INDIA RESEARCH
COMPANY UPDATE
OIL & GAS

March 2011

Essar Oil Limited
Taking the Big Leap

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INITIATING COVERAGE

Essar Oil Limited

Taking the big leap

8 March 2011

Investment summary

We initiate coverage on Essar Oil Limited (EOL) with a BUY recommendation and a target price of INR171/share. We expect refinery margins to remain strong for the next 2-3 years led by strong diesel demand and recovery in light heavy spreads. Vadinar refinery expansion is thus expected to come at the right time of investment cycle, benefitting EOL. Company's foray into CBM and commencement of production at Raniganj would provide significant early mover advantage. Furthermore, signing of PSC agreement for Ratna R series field and progress on exploration process in other prolific E&P blocks (both domestic and international) are likely to act as future catalysts for growth.

Capacity expansion comes at the right time of investment cycle

EOL's Vadinar refinery expansion, from 14mmtpa to 20mmtpa, comes at the right time of refinery investment cycle. Post expansion, EOL would benefit from: i) larger refinery at competitive capital cost; ii) product slate biased towards higher value-added products; and iii) improving light-heavy differentials. We expect EOL to post a clean GRM of USD7.4/bbl and USD8.3/bbl in FY12e and FY13e, respectively (excl. sales tax benefit).

CBM - early mover advantage

EOL's CBM portfolio comprises of five blocks with total 2P reserves of 201bcf and prospective best estimate resource of 5.5tcf. Raniganj is the only producing CBM block currently. EOL joins the league with GEECL and ONGC of being the only players to start CBM production in India, thus providing early mover advantage to EOL. We assign an NPV value of INR39bn (INR29/share) for its Raniganj block implying a resource multiple of USD5.2/boe. We assign a significantly lower resource multiple of USD1.2/boe for the Rajmahal CBM block due to early stages of exploration. EOL has another 4.4tcf of unrisked resource in place, where exploration activity is yet to commence, and thus, not accounted in our valuations.

Option values - to act as future catalysts

Signing of PSC agreement for Ratna R-series field will help unlock an option value of INR23/share. We employ DCF methodology to value the field implying a valuation of INR46/share but currently assign a 50% valuation weight to our valuations. Progress on diesel price de-control would also enable EOL to capitalise on its strong retail network.

Valuation and outlook

We recommend a BUY on EOL with SOTP-based target price of INR171/share implying a potential return of 53% from current levels.

BUY	
CMP	**: INR112**
Target Price	**: INR171**
Potential Upside	**: 53%**

Market data

Sector	:	Oil & Gas
Market Cap (INRbn)	:	152
Market Cap (USDbn)	:	3
O/S Shares	:	1,366
Free Float (m)	:	1,187
52-wk HI/LO (INR)	:	161/95
Avg Daily Vol ('000)	:	1,803
Bloomberg	:	ESOIL IN
Reuters	:	ESRO.BO

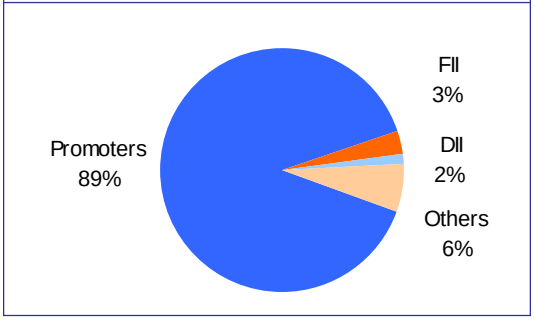
Source: Bloomberg

Returns (%)

	1m	3m	6m	12m
Absolute	(2)	(15)	(12)	(25)
Relative	(3)	(6)	(10)	(30)

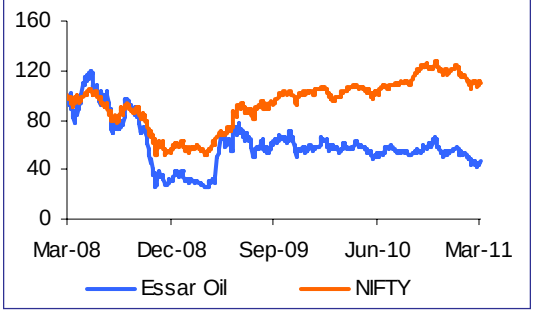
Source: Bloomberg

Shareholding pattern



Source: BSE

Price performance *vs* Nifty



Source: Bloomberg

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Valuations

We value EOL based on SOTP methodology.

SOTP valuation

Valuation of Essar on FY12e financials

Partculars	Resources accounted in valuations	Methodology	Value (INRbn)	Value (INR/share)
R&M (including sales tax benefit)		DCF	213	156
Raniganj CBM	930bcf (2C+Prospective resource)	DCF	39	29
Rajmahal CBM	4.7tcf (Prospective resource)	Multiple - USD1.2/boe	43	31
Ratna/R Series (Oil 2C) (MMbbl)	140MMbbls (Gross 2C resource)	DCF with a 50% probability	31	23
Nigeria - 2C resource	36MMbbls (2C+Prospective resource)	Multiple - USD4/boe	6	5
Less: Debt (FY11 end)			(99)	-73
Total equity value			**233**	**171**
No of shares (bn)			1.366	

Source: Antique

- Refining and marketing divisions has been valued at INR213bn (INR156/share) using DCF methodology. We have assumed expansion of Vadinar refinery to 18mmtpa by 1HFY12e and to 20mmtpa by 2HFY13e. Our valuations also include sales tax deferral benefit of INR91bn implying an NPV benefit of INR10/share.
- We value EOL's Raniganj CBM block at INR39bn (INR29/share) using DCF methodology, implying a resource valuation of USD5.2/boe. Our valuation comprises both Phase-1 and Phase-2 development.
- We value Ratna and R-series field at INR62bn (INR46/share) using DCF methodology implying a resource valuation of USD20/bbl. We however assign a 50% valuation weight to our DCF valuations as we await signing of PSC agreement for the block. We are currently assuming INR2,625/ton of cess and 10% of royalty in our valuations for the block.
- Rajmahal CBM block is valued using a resource multiple of USD1.2/boe, significantly lower than that derived for Raniganj CBM block due to early stages of exploration.
- For the Nigerian block, we currently account for only oil reserves in our valuations. Resource valuation includes 2C net oil reserves of 11MMbbl and 50% of prospective oil resources of 49MMbbl. We assign a resource multiple of USD4/boe implying a valuation of INR5/share.

Key financials

Year ended March	2010a	2011e	2012e	2013e
Net Revenue (INRbn)	365,046	448,906	470,540	497,582
EBITDA (INRbn)	10,659	26,539	33,444	44,808
EBITDA growth (%)	na	149	26	34
PAT (INRbn)	295	6,320	9,112	15,203
PAT growth (%)	na	na	44	67
EPS (INR/share)	0.3	4.6	6.7	11.1
EPS growth (%)	na	na	44	67
PE (x)	na	24	16	10
PB (x)	2.8	2.8	2.4	1.9
EV/EBITDA (x)	23.4	9.4	7.5	5.6
ROE (%)	0.6	11.6	14.3	19.3

Source: Company, Antique

Key macro risks to our earnings forecasts and ratings

- Domestic or global economic slowdown may dampen refining demand and thus impact our refinery margin assumptions.
- Volatile crude and oil product prices may affect refining margins and earnings.
- Delays in commissioning of Vadinar expansion project could affect our throughput assumption and valuation.
- Regulatory delays in signing of PSC agreement for Ratna R series field beyond 1QFY12e could impact our DCF assumptions for the field.
- Volatility in foreign exchange may increase costs of key feedstock (crude oil), which is denominated in US dollars.
- Any adverse regulatory change with respect to direct or indirect taxation may affect our earnings and DCF estimates.

Refiners - Back in demand

Refiners witnessed three years (2008-10) of sluggish refinery margins on account of depressed demand in oil products and significant addition in refinery capacity over the same period. However, oil products demand in 2010 had bounced back very sharply with a growth of 2.7MMbbl/d, according to IEA. Several industry participants expect continuation of strong demand growth over the next few years led by China, India and other emerging markets.

Our refinery capacity addition model suggests a slowdown in refinery capacity addition over next few years and also refinery closures to help the refiners. We do not expect total refinery throughput levels to increase significantly in the near term due to delayed refinery expansion plans, ~3MMbbl/d of refinery capacity closures announced (both temporary and permanent) as well as increasing trend of unplanned outages as 41% of refineries are being operated globally for 40 years and above.

Bounce back of oil products demand led by strong diesel demand

We thus believe that refining margins are expected to remain in an upward trajectory structurally over FY11-13e before next wave of capacity addition moderates that growth.

We see distillate demand led by industrialization and transportation demand from emerging markets to be the key driver of oil products demand. Distillate yield biased Asian refiners like Essar Oil are therefore expected to be in a sweet spot, in our view.

Spreads over Brent (USD/bbl)

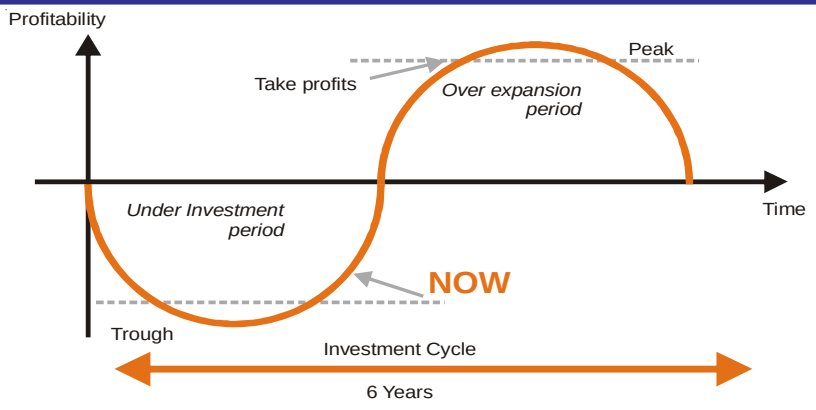
	FY07	FY08	FY09	FY10	FY11e	FY12e
Gasoline	11.9	12.9	10.2	9.0	10.0	10.0
Diesel	12.7	13.6	23.2	8.0	12.5	15.0
Singapore GRMs	6.2	8.0	6.1	3.0	5.0	5.5

Source: Bloomberg, Antique

Valuing the refiners

Refining industry is cyclical and at various points different valuation tools need to be applied. As we recover from the trough of the cycle and move towards the peak point, we have to derive the valuations using higher earnings multiple to factor in higher earnings. For EOL, we employ DCF methodology for valuation as full benefit of refinery capacity expansion will be realised in 2HFY13.

Refining investment cycle



Source: Antique

Global oil demand - It's all the way up

Global oil demand has been on an upward trajectory in 2010 after experiencing last two consecutive years of decline. Growth in the next few years is expected to take place in the non-OECD countries, mainly China, India, Middle East and Latin America. While OPEC estimates oil demand to grow by 1.2MMbbl/d in 2011, other agencies like IEA, EIA and CERA project a much higher growth of 1.4MMbbl/d on an average. Thus, demand is expected to reach 88MMbbl/d in 2011, surpassing the previous all-time high of 86.8MMbbl/d in 2007. In fact, as per CERA, the cumulative decline of 2.1MMbbl/d in oil demand during 2008 and 2009 is expected to be covered by 1QCY11 itself on account of strong oil demand growth in non-OECD countries.

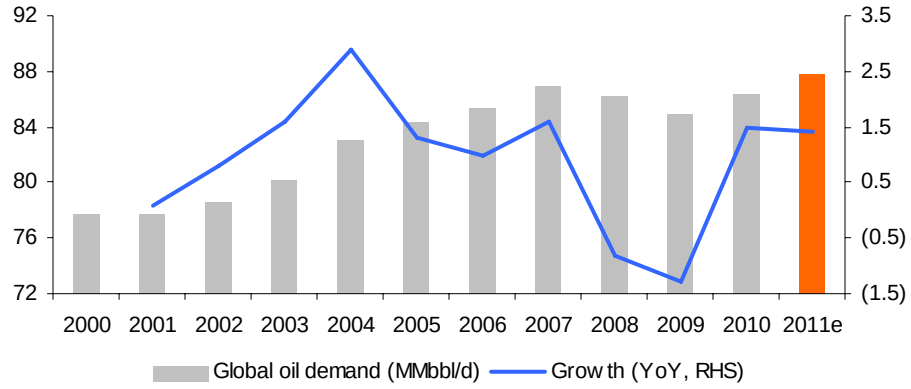
Global oil demand growth forecast for 2011 by various global agencies

MMbbl/d	2010	2011e
IEA	2.7	1.4
OPEC	1.6	1.2
EIA	2.4	1.5
CERA	1.4	1.6
Average	**2.0**	**1.4**

Source: Industry reports, Antique

Global oil demand in CY11 expected to surpass the previous all time high in 2007

Global oil demand - Back to its all time high

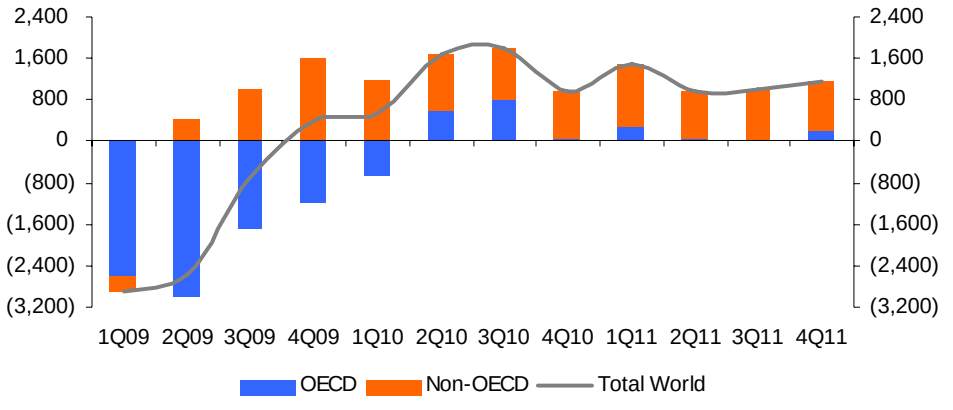


Source: Industry, Antique

Forecasted oil demand growth will be driven by two key factors:

- **OECD oil demand decline slowing down:** OECD's oil demand averaged 46.1MMbbl/d in 2010, up 700mbbl/d, but projected to resume its structural decline in 2011 to the tune of 200mbbl/d YoY. OECD's oil demand has been on a structural decline since 2005 and has already lost almost 4MMbbl/d in the last three years alone. However, the drop-off was very steep over the past several years which is now gradually shrinking and even grew last year.

Expected global oil demand growth (YoY, Mbbl/d)

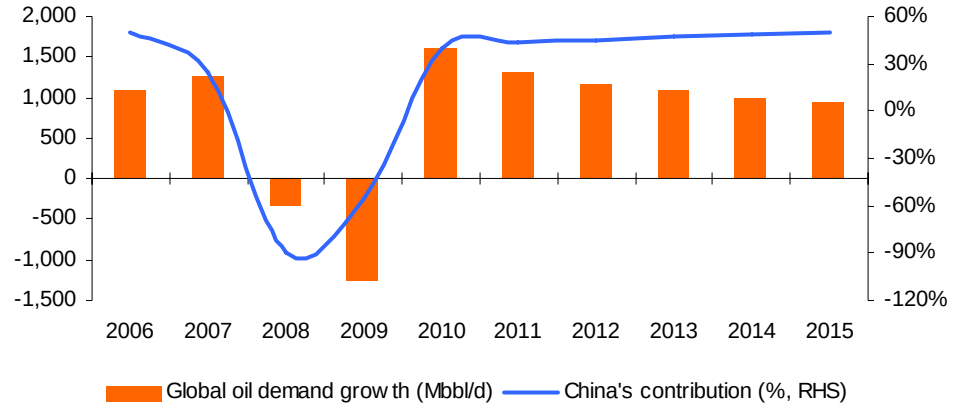


Source: IEA, Antique

As per IEA, China to contribute ~30% of Non-OECD oil demand growth this year

- **Non-OECD region - The key growth driver:** Oil demand continues to grow at a buoyant pace in Non-OECD region. Most recent estimates from IEA project non-OECD oil demand of 43.2MMbbl/d in 2011 (up 1.6MMbbl/d YoY) compared to 42.5MMbbl/d forecasted in July last year. Around 30% of the growth in 2011 is estimated from China with Chinese oil demand projected to grow by around 450mbbl/d. Much of the OECD growth is expected from distillate fuels which account for roughly one-third of total growth. Off late, Chinese distillate demand also shot up as factories turned to diesel-based electricity generation amid government mandated closures of coal-fired power plants. Infact, in December last year, China turned net importer of diesel in December for the first time in last 2 years on account of robust diesel demand growth.

