



New York  
Mercantile Exchange

October 18, 2007

Richard Shilts  
Director,  
Division of Market Oversight  
Office of the Secretariat  
Commodity Futures Trading Commission  
Three Lafayette Centre  
1155 21<sup>st</sup> Street, NW  
Washington, DC 20581


**Re: Information request concerning the listing by the New York Mercantile Exchange of 23 new futures contracts on the NYMEX ClearPort® Trading and Clearing product slates (NYMEX Submission 07.46)**

Dear Mr. Shilts:

We are submitting this letter in response to your July 19, 2007 letter that was addressed to our attention. In that letter, you requested certain supplemental information for 23 new futures contracts that had been listed for trading and clearing by the New York Mercantile Exchange, Inc. (NYMEX or Exchange) on the NYMEX ClearPort® Trading and Clearing product slates. Accordingly, enclosed with this cover letter is Appendix A, which contains our responses to the specific questions listed in your July 19 letter. In addition, we have included hard copies of certain other data and information that was reviewed by Exchange staff as part of our routine review process prior to the listing of these products.

We understand that Division of Market Oversight (DMO) staff also conducts its own due diligence review of new products listed for trading by a designated contract market (DCM), and we hope that the information submitted with this letter will be useful to DMO staff in confirming NYMEX's compliance with applicable DCM Core Principles. Should you or your staff have any additional questions, do not hesitate to contact the undersigned at any time respectively at (212) 299-2897 or at (212) 299-2390.

  
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Chief Regulatory Officer

  
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cc: Tom Leahy  
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*The New York Mercantile Exchange, Inc., is composed of two divisions.  
The NYMEX Division offers trading in crude oil, heating oil, unleaded gasoline,  
natural gas, electricity, coal, propane, platinum, and palladium. The COMEX Division  
offers trading in gold, silver, copper, and aluminum.*

## APPENDIX A

### Supplemental Information for 23 New Futures Contracts

<u>New Petroleum Products Contracts</u>	<u>Code</u>	<u>Contract Size</u>	<u>Rule</u>
<u>New York Harbor Contracts</u>			
RBOB (Platts) Calendar Swap	RY	42,000 Gallons	562
RBOB (Platts) vs. NYMEX RBOB Spread Swap	RI	42,000 Gallons	563
NY ULSD vs. NYMEX HO Spread Swap	UY	42,000 Gallons	564
<u>Gulf Coast Contracts</u>			
Gulf Coast Gasoline (Argus) Calendar Swap	AW	42,000 Gallons	565
Gulf Coast ULSD (Argus) Calendar Swap	AJ	42,000 Gallons	566
Gulf Coast Jet (Argus) Calendar Swap	AF	42,000 Gallons	567
Gasoline Up-Down (Argus) Swap	UZ	42,000 Gallons	568
ULSD Up-Down (Argus) Swap	US	42,000 Gallons	569
Jet Up-Down (Argus) Swap	JU	42,000 Gallons	570
Gulf Coast ULSD Crack Spread (Argus) Swap	CF	1000 Barrels	571
Gulf Coast Gasoline Crack Spread (Argus) Swap	CK	1000 Barrels	572
<u>Los Angeles Contracts</u>			
Los Angeles CARBOB (OPIS) Spread Swap	JL	42,000 Gallons	573
Los Angeles CARB Diesel (OPIS) Outright Swap	LX	42,000 Gallons	574
Los Angeles CARB Diesel (OPIS) Spread Swap	KL	42,000 Gallons	575
Los Angeles Jet (OPIS) Outright Swap	LL	42,000 Gallons	576
Los Angeles Jet (OPIS) Spread Swap	JS	42,000 Gallons	577
<u>European Contracts</u>			
European Gasoil Bullet Swap	BG	1000 Metric Tons	561
European Propane CIF ARA (Argus) Swap	PS	1000 Metric Tons	578
<u>Japanese Naphtha Contracts</u>			
Japan C&F Naphtha Swap	JA	1000 Metric Tons	579
Japan C&F Naphtha Crack Spread Swap	JB	1000 Barrels	580
<u>Propane and Ethanol Contracts</u>			
Mt Belvieu Propane (OPIS) Swap	PT	42,000 Gallons	581
Chicago Ethanol (Platts) Swap	CU	42,000 Gallons	582
New York Ethanol (Platts) Swap	EZ	42,000 Gallons	583

### **Price Sources: Platts, Argus, OPIS and ICE**

The price reporting services that are used for the final settlement of the 23 new futures contracts are Platts, Argus, OPIS, and the Intercontinental Exchange (ICE). The first three price sources are the major services that are used in the over-the-counter (OTC) market for pricing swaps contracts, and their methodology is well-known in the oil industry. NYMEX has formal agreements with Platts, Argus, and OPIS to utilize their pricing data, and these three price reporting services have long-standing reputations in the industry as fair and reliable price benchmarks that have stood the test of time. The pricing methodology for Platts, Argus, and OPIS generally relies upon telephone surveys and electronic data from dozens and dozens of market participants to determine market value. Each of these services provides some general information regarding methodology on its website, and that information has been included as attachments to this filing. We have also attempted to include links to the relevant sections of these websites. (Certain other information is deemed to be proprietary by these service providers.) In general, NYMEX has concluded, taking into consideration the broad industry acceptance of these indexes as well as other factors, that these index prices are accurate, reliable and reflective of the values in the underlying cash market. We also believe that the industry has signaled over time that these prices are acceptable for hedging. In view of the overall level of participation in these indexes and the extent of their distribution, we also believe that these indexes are less susceptible to manipulation.

Regarding the ICE or ICE Futures, the Exchange does not have an information sharing agreement with either entity. We note however, that the ICE Gasoil Futures Contract, which is the source for certain of the settlement prices, is regulated by the United Kingdom's Financial Services Authority (FSA). Since the CFTC staff has reviewed the FSA regulatory structure and determined it at one point in time to be comparable to the CFTC, a judgment that does not appear to have changed at any subsequent point, we feel reasonably justified in placing some level of confidence in the disseminated settlement price. We also understand the CFTC to have an active information-sharing agreement in place with the FSA, which would apparently extend to any related products listed under the jurisdictions of both regulatory regimes. So we also have some confidence in the ability of the regulators to work together cooperatively on market surveillance matters.

Finally, one of the questions included in the July 19 letter broadly asserts that "[a]dding cash-settled prices based on the quoted prices will likely increase the incentive to manipulate these price series." We believe that this perspective warrants separate discussion, and we would be willing to make ourselves available for a discussion on this specific point. We believe that a number of factors may well enter into the considerations by market participants of a particular price series. Thus, for example, it is possible that by providing clearing services for transactions executed in off-exchange markets. The additional transparency provided by that service potentially could actually reduce incentives to engage in impermissible activity.

### **General Comments on Methodology for Assessment of Speculative Position Limits**

One of the questions posed in the July 19 letter concerned NYMEX's methodology and the information used to determine the speculative position limits for the new NYMEX futures contracts. The discussion for specific contracts or specific categories of contracts below provides some general discussion of the information considered by Exchange staff in

establishing specific levels. Perhaps it may be helpful to make a few general comments about methodology. Notwithstanding the fact that each of the 23 contracts of interest are financially-settled contracts, the Exchange has set speculative position limits for the spot month period for these new contracts. In undertaking these customized assessments, NYMEX staff takes into consideration, among other things, the guidance provided by Commission staff for compliance with Core Principle 9 under Appendix B to Part 38.

## Discussion of Specific Products or Product Categories

### New York Harbor Contracts

	<u>Code</u>	<u>Contract Size</u>	<u>Rule</u>
RBOB (Platts) Calendar Swap	RY	42,000 Gallons	562
RBOB (Platts) vs. NYMEX RBOB Spread Swap	RI	42,000 Gallons	563
NY ULSD vs. NYMEX HO Spread Swap	UY	42,000 Gallons	564

### New York Harbor Market

The New York Harbor gasoline and diesel markets are highly diverse and actively traded by refiners, traders, importers, and smaller distributors. Below is a list of the market participants, including the New York Harbor fuel distributors that are active in the cash market. The Department of Energy's *Energy Information Administration* (EIA) is the main source for data related to the underlying cash markets.

The New York Harbor gasoline market is an active trading and import hub for gasoline, with gasoline imports of nearly one million barrels per day. The metropolitan New York-New Jersey area consumes over 400,000 barrels per day of Reformulated Gasoline using a 10% blend of ethanol (RBOB refers to the Reformulated Gasoline Blendstock prior to the addition of 10% ethanol). In addition, gasoline imports are transshipped through New York Harbor to other points in the Northeast, including upstate New York and Connecticut. The daily trading volume of gasoline in the New York Harbor cash market is over one million barrels per day.

The distillates market is composed of the Ultra-low sulfur diesel (ULSD) segment and the heating oil pool. The demand for diesel fuel in the New York metropolitan area is 150,000 to 200,000 barrels per day. The diesel segment consists of the on-road fuel with less than 15 parts per million (PPM) sulfur, while heating oil consists of the higher sulfur quality for off-road use, mainly heating usage. The sources of distillate supply include local refineries, imports, and the Colonial Pipeline from Houston. The trading volume in the New York Harbor diesel cash market is around 500,000 to 750,000 barrels per day. The typical transaction size in the diesel cash market is 25,000 barrels, with 25 or more transactions per day. Most of the cash deals are spot transactions. The typical bid/ask spread is one-quarter cent (i.e., 25 points or \$0.0025). There are extensive data available on stocks and imports from the API and the EIA.

The EIA data on stocks for gasoline and ULSD are available by Padd and for the Central Atlantic region (where the New York Harbor is located) at the link below:

[http://tonto.eia.doe.gov/dnav/pet/pet\\_stoc\\_wstk\\_dcu\\_nus\\_w.htm](http://tonto.eia.doe.gov/dnav/pet/pet_stoc_wstk_dcu_nus_w.htm)

The EIA demand data on a state-by-state basis can be viewed at the link below:

[http://tonto.eia.doe.gov/dnav/pet/pet\\_cons\\_prim\\_dcu\\_nus\\_m.htm](http://tonto.eia.doe.gov/dnav/pet/pet_cons_prim_dcu_nus_m.htm)

The weekly EIA imports data are available by Padd at the link below:

[http://tonto.eia.doe.gov/dnav/pet/pet\\_move\\_wkly\\_dc\\_R10-Z00\\_mbbldp\\_w.htm](http://tonto.eia.doe.gov/dnav/pet/pet_move_wkly_dc_R10-Z00_mbbldp_w.htm)

### **New York Harbor Market Participants**

The New York Harbor cash market and OTC market participants are diverse and number around 25 to 30 commercial companies. A partial listing is as follows:

<b><u>Refiners</u></b>	<b><u>Traders/Importers</u></b>	<b><u>Brokers</u></b>	<b><u>Financial (Swaps)</u></b>
ConocoPhillips	Statoil	GFI Starsupply	Citibank
Valero	Vitol	First National	Deutsche Bank
Shell	Glencore	Echo Energy	Barclays
ExxonMobil	Northville	PVM	BankAmerica
BP	Koch	United	AIG
Sunoco	Cargill	ICAP	BNP Paribas
Amerada Hess	Morgan Stanley	ARC Oil	Merrill Lynch
Citgo	Goldman Sachs (J. Aron)	Allied Fuels	Lehman Brothers
Chevron	Irving Oil	Oil Brokers Inc.	
	Lukoil Getty	MOAB	
	Global		
	Sprague		
	Hess Energy Trading		
	George E. Warren		
	Total		

The final settlement prices for the New York Harbor RBOB and ULSD Swap futures contracts are based on the Platts price references. The Platts pricing methodology is well-defined and understood by the market participants in the cash market. The Platts methodology for petroleum products is attached below, and is detailed in the link below.

<http://www.platts.com/Oil/Resources/Methodology%20&%20Specifications/usoilproductspecs.pdf?S=n>

### **Speculative Limits for New York Harbor Contracts**

The Commission's Acceptable Practices under Core Principle 5 specifies that spot month levels for cash-settled markets should be set at a level no greater than necessary to minimize the potential for manipulation or distortion of the contract and the underlying commodity price. The Exchange has set the speculative limits for the New York Harbor gasoline and diesel fuel futures contracts at 1000 contracts (equivalent to one million barrels) which is equivalent to less than 10% of the monthly deliverable supply of gasoline or diesel fuel.

<b><u>Gulf Coast Contracts</u></b>	<b><u>Code</u></b>	<b><u>Contract Size</u></b>	<b><u>Rule</u></b>
Gulf Coast Gasoline (Argus) Calendar Swap	AW	42,000 Gallons	565
Gulf Coast ULSD (Argus) Calendar Swap	AJ	42,000 Gallons	566
Gulf Coast Jet (Argus) Calendar Swap	AF	42,000 Gallons	567
Gasoline Up-Down (Argus) Swap	UZ	42,000 Gallons	568
ULSD Up-Down (Argus) Swap	US	42,000 Gallons	569
Jet Up-Down (Argus) Swap	JU	42,000 Gallons	570
Gulf Coast ULSD Crack Spread (Argus) Swap	CF	1000 Barrels	571
Gulf Coast Gasoline Crack Spread (Argus) Swap	CK	1000 Barrels	572

## **Gulf Coast Market**

The Gulf Coast petroleum products market represents the largest physical market in the world, with capacity to produce 3.0 to 3.5 million barrels per day of gasoline, and two million barrels per day of diesel fuel. The production of jet fuel in the Gulf Coast market is around 500,000 barrels per day. The market participation is diverse and includes many of the same commercial entities that are active in the New York Harbor market.

The estimated trading volume of gasoline in the Gulf Coast cash market is approximately six to seven million barrels per day. The typical transaction size is 25,000 barrels, with hundreds of separate transactions per day. The volume of spot transactions is more than half of all cash transactions, and the balance of trades are longer-term contracts. There is active trading in forward cash deals on the Colonial Pipeline (which links Houston with the New York Harbor market) and on the Explorer Pipeline (which links Houston to the Midcontinent market). The bid/ask spreads are typically in increments of one-quarter cent, although this can tighten to one-tenth cent spreads when the cash market is active. Gasoline demand has grown about 2% per year for the past several years, and is currently around 9.5 million barrels per day in the U.S.

The Gulf Coast distillates market (the majority consisting of diesel fuel) has daily trading activity of three to four million barrels per day in diesel fuel, jet fuel, and heating oil. The typical transaction size in the Gulf Coast distillates market is 25,000 barrels, with over 100 transactions per day. The trading volume is broken down as approximately half occurring as spot transactions, and half as forward deals. There is active trading in forward transactions on the Colonial and Explorer Pipelines. The bid/ask spreads are typically in increments of one-quarter cent. The Gulf Coast market is the main supply center for diesel and jet fuels. Domestic U.S. demand for on-road diesel fuel has increased steadily, and is currently more than 3 million barrels per day, while jet fuel demand is around 1.5 million barrels per day.

The EIA refinery production data for gasoline, jet fuel and ULSD for the Gulf Coast area (known as Padd 3) appear at the link below:

[http://tonto.eia.doe.gov/dnav/pet/pet\\_pnp\\_wiup\\_dcu\\_r30\\_w.htm](http://tonto.eia.doe.gov/dnav/pet/pet_pnp_wiup_dcu_r30_w.htm)

The EIA data on stocks for gasoline, ULSD, and jet fuel are available for Padd 3 at the link below:

[http://tonto.eia.doe.gov/dnav/pet/pet\\_stoc\\_wstk\\_dcu\\_nus\\_w.htm](http://tonto.eia.doe.gov/dnav/pet/pet_stoc_wstk_dcu_nus_w.htm)

The final settlement prices for the Gulf Coast petroleum products futures contracts are based on Argus price references. The Argus methodology for U.S. petroleum products is attached below, and is detailed in the link below.

<http://www.argusononline.com/pa-inc/construction.jsp?url=methodology>

## **Gulf Coast Market Participants**

The Gulf Coast cash market and OTC market participants are diverse and number 40 to 50 commercial companies. A partial listing is as follows:

### **Refiners**

ConocoPhillips  
Valero  
Shell  
ExxonMobil

### **Traders/End Users**

Hess Energy Trading  
Vitol  
Glencore  
Trafigura

### **Brokers**

GFI Starsupply  
First National  
Echo Energy  
MOAB

### **Financial (Swaps)**

Citibank  
Deutsche Bank  
Barclays  
BankAmerica

BP	Northville	United	AIG
Giant Industries	Cargill	AE Bruggemann	Merrill Lynch
Amerada Hess	Morgan Stanley	ARC Oil	Lehman Brothers
Citgo	Goldman Sachs (J. Aron)	ICAP	
Marathon Ashland	Koch	TFS	
Koch Petroleum	UPS	Falcon Products	
Chevron	Phibro	Oil Brokers Inc.	
Murphy Oil	Federal Express	Spectrum	
Tesoro			
Total			
Sunoco			

### **Speculative Limits for Gulf Coast Contracts**

The Exchange has set the speculative limits for the Gulf Coast gasoline and diesel fuel futures contracts at 1000 contracts (equivalent to one million barrels) which is less than 5% of the monthly deliverable supply.

### **Los Angeles Products Contracts**

	<b><u>Code</u></b>	<b><u>Contract Size</u></b>	<b><u>Rule</u></b>
Los Angeles CARBOB (OPIS) Spread Swap	JL	42,000 Gallons	573
Los Angeles CARB Diesel (OPIS) Outright Swap	LX	42,000 Gallons	574
Los Angeles CARB Diesel (OPIS) Spread Swap	KL	42,000 Gallons	575
Los Angeles Jet (OPIS) Outright Swap	LL	42,000 Gallons	576
Los Angeles Jet (OPIS) Spread Swap	JS	42,000 Gallons	577

### **Los Angeles Market**

The West Coast petroleum products market represents a gasoline market with consumption of 1.5 million barrels per day of gasoline, and over 600,000 barrels per day of distillate fuel. In California, the wholesale gasoline market consists of a non-oxygenated gasoline blendstock, called CARBOB, which is ready for blending with ethanol, similar to RBOB. The Southern California/Los Angeles metropolitan area has gasoline demand of around 500,000 barrels per day, while diesel fuel demand is around 200,000 barrels per day. The demand for jet fuel is around 150,000 to 200,000 barrels per day.

The California gasoline and diesel fuel markets are relatively self-contained and supplied mostly by California refineries because the fuel specifications mandated by the California Air Resources Board (CARB) are more stringent than U.S. EPA requirements. Consequently, it is difficult to source these clean fuels from imports. The market participation is diverse and includes the major refineries of BP, Shell, ExxonMobil, Chevron, Valero, and ConocoPhillips.

The estimated trading volume of gasoline in the Los Angeles cash market is approximately 500,000 to 750,000 barrels per day. The typical transaction size is 25,000 barrels, with dozens of separate transactions per day. The volume of spot transactions is less than half of all cash transactions, and the balance of trades are longer-term contracts. There is active trading in forward cash deals on the Kinder Morgan Pipeline which links Los Angeles with the refineries in California. The bid/ask spreads vary with liquidity, and are typically in increments of one-quarter cent.

The Los Angeles distillates market (consisting of diesel and jet fuel) has daily trading activity of around 500,000 to 600,000 barrels per day. The typical transaction size in the Los Angeles distillates market is 25,000 barrels, with dozens of transactions per day. The trading volume is broken down as approximately half occurring as spot transactions, and half as forward deals. There is active trading in forward transactions on the Kinder Morgan Pipeline. The bid/ask spreads are typically in increments of one-quarter cent, although this can tighten depending on market conditions.

