JPMorgan

India Refining

Three refineries and an outlook

We met the managements of three refining companies - Essar Oil, Cals Refineries, and Chennai Petroluem. Essar and Cals position themselves to gain from India's location and cost advantage, are sanguine about the medium-term refining outlook, and believe their low capital cost will help sustain them in a downturn. Chennai expects FY09 GRM to be in line with FY08. We present highlights of the meetings and the medium-term JPMorgan refining outlook.

- ***Essar Oil:*** Essar Oil is in the process of expanding its 10.5mmtpa refinery at Vadinar to 34mmtpa in two phases, at a capex cost of US$6B. Once completed its complexity would be 12.8, it would process avg 25^0 API fuel and have a light, middle distillate yield of 90%. Promoters have subscribed to a US$2B GDR issue (US$300MM infused to date). Company aims for financial closure on further debt funding of US$4B by Sep-08.
- ***Cals Refinery:*** Implementing a US$1B, 5mmtpa refinery project by June 2010 with second-hand primary and secondary processing units from Germany/Canada/US. Lower capital cost/bbl and faster implementation than Greenfield project is management's reasoning for a second-hand refinery. Company has raised US$200MMn in GDS and plans financial closure by Oct-08.
- ***Chennai Petroleum:*** Chennai Petro is undergoing a 1mmtpa debottlenecking at Manali and Euro III/IV upgrade, which is expected to be completed by Mar-10. Chennai Petro is also planning a Rs35B distillate upgrade by Mar-12 that would increase yield by 8% and Nelson Complexity to 9.5. Management expects GRMs to moderate from Q1 levels (US$16/bbl) but full year margins to be in line with FY08 levels (US$8.5/bbl).
- ***JPMorgan refining view:*** We expect strong distillate margins to more than offset weakness in gasoline and fuel oil. We see risks that the record diesel margins created as one-off demand shocks coinciding with slow supply response will ease in the fall with the arrival of new refining capacity in Asia and lower seasonal demand, but we expect margins to pick up in the winter 08/09 and remain strong throughout next year.

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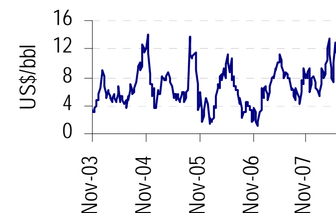
India
Independent Refiners

Pradeep Mirchandani, CFA[AC]
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com
J.P. Morgan India Private Limited

Adarsh Parasrampuria
(91-22) 6639-3097
adarsh.x.parasrampuria@jpmorgan.com
J.P. Morgan India Private Limited

Brynjar Eirik Bustnes
(852) 2800-8578
brynjar.e.bustnes@jpmorgan.com
J.P. Morgan Securities (Asia Pacific) Limited

Regional GRMs



Source: Bloomberg, JP Morgan

Table 1: Refining companies

	Essar	Cals	Chennai
Ratings	NR	NR	NR
Mcap (US$bn)	6.3	1.0	1.0
New Capacity (mmt)	5.5 / 18	5.0	1.0
Commissioning	Jul-10/ Dec-10	Jun-10	Dec-09
Cost (US$bn)	6.0	1.0	0.1

Source: Bloomberg, JP Morgan

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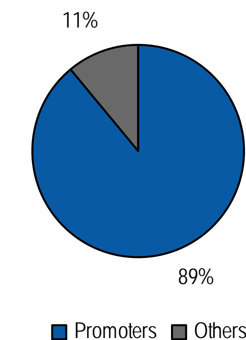
Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Essar Oil

Essar shareholding

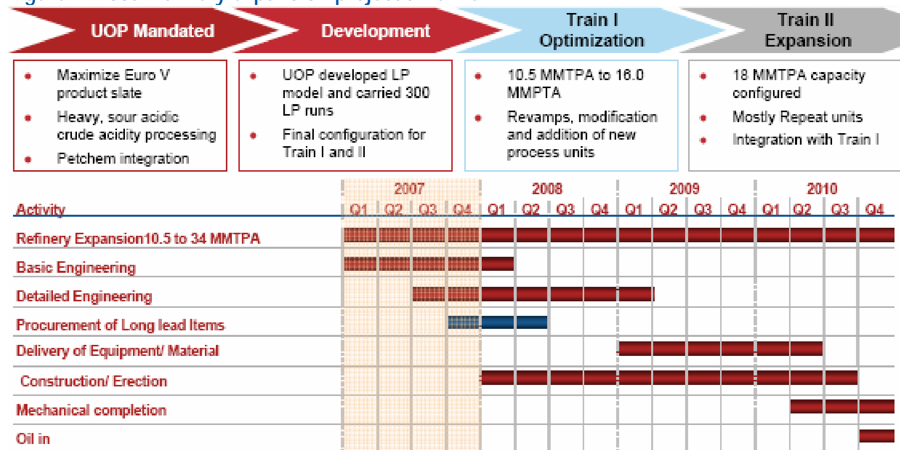


Source: NSE India, Company

Company Background: Essar Oil is part of the Essar group which holds a 89% stake in the company. Project implementation for Essar Oil's 10.5mmtpa refinery in Vadinar, Gujarat originally started in the 1990s. The project faced significant time and cost overruns and began trial production in 2007. Commercial production has commenced from May 2008. The company is currently undergoing a ambitious expansion plan to increase its refinery capacity from 10.5mmtpa to 34.0mmtpa in two phases. Essar Oil is also in talks for acquiring a 50% stake in 4mmtpa refinery in Kenya and over the long term plans to have 1.0mnboe of refining capacity. Essar Oil has E&P interests with 5 domestic blocks and 4 international blocks along with 50% stake in Ratna field which has ~81mmboe of 2P reserves. Essar Oil has an extensive network of 1274 retail outlets but has ceased sales and network expansion in the recent past due to regulated downstream scenario in India.