China's increasing contribution in global oil demand growth (Mbbl/d)



Source: IEA, Antique

Supply not expected to keep pace with demand

We carried out a detailed study of more than 70 refinery projects worldwide (both greenfield and brownfield) and analysed their updated schedule of commissioning. Our analysis reveals that around 1.5MMbbl/d of new refining capacity has come online in 2010, of which 60% has been from Asia Pacific (particularly China).

Oil products market to remain tight in the medium term due to expected slow down in refinery expansion projects and rebound in oil products demand

Another 1.6MMbbl/d of announced projects is expected to come on-stream in CY2011-12. This includes both new refineries as well as upgradation of existing ones. However, following aggressive capacity expansion in 2009-10, forthcoming projects could slowdown or experience delays largely due to delay in refinery capex plans by majors, rise in operating costs and environmental pressures, in our view. Valero had last year estimated that the carbon cap-and-trade legislation, if enacted, could cost the industry more than USD67bn a year. China which has seen the highest growth in refinery capacity in the last two years is also expected to slowdown as government will make efforts to hold total capacity slightly below oil consumption to protect margins.

However, even if we do not assume any delays in the announced projects for the next two years, the oil products market is expected to remain tightened due to recovery in oil product demand during that period.

Capacity addition not expected to keep pace with demand growth

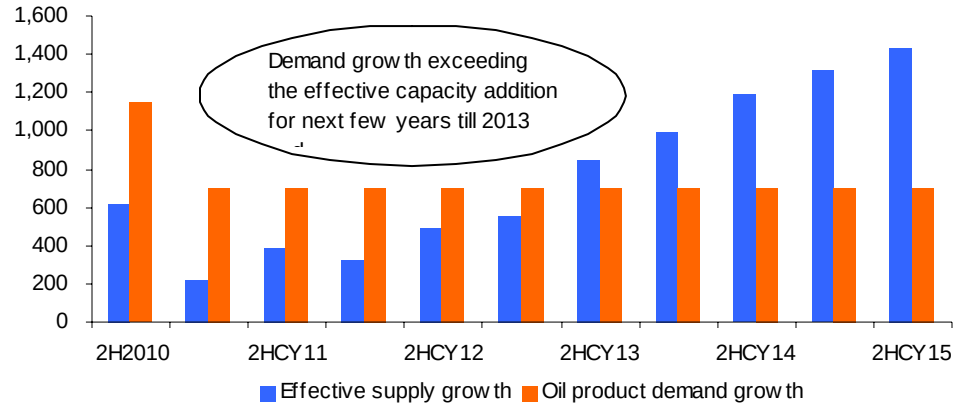
Year (Mbbl/d)	2009	2010	2011e	2012e	2013e	2014e	2015e
Refinery capacity addition	1,900	1,460	712	971	1,645	2,575	3,235
Refinery closures	1,775	1,026	329	200	150	150	150
Net capacity addition	125	434	383	771	1,495	2,425	3,085
Demand growth	(1,200)	2,500	1,400	1,400	1,400	1,400	1,400
Cumulative supply growth	125	559	942	1,713	3,208	5,633	8,718
Cumulative demand growth	(1,200)	1,300	2,700	4,100	5,500	6,900	8,300
Net balance (shortfall)	1,325	(741)	(1,758)	(2,387)	(2,292)	(1,267)	418

Source: IEA, Industry reports, Antique

We have assumed that refineries which have been permanently closed are not expected to return and oil demand growth expected to be in line with industry estimates of 1.4MMbbl/d till 2015. We see tightening of oil products market in 2011-14, assuming all announced projects to come online as planned.

Though we anticipate a refining capacity addition of 9.2MMbbl/d over FY11-15e, 5-7MMbbl/d is expected to be added FY14e onwards. About 3.2MMbbl/d of capacity addition is expected at the end of forecasted period in FY15e. However, these projects are largely big ticket capacity expansion projects announced in Middle East, which are currently at very initial stages of expansion and run a high risk of delays even beyond FY15e.

Demand growth exceeding the effective capacity addition till 2013 end (Mbbl/d)



Source: Industry reports, Antique

Expected major refinery capacity addition during 2011 to 2013

Refinery capacity additions (Mbbl/d)

Refinery	2011	Refinery	2012	Refinery	2013
CNPC-Yinchuan	100	Nizhnekamsk Refinery Project	140	Port Arthur Motiva Expansion	325
Bhatinda Refinery	180	Tuapse Refinery Project	140	Paradip Refinery	300
Bina Refinery	120	Vadinar Refinery Project	120	CNPC-Pengzhou	200
Gdansk Refinery	90	Jinling	100	Tianjin Refinery	200
MRPL	80	Persian Gulf Refinery Project	88	Comperj	150
Total	**570**		**588**		**1,175**

Source: Industry, Antique

Refinery closures in 2010

(Mbbl/d)	
Negishi	70
Mizushima	110
Oita	24
Kashima	21
Chiba	20
Yokkaichi	50
Sakaide	30
Dunkirk (Total)	141
Gonfreville (Total)	94
Montreal refinery (Shell)	130
Showa Shell/Toa Oil Ohgimachi Factory	120
Holly Corp (Tulsa)	35
VA Refinery (Western Refining Yorktown)	71
Reichstett Vendenheim Refinery (PetroPlus France)	85
Kaohsiung Refinery (CPC Taiwan)	25
Total closures in 2010	**1,026**

Source: Industry reports, Antique

Refinery closures - To help surviving refiners

Weak operating environment and rising costs forced several refiners worldwide to close their refineries during CY09-10, both temporarily and permanently. In Europe alone, a total of 370Mbbl/d capacity has been permanently shut with more capacity closures expected in the coming years.

In Feb 2010, Total announced permanent closure of its 140Mbbl/d Dunkirk refinery and had earlier disclosed plans to shave off 500Mbbl/d capacity by 2011 due to tough operating environment. Several companies like Petroplus have started to convert their refineries to storage terminals. Apart from already announced closures, several refineries have been identified as closure candidates like Chevron's Pembroke and Conocophillips' Wilhelmshaven.

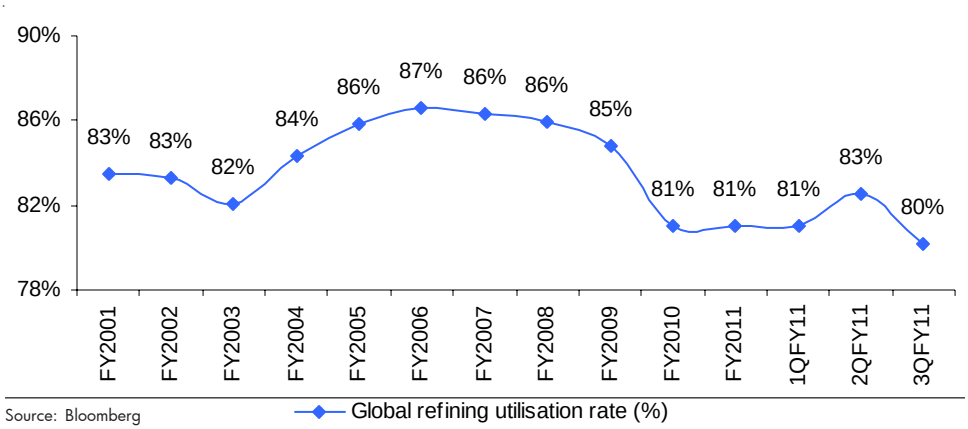
Other OECD countries like Japan face surplus refining capacity and have announced most number of refinery rationalisation and closures. Japan has already announced 400Mbbl/d of refinery closures which are either shut or scheduled to be closed by 2011 and another 740Mbbl/d of capacity closures have been indicated.

Refinery utilisation rates - Difficult to reach the peak

The decline in global demand has led to markedly lower refinery utilisation in the last two years. Utilisation rates dropped by about 5% from pre-crisis levels to 81%, a level last seen a decade back!

Apart from low oil demand which was down by 1MMbbl/d, refinery capacity increased by 2MMbbl/d, further depressing refinery runs.

Global utilisation rates affected by outages/refinery closures



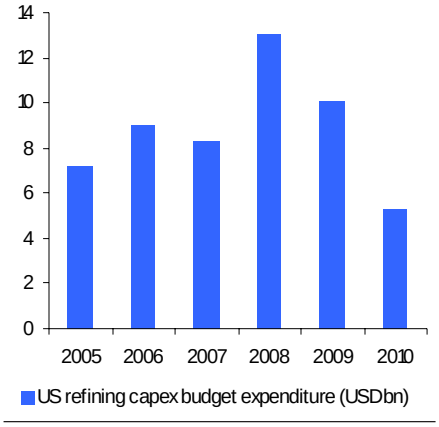
Source: Bloomberg

Though refinery utilisation rates are expected to improve but would not recover back to peak levels due to following reasons:

US refinery runs to remain subdued

The collapse in US demand and the resultant pressure on near term cash flow has significantly affected independent as well as integrated refiners' investment plans. US refinery runs had dropped to less than 80% in early 2010 and remains 3-5% below its last five-year average. Refinery investments in 2010 have dropped by about 50% from 2009 levels and by about 60% compared to 2008.

US refinery investments under pressure



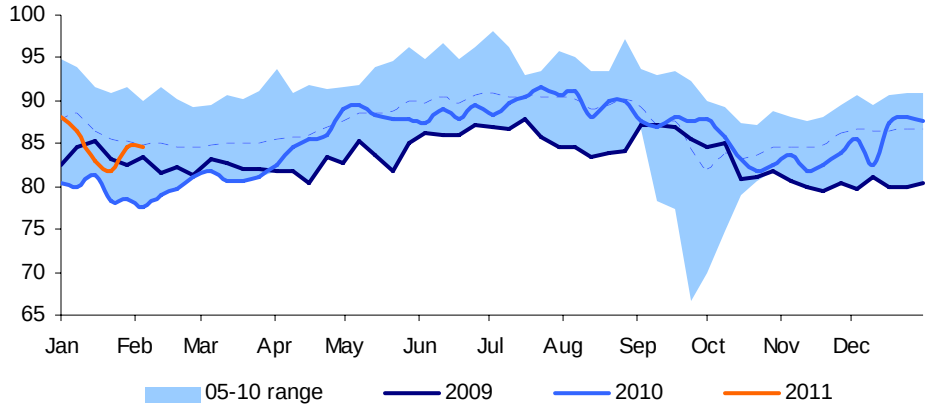
Source: Oil and Gas Journal, Antique

We believe that US would find it difficult to increase refinery runs significantly in the near term due to weak product margin support. US refiners are gasoline biased with about 45-50% of the slate composed of gasoline. US oil product demand continues to be on a structural decline. While Asian gasoline spreads have recovered to USD14/bbl in 2011 compared to an average of USD10/bbl in 2010 and a five-year average of USD12/bbl, huge inventory build up in US will cause the crack spreads to converge to its 5 years average levels. Moreover, gasoline already remains over-supplied in US and any significant increase in refinery runs could depress gasoline margins.

North American and European refineries are currently producing diesel nearby their peak production in 2008 and technically have very little spare capacity to produce more diesels, jet fuel, and other middle distillates. At their peak in 2008, US refineries produced 4.5MMbbl/d of distillate fuel compared with current levels of 4.2MMbbl/d, while European refineries produced a maximum of 5.7MMbbl/d compared with current levels of 5.2MMbbl/d. However, these refineries are running at much lower utilisation rates, even though producing the same volume of diesel as in 2008. Thus, if they improve further, it will lead to higher gasoline production, impacting gasoline cracks, which will make improving runs less feasible.

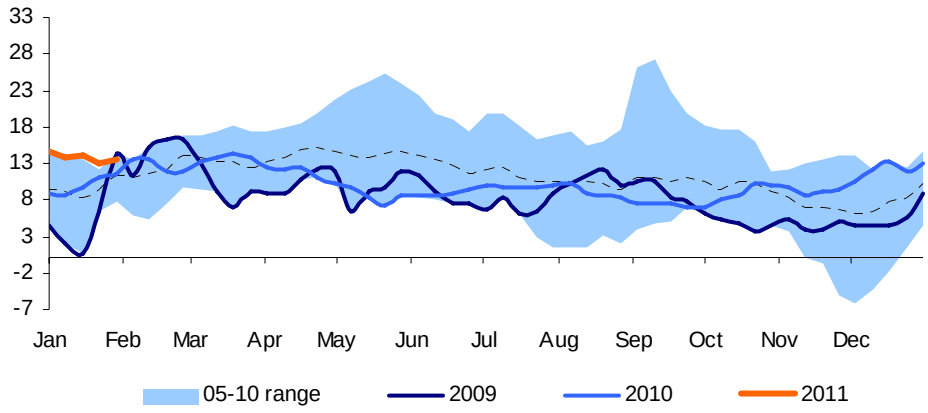
US refinery utilisation rates weakened recently due to inventory build up at Cushing, Oklahoma

US refinery utilisation rates (%)



Source: EIA, Antique

Gasoline-Dubai crack spread (USD/bbl)



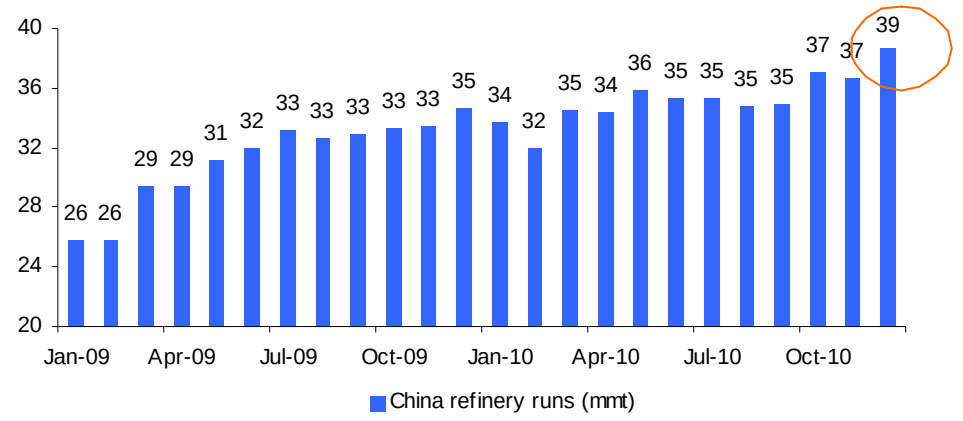
Source: EIA, Antique

Chinese refineries running at record utilisation levels due to strong indigenous diesel demand

China already operating record refinery runs

Out of the total refinery capacity additions of 1.9MMbbl/d in 2009, about 36% was accounted from China alone. Chinese refinery expansion continued in 2010 as well with another 680Mbbl/d of capacity added. Despite such a rapid expansion, China is currently operating at its highest ever utilisation levels led by rising transportation and industrial demand. In fact, Chinese refinery runs have averaged above 90% for 2010. This leaves little room to improve utilisation rates within China.

