

Diesel Exhaust Fluid (DEF) Factsheet and market briefing - August 6, 2008

**North American DEF pricing expected to be below the cost of diesel
Modest increases in European AdBlue prices this year - lower than diesel price increases**

Summary of Key Points:

- AdBlue/DEF prices have increased by a modest amount in Europe during 2008:
 - AdBlue prices delivered to customer yards in different formats increased by about \$0.30-\$0.50 per gallon, or 15-30%, during 2008 to June. There were no increases during 2007.
 - AdBlue prices at retail pumps at truck stops have increased by a smaller amount, around 5-10%. Retail pumps are an increasingly important supply choice for customers in Europe.
 - Customers in Europe have seen these increases as normal market adjustments given rising energy and commodity costs.
- A key raw material component of DEF is urea (DEF is a 32.5% solution of chemically pure urea in deionized water).
- Urea prices are driven by global supply and demand, and tend to be volatile. International (and U.S.) urea prices increased by about 160% between July 2007 and July 2008.
- Urea prices are not the same as AdBlue/DEF prices. Urea is only one component of the cost of DEF/AdBlue. The other major cost is storage and distribution. In Europe, AdBlue customers have been protected from the volatility of urea prices by suppliers that have taken a long-term view of the market. We expect to see the same situation in the U.S.
- There is ample supply of urea in North America to meet the requirements of the DEF market. Production of urea in North America was 12 million tons in 2007 and imports were 5.8 million tons. World production of urea in 2007 was 159 million tons.
- Markets for AdBlue/DEF around the world are still in early development phases. Integer estimates that world consumption of urea in AdBlue/DEF in 2007 was less than 0.1% of world urea production. The European market is most developed but is still in the early growth stage.
- It is therefore clear that AdBlue/DEF demand has played almost no role in the large increases in international urea prices in recent years. Urea prices have been driven by developments in agriculture, and particularly surging grains prices.
- Even at market maturity in more than a decade, we expect that consumption of urea in DEF/AdBlue for all diesel vehicles (on-road cars and trucks, off-road vehicles) in developed countries will account for no more than 5% of world urea production. For example our projections indicate that urea used in DEF/AdBlue for on-road commercial vehicles in Europe, the USA, Canada, Japan, Korea and other smaller developed countries is unlikely to exceed 4-5 million tons per year (or about 2% of world urea production) in 2020.
Note: the assumptions made to reach this figure are complex; please contact us for more information.

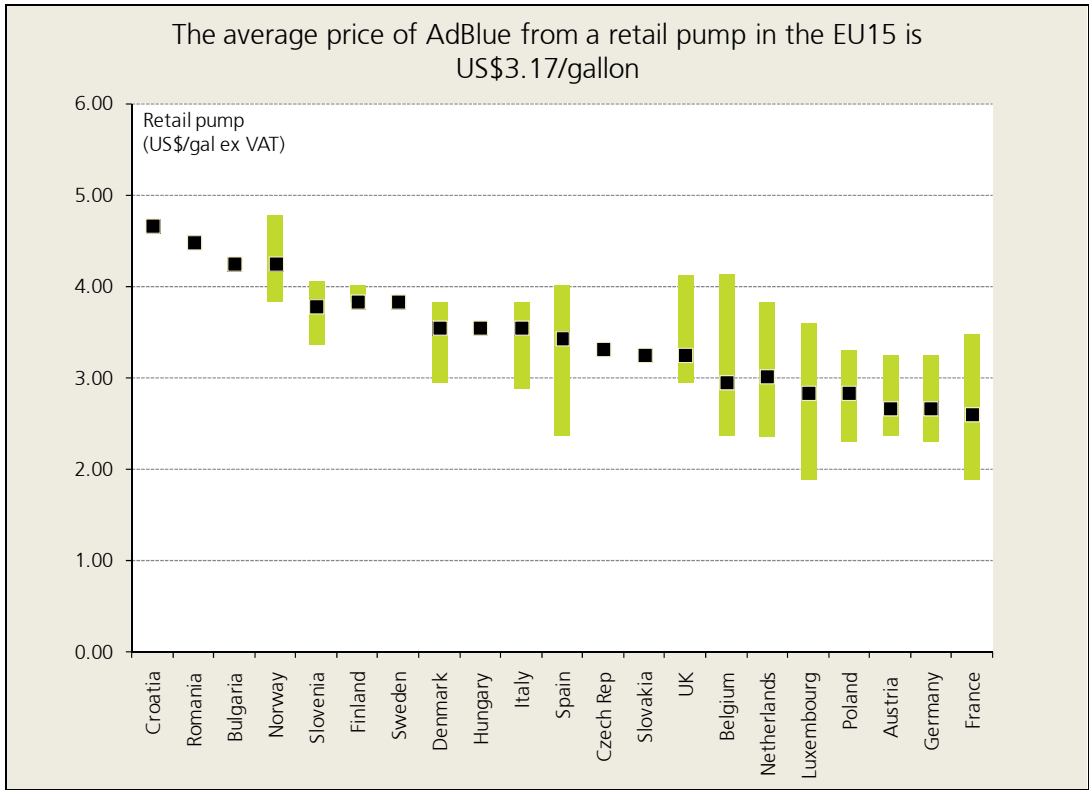
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Summary of Key Points (continued):

