Petroleum Argus LPG World

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Moscow extends price controls

Exporters must set aside LPG for low-cost supplies to Russia's household sector, capping foreign sales

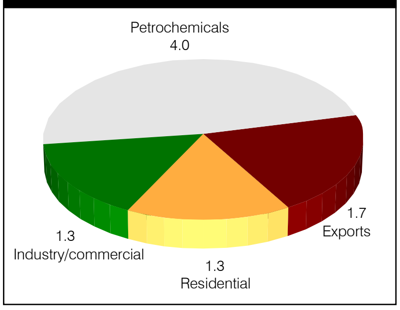
Russian LPG producers that want to export will be obliged to sell a fixed amount of LPG at low prices to the residential sector for another year. Combined with growing industrial sales, LPG exports this year are unlikely to rise much above last year's level of around 1.82mn t (*see p10*).

The federal energy agency will decide how much LPG each producer must sell to residential users, based on their output. The supply schedules are based on figures for quarterly and annual production and consumption agreed by producers, the industry and energy ministry, and the economic development ministry. The allocation for the residential sector has been sold by producers to distributors at a controlled wholesale price of 3,500 roubles/t ($132/t) since 1 January this year. The price in the fourth quarter of 2006 was Rbs2,700/t, up from Rbs1,350/t in the rest of 2006.

Distributors in turn sell bottled LPG to consumers at a price set by local authorities in each region. About 50mn people out of a population of over 143mn rely on LPG for cooking.

If producers do not want to export LPG, they are not obliged to sell to the residential sector and can instead supply growing demand from industrial and commercial users. These sectors pay up to Rbs12,000/t — a price that reflects the international market. Prices for rail exports at the Polish border are around Rbs12,700/t, excluding export duty and transport costs.

Russia's LPG market *mn t*



LPG exports are not permitted unless the exporter can provide a certificate to the customs office to prove that it has complied with its supply obligation to the residential sector. The certificates are issued twice a month by the energy ministry.

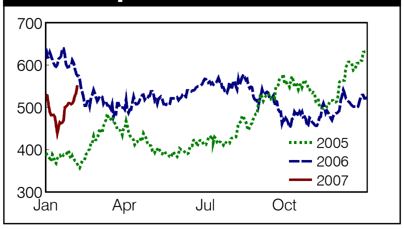
Compulsory supplies to residential users have fallen from 1.5mn t in 2003 to 1.4mn t in recent years. Exports accounted for 1.7mn t in 2005, from output of 8.3mn t. Domestic sales of 6.6mn t were shared between residential users at 1.3mn t, petrochemical plants at 4mn t, and industrial and commercial users at 1.3mn t. Some large firms, including Lukoil and Tatneft, pulled out of the export and residential supply markets last year and opted to sell LPG on the domestic market at commercial prices.

Producers say their costs will not be covered even if controlled wholesale prices rise above Rbs3,500/t. Mandatory allocations were introduced in 1999 after rising international prices led to higher exports and reduced domestic supplies. The government's plan for the LPG market, adopted in 2003, called for a gradual reduction of state control and an end to price regulation by 2005 — a deadline that has been missed.

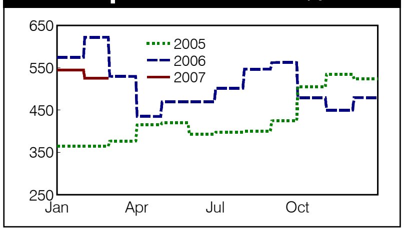
LPG demand from the residential sector is expected to decline as Russia builds distribution networks to supply natural gas. Projects such as development of the 3.7 trillion m³ Shtokman field in the Barents Sea are to be linked with major distribution programmes.

Inside

Propane cif NWE $/t



Propane Saudi CP $/t



A transitional solution

US road transport fuel demand makes up 12pc of global oil supply, including LPG, so any changes in policy have a big impact on the industry

EDITORIAL

The US dominates global oil markets, with the world's largest economy and highest levels of oil consumption. Any changes in US energy policy have a major impact on the rest of the world, especially in transport fuel.

The transport sector accounts for less than 1.5pc of US LPG consumption, as the US road transport fuel market is massively dominated by gasoline. The North American share of world LPG demand will be 33.5pc in 2011, according to the latest IEA *Medium-Term Oil Market Report*. But the region's share of world gasoline demand will be 49.1pc that year, demonstrating the disproportionate share of gasoline in the US market.

President George Bush has for the first time indicated that he is prepared to tackle the US addiction to gasoline. His State of the Union address launched a goal of cutting US gasoline use "by 20pc in the next 10 years — twenty in ten". This is the first time Bush has recognised that oil policy has to address inefficient US consumption, not just supply-side measures.

For this reason, the State of the Union address should be applauded. The word "fuel" cropped up six times in the course of the speech — Bush had not used the word in any of his previous State of the Union addresses. But the policy has a blind spot — with no place for increased use of LPG in the transport sector.

A 15pc cut in gasoline comes from using renewable and alternative fuels, with just a 5pc reduction through better vehicle efficiency. And the fuels cited by the administration are corn ethanol, cellulosic ethanol, biodiesel, methanol, butanol and hydrogen.

Many of these technologies are a long way off, while the immediate US reliance on corn ethanol to displace gasoline use is questionable on economic and environmental grounds. Much of the support for ethanol in the US is the result of politicians' desire to win support in key farm states.

The LPG industry has long argued that the US should increase its use of autogas as a transitional fuel on the path to a more sustainable pattern of energy use. Reliance on ethanol and biodiesel to solve the problem of over-reliance on gasoline will not work, as a leading autogas proponent tells *Argus* (*LPGW, 17 January, p10*).

The US needs a programme that includes autogas, as well as biodiesel and ethanol, and the use of hybrid fuel cell technology. LPG is a significantly cheaper and cleaner transport fuel than gasoline — providing more miles per dollar. Uptake of autogas has been slow in the US, but a positive move by the legislature and the administration to correct this could have major implications for LPG consumption in the country.

In addition, the administration and Congress need to develop a consensus on corporate average fuel efficiency (Cafe) standards. "Congress should not legislate a particular numeric," says the White House. But several energy bills on Congress' agenda would enact new Cafe standards.

The administration and US car makers want the transport department to set new Cafe rules, fearing that a congressionally established standard will place a greater burden on the car industry. Bush and Congress support improvements of about 4pc/yr in Cafe standards to around 35 miles per gallon in a decade.

But the US addiction to gasoline will never be addressed until the country accepts that tax incentives and penalties are needed to change demand patterns. Elsewhere, tax changes have boosted autogas use at the expense of gasoline and diesel. The US shows no signs of following a similar path.

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Middle East

Saudi firm awards petchem contracts

Saudi Arabia's LPG demand is likely to rise after the award of large petrochemicals contracts last month. Saudi Kayan Petrochemicals has given construction contracts for a 350,000 t/yr polypropylene plant to South Korea's Samsung Engineering and for a 300,000 t/yr low-density-polyethylene plant to UK-based Simon Carves. Both facilities are due to start production in 2009 at the Jubail industrial city. Petrochemical output at the site is expected to reach 4mn t/yr by 2009. Kayan is an affiliate of Saudi chemicals firm Sabic, while Carves is a subsidiary of India's Punj-Lloyd.

Sabic's Yanbu industrial city on the Red Sea is expected to add another 4mn t/yr of petrochemicals next year when the $4.87bn Yansab project is complete. Saudi Arabia consumed almost 6mn t of LPG in 2005 and exported about 13mn t. Exports are expected to fall below 10mn t by 2009.

Shell leads profit boom

Some of the largest operators in the LPG industry made record-breaking profits last year, with Shell and ExxonMobil leading the way. The companies have reported the largest annual profits ever made on either side of the Atlantic, but profits at their LPG departments were hit by lower prices at the end of last year.

Shell recorded profits of $25.4bn on revenues of $319bn, with ExxonMobil making profits of $39.5bn on sales of $377.6bn. Neither firm provided a specific breakdown of LPG results, but evidence of the fall in LPG revenues can be seen in the results of their other sectors.

Shell's downstream sector made a $7.03bn profit, down by 7pc from 2005, while ExxonMobil's downstream sector saw a 7pc upturn in profit to $8.4bn. But ExxonMobil's results show a fall in refinery output, suggesting that the increase in profits came from higher crude and refined products prices.

Shell chief executive Jeroen van der Veer says he expects to see "a reduction in near-term refining capacity", particularly in Europe where Shell is looking to divest its refining businesses in France and eastern Europe.

BP's full-year profit hit $22bn, up by 15pc from 2005. But its fourth-quarter results showed a fall in profits of 12pc as operational issues at oil fields reduced revenue. Its refining and marketing sector profits increased by 20pc for the year.

India's Reliance Industries announced an 58pc increase in third-quarter profits compared with a year earlier to 27.99bn rupees ($632mn). The rise was mostly driven by higher margins in its refining and petrochemical sectors. But the year-on-year increase is slightly distorted because the company's 660,000 b/d Jamnagar refinery was closed for 40 days in 2005 for maintenance, lowering the figures for that period.

Americas

Enterprise expands pipeline

US midstream firm Enterprise will expand its 48 mile (77km) refinery-grade propylene pipeline between Texas City and Mont Belvieu, Texas, to 32,000 b/d from 23,000 b/d by the end of this year. The project will give Enterprise access to increasing volumes of refinery-grade propylene from Texas City for its Mont Belvieu transportation, storage and fractionation hub.