The EIA demand data for California can be viewed at the link below:  
[http://tonto.eia.doe.gov/dnav/pet/pet\\_cons\\_prim\\_dcu\\_SCA\\_m.htm](http://tonto.eia.doe.gov/dnav/pet/pet_cons_prim_dcu_SCA_m.htm)

The EIA refinery production data for gasoline, diesel, and jet fuel the West Coast market (known as Padd 5) appear at the link below:  
[http://tonto.eia.doe.gov/dnav/pet/pet\\_pnp\\_wiup\\_dcu\\_r50\\_w.htm](http://tonto.eia.doe.gov/dnav/pet/pet_pnp_wiup_dcu_r50_w.htm)

### **Los Angeles Market Participants**

The Los Angeles cash market and OTC market participants are diverse and number 20 to 30 commercial companies. A partial listing is as follows:

<b><u>Refiners</u></b>	<b><u>Traders/End Users</u></b>	<b><u>Brokers</u></b>	<b><u>Financial (Swaps)</u></b>
ConocoPhillips	Vitol	GFI Starsupply	Citibank
Valero	Morgan Stanley	First National	Deutsche Bank
Shell	Glencore	MOAB	Barclays
ExxonMobil	Goldman Sachs		BankAmerica
BP	Westport Petroleum		
Chevron	United Energy		
Tesoro	Plains		
U.S. Oil Refining	Astra		

The final settlement prices for the Los Angeles CARBOB Gasoline, CARB diesel, and jet fuel Swap futures contracts are based on OPIS price references, which are used most commonly by the OTC market for Los Angeles petroleum products swaps. The OPIS pricing methodology is well-defined and is attached below (the West Coast pricing appears on page 12 of the OPIS methodology). The OPIS methodology is detailed in the link below.

<http://opisnet.com/methodology.asp#westcoast>

There are additional details on OPIS methodology in the FAQ at the link below:  
<http://opisnet.com/wcmethod.asp>

### **Speculative Limits for Los Angeles Contracts**

The Exchange has set the speculative limits for the Los Angeles CARBOB gasoline futures contracts at 1000 contracts in the spot month (equivalent to one million barrels) which is less than 8% of the monthly deliverable supply for gasoline. Further, the Los Angeles diesel futures contracts have a similar speculative limit of 1000 contracts, which is around 12% of the monthly deliverable supply. The Los Angeles jet fuel futures contracts have a speculative limit of 1000 contracts, which is around 15% to 20% of the monthly deliverable supply of jet fuel.



### **European Products Contracts**

European Gasoil Bullet Swap  
European Propane CIF ARA (Argus) Swap

<b><u>Code</u></b>	<b><u>Contract Size</u></b>	<b><u>Rule</u></b>
BG	1000 Metric Tons	561
PS	1000 Metric Tons	578

### **European Market**

The European petroleum products market in Amsterdam-Rotterdam-Antwerp (ARA) represents the largest hub in Europe, with extensive storage capacity and refining capacity. The ARA market is a vibrant import hub for distillate fuel, with around 500,000 to 600,000 barrels per day of distillate fuel supplied by refineries in The Netherlands, Germany, and France. The ARA market is the main supply center for European distillate fuels, which include heating oil (or gasoil), jet fuel and diesel fuel. Distillate demand in the ARA metropolitan area, which includes Netherlands and Northern Germany, is more than 500,000 barrels per day. The EIA compiles data on the European market in their *International Energy Annual* publication, which can also be viewed at the link below in Table 3.5:

<http://www.eia.doe.gov/iea/pet.html>

The link above also provides import data for the ARA market in Table 3.3, which shows distillate imports for the Netherlands at around 200,000 barrels per day.

The ICE Gasoil Futures Contract, which is the benchmark for pricing European distillate fuels, is based on delivery of gasoil in the ARA market. The ICE Gasoil Futures Contract is physically delivered and is the source of the settlement prices. The 2007 average trading volume of the ICE Gasoil Futures Contract is more than 125,000 lots per day, with current open interest of over 350,000 contracts. Typically, on the penultimate trading day (second to last day of trading), which is the termination day when the final settlement price is determined for the Gasoil Bullet Swap futures contract, the front month trading volume is robust, with more than 25,000 lots traded. Further, since the CFTC has reviewed the FSA regulatory structure and determined it to be comparable to the CFTC, we feel justified in placing a measure of confidence in the disseminated ICE settlement price.

The European gasoil market is priced in units of dollars per metric ton. The conversion factor is 7.45 barrels per metric ton. The estimated trading volume of gasoil (converted to barrel equivalents) in the ARA cash market is approximately 500,000 to 700,000 barrels per day. The typical transaction size is around 35,000 to 40,000 barrels. The volume of spot transactions more than half of all cash transactions, and the balance of trades are longer-term contracts. There is active trading in forward cash deals and in the OTC swaps market. The bid/ask spreads are typically in increments of 50 cents per metric ton (or around 0.10 cents per gallon equivalent).

The ARA propane market is the largest trading and storage hub for propane and Liquefied Petroleum Gases (LPG) in Europe. According to EIA data under Table 3.3 (see link below), the LPG imports into The Netherlands are nearly 300,000 barrels per day, with propane accounting for most of this amount. Propane is used widely as a heating fuel in Northern Europe.

<http://www.eia.doe.gov/iea/pet.html>

The final settlement price for the European Propane CIF ARA futures contracts is based on Argus price references. The Argus methodology for propane is attached below, and is detailed in the link below under the heading of "Argus International LPG".

<http://www.argusononline.com/pa-inc/construction.jsp?url=methodology>

### **European Market Participants**

The market participation in European gasoil and propane is diverse and includes many of the same commercial entities that are active in the New York Harbor market. The European cash market and OTC market participants number 30 to 40 commercial companies. A partial listing is as follows:

<b><u>Refiners</u></b>	<b><u>Traders/End Users</u></b>	<b><u>Brokers</u></b>	<b><u>Financial (Swaps)</u></b>
ConocoPhillips	Hess Energy Trading	GFI Starsupply	Citibank
Valero	Vitol	PVM	Deutsche Bank
Shell	Glencore	Man Financial	Barclays
ExxonMobil	Total	ICAP	BankAmerica
BP	Northville	Aspen Oil	AIG
Total	Cargill	GFI Spectron	Merrill Lynch
Koch Petroleum	Morgan Stanley	TFS	
Repsol	Goldman Sachs	Amerex	
CEPSA	Koch	Prebon	
Netherlands Refining	Mabanaft		
OMV	Phibro		
	Arcadia		
	Mercuria		
	Sempra		
	Trafigura		

### **Speculative Limits for European Gasoil and Propane Contracts**

The Exchange has set the expiration accountability level for the European Gasoil Bullet Swap futures contract at 1000 contracts each of 1000 metric tons (equivalent to around seven million barrels) which is less than 12% of the monthly deliverable supply for gasoil in the ARA market. Further, the Exchange has set the spot month limit for the European propane futures contract at 50 contracts each of 1000 metric tons (equivalent to around 500,000 barrels) which is less than 8% of the monthly deliverable supply of propane in the ARA market.

### **Japanese Naphtha Contracts**

	<b><u>Code</u></b>	<b><u>Contract Size</u></b>	<b><u>Rule</u></b>
Japan C&F Naphtha Swap	JA	1000 Metric Tons	579
Japan C&F Naphtha Crack Spread Swap	JB	1000 Barrels	580

### **Japanese Naphtha Market**

The Japanese naphtha market represents a large physical market, and Japan is the major Asian import hub for naphtha, which is used as a gasoline blending component. Japan is the largest gasoline market in Asia, with demand of 2.5 to 3 million barrels per day. Naphtha imports into Japan total over 500,000 barrels per day. The EIA compiles data on Japan in their *International Energy Annual* publication, which can also be seen in under Table 3.5 at the link below:

<http://www.eia.doe.gov/iea/pet.html>

Naphtha is traded in dollars per metric ton, which is equal to 8.9 barrels per ton. The estimated trading volume of naphtha in the Japanese cash market (converted to barrel equivalents) is around 300,000 to 500,000 barrels per day. There is some trading in forward cash deals, with bid/ask spreads typically in increments of one-quarter to one-half cent. The OTC naphtha swaps market in Japan is very liquid with diverse market participation.

**Japanese Market Participants**

The Japanese cash market and OTC market participants are diverse and number 20 to 30 commercial companies. A partial listing is as follows:

<b><u>Japan Refiners</u></b>	<b><u>Traders/End Users</u></b>	<b><u>Brokers</u></b>	<b><u>Financial (Swaps)</u></b>
Cosmo Oil	Itochu	PVM	Citibank
Fuji Oil	Vitol	Ginga	Deutsche Bank
Idemitsu	Glencore	TFS	Barclays
Japan Energy Co.	Mitsui	GFI Spectron	Merrill Lynch
Kashima Oil	Mitsubishi	Amerex	
Kyokuto Petroleum	Sumitomo	ICAP	
Kyushu Oil	Morgan Stanley	Man Financial	
Nippon	Phibro		
Showa Shell			
Chevron			

The final settlement prices for the Japan C&F Naphtha and Japan C&F Naphtha Crack Spread Swap futures contracts are based on Platts references. The Platts methodology is detailed in the link below.

[http://www.platts.com/Oil/Resources/Methodology%20&%20Specifications/method\\_asian\\_naphtha\\_2004.pdf?S=n](http://www.platts.com/Oil/Resources/Methodology%20&%20Specifications/method_asian_naphtha_2004.pdf?S=n)

**Speculative Limits for Japanese Naphtha Contracts**

The Exchange has set the spot month speculative limits for the Japan Naphtha futures contracts at 100 contracts each of 1000 metric tons (equivalent to around one million barrels) which is less than 8% of the monthly deliverable supply for naphtha in Japan.

<b><u>U.S. Propane Contract</u></b>	<b><u>Code</u></b>	<b><u>Contract Size</u></b>	<b><u>Rule</u></b>
Mt Belvieu Propane (OPIS) Swap	PT	42,000 Gallons	581

**U.S. Propane Market**

The Mt. Belvieu Propane futures contract is based on pipeline delivery of propane from the U.S. Gulf Coast, which is the main production area for propane, with production of 700,000 barrels per day. The main consumption areas for propane are in the Midwest and Northeast markets, which are supplied by the TEPPCO pipeline from the Mt. Belvieu hub in Houston via the Midwest and terminating in New York. The propane market has an actively traded cash market, and has an active forward market that trades on the ICE Chemconnect platform. There are dozens of

propane wholesalers and retailers that participate in the propane market. The average daily trading volume at the Mt. Belvieu hub is around 300,000 to 500,000 barrels per day. The EIA refinery production data for propane for the Gulf Coast area (known as Padd 3) appear at the link below:

[http://tonto.eia.doe.gov/dnav/pet/pet\\_pnp\\_wiup\\_dcu\\_r30\\_w.htm](http://tonto.eia.doe.gov/dnav/pet/pet_pnp_wiup_dcu_r30_w.htm)

The final settlement price for the Mt. Belvieu Propane Swap futures contract is based on OPIS price reference, which is used most commonly by the OTC market for pricing propane swaps. The OPIS pricing methodology is well-defined and is attached below (the propane prices appear on page 15 of the OPIS methodology). The OPIS methodology for propane is listed under the NGL (Natural Gas Liquids) section in the link below.

<http://opisnet.com/methodology.asp#ngl>

### **Propane Market Participants**

The propane cash market and OTC market participants are diverse and number 40 to 50 wholesalers and retailers. A partial listing is as follows:

<b><u>Refiners</u></b>	<b><u>Traders/Retailers</u></b>	<b><u>Brokers</u></b>	<b><u>Financial</u></b>
ConocoPhillips	Louis Dreyfus	Liquidity Partners	Barclays
Valero	Vitol	Nuevo	Citibank
Shell	Agway	Nordisco	Merrill Lynch
ExxonMobil	Koch		
BP	Fortis		
Sunoco	Cargill		
	Morgan Stanley		
	Goldman Sachs		
	Wachovia		
	Transammonia		
	Suburban Propane		
	Amerigas		
	Blue Flame		

### **Speculative Limits for Propane Contract**

The Exchange has set the expiration month limit for the Mt. Belvieu Propane futures contract at 250 contracts (equivalent to 250,000 barrels) which is less than 10% of the monthly deliverable supply for propane at Mt. Belvieu.

<b><u>New Ethanol Contracts</u></b>	<b><u>Code</u></b>	<b><u>Contract Size</u></b>	<b><u>Rule</u></b>
Chicago Ethanol (Platts) Swap	CU	42,000 Gallons	582
New York Ethanol (Platts) Swap	EZ	42,000 Gallons	583

### **U.S. Ethanol Market**

The U.S. ethanol market is growing rapidly, particularly due to the government mandate for renewable fuels. The two largest ethanol markets are centered in New York (the main consumption center) and Chicago (the main production center). According to the EIA's *Monthly*

*Oxygenate Report*, ethanol production has grown to over 400,000 barrels per day this year, mostly in the Padd 2 (Midwest) area. The New York Harbor has become a key hub for distributing ethanol to the East Coast via rail deliveries from Chicago. Currently, the New York Harbor handles around 150,000 barrels per day of ethanol that is stored and transshipped to points on the East Coast. The EIA data on ethanol production and stocks can be viewed at the following link:

[http://tonto.eia.doe.gov/dnav/pet/pet\\_pnp\\_oxy\\_dc\\_nus\\_mbbl\\_m.htm](http://tonto.eia.doe.gov/dnav/pet/pet_pnp_oxy_dc_nus_mbbl_m.htm)

**Ethanol Market Participants**

The ethanol market participation is diverse and includes both oil companies and ethanol producers. A partial listing is as follows:

<b><u>Refiners</u></b>	<b><u>Traders/Producers</u></b>	<b><u>Brokers</u></b>	<b><u>Financial</u></b>
ConocoPhillips	Louis Dreyfus	Powerline	Barclays
Valero	Vitol	Spectron	Citibank
Shell	ADM	IVG Green	Merrill Lynch
ExxonMobil	Koch	MOAB	FIMAT
BP	Noble	Progressive	
Motiva	Cargill	Biofuels Connect	
Amerada Hess	Morgan Stanley	Evolution Markets	
	Goldman Sachs	GFI Starsupply	
	Conagra		
	Northville		
	Hess Energy Trading		
	Hawkeye Renewables		
	CSC Sugar LLC		

The final settlement prices for the New York and Chicago Ethanol Swap futures contracts are based on the Platts price references. The Platts pricing methodology is well-defined and understood by the market participants in the cash market. The Platts methodology for petroleum products, which includes ethanol, is attached below, and is detailed in the link below.

<http://www.platts.com/Oil/Resources/Methodology%20&%20Specifications/usoilproductspecs.pdf?S=n>

**Speculative Limits for Ethanol Contracts**

The Exchange has set the expiration month limit for the Chicago Ethanol futures contract at 1000 contracts (equivalent to one million barrels) which is less than 10% of the monthly deliverable supply for ethanol in the Chicago area. Further, the expiration month limit for the New York Ethanol futures contract is 1000 contracts (equivalent to one million barrels) which is around 20% of the monthly deliverable supply for ethanol in the New York Harbor area.



## ***ARGUS US REFINED PRODUCTS***

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Covering assessments found in *Argus US Products*,  
*Argus Atlantic Products*, and *Argus Latin Markets*.

**LAST UPDATED: FEBRUARY 2007**

The most up-to-date Argus US Products methodology is available on [www.argusmediagroup.com](http://www.argusmediagroup.com)

## Methodological Principles

### Price assessment range

Argus US refined products prices represent the market over the course of the entire trading day. Argus publishes the low and the high of deals done through the day. In certain markets, Argus also publishes volume-weighted averages of deals done over the entire day (see p6). In order to qualify to set the low or high of the day, deals must meet the minimum volumes established in our methodology, they must meet the strict delivery, timing, and specification requirements in our methodology, and the deals must be confirmed. The Argus assessment is an intelligent range of trade. In illiquid markets, Argus assesses the range within which product could have traded, based on bids and offers through the entire day, movements in similar grades, and extensive polling of market participants. In addition to data about physical prices, Argus looks at forward swaps, formula-priced deals, and market fundamentals to inform assessments but places primary emphasis on the physical markets.

### Survey method and verification

Price assessments in Argus US Products rely on a wide variety of sources for information, including discussion with refiners, marketers, importers, traders and brokers, and also data from online trading and auction services. Argus will accept information over the phone, via instant messenger, via email, or by other means. Argus works to verify all deal prices, counterparties, and volumes. Since Argus is assessing an intelligent range of trade, Argus reserves the right to exclude deals from the range of trade: should a deal fall well outside of the channel of trade or raise other concerns, Argus will consult with industry sources and seek to form an industry consensus on whether to include the deal or not. This process is critical to insuring that the Argus range of trade is not manipulated.

### Transparency and deal tables

Argus values transparency in energy markets. As a result, we publish lists of deals in our reports that detail price, basis, and volume information. These deals are also archived. The deal tables allow subscribers to cross check and verify the deals against the prices. Argus feels this sort of transparency and openness is vital to developing confidence in the price assessment process.

### Confidentiality

Argus asks for counterparties from contacts in order to confirm deals and to avoid double-counting. But Argus does not publish counterparty names in the US products markets. Many companies in the US have existing confidentiality agreements with counterparties and can only reveal deals to the press if confidentiality is maintained. Maintaining confidentiality allows Argus to gather more information and create more robust assessments of the range of trade throughout the day.

### Definition of trading day

Argus seeks to represent the entire trading day in its assessments. Argus defines the day by determining at what times the market can be said to contain a fair number of willing buyers and sellers. Outside of these time boundaries, markets are typically too illiquid to produce representative price indications and deals. These boundaries can vary in different markets, and will be under continuous review to maintain the accuracy of the assessments. The trading day is defined as follows:

US Atlantic coast:	8:00 am EST – 4:30 pm EST
US Gulf coast:	8:00 am CST – 3:30 pm CST
Group Three and Chicago:	8:00 am CST – 3:30 pm CST
US West Coast:	8:00 am PST – 3:30 pm PST

### Corrections to assessments

Argus will on occasion publish corrections to price assessments after the publication date. We will correct errors that arise from clerical mistakes, calculation error, or a mistake in applying our stated methodology. Argus will not retroactively assess markets based on information learned after the assessments are published. We make our best effort to assess markets based on the information we gather during the trading day assessed.

### Relationship to industry

Our methodology is developed in consultation with the industry, in order to provide a service that is useful. Argus seeks to report the market in the way it is traded. We do not feel it is our role to change the way the industry seeks to trade or hedge. Our goal is to develop price assessments that are reliable and consistent enough to be used as price benchmarks in spot trade, term contracts, exchanges, and transfer pricing. Argus editors and managers are willing to discuss our methodology and understand the needs of our clients for robust price reporting.

### Ethics and compliance

Argus operates according to the best practices in the publishing field, and maintains thorough compliance procedures throughout the firm. We want to be seen as a preferred provider by our subscribers who are held to equally high standards, while at the same time maintaining our editorial integrity and independence. Argus has a strict ethics policy that applies to all staff. This policy can be found on our website at [www.argusonline.com](http://www.argusonline.com). Included in this policy are restrictions against staff trading in any energy commodity, from trading in any energy related stocks, and guidelines for accepting gifts. Argus also has strict policies regarding central archiving of email and instant messenger communication, maintenance and archiving of notes, and archiving of spreadsheets and deal lists used in the price assessment process.

## Basis differentials and absolute prices

The Argus coverage of clean products puts emphasis on differentials to Nymex futures and key grades, not on fixed prices alone. Since differentials are the negotiated market prices, our fixed prices are derived by adding the differentials to the Nymex settlement price or to another differential that is linked to the Nymex. The report identifies the Nymex month that is used as the basis for each differential, or in the case of regrade trade the report identifies the basis (as in 87 M conventional). Products such as naphtha and vacuum gasoil trade at a differential to published clean product prices.

Argus publishes various prices for each commodity. These typically include

- Differential Low:** The low differential to futures or other basis.
- Differential High:** The high differential to futures or other basis.
- Low:** The "fixed" or absolute price, typically calculated by adding the differential low to the Nymex settlement, or the absolute price for the basis commodity (such as 87 M conventional).
- High:** The "fixed" or absolute price, typically calculated by adding the differential high to the Nymex settlement, or the absolute price for the basis commodity (such as 87 M conventional).
- Delta:** The change between today's absolute price and that of the previous trading day.

