m	(345)	(497)	(552)	(590)	(389)	(324)
Post-tax cash flow	US$m	(138)	(184)	(122)	(49)	332	467
NPV (adjusted for acquisition costs)	US$m	1,099					
NPV per share	**Rs/sh**	**16**					

Source: Citi Investment Research and Analysis

Key sensitivities

Our NPV calculation remains fairly sensitive to product price assumptions, as well as product mix. For instance, a US$10/bbl higher crude price could increase the NPV from Rs16/sh to Rs24/sh. Combined with a US$1/mmbtu higher gas price, the NPV could rise further to Rs27/sh. We show some sensitivities in the tables below:

Figure 5. RIL–Pioneer JV – Sensitivity to Crude price assumption (all financials net to RIL)

	FY14E			FY15E			Plateau (FY18E)		
	Crude: -$/10 from base case	Base case: Crude (WTI) at $85	Crude: +$/10 from base case	Crude: -$/10 from base case	Base case: Crude (WTI) at $85	Crude: +$/10 from base case	Crude: -$/10 from base case	Base case: Crude (WTI) at $85	Crude: +$/10 from base case
EBITDA ($m)	353	417	482	492	578	664	903	1,061	1,219
NPV ($m)	526	1,099	1,672	526	1,099	1,672	526	1,099	1,672
NPV (Rs/sh)	8	16	24	8	16	24	8	16	24
% change	*-52%*	-	*52%*	*-52%*	-	*52%*	*-52%*	-	*52%*

Source: Citi Investment Research and Analysis

Figure 6. RIL–Pioneer JV – Sensitivity to Gas price assumption (all financials net to RIL)

	FY14E			FY15E			Plateau (FY18E)		
	Gas price at US$3.5/mmbtu	Base case: Gas price at US$4.5/mmbtu	Gas price at US$5.5/mmbtu	Gas price at US$4.25/mmbtu	Base case: Gas price at US$5.25/mmbtu	Gas price at US$6.25/mmbtu	Gas price at US$4.25/mmbtu	Base case: Gas price at US$5.25/mmbtu	Gas price at US$6.25/mmbtu
EBITDA ($m)	396	417	439	549	578	607	1,008	1,061	1,115
NPV ($m)	911	1,099	1,286	911	1,099	1,286	911	1,099	1,286
NPV (Rs/sh)	13	16	18	13	16	18	13	16	18
% change	*-17%*	-	*17%*	*-17%*	-	*17%*	*-17%*	-	*17%*

Source: Citi Investment Research and Analysis

Figure 7. RIL–Pioneer JV – Sensitivity to Product mix (all financials net to RIL)

	FY14E			FY15E			Plateau (FY18E)		
	Liquids:Gas = 55:45	Base case: Liquids:Gas = 66:34	Liquids:Gas = 75:25	Liquids:Gas = 55:45	Base case: Liquids:Gas = 66:34	Liquids:Gas = 75:25	Liquids:Gas = 55:45	Base case: Liquids:Gas = 66:34	Liquids:Gas = 75:25
EBITDA ($m)	364	417	455	514	578	623	944	1,061	1,144
NPV ($m)	654	1,099	1,411	654	1,099	1,411	654	1,099	1,411
NPV (Rs/sh)	9	16	20	9	16	20	9	16	20
% change	*-40%*	-	*28%*	*-40%*	-	*28%*	*-40%*	-	*28%*

Source: Citi Investment Research and Analysis

Recent Eagle Ford deal valuations

Owing to increasing attractiveness of the Eagle Ford acreage due to higher liquids content, recent transactions have suggested that implied valuations for this acreage have also been going up, yielding RIL significant, albeit notional, gains from its investment made last year (on the crude US$/acre metric).

Figure 8. Eagle ford Shale – Recent transactions

Announcement date	Buyer	Seller	Total transaction value (incl. drilling carry) - US$m	Net acreage	Implied valuation* (US$k/acre)
28-Sep-11	GAIL	Carrizo Oil & Gas	95	4,040	23.5
29-Jun-11	Mitsui & Co.	SM Energy	735	39,000	18.8
13-Jun-11	Statoil; Talisman Energy	SM Energy	227	15,400	14.8
10-Oct-10	CNOOC	Chesapeake E'gy	2,200	199,800	11.0
24-Jun-10	Reliance Industries	Pioneer + Alfa/Newpek	1,309	118,246	11.1

Source: Citi Investment Research and Analysis, Company reports. *Undiscounted valuation (not adjusted for the time value impact of the drilling carry)

Status of the other JVs

RIL has stakes in two other JVs in the Marcellus shale acreage – a JV with Chevron (5.3 tcfe net reserves to RIL) and a JV with Carrizo (2 tcfe net reserves to RIL).