China refinery throughput at record high (mmt)



Source: National Bureau of Statistics, Antique

End of era for tea-pot refineries

China plans to shut small-scale oil refineries and outdated metal smelters by 2011 to boost efficiency and lower pollution. The National Development and Reform Commission (NDRC), China's top economic planner, announced in 2008 that refineries with annual capacity of less than 1mmtpa, or 20Mbbl/d, will be closed and the government will "actively guide" plants that can process 1-2mmtpa to cease operations or merge. These refiners are popularly known as Tea-pot refineries. This translates to a closure of about 60 tea-pot refineries, with accumulative refining capacity of 440Mbbl/d.

Gradual fading out of independent or the so called Chinese tea-pot refineries would further curb throughput levels. Also, independent refineries recorded sharp declines in profit margins last year due to weak oil products demand, weakening their existence further. China introduced fuel oil consumption tax beginning 2009 which further squeezed refining margins of these tea-pot refiners.

The government also announced that it shall ban the construction of refineries that process bitumen and heavy oil without elaborating further. According to NDRC, China has shut outdated oil-refining plants with capacity totaling more than 10mmtpa as at the end of 2008.

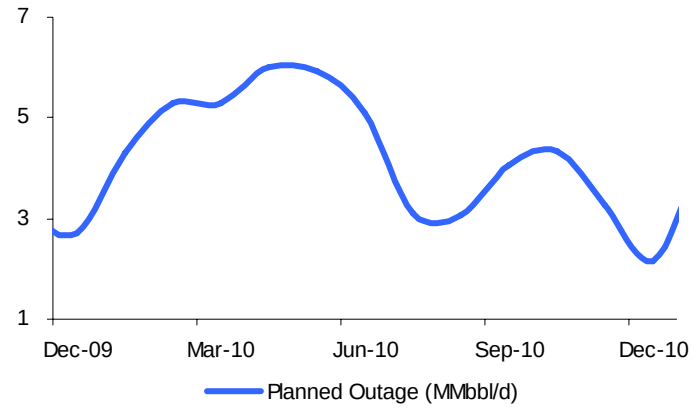
Chinese government has promised to cut carbon dioxide emission by 40-45% before 2020. That was another bearish signal for the independent refineries, a great majority of which are environment-unfriendly, energy-intensive and low-efficient. This, we believe would put further pressure on refining supplies in China and partly offset the refining capacity addition in China.

Ageing global refining capacity has its own problems

With a high number of refining capacities operating for 40 years and above, there seems to be a greater possibility of higher maintenance runs or total shutdown. Coupled with this, the lagging capacity additions for the next 2-3 years will help keep refinery throughput levels low.

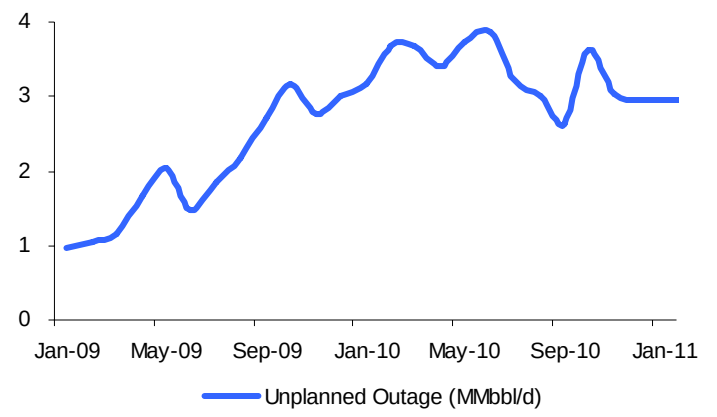
With ~41% of refineries being operated for 40 years and above, outages are expected to rise in the future. As seen from the below chart, unplanned outages have started to increase due to ageing of refineries.

Global planned outages following seasonal trend



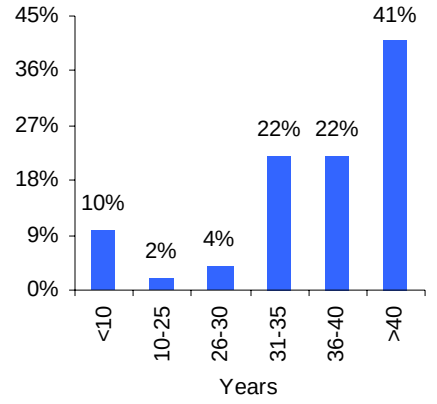
Source: Bloomberg

Unplanned outages - Rising due to higher complexities



Source: Bloomberg

Ageing refineries



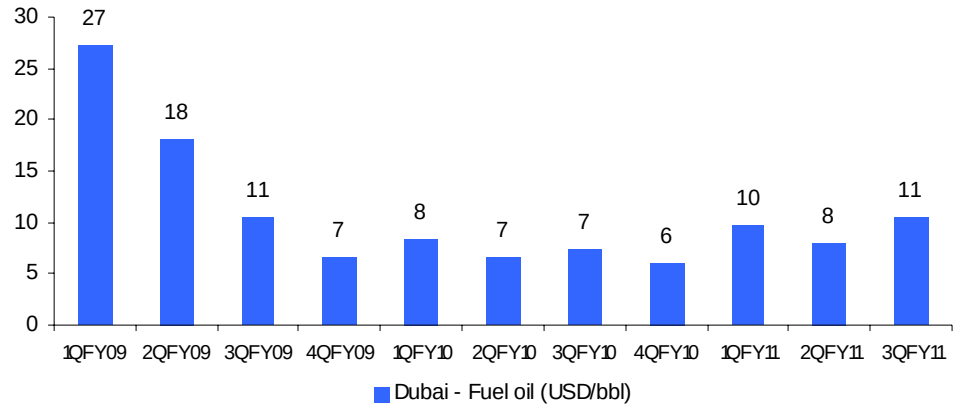
Source: BP Statistical Review

Light heavy spreads expected to recover

We believe that there are four main drivers for modest recovery in light-heavy spreads in the coming years.

- Demand for gasoline, naphtha and gas oil i.e. at the light end of the barrel is recovering.
- High inventory level and lower demand for fuel oil in the cargo and bunker market will impact heavy-sour crude price. Off late, fuel oil discount had widened to its highest level last year due to higher inventory levels.

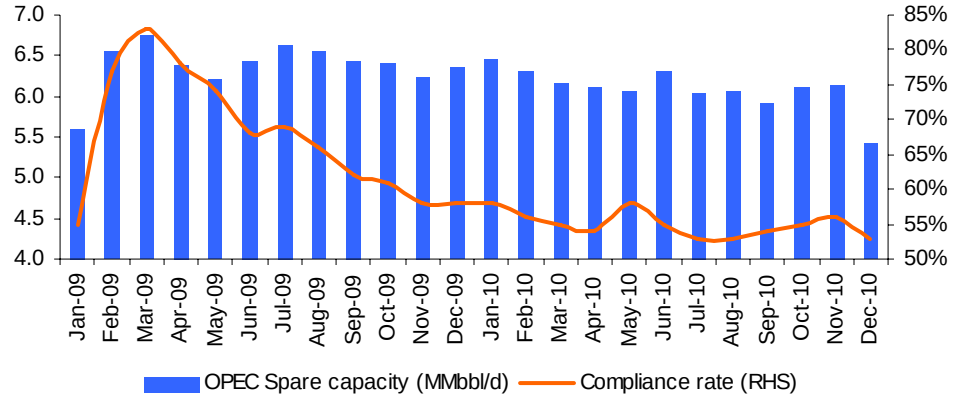
Fuel oil discount to Dubai rising



Source: Bloomberg, Antique

- We also see lack of compliance among OPEC members and most of them have been producing above their quotas to benefit from recovering oil prices. As OPEC increased output to meet rising oil demand, supply of heavy-sour crude barrels has increased, leading to recovery in light-heavy spreads.

OPEC compliance rate weakening with higher oil prices



Source: IEA, Antique

- Temporary and permanent shutdowns at refineries due to both seasonal maintenance and low margins have reduced demand for heavy-sour crude.

Another middle distillate crunch is lurking

Of the total oil products demand envisaged in the next 2-3 years, around 50% is expected from middle distillate alone

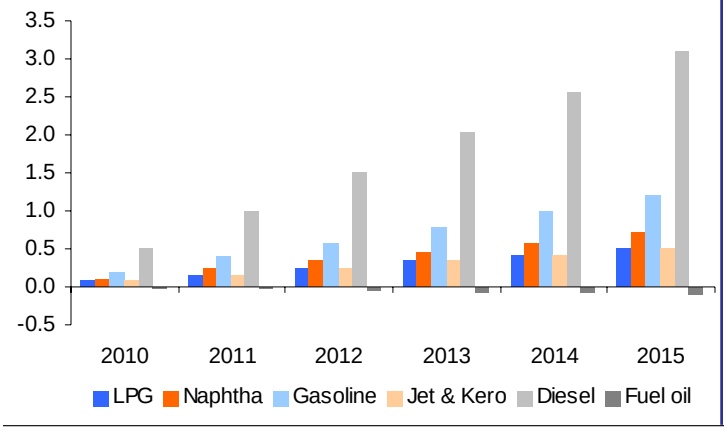
According to OPEC, oil product demand is expected to grow by an average 1.4-1.5MMbbl/d with middle distillate demand being the prime driving force of this growth. Of the total oil product demand envisaged in the next 2-3 years, around 50% is expected from middle distillate alone.

A second potential source of upside for the refining is continued tightening of the market for middle distillate products (diesel, jet fuel, kerosene, and heating oil). We expect middle distillate margins to remain strong as capacity constraints lead to supply crunch.

Middle distillates margin performance was the most consistent and the strongest source of refining margin strength during 2005-08. During that period the global refining sector struggled to match distillate supply to strong demand growth. Middle distillate margins contracted only when world diesel and jet fuel demand fell sharply with the onset of the economic crisis and the consequent decline in freight activity and trade.

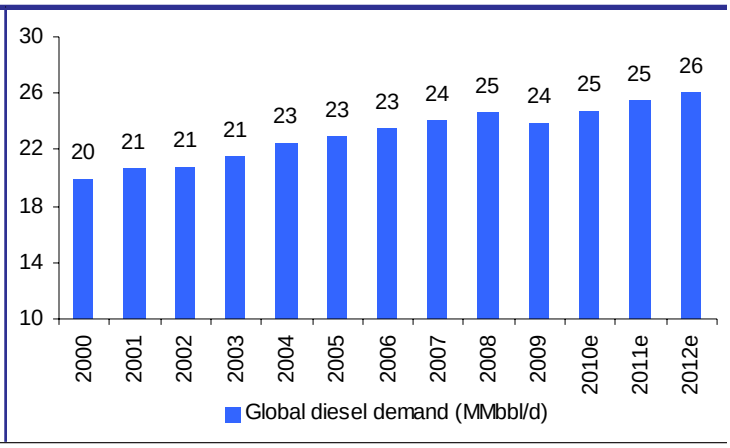
Now, however, the world economy is in a recovery mode, especially in the developing markets, which were hardly slowed by the economic crisis. Just one year removed from a sharp decline in demand, world annual average distillate fuel demand (principally for diesel and heating oil) hit a new record in 2010, owing to YoY growth of 700Mbbl/d (3.2%) - the strongest pace of growth since 2004 (Cera estimates). A repeat of this strong growth rate is expected this year as well, as economic strength in the mature markets continues to pick up, complementing the strong pace of the developing world.

Cumulative oil product demand growth (MMbbl/d)



Source: OPEC, Antique

Global diesel demand



Source: EIA, IEA, Antique

Net refining capacity expansion growth not enough to match the expected mid-distillate demand growth over CY11-13

Can the global refining system meet this strong demand for middle distillates?

As we discussed above, there are not enough aggregate net capacity additions (considering the impact of announced shutdowns) to match aggregate demand growth in our forecast period. The key question is whether the refinery capacity available is configured properly to meet the growth in demand? Refinery upgradation projects undertaken during 2005-2007 were primarily gasoline oriented. New capacities planned now in most regions of the world are primarily middle distillate biased. Even so, with overall oil demand growth slanted heavily toward middle distillate growth, we expect that middle distillate demand will grow faster than the world refining system's growth in capacity to make these fuels, resulting in a tightening balance through 2011-13.

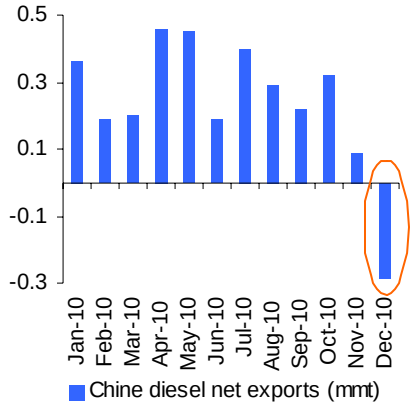
North American and European refineries technically have some spare capacity to produce more diesel, jet fuel, and other middle distillates. At their peak in 2008, US refineries produced 4.5MMbbl/d of distillate fuel compared with current levels of 4.2MMbbl/d, while European refineries produced a maximum of 5.7MMbbl/d, compared with current levels of about 5.2MMbbl/d. However, overall North American and European oil demand was higher in 2008 since Atlantic Basin refineries are running at much lower utilisation rates, producing the same volume of diesel in 2010 as in 2008 is less feasible.

If there are significant additional shutdowns of uncompetitive or unneeded refinery capacity or if world's diesel demand grows at a faster pace than we anticipate, the middle distillate market could tighten more rapidly with diesel prices deviating sharply above gasoline.

Tightness unlikely to reverse in the near term

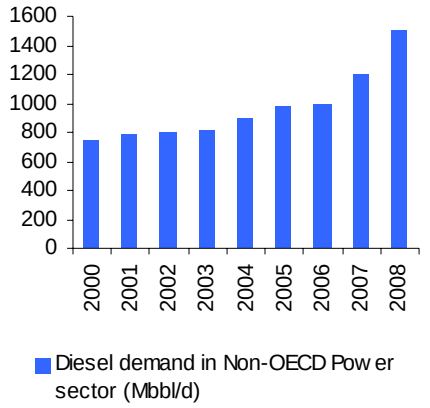
Colder than normal winter as well as strong industrial demand upturn has caused Asian diesel spreads to widen from USD6.3/bbl in the beginning of 2010 to USD16.8/bbl last week and has averaged USD11/bbl in CY10. The sustainability of margins is also tested at higher oil prices of USD90-95/bbl which further strengthens our arguments.

China diesel net exports



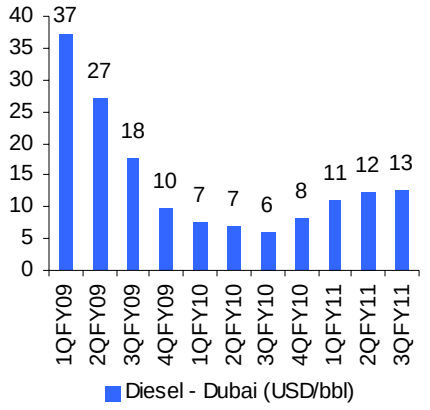
Source: Bloomberg, Antique

Diesel demand in non-OECD power sector



Source: IEA

Asian diesel spreads widening



Source: Bloomberg, Antique

In our view, current tightness will unlikely reverse in the near future due to continued diesel shortage amid power rationing as well as strong Asian industrial growth.

China turned net diesel importer for the first time after 2 years

China clearly will be the driver of this middle distillate demand growth as it has turned net diesel exporter in December, 2010 for the first time in the last 2 years. Such levels of demand growth was last seen in 2008 Beijing Olympics. Despite record refining runs, the country has been unable to meet its domestic demand from the agricultural industry and for electricity generation. More than 2,000 retail outlets went dry in China due to diesel shortage last year.

China's commercial diesel stocks, which had been falling for the past few months saw a sharp rise of 25% m-o-m in January as Chinese refineries operated at record utilisation rates to fight drought in north China and demand boom expected in spring.