- In Europe, total apparent consumption of urea in 2007 was about 12.3 million tons. AdBlue consumption in Europe accounted for about 1% of this total. According to Integer's base-case SCR forecast for Europe, AdBlue consumption for commercial on-road vehicles will reach about 4.4 million tons of AdBlue in 2015 (1.4 million tons of urea).
- The use of SCR and AdBlue/DEF in developing countries such as China and India have substantial but uncertain potential - but large-scale AdBlue/DEF demand is many years away and these countries have substantial urea production assets.
- AdBlue/DEF prices are independent of prices for diesel fuel and depend on different market forces. Diesel prices in Europe today in U.S. units are about \$7.00-\$8.00 per gallon.
- The relationship between diesel prices and AdBlue/DEF prices is critical. In June 2008, European AdBlue prices (at fleet yard) were about 30% of the price of diesel, and AdBlue prices at retail pumps were about 50% of the price of diesel. In Europe, diesel prices have increased more quickly than AdBlue prices. For example, average diesel prices in Germany increased 49% between June 2007 and June 2008.
- If diesel prices increase more quickly than AdBlue/DEF prices, then the cost advantage to owners of SCR vehicles improves. This has been true in Europe so far.
- Over 65% of commercial vehicles (above 4 tons) sold in Europe during H1 2008 used SCR.
- At current market shares, nearly 60% of all commercial vehicles sold in North America will be SCR in 2010.
- North American urea producers such as Yara, Terra, Agrium, PotashCorp, CF Industries and others have production facilities with capacity far in excess of DEF requirements for all vehicle types in all future scenarios. We expect these companies to be committed to reliable supply of DEF meeting all the international quality standards.
- In our view the use of SCR together with other engine measures such as EGR is the only current feasible technology to meet EPA2010 and Euro 6 emissions standards at the tailpipe without significant losses in efficiency.

NOTE: short tons rather than metric tonnes have been used throughout. Apparent consumption is production plus imports less exports.

Supporting charts and tables:

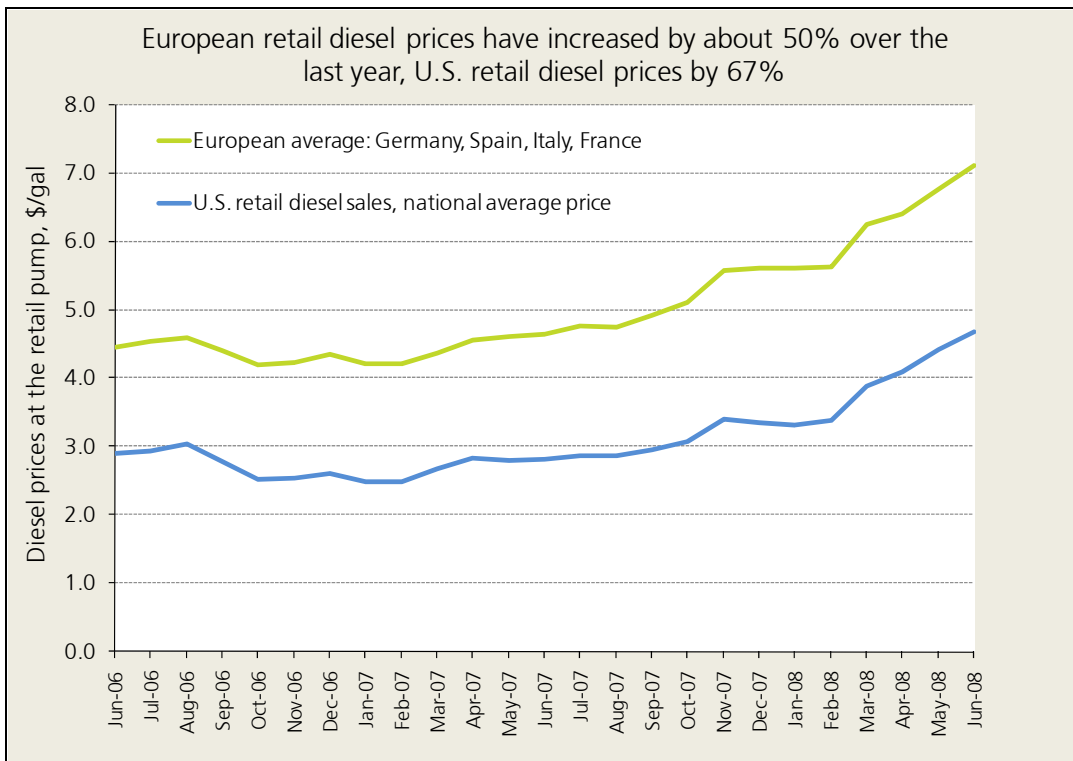
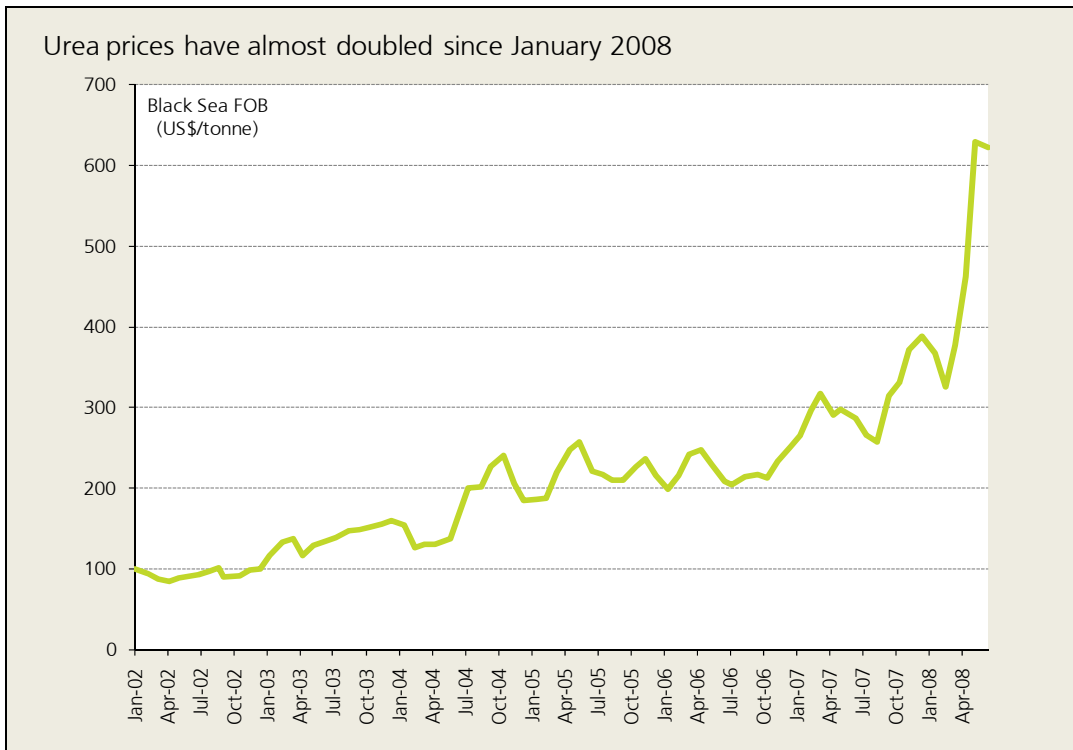