The Chevron JV is already operational, with 3QCY11 exit production rate of 5 kboepd (net to RIL). Additional production is contingent on midstream availability, with three additional rigs and one additional frac crew planned in the current quarter. The companies have, however, not provided any guidance on ramp-up timelines.

Carrizo has recently indicated that two rigs are currently drilling in the Northeast Pennsylvania (NE PA) acreage, with the "C" county drilling to start in 4QCY11. As per RIL, with pipeline construction nearing completion, first sales from this acreage are expected sometime in the current quarter (4QCY11).

We value RIL's stake in the three shale JVs at Rs30/sh in our SOTP

As discussed above, we have valued RIL's 4.5 tcfe in this Eagle Ford shale acreage at US$1.1bn (Rs16/sh), implying a valuation of US$1.3/boe. In order to calculate an indicative NPV from the other two JVs – Chevron and Carrizo – we ascribe a 25% discount to the Eagle Ford valuation given our expectation of relatively slower production ramp-up and lower proportion of liquids in the field output (Marcellus shale largely comprises dry gas). Based on this, RIL's net reserves of 7.3 tcfe from these two acreages yield a value of Rs18/sh, giving a combined NPV from the three JVs of Rs34/sh, which is in line with the Rs30/sh value accretion from shale assets that we explicitly build into our SOTP valuation.

Small Steps for US/Global Gas Integration

The following has been extracted from the report titled "Small Steps for US/Global Gas Integration" published on 31 Oct'11 by Edward Morse, Citi's Global Head of Commodities Research.[2]

The recently announced 20-year LNG off-take arrangement between BG and Cheniere Energy from the latter's planned Sabine Pass US liquefaction terminal moves the LNG export project closer to a potential 2015/2016 reality. It thus warrants an assessment of what it might mean if and as the North American market, with both LNG import and export terminals, becomes more fully integrated into the emerging global gas market. While a snapshot of today's regionally fragmented natural gas markets makes the project appear financially attractive, it requires a number of assumptions about regional price disparities going forward to become a full believer in long-term project economics at volumes higher than what is planned.

The quantity involved is 3.5-mmtpa, or about 465-mm bcf/d, contracted to BG

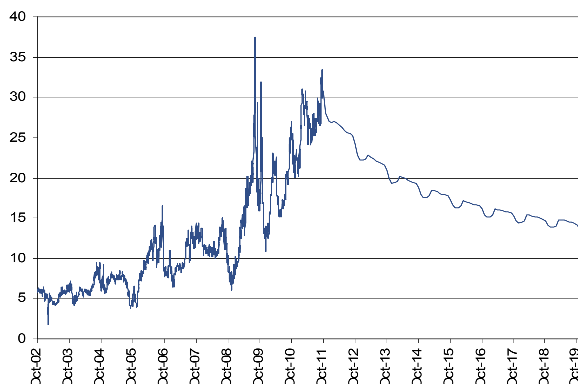
To be sure, the quantity involved is limited to close to one full 4.5-mtpa train for now, of which 3.5-mmtpa, or about 465-mm bcf/d, is contracted to BG. This amount would be high enough to raise shoulders about the eventual size of a potential US export market, but low enough to not indicate that a US net export position would have significant structural impact on global prices. Having BG, a major portfolio player with its sourcing, transport and offloading capabilities globally, as a foundation customer could help attract other deals. Final Investment Decisions would only be made and construction would begin when the proposed facility obtains financing, which would very likely require signing of a similarly-sized deal as BG did. And yet, contextually, there is potential for more export deals to come, involving conceivably, if all come to fruition, more than 50-mtpa, or 8 bcf/d in discussion. Roughly half of them are associated with Pacific Basin projects from the West Coast of Canada or the US.