Enterprise, the largest US wholesaler of LPG, is on schedule to complete two projects to increase its petrochemical processing capacity (*LPGW, 5 April, p3*). The firm has almost finished a 66 mile, 50,000 b/d refinery-grade propylene pipeline linking Mont Belvieu and a refinery in Beaumont, Texas. It is due to complete a fourth propylene fractionator at Mont Belvieu this year.

Europe

Petroplus buys BP refinery

BP is selling its 180,000 b/d Coryton refinery in Essex, UK, to Swiss refiner Petroplus for $1.4bn. The plant produces over 172,000 t/yr of LPG. Coryton was BP's last remaining UK refinery following the sale of Grangemouth to UK-based Ineos in 2005 (*LPGW, 19 October 2005, p3*).

BP and Petroplus have entered a long-term supply deal that will provide BP's UK retail businesses with oil products. "BP is committed to the UK and does not need to own a refinery in the UK to offer its customers the best in fuel products," says BP downstream head John Manzoni. BP owns or has a stake in eight European refineries. The sale is due to be completed this summer.

Former Soviet Union

Riga reduces cargo loading

Latvia's Riga terminal loaded 40,000t of LPG last year, down by 47pc from 2005. Shipments are falling as it is more profitable to supply buyers in Poland by rail. Trading firm Citco sends cargoes from Riga loaded with Russian LPG from Sibur Holding and Kinef's Kirishi refinery. Citco accounts for most of the trade, but terminal owner Latvijas Propana Gaze last year bought LPG at the terminal for resale in the Latvian market, where demand rose after an October fire at Lithuania's 263,000 b/d Mazeikiai refinery, the sole LPG producer in the area. Latvijas is owned by Swiss-registered Massonyx. The terminal's loading capacity, from railcars, is 150,000 t/yr, with storage of 8,225m³ in 47 tanks of 175m³ each. Cargoes are usually 2,100-2,500t.

US propane stocks healthy despite decline

Propane stocks ended the week of 26 January at 51.5mn bl — 6pc higher than at the same time last year. But inventories were 2.1mn bl lower than a week earlier, according to the US Energy Information Administration (EIA).

Prices were little changed, although the decline was well below the expected 3.8mn bl draw as demand fell while production and imports rose. Propane demand fell by 12pc to 1.6mn b/d. The decline surprised traders, who said they experienced brisk demand in the northeast in the face of lower temperatures.

The weaker level of demand may partly reflect buying from secondary LPG storage facilities, rather than on the spot market.

Weekly propane stocks *mn bl*

	15 Dec 06	22 Dec	29 Dec	5 Jan 07	12 Jan	19 Jan	26 Jan	27 Jan 06
East coast	4.792	4.869	5.200	5.507	5.533	5.422	5.596	3.790
Midcontinent	23.199	23.455	22.878	22.553	21.715	20.354	19.590	16.060
Gulf coast	33.320	32.531	31.381	29.911	28.287	25.993	24.706	27.112
Rocky Mtn & west coast	2.713	2.658	2.426	1.798	1.993	1.788	1.585	1.326
Propylene*	3.546	3.556	3.588	3.470	3.379	3.189	3.386	4.194
Total	**64.024**	**63.513**	**61.885**	**59.769**	**57.528**	**53.557**	**51.477**	**48.288**

**included in Gulf coast total* — *EIA*

China's imports fall

Chinese LPG imports slipped to 452,000t in December, down by around 1pc compared with a year earlier. Official figures show that total 2006 imports fell by 12.8pc to 5.36mn t.

The two main importing regions, east and south China, saw imports fall last year. Volumes were down by 38pc against 2005 in Zhejiang province — east China's major demand region.

South China's Guangdong province saw imports decline by 15pc to 3.82mn t from a historic high of 4.47mn t in 2005 — its first year-on-year drop since the early 1990s. Guangdong has long been China's largest importing province, accounting for more than 70pc of total volumes.

The UAE last year surpassed Saudi Arabia as China's largest supplier, with the kingdom slipping to third behind Australia. Saudi Arabia's share of the Chinese market fell to 18pc last year from a peak of 31pc in 2004.

The big import firms continue to dominate in China, with the market share of the 10 largest companies up to 87pc last year, compared with around 64pc a decade ago.

Lower imports are largely the result of higher prices, which have caused switching to coal and natural gas. Domestic LPG production by refineries was up by 5pc last year to 17.5mn t. Natural gas output was up by around 19.2pc to 58.55bn m³.

Chinese LPG imports *'000t*

	Dec 06	2006	2005	±% 06/05
Imports by country				
Saudi Arabia	39.6	951.8	1,700.4	-44.0
UAE	87.5	985.4	1,352.4	-27.1
Iran	151.7	939.7	564.8	66.4
Kuwait	68.7	682.7	276.7	146.7
Qatar	0.0	106.6	94.9	12.3
Bahrain	0.0	34.2	18.6	84.4
Total Mideast Gulf	347.6	3,700.5	4,007.7	-7.7
Australia	30.1	983.9	963.1	2.2
Thailand	8.9	127.2	350.2	-63.7
Indonesia	19.1	129.4	133.3	-2.9
Taiwan	8.9	89.3	107.3	-16.8
South Korea	6.1	63.4	43.8	44.8
Singapore	4.3	24.1	70.5	-65.9
Other countries	27.0	96.9	210.4	-53.9
Total Asia-Pacific	104.4	1,514.2	1,878.6	-19.4
Argentina	0.0	103.2	96.2	7.3
US	0.0	33.1	58.5	-43.4
Other countries	0.3	5.4	100.2	-94.6
Total other areas	0.3	141.7	254.9	-44.4
Total imports	452.3	5,356.4	6,141.2	-12.8
Imports by product				
Liquefied propane	304.6	2,640.8	2,816.2	-6.2
Liquefied butane	147.4	2,696.7	3,277.0	-17.7
Other LPG	0.3	18.9	48.1	-60.7
Total imports	452.3	5,356.4	6,141.2	-12.8
Imports by province				
Guangdong	328.6	3,815.9	4,474.1	-14.7
Other provinces	11.2	57.5	60.4	4.8
Total south China	339.9	3,873.4	4,534.5	-14.6
Shanghai	15.5	395.6	318.3	24.3
Jiangsu	82.4	513.0	509.9	0.6
Zhejiang	1.2	381.5	616.1	-38.1
Fujian	11.0	185.7	137.9	34.6
Shandong	0.0	0.0	0.1	-37.1
Total east China	110.1	1,475.8	1,582.4	-6.7
Liaoning	0.1	0.3	4.0	-91.6
Xinjiang	0.3	2.0	14.3	-86.4
Other provinces	1.9	4.9	6.0	-18.3
Total W/N/NE China	2.3	7.2	24.3	-70.2
Total imports	452.3	5,363.4	6,141.2	-12.8

— General administration of customs

Testing time for derivatives trade

In the latest in a series of interviews with senior LPG industry figures, Argus speaks to LPG broker Ian Brimelow, from international shipbroking group Clarksons. Since its foundation in 1852, Clarksons has grown into one of the world's largest shipping services companies, employing nearly 300 people worldwide. A team of product brokers based in London and Houston provide a full spectrum of services to the LPG market. Ian Brimelow joined Clarksons last year after three years as a senior LPG trader with Trammo Gas and six years with Dynegy US. Ian started his LPG career with Trammo in 1982, completing eight years in its chartering department and seven years as a products trader.

What are the main changes to LPG trading in Europe that you have witnessed in the last 15 years?

The main change in the market has been the growth of derivatives trading. Risk management is now an essential ingredient for trading. The industry's drift towards using a combination of fixed and floating market prices has provided much-needed maturity. It is much more than a simple supply-demand environment as was generally the case 15 years ago.

What do you think were the main challenges and difficulties facing traders last year?

Volatility should be a trader's friend but the severity of swings in the crude market has affected LPG prices more dramatically in the past few years than ever before. Geopolitical factors, such as Middle East unrest and terrorism, have contributed to this uncertainty. The real value of LPG has risen along with crude, making the cost of entry into the market ever higher. Management is focused on returns against the high cost and risk of trading. Achieving those returns will continue to challenge traders.

How important is shipping in North Sea trading?

Across all vessel sizes, the importance of shipping in the North Sea market is as high as it has ever been. Freight levels have continued their upward trend and recent events in North Sea loading programmes, where vessels have been delayed either by bad weather or lack of ullage [storage capacity] at the discharge end, have highlighted just how tight vessel supply can be in the area. With the limited number of owners able to offer COA [contract of affreightment] coverage within the North Sea, vessel supply is likely to remain tight, particularly in the winter quarters.

In 2006, we saw the demise of the North Sea's BPAP posting. Will this have implications for the future of monthly postings such as Saudi Aramco's Contract Price (CP) or Algerian firm Sonatrach's selling price (SP)?

The demise of the BPAP was a result of changes in how LPG is traded in the North Sea, from posted price plus freight, to fixed and floating prices better able to reflect the ever changing market. A strong derivatives market helped this transition. In my view, Aramco is unlikely to change its CP posted price in the near future, and it will certainly remain as long as the majority of Middle East volumes are sold fob under contract to Asia-Pacific companies. In Japan and South Korea in particular, wholesale and retail markets are directly linked to Saudi CP postings. A break in this link is highly unlikely. Unless a greater proportion of sales to Asia-Pacific becomes FEI [Far East Index] linked and the derivatives trade in both grades expands, the CP will remain a price reference for the bulk of term trades.

It is fair to say the setting of the CP is increasingly influenced by the emerging and spot price sensitive market of China, but while the majority of fob sales are contractually linked to CP, the posting is likely to remain.