## Swaps and forward markets

Argus publishes forward assessments for numerous markets. These include informal forward market contracts that can allow physical delivery, such as an "Any Month" paper contract, and swaps contracts that swap a fixed price for the average of a floating published price. Argus looks at forward swaps to inform physical assessments but places primary emphasis on the physical markets. Argus looks at forward markets for clean products in New York, Colonial, Group Three, Chicago, and Los Angeles, and for fuel oil in New York and the US Gulf coast.

## Publications and price data

Argus products prices for the US are published in the Argus *US Products* report and the Argus *Atlantic Products* reports. Some of these prices appear in other Argus market reports and newsletters in various forms, such as Argus *Latin Markets* and Argus *Global Markets*. The price data is available independent of the text-based report in electronic files that can feed into various databases. These price data are also supplied through various third-party data integrator. Contact your local Argus office for more information.



## US Atlantic Coast

### Timing, Volume, and Basis

#### Waterborne

##### Timing:

Clean:	5-15 days forward
Blendstocks:	5-15 days forward
Residual Fuel Oil:	5-20 days forward

##### Volume:

Clean:	200,000 bl min to 250,000 bl max
Blendstocks:	Alkylate and MTBE: 10,000 bl min
	Ethanol: 5,000 bl min
Residual Fuel Oil:	0.3pc LP and HP: 50,000 bl min to 350,000 bl max
	Other grades: 100,000 bl min to 350,000 bl max

##### Basis:

Clean:	Delivered New York Harbor, delivered Boston
Blendstocks:	Barges fob New York Harbor
Residual Fuel Oil:	Delivered New York Harbor by either barge or cargo

#### NYH Barges

**Timing:** Prompt is defined as loading 3-7 days forward. Any month paper market is delivered any time during month at seller's option. Forward curve assessments made for loading at 10, 15, and 20 days forward.

**Volume:** 25,000 bl min

**Basis:** fob New York Harbor

#### Buckeye Pipeline

**Timing:** Prompt, defined as loading 3-7 days forward Buckeye Pipeline shipments are based on 24 cycles of 15 days each throughout the calendar year. Gasoline and distillate ship to New York and Pennsylvania destinations on alternating 7 and 8 day periods within each cycle.

**Volume:** 10,000 bl min

**Basis:** fob New York Harbor, loading for either New York or Pennsylvania destination

#### Laurel Pipeline

**Timing:** Prompt, defined as loading 3-7 days forward. Laurel shipments are based on 24 cycles of 15 days each throughout the calendar year.

**Volume:** 10,000 bl min

**Basis:** fob Philadelphia

#### Bunkers

**Timing:** 2-7 days forward

**Volume:** 500 ton min

**Basis:** fob New York Harbor

#### Gasoline

Argus assesses gasoline prices for waterborne cargoes in New York and Boston, barges in New York, Buckeye pipeline, and Laurel pipeline. Tables of assessments made for each market can be found on page 11. Argus covers conventional gasoline, RBOB, and the various blendstocks that make up gasoline.

This includes ethanol and alkylate. Specifications on the Atlantic coast generally follow the Colonial pipeline specifications, which can be found at [www.colpipe.com](http://www.colpipe.com). The octane test method for all US grades is (Ron+Mon)/2.

**83.7 octane RBOB (reformulated blendstock for oxygenate blending):** Conforms to Colonial F grade.

**87 octane conventional:** Conforms to Colonial M grade.

**89 octane conventional gasoline:** Prices are an index value calculated daily using the formula 65% 87 octane conventional fixed price + 35% 93 octane conventional fixed price.

**91.3 octane RBOB:** Conforms to Colonial H grade.

**93 octane conventional:** Conforms to Colonial V grade.

(Continues price series designated as Colonial R grade prior to March 2006. Colonial V grade does not allow oxygenates with shipments after 12<sup>th</sup> cycle 2006.)

#### Supplemental RVP assessments

RVP specifications for gasoline change seasonally. Argus provides supplemental gasoline assessments during the summer and during transitions between different seasonal RVP specifications. Through the summer Argus provides 7.8 RVP assessments on the Laurel pipeline. For the New York and Buckeye markets, Argus provides a period in spring and fall when 13.5 and 9.0 RVP assessments overlap, in order to aid in transitioning between seasonal grades. Please reference the table *Argus RVP Transition Schedule* on page 10 for a detailed explanation of the schedule.

## Distillate

Argus assesses prices for waterborne cargoes in New York and Boston, barges in New York, Buckeye pipeline, and Laurel pipeline. Tables of assessments made for each market can be found on page 11. Specifications on the Atlantic coast generally follow the Colonial pipeline specifications, which can be found at [www.colpipe.com](http://www.colpipe.com).

**Jet Kerosine:** Conforms to Colonial 55 grade.

**Jet:** Conforms to Colonial 54 grade.

**No2 Oil:** New York barges conform to Nymex heating oil contract specification. Buckeye and Laurel conform to Colonial 88 grade. New York waterborne is 0.2pc (2000 ppm) sulphur max and Boston waterborne is 0.3pc (3000 ppm) sulphur max

**Low sulphur Diesel:** Conforms to Colonial 74 grade, 500 ppm sulphur max, 40 min cetane, on-road classification.

**Ultra low sulphur Diesel:** New York waterborne and barges are 15 ppm sulphur max. Buckeye and Laurel are 10 ppm sulphur max.

## Gasoline Blendstocks

Argus assesses barge prices for Ethanol and Alkylate in New York. Timing, volume, and basis for these grades are shown above.

**Ethanol:** ASTM D4806: 92.1pc ethanol min

**Alkylate:** 91 octane min, 5 RVP, 0pc oxygen by weight

## Residual Fuel Oil

Argus assesses waterborne prices for Residual fuel oil delivered New York Harbor and prices for bunker fuel. 1pc Swaps prices assessed for three forward months. Timing, volume, and basis for these grades are shown above. Residual fuel oil is assessed in \$/bl and bunkers in \$/ton.

**0.3pc Low Pour:** 10 min API, 60 F max pour, 1,000 max SSU

**0.3pc High Pour:** 10 min API, 60 F min pour, 300 SSF max, 149,000 min Btus

**0.7pc:** 10 min API, 300 SSF max, 151,000 min Btus

**1pc:** 10 min API, 300 SSF max, 151,000 min Btus

**1pc swaps:** match underlying physical

**2.2pc:** 10 min API, 300 SSF max, 100 max aluminum and silicon

**3pc:** 10 min API, 200-250 SSF, 100 max aluminum and silicon

**180 CST Bunkers:** 3.5pc sulphur max, 10.6 API min, 200ppm vanadium max, 100 ppm aluminum + silicon max

**380 CST Bunkers:** 3.5pc sulphur max, 10.6 API min, 200ppm vanadium max, 100 ppm aluminum + silicon max

**US Gulf Coast**

**Timing, Volume, and Basis**

**Waterborne**

**Timing:**

- Clean: 5-15 days forward
- Blendstocks: 5-15 days forward
- Feedstocks: Barges: 5-15 days forward  
Cargoes: 5-20 days forward
- Residual Fuel Oil: 5-15 days forward

**Volume:**

- Clean: 200,000 bl min to 250,000 bl max
- Blendstocks: 10,000 bl min
- Feedstocks: Vacuum Gasoil:  
Barges: 50,000 bl min to 100,000 bl max  
Cargoes: 100,000 bl min to 350,000 bl max  
Naphtha: 25,000 bl min to 100,000 bl max
- Residual Fuel Oil: 40,000 bl min, 350,000 bl max

**Basis:**

- Clean: Fob US Gulf coast
- Blendstocks: Fob US Gulf coast
- Feedstocks: Cif US Gulf coast. US Gulf coast covers trade in ports from Corpus Christi, Texas, to the Mississippi River, with Houston used as the adjusted pricing basis for all assessments.
- Residual Fuel Oil: Fob Houston or Mississippi River

**Colonial**

**Timing:** Prompt and next three forward cycles assessed. Colonial schedules 72 shipping cycles of 5 days each through the calendar year starting in January. Cycles may be shortened, lengthened or cancelled by the Colonial pipeline.

**Volume:** 25,000 bl min.

**Basis:** Fob Pasadena, Texas. Texas Origin only trades excluded.

**Bunkers**

- Timing:** 2-7 days forward
- Volume:** 500 ton min
- Basis:** Fob wharf Port of Houston

**Volume Weighted Averages**

For certain clean products on the Colonial pipeline, Argus publishes volume-weighted averages of deals done for the prompt pipeline cycle throughout the entire trading day. These are published as a single differential and a single fixed price. In order to allow the average to be accurate in illiquid markets, a minimum aggregate volume of trade must occur in a given trade day for the weighted average to be calculated. For gasoline this is 100,000 b/d and for distillate 75,000 b/d. Should this aggregate volume not be achieved, the weighted average will default to represent the mean of the low and high of deals done, a range which in very illiquid markets represents the range within which trade could have occurred throughout the trading day. Low and high assessments for these commodities remain in the reports and their methodology is the same as for other grades.

**Gasoline**

Argus assesses prices for waterborne cargoes on the US Gulf coast, and pipeline volumes on the Colonial pipeline. Timing, volume, and basis for these grades are shown above. Tables of assessments made for each market can be found on page 11. Specifications on the Gulf coast and Colonial generally follow the Colonial pipeline specifications, which can be found at [www.colpipe.com](http://www.colpipe.com).

**83.7 octane RBOB (reformulated blendstock for oxygenate blending):** Conforms to Colonial F grade.

**87 octane conventional:** Separate assessments made for product conforming to Colonial M grade and Colonial W grade.

**87 octane conventional low sulphur:** Conforms to Colonial W grade.

**89 octane conventional gasoline:** Prices are an index value calculated daily using the formula 65% 87 octane conventional fixed price + 35% 93 octane conventional fixed price.

**91.3 octane RBOB:** Conforms to Colonial H grade.

**93 octane conventional:** Conforms to Colonial V grade.

**93 octane conventional low sulphur:** Conforms to Colonial X grade.

**Supplemental RVP assessments**

RVP specifications for gasoline change seasonally. Through the summer Argus provides 9 RVP assessments on the Colonial. Please reference the table *Argus RVP Transition Schedule* on page 10 for a detailed explanation of the schedule.

## Distillate

Argus assesses prices for waterborne cargoes on the US Gulf coast, and pipeline volumes on the Colonial pipeline. Timing, volume, and basis for these grades are shown above. Tables of assessments made for each market can be found on page 11. Specifications on the Gulf coast and Colonial generally follow the Colonial pipeline specifications, which can be found at [www.colpipe.com](http://www.colpipe.com).

**Jet Kerosine:** Conforms to Colonial 55 grade.

**Jet:** Conforms to Colonial 54 grade.

**No2 Oil:** Conforms to Colonial 88 grade, 0.2pc (2000 ppm) sulphur max.

**Low sulphur Diesel:** Conforms to Colonial 74 grade, 420 ppm sulphur, 40 min cetane, on-road classification.

**Off-road Diesel:** Conforms to Colonial 76 grade, 420 ppm sulphur, 40 min cetane, off-road classification (NRLM).

**Ultra low sulphur Diesel:** Conforms to Colonial 61 grade, 8 ppm max and sulphur.

## Blendstocks

Argus assesses barge prices for MTBE and Alkylate on the Gulf coast. Timing, volume, and basis for these grades are shown above.

**MTBE:** 108 octane, 8 RVP, 18.2pc oxygen by weight.

**Alkylate:** 91 octane min, 5 RVP, 0pc oxygen by weight

## Feedstocks

Argus assesses barge prices for Naphtha and barge and cargo prices for Vacuum Gasoil on the Gulf coast. Timing, volume, and basis for these grades are shown above. Reformer grade naphtha is assessed at a differential to published assessments for waterborne 87 octane conventional gasoline fob US Gulf coast. Paraffinic naphtha is assessed in \$/ton. Vacuum Gasoil is assessed at a

c/USG differential to the 70:30 formula (70pc waterborne 87 octane conventional gasoline fob US Gulf coast + 30pc waterborne No2 oil fob US Gulf coast). Vacuum Gasoil is also assessed at a \$/bl differential to WTI crude. Vacuum Gasoil prices will be assessed using both bases regardless of whether it trades against 70:30 or WTI. Prices for the other basis will be converted accordingly.

**Reformer grade Naphtha:** 40pc naphthenes plus aromatics min, 150°F initial boiling point min

**Paraffinic grade Naphtha:** 70pc paraffins min, 60 API min

**Low Sulphur Vacuum Gasoil:** 0.5pc sulphur max, 175 aniline point min, 0.5 CCR max, 20 API min, all metals 1.0ppm max (includes vanadium, sodium, iron, copper, nickel)

**Medium Sulphur Vacuum Gasoil:** 1.0pc sulphur max, 175 aniline point min, 0.5 CCR max, 20 API min, all metals 1.0ppm max (includes vanadium, sodium, iron, copper, nickel)

**High Sulphur Vacuum Gasoil:** 2.0pc sulphur max, 175 aniline point min, 0.5 CCR max, 18 API min, all metals 1.0ppm max (includes vanadium, sodium, iron, copper, nickel)

**70:30 formula:** Calculated using Argus prices: 70pc waterborne 87 octane conventional gasoline fob US Gulf coast + 30pc waterborne No2 oil fob US Gulf coast

## Residual Fuel Oil

Argus assesses waterborne prices for Residual fuel oil on the US Gulf coast and prices for bunker fuel. 3pc Swaps prices assessed for two forward months. Timing, volume, and basis for these grades are shown above. Residual fuel oil is assessed in \$/bl and bunkers in \$/ton.

**1pc:** 6 min API, 225 max SSF, 0.4 max nitrogen

**3pc:** 10 min API, 200-250 ssf, 300 max vanadium

**3pc swaps:** match underlying physical

**180 CST Bunkers:** 3.5pc sulphur max, 10.6 API min, 200ppm vanadium max, 100 ppm aluminum + silicon max

**380 CST Bunkers:** 3.5pc sulphur max, 10.6 API min, 200ppm vanadium max, 100 ppm aluminum + silicon max

## Group Three

### Timing, Volume, and Basis

#### Pipeline

**Timing:** Prompt assessments reflect deals done for loading in the next 3 days including day of publication. Prompt assessments are continuous and assessed through the last business day of each calendar month. Any Month assessments reflect Any Month contracts for volumes available any day of the month at seller's option and are assessed through the next to last business day of the calendar month.

**Volume:** 10,000 bl min

**Basis:** Fob Magellan pipeline at Tulsa, Oklahoma.

Argus assesses prices for product for loading into the Magellan pipeline system at Tulsa, Oklahoma, known as Group Three. Tables of assessments made for each market can be found on page 11. Specifications in Group Three generally follow the Magellan Midstream Partners product specifications, which can be found at [www.magellanlp.com](http://www.magellanlp.com).

### Gasoline

**87 octane conventional:** Conforms to Magellan pipeline grade N.

**91 octane conventional:** Conforms to Magellan pipeline grade A.

### RVP specifications

RVP specifications for gasoline change seasonally. Please reference the table *Argus RVP Transition Schedule* on p 10 for a detailed explanation of the schedule.

### Distillate

**Ultra low sulphur Diesel:** Conforms to Magellan pipeline grade X, 10 ppm max sulphur.

**LS diesel:** Conforms to Magellan pipeline grade XH, 470 ppm max sulphur, on-road classification.

**Jet:** Conforms to Magellan pipeline grade Q.

## Chicago

### Timing, Volume, and Basis

#### Pipeline

**Timing:** Prompt and next forward cycle assessed for gasoline, LS diesel and Jet. No2 oil assessed for prompt cycle only and rolls concurrent with the LS Diesel assessment. Cycles generally follow those designated for Chicago area delivery off the Explorer Pipeline, with calendar months divided into three trading cycles per month. See [www.expl.com](http://www.expl.com).

**Volume:** 10,000 bl min.

**Basis:** Fob Chicago area pipelines

#### Blendstocks (Ethanol)

**Timing:** 1-15 days forward

**Volume:** 1000 bl min

**Basis:** Delivered on or inside Chicago rail loop

Argus assesses prices for product for loading into pipelines in the Chicago area. Tables of assessments made for each market can be found on page 11.

### Gasoline

**84.6 octane RBOB (reformulated blendstock for oxygenate blending)**

**87 octane conventional:** Conforms to ASTM D 4814 and EPA regulations in 40 CFR Part 80

**89 octane conventional gasoline:** Prices are an index value calculated daily using the formula 65pc 87 octane conventional fixed price + 35pc 93 octane conventional fixed price.

**93 octane conventional:** Conforms to ASTM D 4814 and EPA regulations in 40 CFR Part 80

### Distillate

**LS Diesel:** 470 ppm sulphur max, 42 cetane, 130 flash min, on-road classification

**Ultra low sulphur Diesel:** 15 ppm max sulphur.

**Jet:** 0.3pc sulphur max, 37 API min, 108 flash min

### Blendstocks

**Ethanol:** ASTM D4806: 92.1pc ethanol min

## US West Coast

### Timing, Volume, and Basis

#### Los Angeles Pipeline

**Timing:** Next prompt cycle. Kinder Morgan schedules 48 shipping cycles divided into 4 cycles per month through the calendar year starting in January. Cycles may be shortened, lengthened or cancelled by the Kinder Morgan. Next Any Month paper market delivered any time during month at buyer's option.

**Volume:** 25,000 bl min

**Basis:** Fob Watson, California

#### San Francisco Pipeline

**Timing:** Next prompt cycle. Kinder Morgan schedules 48 shipping cycles divided into 4 cycles per month through the calendar year starting in January. Cycles may be shortened, lengthened or cancelled by the Kinder Morgan.

**Volume:** 5,000 bl min

**Basis:** Fob Concord, California

#### Portland Pipeline

**Timing:** Prompt

**Volume:** 5,000 bl min

**Basis:** Delivered Portland

#### Blendstocks (Ethanol)

**Timing:** 1-15 days forward

**Volume:** 800 bl min

**Basis:** Delivered Carson, California

#### Bunkers

**Timing:** 2-7 days forward

**Volume:** 500 ton min

**Basis:** Ex-Wharf Los Angeles, Portland, and Seattle

#### Gasoline

##### Los Angeles and San Francisco:

Argus assesses prices for gasoline loading on the Kinder Morgan Energy Partners SFPP Southern Line (Los Angeles) and SFPP Northern Line (San Francisco). Timing, volume, and basis for these grades are shown above. Tables of assessments made for each market can be found on page 11. Specifications on the US West coast follow the specifications set by Kinder Morgan Energy Partners and can be found at [www.kindermorgan.com](http://www.kindermorgan.com).

**85 octane CARBOB:** Conforms to Kinder Morgan product code A.

**89.5 octane CARBOB:** Conforms to Kinder Morgan product code B.

##### Portland:

Argus assesses prices for gasoline delivered off the Olympic Pipeline system (BP Pipelines, North America). More information is available at [www.olympicpipeline.com](http://www.olympicpipeline.com).

**87 octane conventional gasoline:** Conforms to ASTM D 4814 and EPA regulations in 40 CFR Part 80.

#### Distillate

##### Los Angeles and San Francisco:

Argus assesses prices for Diesel and Jet loading on the Kinder Morgan Energy Partners SFPP Southern Line (Los Angeles) and SFPP Northern Line (San Francisco). Timing, volume, and basis for these grades are shown above.

**CARB ultra low sulphur Diesel:** Conforms to Kinder Morgan product code 80, 8 ppm max sulphur.

**EPA ultra low sulphur Diesel:** Conforms to Kinder Morgan product code 84, 8 ppm max sulphur.

**Jet:** Conforms to Kinder Morgan product code 15.

##### Portland:

Argus assesses prices for gasoline delivered off the Olympic Pipeline system (BP Pipelines, North America). More information is available at [www.olympicpipeline.com](http://www.olympicpipeline.com).