Oil and natural gas prices in North America have become de-coupled with the ratio between the two more than tripling

It remains the case that many market assumptions lie behind this and other pending deals. Global natural gas markets have seen dramatic changes in supply versus demand fundamentals over the past half decade. It was a brief five years ago when Henry Hub natural gas prices were yielding the highest returns for investors among all liquid commodity contracts and when the general consensus was that the US – not China – was going to be the largest import market in the world and when more than a dozen re-gasification facilities were being licensed in North America. Since then, due to the frenzied supply response that was triggered by high prices of $10/MMBtu in North America, oil and natural gas prices have become de-coupled with the ratio between the two more than tripling.

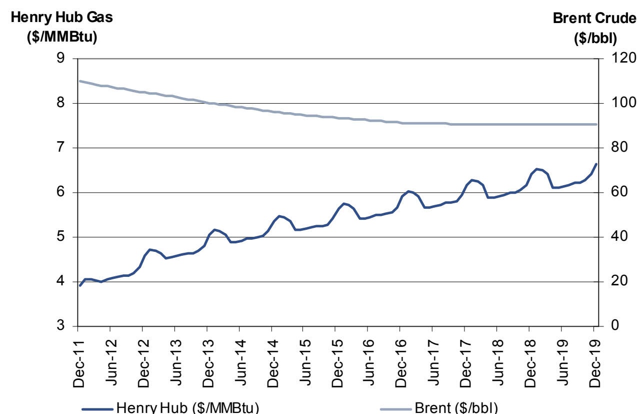
[2] The report can be accessed at: https://www.citigroupgeo.com/pdf/SNA92891.pdf

Figure 9. Oil and gas ratio (Brent vs. Henry Hub)



Source: Platts, Bloomberg, Citi Investment Research and Analysis

Figure 10. Brent crude and Henry Hub gas forwards



Source: Platts, Bloomberg, Citi Investment Research and Analysis

Brent and Henry Hub forward curves are indicating that over time the economics of US exports become questionable

But what's the rationale for believing that this blowout in the relationship between oil and gas prices in North America will continue forever? Certainly this cannot be found in the respective forward curves for crude oil and natural gas – not that forward curves should necessarily carry predictive value. Indeed, outside of North America, internationally traded natural gas, whether by pipeline or tanker, is contractually linked to oil prices. The Brent forward curve – the most liquid traded waterborne crude oil contract – has a long backwardated tail, while Henry Hub natural gas prices in the US have a seasonally wavy upward sloping contango curve, indicating that over time the economics of US exports become questionable if these curves have any predictive value.

Market Dynamics, Dynamic Markets Pose Uncertainties

Breakeven price to Europe would be $7.85 and $10.10 to Asia, using $4 Henry Hub price, and $2.25 for liquefaction

Project economics for Sabine Pass – and for other North American LNG export projects – are based on the current low US feed stock gas price delivered at the liquefaction plant. With liquefaction costs of about $2.25/MMBtu, a fuel surcharge to fuel the liquefaction of about 15% of the underlying gas prices in the $4 to $6/MMBtu range, and transport costs of about $1.0 to 1.5/MMBtu, breakeven economics require a price of $7.85 or higher delivered to Europe; with transport costs more than $2 higher to Asia, the delivered breakeven for Asia is $10.10 on a $4 US gas price.

Figure 11. Estimated cost of delivered LNG to Europe and Asia from Cheniere's Sabine Pass Project[3]

	Europe		Asia	
($/MMBtu)	**Low**	**High**	**Low**	**High**
Henry Hub Gas	4.00	6.00	4.00	6.00
Fuel (15%)	0.60	0.90	0.60	0.90
Liquefaction	2.25	2.25	2.25	2.25
Shipping	1.00	1.50	3.25	3.75
Delivered Cost	7.85	10.65	10.10	12.90
Equivalent to the Australian LNG procured at JCC price (USD/bbl) of			66	85