'Volatility should be a trader's friend'

The percentage of sales linked to Algerian postings is not at the same level as Aramco, and perhaps for this reason the argument to maintain a posting is not as strong. But, as a state-owned organisation, the setting of the Sonatrach SP provides a visible barometer with which the Algerian government can assess sales. Perhaps for this reason alone, SP will remain. As exports increase worldwide, there will naturally be a shift towards more market-related postings, but this transition will be slow until the full impact of those volumes is felt.

How important is the use of derivatives in European LPG trading? Are the European LPG markets becoming more commoditised?

Derivatives trading in northwest Europe has a stronger influence than market fundamentals on price for the majority of the trading year.

Tonne for tonne, derivative volumes outstrip physical volumes and in that sense the market in northwest Europe has grown up in the past 15 years. The introduction of swaps, TOTs [10-over-three — a delivery nomination where the seller gives the buyer 10 days notice of a three-day delivery] and SOTs [seven-over-three] has allowed non-physical players to participate in the market but has also provided a tool to physical traders. Now, swaps are often the first thing that traders look at before quoting a sales price. The slightest movement in the quotes can result in buyers and sellers changing their price ideas. LPG is still a physical market, but pricing is becoming more commoditised.

How do you see the European market performing in the first quarter of this year?

Unless we see anything that could be described as winter to stimulate demand in the next four weeks, market players will see March as the month to fear. Steep backwardation may see buyers taking as little as they can on a fixed price reference, and even floating prices are likely to have a heavy discount. Managing the risk through derivatives will be ever more important in the first quarter.

Lobby looks to new uses to boost Brazilian demand

Brazil is one of the world's largest LPG consumers. LPG is present in over 42.5mn households, about 98pc of the total, and is used for cooking by all social classes. Brazil's economy expanded by 2.9pc last year, but LPG sales were up by only 1.3pc. Sergio Bandeira de Mello, the president of LPG distributors' association Sindigas, tells Argus why growth has been modest and why 2007 could be a turning point for the industry.

LPG sales have not grown as fast as Brazil's gross domestic product in recent years. Why?
The LPG price has gone up substantially since the government ended subsidies in 2002. Demand for LPG was thought to be inelastic, but we can now see that it is not and that people who cannot afford LPG are seeking other options. Since 1998, firewood has gone from being the main fuel in 32pc of households to 38pc. Most of the firewood users simply cannot afford LPG. And taxes have increased tremendously. In 1994, taxes represented 12pc of the cost of a 13kg bottle of LPG. Today, taxes represent nearly 25pc of the price on average, but even more in some states.

Despite the modest advance in LPG consumption, there are regions with stronger growth. The northeast, one of the regions helped most by government assistance programmes, has seen higher growth in consumption. But the use of firewood has increased in parts of southern Brazil because of economic problems.

Many countries subsidise LPG in order to limit the number of households that use wood, which is the cheapest option. In Brazil, the government's tax policy actually provides a disincentive to use LPG.

Has the government shown any willingness to lower LPG taxes?
There is a bill in congress that would end taxes on LPG. This would require a constitutional amendment, but we are optimistic, especially given the government's development programme — the growth acceleration plan [*see p7*].

Do you expect Brasilia to lift restrictions on LPG use?
We hope to expand into new sectors, now that the industry no longer depends on imports. State-controlled Petrobras has been reluctant to expand the applications of LPG, but has become more open to the idea recently.

We expect the national petroleum agency to end the restrictions this year. These restrictions were put in place during the first Gulf war, when 82pc of LPG was imported. The industry is no longer subsidised, and 96pc of LPG consumed in Brazil is produced domestically. We will become completely self-sufficient when the Manati natural gas field is operating at capacity [*see p8*].

Which sectors are likely to begin using LPG?
We expect there to be some industrial applications, as the supply of natural gas is uncertain. LPG cannot compete with natural gas on price, but if gas prices increase, as they are expected to, LPG will be more competitive. Still, most industries see LPG as a backup. Many industrial clients have the wrong idea about LPG, assuming that it is scarce, but those ideas are slowly starting to change and LPG is now seen as a solution, not a problem. In the past, natural gas was seen as the solution, but now it has become a problem. This has created opportunities for LPG.

What is the production outlook for LPG in Brazil?
We expect supply to reach 9.6mn t/yr by 2015, given all the new investment in refining capacity. Brazil consumes 6.4mn t/yr. If growth continues at current rates, demand will reach only 7.5mn t/yr by around 2015. This means that there will be roughly 2mn t/yr that can be used in hot water heaters, industrial boilers and in agriculture. We do not expect to export LPG, but rather to find new uses.

The government is considering ending its LPG voucher programme. What impact would this have?
Ending the programme of cash vouchers for low income families would not have a huge impact on the industry, because it is modest. There has been some talk of ending the programme, but we hope to see it expanded. We have had meetings with the social development ministry about improving the programme.

The government gives money to people every two months to buy LPG, but there is no guarantee that the money will be used for LPG. We have proposed a programme to create mechanisms to ensure that the consumer buys LPG. We are confident that it will be expanded, mainly because of the adverse impact of wood burning on the environment and public health. Wood burning creates a lot of indoor pollution, which leads to serious health problems. The health ministry is increasingly aware of these problems and is interested in expanding LPG use.

Do you expect investment in the LPG sector to continue, given current growth levels?
Investment levels will continue to be modest. We are likely to see more joint ventures that will reduce unused capacity. Companies are more and more focused on the efficient use of installed capacity. The sector is still fragmented and there is a lot of room for consolidation.

How is the industry fighting illegal LPG distribution?
Illegal use of LPG bottles is a huge problem. This practice is illegal, but many companies have won court injunctions allowing them to continue using LPG bottles. We have been working hard to educate judges that this practice is illegal, but this is a slow process.

Sindigas is working to educate consumers of the risks of buying LPG from companies that are operating illegally. They tend not to maintain the bottles, which increases the risk of accidents.

Industry to benefit from oil self-sufficiency drive

Brazil's drive for self-sufficiency in oil production and refining is boosting LPG production.

State-controlled oil company Petrobras is investing heavily to increase its refining capacity, including LPG production, to process growing volumes of crude produced from domestic fields.

Petrobras plans to invest $14.2bn in 2007-11 to expand capacity at six refineries and to build three more. The company aims to increase refining capacity to 3.2mn b/d by 2015, compared with around 1.8mn b/d last year.

Brazil's oil production rose by about 10pc year-on-year to 1.7mn b/d last year, and the country had an oil surplus by early 2007. Petrobras plans output of more than 2mn b/d by 2010. The firm is carrying out much of the government's growth acceleration plan — a vast strategic project to enhance many of the country's basic industries including oil, gas and petrochemicals.

The plan is intended to ensure Brazil's long-term oil self-sufficiency, and aims for production that is a minimum of 20pc above domestic consumption, and a minimum 15-year reserves to production ratio.

The move supports Petrobras' plans to enlarge and modernise refineries, and for gas production and distribution. The company is upgrading key refineries including its largest, in Paulinia, Sao Paulo, as well as San Jose de Campos, Capuava and Cubatao (*see table*). There are plans to increase capacity at the Canoas refinery in the southern state of Rio Grande do Sul and Duque de Caxias in the state of Rio de Janeiro.

Brazil's refineries *'000 b/d*

Location	Capacity
Paulinia, Sao Paulo	327
Mataripe, Bahia	285
Duque de Caxias, Rio de Janeiro	242
Sao Jose de Campos, Sao Paulo	211
Canoas, Rio Grande do Sul	190
Araucaria, Parana	189
Cubatao, Sao Paulo	163
Betim, Minais Gerais	151
Capuava, Sao Paulo	50
Manaus, Amazonas	45
Total	1,853

Venezuelan venture

Petrobras, which is 55.7pc state-owned after a partial privatisation in 1997, says all the refineries will produce more LPG, but does not say by how much.

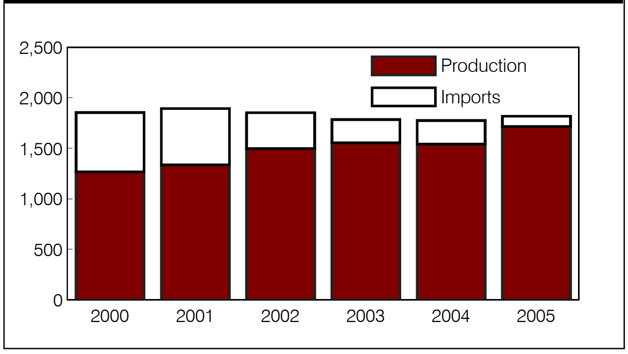
The company plans to build a refinery, to be called Abreu e Lima, in the northeastern state of Pernambuco. It will be a partnership with Venezuelan state-owned oil company PdV, and have a capacity of 200,000 b/d. Roughly half of its crude supply will come from Venezuela. Construction is set to begin in July and should finish in 2012. Abreu e Lima will produce 350,000 t/yr of LPG, Petrobras says. It will supply northeastern Brazil.

Petrobras is planning to build a basic petrochemicals plant, known as Comperj, and a 150,000 b/d refinery in the state of Rio de Janeiro. Comperj will also produce LPG.

And the firm has announced a major project to build a 500,000 b/d refinery. Details of the production of LPG and other products will be announced next year, and the plant is scheduled to come on stream by 2014.

Another new source of LPG will be the Urucu gas field in the Amazon basin, which is producing 10mn m³/d.

Crude production and imports *'000 b/d*



Petrobras' LPG pipeline from the field to Coari port on the Amazon is due to be completed next year.

Higher LPG output at a time of declining household demand has led to more industrial use of the fuel. Industrial demand has risen from around 5pc of total consumption in the mid-1980s to more than 10pc last year, with companies that make ceramics, iron and steel, non-ferrous metals, and food and beverages accounting for much of the increase.