**Low sulphur Diesel:** 500 ppm sulphur max, 35pc aromatics max, 40 cetane min. Conforms to ASTM D975, on-road classification.

**Ultra low sulphur Diesel:** 8 ppm max sulphur.

#### Blendstocks

**Ethanol:** Conforms to Kinder Morgan product code 83.

#### Residual Fuel Oil

Argus assesses bunker fuel in Los Angeles, Portland, and Seattle. Timing, volume, and basis for these grades are shown above. Residual fuel oil is assessed in \$/bl and bunkers in \$/ton.

**180 CST Bunkers:** 3.5pc sulphur max, 10.6 API min, 200ppm vanadium max, 100 ppm aluminum + silicon max

**380 CST Bunkers:** 3.5pc sulphur max, 10.6 API min, 200ppm vanadium max, 100 ppm aluminum + silicon max



**Argus RVP Transition Schedule 2007**

Table reflects pipeline cycle or calendar date. RVP changes start when listed cycle or date becomes prompt and end when listed cycle or date rolls off. All schedules subject to change based on market conditions, pipeline rules, and government regulations.

**New York, Buckeye, Laurel**

RVP	13.5		9.0		7.8		7.0		Region 2		11.5		13.5		15.0	
Dates inclusive	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops
Conventional	1-Mar	30-Mar	15-Mar	14-Sep									3-Sep	31-Oct	1-Nov	29-Feb
RBOB	1-Mar	30-Mar							15-Mar	14-Sep			3-Sep	31-Oct	1-Nov	29-Feb
Laurel Supplemental					2-Apr	14-Sep										

Note: Price series for New York waterborne and barges, Buckeye, and Laurel overlap in March and September. This allows companies to transition between RVP grades. The price series labeled "Winter" starts in early September and terminates at end March. The price series labeled "Summer" starts in mid March terminates in mid September. A continuous price series is also available that switches directly to the lower RVP when introduced in March, and to the higher RVP when introduced in September. Laurel has an additional 7.8 RVP assessment that parallels the 9.0 in Summer, which is labeled "7.8 RVP Supplemental."

**Colonial Pipeline and US Gulf Coast Waterborne**

RVP	11.5		9.0		7.8		7.0		Region 1		11.5		13.5	
Colonial RVP Code	3		2		1		0		1		3		4	
Cycles inclusive	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops
Colonial M	15	15	16	19	20	50					51	60	61	14
Colonial M Supplemental			20	50										
Colonial V	14	14	15	18	19	50					51	60	61	13
Colonial V Supplemental			19	50										
Colonial F	16	16							17	48	49	52	53	15
Colonial H	15	15							16	48	49	52	53	14
Colonial W	16	19	20	23			24	49			50	60	61	15

Note: Colonial has an additional 9.0 RVP assessment that parallels the 7.8 in Summer, which is labeled "9.0 RVP Supplemental." US Gulf coast waterborne assessments align with the prompt cycle and shift RVP when the listed cycle becomes prompt.

**Group Three**

RVP	13.5		11.5		10.0		8.5		9.0		10.0		11.5		13.5		15.0	
Dates inclusive	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops
Magellan N	16-Jan	15-Feb	16-Feb	29 Feb			1-Mar	30-Apr	1-May	15-Sep	16-Sep	30-Sep	1-Oct	31-Oct	1-Nov	30-Nov	1-Dec	15-Jan
Magellan A	1-Jan	15-Jan	16-Jan	31-Jan	1-Feb	29 Feb	1-Mar	30-Apr	1-May	15-Sep	16-Sep	30-Sep	1-Oct	31-Oct	1-Nov	30-Nov	1-Dec	15-Jan

Note: Driveability Index and Vapor/Liquid Ratio schedules are available at [www.magellanlp.com](http://www.magellanlp.com).

**Chicago**

RVP	13.5		11.5		9.0		Region 2		11.5		13.5		15.0	
Cycles inclusive	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops
Conventional grades	Feb Cy 2	Mar Cy 1	Mar Cy 2	Mar Cy 2	Mar Cy 3	Sep Cy 3			Oct Cy 1	Oct Cy 2	Oct Cy 3	Dec Cy 1	Dec Cy 2	Feb Cy 1
RBOB	Feb Cy 2	Mar Cy 1	Mar Cy 2	Mar Cy 2	Mar Cy 3	Apr Cy 1	Apr Cy 2	Sep Cy 2	Sep Cy 3	Oct Cy 2	Oct Cy 3	Dec Cy 1	Dec Cy 2	Feb Cy 1

Note: In Feb 2006, Explorer pipeline changed from an RVP schedule to a Driveability Index (DI) schedule. See [www.expl.com](http://www.expl.com).

**US West Coast**

RVP	12.5		5.99		10.5		12.5		14.0	
Kinder Morgan RVP code	3		1		2		3		4	
Cycles inclusive	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops
Kinder Morgan A and B, Los Angeles			6	40	41	44	45	5		
Kinder Morgan A and B, San Francisco	5	9	10	40			41	44	45	4

RVP	13.5		11.50		9.0		11.5		13.5		15.0	
Kinder Morgan RVP code	3		2		1		2		3		4	
Cycles inclusive	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops	Starts	Stops
Portland 87 Conventional	8	11	12	12	13	34	35	36	37	44	45	7

**EPA Regions**

Region 1 (Southern States) - AL, AZ, AR, CA, CO, DC, FL, GA, KS, LA, MD, MS, MO, NV, NM, NC, OK, OR, SC, TN, TX, UT, and VA.

Region 2 (Northern States) - CT, DE, ID, IL, IN, IA, KY, ME, MA, MI, MN, MT, NE, NH, NJ, NY, ND, OH, PA, RI, SD, VT, WA, WV, WI, and WY.

**Commodities & Locations Assessed: Argus US Products Report**

	NYH Cargo	Boston Cargo	NYH Barge	Buckeye	Laurel	USGC Cargo	USGC Barge	Colonial	Group 3	Chicago	Los Angeles	San Francisco	Portland	Houston	New York	Seattle	Houston/ NY Arbitrage
83.7 RBOB	√		√	√				√									
84.6 RBOB										√							
85 CARBOB											√	√					
89.5 CARBOB											√	√					
87 conventional	√		√	√	√	√		√	√	√			√				√
87 conventional low RVP supplemental	√		√	√	√			√									
Low sulphur 87 conventional								√									
89 conventional	√		√	√	√	√		√		√							
89 conventional low RVP supplemental	√		√	√	√			√									
89.5 CARBOB																	
91 conventional									√								
91.3 RBOB	√		√	√				√									
93 conventional	√		√	√	√	√		√		√							√
93 conventional low RVP supplemental	√		√	√	√			√									
Low Sulphur 93 conventional								√									
Heating Oil	√	√	√	√	√	√		√									√
Low sulphur diesel	√		√	√	√	√		√	√	√			√				√
Off-road LS Diesel								√									
Ultra low sulphur diesel	√		√	√	√	√		√	√	√	√	√	√				
Jet 54			√	√	√	√		√	√	√	√	√					√
Jet 55	√		√	√		√		√									
Carb ultra low sulphur diesel											√	√					
0.5% Vacuum Gasoil						√	√										
1.0% Vacuum Gasoil						√	√										
2.0% Vacuum Gasoil						√	√										
70:30 Formula						√											
40 N+A							√										
80 min Paraffin							√										
MTBE			√											√			
Alkylate			√											√			
Ethanol			√							√	√						
0.3% Low Pour Fuel Oil	√																
0.3% High Pour Fuel Oil	√																
0.7% Fuel Oil	√																
1% Fuel Oil	√					√											
2.2% Fuel Oil	√																
3% Fuel Oil	√					√											
1% Fuel Oil Swaps	√																
3% Fuel Oil Swaps						√											
Bunker Fuel											√		√	√	√	√	



**US Pipeline Product Codes**

Colonial	
E	RBOB 87 Octane with 5.7% Ethanol
F	RBOB 87 Octane with 10% Ethanol
G	RBOB 93 Octane with 5.7% Ethanol
H	RBOB 93 Octane with 10% Ethanol
M	Conventional 87 Octane
S	87 Octane with 10% Ethanol
T	93 Octane with 10% Ethanol
V	Conventional 93 Octane
W	Low sulphur Conventional 87 Octane (Atlanta)
X	Low sulphur Conventional 93 Octane (Atlanta)
54	Aviation Kerosine
55	Aviation Kerosine/1-K/1-D
56	Bonded Aviation Kerosine
61	Ultra Low Sulphur Diesel 8ppm
69	Transitional Ultra Low Sulphur/Low Sulphur Diesel Fuel 8ppm
74	Low Sulphur Diesel 420ppm Undyed
76	NRLM Diesel Fuel 420ppm Undyed
84	Low Sulphur Diesel 420ppm Dyed
86	High Sulphur NRLM Diesel Fuel 2000ppm Dyed
88	Heating Oil 2000ppm Dyed
Magellan	
A	Premium Unleaded 91 Octane
D	Premium Diesel 470ppm
E	Denatured Fuel Ethanol
N	Regular Unleaded 87 Octane
Q	Commercial Jet
V	Unleaded 84 Octane
X	Low Sulphur Diesel 470 ppm Undyed
XH	Low Sulphur Diesel 470ppm Undyed
XR	Low Sulphur Diesel 470ppm Dyed
XT	Transitional Ultra Low Sulphur Diesel 8ppm
X5	High Sulphur Fuel Oil 5000 ppm Dyed
Y	No1 Fuel Oil 470ppm

Explorer	
3	Premium RBOB
4	Regular RBOB
32/33	Conventional 93 Octane - Tulsa MPL Grades
31	Conventional 93 Octane - Houston/Dallas Area
40/42/43	Conventional 87 Octane - Tulsa Area MPL Grades
41	Conventional 87 Octane - Houston/Dallas Area
51	Jet Fuel A
52	Jet Fuel A MPL Grade
54	Jet Fuel A Bonded
56	Low Sulphur Kerosine (1-K) 400ppm
62	No1 Fuel Oil MPL Grade
72	No2 Fuel - 40 Cetane - ULSD Off Road MPL Grade
73	Low Sulphur Diesel 470ppm MPL Grade
74	Low Sulphur Diesel 470ppm On Road
75	Ultra Low Sulphur Diesel 8ppm
76	Transitional Ultra Low Sulphur Diesel
7X	No2 Fuel - 40 Cetane - ULSD On Road MPL Grade
7T	No2 Fuel - 40 Cetane - ULSD Transitional MPL Grade
7A	Low Sulphur Diesel Off Road Undyed
7R	Low Sulphur Diesel 470ppm Off Road Undyed MPL Grade

Kinder Morgan Pacific Operations	
A	Carbob Regular Octane
B	Carbob Premium Octane
J	Conventional 87 Octane Oregon
L	Conventional 92 Octane Oregon
M	Conventional 84 Octane
N	Conventional Gasoline Nevada
R	Conventional 91 Octane Nevada
W	Conventional 87 Octane Arizona
X	Cleaner Burning Regular Octanes Arizona
Y	Conventional 91 Octane Arizona
Z	Cleaner Burning Premium Octanes Arizona
18	EPA Diesel High Sulphur Off Road
28	Marine Diesel
48	EPA Diesel Low Sulphur On Road
80	Ultra Low Sulphur Diesel - CARB Low Aromatic
84	EPA Ultra Low Sulphur Diesel On Road
14	JP-5 Commercial Jet
15	Jet A Turbine Fuel
35	Bonded Turbine Fuel
65	Low Sulphur Turbine Fuel
85	Kerosine



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***LAST UPDATED: AUGUST 2007***

The most up-to-date Argus LPG methodology is available on [www.argusmediagroup.com](http://www.argusmediagroup.com)

## Argus International LPG

The Argus International LPG report is a daily report that covers the market for internationally or openly traded liquefied petroleum gas. Argus price assessments for the International LPG report reflect a consensus of informed market opinion on daily bid/ask spreads for propane and butane and various natural gas liquids in each region.

Argus market specialists conduct comprehensive daily surveys of key market participants to collect trade information and gauge prevailing market sentiment. Through interrogative inquiry and analysis, the Argus market reporters consider a broad range of information before setting the price quotation. This includes information on fixed price and formula-related physical deals, market premiums, market discounts, reported but unconfirmed trades, tender results, netbacks, bids, offers, movements of the forward curve, spreads and supply and demand fundamentals including, but not limited to, inventories, weather and arbitrage between regions.

Argus covers regional trade in the LPG markets of the Asia-Pacific, east-central Europe, northwest Europe, the Mediterranean and the US to reflect a daily consensus on the prices of the day. The quoted prices will reflect the consensus level of market activity at the end of the trading day in each region. In the absence of market liquidity, Argus will use its knowledge and experience, combined with a market consensus, to establish a perceived buy-sell range.

This method minimises the chances of distortion or inconsistency in approach that accompanies other methodologies. It provides greater confidence to the users of the Argus International LPG report that the prices will be representative of the market and not distorted by unrepresentative factors. The price series are used extensively in third-party contracts, risk management contracts (such as swaps), internal price transfer, internal benchmarking, mark-to-market assessment and market analysis.

Reporting on LPG markets calls for a certain degree of judgment on the part of the reporter, especially when the market is opaque and confused. Deals are reported if they are confirmed by a reliable source, but the reporters will always use their judgment before establishing the final price assessments. This approach means reporters need to have a wide range of contacts. Argus reporters have to understand the market they are reporting. This rigorous approach guarantees precise, reliable and relevant assessments.

This methodology is updated regularly after extensive consultation with the industry. Any changes to the specifications behind the quotations will be announced in the relevant market reports and on [www.argusmediagroup.com](http://www.argusmediagroup.com). Amendments to the methodology will be made when necessary to reflect the changes in the structure of trading and any changes in the pricing or contractual norms of each market.

The price assessments in Argus International LPG are based on market surveys that are conducted over the telephone and through electronic mail exchanges. Argus uses all appropriate informational sources to identify the prices prevailing in a market and does not restrict itself to one subsection of the market such as a single trading

platform or any single informational channel. The market surveys are balanced in their approach and are conducted by well-trained specialists who are part of a dedicated team responsible for the report.

Information from the survey is verified as best possible and archived in databases. The methodologies are detailed and transparent. A professional approach by trained staff monitored by experienced managers is a characteristic of the Argus tradition.

All assessments and formulas refer to the price on the day of the published report. The prices are for contracts under whatever general terms and conditions are accepted as the standard prevailing in that particular market.

All changes are on the last report (one working day previous).

## Europe

### Cif ARA (large cargoes)

#### Propane

Prices are in US dollars/tonne. Large propane cargoes are 7,000-20,500t. Basis is cif ARA (including cif Flushing). The timing is for cargoes for delivery 3-15 days forward. The large cargo propane quotations are for field grade (95pc) propane, fully refrigerated. Time stamp is 5.00pm London time.

In recent years, it has become common for participants in the market to transact deals that include both a fixed price and floating price component. For example, deals that are a 50-50 average of the Argus cif ARA assessment and a fixed price, are common. In such cases, Argus will use a variety of techniques to determine the value of the deal so that it can be considered in Argus' assessments. The techniques include examining the forward structure of the LPG swaps market, considering the value of the fixed portion of the deal and using other analytical techniques employed by the industry to derive a fair value for the deal. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals as warranted in its assessments.

#### Butane

Prices are in US dollars/tonne. Large butane cargoes are 7,000-12,000t. Basis is cif ARA (including cif Flushing)/UK east coast. The timing is for cargoes for delivery 3-15 days forward. The large cargo butane is for field grade mixed butane (20pc isobutane content), fully refrigerated. Time stamp is 5.00pm London time.

In recent years, it has become common for participants in the market to transact deals that include both a fixed price and floating price component. For example, deals that are a 50-50 average of the Argus cif ARA assessment and a fixed price, are common. In such cases, Argus will use a variety of techniques to determine the value of the deal so that it can be considered in Argus' assessments. The techniques include examining the forward structure of the LPG swaps market, considering the value of the fixed portion of the deal and using other analytical techniques employed by the

industry to derive a fair value for the deal. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals as warranted in its assessments.

#### **Fob northwest Europe (small)**

##### **Propane**

Prices are in US dollars/tonne. Small cargoes (coasters) are up to 2,000t. Basis is fob northwest Europe. The timing is for cargoes for lifting 3-15 days forward. The fob northwest Europe small cargo quotations are for pressurised vessels, up to 20pc olefins. Time stamp is 5.00pm London time.

##### **Butane**

Prices are in US dollars/tonne. Small cargoes (coasters) are up to 2,000t. Basis is fob northwest Europe. The timing is for cargoes for lifting 3-15 days forward. The fob northwest Europe small cargo quotations are for pressurised vessels, up to 20pc olefins. Time stamp is 5.00pm London time.

#### **Cif ARA (small)**

##### **Propane**

Prices are in US dollars/tonne. Small cargoes (coasters) are up to 2,000t. Basis is cif ARA. The timing is for cargoes for delivery 3-15 days forward. The cif northwest Europe small cargo quotations are for pressurised vessels, up to 20pc olefins. Time stamp is 5.00pm London time.

##### **Butane**

Prices are in US dollars/tonne. Small cargoes (coasters) are up to 2,000t. Basis is cif ARA. The timing is for cargoes for delivery 3-15 days forward. The cif northwest Europe small cargo quotations are for pressurised vessels, up to 20pc olefins. Time stamp is 5.00pm London time.

#### **Fob ARA (barge)**

##### **Propane**

Prices are in US dollars/tonne. Barges are up to 1,300t. Basis is fob ARA. The timing is for barges for lifting 2-10 days forward. The fob barge quotations are for pressurised vessels, up to 20pc olefins. Time stamp is 5.00pm London time.

##### **Butane**

Prices are in US dollars/tonne. Barges are up to 1,200t. Basis is fob ARA. The timing is for barges for lifting 2-10 days forward. The fob barge quotations are for pressurised vessels, up to 20pc olefins. Time stamp is 5.00pm London time.

#### **Fca ARA (rail)**

##### **Propane**

Prices are in US dollars/tonne. Rail is for 400-600t. Basis is fca (rail) ARA. The timing is for railcars lifting 2-10 days forward. The fca (rail) ARA quotation includes commercial and ex-terminal material. Time

stamp is 5.00pm London time.

##### **Butane**

Prices are in US dollars/tonne. Rail is for 400-600t. Basis is fca (rail) ARA. The timing is for railcars lifting 2-10 days forward. The fca (rail) ARA quotation includes commercial and ex-terminal material. Time stamp is 5.00pm London time.

#### **Cif Mediterranean (large)**

##### **Propane**

Prices are in US dollars/tonne. Large cargoes are 5,000-20,500t. Basis is cif Lavera. The timing is for cargoes for delivery 3-15 days forward. The large cargo propane quotations are for field grade (95pc) propane, fully refrigerated. Time stamp is 5.00pm London time.

##### **Butane**

Prices are in US dollars/tonne. Large cargoes are 5,000-20,500t. Basis is cif Lavera. The timing is for cargoes for delivery 3-15 days forward. The large cargo butane quotations are for field grade mixed butane (20pc isobutane content), fully refrigerated. Time stamp is 5.00pm London time.

#### **Fob Mediterranean (small)**

##### **Propane**

Prices are in US dollars/tonne. Small cargoes (coasters) are up to 2,000t. Basis is fob Lavera. The timing is for cargoes for lifting 3-15 days forward. Small cargo assessments are for commercial grade. Small cargo (coasters) are pressurised vessels. Time stamp is 5.00pm London time.

##### **Butane**

Prices are in US dollars/tonne. Small cargoes (coasters) are up to 2,000t. Basis is fob Lavera. The timing is for cargoes for lifting 3-15 days forward. Small cargo assessments are for commercial grade. Small cargo (coasters) are pressurised vessels. Time stamp is 5.00pm London time.