Source: Cheniere, Oil and Gas Journal, Citi Investment Research and Analysis

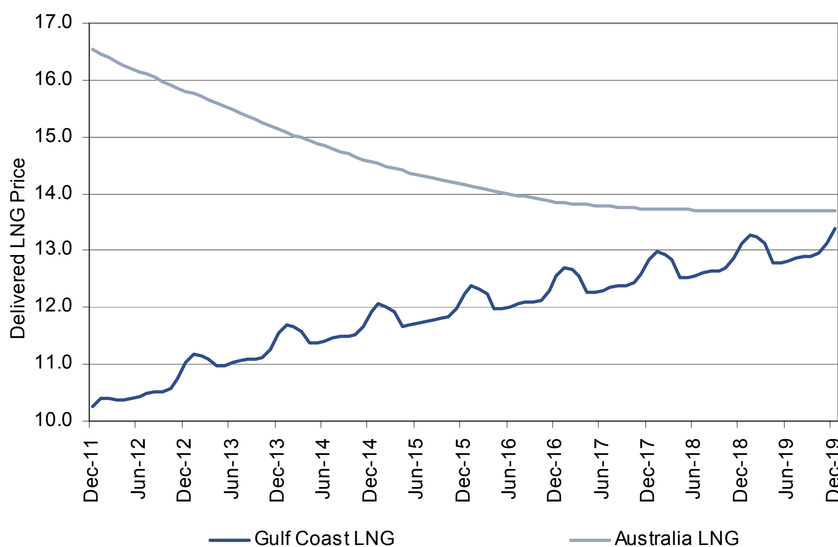
[3] The estimated oil price assumes oil price linkage of 0.145 to JCC (Japanese Custom Cleared) crude oil price, based on assumptions from Citi's Energy Research team in Australia led by Mark Greenwood

At a $6 US feedstock cost, the breakevens to Europe and Asia would rise to over $10.65 and $12.90/MMBtu

But the forward curves for oil (and oil linked natural gas) and US natural gas are moving toward convergence. At a $6 US feedstock cost, the breakevens to Europe and Asia would rise to over $10.65 and $12.90/MMBtu, respectively. To what degree are these potentially crossing oil and gas curves providing clues to the future? To be sure, a good argument can be made that gas-on-gas competition in North America and the robust supply response of unconventional natural gas would keep North American natural gas prices perpetually lower than traded gas in Europe or Asia. Public indications are that BG – as the pre-eminent global gas company, with perhaps an unrivalled ability to take advantage of regional market price discrepancies – is well placed to monetize an off-take agreement at Sabine Pass. However, beyond the year 2020, current forwards point to Australian LNG being very competitive with Gulf Coast LNG, reducing the cost advantage LNG from Sabine Pass has over projects closer in proximity, at least as far as base load competition in the Pacific Basin goes.

The forward curves for oil (and oil linked natural gas) and US natural gas are moving toward convergence

Figure 12. Delivered LNG to Asia from U.S. Gulf Coast and Australia[4]



Source: Bloomberg, Citi Investment Research and Analysis

But is there a logic to the downward sloping global crude oil price and the upwardly sloping future North American natural gas price? Perhaps. We've noted that project economics work well at a $4 feedstock. The delivered cost to Europe would be $7.85 and to Asia at $10.10, virtually locking in a profit for Cheniere so long as it can contain costs at the Sabine Pass plant. How does this fit with the likely path of N. American demand growth and market fundamentals?

[4] For Australian LNG, assume a slope of 0.145 to current Brent crude forward; for Gulf Coast LNG, assume $2.25/MMBtu for liquefaction, 15% of the current underlying Henry Hub forward for fuel and $3.5/MMBtu for shipping

Positive impact on North American demand

First, the additional demand of 0.9-Bcf/d from LNG exports starting at the end of 2015 or sometime in 2016 from the BG and a potentially similarly-sized deal, in order to get financing, would probably coincide with the start of the MACT rule[5] expected to be implemented by the U.S. Environmental Protection Agency. Both would increase North American gas demand at a time when gas production on the North American continent is still expected to be robust. The MACT rule, as its name would imply, requires coal-fired power plants to install various emission abatement equipment. The rule would force coal-fired power plant retirement that could potentially lead to 2 to 4-Bcf/d of additional natural gas demand for power generation. According to Wood Mackenzie, retirements in 2011 and announced retirements up to 2015 have already reached 20GW and retirements up to 2020 have exceeded 30GW.