Despite these trends, the residential and commercial sector is still responsible for more than 80pc of Brazil's overall consumption.

Retail prices for residential and small commercial users were regulated by the federal government from 1950 to 2002, so that they were similar throughout Brazil. The elaborate and inefficient system of regulation obliged companies to receive and fill bottles from any distributor. The system, widely criticised as bureaucratic, discouraged investment and the entry of new distributors. The system also resulted in subsidised LPG being put to illegal uses, such as heating swimming pools and fuelling illegally adapted vehicles.

The subsidy was costing Brazil around $100mn/yr by 2000. It was removed in January 2002, and, by the end of the year, Petrobras was using the international market to set its wholesale and retail prices.

Vouching for the poor

The result of the move away from subsidised prices was that the cost of a standard 13kg bottle increased by about 20pc to around $8.40. To protect the poor, subsidies for all were replaced in 2002 by cash vouchers for low income families. The payment of just under $5 every two months is paid to about 9mn families.

Petrobras estimates that, as the refiner, its costs and profit margin are responsible for just over 40pc of retail prices. Taxes take about 20pc and distributors just under 40pc, the firm says.

Policy change could boost sales growth

Brazilian LPG demand rose modestly last year, but higher growth is expected as a result of increased hydrocarbon production and changes in government policy.

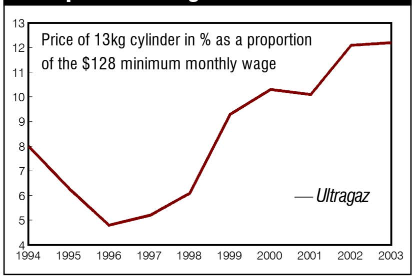
Consumption increased by 1.3pc last year to 6.4mn t, a modest rise considering that 95pc of households in a growing economy rely on LPG for cooking. But much higher growth is likely this year.

The industry passed a landmark in January when state-controlled Petrobras started up the Manati gas condensate field offshore Bahia state. The new field could tip Brazil into an LPG surplus and is one of many projects aimed at making Brazil self-sufficient in oil and gas supplies in the next few years (*see p7*).

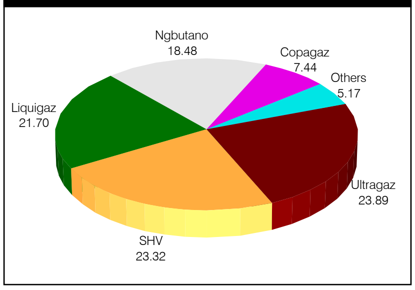
Manati is due to reach production capacity of 6mn m³/d this year. The industry says the government is likely to lift restrictions on LPG use when Manati reaches capacity. The restrictions date from 1991 when oil prices increased during the first Gulf war. Emergency legislation was passed to prohibit the use of LPG for transport or water heating in order to safeguard supplies of the country's main cooking fuel. At the time, Brazil imported nearly 80pc of its LPG requirements and the price was subsidised.

"A change in the legislation would create multiple opportunities for the sector," says Lauro Cotta, president of SHV Gas Brasil, a subsidiary of the world's largest LPG firm SHV Gas of the Netherlands. He says LPG self-sufficiency means that the restrictions are no longer necessary. "LPG is domestically produced, there are a broad range of suppliers, it has an advanced distribution infrastructure and does not need investment to increase production," he says.

LPG price vs wages %



Distributors' market shares %



Brazil's oil production has increased significantly, partly because of the curtailment in the late 1990s of Petrobras' monopoly on exploration and production. "The more oil and natural gas that is produced here in Brazil, the more LPG that will be available," says vice-president Antonio Carlos Turquato of Brazilian LPG distributor Copagaz. "It will not be long before LPG supply outstrips demand."

While oil and LPG output has been rising, LPG consumption has fallen since the government ended its subsidy programme in 2002. Retail prices doubled as a result. The country consumed a peak of 6.87mn t in 1999 but this fell by almost 10pc to 6.23mn t last year.

Higher LPG production means that Brazil must either turn to exports or find new domestic markets. The sector's hopes are pinned on continuing to expand non-residential use of LPG. Cotta says companies using boilers will consider installing LPG converters if the restrictions are lifted. LPG could expand into other domestic and industrial uses, including water heating. Opportunities may be created by fears about natural gas imports, after Petrobras cancelled plans to expand a Brazil-Bolivia gas pipeline.

Analysts say LPG demand is largely dependent on price, with taxes presenting a hurdle to further growth. "Taxes are an enormous problem and have really hurt the industry," says Turquato. He adds that, despite calls from the industry to lower taxes, the trend has been for them to increase. Mato Grosso state recently imposed an 8pc LPG tax. "A reduction in taxes would certainly increase consumption," says Cotta.

Brazil's congress is considering a constitutional amendment that would make LPG tax exempt. Congressman Jose Pimentel says the current tax level, which he places at an average of 25pc, has the greatest impact on poor users.

"If we had a huge increase in consumption, the industry would have enough capacity to meet demand," says Turquato. Investment levels have been modest in recent years and the industry is using about 50pc of its installed distribution and marketing capacity. "Right now, investments in new capacity are completely unnecessary," he adds.

Little investment has been made to increase distribution capacity, but the industry has been investing in efficiency. "The price of LPG has not gone up, but production and distribution costs have, making it necessary for companies to be more efficient," says Turquato. SHV Gas Brasil has been one of the few companies to invest, spending an average of $59mn/yr on developing distribution of LPG in the last three years.

The company has been consolidating its processing plants. SHV last year invested $8.5mn in a new plant in Rio Grande do Sul state. The plant, which has the capacity to fill 35,000 13kg bottles each day and storage capacity of 600t, will replace three others in the state. The company has merged operations in the states of Araucaria, Parana and Minas Gerais.

Sign of maturity

These investments are in part a result of SHV's acquisition of Supergasbras in 2004. The company already owned Minasgas and, although SHV continues to operate the two brands separately, they share industrial facilities.

Cotta says there is room for more mergers, despite a wave of acquisitions including Brazil's largest distributor Ultragaz's purchase of Shell's LPG operations and BR Distribuidoras' acquisition of Italian firm Eni's LPG business. "The consolidation process is irreversible. Brazil is a mature market, so it is essential to have scale," Cotta says.

Mergers ease impact of low winter demand

A mild northern hemisphere winter has disappointed companies holding large LPG stocks. But concern in Japan is more muted as recent steps towards consolidation by importers have left firms confident of healthy profits, despite an expected fall in sales.

Importers are now less concerned about slower sales and have switched their focus to profit margins. "We are improving our ability to achieve profitable prices in the domestic market," says one. Importers have been merging to escape what they describe as unhealthy competition. Profits at Japanese importers suffered in the past when more than 20 importers were contending for market share. But consolidations and alliances have put importers in a stronger position when negotiating with wholesalers and customers (*LPGW, 2 November, p10*).

Importers say the creation of Astomos Energy in April was a turning point. Astomos was jointly established by refiner Idemitsu and trading house Mitsubishi to create Japan's largest LPG importer. Astomos' vast market share has helped it push for changes in sale price formulas and improve its profitability. This development by a leading group has helped other importers do the same.

Consolidations in the last two years include refiner Nippon Oil's dissolution of subsidiary Nippon Petroleum Gas to cut operating costs, and trading firm Mitsui's merger of LPG operations under subsidiary Mitsui Liquefied Gas. Fellow trading company Itochu formed a logistical alliance with Nissho Petroleum Gas, a subsidiary of Osaka Gas.

Importers are seeking further reforms, with Mitsui considering creating an LPG group with fellow trading firms Marubeni and Sumitomo. This would establish Japan's second-largest importer after Astomos. Astomos has signed an agreement for logistical co-operation in south Japan with Nippon, which is the current number two LPG firm. And Astomos is in talks with Mitsui about linking up over domestic LPG transportation (*LPGW, 20 December, p5*).

Although the slow sales because of mild weather are not overly concerning importers, high stock levels are more worrying. Most importers say they are likely to keep stocks high until the end of the current fiscal year on 31 March. They have more than sufficient stocks, and temporary falls in temperatures are expected to have little impact.

Low consumption and a bout of intensive LPG buying at the end of last year contributed to ample inventories. Total stocks at the end of December were 2.3mn t, according to the latest data from the Japanese LPG association (*see below*). This is 17pc higher than a year earlier and near the three-year high of 2.9mn t in September 2006.

Holding on

With mild weather slowing seasonal demand, importers are holding higher than expected stocks. As a result, many see no need to buy spot cargoes before the end of this financial year. Weak buying interest for spot cargoes is weighing down on international prices, forcing Saudi Aramco to cut its February propane Contract Price (CP) by $19/t from January to $526/t. The February butane CP was set $24/t lower, also at $526/t.

The March CP is expected to be lower than February. In the forward market, the March benchmark for propane was trading at around $521/t on 5 February, with the same bearish sign applying to butane. A fall in the February CP will hurt importers, as domestic sales are linked to the previous month's CP. Most of importers' stocks were bought in the last three months, when the CP was in the range of $450-563/t for propane and $470-560/t for butane. A lower CP in February and March could result in a significant loss in stock value by the end of this fiscal year.

Slower consumption aids stockbuild

Japan's LPG stocks in December were higher than a year earlier for the fourth consecutive month. A stockbuild in August-October largely satisfied importers' requirements, with milder winter weather denting domestic demand for LPG as a heating and boiler fuel.

Inventories totalled 2.28mn t at the end of December — 17pc higher than in December 2005. Propane stocks rose by 15pc on a year earlier, while butane stocks increased by 20pc.