Refinery Project Update: Essar plans to increase its refining capacity to 34mmtpa by CY10 in 2 phases with train 1 being optimization of existing facility to 16.0mmtpa by July10 and Train 2 being brownfield expansion of an additional 18.0mmtpa by Dec-10. The expansion would increase Essar's Nelson Complexity Index from 6.1 currently to 12.8 by Dec-10.

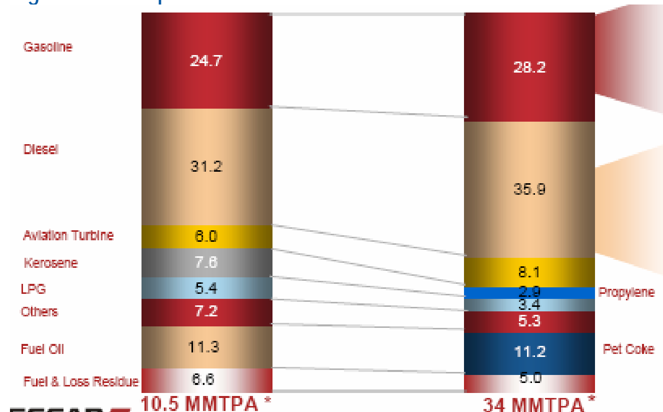
Figure 1: Essar refinery expansion project timeline



Source: Company, JP Morgan

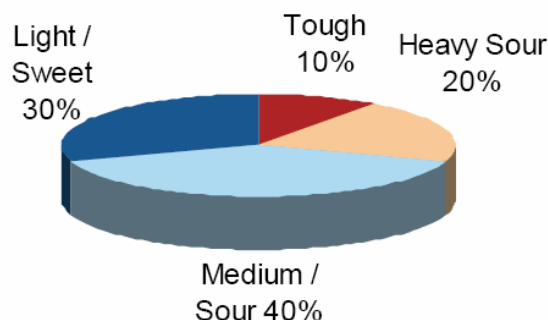
Product slate and crude diet: Essar's light and middle distillate yield is currently is 75% and would increase to ~90% with the expansion by CY10. Post the expansion ~64% of the products would be Petrol and Diesel with ~90% of that being Euro4/5 complaint. Most of the Petrol and Diesel produced is expected to be exported to the US and Europe with the other products being marketed in the country. The refinery would be able to process 100% medium to tough crude from ~70% now. The average API of crude used is expected to reduce from 36 to 25.

Figure 2: Essar product slate



Source: Company, JP Morgan

Figure 3: Essar Crude diet (post expansion)



Source: Company, JP Morgan

E&P update: Essar has five domestic blocks and four international blocks. Its main E&P assets is the Ratna and R-Series block where Essar holds 50% with ONGC (40%) and Premier Oil (10%) being other partners. This block holds ~81mmboe of 2P reserves. After a delay of 10 years Essar is about to sign the PSC for the Ratna field. (It has been delayed with differences on Cess and Royalty rates between government and contractor). Post signing the PSC, production is expected to start in about 18 months .Essar has applied for five blocks in NELP VII round. Essar also has a CBM block in Ranigunj in which drilling is planned in CY08.

Capex and funding: The total cost for the refinery expansion is estimated at US$6B with ~US$1.7B for expansion to 16.0mmtpa and ~US$4.3B for 18.0mmtpa expansion (train 2). Essar also plans to spend US$300-400MM in E&P over the next 4-5 years. Essar plans to fund the expansion with a mix of equity, internal accruals from existing refinery and debt. The promoters have fully subscribed toUS$2B Global depository shares (at Rs200/share) and to date US$300MM has been brought in by the promoter, the remaining US$1.7B will be brought in on achieving financial closure. Essar is looking to restructure current loans and intends to have ~US$5.5-6.0B of gross debt (with US$1.5B of ECB loan and US$3.3B of INR loan planned). Of the debt planned Essar has US$3.3B of loan sanctioned and approved and has received in principle approval for another US$1.3B of loans. The company expects financial closure by Sep-08.

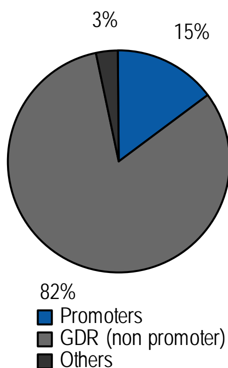
1Q FY09 update: Essar reported a GRM of US$12.5/bbl in 1Q with a throughput of 2.1mmtpa (over two months of production) and management highlighted effective capacity of 12mmtpa against nameplate capacity of 10.5mmtpa. Net profit reported was Rs300MM with Rs3B of forex and MTM losses on crack hedging as Essar locked in product spreads in the quarter.