insight
beyond
numbers

AdBlue prices delivered to truck fleet yard

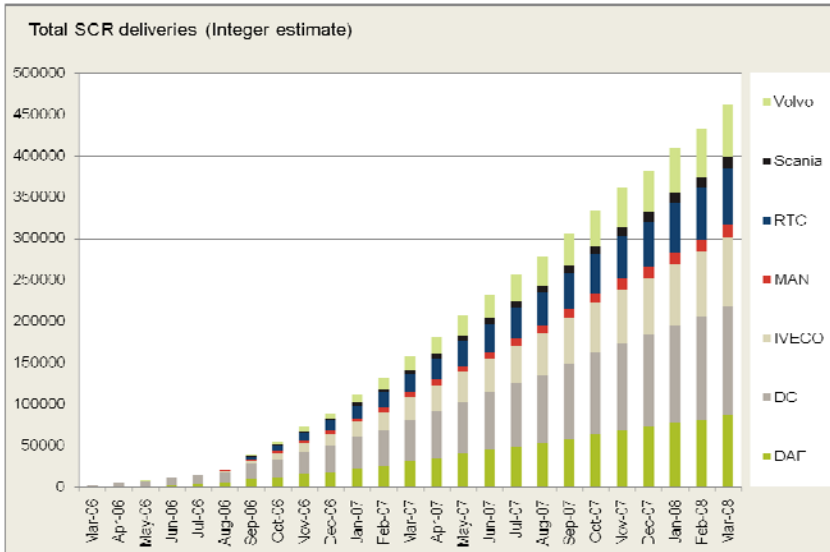
	Mar-08			Jun-08			Mar-08			Jun-08		
	Low	Hi	Avg	Low	Hi	Avg	Low	Hi	Avg	Low	Hi	Avg
	IBC (\$/gal)						Mini bulk (\$/gal)					
Austria & C.Europe	-	-	-	1.97	2.99	2.21	-	-	-	1.44	2.39	1.67
Benelux	1.73	2.33	2.03	1.79	1.91	1.91	1.2	1.85	1.53	1.79	1.91	1.85
France	1.73	2.09	1.91	2.27	2.39	2.27	-	-	-	2.03	2.09	2.03
Germany	1.67	2.33	2	1.79	2.27	2.09	1.2	1.5	1.35	1.32	1.67	1.44
Italy	2.09	2.69	2.39	1.79	2.99	2.39	1.5	1.91	1.7	1.91	2.39	1.91
Spain & Portugal	1.91	2.39	2.15	2.33	2.39	2.33	1.5	1.67	1.58	2.09	2.21	2.15
UK & Ireland	2.03	2.57	2.3	2.49	2.8	2.72	1.5	1.91	1.7	1.89	2.04	2.04

- IBC: intermediate bulk container, 265 gallons. Prices exclude IBC deposit.
- Mini bulk: compact AdBlue storage system with pump and nozzle, typical size 660 – 1050 gallons. Prices exclude equipment cost.

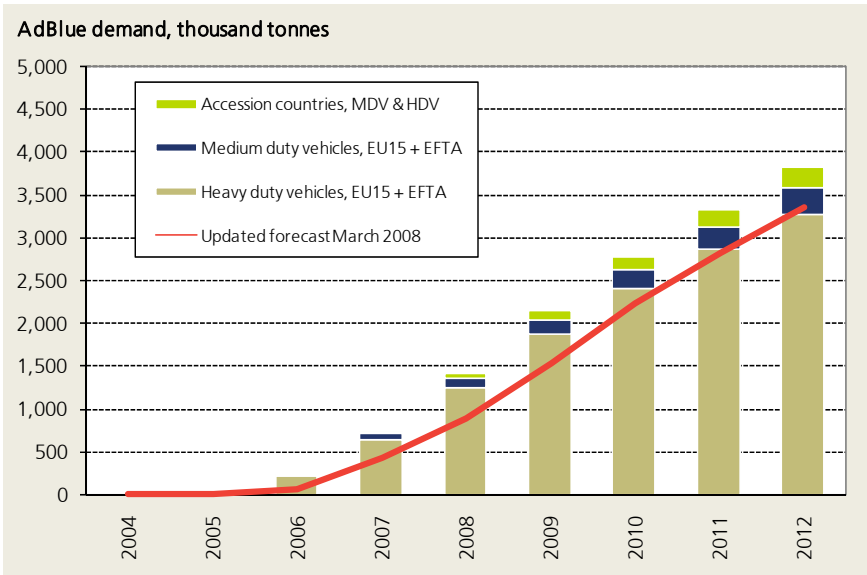


All data is from the AdBlue & DEF Monitor, a regular market report published by Integer Research. Contact Alistair Wallace at Alistair.Wallace@integer-research.com for further information.