End-December consumable propane stocks were more than 10 times higher than a year earlier, and consumable butane stocks nearly tripled during the same period. But total mandatory stocks slipped slightly by 0.5pc in December.

Japan's total LPG consumption in December fell by 4pc from a year earlier. Propane use dropped by 4pc, while butane demand fell by 1pc.

Imports in December were lower than a year earlier, with above average winter temperatures prompting the country's importers to cut spot purchases. Propane imports were down by 19pc, while butane imports fell by 35pc. Increased refinery output slowed imports, with propane production in December rising by 6pc compared with a year earlier and butane up by 8pc, to give a total rise in LPG output of 7pc.

Stocks *'000t*

	Propane			Butane			Total		
	Dec 06	Nov 06	Dec 05	Dec 06	Nov 06	Dec 05	Dec 06	Nov 06	Dec 05
Production	263	234	247	126	110	117	389	344	364
Imports	727	698	900	240	326	372	967	1,024	1,272
Consumption	1,346	1,056	1,408	486	395	492	1,832	1,451	1,900
Total stocks	1,284	1,640	1,120	992	1,170	826	2,276	2,810	1,946
Consumable stocks	225	570	20	213	436	78	438	1,006	98
Mandatory stocks	1,059	1,070	1,100	779	734	748	1,838	1,804	1,848

— Japan LPG association

Rising oil output lifts exports

Russian LPG production and exports continued to rise last year as a result of higher crude output.

Exports increased by 5pc compared with a year earlier to 1.82mn t, according to state railway statistics. Preliminary data show that production was also up by 5pc, reaching 8.6mn t.

Russian refineries and state-controlled gas company Gazprom's production facilities processed 214.34mn t of crude last year — 6pc more than in 2005. Strong LPG prices and firm demand encouraged exports, which have risen steadily over the last five years (*see graphs*).

Poland remained the largest buyer of Russian LPG, with about 30pc of the total. But exports by rail direct to Poland fell for the fourth year running as volumes were switched through Belarus.

Cargoes are increasingly transferred from rail to road in Belarus for transit by propane truck to Poland. This arrangement benefits from Russian domestic railway tariffs and the lower rate of LPG export duty payable for exports from Russia to Belarus.

In January, Belarus trimmed the profits of this trade by raising its export duty to the Russian rate. But the domestic rail tariff, the result of a partial customs union between Russia and Belarus, remains lower than the international rate.

Consumption *mn t*

Year	Volume
2000	4.78
2001	5.38
2002	6.08
2003	6.00
2004	6.23
2005	6.60

Controlled prices

Until August last year, Russian exporters to Belarus did not have to supply LPG to the Russian residential market at state-controlled low prices, a condition for all other exports (*see p1*).

As a result of these factors, Belarus become the second-largest destination for LPG exports last year, pushing Finland into third place. Belarus received 323,200t last year, up by 25pc on 2005, while Finnish volumes fell by 25pc to around 215,700t.

Propane-butane mix exports from Russia to Belarus tripled to 57,800t last year. Propane exports were slightly up at 38,700t. Russia's exports of broad fraction, a feedstock for LPG production, rose by 21pc to 122,400t. Belarusian gas processing plants took 38pc of the total.

Largest exporters 2006

Company	Exports *t*	Production assets
Sibur Holdings	614,200	Six gas processing plants, four petrochemical plants
Orenburg	242,800	Gas processing plant
Lukoil	271,600	Two gas processing plants
Sosnogorsk	181,200	Gas processing plant
Novokuibyshev	138,100	Petrochemical plant

Ukraine remained the fourth-largest LPG buyer last year, as imports rose by 28pc to 209,195t. Almost 60pc, or 172,800t, was broad fraction. Russian firm Lukoil's supplies of the product to the Kalushi petrochemical plant increased by 49pc to 151,700t, while Russia's Orenburg gas processing plant more than doubled exports to 21,000t.

Exports to Ukraine's Odessa Black Sea terminal were up by 60pc to 211,800t. Most product was shipped onward, mainly to Turkey, with up to 10pc going to Bulgaria.

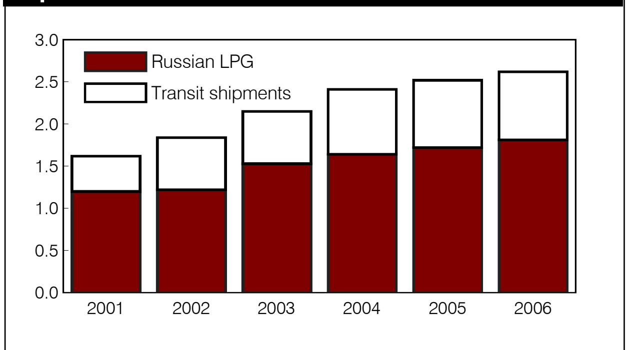
Russian firm Tobolskneftekhim, based in western Siberia, accounted for over 80pc of all LPG shipments to Ukraine as the company enjoys a 40pc reduction in rail costs if the journey exceeds 2,600km. This discount took effect in May last year, and LPG exports from the Tobolsk railway station in Siberia exceeded 150,000t — more than three quarters of the year's total.

Transit shipments for export through Russia were almost entirely from Kazakhstan. Volumes from the central Asia republic were up by 4pc to 849,300t last year compared with 2005. The rest was from Belarus to Finland, at 524t, and Azerbaijan to Moldova, at 421t.

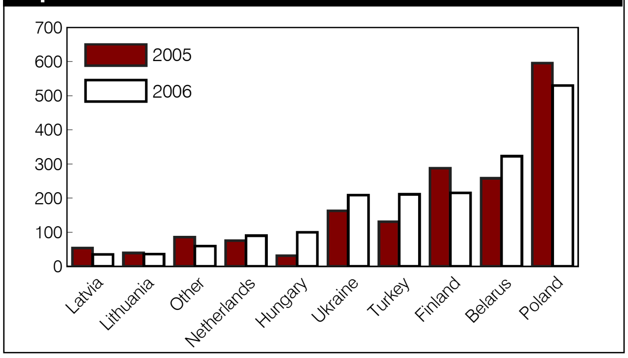
Chevron-led consortium Tengizchevroil (TCO), the largest Kazakh LPG producer, accounted for over 90pc of the country's exports despite reducing production by 4pc to 784,400t last year.

Around 37pc of transit cargoes were shipped to Poland, with Turkey receiving 26pc and Hungary 13pc. Kazakh exports to Poland were up by 5pc to 313,960t, with exports to Hungary up by 5pc to 102,600t. But shipments to Georgia were down by 9pc to 220,800t, with shipments to Slovakia down by 22pc to 62,600t and to Romania down by 31pc to around 32,600t.

Exports from Russia *mn t*



Exports from Russia *'000t*



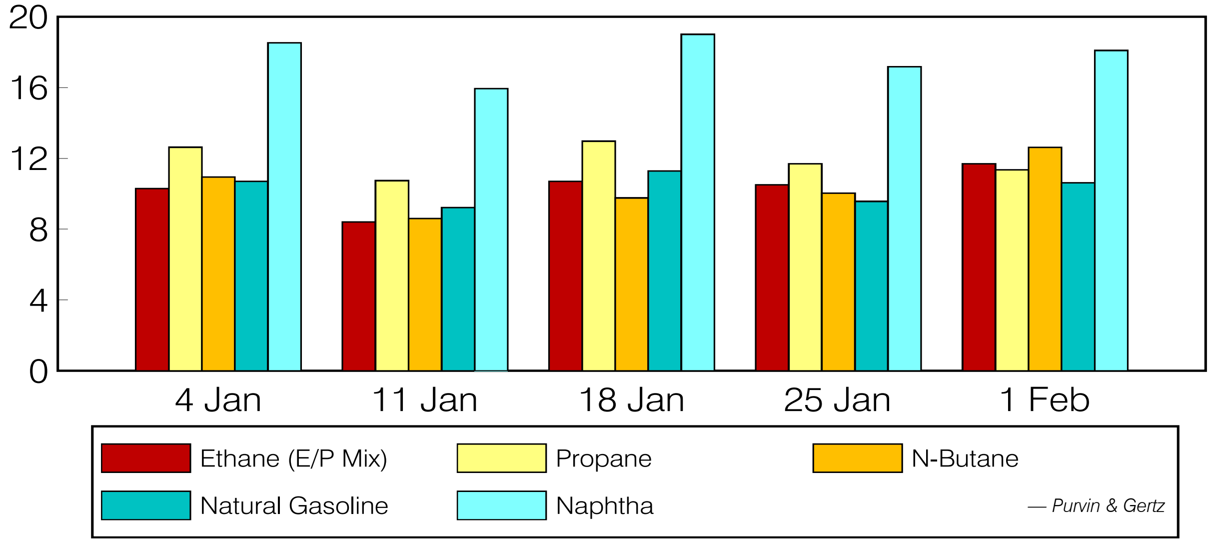
Purvin & Gertz: ethylene plant costs and margins (*¢/pound of ethylene*)

Ethylene plant total variable cash cost (as at Mont Belvieu, Texas)

	4 Jan	11 Jan	18 Jan	25 Jan	1 Feb
Ethane (E/P Mix)	22.01	20.96	19.73	20.67	21.23
Purity Ethane	22.38	22.43	21.25	20.09	21.01
Propane	19.68	18.62	17.46	19.49	21.58
N-Butane	21.29	20.69	20.59	21.08	20.23
Natural Gasoline	20.57	19.13	18.12	20.57	21.28
Naphtha	12.75	12.39	10.39	12.96	13.80
Gasoil	19.52	16.35	15.16	19.21	21.70

Ethylene plant gross margins (graph below) (as at Mont Belvieu, Texas)

	4 Jan	11 Jan	18 Jan	25 Jan	1 Feb
Ethane (E/P Mix)	10.30	8.41	10.71	10.51	11.69
Purity Ethane	9.93	6.94	9.19	11.10	11.91
Propane	12.63	10.75	12.97	11.69	11.35
N-Butane	10.95	8.61	9.77	10.03	12.62
Natural Gasoline	10.71	9.22	11.29	9.58	10.62
Naphtha	18.52	15.94	19.00	17.18	18.09
Gasoil	11.75	11.98	14.23	10.93	10.19



— *Purvin & Gertz*

Shipping news

Weak LPG shipping rates contributed to a fall in profits for Belgium's **Exmar Shipping** in 2006. The company made a profit of $76.2mn, down by 6.5pc from 2005. The company's LPG division saw a 20pc fall in profits, mainly as a result of a lack of demand for VLGCs. The company predicts that this state of affairs will continue into the first quarter of this year, especially if the mild winter persists.