Table 2: Essar capex and funding

Capex	US$MM	Funding	US$MM
Existing refinery	3300	Existing Equity	1000
New refinery	6000	Existing Debt	2000
E&P	300	GDS- Promoter	2000
		New debt	4000
		Internal accruals	600
Total	9600	Total	9600

Source: Company, JPMorgan estimates.

Cals shareholding



Source: NSE India, Company

Company background: Cals refinery is part of the Spice group with a 14.9% holding by the promoters. Cals Refineries is implementing a 5.0mmtpa refinery project in Haldia (East coast, West Bengal) for which it is buying and shipping existing plants from Germany/Canada/US to India and adding more secondary processing units. The dismantling of the refinery in Germany has already begun and Cals expects to ship and assemble the refinery in 18-24 months with a completion target of 2H CY10.

The refinery project: The refinery project would involve moving basic crude distillation units (CDU) from a PetroCanada plant and a refinery in Kansas, USA, moving secondary processing units from Bayernoil Ingolstadt refinery (Germany) and adding new Propylene and Benzene units (details of capacities given in table below).The refinery being brought from Germany is under operations from late 60's and units from PetroCanada and Kansas (US) are under operations from 70's. The refinery will be relocated by Ventech Corp USA, which has done similar relocation projects, according to management.

Figure 4: Refinery

Source: Media reports, JP Morgan

Product slate and Crude Diet: According to management on commissioning the refinery would have a Nelson complexity of 11.2 and would be able to produce 65% of Petrol and Diesel and about 3-4% each of SKO, ATF, Naphtha, Propylene, Benzene and Pet Coke each. The refinery would be able to process 50:50 light - heavy crude with average API of 30.

Reason for moving the refinery: According to Cals management faster implementation (18-24 months) and economics (low capex cost per bbl) are the main reasons for Cals opting for a second-hand refinery. The Ingolstadt Refinery was until recently producing Euro IV-V grade fuels, and environmental issues are not the reason for its closing down, according to Cals management. The refinery was working as an intermediate refinery with two other units in the vicinity at Germany. A recent expansion by Bayernoil at one of the other sites has made this intermediate refinery redundant.

Table 3: Primary and secondary processing units (source and capacity)

Unit	Capacity	Remarks
Crude Distillation Unit	100 Kboepd	Petro Canada/Kansas (US)
FCC unit	955 KTPA	Ingolstadt, Bayernoil (Germany)
CombiCracker	4000 KTPA	Ingolstadt, Bayernoil (Germany)
Propylene Recovery Unit	200 KTPA Propylene	New facility
Naphtha HDT Unit)	1210 KTPA	Ingolstadt, Bayernoil (Germany)
Diesel HDS Unit	910 KTPA	Ingolstadt, Bayernoil (Germany)
Cracked naphtha desulphurization unit	410 KTPA	Ingolstadt, Bayernoil (Germany)
Hydrogen Unit	31.4 MMSCFD	Petro Canada
Naphtha Isomerization Unit	520 KTPA	Ingolstadt, Bayernoil (Germany)
Naphtha Reforming Unit (CCR)	740 KTPA	Ingolstadt, Bayernoil (Germany)
LPG Recovery Unit	119 KTPA LPG	Ingolstadt, Bayernoil (Germany)
Sulphur Unit	100 KTPA sulfur	Ingolstadt/New Facility
Benzene Extraction Unit	180 KTPA benzene	New
Delayed Coker Unit	9500 BPSD	Petro-Canada

Source: Company, JPMorgan

Location, crude supply and marketing: Cals Refinery is located on the East coast with most of the new refineries from Essar, RIL coming on the West coast. According to the management though an east coast location would add US$2/bbl of additional freight and transport cost but Cals would be away from regions with large new supplies (west coast). Cals has tied with BP for 100% of crude supply and 50-60% of product offtake. Cals intends to export its petrol and diesel output and supply Naphtha, Pet coke and Benzene in India.

Capex and funding: Cals is implementing the project with a total cost of US$1B. Of the total cost Cals would pay ~US500MM to Bayernoil, PetroCanada for the second hand refinery and processing units and incur additional US$40MM for the proplylene and Benzene plants.

Cals has raised US$200MM in GDR issue at face value of Rs1/share in Dec-07 with promoter infusion and also investments from institutional investors. Cals is looking to raise US$250B in FCCB at a premium to face value. (The stock trades at Rs3.9, with a face value of Rs1.0). Cals plans to raise ~US$600MM in debt of which they have in principle approval for ~US$375MM. Cals expects to achieve financial closure by Oct-08.

Table 4: Capex plans and funding

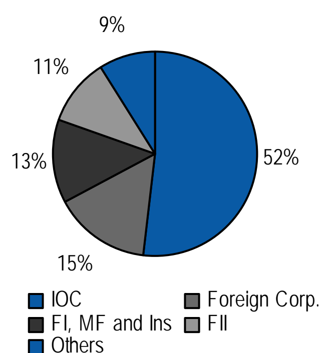
Capex Costs	US$MM	Funding	US$MM
Bayernoil refinery , Germany	375	GDR	200
PetroCanada/Kansas (US)	116	FCCB	250
New Propylene and Benzene plant	40	Debt	553
Transport, other plant and Machinery	308		
License, fees, engineering	23		
Others	63		
Interest during construction	78		
Total	**1003**	**Total**	**1003**

Source: Company, JP Morgan estimates

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Chennai Petroleum

Chennai Petro Shareholding



Source: NSE India, Company

Company Description: Chennai Petroleum is a subsidiary (52%) of Indian Oil Corporation (largest state owned oil marketing R&M co.). It has a refining capacity of 10.5mmtpa with 2 refineries at Manali (9.5mmtpa) and Narimanam (1.0mmtpa). Chennai petroleum is currently de-bottlenecking its Manali refinery to produce 10.5mmtpa and under-going Euro III/IV upgrades and distillate yield improvements.