#### **Fca Mediterranean (rail)**

##### **Propane**

Prices are in US dollars/tonne for. Rail is 400-600t. Basis is fca (rail) Lavera. The timing is for railcars lifting 2-10 days forward. Railcars are for commercial grade. Time stamp is 5.00pm London time.

##### **FSU**

#### **Fob Black Sea propane-butane mix**

Prices are in US dollars/tonne. Small cargoes (coasters) are 1,000-4,000t. Basis is fob Ukrainian Black Sea Ports (Ilyichevsk and Kerch). The timing is cargoes for lifting 5-25 days forward. Time stamp is 5.30pm Moscow time.

#### **Daf Brest propane-butane mix**

Prices are in US dollars/tonne. Railcars are 1,000-1,500t. Basis is

daf Brest (Belarus-Polish border). The timing is for railcars lifting 2-10 days forward. Time stamp is 5.30pm Moscow time.

**Daf Brest propane**

Prices are in US dollars/tonne. Railcars are 1,000-1,500t. Basis is daf Brest (Belarus-Polish border). The timing is for railcars lifting 2-25 days forward. Time stamp is 5.30pm Moscow time.

**Asia-Pacific refrigerated cargoes**

**Gulf CP fob**

**Propane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Fob Gulf quotes are for 5,000-10,000t cargoes loading at Ras Tanura. The fob Mideast Gulf roll date from one month loading to the next will occur on the 10th of the month. Time stamp is 5.00pm London time.

**Butane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Fob Gulf quotes are for 5,000-10,000t cargoes loading at Ras Tanura. The fob Mideast Gulf roll date from one month loading to the next will occur on the 10th of the month. Time stamp is 5.00pm London time.

**Japan CP cfr**

**Propane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Cfr Japan quotes are for 20,000t cargoes for delivery to Kawasaki/Chiba (Japan). For refrigerated cargoes cfr Japan (CP plus), the roll date from first-half month delivery to second-half month delivery will occur on the 10th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 25th of the previous month. Time stamp is 6.30pm Singapore time.

**Butane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Cfr Japan quotes are for 20,000t cargoes for delivery to Kawasaki/Chiba (Japan). For refrigerated cargoes cfr Japan (CP plus), the roll date from first-half month delivery to second-half month delivery will occur on the 10th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 25th of the previous month. Time stamp is 6.30pm Singapore time.

**Japan cfr**

**Propane**

Prices are in US dollars/tonne. Refrigerated cargoes are of field grade quality. Cfr Japan quotes are for 20,000t cargoes for delivery to Kawasaki/Chiba (Japan). For refrigerated cargoes cfr Japan fixed price assessments, the assessment window will apply to cargoes delivered within 20-35 days of the publication date. Time stamp is 6.30pm Singapore time.

In recent years, it has become common for participants in the Asian CFR market to transact deals that include both a fixed price and floating price component. For example, deals that are a 50-50 average of the Far East Index and a fixed price, are common. In such cases, Argus will use a variety of techniques to determine the value of the deal so that it can be considered in Argus' assessments. The techniques include examining the forward structure of the LPG swaps market, considering the value of the fixed portion of the deal and using other analytical techniques employed by the industry to derive a fair value for the deal. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals as warranted in its assessments.

**Butane**

Prices are in US dollars/tonne. Refrigerated cargoes are of field grade quality. Cfr Japan quotes are for 20,000t cargoes for delivery to Kawasaki/Chiba (Japan). For refrigerated cargoes cfr Japan fixed price assessments, the assessment window will apply to cargoes delivered within 20-35 days of the publication date. Time stamp is 6.30pm Singapore time.

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**Taiwan CP cfr**

**Propane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Taiwan quotes are for 20,000t cargoes for delivery to Kaohsiung (Taiwan). For refrigerated cargoes cfr Taiwan (CP Plus), the roll date from first-half month delivery to second-half month delivery will occur on the 10th of the previous month. The roll date from second-half month delivery to first-half month delivery

will occur on the 25th of the previous month. Time stamp is 6.30pm Singapore time.

**Butane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Taiwan quotes are for 20,000t cargoes for delivery to Kaohsiung (Taiwan). For refrigerated cargoes cfr Taiwan (CP Plus), the roll date from first-half month delivery to second-half month delivery will occur on the 10th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 25th of the previous month. Time stamp is 6.30pm Singapore time.

**East China CP cfr**

**Propane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Cfr east China are for 20,000t cargoes for delivery into Shanghai and Taicang in the Jiangsu Province for east China. For refrigerated cargoes cfr China (CP Plus), the roll date from first-half month delivery to second-half month delivery will occur on the 25th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 10th of the month. Time stamp is 6.30pm Singapore time.

**Butane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Cfr east China are for 20,000t cargoes for delivery into Shanghai and Taicang in the Jiangsu Province for east China. For refrigerated cargoes cfr China (CP Plus), the roll date from first-half month delivery to second-half month delivery will occur on the 25th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 10th of the month. Time stamp is 6.30pm Singapore time.

**East China cfr**

**Propane**

Prices are in US dollars/tonne. Refrigerated cargoes are of field grade quality. Cfr east China are for 20,000t cargoes for delivery into Shanghai and Taicang in the Jiangsu Province for east China. For refrigerated cargoes cfr east China fixed price assessments, the assessment window will apply to cargoes delivered within 20-35 days of the publication date. Time stamp is 6.30pm Singapore time.

In recent years, it has become common for participants in the Asian CFR market to transact deals that include both a fixed price and floating price component. For example, deals that are a 50-50 average of the Far East Index and a fixed price, are common. In such cases, *Argus* will use a variety of techniques to determine the value of the deal so that it can be considered in *Argus*' assessments. The techniques include examining the forward structure of the LPG

swaps market, considering the value of the fixed portion of the deal and using other analytical techniques employed by the industry to derive a fair value for the deal. *Argus* will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals as warranted in its assessments.

**Butane**

Prices are in US dollars/tonne. Refrigerated cargoes are of field grade quality. Cfr east China are for 20,000t cargoes for delivery into Shanghai and Taicang in the Jiangsu Province for east China. For refrigerated cargoes cfr east China fixed price assessments, the assessment window will apply to cargoes delivered within 20-35 days of the publication date. Time stamp is 6.30pm Singapore time.

In recent years, it has become common for participants in the Asian CFR market to transact deals that include both a fixed price and floating price component. For example, deals that are a 50-50 average of the Far East Index and a fixed price, are common. In such cases, *Argus* will use a variety of techniques to determine the value of the deal so that it can be considered in *Argus*' assessments. The techniques include examining the forward structure of the LPG swaps market, considering the value of the fixed portion of the deal and using other analytical techniques employed by the industry to derive a fair value for the deal. *Argus* will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals as warranted in its assessments.

**South China CP cfr**

**Propane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Cfr south China are for 20,000t cargoes for delivery into Shenzhen and Zhuhai in the Guangdong Province for south China. For refrigerated cargoes cfr China (CP Plus) the roll date from first-half month delivery to second-half month delivery will occur on the 25th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 10th of the month. Time stamp is 6.30pm Singapore time.

**Butane**

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Cfr south China are for 20,000t cargoes for delivery into Shenzhen and Zhuhai in the Guangdong Province for south China. For refrigerated cargoes cfr China (CP Plus), the roll date from first-half month delivery to second-half month delivery will occur on the 25th of the previous month. The roll date from second-half month delivery to first-half month delivery will occur on the 10th of the month. Time stamp is 6.30pm Singapore time.

## South China cfr

### Propane

Prices are in US dollars/tonne. Refrigerated cargoes are of field grade quality. Cfr south China are for 20,000t cargoes for delivery into Shenzhen and Zhuhai in the Guangdong Province for south China. For refrigerated cargoes cfr south China fixed price assessments, the assessment window will apply to cargoes delivered within 20-35 days of the publication date. Time stamp is 6.30pm Singapore time.

In recent years, it has become common for participants in the Asian CFR market to transact deals that include both a fixed price and floating price component. For example, deals that are a 50-50 average of the Far East Index and a fixed price, are common. In such cases, Argus will use a variety of techniques to determine the value of the deal so that it can be considered in Argus' assessments. The techniques include examining the forward structure of the LPG swaps market, considering the value of the fixed portion of the deal and using other analytical techniques employed by the industry to derive a fair value for the deal. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals as warranted in its assessments.

### Butane

Prices are in US dollars/tonne. Refrigerated cargoes are of field grade quality. Cfr south China are for 20,000t cargoes for delivery into Shenzhen and Zhuhai in the Guangdong Province for south China. For refrigerated cargoes cfr south China fixed price assessments, the assessment window will apply to cargoes delivered within 20-35 days of the publication date. Time stamp is 6.30pm Singapore time.

In recent years, it has become common for participants in the Asian CFR market to transact deals that include both a fixed price and floating price component. For example, deals that are a 50-50 average of the Far East Index and a fixed price, are common. In such cases, Argus will use a variety of techniques to determine the value of the deal so that it can be considered in Argus' assessments. The techniques include examining the forward structure of the LPG swaps market, considering the value of the fixed portion of the deal and using other analytical techniques employed by the industry to derive a fair value for the deal. Argus will use these techniques as appropriate to derive a representative value for deals that are priced on a fixed/floating price basis and consider such deals as warranted in its assessments.

## West coast India CP cfr

### Butane

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Refrigerated cargoes are of field grade quality. Cfr India quotes are for 10,000-15,000t cargoes for delivery into Kandla and Mangalore on the west coast of India. For refrigerated cargoes cfr India (CP Plus), the roll date from one month delivery to the next will occur on the 25th of the previous month. Time stamp is 6.30pm Singapore time.

## Argus Far East Index

### Propane

Prices are in US dollars/tonne. The Argus Far East Index is the average of the cfr Japan (fixed price) and cfr south China (fixed price) assessments. The Far East index average is accumulated on a calendar month basis, rolling on the first working day of the month. Refrigerated cargoes are of field grade quality. The quotes for the Argus Far East Index will roll forward to the next month on the first day after the 15th day of each month. Time stamp is 6.30pm Singapore time.

### Butane

Prices are in US dollars/tonne. The Argus Far East Index is the average of the cfr Japan (fixed price) and cfr south China (fixed price) assessments. The Far East index average is accumulated on a calendar month basis, rolling on the first working day of the month. Refrigerated cargoes are of field grade quality. The quotes for the Argus Far East Index will roll forward to the next month on the first day after the 15th day of each month. Time stamp is 6.30pm Singapore time.

## Asia-Pacific pressurised cargoes

## South China CP cfr

### Propane

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Cfr south China pressurised cargo quotes are for 1,500 to 2,500t size for delivery into Zhuhai and Sherkou, south China. Pressurised cargoes are for deliveries of propane from either 20:80 or 30:70 propane:butane cargoes. For pressurised cargoes cfr the delivery window is 7-15 days from the date of publication. For pressurised cargoes (CP plus), the roll date from one month delivery to the next will occur on the 25th of the previous month.

### Butane

Prices are in US dollars/tonne. CP basis is the month's CP (Saudi Contract Price) that is the underlying price for the CP differential. Period is the timing of lifting or delivery. Cfr south China pressurised cargo quotes are for 1,500-2,500t size for delivery into Zhuhai and Sherkou, south China. Pressurised cargoes are for deliveries of butane from either 20:80 or 30:70 propane:butane cargoes. For pressurised cargoes cfr, the delivery window is 7-15 days from the date of publication. For pressurised cargoes (CP plus), the roll date from one month delivery to the next will occur on the 25th of the previous month.

## South China cfr

### Propane

Prices are in US dollars/tonne. Cfr south China pressurised cargo quotes are for 1,500-2,500t size for delivery into Zhuhai and Sherkou, south China. For pressurised cargoes cfr, the delivery window is 7-15 days from the date of publication. Pressurised cargoes are

for deliveries of propane from either 20:80 or 30:70 propane:butane cargoes.

#### **Butane**

Prices are in US dollars/tonne. Cfr south China pressurised cargo quotes are for 1,500-2,500t size for delivery into Zhuhai and Sherkou, south China. For pressurised cargoes cfr, the delivery window is 7-15 days from the date of publication. Pressurised cargoes are for deliveries of butane from either 20:80 or 30:70 propane:butane cargoes.

#### **Thailand fob**

##### **Propane**

Prices are in US dollars/tonne. Fob Thailand pressurised cargo quotes are for 1,800-2,500t size loading from Sri Racha and Lamchabang. Pressurised cargoes, fob Thailand quotations are for 50:50 mixed quality deliveries. For pressurised cargoes cfr, the delivery window is 7-15 days from the date of publication. For pressurised cargoes fob Thailand, the roll date from one month delivery to the next will occur on the 25th of the month.

##### **Butane**

Prices are in US dollars/tonne. Fob Thailand pressurised cargo quotes are for 1,800-2,500t size loading from Sri Racha and Lamchabang. Pressurised cargoes, fob Thailand quotations are for 50:50 mixed quality deliveries. For pressurised cargoes cfr, the delivery window is 7-15 days from the date of publication. For pressurised cargoes fob Thailand, the roll date from one month delivery to the next will occur on the 25th of the month.

### **China wholesale prices**

#### **East China**

##### **Ningbo ex terminal**

Prices are in yuan/tonne. Specification is propane-butane mix.

##### **Zhenhai ex refinery**

Prices are in yuan/tonne. Specification is propane-butane mix.

#### **South China**

##### **Shenzhen ex terminal**

Prices are in yuan/tonne. Specification is propane-butane mix.

##### **Guangzhou ex refinery**

Prices are in yuan/tonne. Specification is propane-butane mix.

#### **Northeast China**

##### **Dalian ex refinery**

Prices are in yuan/tonne. Specification is propane-butane mix.

#### **Northwest China**

##### **Urumuqi ex refinery**

Prices are in yuan/tonne. Specification is propane-butane mix.

#### **Inland China**

##### **Yan-An ex refinery**

Pressurised cargoes are for deliveries of either 20:80 or 30:70 propane:butane. Prices are in yuan/tonne. Specification is propane-butane mix.

### **Americas: Mont Belvieu pipeline fob**

#### **Non-Tet**

##### **Propane**

Prices are in US cents/US gallon. Non-Tet: Not Texas Eastern Transmission terminal. Mont Belvieu prices are quoted on an "Any Month" basis and roll at the end of the calendar month. Pipeline contract size is 15,000 bl minimum for propane. Propane specification is HD-5, 90pc min liquid volume, 5pc max propylene liquid volume. The time stamp is 5pm central US time.

##### **Butane**

Normal butane prices are in US cents/US gallon. Non-Tet: Not Texas Eastern Transmission terminal. Mont Belvieu prices are quoted on an "Any Month" basis and roll at the end of the calendar month. Pipeline contract size is 15,000 bl minimum normal butane. Butane specification is non-Tet basis typically quoted as field grade. The time stamp is 5pm central US time.

#### **Tet**

##### **Propane**

Prices are in US cents/US gallon. Tet: Texas Eastern Transmission terminal. Mont Belvieu prices are quoted on an "Any Month" basis and roll at the end of the calendar month. Pipeline contract size is 15,000 bl minimum for propane. Propane specification is HD-5, 90pc min liquid volume, 5pc max propylene liquid volume. The time stamp is 5pm central US time.

##### **Butane**

Normal butane prices are in US cents/US gallon. Tet: Texas Eastern Transmission terminal. Mont Belvieu prices are quoted on an "Any Month" basis and roll at the end of the calendar month. Pipeline contract size is 10,000 bl minimum for normal butane. Butane specification is Tet basis quoted as refinery grade, 94pc min liquid volume. The time stamp is 5pm central US time.

#### **Tet \$/t equivalent**

##### **Propane**

Prices are in US dollars/tonne. Tet: Texas Eastern Transmission terminal. The time stamp is 5pm central US time for US quotations. The conversion factor is 522.3 USG/t.

##### **Butane**

Normal butane prices are in US dollars/tonne. Tet: Texas Eastern Transmission terminal. The time stamp is 5pm central US time for



US quotations. The conversion factor is 453 USG/t.

**USGC import values \$/t**

**Propane**

Prices are in US dollars/tonne. US Gulf coast import prices reflect the dollar/tonne equivalent price on Mont Belvieu less terminalling costs for cargoes of 7,000t or larger. The time stamp is 5pm central US time.

**Butane**

Normal butane prices are in US dollars/tonne. US Gulf coast import prices reflect the dollar/tonne equivalent price on Mont Belvieu less terminalling costs for cargoes of 7,000t or larger. The time stamp is 5pm central US time.

**Non-Tet Feedstocks**

**Purity ethane**

Prices are in US cents/US gallon. Non-Tet terminals. Mont Belvieu prices are quoted on an "Any Month" basis and roll at the end of the calendar month. Pipeline contract size is 15,000 bl minimum for purity ethane. Specification is 95pc min liquid volume, 5pc max propane, 1.5pc max methane. The time stamp is 5pm central US time.

**Ethane-propane mix**

Prices are in US cents/US gallon. Non-Tet terminals. Mont Belvieu prices are quoted on an "Any Month" basis and roll at the end of the calendar month. Pipeline contract size is 15,000 bl minimum for ethane-propane mix. Specification is typically 70pc ethane, 30pc propane. The time stamp is 5pm central US time.

**Isobutane**

Prices are in US cents/US gallon. Non-Tet terminals. Mont Belvieu prices are quoted on an "Any Month" basis and roll at the end of the calendar month. Pipeline contract size is 10,000 bl minimum for isobutane. Specification is 95pc min liquid volume. The time stamp is 5pm central US time.

**Non-Tet, non-Targa Feedstocks**

**Natural gasoline**

Prices are in US cents/US gallon. Non-Tet, non-Targa terminals. Mont Belvieu prices are quoted on an "Any Month" basis and roll at the end of the calendar month. Pipeline contract size is 10,000 bl minimum for natural gasoline. Specification is 90pc paraffins max, 14psi RVP, 82°API gravity typical, 97pc min pentanes and heavier. The time stamp is 5pm central US time.

**International comparisons**

**Argus North Sea Index (ANSI™)**

**Propane**

Prices are in US dollars/tonne. Prices are for the listed month. ANSI™ is a monthly index calculated on the last 5 days of the prior month Argus large cargo cif ARA quotations for propane, less a

freight element which is set on an annual basis. This base level will be adjusted if the last 5 days average appears severely out of alignment with prevailing industry sentiment. The freight rate is based on a composite Contract of Affreightment (COA) rate for a 20,000t cargo for routes Braefoot Bay, Karsto, or Sullom Voe terminals to Antwerp, Flushing, or Terneuzen. The composite COA rate is based on a one load/two discharge.

**Butane**

Prices are in US dollars/tonne. Prices are for the listed month. ANSI™ is a monthly index calculated on the last 5 days of the prior month Argus large cargo cif ARA quotations for propane, less a freight element which is set on an annual basis. This base level will be adjusted if the last 5 days average appears severely out of alignment with prevailing industry sentiment. The freight rate is based on a composite Contract of Affreightment (COA) rate for a 20,000t cargo for routes Braefoot Bay, Karsto, or Sullom Voe terminals to Antwerp, Flushing, or Terneuzen. The composite COA rate is based on a one load/two discharge.

**Sonatrach fob Bethioua**

**Propane**

Prices are in US dollars/tonne. Official selling price of Sonatrach for propane for the listed month.

**Butane**

Prices are in US dollars/tonne. Official selling price of Sonatrach for butane for the listed month.

**Saudi Aramco**

**Propane**

Prices are in US dollars/tonne. Official selling prices of Saudi Aramco for propane for the listed month.

**Butane**

Prices are in US dollars/tonne. Official selling prices of Saudi Aramco for butane for the listed month.

**KPC (Kuwait)**

**Propane**

Prices are in US dollars/tonne. Official selling prices of Kuwait Petroleum Company for propane for the listed month.

**Butane**

Prices are in US dollars/tonne. Official selling prices of Kuwait Petroleum Company for butane for the listed month.