•

Singapore-based **Epic Shipping**, formerly part of the **Pacific Basin Group**, has taken delivery of the 3,000t LPG tanker *Minorca* from Japan's **Kanrei Shipbuilding**.

•

Spain's **Empresa Naviera Elcano** has picked up four LPG carriers, but has not made publicly available the price or seller of the vessels. The vessels range in size from 4,323t to 8,870t.

•

The Baltic LPG freight index has reached its lowest level since it was introduced in January 2003, falling to just $22.50/t on a Ras Tanura/Chiba basis.

Shipping market-watch

VLGC rates have continued their downward trajectory, dipping under $20/t for Mideast Gulf-Japan routes. Spot prices are now below operating costs, as demand for tonnage remains limited. But the Handysize and coaster markets have picked up, and prices rose by around $10/t as January drew to a close, as a result of firmer demand.

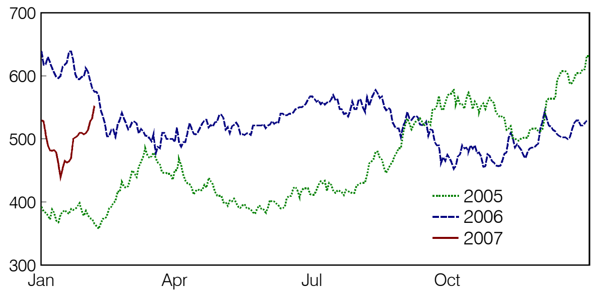
LPG shipping rates

Spot			***$/t***
44,000t	Mideast Gulf/Japan	↓	19.50
3,000t	Tees/Lisbon	↑	75.00
1,800t	Tees/ARA	↑	49.00
1,800t	Tees/Lisbon	↑	88.00
12-month time charter			***$/pcm***
75,000-78,000m³ (modern)		↓	800,000
75,000-78,000m³ (older)		↓	450,000
57,000m³ (modern)		nc	950,000
35,000m³		nc	900,000
15,000m³		nc	750,000
3,200-3,500m³ pressurised (west)		nc	215,000
3,200-3,500m³ pressurised (east)		↑	195,000

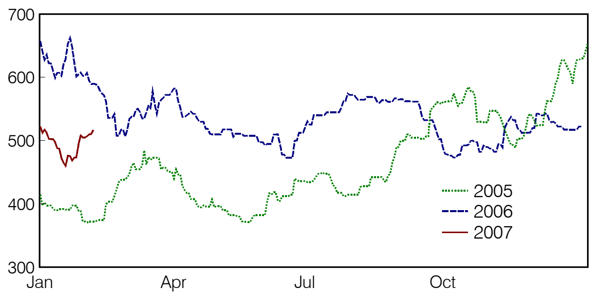
— *EA Gibson*

EUROPEAN PROPANE

Propane cif NWE cargoes large $/t



Propane fob ARA barges $/t



WATCH FOR
Handy-size demand

● The February *Argus* North Sea Index (ANSI) for propane was set at $488.50/t, down by $15.50/t from January.

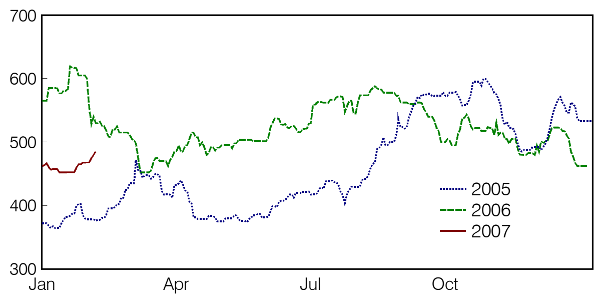
● European large cargo propane prices rose sharply amid a strong pick-up in trader demand to cover February requirements. Bullish sentiment was underscored by crude and naphtha gains. Large cargo levels added $80/t and traded just below $530/t.

● Propane barge prices rose steadily, but activity remained muted. A major was a buyer for a five-day period after problems at two of its refineries, which helped boost prices. Levels have risen by over $35/t to $510/t since the middle of January.

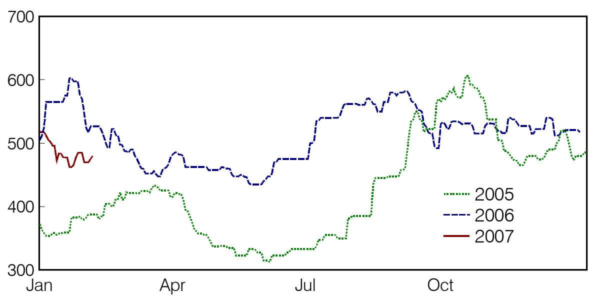
● Northwest European coasters have added close to $60/t in the last two weeks, owing to a strong pick-up in demand for ex-terminal product. Propane coaster prices in the Mediterranean rose by $20/t to over $500/t.

EUROPEAN BUTANE

Butane cif NWE cargoes large $/t



Butane fob ARA barges $/t



WATCH FOR
Prices holding steady

● The February butane *Argus* North Sea Index (ANSI) was set at $445.50/t — a rise of $4/t compared with January.

● Large cargo butane levels edged higher, supported by crude and naphtha price rises. Prices have risen by $30/t in the last two weeks to $480/t. Spot demand has focused on normal-butane purchases, with strong demand from the petrochemical sector.

● Butane barge prices came under pressure amid slack demand. Buying interest from petrochemical firms has offered some support to levels, but prices have fallen by around $10/t in the last two weeks to $475/t.

● Small ship freight rates have soared to close to $50/t owing to coaster vessel shortages, dramatically reducing spot trade. Activity has been limited to fob trade with small ship prices adding $15/t in the last two weeks to settle in the low-mid $460s/t.

ASIAN PROPANE

WATCH FOR
High Japanese stocks

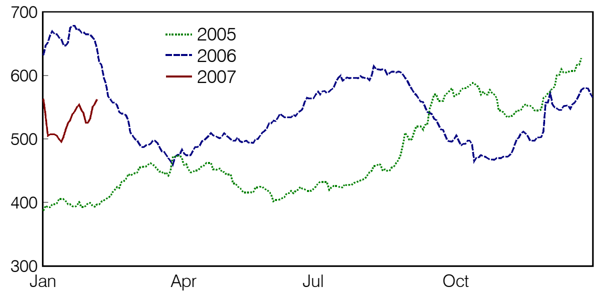
● Saudi Aramco's February Contract Price was announced at $526/t for both propane and butane, a $19/t and $24/t respective fall from January. This matched market predictions.

● Expectations are growing that the March Contract Price (CP) could be higher than February. Saudi Aramco was heard to have sold two full spot cargoes in late January for early March loading. At least one of the cargoes was heard to be at a $5/t premium to the March CP.

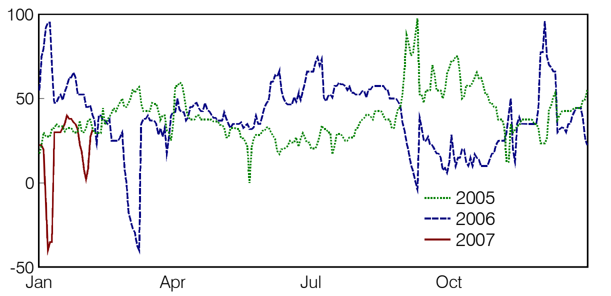
● Chinese demand is lacklustre, with Chinese buyers' ideas hovering around the low $500s/t CFR China. But some players expect them to buy actively after the lunar new holidays in late February.

● Japanese demand could be curtailed by the end of their fiscal year on 31 March as participants seek to reduce inventory levels rather than import.

Propane *Argus* Far East Index $/t



Propane CFR Japan premium $/t



ASIAN BUTANE

WATCH FOR
Chinese price falls

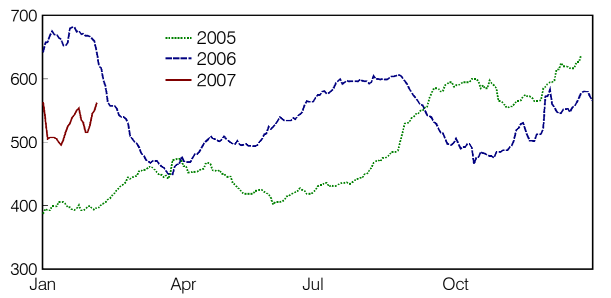
● Chinese domestic prices have been more volatile recently. Producer Sinopec called a conference in January in an attempt to stop prices falling.

● Sinopec's move to halt prices was felt to be against market sentiment and prices slid back soon afterwards. Supply remains ample in China, although a renewed price rally appears to have begun.