Updates on Projects

- **Refinery De-bottlenecking:** Unit III of the Manali refinery is undergoing de-bottlenecking which would increase Manali refinery capacity from 9.5mmtpa to 10.5mmtpa and increase overall capacity to 11.5mmtpa.The project would take about 18 months (Dec-09) and is estimated to cost Rs2B.

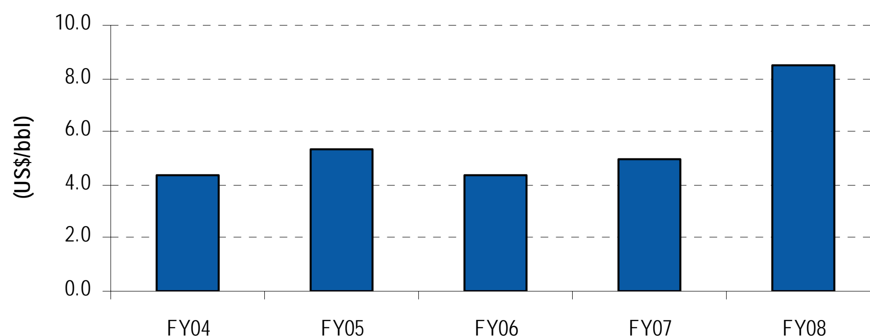
- **Euro III/IV Upgradation:** Chennai petroleum is undergoing a Euro III/IV upgrade program incurring a capex of Rs25B which is scheduled for completion in April 2010. The upgrade would help Chennai Petro to refine 20% of Euro IV-compliant products (targeted at Chennai and Bangalore markets) and 80% Euro III-compliant products.

- **Hydrotreater and Delayed Coker:** Chennai Petro is also planning to add Diesel Hydrotreater and a delayed Coker which would increase Chennai Petro's distillate yield by 8% and increase Nelson complexity from 8.0 to 9.5. Management expects a US$1-2/bbl increase in overall GRMs. The project would cost Rs 35B and is scheduled for completion by March 2012.

Management's medium-term outlook on GRMs: In 1Q FY09 Chennai declared a GRM of US$15.9/bbl mainly due to higher distillate spreads and inventory gains of US$3-4/bbl. Management expects GRMs in FY09 to moderate from 1Q levels and be in line with FY08 levels.

Views on BK Chaturvedi report: According to the management BK Chaturvedi report recommendations would have a significant negative impact on GRMs due to shift to export parity pricing suggested.

Figure 5: Chennai Petroleum GRMs



Source: Company, JPMorgan

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

Global refining view

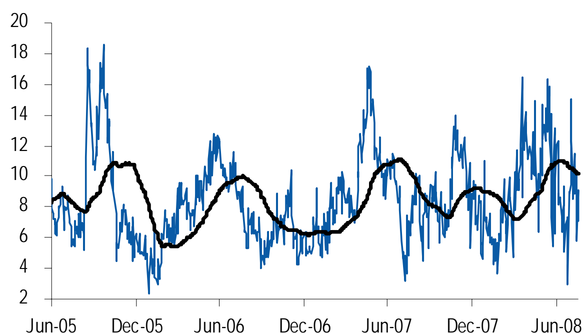
A "perfect storm" in diesel

Extracts from report published *The party for diesel margins is not yet over - 2Q preview, macro update* by our global oil and gas analyst , Kim Fustier.

This year has turned out to be highly unusual in several ways for the refiners, which have had to cope with dramatic changes in the macro environment. The main feature of 2008 so far has been the unprecedented divergence between record high middle distillates margins and weak gasoline cracks – at a time when gasoline margins usually rise while distillates margins fall seasonally.

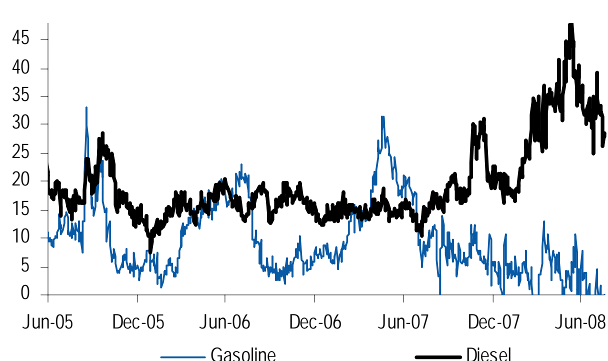
2Q macro review: Thanks to the strength in distillates, our benchmark NWE complex margins averaged only slightly below the very strong 2Q07 levels ($11.1/bbl in 2Q08 vs $11.5/bbl in 2Q07) and well above the weak 1Q08 ($7.3/bbl). Meanwhile, our benchmark simple margins have remained in negative territory at -$0.8/bbl, but they nevertheless rose vs 1Q as the strength in distillates more than offset weakness elsewhere.