More LNG project announcements, coupled with environmental rules, demand for gas from industrial feedstock, and higher heating demand, could result in a tighter North American gas market, although higher gas prices would hinge on how supply responds

However, the implementation timeline and standard of the MACT rule are still not completely certain. The Obama administration has yet to issue the final rule on MACT, though it could be expected next month. Yet, the opposition to another environmental rule - Cross-State Air Pollution Rule (CSAPR) - that is still set to begin in 2012 may foretell the scale of protest around MACT. Even so, EPA rules could lead to a sharp rise in natural gas demand by the middle of this decade and would be strongly supportive of prices even without additional natural gas demand for LNG exports. If more LNG projects are announced, LNG demand alone could rise by 3 or 4 times the amount involved in this first Sabine Pass train. Couple this with nearly inevitable extra demand for natural gas for industrial feedstock and higher demand for residential/commercial space heating, and the result could be a suddenly tighter market, although higher prices still hinge on how quickly North American gas production would grow between now and then.

Exploiting geographical diversity and seasonality of export needs

Exports timing might allow the shipper the option of sending spot gas to South America and Asia where seasonal peaks are at opposite ends of the year

A second more favorable factor is, however, also at work – the timing of exports might allow the shipper, in this case BG, the option of sending spot gas to multiple destinations, including South America and Asia where seasonal peak requirements work at opposite ends of the year. In Latin America, for example, no one is currently predicting an end to natural gas price controls in Argentina, where last year LNG imports amounted to 23 cargoes and this year are on track to surpass 50, with two regasification terminals now open. 2012 demand is projected to require up to 80 cargoes and the Sabine Pass terminal is perfectly placed to garner a share of this lucrative market, where spot winter purchases have been $20/MMBtu or even higher.

[5] EPA's MACT, or Maximum Achievable Control Technology, is a rule that mandates a reduction of coal-fired power plants' emission of air toxics, including mercury.

Figure 13. Proposed LNG export projects in the U.S. and Canada

Project	Location	Company	Start up	Size (Bcf/d)	Size (mtpa)
Filed for regulatory approval					
Sabine Pass	Louisiana, US Gulf Coast	Cheniere	2015	1.2	9
Lake Charles	Louisiana, US Gulf Coast	Southern/BG	TBD	2	16
Freeport LNG	Texas, US Gulf Coast	Freeport/Macquarie	2015	1.4	11.2
Kitimat LNG	British Columbia, Canada	Apache/EOG/Encana	2015	0.7	5.6
LNG Export Co-op	British Columbia, Canada	LNG Partners/Haisla	2014	0.12	1
Subtotal					42.8
Under consideration					
Cove Point	Maryland, US East Coast	Dominion	2016	TBD	
Jordon Cove	Oregon, US West Coast	Fort Chicago/Energy Projects	2016	TBD	
Prince Rupert	British Columbia, Canada	Shell, KOGAS, Mitsubishi, PetroChina	NA	1-2	8-16
Total					50+

Source: Cheniere, Reuters, Citi Investment Research and Analysis

With the expansion of the Panama Canal set for 2014, the trip to Asia could be reduced by one-third, as there is no need to go around Argentina. As most established gas consumers in Asia, such as Korea, Japan, and Taiwan, are not endowed with any sort of sizable gas production, they remain captive to high LNG spot pricing if they need the gas. Asian spot buyers have paid even more than Argentina for individual cargoes to meet peak winter demand and where domestic price subsidies don't exist to interfere as they do in Argentina with local supplies.

But the players setting the margin going forward would be China and India. The contribution these two countries have on the total demand in the region could increase the need for extra LNG cargoes, including those from the U.S. China's national 12th Five Year plan, which aims to increase gas demand to 260-Bcm by 2015, or nearly 150% growth from 2010 levels. Meeting the expected demand growth in Asia would require multiple sources: Australian's offshore production coming through, Middle-East supply staying robust, Indonesia's already declining exports not largely absorbed by domestic use, and pipeline gas from Central Asia and even Russia, if a deal is reached after years of negotiation. North American gas exports to the region, either from the West Coast of Canada or from the Gulf Coast of the U.S., should be able to provide the marginal tanker of supply, even if baseload requirements for Asia might be economically out of reach.