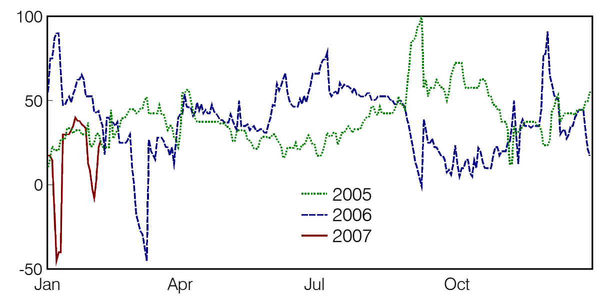
● Most price discussion is now linked to the March Contract Price (CP) for cargoes arriving in early March. Some deals were concluded at a premium to the March CP in the low $30s/t. But bullish sentiment is driving up selling ideas, with some talking about a $40/t premium.

● Small cargo prices on a south China CFR basis have fallen to around $525-535/t. Demand is subdued as Chinese production remains robust, with volume moving from north to south and snuffing out import demand.

Butane *Argus* Far East Index $/t

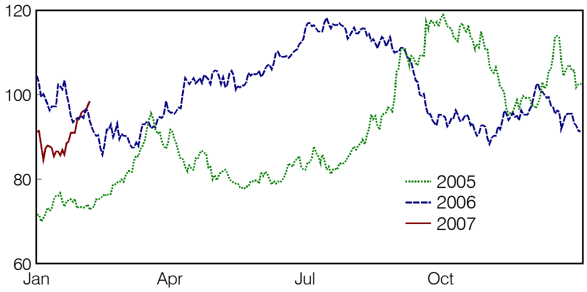


Butane CFR Japan premium $/t

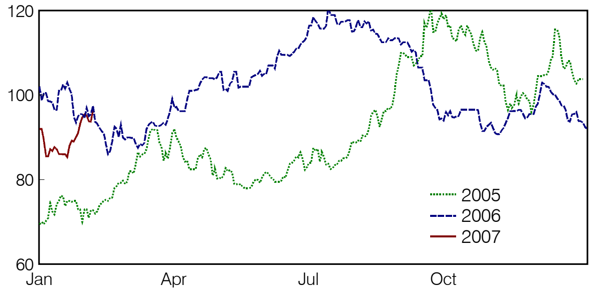


AMERICAS PROPANE

Propane Mont Belvieu non-Tet ¢/USG



Propane Nymex ¢/USG



WATCH FOR
Higher prices

● Propane prices in the US have risen by nearly 10pc in the last two weeks, which is more than other LPG prices during the same period. Mont Belvieu spot prices were around 97.5¢/USG at the end of last week, pushed up by a steady increase in crude prices.

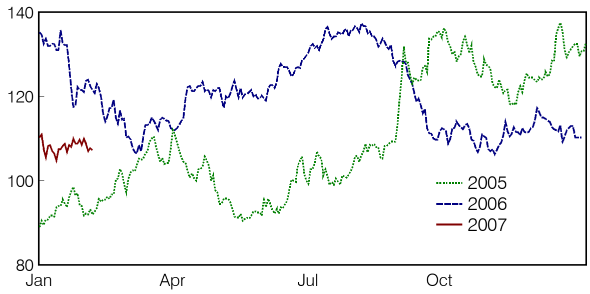
● Crude prices have risen faster than propane, resulting in a decline in propane's relative value. Mont Belvieu propane was 73.1pc of the value of benchmark WTI in the third week of January, but fell to 69.4pc two weeks later.

● Propane margins for petrochemical producers have fallen over the last two weeks to approximately 11.69¢/lb of ethylene.

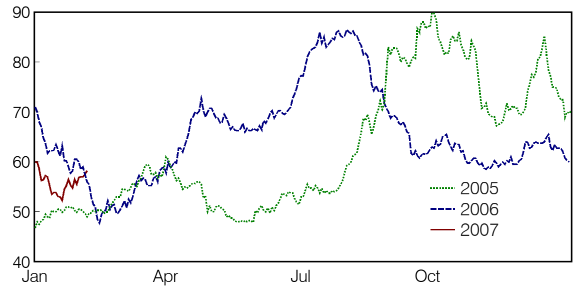
● Tet and non-Tet propane values have traded at parity for most of the last two weeks, although non-Tet fell to a 0.5¢/USG discount in the last two trading days.

AMERICAS BUTANE/ETHANE

Butane Mont Belvieu non-Tet ¢/USG



Ethane Mont Belvieu ¢/USG



WATCH FOR
Petrochemical demand

● Ethane prices have risen moderately from late January to early February, in tandem with natural gas prices. Steady demand from petrochemical producers has made the market active and volatile.

● Margins for petrochemical producers that use ethane as a feedstock have improved in the last two weeks, which has encouraged steady consumption.

● Butane prices have fallen moderately in the last two weeks. This is a reflection of the decline in demand from US refiners, which are making the transition to blending spring and summer grade gasoline.

● Margins for petrochemical producers using natural gasoline as a feedstock have improved moderately but demand is steady because of difficulty in obtaining supplies of paraffinic naphtha. Natural gasoline prices have risen, despite relatively weak margins.

INTERNATIONAL LPG

WATCH FOR
Mediterranean propane demand

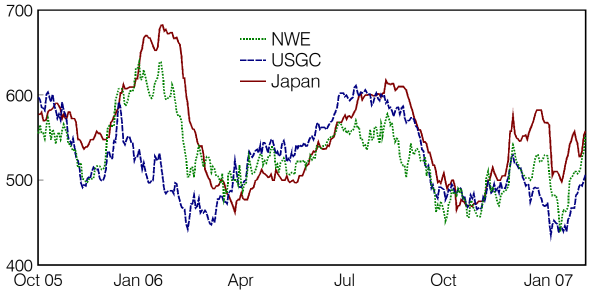
● Algeria's Sonatrach announced its February prices at $492/t for propane and $480/t for butane, falls of $8/t and $5/t respectively from January.

● Propane levels in the Mediterranean mirrored north-west European price gains, with levels rising $90/t to $550/t. Demand from traders covering contract commitments in February of over 100,000t is supporting prices. Mediterranean butane coaster prices fell by $20/t to $480/t amid slack demand.

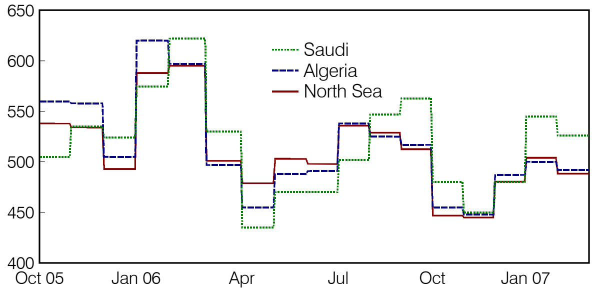
● Rising cif ARA butane prices have closed the North Sea arbitrage to the US. Falling US propane prices have reduced export openings from north and west Africa.

● FSU prices came under pressure owing to low seasonal demand. LPG-mix prices fell by $25/t to $480/t fob Black Sea, and daf Brest prices fell by by $40/t to $465/t.

Propane NWE, USGC, Japan $/t



Propane export prices Saudi, Algeria, North Sea $/t



Chinese domestic prices Yuan/t

East China terminal	Jan 06	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 07
Ningbo ex-terminal	6,173	6,005	5,225	4,922	4,868	4,862	5,242	5,476	5,462	5,176	5,216	5,538	4,932
Wenzhou ex-terminal	5,629	5,330	4,888	4,858	4,802	4,535	4,776	5,211	5,390	5,089	5,040	5,294	4,663
Taicang ex-terminal	6,555	6,186	5,225	4,989	5,062	5,070	5,562	5,783	5,631	5,201	5,201	5,512	5,188
Shanghai ex-terminal	6,648	6,345	5,398	5,070	5,138	5,138	5,612	5,859	5,682	5,232	5,181	5,498	5,212
Zhangjiagang ex-terminal	6,600	6,173	5,132	5,017	5,061	5,052	5,562	5,746	5,597	5,134	5,192	5,462	5,147
Fujian ex-terminal	6,562	6,059	5,207	5,052	4,912	4,857	5,132	5,432	5,474	4,978	5,198	5,645	4,968
East China refinery													
Shanghai ex-refinery	5,565	5,503	4,855	4,858	4,878	4,534	4,895	5,190	5,419	5,069	5,045	5,355	4,680
Zhenhai ex-refinery	5,679	5,380	4,938	4,896	4,847	4,616	4,840	5,265	5,433	5,165	5,186	5,493	4,784
Yangzi ex-refinery	5,548	5,159	4,714	4,826	4,761	4,392	4,613	4,990	5,245	4,999	4,950	5,183	4,461
Fujian ex-refinery	6,134	5,558	5,099	4,966	4,835	4,678	4,954	5,409	5,439	4,943	5,110	5,560	4,858
Gaoqiao ex-refinery	5,507	5,448	5,129	4,798	4,802	4,558	4,804	5,104	5,352	5,004	4,978	5,215	4,540
South China terminal													
Zhuhai ex-terminal	6,525	5,738	5,277	5,229	5,047	4,834	5,088	5,610	5,625	5,136	5,405	5,701	5,067
Shenzhen ex-terminal	6,464	5,939	5,422	5,330	5,063	4,916	5,266	5,778	5,870	5,302	5,541	5,790	5,193
Raoping ex-terminal	6,537	5,876	5,168	5,123	4,970	4,817	5,108	5,660	5,576	5,096	5,245	5,570	5,126
Nansha ex-terminal	6,516	5,873	5,326	5,333	5,012	4,919	5,178	5,721	5,738	5,203	5,440	5,744	5,142
Shantou ex-terminal	6,385	5,843	5,212	5,217	5,012	4,844	5,116	5,630	5,576	5,103	5,250	5,597	5,169
Yangjiang ex-terminal	6,247	5,785	5,262	5,148	4,913	4,683	5,053	5,541	5,613	5,079	5,355	5,745	4,963
South China refinery													
Maoming ex-refinery	6,123	5,476	5,060	5,126	4,874	4,709	4,921	5,421	5,506	4,979	5,293	5,707	4,866
Guangzhou ex-refinery	6,061	5,663	5,228	5,261	4,996	4,823	5,060	5,556	5,654	5,117	5,402	5,730	5,052
Northeast China refinery													
Daqing ex-refinery	4,276	4,090	3,955	4,119	4,257	3,858	3,969	4,472	4,821	4,496	4,153	4,215	3,603
Dalian ex-refinery	4,557	4,450	4,220	4,344	4,476	4,100	4,023	4,628	4,963	4,589	4,449	4,585	4,225
Northwest China refinery													
Urumuqi ex-refinery	3,725	3,725	3,725	3,725	3,739	3,824	3,690	3,883	4,036	3,811	3,604	3,783	3,591
Inland China refinery													
Lanzhou ex-refinery	4,801	4,383	4,292	4,401	4,328	4,199	3,850	4,410	4,687	4,261	4,177	4,543	3,916
Yan-An ex-refinery	4,757	4,383	4,247	4,342	4,267	3,866	3,911	4,477	4,819	4,316	4,316	4,720	3,974