**Argus Middle East netback**

**Propane**

Prices are in US dollars/tonne. The Argus Middle East netback is computed by subtracting the reported daily AG/Japan freight assessment for VLGC carriers from the Argus Far East Index for

propane.

### Butane

Prices are in US dollars/tonne. The Argus Middle East netback is computed by subtracting the reported daily AG/Japan freight assessment for VLGC carriers from the Argus Far East Index for butane.

### Naphtha

#### Cif northwest Europe

Prices are in US dollars/tonne. Delivery is for 5-15 days forward, of 10,000-25,000t, 65-70pc minimum paraffins. Cutoff time for assessment is 5.30pm London time. For more details see Argus European Products Methodology.

#### Cif Mediterranean

Prices are in US dollars/tonne. Delivery is for 5-15 days forward, of 10,000-25,000t, 65-70pc minimum paraffins. Cutoff time for assessment is 5.30pm London time. For more details see the Argus European Products Methodology.

#### Cfr Japan

Prices are in US dollars/tonne. Delivery is for 45-75 days forward derived from the 45 to 60 and 60 to 75 day forward periods in the forward table of the Argus Asia-Pacific Products report, 25,000t, open specification 65pc minimum paraffins. The assessment time is 6.30pm Singapore time. For more details see the Argus Asia-Pacific Products Methodology.

#### Fob Mideast Gulf

Prices are in US dollars/tonne. The fob Mideast Gulf quotation is netted back from the Japan cfr naphtha quotation using LR1 freight (55,000t), two port loading average of Jubail/Ruwais to Quoin Island and Mina al-Ahmadi/Ras Tanura to Quoin Island, two port discharge Chiba/Mizushima plus 50pc of the Saudi port charge. For more details see the Argus Asia-Pacific Products Methodology.

### LPG freight assessments

#### VLGC AG-Japan

Prices are in US dollars/tonne. Spot freight assessments provided daily for 40,000t to 44,000t Very Large Gas Carriers (VLGC) size cargoes loading AG (Ras Tanura) to Japan (Chiba).

#### 3,000t Tees-Lisbon

Prices are in US dollars/tonne. Spot freight quotes provided daily for 3,000t Tees to Sines.

#### 1,800t Tees-ARA

Prices are in US dollars/tonne. Spot freight quotes provided daily for 1,800t Tees to ARA.

## Northwest Europe

### Averages

#### Cif ARA large cargo

Prices are in US dollars/tonne. The Argus cif ARA large cargo quotation is the arithmetic average of the prices published every day in a month.

#### Fob ARA barge

Prices are in US dollars/tonne. The Argus fob ARA barge quotation is the running average in which the last data point will be assumed to be the data point for the remaining days of the month.

#### Crude price

Prices are in US dollars/barrel. The Dated price is the main price marker for North Sea crude. It is calculated under the Argus Dated BFO methodology (see *Argus Crude Methodology for more details*).

#### ICE Brent futures settlement

Prices are in US dollars/barrel. Prices are the settlement prices for the IntercontinentalExchange's Brent contract for three months forward

## International swaps

### Forward markets

#### Propane swaps northwest Europe

Prices are in US dollars/tonne. Swaps in northwest Europe are for six months and three quarters forward. Swap months roll on the first working day after the 15th of the month. Swap quarters roll on the first working day after the 15th of the month.

#### Naphtha swaps northwest Europe

Prices are in US dollars/tonne. Swaps in northwest Europe are for three months forward. The last day of the quotation of the first month of the forward swaps table will be the 15th of that month.

#### Propane CP swaps Middle East

Prices are in US dollars/tonne. The minimum swap volume for the CP swaps is 1,000t. Forward propane swaps quotations are for the three forward months assessments of the Contract Price (CP). The quotes for the CP swaps will roll forward to the next month on the first working day after the new CP is issued (e.g. if the October CP is issued on the 29th of September, the swaps front month will roll from September to October on that day).

#### Far East Index propane swaps

Prices are in US dollars/tonne. The minimum swap volume for the Argus Far East Index swaps is 1,000t. Forward propane swaps quotations are for the three forward months assessments of the Argus Far East Index. The quotations will roll on the first working day after the 15th of the month.

## Middle East

### Fob averages

#### Propane

Prices are in US dollars/tonne. The Argus Middle East fob average is the average of the spot premium for additional Saudi volumes trading out of Yanbu and Ras Tanura which is calculated on a monthly basis and which rolls on the 10th of the month. So on the 10th of January, Argus will begin quoting a cumulative average for February.

#### Butane

Prices are in US dollars/tonne. The Argus Middle East fob average is the average of the spot premium for additional Saudi volumes trading out of Yanbu and Ras Tanura which is calculated on a monthly basis and which rolls on the 10th of the month. So on the 10th of January, Argus will begin quoting a cumulative average for February.

## Asia-Pacific

### Far East Index averages

#### Propane

Prices are in US dollars/tonne. The Argus Far East Index average is accumulated on a calendar month basis, rolling on the first working day of the month.

#### Butane

Prices are in US dollars/tonne. The Argus Far East Index average is accumulated on a calendar month basis, rolling on the first working day of the month.

## China wholesale prices

### East China terminal prices

#### Ningbo ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Wenzhou ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Taicang ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Shanghai ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Zhangjiagang ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Fujian ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

### East China refinery prices

#### Shanghai ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Zhenhai ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Yangzi ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Fujian ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Gaoqiao ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

### South China terminal prices

#### Zhuhai ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Shenzhen ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Raoping ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Nansha ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Shantou ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Yangjiang ex terminal

Prices are in yuan/tonne. Specification is propane-butane mix.

### South China refinery prices

#### Maoming ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Guangzhou ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

### Northeast China

#### Daqing ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

#### Dalian ex refinery

Prices are in yuan/tonne. Specification is propane-butane mix.

**Northwest China****Urumuqi ex refinery**

Prices are in yuan/tonne. Specification is propane-butane mix.

**Inland China****Lanzhou ex refinery**

Prices are in yuan/tonne. Specification is propane-butane mix.

**Yan-An ex refinery**

Prices are in yuan/tonne. Specification is propane-butane mix.

**US****Nymex propane**

Prices are in US cents/US gallon. Nymex propane is quoted for next four months forward. The Nymex propane quotations will roll on the first working day of the month.

**Mont Belvieu propane forward market**

Prices are in US cents/US gallon. Propane forward prices basis Mont Belvieu Tet storage are quoted for first three months forward and next quarter. Forward months roll at the end of the calendar month. Quarter assessments will roll at the end of the previous calendar quarter; i.e., on 1 April, second-quarter assessments will end and third-quarter Middle East assessments will begin.

**US non-Tet averages****Propane**

Prices are in US cents/US gallon. The average is the cumulative average of the calendar month which rolls on the first of the month.

**Butane**

Prices are in US cents/US gallon. The average is the cumulative average of the calendar month which rolls on the first of the month.

**Table 3.3 World Imports of Refined Petroleum Products, 2004**  
(Thousand Barrels per Day)

Energy Information Administration <i>International Energy Annual 2005</i>									
Table Posted: August 6, 2007 Next Update: June 2008									
Table Notes and Sources									
<b>3.3 World Imports of Refined Petroleum Products, 2004</b>									
(Thousand Barrels per Day)									
	<b>Motor</b>	<b>Jet</b>		<b>Distillate</b>	<b>Residual</b>	<b>Liquefied</b>			<b>Total Imports of Refined</b>
<b>Region/Country</b>	<b>Gasoline</b>	<b>Fuel</b>	<b>Kerosene</b>	<b>Fuel Oil</b>	<b>Fuel Oil</b>	<b>Petroleum Gases</b>	<b>Other</b>		<b>Petroleum Products</b>
Bermuda	0.61	0.37	0.38	2.06	0.36	0.38	0.09		4.25
Canada	64.97	35.41	0.27	18.96	49.90	8.33	84.67		262.51
Greenland	0.35	0.28	0	3.36	0	0	0.02		4.01
Mexico	161.73	0	0	14.86	18.13	89.19	24.62		308.52
Saint Pierre and Miquelon	0.09	0	0	0.45	0	0	0		0.54
United States	496.40	127.06	2.09	325.46	426.30	305.22	1,374.96		3,057.49
<b>North America</b>	<b>724.14</b>	<b>163.13</b>	<b>2.74</b>	<b>365.14</b>	<b>494.69</b>	<b>403.12</b>	<b>1,484.37</b>		<b>3,637.32</b>
Albania	3.26	0.89	0	10.27	0.11	1.43	7.27		23.23
Austria	24.14	2.98	0	99.53	5.46	4.18	14.13		150.41
Belgium	24.84	26.50	1.33	164.67	94.55	5.90	105.10		422.89
Bosnia and Herzegovina	7.41	1.50	0	10.50	3.38	0	2.15		24.94
Bulgaria	1.65	1.13	0	3.67	2.47	7.38	4.96		21.27
Croatia	3.17	0.02	0.02	9.60	3.88	0.25	3.55		20.49
Cyprus	5.57	6.44	0	9.56	16.83	1.43	6.95		46.78
Czech Republic	21.82	4.07	0.06	25.68	3.65	4.44	15.16		74.88
Denmark	20.20	14.60	0	37.40	15.90	0.13	10.96		99.18
Faroe Islands	0.33	0.04	0	4.06	0	0	0.15		4.58
Finland	7.87	0	0.37	40.66	11.16	40.34	17.07		117.48
Former Czechoslovakia	--	--	--	--	--	--	--		--
Former Serbia and Montenegro	3.52	0.02	0.25	0.06	0.20	2.00	3.48		9.53
Former Yugoslavia	--	--	--	--	--	--	--		--
France	9.38	50.58	4.11	329.05	60.70	65.04	146.93		665.79
Germany	94.86	83.69	0.34	267.38	48.69	19.90	220.55		735.42

**Table 3.3 World Imports of Refined Petroleum Products, 2004**  
(Thousand Barrels per Day)

Region/Country	Motor Gasoline	Jet Fuel	Kerosene	Distillate Fuel Oil	Residual Fuel Oil	Liquefied Petroleum Gases	Other	Total Imports of Refined Petroleum Products
Germany, East	--	--	--	--	--	--	--	--
Germany, West	--	--	--	--	--	--	--	--
Gibraltar	0.54	0.09	0	4.10	19.20	0	0.44	24.35
Greece	24.45	5.18	0	74.84	3.01	0.44	37.26	145.19
Hungary	7.77	0	0	21.48	3.59	3.60	4.75	41.20
Iceland	3.49	2.69	0	9.46	0.95	0.03	0.83	17.45
Ireland	27.47	20.78	8.29	51.22	23.23	3.55	11.54	146.08
Italy	7.32	3.04	7.04	20.34	93.81	49.19	239.80	420.54
Luxembourg	12.21	8.83	0	39.05	0.07	0.60	0.31	61.07
Macedonia	0.75	0.24	0	1.43	0.35	0.73	2.18	5.66
Malta	1.35	2.12	0.21	3.26	10.50	0.54	0.22	18.21
Montenegro	--	--	--	--	--	--	--	--
Netherlands	182.46	27.28	10.57	204.07	272.49	299.52	429.67	1,426.06
Norway	9.72	5.71	0.28	16.47	25.02	6.18	18.20	81.58
Poland	16.95	0.07	0	32.43	4.63	57.78	19.41	131.27
Portugal	2.98	1.14	0.02	17.24	11.31	19.71	47.43	99.84
Romania	2.00	0.87	0.02	8.83	12.21	2.22	9.06	35.20
Serbia	--	--	--	--	--	--	--	--
Slovakia	3.72	0.26	1.96	7.83	1.27	1.39	4.54	20.97
Slovenia	16.50	0.50	0.02	30.98	0.95	2.73	4.00	55.68
Spain	17.02	20.30	0	240.92	69.45	34.70	135.06	517.46
Sweden	41.60	17.18	0.02	39.62	5.82	35.67	25.53	165.44
Switzerland	55.09	17.31	0	78.07	0	1.43	10.12	162.01
Turkey	17.50	0.54	3.40	77.82	13.85	107.06	21.68	241.86
United Kingdom	50.24	164.93	7.69	85.93	10.59	15.37	195.56	530.32
<b>Europe</b>	<b>729.16</b>	<b>491.49</b>	<b>46.02</b>	<b>2,077.49</b>	<b>849.29</b>	<b>794.87</b>	<b>1,776.01</b>	<b>6,764.32</b>
Hong Kong	8.75	87.42	0	123.27	97.96	11.09	15.75	344.24
India	5.43	0.07	4.46	16.59	13.48	64.78	81.63	186.44
Indonesia	99.74	11.66	49.96	130.07	32.59	15.94	0	339.95
Japan	46.36	58.98	23.73	16.24	35.79	589.31	606.15	1,376.56
Kiribati	0.05	0.02	0.04	0.08	0	0	0.02	0.22
Korea, North	0.54	0	0.04	1.53	10.03	0	0	12.13
Korea, South	3.09	0.56	3.78	12.70	21.78	128.74	388.62	559.27
Laos	0.56	0.22	0.44	0.53	0.29	0.57	0.29	2.90

**Table 3.3 World Imports of Refined Petroleum Products, 2004**  
(Thousand Barrels per Day)

Region/Country	Motor Gasoline	Jet Fuel	Kerosene	Distillate Fuel Oil	Residual Fuel Oil	Liquefied Petroleum Gases	Other	Total Imports of Refined Petroleum Products
Macau	0.83	3.47	0.17	3.96	5.50	0.94	0.16	15.03
Malaysia	54.70	1.28	0.06	37.46	25.82	8.15	17.81	145.28
Maldives	0.35	1.73	0.17	4.14	0	0	0	6.39
Mongolia	6.29	0	0.49	5.26	0.20	0	0.04	12.28
Nauru	0.12	0.15	0	0.08	0.67	0	0	1.02
Nepal	1.24	0.87	6.53	5.05	0.16	2.09	0.22	16.15
New Caledonia	1.47	0.24	0.11	2.55	7.22	0.25	0.14	11.98
New Zealand	20.33	6.11	0	16.06	0	0.29	8.64	51.43
Niue	0	0	0	0.02	0	0	0	0.02
Pakistan	0	0	0	86.01	26.49	1.27	0	113.78
Papua New Guinea	2.07	0.98	0.44	11.92	8.28	0.13	0.19	24.02
Philippines	32.54	7.91	3.17	64.59	18.52	23.64	3.41	153.78
Samoa	0.44	0	0.17	0.45	0	0	0	1.06
Singapore	161.60	45.15	9.38	112.49	558.04	0.16	61.54	948.36
Solomon Islands	0.28	0.04	0.04	0.86	0	0.03	0.04	1.30
Sri Lanka	4.17	3.77	1.14	23.77	0.89	4.69	0.06	38.49
Taiwan	2.19	0	0	0	6.39	27.08	161.39	197.06
Thailand	3.31	0.86	0	12.26	1.26	0.10	5.75	23.53
Tonga	0.35	0.02	0.06	0.41	0	0	0	0.84
U.S. Pacific Islands	0.56	0.30	0.04	1.06	0	0	0.04	2.01
Vanuatu	0.14	0	0.02	0.45	0	0	0.02	0.63
Vietnam	60.69	9.23	7.60	111.64	38.58	9.32	1.32	238.37
Wake Island	0	7.80	0	0.41	0	0	0.92	9.13
<b>Asia &amp; Oceania</b>	<b>586.70</b>	<b>337.16</b>	<b>121.33</b>	<b>989.10</b>	<b>1,452.69</b>	<b>1,101.93</b>	<b>1,486.62</b>	<b>6,075.53</b>
<b>World Total</b>	<b>2,886.74</b>	<b>1,117.98</b>	<b>240.50</b>	<b>4,280.60</b>	<b>3,441.36</b>	<b>2,606.20</b>	<b>5,067.44</b>	<b>19,640.83</b>

**Table 3.5 World Apparent Consumption of Refined Petroleum Products, 2004**  
(Thousand Barrels per Day)

Energy Information Administration <i>International Energy Annual 2005</i>								
Table Posted: August 6, 2007 Next Update: June 2008								
Table Notes and Sources								
<b>3.5 World Apparent Consumption of Refined Petroleum Products, 2004</b>								
(Thousand Barrels per Day)								
	<b>Motor</b>	<b>Jet</b>		<b>Distillate</b>	<b>Residual</b>	<b>Liquefied</b>		<b>Total Apparent</b>
<b>Region/Country</b>	<b>Gasoline</b>	<b>Fuel</b>	<b>Kerosene</b>	<b>Fuel Oil</b>	<b>Fuel Oil</b>	<b>Petroleum Gases</b>	<b>Other</b>	<b>Consumption</b>
Bermuda	0.61	0.37	0.38	2.06	0.36	0.38	0.09	4.25
Canada	702.23	114.40	7.93	529.75	182.18	364.75	400.51	2,301.75
Greenland	0.35	0.17	0	3.32	0	0	0.02	3.86
Mexico	622.94	51.88	5.45	329.40	365.46	450.99	169.80	1,995.92
Saint Pierre and Miquelon	0.09	0	0	0.45	0	0	0	0.54
United States	9,105.41	1,629.97	64.32	4,058.26	864.71	2,264.03	2,744.46	20,731.16
<b>North America</b>	<b>10,431.63</b>	<b>1,796.79</b>	<b>78.08</b>	<b>4,923.24</b>	<b>1,412.71</b>	<b>3,080.15</b>	<b>3,314.89</b>	<b>25,037.48</b>
Albania	4.08	1.24	0.15	11.76	1.42	1.47	8.72	28.83
Austria	49.24	12.53	0.10	155.46	20.31	5.61	43.57	286.83
Belgium	44.61	29.86	2.66	251.27	163.29	10.78	102.40	604.87
Bosnia and Herzegovina	7.41	1.50	0	10.50	3.38	0	2.15	24.94
Bulgaria	13.21	3.64	0	35.63	10.49	10.66	30.82	104.45
Croatia	16.85	1.71	0.02	35.22	18.49	2.03	21.18	95.50
Cyprus	6.57	6.44	0.50	13.08	18.56	1.78	7.62	54.54
Czech Republic	48.30	6.93	0.07	74.19	9.78	9.01	57.60	205.88
Denmark	44.68	18.92	0	84.81	18.37	2.38	16.16	185.33
Faroe Islands	0.33	0.04	0	4.06	0	0	0.15	4.58
Finland	43.52	11.50	0	87.89	38.70	10.54	29.43	221.58
Former Czechoslovakia	--	--	--	--	--	--	--	--
Former Serbia and Montenegro	22.65	1.00	0.46	25.68	14.47	5.08	15.74	85.08
Former Yugoslavia	--	--	--	--	--	--	--	--
France	266.13	142.22	2.82	995.07	117.72	112.03	370.60	2,006.60
Germany	578.53	161.73	0.34	1,132.29	181.23	86.76	524.60	2,665.48