Figure 6: NWE complex refining margin
$/bbl and 3 month moving average



Source: Bloomberg, JPMorgan

Figure 7: NWE product cracks vs Brent
$/bbl and 3 month moving average



Source: Bloomberg, JPMorgan

Table 5: Crude and product prices
$/bbl

	FY06	FY07	2Q07	3Q07	4Q07	1Q08	2Q08	QTD 3Q08	Latest
Gasoline	10.0	12.0	21.7	9.9	6.5	3.3	4.0	(1.0)	(2.8)
Diesel	15.8	17.0	15.2	15.9	22.3	23.9	36.6	31.6	27.8
HSFO	(21.2)	(21.5)	(21.4)	(21.6)	(21.7)	(32.3)	(39.7)	(31.7)	(27.3)
Jet	16.4	16.7	15.1	15.4	20.7	23.4	36.8	37.4	33.9
Naphtha	1.1	6.7	9.9	4.2	5.5	2.4	(5.1)	(6.4)	(8.2)
LPG	3.3	12.0	7.0	9.1	18.5	13.6	(6.1)	(9.7)	(7.3)
HO	12.2	12.1	10.8	12.0	14.9	17.8	30.0	28.0	25.6
Brent Crude	65.4	72.5	68.7	74.8	88.6	96.4	121.5	134.1	126.0
Brent-Urals Spread	(4.2)	(3.3)	(3.6)	(2.9)	(3.1)	(3.3)	(4.2)	(3.5)	(6.0)
NWE Complex Margin	7.9	9.6	11.5	7.6	9.3	7.3	11.1	8.7	7.1
MED Complex Margin	9.0	10.0	13.0	8.6	9.9	9.2	13.3	12.3	13.9
NWE Simple Margin	0.1	1.0	2.5	0.1	1.2	(2.3)	(0.8)	0.5	0.5
US weighted avg.	13.0	15.7	27.3	14.8	9.5	10.3	14.3	10.0	10.0

Source: Bloomberg, JPMorgan calculations.

The last few months have witnessed what has been dubbed a “perfect storm” for middle distillates. Diesel/gasoil demand has been unusually strong due to a number of one-off factors, while supply has been constrained by heavy maintenance and lower-than-normal refinery utilisation. Although well known by now, we think it is worth examining the main factors behind distillates’ recent strength in order to assess the sustainability of these margins.

1: Strong demand

A number of one-off factors have contributed to a spike in diesel demand, including:

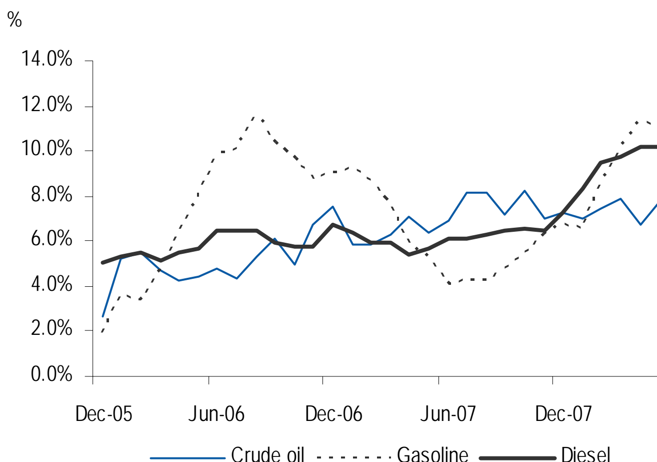
1: Power shortages

- Diesel/gasoil demand has been supported by power shortages in several **Latam** countries (most notably in Chile) due to a shortfall of natural gas. In Chile, power generators use 500ppm low sulphur diesel rather than 1000ppm gasoil for environmental reasons, which has boosted diesel imports
- In **China**, diesel consumption has been boosted by the use of oil-fired power generators, especially in the wake of the Sichuan earthquake. About 4 GW of coal and natgas-powered electricity generation capacity have been put offline due to the earthquake, equivalent to 170kbd of additional diesel demand. In addition to the temporary outages – which may very well last for another few months – many generators have switched away from fuel oil to diesel as 1) diesel prices are subsidised and thus lower than market fuel oil prices and 2) diesel’s energy content is higher than fuel oil’s.
- **Australia** has been importing extra diesel for power generation to compensate for the loss of natural gas after an explosion on June 3rd.

2: China stockpiling

There is evidence that China has been stockpiling gasoline and diesel ahead of the August Olympics, as the government enforces minimum fuel stock levels. Apparent demand for diesel (refinery output plus imports minus exports) has been running at c.10% y/y, with imports expected to be 140kbd in 1H08 compared to 13kbd in the same period last year.

Figure 8: China y/y demand growth (rolling 12-month) by product



Source: JPMorgan, Bloomberg

2: Tight supply

The recent surge in diesel demand has not been met by a corresponding supply response as a result of the structural imbalance of the global refining system. Taken in aggregate, the global refining system produces a surplus of gasoline and fuel oil and not enough middle distillates. In this section, we recap the reasons – both fundamental and temporary – behind the tightness in diesel supply.