Other factors that have played a role in tightening the global diesel balance and could continue during our outlook period are:

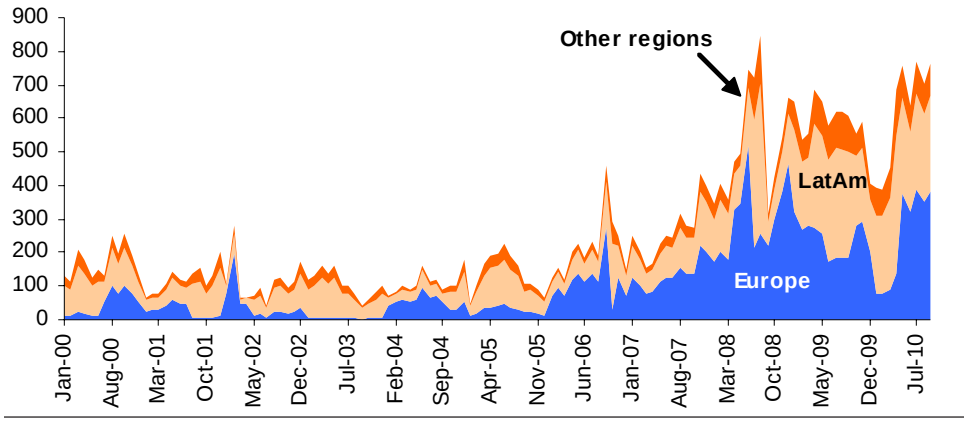
Power shortages in developing markets

Many Middle Eastern countries are facing chronic power shortages, especially during the summer months when demand peaks, owing to a lack of generating capacity or access to appropriate fuel. These shortages have driven businesses and residences to install small-scale diesel and jet turbine generators. Increased demand for diesel generated power is not solely a Middle Eastern phenomenon; but is also prevalant in other markets as well, such as Venezuela and Argentina. More recently, China has faced shortages of diesel fuel as industry has moved towards using diesel for generation following power rationing by local governments.

Refinery outages in the Caribbean and Latin America

Reliability problems with several refineries in the Caribbean and across Latin America have created a need for imported diesel into the region. US Gulf Coast refineries primarily have been benefited by exporting diesel to these markets. If these Caribbean and Latin American refineries cannot operate consistently as US diesel demand rebounds with the economic recovery, this would tighten the regional diesel market considerably.

US distillate fuel export (Mbbl/d)



Source: EIA, Antique

Continuing dieselisation of the European fleet

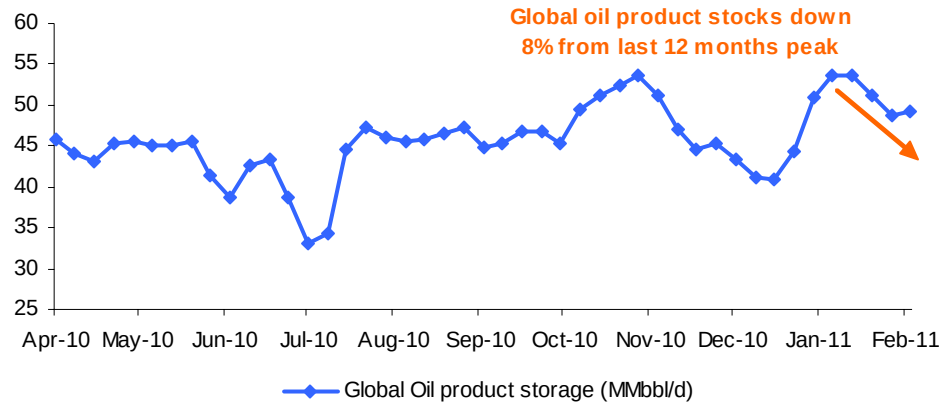
In Europe, the sale of diesel cars as a share of all new vehicle sales is down compared to recent peaks. However, the average share of diesels in Europe's new car fleet remains close to 50%. Since the European light-duty vehicle fleet is still only about one-third diesel, even reduced sales will still result in growth for the overall diesel vehicle fleet, and demand for diesel fuel from the fleet is expected to grow in tandem.

Inventory levels to moderate in the near term

Global crude and petroleum product storage levels, which peaked last year, are finally showing signs of moderation. Draw down in inventory levels clearly reflects signs of improving demand trends this year.

Global oil product stocks which peaked to its 12 month high in January this year has come down by 8% currently and now stands at 49.3MMbbl/d.

Global total oil product storage

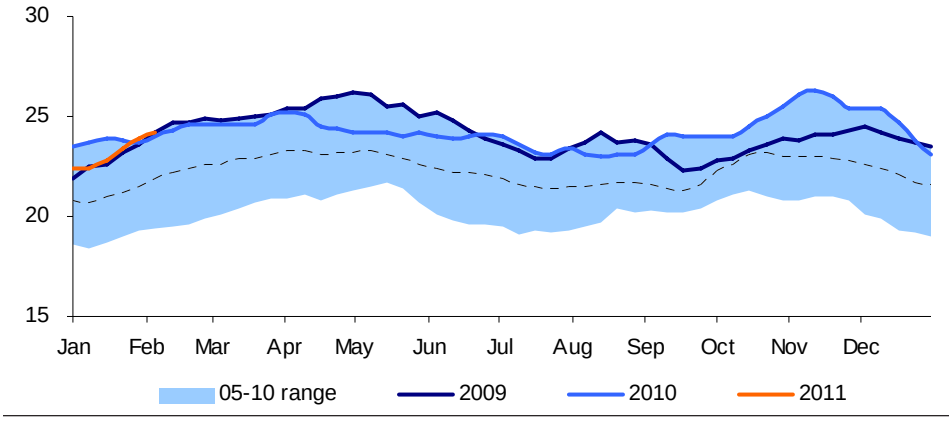


Source: Bloomberg

US, world's largest oil consumer has off late seen a build-up in crude inventories due to increased imports and weak refinery runs. Crude cover in terms of days of demand lies on the upper end of its 5 year average at 24 days last month. Rising inventories at Cushing, Oklahoma, the delivery point for WTI has thus kept WTI prices under pressure (Brent-WTI differential has increased to ~USD10/bbl currently)

US crude demand cover (number of days)

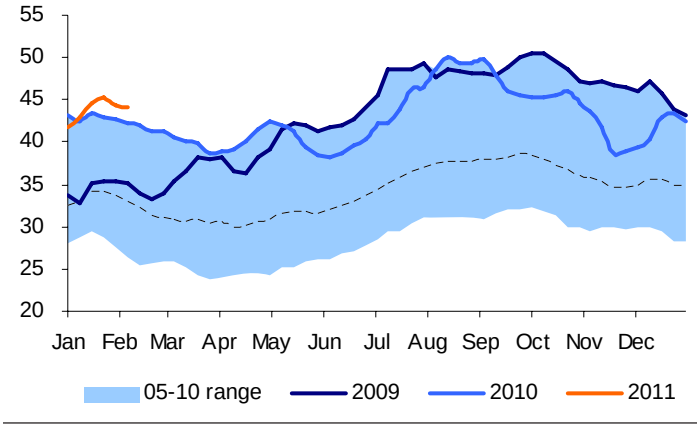
WTI prices remained under pressure due to build up in US crude oil stocks at Cushing



Source: EIA, Antique

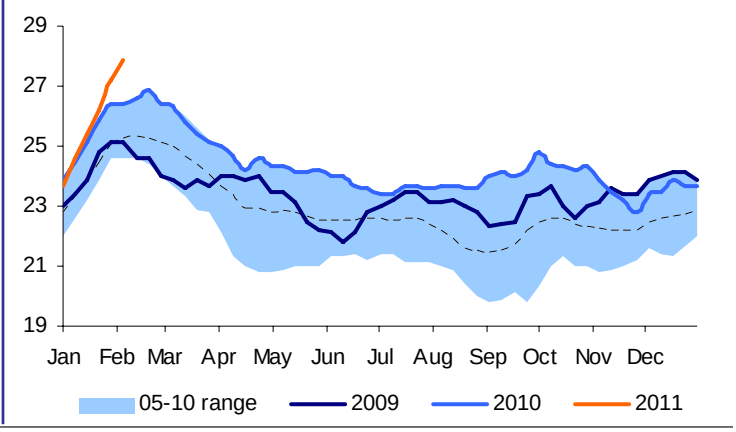
US Distillate stocks also remains well above its last five-year average and now stands at 44 days of demand. Gasoline inventories have seen a sharp spike from 23 days of demand to 28 days currently. This has been largely due to colder than normal winter world wide and the resulting drop in demand for transportation fuels. We however believe that inventory levels are expected to moderate down in the coming months due to continued industrial led diesel demand and recovery in gasoline demand with the onset of summer driving season.

US Distillate demand cover (number of days)



Source: EIA, Antique

US Gasoline demand cover (number of days)



Source: EIA, Antique

To sum it up:

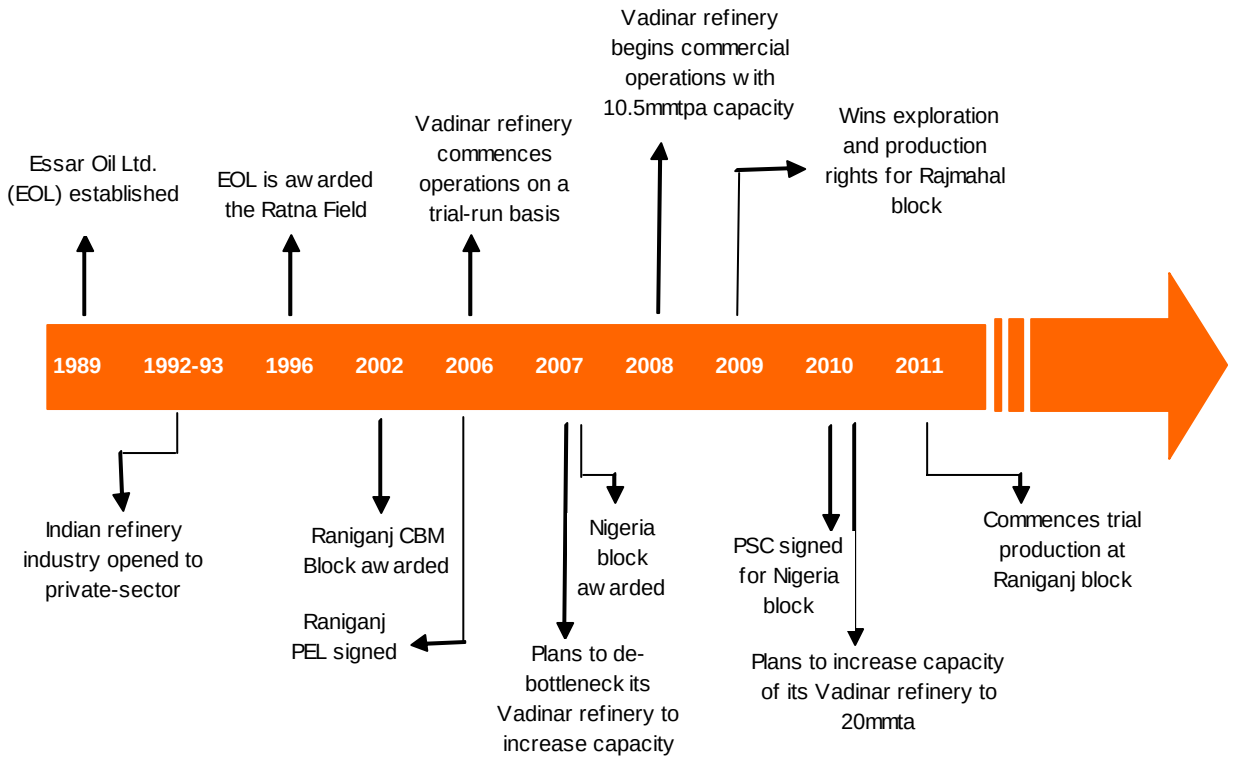
- Oil products are expected to be under supplied by about 2.4MMbbl/d by 2012 due to rise in demand of about 2.8MMbbl/d in 2011-12 but slowdown in new refinery capacity expansion.
- Contrary to sharp rise in global refinery capacity in 2008-09, incremental capacity growth is expected to slowdown due to delays coupled with rising operating costs.
- Much of the oil products demand growth is driven by distillate demand led by industrialisation and transportation demand from emerging markets
- We do not expect global utilisation levels to rise significantly due to: i) Mismatch in product yields particularly in US where gasoline constitutes 45-50% of crude slate while gasoline cracks continue to remain weak; ii) Higher unplanned outages which have risen from 1MMbbl/d in 2009 to ~3MMbbl/d currently; iii) Refinery closures announced during 2009-10 and iv) Record refinery runs experienced in China and any significant growth from current levels look unlikely.
- Efforts by Chinese environmental agencies to permanently shutdown small and inefficient refiners or the teapot refiners with expected capacity of 440Mbbl/d to further curb utilisation levels.

Thus, what will emerge a scenario where rising diesel demand will remain undersupplied due to slowdown in capacity expansion and moderate refinery runs pushing diesel margins upward. This will, in our view, help diesel biased refiners like Essar Oil.

Essar Oil Limited - Taking the big leap

Essar Oil Limited (EOL) is gradually emerging as a strong integrated oil and gas player with a presence across the energy value chain. It currently operates Vadinar refinery on the west coast of India with a nameplate capacity of 14mmtpa (280Mbbl/d). Commercial operations at the refinery commenced in May 2008. EOL is currently undergoing an expansion plan to increase its refinery capacity to 20mmtpa by 2HFY13e through de-bottlenecking and addition of secondary units. EOL's E&P portfolio has also started to gain prominence with its CBM block at Raniganj starting trial production in January this year. EOL also has several promising E&P assets located in India and abroad with a potential to generate significant value to the company in the long term.

Essar Oil - Milestones



Source: Company, Antique

Details of EOL's major E&P blocks with reserves and resource estimates

Assets	Stake (%)	2P/ 2C resources			Prospective resources			Capex USDm	Opex	Peak Prod.	Comments
		Oil (mmbl)	Gas (bcf)	Total (mmboe)	Oil (mmbl)	Gas (bcf)	Total (mmboe)				
Raniganj (CBM)	100	-	201	33	-	792	1,012	439	USD0.43/ mmbtu	3.5 mmcmd	Trial production started in Jan 2011
PSCRajmahal (CBM)	100	-	-	-	-	4,723	132	4			Large acreage in rich coal belt
Mehsana	70	2	-	2	-	-	787	4			Potentially significant CBM play
Ratna/R-Series	50	74	40	81	-	-	-	568	USD5.3/ bbl	35 Mbbl/d	Development to begin post signing of PSC
Nigeria	63	11	136	33	49	264	93	16			Located in Nigerian petroliferous basin
Total		**87**	**377**	**149**	**49**	**5,779**	**1,012**				

Source: Company

Capacity expansion comes at the right time of investment cycle

Phase-1 expansion

As part of the first phase of refinery expansion, EOL is planning to expand its Vadinar refinery to 20mmtpa by 2HFY13e through de-bottlenecking and addition of secondary units like Delayed coker (DCU), VGO Hydro-treater and Diesel Hydro-treater.

Initial refinery capacity expansion to 18mmtpa was 78% complete as on 3QFY11 end and is expected to be completed by 1HFY12e. Expansion process is however delayed from its previous target of FY11e end majorly on account of delay in two units - delayed coker and VGO Hydro treater. After completion of Phase-1 expansion to 20mmtpa, Nelson Complexity Index (NCI) is expected to increase to 11.8, making Vadinar the second largest complex refinery in the country after RIL's 1,240Mbbl/d Jamnagar refinery with a complexity of 12.8.