**Table 3.5 World Apparent Consumption of Refined Petroleum Products, 2004**  
(Thousand Barrels per Day)

Region/Country	Motor Gasoline	Jet Fuel	Kerosene	Distillate Fuel Oil	Residual Fuel Oil	Liquefied Petroleum Gases	Other	Total Apparent Consumption
Germany, East	--	--	--	--	--	--	--	--
Germany, West	--	--	--	--	--	--	--	--
Gibraltar	0.54	0.09	0	4.10	19.20	0	0.44	24.35
Greece	86.87	25.35	0.33	154.10	103.09	12.81	37.21	419.76
Hungary	33.29	4.56	0	48.93	7.91	10.35	33.18	138.22
Iceland	3.44	2.61	0	9.17	0.81	0.07	2.92	19.00
Ireland	37.57	15.18	18.26	70.49	23.99	4.48	12.10	182.07
Italy	349.40	77.74	1.77	639.20	350.15	110.60	265.00	1,793.87
Luxembourg	12.23	8.91	0.03	39.25	0.07	0.43	0.26	61.18
Macedonia	2.84	0.11	0	6.93	4.39	1.30	4.08	19.65
Malta	1.35	2.12	0.21	3.26	10.50	0.54	0.22	18.21
Montenegro	--	--	--	--	--	--	--	--
Netherlands	95.99	74.63	1.40	186.93	237.19	68.63	283.10	947.87
Norway	37.82	12.64	2.72	84.31	10.13	50.84	21.49	219.95
Poland	95.03	5.93	0.01	183.74	38.78	70.36	65.23	459.08
Portugal	44.49	17.61	0.08	115.84	55.22	29.76	64.91	327.91
Romania	35.45	3.06	0.74	62.51	34.46	12.71	76.17	225.09
Serbia	--	--	--	--	--	--	--	--
Slovakia	14.15	0.58	0.05	20.12	5.31	7.04	27.85	75.10
Slovenia	15.52	0.43	0.02	29.17	1.00	2.63	3.85	52.62
Spain	178.10	104.72	0	672.36	238.30	74.13	305.57	1,573.18
Sweden	94.93	17.68	0.10	104.81	61.62	36.61	43.23	358.99
Switzerland	85.61	25.11	0.09	134.19	3.38	6.84	14.52	269.73
Turkey	55.75	39.01	0.79	217.85	131.33	124.25	92.39	661.37
United Kingdom	449.84	256.12	85.02	526.27	83.78	165.59	216.45	1,783.07
<b>Europe</b>	<b>2,876.33</b>	<b>1,093.43</b>	<b>118.73</b>	<b>6,230.44</b>	<b>2,036.82</b>	<b>1,048.08</b>	<b>2,800.91</b>	<b>16,204.74</b>
Afghanistan	0.84	1.34	0.04	1.69	0	0	0.20	4.12
American Samoa	0.44	0.54	0.08	2.61	0	0.03	0.10	3.81
Australia	335.62	84.74	1.31	257.32	32.39	85.00	89.08	885.45
Bangladesh	6.32	5.09	14.55	37.12	7.83	0.67	13.05	84.64
Bhutan	0.19	0.02	0.27	0.51	0	0.13	0.02	1.14
Brunei	4.68	1.65	0.06	3.51	1.78	0.46	0.81	12.95
Burma	9.18	1.78	0.04	25.38	1.79	0.25	1.87	40.29
Cambodia	0.93	0	0.89	0.86	0.91	0	0	3.59

**Table 3.5 World Apparent Consumption of Refined Petroleum Products, 2004**  
(Thousand Barrels per Day)

Region/Country	Motor	Jet		Distillate	Residual	Liquefied		Total Apparent
	Gasoline	Fuel	Kerosene	Fuel Oil	Fuel Oil	Petroleum Gases	Other	Consumption
China	1,090.93	179.96	49.57	1,975.81	817.42	658.39	1,665.40	6,437.48
Cook Islands	0.07	0.22	0	0.14	0	0	0	0.43
East Timor	NA	NA	NA	NA	NA	NA	NA	NA
Fiji	1.42	0.48	0.32	5.30	0.07	0.25	0.76	8.60
French Polynesia	1.07	0.39	0.02	2.59	1.24	0.25	0.11	5.68
Guam	0	4.94	0	2.86	4.33	0	0	12.13
Hawaiian Trade Zone	--	--	--	--	--	--	--	--
Hong Kong	7.88	84.84	0	120.11	79.50	11.09	14.72	318.15
India	192.30	60.91	198.42	838.79	280.97	327.01	531.22	2,429.62
Indonesia	292.60	41.89	203.56	473.95	98.88	37.08	84.60	1,232.57
Japan	1,048.38	222.71	472.60	1,165.93	590.32	575.19	1,219.67	5,294.81
Kiribati	0.05	0.02	0.04	0.08	0	0	0.02	0.22
Korea, North	4.92	0	0.82	5.67	12.31	0.02	0.29	24.02
Korea, South	159.30	84.97	122.32	417.06	438.72	229.08	703.67	2,155.12
Laos	0.56	0.22	0.44	0.53	0.29	0.57	0.29	2.90
Macau	0.83	3.47	0.17	3.96	5.50	0.94	0.16	15.03
Malaysia	160.95	45.85	2.20	184.30	35.51	45.38	33.86	508.04
Maldives	0.35	0.22	0.17	4.14	0	0	0	4.87
Mongolia	6.29	0	0.49	5.26	0.20	0	0.04	12.28
Nauru	0.12	0.15	0	0.08	0.67	0	0	1.02
Nepal	1.24	0.87	6.53	5.05	0.16	2.09	0.22	16.15
New Caledonia	1.35	0.24	0.11	2.06	7.22	0.25	0.14	11.37
New Zealand	56.05	26.11	0.11	50.17	4.75	5.01	12.28	154.49
Niue	0	0	0	0.02	0	0	0	0.02
Pakistan	30.76	20.97	4.27	158.76	83.49	8.53	20.07	326.85
Papua New Guinea	2.07	1.37	0.44	12.49	8.29	0.13	0.22	25.02
Philippines	65.54	20.30	7.96	121.64	74.46	32.11	15.21	337.22
Samoa	0.44	0	0.17	0.45	0	0	0	1.06
Singapore	16.31	62.57	1.25	56.87	455.22	7.94	145.49	745.66
Solomon Islands	0.28	0.04	0.04	0.86	0	0.03	0.04	1.30
Sri Lanka	8.95	6.50	3.87	36.53	14.87	5.22	5.05	80.99
Taiwan	178.28	50.86	1.11	114.34	217.22	61.45	324.77	948.02
Thailand	131.64	64.63	0.40	337.73	117.16	84.18	179.72	915.47
Tonga	0.35	0.02	0.06	0.41	0	0	0	0.84
U.S. Pacific Islands	0.56	0.30	0.04	1.06	0	0	0.04	2.01

**Table 3.5 World Apparent Consumption of Refined Petroleum Products, 2004**  
(Thousand Barrels per Day)

<b>Region/Country</b>	<b>Motor Gasoline</b>	<b>Jet Fuel</b>	<b>Kerosene</b>	<b>Distillate Fuel Oil</b>	<b>Residual Fuel Oil</b>	<b>Liquefied Petroleum Gases</b>	<b>Other</b>	<b>Total Apparent Consumption</b>
Vanuatu	0.14	0	0.02	0.45	0	0	0.02	0.63
Vietnam	60.69	9.23	7.60	111.64	38.58	9.32	1.32	238.37
Wake Island	0	7.80	0	0.41	0	0	0.92	9.13
<b>Asia &amp; Oceania</b>	<b>3,880.87</b>	<b>1,098.21</b>	<b>1,102.37</b>	<b>6,546.50</b>	<b>3,432.07</b>	<b>2,188.08</b>	<b>5,065.44</b>	<b>23,313.54</b>
<b>World Total</b>	<b>20,865.96</b>	<b>4,813.73</b>	<b>1,632.47</b>	<b>22,517.93</b>	<b>10,080.34</b>	<b>8,028.48</b>	<b>14,365.58</b>	<b>82,304.51</b>



## Methodology

[OPIS Wholesale Rack Pricing](#)

[OPIS Retail Gasoline Pricing](#)

[OPIS Retail Diesel Pricing](#)

[OPIS Crude Pricing](#)

[OPIS Feedstocks Pricing](#)

[OPIS NGL Spot Pricing](#)

[OPIS Spot Replacement Index \(SRI\) Pricing](#)

[Oil Spill Tax](#)

[OPIS Refined Spot Markets](#)

[U.S. Gulf Coast](#)

[U.S. Atlantic Coast](#)

[U.S. Midwest](#)

[U.S. West Coast](#)

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### Overview

For almost three decades, OPIS has been a news and pricing leader in the downstream refined products marketplace. We have served customers throughout the many industry segments - traders, suppliers, commercial end-users, wholesalers and retailers - with up-to-the minute, award-winning news, analysis and pricing that appears in our many published reports and on-line services.

In that time, OPIS has become the only provider of U.S. spot, rack and retail prices - giving us a complete picture of the marketplace that is rivaled by no other petroleum information supplier.

OPIS editors collectively have more than 175 years experience covering petroleum markets. Our editors know that our numbers are commonly referenced by the industry, but we remain at arms' length. OPIS does not invest in oil companies, speculate on oil prices or accept special favors.

This document explains our methodology for price collection at all levels and the steps we take to ensure data integrity and accuracy.

### Anti-Trust Policy

For almost 30 years clients have trusted OPIS to adhere to strict anti-trust guidelines in collecting and distributing sensitive oil pricing data. With oil prices under increasing scrutiny, OPIS recognizes that suppliers cannot afford even the slightest perception of price sharing or price signaling. That's why OPIS does not provide price notification and messaging services for suppliers and embargoes release of all rack pricing data until after the changes become effective to customers.

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### OPIS Wholesale Rack Pricing

#### Price Discovery

Every day, including Saturdays, OPIS updates its wholesale terminal prices from hundreds of sources. Some suppliers confirm prices directly using the same pricing messages their customers receive. For many other suppliers, prices are collected from their customers who OPIS deems are reliable sources.

#### Data Integrity

Verification of prices is done using documents provided by either the supplier or customers. Multiple sources are required for prices received via customer channels. In order for a supplier's price to be added to OPIS rack coverage, their price and the consistent supply of barrels at that location must be verified with multiple customers. It must also be a wholesale terminal rack price and not a commercial or consumer end-user price; this avoids mixing classes of trade and misrepresenting true wholesale postings and averages.

OPIS uses several levels of automation to make sure prices that have not changed at usual intervals are fresh. If a price has not changed in 48 hours, it is electronically flagged and a pricing specialist is alerted so as to track down whether the number still represents an active and meaningful listing. OPIS specialists pinpoint

prices that are outside specified reasonable parameters to avoid displaying inactive prices where product may not be available or where special circumstances may dictate that the number is not representative of where most wholesale commerce is taking place. Products tagged as "out-of-product" will not be part of the OPIS lows, highs or averages.

### **Time Stamp** (all times are EST)

- 9:00 a.m. - OPIS wholesale terminal prices for gasoline, distillate, and other products are updated and ready for release.
- 10:00 a.m. - OPIS contract summary data used for benchmarking is available. This file is delayed to allow time for further verification to ensure the integrity and accuracy of all the prices before the information is calculated. The contract data includes the Contract Average which is a gross price that OPIS has had since 1995. As of April 1, 2004, we added a Contract Low and Contract High as well as Contract Net Average, Contract Net Low and Contract Net High pricing. Branded and Unbranded numbers are also available as Contract prices. The contract data is frozen for 24 hours to allow customers to reconcile exchanges, sales or other benchmark deals. The contract summary data is also archived. The reason OPIS created the Contract summary data is because OPIS updates price moves throughout the day and publishes them on demand for clients.
- 6:00 p.m. - OPIS archives the closing rack price database for that business day. The current day's history is available the next business day. The OPIS rack history database is the largest of its kind and dates back to December 15, 1980.

### **Rack Formats**

OPIS Standard Display -- Dates back to 1980 and generally includes one price per supplier for an individual city. OPIS Standard Display selects only one terminal location per supplier based on the location where product is priced the most competitively and where the majority of customers in a particular city lift barrels. This allows the OPIS contract summary data, especially the contract average, which is widely used as a benchmark, to have a consistent methodology and avoid being manipulated by a supplier in a given city. OPIS verifies this data each day to ensure consistency and accuracy in calculating contract averages for benchmark purposes.

OPIS Terminal Display -- Dates back to 1996 when OPIS purchased Computer Petroleum Corporation (CPC). This format includes multiple-supplier listings for individual cities, even if a supplier consistently posts the same price at multiple terminals in a given metropolitan area. OPIS Terminal Display includes all terminal locations for any rack city to provide full supplier coverage.

### **Rack Pricing History**

In addition to providing daily, up-to-the-minute wholesale rack prices, OPIS maintains the largest and most extensive wholesale terminal price historical database of any company in the world. OPIS' historical rack prices date back to 1981, when oil prices were decontrolled. Prices are available on a daily, weekly or monthly basis by market, by company, and by product.

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## **OPIS Retail Gasoline Pricing**

### **Price Discovery**

Every day OPIS captures station-specific retail gasoline and diesel prices for up to 120,000 service stations throughout the United States. Through exclusive relationships with credit card companies, direct feeds and other survey methods, OPIS is able to provide the most comprehensive and accurate pump prices in the industry.

The OPIS retail data is relied on by some of the top companies in the country to provide consumers with the most accurate and timely information available including AAA, Microsoft, Mapquest, America Online, Garmin, Verizon, Sprint and many more.

### **Data Integrity**

To ensure accuracy of the retail prices, OPIS scrubs the data through a number of computer programs to

make sure the prices are current and are for pump gasoline purchases only - not for in-store purchases that may include non-gasoline products.

OPIS gets prices for most major retailers regardless of whether the station is company operated, jobber owned or dealer operated. Included in the feed are many of the more aggressive c-stores such as WAWA, QuikTrip, Maverik and Sheetz and most of the discount chains and supermarkets such as Wal-Mart, HEB and Kroger.

OPIS has daily, weekly and monthly standard reports as well as customized reports which allow the user to slice and dice the data to get the view of the market they need to make smart decisions. In addition, OPIS has retail history going back as far as 1996 at the station level and can quickly roll the data up to nearly any geographic criteria you desire.

### **Time Stamp**

OPIS is able to capture prices in near real-time - as soon as the swipe happens - at more than 25,000 locations. OPIS is currently working with the major networks in order to bring you more and more prices as they change and expects a major percentage of the 120,000 stations to be available in real-time by the end of this year.

The stations which currently don't have the ability to be captured in real-time are updated via a batch file each morning and each price has the actual transaction date of the purchase. The daily feed through the batch process has transactions that are from 1-5 days old with the majority of prices being no older than 3 days.

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## **OPIS Retail Diesel Pricing**

### **Price Discovery**

OPIS surveys the current retail prices of No. 2 low sulfur and Ultra Low Sulfur diesel fuel from more than 8,000 active truckstops and travel plazas in the U.S. and Canada. Retail prices are gathered by major fuel card companies including Comdata and EFS as well as through direct feeds from major truckstop chains.

OPIS reports wholesale fuel prices by products as defined by EPA standards more so than by any type of product use. For example, the EPA defines low-sulfur fuels as having a sulfur content of less than 500ppm and Ultra Low Sulfur diesel as less than 15 ppm.

### **Data Integrity**

OPIS marries this retail price data with current rack and tax rate information to calculate the estimated laid-in costs and profit margins of fuel at each of the fueling sites included in the OPIS survey. The OPIS estimated cost figures are recognized as the industry standard for benchmarking "Cost Plus" fuel purchases by large trucking fleets.

Cost Plus is a method of purchasing fuel at the retail level where the fleet (buyer) and truckstop (seller) agree to a fixed margin above the cost of the fuel to the truckstop. This fixed margin protects both the fleet and the truckstop by ensuring the cost of fuel to the fleet and the profit to the truckstop is tied to a legitimate market index.

The following is a list of the diesel fuel products OPIS tracks and some typical uses for those products.

### **No. 2 Ultra Low-Sulfur**

No. 2 Ultra Low Sulfur has a sulfur content of less than 15 ppm and must be used to supply at least 80% of the nations on road diesel fuel sold at the retail level as of October 15, 2006. In addition to clear No. 2 low sulfur, OPIS also provides pricing for Red Dye, Premium, Low Emissions and Winter grades of Ultra low-sulfur diesel fuels. All of the OPIS Ultra Low-Sulfur diesel products are understood to include lubricity.

### **No. 2 Low-Sulfur**

Clear low-sulfur (LS No.2) diesel has a sulfur content up to 500 ppm and can be used for up to 20% of the nations on road diesel fuel sold at the retail level. In addition to clear No. 2 low sulfur, OPIS also provides pricing for Red Dye, Premium, Winter, Low Emissions Diesel and Lubricity grades of low-sulfur diesel fuels.

### **No. 2 High-Sulfur**

Clear high-sulfur No.2 diesel is used as an off-road fuel for equipment such as farm machinery or as home

heating oil.

### **No. 1 Low-Sulfur**

Clear low-sulfur fuel is commonly used for "blending" on-road fuels. Diesel is blended during winter months to create a diesel fuel that will not solidify or gel in colder temperatures.

### **No. 1 High-Sulfur**

Clear high sulfur is used for various off road agricultural and industrial purposes. Crop drying ovens is one example.

### **Kerosene**

Kerosene has a lower freeze point, lower flash point and lower pour point.

### **Red-dye**

Diesel fuel is dyed red to denote it is being used for tax-exempt purposes. Entities that are tax-exempt (school boards, etc.) use red-dyed fuel because it is tax exempt. There is no difference in red-dyed product specifications. Red-dyed prices typically are 0.25 to 0.35cts higher than clear prices to recoup the charge for the dye and dying process.

### **Premium Diesel**

The higher cetane rating is what makes a regular diesel a premium diesel, along with some type of detergent package that serves to clean the engine as the fuel is burned. Cetane is to diesel what octane is to gasoline. Premium diesel typically has a minimum 45 cetane rating, whereas regular diesel is closer to a 38 to 40 cetane.

### **Winter Diesel**

During the winter months, on road diesel fuels may be blended with other diesel fuels or chemical additives to produce a Winter diesel that will not begin to solidify or gel due to cold temperatures. OPIS also provides pricing for Red Dye, Premium, and Lubricity grades of Winter diesel fuels.

### **Lubricity**

Several states have mandated the use of a lubricity additive in several on road Low Sulfur diesel fuels. OPIS provides separate pricing displays for Low Sulfur and Low Sulfur with lubricity products. Diesel postings which may include lubricity are Low Sulfur, Red Dye, Winter and Premium diesel products. Since all Ultra Low Sulfur products must have a lubricity component, it is not necessary to maintain a separate lubricity product grouping within Ultra Low Sulfur products.

### **CARB Diesel**

As of June 1, 2006, all diesel fuel sold for vehicular use in California must meet a 15 ppm maximum sulfur limit (Ultra Low), in addition to meeting all of the current low aromatics CARB diesel specifications. The definition of "vehicular use" in California includes on-highway vehicles and non-road vehicles such as agriculture and construction equipment.

### **Low Emissions Diesel**

Beginning in October 2005, 110 counties East/Central Texas required the use of Low Emissions Diesel or LED in both on-road vehicles and in non-road agricultural and construction equipment. LED diesel must contain less than 10 percent by volume of aromatic hydrocarbons and must have a cetane number of 48 or greater.

### **Time Stamp**

7:30 a.m. - Retail Diesel Price files available

10:00 a.m. - Cost Plus Prices are available.

The Retail Diesel prices and the OPIS Gross Contract Average are used to create these numbers.

The data is delivered Monday through Friday by email, the Internet, FTP and many third-party vendors.

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## **OPIS Crude Pricing**

### **Price Discovery**

OPIS collects posted prices for over 500 fields every Monday through Friday. These postings are gathered from 30 different companies in the U.S. and Canada. Every month, more than 50 refiners and exploration companies use our reports to benchmark their crude transactions.

### **Data Integrity**

Data accuracy is verified each day by hand as well as by a system of programs that audit the data for abnormalities. Every month OPIS compares each individual field against summary documents provided by the posting companies to provide the most accurate service available.

### **Time Stamp**

OPIS offers either an evening update for the most current information available, or a more comprehensive, morning update.

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## **OPIS Spot Replacement Index (SRI) Pricing**

The starting point for the OPIS "SRI" is the average of the prior-day's closing spot range in each of the seven U.S. spot markets. Each day OPIS' 14 editors survey traders and brokers and publish a FULL DAY range that represents their assessment of the value of spot transactions for gasoline and diesel fuel that day. OPIS has mapped 214 rack markets back to their spot delivery points. From the OPIS Full Day Average Spot Price, OPIS then adds the existing pipeline tariffs based on the distance that product flows in the line from the spot entry point to the rack terminal location. It then adds in line loss due to evaporation in the line, terminaling and storage (transfer) fees if product moves from line to line, an estimated fee for proprietary additives, a cost of money factor, pipeline security charge and trucking fees for applicable markets where product is shipped using vehicles. For distillates, OPIS approximates the cost of various additives (lubricity, red dye, etc.) Today's SRI shows yesterday's closing spot price delivered into a specific market.