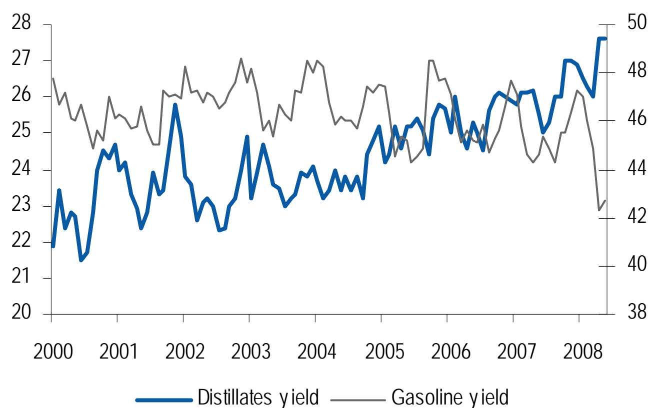
1: Limited flexibility in product yields

The only way for a refiner to materially change product yields – for instance produce more diesel and less gasoline – is to invest in a new upgrading unit such as a hydrocracker, a costly project which can take up to 2-3 years. However, in order to capture strong diesel margins within a short timeframe and with little investment, refiners have the option to adjust product yields by changing catalyst composition and tweaking utilisation rates of various conversion units (e.g. increasing hydrocracker runs and reducing FCC runs). Such steps can have a small impact on overall product yields – typically a few percentage points.

US refinery distillates yields have gone from around 25% one year ago to a record high of 27.6% (see Figure 8) and diesel production is up 500kbd y/y (see Figure 9), despite low overall refinery utilisation. The US has shifted from being an importer of diesel historically to a net exporter in the space of a few months. However, we think that most of the "low-hanging" fruits have already been reaped by now, leaving little scope for further increases in diesel yields.

Figure 9: US distillates yields have increased steadily in the past 5 yrs

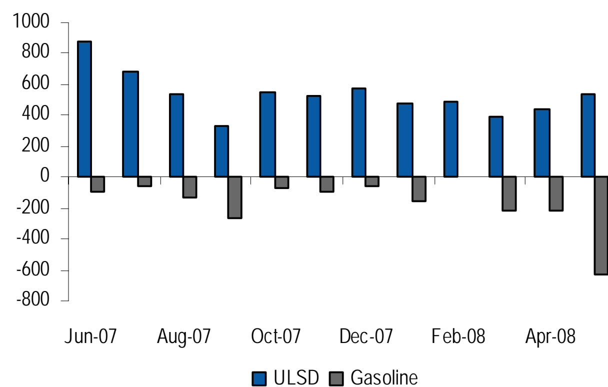
US distillates and gasoline yield, 2000-present (%)



Source: JPMorgan, US EIA

Figure 10: US diesel production is up 500kbd y/y

US diesel (<10ppm ULSD) and gasoline monthly production, y/y change (kbd)



Source: JPMorgan, US EIA

Limited flexibility in product yields also explains why tightness in the diesel market has impacted the entire middle distillates complex (diesel, gasoil and jet fuel). The different types of middle distillates are very similar chemically, so any incremental production of one distillate (e.g. diesel) is usually achieved by first reducing output of another distillate type (e.g. jet fuel), rather than an entirely different product e.g. gasoline. This has been the case in recent months as refiners around the world have been maximising their diesel yields at the expense of jet fuel in order to take advantage of strong diesel margins, thus reducing overall jet fuel supply. This

explains the unprecedented tightness in jet fuel, which normally trades at a small discount to diesel but is now trading at a $6/bbl premium to diesel.

2: Economic run cuts

US refinery utilisation has been running at below-average levels since the start of the year, as refiners have cut runs due to unprofitable conditions. Refinery utilisation has rebounded from a low of 81.4% in mid-April to around 87%, but is still below the 5-year average of 93.7% (see Figure 10).

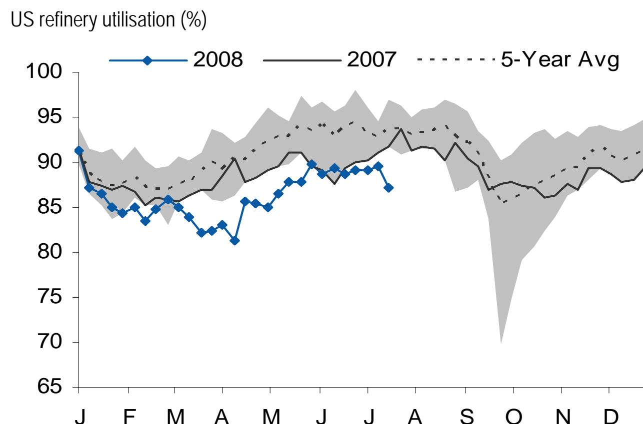
In **China**, many so-called "teapot" refineries (i.e. simple hydroskimming refineries with few conversion units, if any) have been forced to cut runs due to low profitability – they are selling refined products e.g. diesel and gasoline at controlled prices while purchasing fuel oil at market prices.

3: Heavy maintenance

In **Europe**, several refiners have reduced production due to unseasonably heavy planned maintenance, as well as unplanned shutdowns (e.g. Neste's Porvoo refinery). There are signs that some refiners have already started to upgrade hydrotreating capacity in preparation for the move to 10ppm sulphur gasoline and ULSD limits from 1st Jan 2009. The fact that some refiners have already started rather than waiting until 4Q08 may reflect service contractor tightness.