Phase-1 refinery expansion

	Present	18mmtpa	20mmtpa
Complexity	6.1	11.8	11.8
API (density) avg.	31.3	24.8	Lessthan25
Sulphur % avg.	2%	3%	1-2%
Product grade	EuroIII/IV	EuroIV/V	EuroIV/V
Total cumulative capex (USDbn)	2.7	4.4	4.8
Incremental capex (USDbn)		1.7	0.4
Estimated date of completion	na	June-11	Sep-12

Source: Company, Antique

Status of Phase 1 expansion as on 3QFY11 end

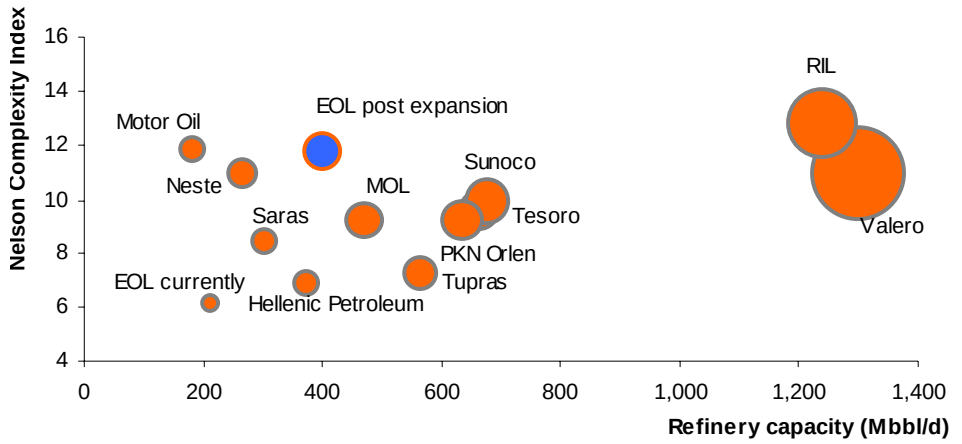
		Equipments		
Stage	Progress (%)	Ordered	Received	Status
Upgradation of existing unit - CDU/VDU	88	126	107	All equipments erected, revamp will be completed during refinery integration shutdown
Delayed coker unit	70	264	179	Four Coker drums erected and last two received
ISOM unit	84	101	86	
VGO - HT	81	177	119	Project schedule is currently lagging by a quarter
DHDT Unit	71	122	69	Project schedule currently lagging by a quarter
HMU (Hydrogen Manufacturing Unit)	67	74	53	
Desalination unit	98			
Pipe racks	87			
Total expansion	78			Expected to be completed by 1HFY12e

Source: Company

Phase-2 expansion

Over the longer term, company intends to increase its refinery capacity further to 38mmtpa. We are however not accounting for Phase-2 expansion in our valuations due to limited information on the timelines of the expansion process. The management had also indicated that they are currently evaluating theirPhase-2 expansion plan.

Vadinar refinery - Moving higher in complexity scale



Note: Valero's refining capacity is 2,600Mbbl/d
Size of the bubble represents complex capacity (Capacity*Nelson complexity Index)
Source: Company reports, Antique

EOL's Vadinar refinery post-expansion to 20mmtpa would be one the most complex refineries worldwide. Vadinar's complexity is even higher than that of Valero, world's largest private refiner. Complexity of the refinery is indicated by its Nelson Complexity Index (NCI) which is a measure of secondary conversion capacity of a refinery in comparison to the primary distillation capacity. NCI provides insights into refinery complexity, replacement costs and the relative value addition ability.

All geared up to play the refinery cycle

EOL's Vadinar refinery expansion comes at the right time when refinery margins have started showing signs of revival after experiencing two years of sluggishness. Singapore GRMs have improved from USD3/bbl in CY09 to USD4.7/bbl last year and is expected to remain buoyant for the next 2-3 years before the next wave of refinery capacity expansion takes place.

EOL has planned a total capex of INR95bn which includes INR78bn budgeted for capacity expansion to 18mmtpa and an additional INR17bn for further expansion to 20mmtpa. Company plans to fund the entire capex from 60% debt and rest from equity and internal accruals. Out of the total budgeted capex, it has already incurred a cash expenditure of INR72bn (92% of total capex required for capacity expansion to 18mmtpa) as on 3QFY11 end and another INR6.4bn (8%) of LC is open but yet to be utilised. Thus, with 92% of the capex already spent, EOL stands to capitalise on the refinery investment cycle as well as strong oil products demand upsurge expected in the coming years.

Capex for expansion to 18mmtpa: 92% of expenditure incurred*

INRm	Amount planned	Amount spent as on 3QFY11 end*
Total capex	78,100	78,100
Debt	46,860	46,860
Equity	31,240	31,240

*INR46bn of debt includes INR6.4bn of LC's open but yet to be utilised
Source: Company, Antique

Expansion at competitive cost

EOL's Vadinar refinery expansion plans involve de-bottlenecking and optimisation of existing units thus providing significant capital cost advantages. The total capital cost at USD2.8/complex barrel is slighlty higher than RIL's SEZ refinery but ~50% lower than the new greenfield refineries like HPCL's Bhatinda, BPCL's Bina and IOCL's Paradip refinery.

Brownfield expansion provides cost advantage to EOL

	Capacity (mmtpa)	NCI	Cost (USDm)	Cost (USD/bbl)	Cost (USD/ complex bbl)
EOL Vadinar	10.5	6.1	2,700	35	5.8
EOL - Vadinar expansion	20	11.8	4,800	33	2.8
BPCL - Bina	6	9	2,533	58	6.4
HPCL - Bhatinda	9	9	4,000	61	6.8
IOCL - Paradip	15	9	6,617	60	6.7
RIL - SEZ refinery	29	14	7,333	35	2.5

Source: Company, Antique

Higher complexity - entailing higher GRMs

Refineries with high complexity are able to process low quality crude oil (i.e. heavy and sour crude). Crude oil quality is measured in terms of density (light to heavy) and sulfur content (sweet to sour). Density of crude oil is defined in terms of its API gravity - higher the API gravity, lighter is the crude. Light crude generally has an API gravity of 38 degrees or more, and heavy crude has an API gravity of 22 degrees or less. Sweet crude has a sulfur content of less than 0.5%, while sour crude has a sulfur content of greater than 0.5%. Heavy crudes (like Mexico's Maya and Middle East crude like Arab Heavy) trade at a discount to lighter crudes like WTI and Brent as production, transportation, and refining of such crudes is difficult compared to light crude oil. As evident in the table below, lower the crude quality, higher is the price differential to Brent.

Crude type and differential with Brent (38° API, 0.4% Sulphur content)

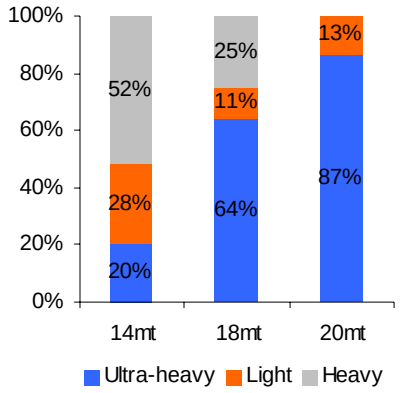
Crude type	API density	Sulphur (%)	Country	Premium/(Discount) over Brent ($/bbl) CY10 avg	3-year avg	10-year avg
Tapis Blend	44° API	0.03	Malaysia	4.1	4.3	3.2
Bonny Light	37° API	0.14	Nigeria	1.6	2.3	1.2
Dubai	31° API	2.01	Persian Gulf	(1.6)	(2.9)	(1.8)
Arab Heavy	27° API	2.80	S. Arabia	(4.1)	(5.6)	(5.1)
Maya	22° API	3.31	Mexico	(8.8)	(9.7)	(10.8)

Source: Bloomberg

Use of Mangala crude will help EOL to further boost its refining margins

The current crude mix of Vadinar refinery consists of 72% of heavy and ultra-heavy crude. Capacity expansion coupled with higher complexity will see this proportion rising to ~87%. This will enable EOL to benefit from rising light-heavy differential and earn better refining margins. EOL has also started to process 30-40Mbbl/d of Cairn's Mangala crude from Rajasthan block from 1QFY11 onwards which can further rise to 70-80Mbbl/d. This will not just help in reducing freight costs for EOL but also improve its refining margins further as Mangala crude is very heavy and waxy crude and currently sells at 10-15% discount to benchmark crude.

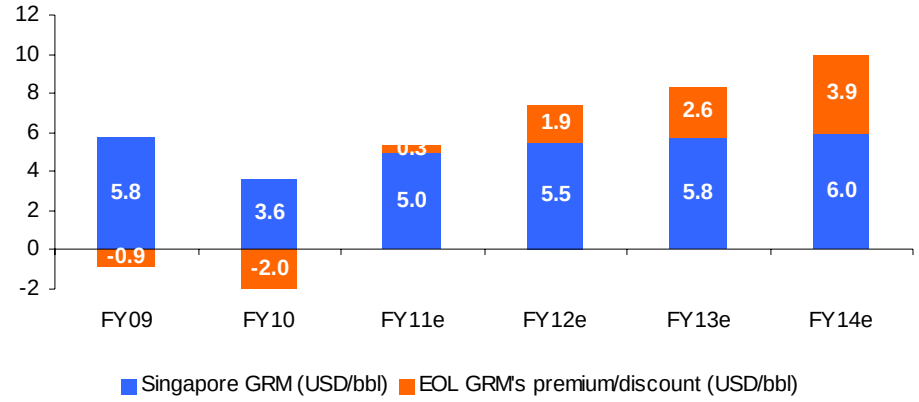
Proportion of heavy and ultra-heavy crude to rise to ~87% post expansion



Source: Company, Antique

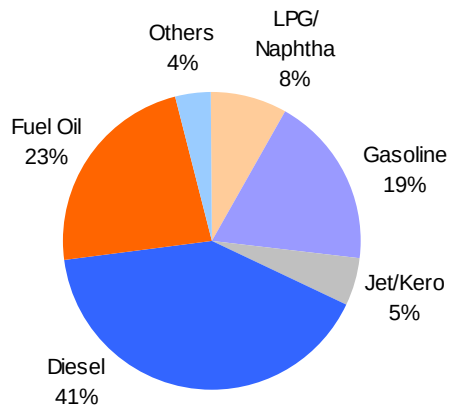
Moreover, Vadinar's refinery slate is also expected to improve post expansion as the proportion of low value added products like fuel oil will be completely removed from 23% currently while that of light and middle distillate products would increase to 85%. This will also enable EOL to earn better margins due to significant recovery in Asian light and middle distillate product spreads. Diesel spreads have improved from just USD6/bbl in the beginning of 2010 to USD15/bbl currently. Gasoline crack spreads have also increased from an average of USD10/bbl last year to USD14/bbl currently.

EOL's refining margin to turn premium to Singapore GRM due to high complexity



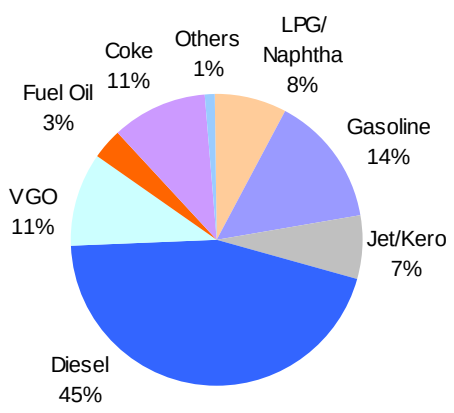
Source: Company, Antique

Current refinery slate



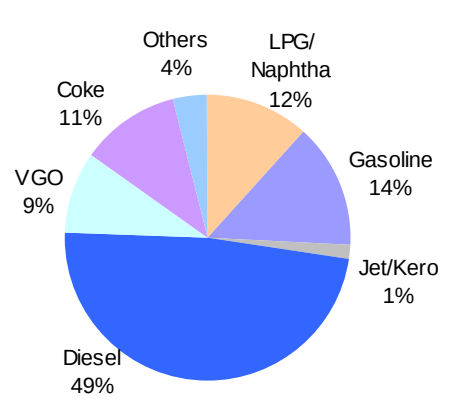
Source: Company, Antique

Refinery slate post expansion to 18mmt



Source: Company, Antique

Refinery slate post expansion to 20mmt



Source: Company, Antique

Fiscal benefits

Essar Oil enjoys a seven-year income tax holiday for its expected 20mmtpa Vadinar refinery under Section 80 IB and will be paying only a minimum alternate tax which can be set off against taxes to be paid later. The availability of this seven-year income tax holiday is applicable to all refineries that commence operations by March 31, 2012.

Gujarat government also provides for a sales tax deferment benefit on domestic sale of refined petroleum products in Gujarat to the extent of 125% of the eligible capital investment for refineries set up during the 1995-00 period. This is under the New Capital Incentive Policy - Capital Investment Incentive to Premier/ Prestigious Unit, Scheme 1995-2000. This sales tax benefit is estimated to be INR91bn for the company.

EOL is required to repay the retained sales tax to the state of Gujarat in six equal annual installments, from FY22 or on the exhaustion of the full eligible limit, whichever is earlier. It has availed gross sales tax deferral benefit INR42bn and a net benefit of ~INR27bn has been recognised in P&L till date.

Gujarat government rejected the deferment benefit to EOL on the grounds of delay in commencement of production at its Vadinar refinery. However, Gujarat High Court ruled in favour of EOL. The matter is currently pending and is being considered before the Supreme Court.

We are currently considering the net present value (NPV) of sales tax deferment benefit availed each year in our valuations which translates to a value of INR10/share. If, however, the final decision of the Supreme Court were to be adverse to EOL, company will have to provide for it.

Current price GRMs

EOL started reporting current price GRMs i.e. clean refining margin for its Vadinar refinery from 2QFY11 onwards. This practice is in accordance with global reporting standards and clearly depicts company's focus towards clean and transparent reporting. Clean refining margins are those which are earned purely from operations and do not include any inventory or foreign exchange gain/loss incurred. This helps to analyse core earnings for the company and gives a better reflection of its underlying profitability.

FCCBs to provide interest cost advantage

Essar Energy Holdings Limited has so far infused USD500m in EOL; of which, USD225m is part of the 89.96% stake in EOL. EOL on June 15, 2010 issued USD115m (INR5.4bn) FCCBs (Foreign Currency Convertible Bonds) due June 2028 to Essar Energy. This FCCB is convertible into Global Depository Shares (GDSs) or equity shares of the Company, at a conversion price of INR138/share.

EOL further issued FCCBs worth USD147m (INR6.9bn) to Essar Energy. The FCCBs are due in September 2028 and are convertible into GDS at the option of the bondholders at a conversion of INR153/share. These FCCBs provide significant interest cost advantage as there is no interest cost involved for the first five years and 5% thereafter.

Valuations

EOL's refining and marketing divisions has been valued at INR213bn (INR156/share) using DCF methodology. Our valuations also include sales tax deferral benefit of INR91bn implying an NPV benefit of INR10/share.

Key assumptions

	FY09	FY10	FY11e	FY12e	FY13e
Brent (USD/bbl)	85.3	69.5	83.0	87.0	92.0
Throughput (mmt)	12.0	13.5	14.8	14.8	18.0
EOL's Clean GRM excl sales tax benefit (USD/bbl)	4.9	1.6	5.3	7.4	8.3
Light-Heavy spread (USD/bbl)	8.4	1.0	2.0	2.1	2.3
Diesel crack spread (USD/bbl)	22.1	7.2	12.5	15.0	15.3
Gasoline crack spread (USD/bbl)	8.1	9.0	10.0	10.0	10.5
INR/USD	46.0	47.4	45.5	44.0	43.0

Source: Bloomberg, Antique

CBM - Big potential ahead

India, with fourth largest proven coal reserves in the world, holds significant prospects for exploration and exploitation of CBM. Out of the total sedimentary area of ~26,000 sq. km. for CBM exploration, only 52% has been explored. Thus, a large area still remains to be explored.

A total of 33 blocks (including three on nomination basis) have been allocated to various Indian and foreign operators during four rounds of CBM bidding. Total CBM resources estimated in all these blocks are ~63tcf, of which only 7.7tcf has been established (break-up provided in the table below).

Commercial production of CBM gas in India commenced in GEECL's Raniganj (South) block in 2007 and EOL recently commenced trial production in Raniganj (East). ONGC commenced CBM production of 5mcm from pilot project at Jharia block in Jharkhand last month, however it is still far away from any meaningful production. Efforts are also being made for expeditious development of two blocks in Sohagpur in Madhya Pradesh. Currently CBM production in India stands at 0.18mmcmd and is expected to go up to 7.4 mmscmd by 2014-15, as per DGH estimates.