Pricing based on underlying commodity – Gas – not Oil

There are lots of signs that tight oil indexation for LNG may be at risk

Third, and posing a risk for North American LNG exports, are market dynamics in Europe and Asia. Cheniere has managed to set the price it is charging to a traded hub natural gas spot price. European and Asian oil indexed natural gas prices are benchmarked to spot oil prices that are currently significantly higher than US natural gas prices. As indicated above, North American spot prices could rise substantially with a surge in demand outstripping prompt supply by mid-decade. But competitive pressures in Europe and Asia are working in the opposite direction, even if for this past year in the aftermath of Japan's earthquake and tsunami disaster, natural gas demand managed to soak up all surplus LNG supply. That's unlikely to ever happen again to the degree it did this year, with nearly 0.5 to 1 Bcf/d surge at various times in Japan's LNG requirements post-Fukushima. There are lots of signs that tight oil indexation may be at risk.

In Europe, the zone of gas-on-gas competition has extended from the UK to parts of Continental Europe, with infrastructure improvements and increasing supply diversity gradually forcing gas pricing away from oil-indexation. On infrastructure, increased pipeline linkages via the Interconnector between the U.K. and Belgium

and the BBL pipeline between the Netherlands and U.K. transmit price movements in the NBP to Continental Europe. NBP is a U.K. gas benchmark more fundamentally driven by gas not tied to oil. Spot prices in European trading hubs, particularly at Zeebrugge in Belgium, TTF in the Netherlands, NCG in Germany and others, are reflecting spot NBP pricing due to the need to balance daily supply and demand – a reflection of fundamentals of the gas market, not oil. To be sure, in many cases this gas-on-gas competitive hub prices only a small share of total deliveries, but that share is growing. On supply, higher LNG imports add to the supply mix dominated by oil-linked pipeline supply, especially from Russia. In particular, additional LNG imports into the U.K. increase U.K.'s flexibility in supplying Continental Europe, thereby linking and incorporating supply-demand conditions in both locations into some gas price indices, such as the ones just mentioned above.

To the degree there is convergence between US and rest of world gas prices, the arbitrage economics on which all North American LNG export projects depend are also at risk

To the degree there is convergence between US and rest of world gas prices, the arbitrage economics on which all North American LNG export projects depend are also at risk. Further, the anticipated tightness in the global LNG market would begin to loosen up as projects in Australia comes on in 2016 and beyond, according to a recent report entitled "*The LNG landscape*" (Sep 14, 2011) by Citi's equity energy research team in Australia, led by Mark Greenwood, and Citi's E&P equity analyst Robert Morris' note on "*LNG Exports Appear Economically Feasible At This Juncture*" (Sep 22, 2011)

Diversifications of revenue and sourcing

Fourth, the rest of the liquefaction capacity not subscribed by BG allows Sabine Pass to supply gas in the short-term or spot market if prices overseas are favorable for Sabine Pass to liquefy and capture the upside. (This assumes that the second train at Sabine Pass would have a similarly-sized deal subscribed by a foundation customer.) However, this gas may truly represent the marginal tanker, as the Gulf Coast remains far from major demand centers in Asia, while the European LNG market is supplied by nearby Middle East, African and Atlantic basin sources. However, signing up one or two other customers, who would be seeking 1 to 2 mtpa of LNG may provide the revenue certainty needed for the project instead.

LNG does not necessarily have to be sold as baseload but as a diversification measure, both on price and geography, for some global midstream player

LNG does not necessarily have to be sold as baseload in this case but as a diversification measure, both on price and geography, for some global midstream player, for example. Other global midstream players similar to BG, whose extensive network of sourcing, transport, and offloading capabilities, can purchase the gas and diversify its gas supply mix. Conducted this way, Sabine Pass, as a standalone entity trying to sell uncontracted gas but without the shipping capability, would transfer the enormous risk of not having dedicated revenue for the gas to another so-called portfolio player. The portfolio player, with its resource and reach, could then leverage this non-oil-linked gas as a diversification strategy – taking on risk to reduce risk. Gulf Coast LNG may also take advantage of its location to supply cargoes to South America, Europe or even the Caribbean, whose gas needs are rising, besides other conventional locations.

However, one should note that there are factors that would reduce the appeal of the U.S. as a supply source. A narrowing of the oil-and-gas spread out the forward curve, and a potential loosening of the global LNG market post-2015 due to increase in the number of LNG liquefaction facilities could make spot cargoes from the Sabine Pass terminal too expensive in relative terms to other LNG producers.