PROPANE	FEB 06	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN 07	FEB
Middle East $/t													
Saudi Arabia	622.00	530.00	435.00	470.00	470.00	502.00	547.00	563.00	480.00	450.00	480.00	545.00	526.00
Kuwait	622.00	530.00	435.00	470.00	470.00	502.00	547.00	563.00	480.00	450.00	480.00	545.00	526.00
Mediterranean $/t													
Algeria (Sonatrach)	597.00	497.00	455.00	488.00	491.00	538.00	525.00	517.00	455.00	448.00	487.00	500.00	492.00
North Sea $/t													
Argus North Sea Index (ANSI™)	595.00	501.00	479.00	502.96	497.75	536.06	529.00	512.50	447.00	445.00	480.50	504.00	488.50
BPAP	580.00	495.00	478.00	498.00	501.00	547.50	527.50	499.50	447.00	445.00	480.50		
Spot prices $/t													
Large cargo cif ARA	545.48	505.78	513.97	517.93	542.23	554.07	548.27	507.67	472.82	486.50	516.37	487.41	
Large cargo cif Lavera	552.28	500.87	512.86	514.19	535.18	547.05	548.14	511.45	472.39	477.27	513.76	481.93	
Large cargo USGC	471.71	475.63	523.68	535.52	565.34	600.16	586.22	519.98	481.89	489.85	496.23	458.69	
Large cargo Japan CFR	602.35	490.93	493.53	503.26	542.11	587.69	606.64	538.48	481.21	503.48	562.00	526.76	
Large cargo east China CFR	599.65	488.28	490.71	499.47	537.68	584.76	602.14	536.48	479.69	501.86	561.05	524.71	
Large cargo south China CFR	597.80	486.33	488.79	497.05	534.50	582.62	599.68	535.05	478.36	500.86	560.40	523.29	
Large cargo Far East Index	600.08	488.63	491.16	500.16	538.31	585.15	603.16	536.76	479.79	502.17	561.20	525.02	
Asia spot premiums $/t													
Mideast Gulf	-7.60	-15.20	1.79	-0.47	3.20	2.31	2.73	-4.98	-7.12	0.82	8.85	2.90	
South China (pressurised)	-6.60	1.87	74.79	61.21	69.57	75.38	60.55	27.71	60.45	91.75	102.68	11.38	
East China (refrigerated)	-13.15	-21.93	49.39	29.74	60.64	72.24	51.91	-9.38	5.64	46.41	68.40	-15.33	
South China (refrigerated)	-15.00	-23.89	47.47	27.32	57.45	70.10	49.45	-10.81	4.31	45.41	67.75	-16.76	
Taiwan	32.48	14.28	41.45	34.79	53.20	56.83	49.77	15.57	13.83	35.20	45.20	15.24	
Japan	34.13	16.11	43.26	36.79	55.20	58.55	51.68	16.90	15.26	36.66	46.35	17.00	
Mont Belvieu ¢/USG													
Tet	91.93	92.67	101.89	104.16	109.88	116.57	113.88	101.19	93.88	95.41	96.63	89.42	
Non-Tet	91.63	92.17	101.42	103.81	109.78	115.99	113.20	100.61	93.09	94.78	96.30	89.32	
Nymex *1st month*	91.78	92.07	100.91	103.48	109.73	117.21	114.50	102.56	94.68	95.48	97.20	88.93	
Europe $/t													
Coasters fob NWE	567.18	549.43	534.53	496.69	503.66	544.14	562.52	544.57	503.18	498.95	510.42	490.27	
Barges fob NWE	557.98	553.96	535.42	509.05	500.30	545.95	565.89	540.31	486.52	513.36	527.71	491.23	
Coasters fob Med	621.88	541.09	508.61	521.55	514.89	556.31	572.95	548.69	501.36	506.32	539.97	497.61	

BUTANE	FEB 06	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN 07	FEB
Middle East $/t													
Saudi Arabia	627.00	530.00	425.00	470.00	470.00	502.00	547.00	560.00	485.00	470.00	495.00	550.00	526.00
Kuwait	627.00	530.00	425.00	470.00	470.00	502.00	547.00	560.00	485.00	470.00	495.00	550.00	526.00
Mediterranean $/t													
Algeria (Sonatrach)	605.00	505.00	455.00	470.00	482.00	520.00	530.00	535.00	472.00	469.00	485.00	485.00	480.00
North Sea $/t													
Argus North Sea Index (ANSI™)	588.00	498.00	456.00	474.04	484.75	510.99	543.00	555.00	480.00	500.00	470.00	441.50	445.50
BPAP	585.00	490.00	465.00	462.50	481.00	538.00	530.00	549.50	480.00	500.00	470.00		
Spot prices $/t													
Large cargo cif ARA	527.13	473.35	495.03	500.45	528.75	562.05	575.80	537.62	520.48	494.66	497.87	459.18	
Large cargo cif Lavera	556.33	479.46	492.08	502.93	532.34	580.79	584.93	555.93	521.64	492.84	506.39	460.95	
Large cargo USGC	526.37	477.54	511.11	526.07	551.02	581.63	581.61	509.13	481.82	480.98	487.03	469.57	
Large cargo Japan CFR	602.75	477.89	489.95	502.21	541.61	589.17	603.05	538.48	487.07	516.61	563.00	524.86	
Large cargo east China CFR	600.05	475.20	487.11	498.42	537.18	586.24	599.00	536.48	485.55	514.75	562.05	522.81	
Large cargo south China CFR	598.20	473.24	485.21	496.11	534.00	584.10	596.55	535.05	484.21	513.66	561.40	521.38	
Large cargo Far East Index	600.48	475.57	487.58	499.16	537.81	586.63	599.80	536.76	485.64	515.14	562.20	523.12	
Asia spot premiums $/t													
Mideast Gulf	-7.60	-16.72	1.79	-0.47	3.20	2.31	2.73	-4.98	-5.67	6.23	11.38	2.00	
India CFR	28.93	4.54	39.95	29.50	49.75	71.48	48.18	7.52	8.02	32.75	36.80	-19.52	
South China (pressurised)	-11.10	4.04	82.68	61.21	69.57	75.38	60.82	30.00	53.55	72.89	89.93	7.57	
East China (refrigerated)	-17.25	-32.85	53.68	28.68	60.14	73.71	49.05	-7.10	5.07	40.43	56.65	-21.05	
South China (refrigerated)	-19.10	-34.80	51.79	26.37	56.95	71.57	46.59	-8.52	3.74	39.34	56.00	-22.48	
Taiwan	31.73	7.72	42.63	33.74	52.70	58.31	47.82	16.43	12.55	34.39	40.70	12.14	
Japan	33.38	9.46	44.42	35.74	54.70	60.02	49.73	17.76	13.40	35.93	41.85	13.98	
Mont Belvieu ¢/USG													
Tet	120.47	109.67	117.09	120.41	125.91	132.71	132.71	116.66	110.61	110.44	111.78	107.90	
Non-Tet	118.67	111.71	119.45	120.57	126.07	134.17	133.31	116.94	110.68	111.21	112.48	108.15	
Europe $/t													
Coasters fob NWE	515.25	396.87	377.33	416.50	472.16	516.48	530.45	538.88	535.52	513.80	488.42	460.91	
Barges fob NWE	514.83	465.76	467.33	447.64	469.55	535.86	564.59	542.69	527.07	526.30	523.18	485.52	
Coasters fob Med	562.48	446.70	396.94	467.38	529.77	540.00	567.27	528.52	521.43	506.14	494.84	483.25	

NAPHTHA $/t	FEB 06	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN 07	FEB
Cargoes cif NWE	525.80	528.65	589.19	601.57	611.75	641.98	621.07	524.10	508.91	515.70	545.53	506.73	
Cargoes C+F Japan	540.20	553.95	599.30	618.27	633.46	658.12	636.98	554.09	531.49	538.51	569.89	530.57	

ETHANE ¢/USG	FEB 06	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN 07	FEB
Mont Belvieu	52.79	55.17	65.18	67.68	70.43	83.75	79.14	64.11	62.35	59.98	63.02	55.64	