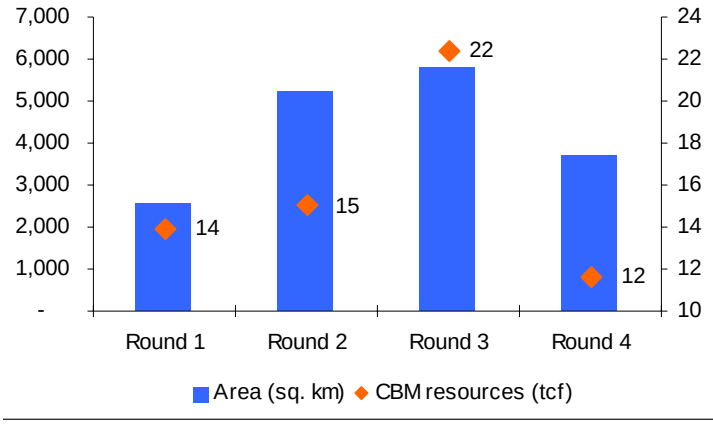
The level of interest and activity level in CBM operations have undergone a sea change in the last few years. This is evident from the change in response from the first round of bidding (2001) to the fourth round in 2009. Under the fourth round, 10 blocks were put on offer, for which a total of 27 bids were received for 8 blocks from 19 companies (incl 3 foreign companies).

Result of CBM rounds

Company	Nomination	CBM-I	CBM-II	CBM-III	CBM-IV	Total
ONGC	2	2	5	-	-	9
Essar Oil	-	1	-	-	4	5
RIL	-	2	3	-	-	5
Arrow	-	-	-	3	2	5
REL	-	-	-	4	-	4
GEECL	1	-	-	-	1	2
Coal Gas	-	-	-	2	-	2
BP	-	-	-	1	-	1
Total	3	5	8	10	7	33

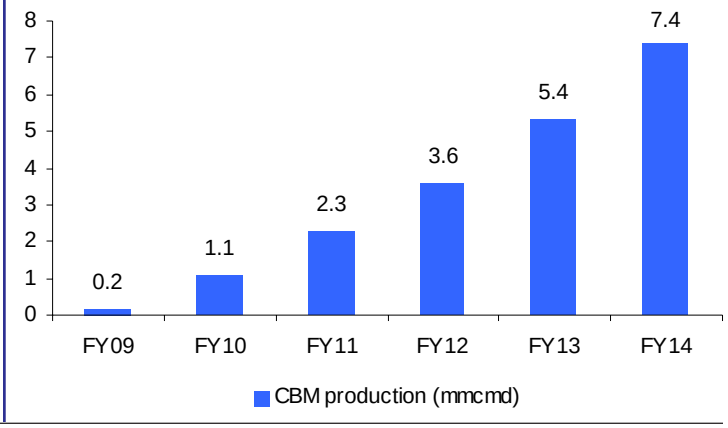
Source: Industry

CBM round highlights



Source: Industry

Domestic CBM production estimates by DGH



Source: DGH

Attractive fiscal terms offered by government

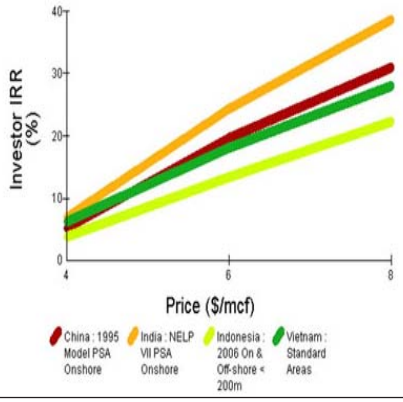
Government provides several attractive terms to CBM producers in India:

- No participating interest of the Government.
- No signature bonus.
- Royalty at the rate of 10% on the value of CBM in accordance with Oilfields (Regulation and Development) Act, 1948 and the Rules framed there under payable to the relevant State Government.
- Additionally, ad-valorem biddable Production Level Payment (PLP), payable to the Central Government, on every incremental production of 0.5mmcmd or part thereof.
- Fiscal stability provision in the contract
- No customs duty on import of equipment required for CBM operations

Indian fiscal regime proved to be most attractive -IHS Energy

IHS Energy conducted a study to compare countries in terms of their commercial attractiveness. A hypothetical 60bcf gas development was applied to the fiscal regimes of four Asian countries assuming USD2/mcf of operating cost. As shown below, there is a wide range of after-tax economics in the countries, of which Indian fiscal regime was proved to be most attractive, providing a reasonable rate of return

IRR comparison of CBM project



Source: IHS Energy

Current status of CBM operations in India

CBM operations	Status
Block Awarded	33
Total CBM Resources estimated	63tcf
Production Potential in Awarded Blocks	38mmcmd
CBM Wells drilled so far	298
CBM Reserve established (in 5 blocks)	7.7tcf (1.9tcf - GEECL, 1.2tcf - ONGC, 1tcf - EOL, 3.7 - RIL)
Production	0.2mmcmd (GEECL - 0.1, EOL - 0.1)
Present Gas Production	0.2mmcmd
Expected CBM Gas Production by 2013	7.4mmcmd
Investment made	INR15bn

Source: Industry, Company reports, Antique

7.7tcf of CBM resources established

Block Name	Operator	Reserves (tcf)
SP(East)-CBM-2001/I	RIL	1.7
SP(WEST)-CBM-2001/I	RIL	2.0
Raniganj (South)	GEECL	1.9
Bokaro	ONGC	1.2
RG(East)-CBM-2001/I	Essar Oil	0.9
Total		**7.7**

Source: Industry, Company reports, Antique

Early mover advantage to EOL

Currently GEECL and EOL are undergoing CBM gas production in India. ONGC commenced production at its Jharia CBM block last month but is far away from any material production. Thus with immense CBM resource potential, EOL clearly enjoys an early mover advantage.

EOL's CBM portfolio consists of five blocks with total 2P/2C reserves of 201bcf and prospective resource of 5.5tcf. EOL has another 4.4tcf of unrisked resource in-place where exploration activity has not commenced till date.

EOL's CBM portfolio

Details of CBM Block	Place	Ownership	Acreage (sq km)	2P/ 2C resources (bcf)	Prospective resources (bcf)	Unrisked in-place resource (bcf)	Total (bcf)	Remarks
Raniganj	West Bengal	100%	500	201	792		993	Commenced production in Jan 2011
Rajmahal	Jharkhand	100%	1128		4,723		4,723	CPR by ARI (2010)
Sohagpur	MP & Chhattisgarh	100%	339			600	600	Resource estimate as per DGH
Talcher	Orissa	100%	557			2,600	2,600	Resource estimate as per DGH
IB Valley	Orissa	100%	209			1,200	1,200	Resource estimate as per DGH
Total			**2,733**	**201**	**5,515**	**4,400**	**10,116**	

Source: Company

Ranigang East Block (RG East-CBM-2001/1)

Received in-principal approval for development of Phase-2 development of the block

Raniganj block located in the Damodar Valley coal field in the Raniganj region is the only producing block in EOL's E&P portfolio. The block has 2P reserves of 201bcf and another 792bcf of prospective resource. Trial production commenced in January this year as planned with current production of 30mcmd and a plateau of 3.5mmcmd expected to be reached by Fy14e. EOL has completed the financial closure for Phase-1 of INR8.2bn. EOL has also obtained in-principal approval for Phase-2 development and is expected to obtain final FDP approval in the near term, enabling a consolidated development of the block.

EOL is expediting the ramp up process at the block as it has already entered into a gas sale and purchase agreement (GSPA) with Matix Fertilisers and Chemicals for the supply of approximately 2.8mmcmd from FY13e onwards. In November 2009, EOL had also entered into a GSPA with several companies in Durgapur industrial area for the sale of CBM from the Raniganj Block and is in the process of identifying additional prospective off-takers.

Pipeline construction from Raniganj to Durgapur is under trial stage and is expected to be commissioned by 4QFY11 along with the commissioning of compressor stations. Gas sales from Raniganj is currently taking place in cascades and is expected to pick up when pipeline is fully commissioned. Company guided that fertiliser customers will form 70-80% of its off-takers for Raniganj gas when it reached peak output level at a pricing of USD4.0/mmbtu at the well-head level.

GEECL is also producing CBM gas in India in a nearby block Raniganj (South) which has an estimated gas in place of 2tcf according to latest estimates by NSAI and is currently producing 0.1mmcmd.

We currently value EOL's Raniganj block at INR39bn (INR29/share) using DCF methodology assuming gas price of USD5.0/mmbtu translating to a resource valuation of USD5.2/boe. Our valuation comprises both Phase-1 and Phase-2 development.

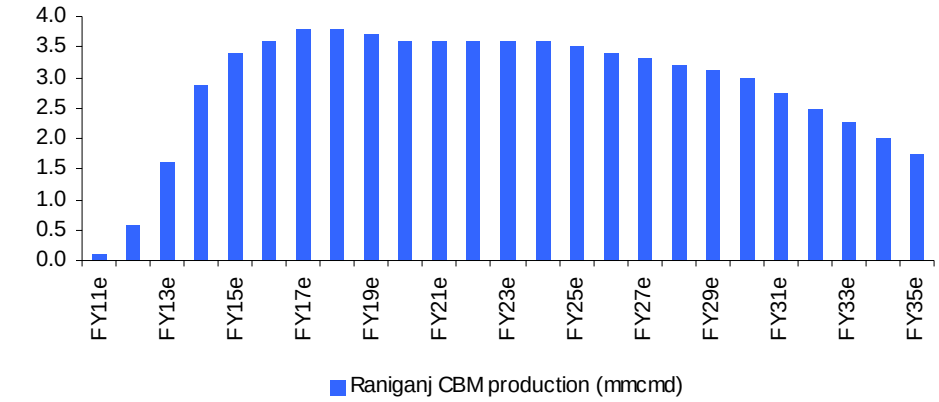
Production linked payment multiple

From	To	PLP	Effective PLP
0.0	1.0	0%	0%
1.0	1.5	8%	3%
1.5	2.0	10%	4%
2.0	2.5	13%	6%
2.5	3.0	15%	8%
3.0	3.5	18%	9%
3.5	4.0	25%	11%
4.0	4.5	33%	13%
4.5	5.0	40%	16%
5.0	999.0	48%	48%

Source: Company

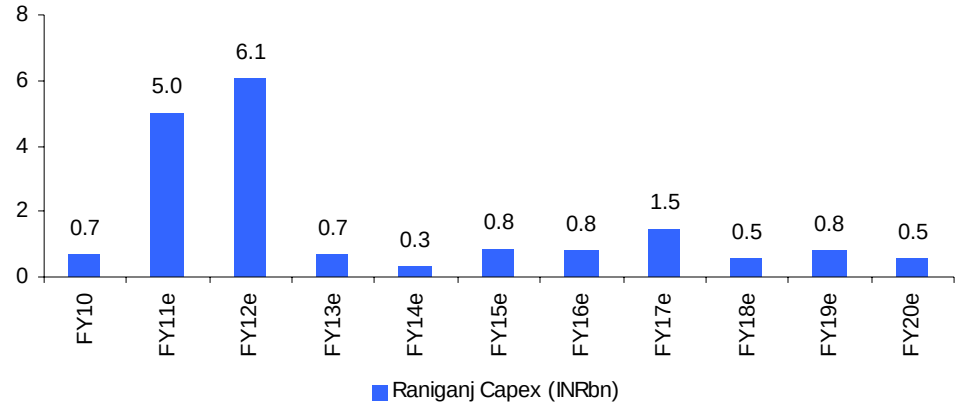
Completed financial closure for Phase-I of INR8.2bn with a D/E mix of 70:30

Raniganj block Phase -1 & 2 production profile



Source: Company, Antique

Raniganj capex plan



Source: Company

Raniganj block - key details and assumptions

Resources	993bcf of 2C and best estimate prospective resources, CPR by NSAI
Interest/operator	100% interest & operatorship with EOL
Current status	35 production wells drilled; gas production started.
Key milestones	500 wells to be drilled over the life of the asset Trial production started in Jan 2011
Government take and pricing	Royalty at the rate of 10% of well-head price PLP linked to percentage of revenue
Capex to full development	Capex to full development: USD510m to be funded 70/30 D/E Capex for both 2C and prospective resources
Opex guidance	USD0.5/mmbtu
Other	Cost/well: USD0.63m
Evacuation	Pipeline being built (48 KM)
Customers	Matix Fertilisers already tied up

Source: Company, Antique

Rajmahal block (RM(E)-CBM-2008/IV block)

EOL was declared a provisional winner for Rajmahal block in the CBM IV bidding round in 2009 and has a 100% interest. This block is approximately 100 km from the producing Raniganj CBM block. EOL is required to complete 30 core holes and two test wells during exploration phase. Total prospective resources estimated in the block is 4.7tcf which is much larger than the neighbouring Raniganj Block. Moreover, Rajmahal

lies in the Gondwana belt where exploration studies have revealed to constitute excellent CBM plays that can be harnessed commercially with the induction of appropriate technology. Proximity to Raniganj block also increases commerciality prospect for the block. We however, assign a lower resource multiple of USD1.2/boe for Rajmahal block due to early stages of exploration, implying a value of INR31/share.

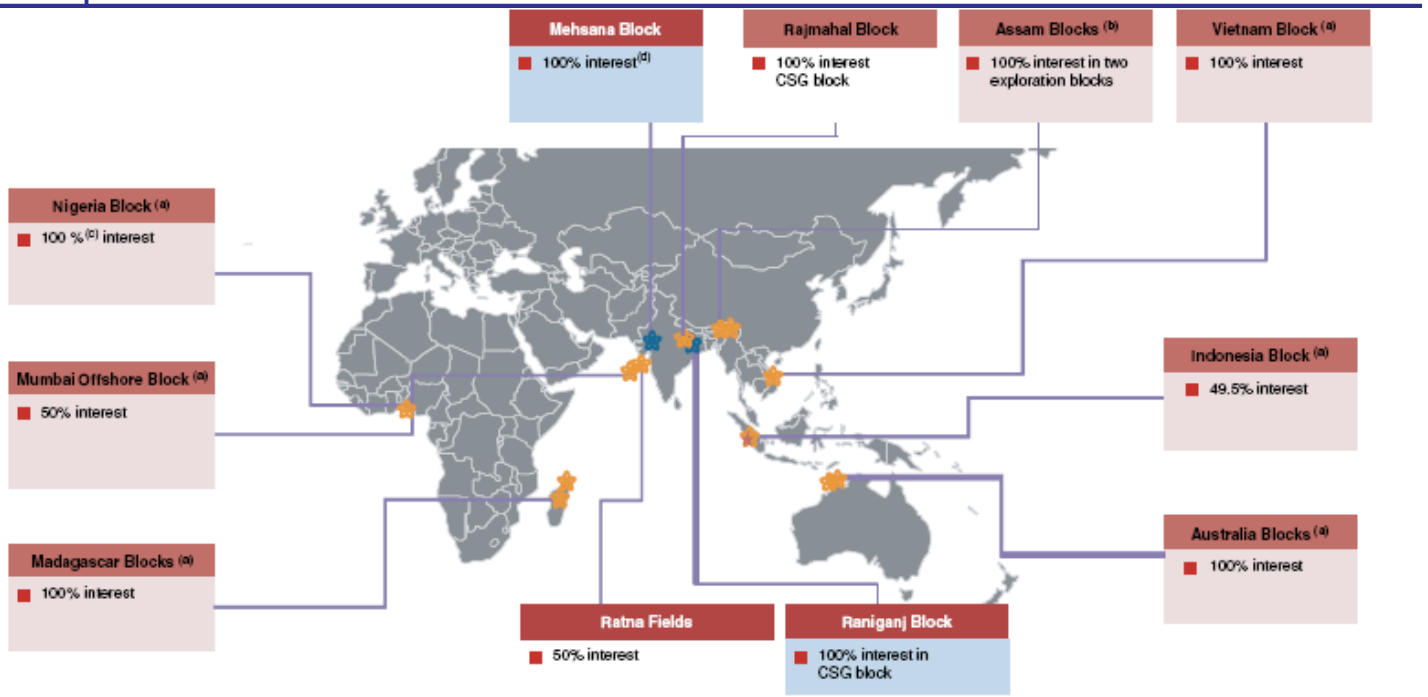
Other CBM blocks

EOL also holds interest in three other CBM blocks: i) Sohagpur in MP & Chattisgarh and ii) Talcher and IB Valley in Orissa. Total in-place resource in these blocks as estimated by DGH is 4.4tcf. While these resources provide significant growth potential for the company in future, we are however not assigning any value to these blocks as we await greater clarity on the commerciality and future development of these resources.