Putting the Pieces Together

Implementation of these LNG projects provides another set of steps by which the North American natural gas market is becoming integrated with global markets

Undoubtedly implementation of these LNG projects provides another set of steps by which the North American natural gas market is becoming integrated with global markets. All of the planned projects have a long way to go, still, before becoming reality. Construction would not begin until mid 2012 at the earliest, and many steps remain to be taken, including a final FERC approval.

Even so, there are a number of moving parts that need to be fitted together if North America is to become a significant LNG exporter. First, on the cost side, the price of gas at Henry Hub, even at the current $4/MMBtu neighborhood, still remains higher than Qatar gas or Yamal peninsula gas. With the sale of liquids, Qatar is able to effectively lower the cost of gas to negligible levels and extraction costs in Northwestern Siberia are no more than 50¢/MMBtu. Going forward, if North American demand were to rise at a faster pace, due in part to domestic environmental rules such as CSAPR or MACT, a renaissance in gas-related industrial demand on low feedstock and fuel costs, and higher exports activities, the gas supply-demand balance could tighten as noted above. Even though one could expect producers to increase production when demand and price improve, limiting price increases, the low-cost advantage of North American gas would be eroded.

Second, on the price of gas beyond North America, the price premium Asia or other foreign markets have over U.S. Henry Hub or Canadian AECO prices is partly supported by high oil prices in their indexation on gas pricing. European trading hubs, such as NBP in the UK and increasingly TTF in the Netherlands and NCG in Germany have already broken away from the oil linkage, although at times European market prices can even exceed the oil-linked price. Emerging Asian LNG price assessments, perhaps in the form of the Japan Korea Marker, may begin to provide price indications that deviate from LNG pricing indexed to oil as well. If the oil market remains tight and price increases over the long haul, while North American gas price remains low on over-supply, then the favorable condition remains for North American to export even substantial volumes of LNG. But if those favorable factors are not in place, North America, being much farther away from major LNG consuming hubs, may see its cost advantage and price discounts to overseas levels erode. This will limit gains in LNG exports.

US LNG exports are likely to have an important role to play in balancing global gas markets

In short, US LNG exports – and Canadian LNG exports, not addressed in this report – are highly likely. But no one should, at this stage, expect them to play a major role in base load supply. Still, they are likely to have an important – and profitable – role in balancing markets.

Reliance Industries

Company description

Reliance Industries (RIL) is a conglomerate with interests in upstream oil & gas (E&P), refining, and petrochemicals. It has commissioned a super-size refinery project through RPL (now merged with itself) and has commenced gas production at its large gas find in the D6 block in KG basin. RIL is foraying into organized retailing and has plans to undertake SEZ projects over the medium to long term.

Investment strategy

We rate RIL as Buy (1) with a Rs1,001 target price. We expect RIL's core refining and petrochemicals businesses to remain stable. Continued cotton tightness should sustain margins across the polyester chain, benefiting Reliance. We expect refining margins to remain stable given major new capacity additions in China/Middle East are expected only 2014-15 onwards. We believe that while further clarity on ramp-up of KG gas is still awaited, the deal with BP is nevertheless a positive as it should ratify RIL's capex in KG-D6 and should eventually provide clarity on production ramp-up. A ~20% premium to NAV of known reserves looks justified for the E&P business given new discoveries, access to BP's technology, and stakes in several prospective deepwater blocks. In addition, we believe gas prices are set to structurally rise in India, as exemplified by higher prices approved by the government for production from new fields by a large upstream PSU. Any willingness on the part of the government to increase KG gas price (which, along with APM gas, is now the cheapest in the country) would be a positive surprise.

Valuation

Our Rs1,001 target price is based on a sum-of-the-parts methodology (Rs971/sh), to which we explicitly add the NPV of the shale gas JVs of Rs30/sh. Our SOTP is derived by: 1) Valuing RIL's core petchem and downstream oil business on an EV/EBITDA of 6.5x FY13E which yields a value of Rs611/sh; 2) Valuing total E&P assets including oil & gas prospects and other blocks at Rs204/sh based on a 20% premium to NAV of known reserves; 3) Valuing investments in the organized retail business, SEZ, telecom, etc. at Rs47/share, based on book value of investments so far; 4) Valuing treasury stock at a 25% discount to target price; 5) Subtracting net debt/(cash) estimated as on Mar-12E (net of capex on future expansion projects such as petchem but including the full impact of the deal with BP) of (Rs142)bn or (Rs43)/sh.