Figure 11: US refinery utilisation is outside its 5-year range

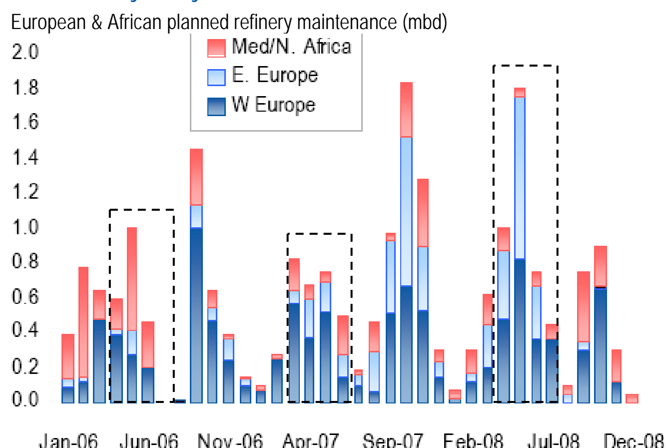
US refinery utilisation (%)



Source: JPMorgan, Bloomberg

Figure 12: European planned refinery maintenance has been unseasonably heavy

European & African planned refinery maintenance (mbd)



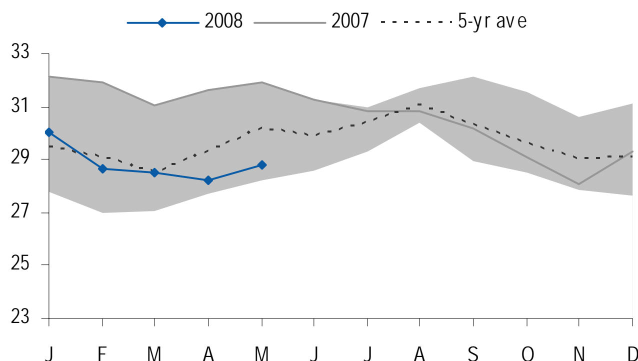
Source: IEA, JPMorgan

Inventories: below-average for diesel, above-average for gasoline

As a result of limited supply flexibility and strong demand, OECD distillates inventories have been running below their five-year average since February and are now 8% below year-ago levels, or 4% below in terms of days of demand cover (see Figure 12). Conversely, declining demand in the OECD has resulted in high inventory levels for gasoline, where stock cover is now around 3% above its five-year average (see Figure 13).

Figure 13: OECD distillates stock cover is 4% below its 5-yr average

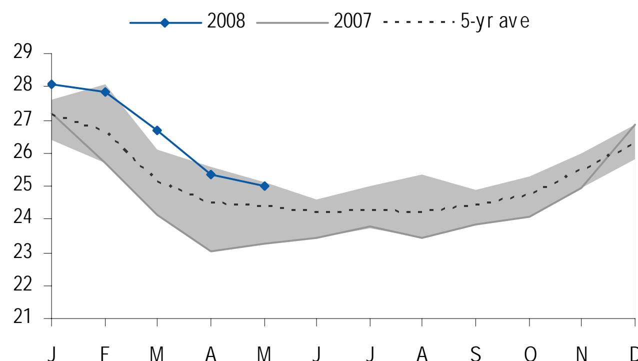
Days of demand cover – Total OECD distillates stocks (Days)



Source: JPMorgan, Bloomberg

Figure 14: OECD gasoline stock cover is 3% above its 5-yr average

Days of demand cover – Total OECD gasoline stocks (Days)



Source: IEA, JPMorgan

Near-term margin outlook

Distillates: the party is not over yet

1: A short-term dip is likely…

We expect distillates margins to ease in the fall due to the following factors:

- **Jamnagar**: Reliance's 580kbd Jamnagar refinery is scheduled to come online in September. It should produce around 43% diesel/gasoil (of which the majority will be ULSD) plus 5% jet fuel that meets European and US standards. However, the refinery could take as much as 6-9 months to stabilise and produce on-spec diesel for export markets, so we expect Jamnagar to have a gradual rather than sudden impact on European product margins. Once Jamnagar is fully up & running in 1H09, it could provide as much as 4% of European diesel/gasoil demand.

Table 6: Jamnagar yields and output

	Yield (%)	Output (kbd)
Diesel/gasoil	43%	247
Gasoline	31%	178
Jet fuel	5%	30
Petcoke	9%	49
Alkylates	9%	49
Polypropylene	3%	17
Sulphur	2%	10
Total	**100%**	**580**

Source: JPMorgan estimates.

- The **end of the Beijing Olympics** in late August, putting an end to Chinese stockpiling.
- **Lower Latam demand**: we expect seasonal electricity demand for heating to fall off as the winter season comes to an end in September. For reference, Latam's distillates demand represents around 6.5% of global distillates demand.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

- **Further small shifts in product yields**: as mentioned above, we think the US refiners have gone almost as far as they could in the process of shifting their production from gasoline to diesel. However, as they enter the autumn maintenance season, refiners are likely to use the opportunity of a scheduled turnaround to change catalysts, and thus boost diesel yields by another 1% or 2%. Each additional 1% in overall US diesel yields represents an additional 180kbd of diesel production, or 5% of US diesel demand.

2: …But good fundamental support in the next 12 months
However, we believe **distillates margins will remain well above historical averages** over the next 12 months. We think they might very well **pick up again around Nov-Dec of this year and into early 2009** as a result of:

Change in product specs should keep supply situation tight
In Europe, sulphur limits for diesel and gasoline will switch to 10ppm (from the current 50ppm limit) on 1st Jan 2009. Such stringent specs are likely to result in a fall in overall refinery utilisation – as refiners have to produce 10ppm rather than 50ppm, they will have to re-run diesel batches whose sulphur content is above the 10ppm limit, which will have the effect of lowering overall refinery throughput.