Other E&P assets

EOL's E&P portfolio comprises of 13 blocks (6 domestic and 7 international) spread across in India, Australia, Indonesia, Madagascar, Nigeria and Vietnam. Apart from EOL's prolific CBM portfolio, Ratna and R-series field is another important asset in its portfolio.

EOL E&P portfolio - a balanced mix of domestic and international blocks



Source: Company

Ratna & R-series

EOL has a 50% interest in Ratna and R-series field with the balance being held by ONGC (40%) and Premier Oil (10%). The field has an estimated contingent resource of 81mmboe net to EOL.

There are several regulatory delays which have hindered the timely development of the block. As per media reports, there has been a delay in signing of PSC agreement

for the block as the government is evaluating the option of charging higher cess/ royalty rate. We expect EOL to sign the PSC agreement for the block by 1QFY12, following which EOL would submit a revised development plan and commence development activities in the Ratna Fields. Delay in obtaining the government approval beyond 1QFY12 could affect our volume assumption for the block.

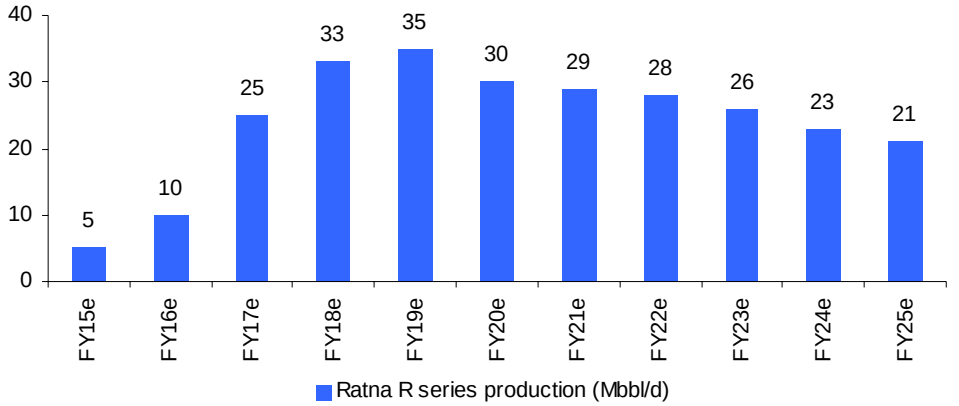
We currently value Ratna fields at INR62bn (INR46/share) using DCF methodology but assign a 50% valuation weight to our valuations as we await regulatory clearances from the government. We expect EOL to sign the PSC with the government by 1QFY12e and commercial production to begin in FY15e.

Investment multiple

From	To	Share of contractor (%)
0.0	1.5	90
1.5	2.0	85
2.0	2.5	75
2.5	3.0	70
3.0	3.5	60
3.5	999.0	50

Source: Company

Ratna and R series production profile



Source: Company, Antique

Ratna and R series block - key details and assumptions

Resources	Offshore block, located 90km southwest of Mumbai
	81mmboe (net to EOL) of 2C resources (92% oil), CPR by RPS Energy (2010)
Interest/operator	Essar Oil (50%) , Premier Oil (10%), ONGC (40%)
Current status	Awaiting signing of PSC and related agreements
Milestones	Commercial production expected in FY15e subject to signing of PSC with government
Government take and pricing	Govt profit share varies, depending on capex spent and recovery of capex;
Capex to full development	Equity invested to date: USD3m; Capex to full development: USD570m (EOL's share)
Production	Gross peak production of ~35Mbbl/d
Opex guidance	USD5.3/mmbtu
Other	API: 32-45; Cost/well: USD11- 12m
Evacuation	40km pipeline to be laid to connect to existing pipeline
Customers	Government nominated PSU

Source: Company, Antique

Mehsana (CB-ON/3 Block)

Mehsana Block in the Cambay basin has estimated net 2P oil reserves of 2MMboe and began commercial production of oil in 2007. EOL holds 70% interest in the block with balance being held by ONGC. In addition to the oil reserves, the block is also estimated to hold potential CBM resources. A report submitted by ARI last April estimates 2C CBM resources of 747bcf in the block. Current Indian regulations prohibit simultaneous exploration of CBM and oil and gas in the same field. EOL has however submitted a proposal for a separate contract for the exploration and production of CBM which is being considered by the government at present.

International acreage

EOL holds 100% interest in an offshore Nigerian CBM block where it has signed a PSC and is currently in discussions with a local Nigerian partner to farm out 37% stake in the block. The block has 2C resources of 53mmboe and best estimate prospective resources of 147mmboe according to NSAI (of which, EOL's net working interest is 126mmboe assuming it holds 63% stake). We currently account for 2C net oil reserves of 11MMbbl and 50% of prospective oil resources of 49MMbbl in our valuations. We assign a resource multiple of USD4/boe implying a valuation of INR5/share.

EOL also holds interest in Assam and Mumbai offshore in India as well as international blocks in Madagascar, Indonesia and Australia. Even though they hold potential for future resource accretion, we are currently not accounting them in our valuations as they are at very early stages of exploration.

E&P Valuation

- We value EOL's Raniganj CBM block at INR39bn (INR29/share) using DCF methodology, implying a resource valuation of USD5.2/boe. Our valuation comprises both Phase-1 and Phase-2 development.
- We currently employ DCF methodology to value Ratna and R-series field implying a valuation of INR62bn (INR46/share). We however assign a 50% probability to our DCF valuations as we await signing of PSC agreement. We are currently assuming INR2,625/ton of cess and 10% of royalty in our valuations for the block.
- Rajmahal CBM block is valued using a resource multiple of USD1.2/boe, significantly lower than that derived for Raniganj CBM block due to early stages of exploration.
- For the Nigerian block, we currently account for only oil reserves in our valuations. Resource valuation includes 2C net oil reserves of 11MMbbl and 50% of prospective oil resources of 49MMbbl. We assign a resource multiple of USD4/boe implying a valuation of INR5/share.

E&P valuation

Blocks	Resources accounted in valuations	Methodology	Value (INRbn)	Value (INR/share)
Raniganj CBM	930bcf (2P+Prospective resource)	DCF	39	29
Rajmahal CBM	4.7tcf (Prospective resource)	Multiple - USD1.2/boe	43	31
Ratna/R Series	70MMbbls (Net 2C resource)	DCF with a 50% probability	31	23
Nigeria	36MMbbls (2C+Prospective resource)	Multiple - USD4/boe	6	5
Total E&P valuation			**119**	**87**

Source: Antique

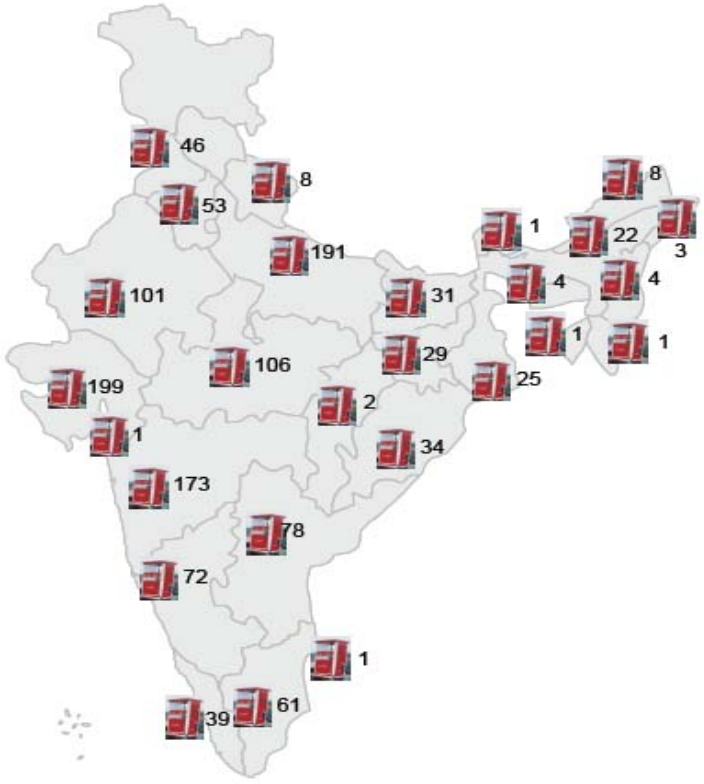
Strong retail network

Fuel marketing industry in India has been dominated by PSUs, with private players capturing only a small share of the entire market. This is due to retail fuel prices being controlled by the government giving rise to huge under-recoveries for the sector. Despite de-control of petrol prices effective June 26, 2010 and hike in diesel prices brought down under-recoveries to some extent, they are still expected to remain in the range of ~INR700-750bn due to sharp rise in oil prices. We believe that stabilisation of oil prices and progress on diesel price de-control would help to check under-recoveries in the system and also provide a level playing field for private retail players.

Despite slowdown in the pace of reforms on diesel price de-control, EOL has kept its medium-term goals in mind and has gone ahead with its programme to augment its retail network. EOL has a strong marketing network of 1,385 retail outlets with all of its outlets being owned and operated by the dealers. Company plans to increase its retail outlets to 1,700 by FY11 end, of which 240 are already under construction. Efforts have also been made to increase non-fuel revenues by tying up with a number of service providers, as well as infrastructure and FMCG companies.

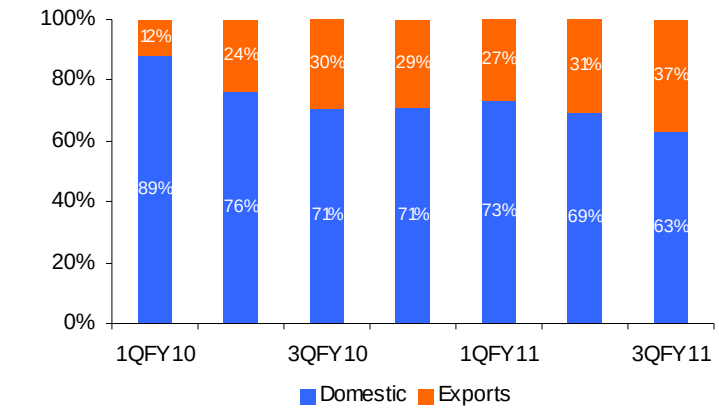
EOL is currently recording monthly retail sales of 42-45kl per outlet, much lower than PSUs sales per retail outlet per month average of 130-150kl. EOL however guides that it can ramp up its retail sales to 100kl with the de-regulation of diesel prices.

EOL's strong retail network

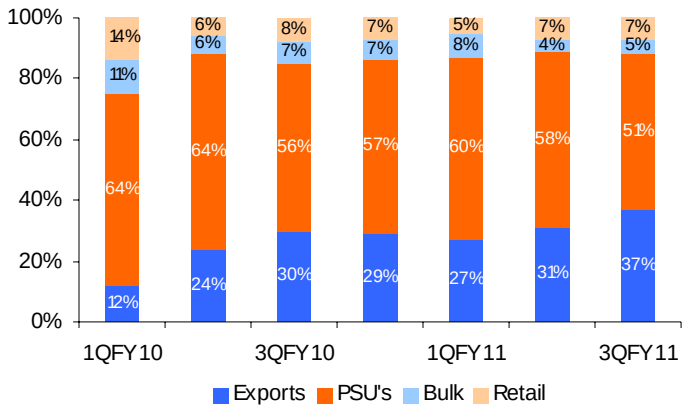


Source: Company

Share of exports in total product sales rising



EOL's product sales mix



Source: Company

Valutation and outlook

We recommend a BUY on EOL with an SOTP-based target price of INR171/share. We value EOL based on an SOTP methodology.

SOTP valuation

Valuation of Essar on FY12e financials

INRbn	Resources accounted in valuations	Methodology	Value (INRbn)	Value (INR/share)
R&M (including sales tax benefit)		DCF	213	156
Raniganj CBM	930bcf (2C+Prospective resource)	DCF	39	29
Rajmahal CBM	4.7tcf (Prospective resource)	Multiple - USD1.2/boe	43	31
Ratna/R Series (Oil 2C) (MMbbl)	140MMbbls (Gross 2C resource)	DCF with a 50% probability	31	23
Nigeria - 2C resource	36MMbbls (2C+Prospective resource)	Multiple - USD4/boe	6	5
Less: Debt (FY11 end)			(99)	-73
Total equity value			**233**	**171**
No of shares (bn)			1.366	

Source: Antique

Key macro risks to our earnings forecasts and ratings

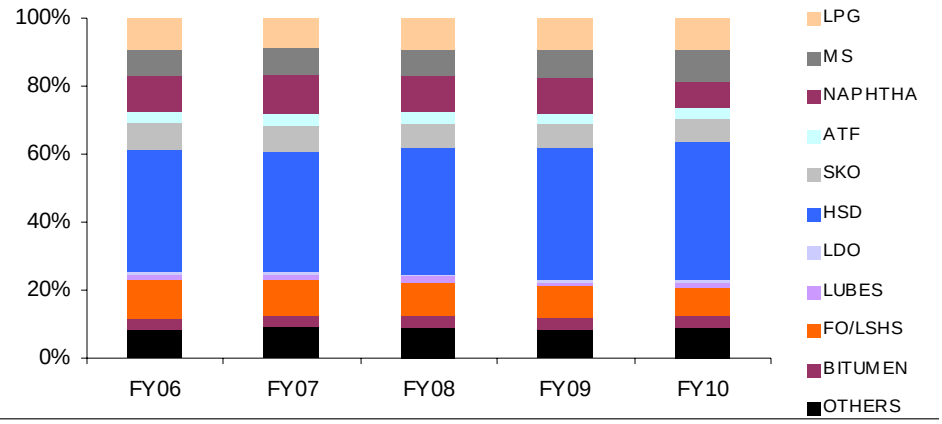
- Domestic or global economic slowdown may dampen refining demand and thus impact our refinery margin assumptions.
- Volatile crude and oil product prices may affect refining margins and E&P earnings.
- Delays in commissioning of Vadinar expansion project could affect our throughput assumptions and valuations.
- Regulatory delays in signing of PSC agreement for Ratna R series field beyond 1QFY12e could impact our DCF assumptions for the field.
- Volatility in foreign exchange may increase costs of key feedstock (crude oil), which is denominated in US dollars.
- Any adverse regulatory change with respect to direct or indirect taxation may affect our earnings and DCF estimates.