Risks

RIL's core refining and petrochemicals businesses remain stable, which partly offsets risks on slower KG ramp-up. The key downside risks to our investment thesis on RIL are: 1) Its margins are exposed to the global refining and petrochemical cycles, which could be impacted in the eventuality of a global macro slowdown; 2) Further delays in ramp-up of production of KG-D6 gas and negative newsflow on KG-D6 capex; 3) delays in the drilling programme and/or negative newsflow for the other blocks (D9, D3, MN-D4); 4) Charges against RIL pertaining to a 2007 case regarding insider trading in shares of RPL (an erstwhile subsidiary), which could impact stock sentiment; 5) lack of clarity on deployment of cash and/or announcements on unrelated diversifications. If any of these risk factors has a greater downside impact than we anticipate, the share price will likely have difficulty attaining our target price.

Appendix A-1

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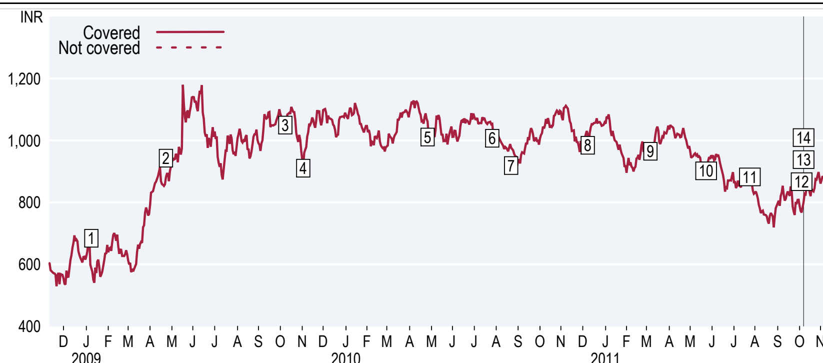
IMPORTANT DISCLOSURES

Reliance Industries (RELI.BO)

Ratings and Target Price History
Fundamental Research

Analyst: Saurabh Handa
Covered since June 18 2010



	Date	Rating	Target Price	Closing Price
1	8-Jan-09	1M	*737.50	598.40
2	23-Apr-09	*2L	*917.50	881.18
3	8-Oct-09	2L	*1,100.00	1,059.60
4	3-Nov-09	*1L	1,100.00	910.33
5	27-Apr-10	*2L	*1,150.00	1,061.10
6	27-Jul-10	2L	*1,140.00	1,053.50
7	23-Aug-10	*1L	1,140.00	976.40
8	8-Dec-10	1L	*1,184.00	1,019.10
9	7-Mar-11	1L	*1,120.00	976.15
10	24-May-11	1L	*1,115.00	915.25
11	25-Jul-11	1L	*1,082.00	882.15
12	5-Oct-11	1L	*1,001.00	767.25
13	7-Oct-11	Stock rating system changed		
14	7-Oct-11	*1	1,001.00	801.45

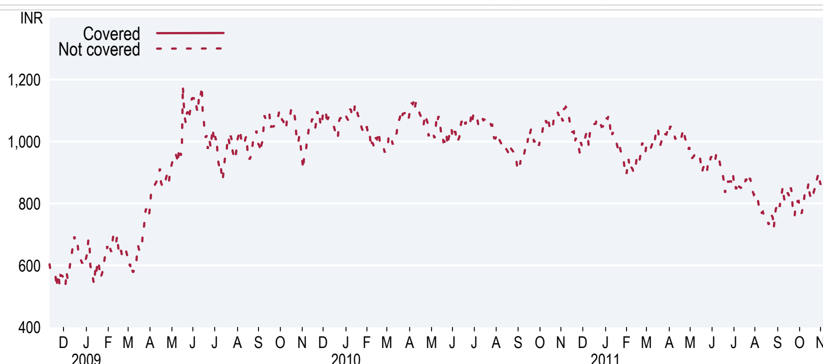
* Indicates change

Rating/target price changes above reflect Eastern Standard Time

Reliance Industries (RELI.BO)

Ratings and Target Price History
Best Ideas Research
Relative Call (3 Month)

Analyst: Saurabh Handa
Covered since June 18 2010



* Indicates change

Rating/target price changes above reflect Eastern Standard Time

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