European SCR fleet growing by about 25,000 per month

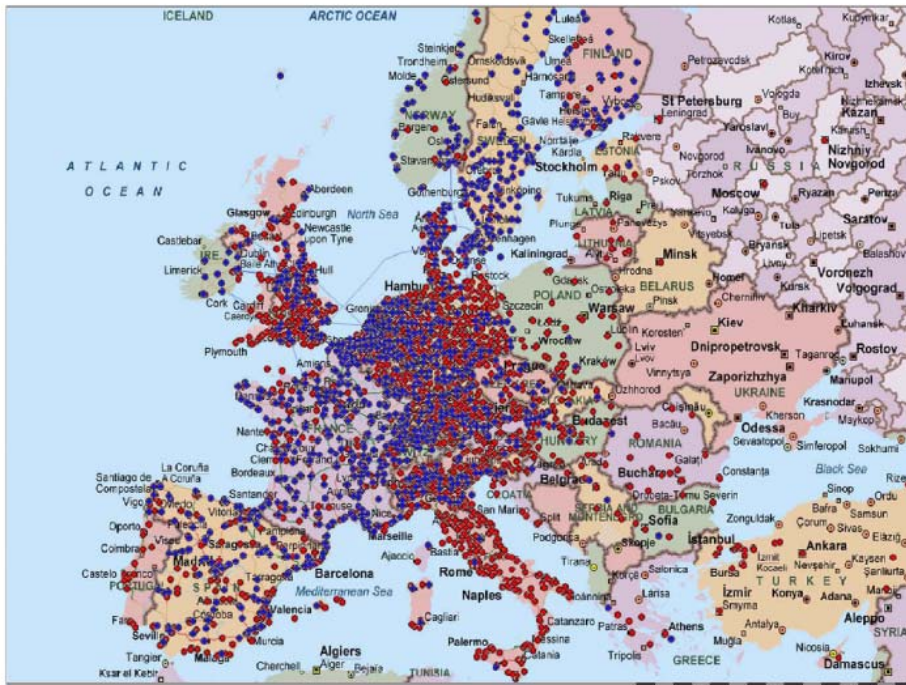
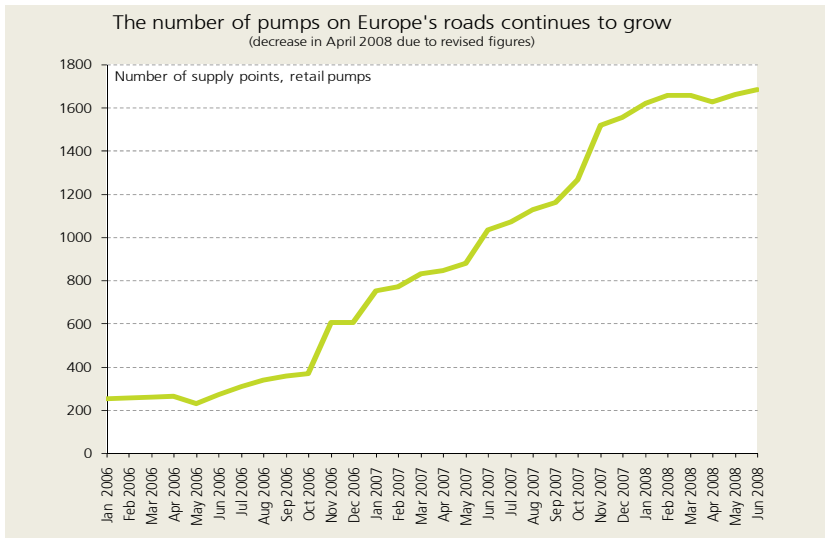


European AdBlue forecast



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Higher AdBlue volumes have enticed some oil company investment



Key:
 Legende: ● AdBlue canisters / AdBlue Kanister
 ● AdBlue pumps / AdBlue Zapfsäulen

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