Annexure 1

Indian fuel consumption - on a strong footing

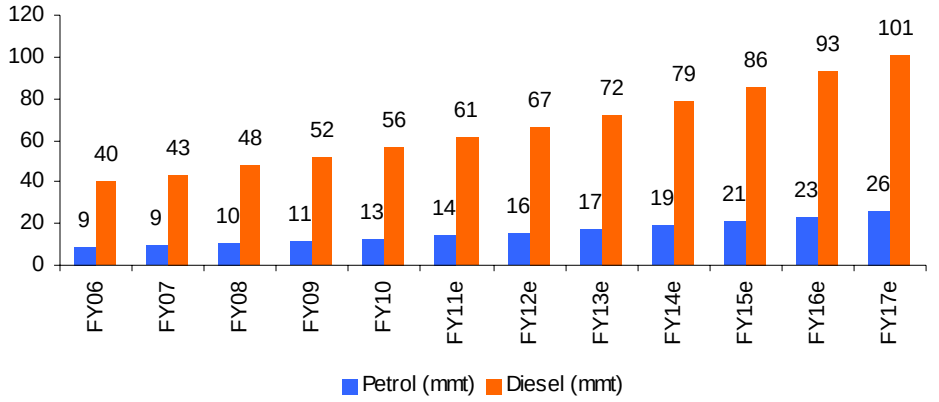
Diesel forms ~41% of total fuel consumption in India

Indian fuel oil consumption mix



Source: PPAC, Antique

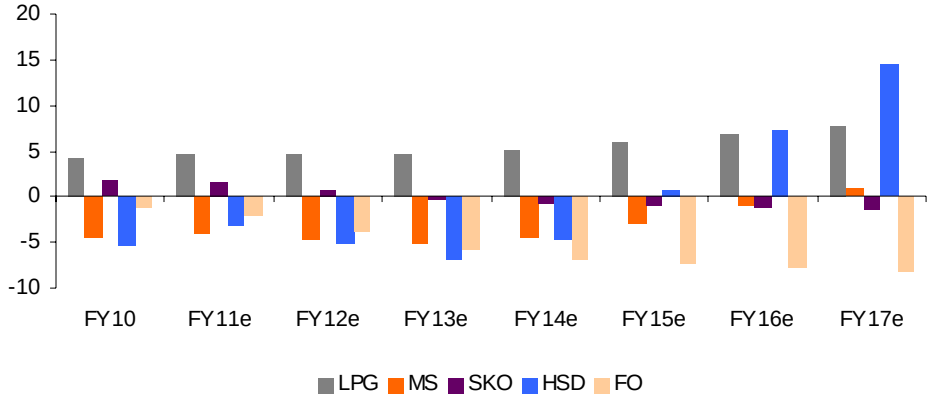
Auto fuels consumption expected to grow at a CAGR of 9% in the medium term



Source: PPAC, Antique

Demand supply gap of key petroleum products to narrow down led by strong domestic demand growth

Net demand over supply of key petroleum products in India (mmt)



Note: We have not takem RIL's SEZ refinery in our analysis;
Source: PPAC, Antique

India currently has a total petroleum refining capacity of 3.7MMbbl/d which is expected to increase by 1.3MMbbl/d by FY15. Much of the incremental capacity is expected to come from greenfield refinery expansion by PSU refiners particularly Bina refinery (120Mbbl/d) by BPCL, Bhatinda refinery (180Mbbl/d) by HPCL and Paradip refinery (300Mbbl/d) by IOCL as well as expansion by several private refiners like Essar Oil.

Surplus/(Deficit) of petroleum products in India

(MMt)	FY10	FY11e	FY12e	FY13e	FY14e	FY15e	FY16e	FY17e
LPG	(4.1)	(4.6)	(4.6)	(4.7)	(5.1)	(5.9)	(6.9)	(7.8)
MS	4.6	4.0	4.7	5.2	4.5	3.0	1.1	(1.0)
NAPHTHA/NGL	4.4	5.4	7.4	9.4	10.6	11.3	11.9	12.4
ATF	3.2	3.1	3.7	4.1	4.1	3.7	3.2	2.7
SKO	(1.9)	(1.6)	(0.6)	0.3	0.8	1.1	1.2	1.4
HSD	5.5	3.2	5.3	6.9	4.7	(0.8)	(7.4)	(14.5)
LDO	0.0	0.1	0.2	0.3	0.4	0.4	0.5	0.5
LUBES	(1.8)	(1.9)	(1.9)	(1.9)	(2.0)	(2.2)	(2.3)	(2.5)
FO/LSHS	1.2	2.1	3.9	5.7	6.9	7.4	7.9	8.3
BITUMEN	(0.9)	(1.1)	(1.1)	(1.1)	(1.4)	(1.9)	(2.6)	(3.2)
OTHERS	3.9	3.8	5.0	6.1	6.3	5.8	5.1	4.4
Total	**14.1**	**12.6**	**21.9**	**30.3**	**29.8**	**21.8**	**11.8**	**0.6**

Source: PPAC, Antique

India's oil products demand has grown at a CAGR of 5% over FY06-FY10. Much of this growth has been led by rising demand for transportation fuels namely petrol and diesel. Infact diesel currently forms more than 40% of total oil products consumption in India. We believe that auto fuels will continue to lead petroleum products demand growth and will form ~60% of total oil products demand by FY15e.

While India imports more than 75% of its crude requirements, it has historically been a net exporter of petroleum products. With robust demand growth in auto fuels, the oil products market dynamics are set to change. India is expected to turn net deficit in diesel to the tune of 7.4mmt by FY16e from a net surplus of 5.4mmt in FY10. Gasoline demand is also expected to grow at a CAGR of 10% and will turn net deficit by FY17e. This makes an attractive investment case for setting up new refineries in India.

Annexure 2

Coal bed methane

What is coal bed methane?

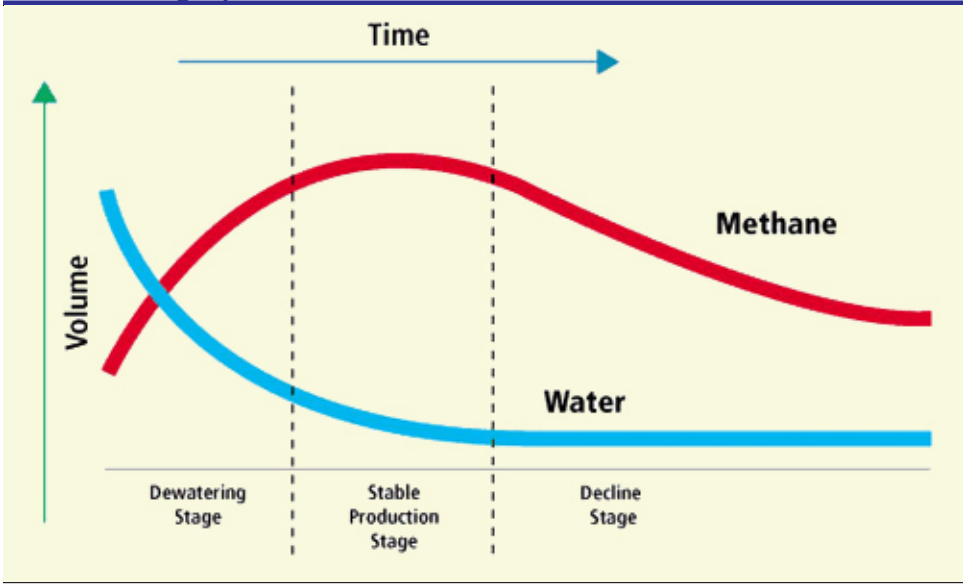
The primary energy source of natural gas is a substance called methane (CH4). Methane, which typically accounts for 95% of the gas contained in coal, is retained within coal in one of three states: as adsorbed molecules on the internal surfaces and within the structure of the coal, as gas trapped within the pores or fractures of the coal, or in solution within the groundwater that may exist within the fracture system.

Coal bed methane (CBM) is simply methane found in coal seams. It is produced by non-traditional means, and therefore, while it is sold and used the same as traditional natural gas, its production is very different. CBM is generated either from a biological process as a result of microbial action or from a thermal process as a result of increasing heat with depth of the coal. Often a coal seam is saturated with water, with methane is held in the coal by water pressure.

CBM well cycle

Typical coal bed methane wells display a distinctive pattern in gas production over time. During the dewatering stage, water is removed to lower the pressure within the coal bed. Once the water pressure is removed during the dewatering stage, production stabilizes with peak gas production and minimal water production. As a CBM well is entering the end of its production, methane production gradually declines. This pattern of gas production in a typical CBM well is displayed below:

Pattern of CBM gas production



Source: Industry

The economic viability of a CBM play is determined by three main factors:

- The gas content of the coal
- The permeability or flow characteristics of the coals
- The thickness of the coal beds

Operators can enhance the permeability of a coal bed by introducing artificial fractures into the coal, and this induced fracturing is part of most CBM well completions. The other two factors determining gas production are more limiting.

How do the gas companies extract methane from a coal seam

Since CBM travels with ground water in coal seams, extraction of CBM involves pumping available water from the seam in order to reduce the water pressure that holds gas in the seam. CBM has very low solubility in water and readily separates as pressure decreases, allowing it to be piped out of the well separately from the water. Water moving from the coal seam to the well bore encourages gas migration toward the well. CBM producers try not to dewater the coal seam, but rather seek to decrease the water pressure (or head of water) in the coal seam to just above the top of the seam. However, sometimes the water level drops into the coal seam.

Steps in drilling a CBM gas well

Geophysical inputs

- Remote sensing imagery: Remote sensing data to identify the major tectonic set-up which is useful to explore an area of coal bed methane. The details of major fault trends will help in prioritizing the areas available for exploration.

- Seismic survey: High resolution seismic survey is helpful to know the basin configuration, its tectonic style, thickness of coal-bearing formation, lateral continuity and approximate depth of different coal seams.

The sampling interval, geophone, charge size, charge depth, group interval and shot interval should be carefully chosen through experiments and the full spectrum of recorded frequencies during processing of data should be retained. The geophysical inputs may, however, be required in a unexploited field before taking up an area for coal bed methane exploration.

Drilling

- The design and procedure for drilling a coal bed methane gas well must achieve the aims of maintaining well control and preventing formation damage.

- The primary concerns for drilling are overpressure of gas/water high permeability which leads to loss of circulation fluid, formation damage due to the nature of coal and hole sloughing

- The rigs commonly used are portable, self-propelled and hydraulically-driven, having a top head drive. A major problem during drilling could be the excessive flow. Drilling with pressure may be hindered due to escape of large quantities of water through the coal seams.

Glossary of acronyms used

Acronym	Description
CBM	Coal bed methane
DGH	Directorate General of Hydrocarbons
PSC	Production sharing contract
1P	Proved
2P	Proved + probable
3P	Proved + probable + possible
bbl / bbls	Barrel / barrels
boe	Barrels of oil equivalent
Mbbl	Thousand barrels
Mbbl/d	Thousand barrels per day
MMbbl	Million barrels
MMbbl/d	Million barrels per day
mmt	Million tones
mmtpa	Million tones per annum
bcf	Billion cubic feet
tcf	Trillion cubic feet
mmcmd	Million cubic metres per day
MMBtu	Million british thermal units
Sq km	Square kilometers

Source: Industry

Financials

Profit and Loss Account (INRm)

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
Revenues	**375,164**	**365,046**	**448,906**	**470,540**	**497,582**
Expenses	(332,112)	(345,617)	(422,366)	(437,095)	(452,774)
EBITDA	**10,189**	**10,659**	**26,539**	**33,444**	**44,808**
Depreciation & amortisation	(6,549)	(7,283)	(7,292)	(10,429)	(13,165)
EBIT	**3,640**	**3,376**	**19,247**	**23,015**	**31,643**
Interest expense	(10,915)	(11,809)	(13,159)	(14,601)	(15,478)
Other income	1,837	8,719	1,811	2,976	2,840
Profit before tax	**(5,437)**	**286**	**7,900**	**11,390**	**19,004**
Taxes incl def. taxation	(302)	(9)	(1,580)	(2,278)	(3,801)
Profit after tax	(5,135)	295	6,320	9,112	15,203
Adjusted profit after tax	**(5,135)**	**295**	**6,320**	**9,112**	**15,203**
Recurring EPS (INR)	**(4.3)**	**0.3**	**4.6**	**6.7**	**11.1**

Balance Sheet (INRm)

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
Share Capital	12,181	12,181	13,657	13,657	13,657
Reserves & Surplus	23,639	34,555	40,875	49,987	65,190
Networth	**35,820**	**46,737**	**54,532**	**63,644**	**78,847**
Debt	100,317	103,537	122,394	137,585	142,424
Capital Employed	**136,137**	**150,274**	**176,926**	**201,228**	**221,271**
Gross Fixed Assets	133,647	138,025	143,617	234,983	244,027
Accumulated Depreciation	7,589	14,932	22,223	32,653	45,818
Net Assets	**126,058**	**123,094**	**121,394**	**202,330**	**198,209**
Capital work in progress	19,139	43,188	68,408	5,598	9,339
Investments	1,031	2,030	2,030	2,030	2,030
Current Assets, Loans & Advances					
Inventory	22,509	39,694	47,405	49,689	52,545
Debtors	11,654	20,333	24,283	25,453	26,916
Cash & Bank balance	11,746	13,508	23,365	31,535	54,448
Loans & adv. and others	13,322	10,254	11,603	12,003	12,503
Current Liabilities & Provisions					
Creditors	69,074	101,603	121,339	127,187	134,497
Other liabilities & provisions	253	228	228	228	228
Net Current Assets	**(10,096)**	**(18,043)**	**(14,912)**	**(8,735)**	**11,687**
Def. tax assets/ (liabilities)	6	6	6	6	6
Application of Funds	**136,137**	**150,274**	**176,926**	**201,228**	**221,271**

Per share data

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
No. of shares (m)	1,195	1,202	1,366	1,366	1,366
BVPS (INR)	30	39	40	47	58
CEPS (INR)	1	6	10	14	21

Margins (%)

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
EBITDA (%)	2.7	2.9	5.9	7.1	9.0
EBIT (%)	1.0	0.9	4.3	4.9	6.4
PAT (%)	-1.4	0.1	1.4	1.9	3.1

Source: Company, Antique

Key assumptions

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
Refinery throughput(mmt)	12.0	13.5	14.8	14.8	18.0
Light heavy differential (USD/bbl)	8.4	1.0	2.0	2.1	2.3
Diesel crack spread (USD/bbl)	22.1	7.2	12.5	15.0	15.3
Gasoline crack spread (USD/bbl)	8.1	9.0	10.0	10.0	10.5
INR/USD	46.0	47.4	45.5	44.0	43.0

Cash flow statement (INRm)

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
PBT	**(5,437)**	**286**	**7,900**	**11,390**	**19,004**
Depreciation & amortisation	6,549	7,283	7,292	10,429	13,165
Interest expense	7,488	8,184	13,159	14,601	15,478
(Inc)/Dec in working capital	10,223	(6,415)	6,726	1,993	2,491
Tax paid	31	69	(1,580)	(2,278)	(3,801)
Others	352	(2,520)	-	-	-
CF from operating activities	**19,204**	**6,886**	**33,497**	**36,136**	**46,338**
Capital expenditure	(15,977)	(20,655)	(30,813)	(28,556)	(12,785)
Others	(3,235)	(100)	-	-	-
CF from investing activities	**(19,212)**	**(20,755)**	**(30,813)**	**(28,556)**	**(12,785)**
Inc/(Dec) in share capital	-	-	1,475	-	-
Inc/(Dec) in debt	(1,374)	6,652	18,857	15,191	4,840
Others	564	7,459	(13,159)	(14,601)	(15,478)
CF from financing activities	**(811)**	**14,111**	**7,173**	**589**	**(10,639)**
Net cash flow	**(818)**	**243**	**9,858**	**8,170**	**22,914**
Opening balance	12,564	13,265	13,508	23,365	31,535
Closing balance	**11,746**	**13,508**	**23,365**	**31,535**	**54,448**

Growth indicators (%)

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
Revenue	na	(3)	23	5	6
EBITDA	na	5	149	26	34
PAT	na	106	na	44	67
EPS	na	106	na	44	67

Valuation (x)

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
PE	na	na	23.8	16.5	9.9
P/BV	3.7	2.8	2.8	2.4	1.9
EV/EBITDA	24.5	23.4	9.4	7.5	5.6
EV/Sales	0.7	0.7	0.6	0.5	0.5

Financial ratios

Year ended 31st Mar	2009	2010	2011e	2012e	2013e
RoE (%)	na	1	12	14	19
RoCE (%)	3	2	11	11	14
Debt/Equity (x)	2.8	2.2	2.2	2.2	1.8
EBIT/Interest (x)	0.3	0.3	1.5	1.6	2.0

Source: Company Antique

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