Table 7: US and European sulphur content specifications
ppm (parts per million)

	2003	2004	2005	2006	2007	2008E	2009E
Europe							
Gasoline	150	150	50	50	50	50	10
Diesel	50	50	50	50	50	50	10
Gasoil	2,000	2,000	2,000	2,000	2,000	1,000	1,000
US							
Gasoline	300	120	90	80	30	30	30
On-road diesel [1]	500	500	500	15	15	15	15
Non-road diesel [2]	5,000	5,000	5,000	5,000	500	500	500

Source: JPMorgan estimates, industry sources

1. The limit of 15 ppm applies to 80% of on-road ("highway") diesel until 3Q2010, then to 100% of on-road diesel.

2. Farm & construction, locomotive and marine diesel fuels.

We expect such transition issues to trigger a spike in diesel margins, particularly as the change in spec will coincide with the height of winter demand for heating oil. However, it is difficult to forecast how lasting and how serious any spike in diesel margins may be, as plenty of other factors will have an impact on the diesel supply/balance, such as the level of preparedness of European and Russian refiners, the timing of Jamnagar's ramp-up (which probably will be able to produce European-spec ULSD only in 1Q09), US diesel exports, etc.

Strong underlying demand
In the **non-OECD**, we expect strong diesel demand for power generation in areas such as China, India and Latam to continue. While the increasing use of diesel for electricity generation in China is partly due to the Sichuan earthquake, the trend in India looks stronger as it is underpinned by a structural shortage of generation capacity. In Latam, increasing LNG regasification capacity will gradually relieve the need for diesel imports for power generation purposes, but complete independence from diesel imports should be achieved only around 2011.

Pradeep Mirchandani, CFA
(91-22) 6639 3041
pradeep.a.mirchandani@jpmorgan.com

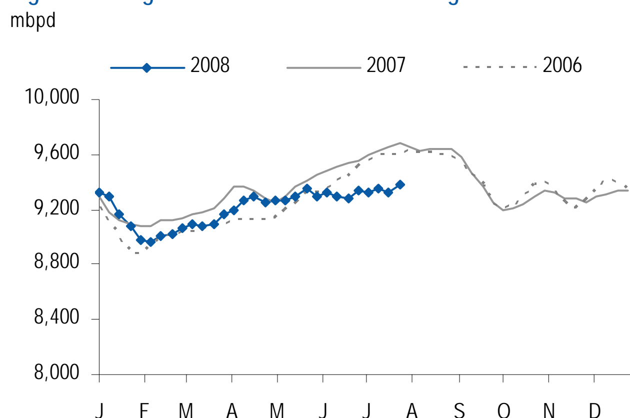
In the **OECD**, demand is being supported by the "dieselisation" of the European car fleet which continues unabated – despite diesel pump prices being higher than gasoline in many European countries.

Gasoline: expect little respite

We have detailed our thoughts on the reasons behind the weakness seen in gasoline margins in our note of April 31st (European refiners – Still with distillates and complexity). To summarise, we expect the following to continue to put pressure on margins in the near term:

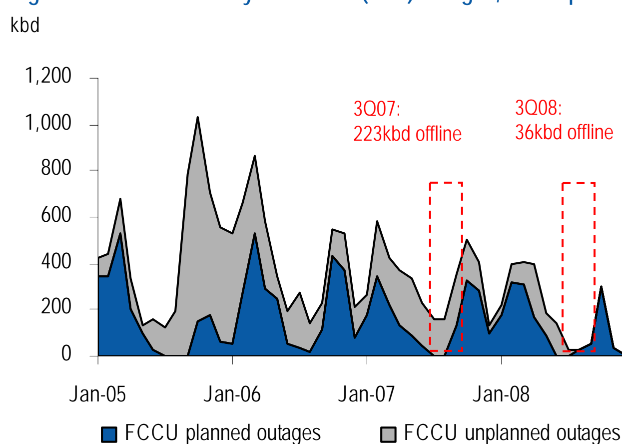
- **Less planned & unplanned maintenance**: we continue to see less planned and unplanned turnarounds in 3Q08 than the same period last year (460kbd in 3Q08 vs 1mbd in 3Q07). The return to full operations of BP's Texas City refinery in 3Q will be one important element contributing to higher US refinery availability.
- **Increasing supply**: as refiners around the world run more crude to meet middle distillates demand, this results in large surpluses of other product, including gasoline and fuel oil.
- **New fuel efficiency standards**: Increasing ethanol production and fuel efficiency standards should also have a negative impact on petroleum gasoline demand.
- **Weak demand**: US gasoline demand has deteriorated steadily in the past few months, most likely in response to the surge seen in crude prices up until very recently. We think demand could weaken even further especially as we head into the seasonally weak autumn season. The latest DoE data shows 4-week average US gasoline demand declining by 3.4% y/y.

Figure 15: US gasoline demand – 4-week average
mbpd



Source: JPMorgan, US EIA

Figure 16: US Fluid Catalytic Cracker (FCC) outages, Jan05-present
kbd



Source: JPMorgan, Industrial Info Resources

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