Each rack that contains an SRI number displays the spot market to which the rack location is mapped.

OPIS developed this methodology after more than a year of discussion with major oil suppliers, marketers and reseller.

For more information on OPIS SRI [click here](#).

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## **OPIS Refined Spot Markets**

[U.S. Gulf Coast](#)

[U.S. Atlantic Coast](#)

[U.S. Midwest](#)

[U.S. West Coast](#)

Millions of gallons of gasoline, diesel fuel, heating oil, jet fuel, ethanol and other oil products are bought and sold each day in cash bulk markets. Commonly known in the trade as "spot" market prices, these transactions typically occur at the leading oil refining, barge and pipeline centers in the U.S. These include the U.S. Gulf Coast, Atlantic Coast, Chicago, Group 3, Los Angeles, San Francisco Bay and Pacific Northwest. ([View a complete at-a-glance listing of products and locations](#))

### **Price Discovery**



OPIS editors sample a broad cross-section of refiners, traders, marketers, brokers and end users daily in the spot markets to determine what cash transactions are being conducted

We track spot markets on a full-day basis, from 9 a.m. to 5 p.m. Eastern Time East of the Rockies and 9:00 a.m. to 5:15 p.m. on the West Coast (6:00 a.m. to 2:15 p.m. Pacific Standard Time). Deals that are received outside typical trading hours are reviewed and evaluated for consideration in our full-day ranges, depending on market circumstances and liquidity. OPIS reserves the right to not accept deals as part of the final day's product ranges if that information is sent to/received by OPIS after 5 p.m. Eastern Time for East of the Rockies and 5:15 p.m. for the West Coast (2:15 p.m. Pacific Standard Time).

Editors confirm and record deals done for gasoline and distillate products that meet minimum pipeline/barge volumes specific to each geographic market. As the majority of the market is done on an EFP basis, we follow deals as basis discounts or premiums to the New York Mercantile Exchange. We consider fixed-price deals only if they fall within the full-day differential range based off the NYMEX at settlement, or to assess cash-for-cash "regrade" transactions.

OPIS daily spot market assessments include information obtained from "back office deal logs" sent to us as part of our daily market price discovery. Generally these documented deals come to us just after the market closes. The information highlights actual transactions during the day, including price, volume, product, timing and counter party. OPIS has signed confidentiality agreements with some providers not to make this information public, except to use the transactions in our daily range of prices and weighted averages providing it meets our volume and timing criteria. OPIS editors compare the end-of-the-day deal logs with our confirmed deals through the day to insure we do not duplicate information.

OPIS editors reserve the right to exclude a number from our ranges that is seen as not indicative of the market as a whole.

Editors respect the wishes of sources to remain anonymous in their activities in the market, and any information we receive regarding parties in deals is kept confidential.

Editors talk to a broad cross-section of participants and take an "arm's length" approach to covering the market. We recognize that ascertaining a spot product range can be subjective, and that there may be parties that dispute our judgments. However, ranges are only changed in the case of clerical errors such as typos or transposition mistakes.

### **Full-Day Ranges**

OPIS issues East of the Rockies and West Coast full-day refined product spot reports at approximately 5:30 p.m. Eastern Time, with a final deadline of 6 p.m. Eastern Time.

Ranges in these reports apply the highest and lowest done deal differentials versus the NYMEX at settlement, resulting in an absolute full-day trading range in cents per gallon.

The East of the Rockies report takes the settlement plus or minus the differential and rounds up or down in 0.05ct (hundredths of a cent) increments. Example: a price ending in a 3 or higher gets rounded to a 5; a price ending in 2 or lower gets rounded to a 0; a wet price of 205.33cts/gal would be rounded to 205.35cts/gal.

The West Coast report rounds up or down by 0.25cts increments. Example: a wet price of 205.13cts/gal would be rounded to 205.25cts/gal.

OPIS breaks out a "last" level in addition to its low-to-high range, as a way to give the market a last-seen reference point for the next day's session.

In the case of confirmed trading followed by a shift in the market without a done deal, editors will consider the last deal recorded and weigh it in light of subsequent buyer and seller "talk" to assess a full-day range and assign a last value.

In the total absence of confirmed deals, we will use the input of the trading community to help us assess a viable "get-done" range and last value, and also consider the relationship the illiquid product may have with more actively-traded grades.

Assessing markets requires judgment on the part of our editors, but those calls will be made by experienced reporters and viewed in the context of that day's market.

OPIS ranges track a prompt market East of the Rockies, based on pipeline schedules and trading practices specific to each region. OPIS concurrently rolls all specialty gasoline grades that trade as "regrades" to basis products such as conventional unleaded regular, so that timing references are consistent. In addition, OPIS tracks a forward-range based on "any-month timing" for barrels that can be lifted in the same calendar or forward calendar month beyond the prompt cycle.

West Coast reports also track prompt ranges, which are trades that reflect "any month/buyers option" transactions. "Buyers option" gives the buyer the choice of taking delivery in any of the four cycles throughout

the month. In Los Angeles, OPIS identifies the prompt Kinder Morgan cycle for timing clarity but ranges are buyer option/any month lifting.

### Weighted Averages

In response to subscriber requests, OPIS rolled out a weighted average in its full-day reports for selected products. This is an arithmetic mean based on confirmed deals, taking into account repeated differentials and volume of trades.

As of December 2006, OPIS showed weighted averages for prompt Gulf Coast conventional unleaded gasoline, including the 7.8 lbs. RVP supplemental grade when seasonal. We also showed a weighted average for prompt low-sulfur diesel, ultra-low-sulfur diesel and jet fuel in the Gulf Coast.

In the Los Angeles spot market, OPIS showed a weighted average for LAX jet fuel.

### Example of a Weighted Average:

NYMEX close for reference product RB (RBOB) is 225.00cts/gal.

Done deals for Gulf Coast Unleaded Regular (9.0 lbs. RVP M2)

-3.50 at 25,000 bbl  
 -3.50 at 25,000 bbl  
 -3.25 at 25,000 bbl  
 -2.75 at 25,000 bbl  
 -2.50 at 25,000 bbl  
 -2.25 at 50,000 bbl  
 -1.75 at 25,000 bbl  
 -1.50 at 50,000 bbl  
 -1.25 at 25,000 bbl  
 -1.25 at 25,000 bbl  
 -1.00 at 25,000 bbl  
 -1.00 at 25,000 bbl  
 -1.00 at 25,000 bbl  
 -1.00 at 25,000 bbl

Under this scenario, OPIS' closing range at the end of the day would be 221.50 – 224.00cts/gal – the midpoint for the day would be 222.75cts/gal.

On this day, the weighted average would be 223.05cts/gal, which is calculated by giving added weight to the larger volume deals: 2x to the -2.25cts/gal and the -1.5cts/gal deals, and by factoring in the number of actual deals into the average. EXAMPLE: the -1ct/gal deal gets entered in four times.

NOTE: for the weighted average, the Gulf Coast minimum deal is 25,000 bbl – those deals are counted once. 50,000 bbl deals are counted twice, and anything between 25,000 and 50,000, or in excess of 50,000 would be calculated at an appropriate percentage of a single piece.

### Midday Ranges

OPIS also issues a Midday Spot Market Report for East of the Rockies markets that is an indication of the morning's trade based on a NYMEX "freeze" at approximately 11:45 a.m. Eastern Time.

Midday market direction for implied cash prices is important for OPIS customers using this information to make rack pricing decisions. That range is simply an estimate of where the market has been trading or talked in the morning session and is published solely to provide a gauge of where implied absolute prices would be if a snapshot was taken at midday. Due to the incredible volatility in the futures and physical markets, alike, the midday indications may or may not be included in the end-of-day, full-day assessments.

### OPIS Spot Ticker

The OPIS Spot Ticker is your full-day interactive window into what U.S. spot prices are doing. OPIS editors throughout the day update the OPIS Spot Ticker with done deals and buy-sell levels tracked in the market. The ticker is an interactive tool in a desktop Windows environment that offers real-time updates of OPIS spot prices and cash market trading differentials in major regions, along with news and events affecting prices.

Differentials are applied to the NYMEX, as it ticks, as an indicator of where the prompt market is valued. Though our full-day trading differentials are applied to the settled NYMEX, the ticker provides a market view into the numbers we are tracking as the futures market moves.

Deals we confirm are posted throughout the day in a deal log on the ticker to give the market predictability as to where editors will call the full-day differential ranges and weighted averages.

OPIS editors discover deals throughout the day, but some may not be reported to us right after they are done. We make every attempt to list deals in the deal log as soon as we discover and confirm them. In an effort to meet our deadlines, some late-received deals may be applied to our ranges and weighted averages once they are confirmed but may not be logged into the deal log.

The OPIS Spot Ticker also offers customers overnight implied spot price discovery by linking final-day cash basis trading differentials to the Globex overnight NYMEX ticks. These implied numbers are for directional purposes only to give subscribers an idea of what direction prices are moving after hours. They are not included as a part of any OPIS daily spot range of prices.

### **Time Stamp (all times are EST)**

9:00 a.m. - Morning market preview

1:00 p.m. - Midday Spot report for New York Harbor Barge,  
Gulf Coast Pipeline, Group 3 and Chicago markets

1:30 p.m. - West Coast Spot market preview

6:00 p.m. - West Coast report for Los Angeles, San Francisco  
and the Pacific Northwest

6:00 p.m. - Full-Day Spot report for New York Harbor Barge, New York  
Harbor Cargo, Boston Harbor Cargo, Buckeye Pipeline,  
Laurel Pipeline, Gulf Coast Pipeline, Gulf Coast Waterborne,  
Group 3 and Chicago markets

6:00 p.m. - OPIS Jet Fuel Report

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## **U.S. Gulf Coast Price Discovery**

Editors confirm and record deals done for Gulf Coast gasoline and distillate products with a minimum pipeline size of 25,000 bbl and minimum waterborne size of 50,000 bbl.

OPIS tracks a prompt market for southern grade products moving on the Colonial Pipeline, origin Pasadena, Texas, and waterborne FOB Gulf Coast. Colonial Pipeline Texas Origin exclusive trades are discarded from our full-day ranges.

Pipeline shipments are scheduled according to cycles. Colonial Pipeline dictates those schedules, and hence, is ultimately the decision maker as to when cycles pump throughout the year. There are 72 cycles each year, lasting approximately five days. Colonial determines the duration of each cycle, which may be shortened, extended or eliminated. Schedules cannot be announced in advance by OPIS because the pipeline updates its calendar throughout the year.

Prompt waterborne assessments run at comparable timing with prompt pipeline ranges.

Cycles differ among different products at any given time. For example, Colonial unleaded regular may be on different cycle timing than Colonial diesel.

In addition to the prompt cycle, OPIS tracks a forward range based on "any-month timing" for barrels that can be lifted in the same calendar or forward calendar month beyond the prompt cycle. It should be recognized that forward numbers often do not have the same detail of discovery and liquidity as prompt cycles.

OPIS concurrently rolls all specialty grades that typically trade as "regrades" to basis products like conventional unleaded regular, so that timing references are consistent.

### **Specifications**

OPIS tracks Colonial Pipeline specifications for products in the Gulf Coast. Details can be found at [www.colpipe.com](http://www.colpipe.com).

#### Pipeline Gasoline

-Conventional unleaded: 87, 89 and 93 octane;

- RBOB: 83.7 and 91.4 octane, pre-blend;
- Low-sulfur (30 ppm max sulfur) "Atlanta grade" unleaded: 87, 89 and 93 octane;
- Reformulated unleaded: 87, 89, 93 octane. *RFG blended with ethanol is not a fungible spot product. Each day OPIS creates an "implied" value for this product by taking 90% of the unleaded gasoline price and 10% of the price of spot ethanol.*

\*\*All gasoline grades follow seasonal environmental requirements for RVP.

During the summer months, OPIS shows the 7.8 lbs. RVP supplemental conventional unleaded alongside the 9.0 lbs. RVP seasonal spec. Winter RVP is 13.5 lbs.

#### Pipeline Distillates

- High-sulfur No. 2 oil: 2,000 ppm sulfur maximum;
- Low-sulfur No. 2 oil (On Road): 500 ppm maximum sulfur -- 420 ppm maximum at origin, minimum cetane 40;
- Low-sulfur No. 2 oil (Off Road): 500 ppm maximum sulfur -- 420 ppm maximum at origin, minimum cetane 40;
- Ultra-low-sulfur diesel: 15 ppm maximum sulfur -- 8 ppm sulfur maximum at origin; minimum cetane 40;
- Jet fuel: 3,000 ppm sulfur maximum;
- Jet kerosene: 400 ppm maximum sulfur.

#### Waterborne Gasoline

- Conventional unleaded: 87, 89 and 93 octane.

\*As with pipeline specs, all gasoline grades follow seasonal environmental requirements. During the summer months, OPIS shows the 7.8 lbs. RVP supplemental conventional unleaded alongside the 9.0 lbs. RVP seasonal spec.

#### Waterborne Distillates

- High-sulfur No. 2 oil;
- Low-sulfur No. 2 oil (On-road);
- Low-sulfur No. 2 oil (Off-road);
- Jet fuel;
- Kerosene.

#### Blendstocks

- MTBE: Purity 95% minimum, methanol 0.5 Wt% maximum, water 1,500 ppm maximum. Barge quantity.
- Alkylate: 92 minimum octane, 5.5psi RVP maximum, 15 ppm sulfur maximum; 300 ppm MTBE maximum. Barge quantity.
- Ethanol: Denatured fuel-grade ethanol FOB Houston, typically up to barge volume, 10,000 bbl. Prompt assessments are 3-15 days out.
- Biodiesel: Soy methyl ester (SME) B100, not including any tax credits for blending, FOB Houston rail volumes, typically at least 29,000 gal and 3 to 15 days from published date. Truck and in-tank sales will also be considered and factored for assessment purposes.

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## **U.S. Atlantic Coast Price Discovery**

Editors confirm and record deals for gasoline and distillate fuels delivering via New York Harbor and Boston Harbor waterborne cargos, New York Harbor barges, the Buckeye pipeline and the Laurel pipeline. Minimum volume requirements are as follows: NYH and Boston standard-size cargos reflect volumes of 225,000 barrels, plus or minus 10% at the seller's option; 10,000 bbl for NYH barges and Buckeye pipeline; and 8,000 bbl for Laurel pipeline.

### **New York Harbor**

Ranges reflect cargo- and barge-quantity deals and are supplemented by Colonial Pipeline deals on an FOB basis. While prompt timing for the New York Harbor barge market is generally regarded as barrels loading

within the next 72 hours, OPIS will consider barrels delivering within the next 5 days, when liquidity is thin.

The forward range is based on "any-month timing" for barrels that can be lifted in the same calendar or forward calendar month beyond prompt timing.

Cargos in the New York Harbor typically trade as the "front half" or the "back half" of the month, which are later narrowed down to a 5-day delivery period. OPIS will accept barrels delivering in the "front half" of the month for inclusion in the prompt index, and barrels delivering in the "back half" of the month for inclusion in the forward index.

## Specifications

### Gasoline

-83.7 octane RBOB (reformulated blendstock for oxygenate blending):

conforms to Colonial pipeline RBOB;

-91.3 octane PBOB (premium RBOB): conforms to Colonial PBOB;

-87 octane conventional: conforms to Colonial conventional regular;

-89 octane conventional: conforms to Colonial conventional mid-grade;

-93 octane premium conventional: conforms to Colonial conventional premium.

\*All gasoline grades follow seasonal environmental requirements, with RVP from 9.0 lbs. to 15.0 lbs.

\*\*NY Harbor barge ranges include reformulated unleaded: 87, 89, 93 octane. *RFG blended with ethanol is not a fungible spot product. Each day OPIS creates an "implied" value for this product by taking 90% of the unleaded gasoline price and 10% of the price of spot ethanol.*

### Distillates

-High-sulfur No. 2 oil: conforms to Nymex heating oil contract specifications;

-Low-sulfur No. 2 oil (on-road): conforms to Colonial Pipeline specs;

-Low-sulfur No. 2 oil (off-road): conforms to Colonial specs;

-Ultra-low sulfur No. 2 oil: conforms to Colonial specs;

-Jet Fuel: conforms to Colonial specs;

-Jet kerosene: conforms to Colonial specs;

-Ultra-low sulfur kerosene.

### Blendstocks

-Ethanol: Denatured fuel-grade ethanol FOB New York Harbor, typically up to barge volume, 25,000 bbl. Prompt assessments are 3-15 days out.

## Buckeye Pipeline

Ranges reflect barrels delivered FOB New York Harbor, loading into the Buckeye pipeline at Linden, New Jersey for destinations in New York or Pennsylvania. Prompt timing is generally regarded as barrels delivering within the next 72 hours, but OPIS will consider barrels delivering up to 5 days out for inclusion in its prompt index when market conditions are thin. Shipments are based on 24 cycles of 15 days each throughout the calendar year. Gasoline and distillates ship on alternating 7- and 8-day periods within each cycle.

## Specifications (All conform to Colonial Pipeline Specs)

### Gasoline

-83.7 octane RBOB;

-91.3 octane PBOB;

-87 octane conventional;

-89 octane conventional;

-93 octane premium conventional.

\*All gasoline grades follow seasonal environmental requirements.

### Distillates

-High-sulfur No. 2 oil;

-Ultra-low sulfur No. 2 oil;

-Jet Fuel;

-Jet Kerosene.

**Laurel Pipeline**

Ranges reflect barrels delivering FOB Philadelphia. Prompt timing is generally regarded as barrels delivering within the next 72 hours, but OPIS will consider barrels delivering up to 5 days out for inclusion in the prompt index, when market conditions are thin. Shipments are based on 24 cycles of 15 days each throughout the calendar year.

**Specifications** (All conform to Colonial Pipeline Specs)Gasoline

- 87 octane conventional;
- 89 octane conventional;
- 93 octane premium conventional;
- \*Gasoline grades follow seasonal environmental requirements.

Distillates

- High-sulfur No. 2 oil;
- Ultra-low sulfur No. 2 oil;
- Jet Fuel;
- Jet Kerosene.

**Boston Harbor**

Ranges reflect cargos delivering into the Boston Harbor, via the Chelsea Creek. Vessels entering the creek must be no greater than 660'-6" in length, no greater than 90'-6" in beam and no deeper than 36' in draft.

Cargos in the Boston Harbor typically trade as the "front half" or the "back half" of the month, which are later narrowed down to a 5-day delivery period.

**Specifications** (All conform to Colonial Pipeline Specs)Gasoline

- 83.7 octane RBOB;
- 91.3 octane PBOB.

Distillates

- High-sulfur No. 2 oil;
- Low-sulfur No. 2 oil (on-road);
- Low-sulfur No. 2 oil (off-road);
- Ultra-low sulfur No. 2 oil;
- Jet kerosene;
- Ultra-low sulfur kerosene.

**Residual Fuel**

Listings represent cargo transactions for delivery in the East Coast region, centered around the N.Y. Harbor. Sulfur maximums of 0.3% HP, 1.0% and 3% and higher are covered. HP, or High Pour, indicates material with over 65 degrees F. maximum.

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**U.S. Midwest  
Price Discovery**

Editors confirm and record deals done for gasoline and distillate products with a minimum size of 5,000 bbl in the Group 3 market and 10,000 bbl in Chicago.

OPIS tracks the Group 3 market following deals for prompt delivery, typically same-day, on the Magellan Pipeline. In addition, OPIS tracks a forward range based on "any-month timing" for barrels that can be lifted in the same calendar or forward calendar month beyond prompt timing, typically the last five days of a month.

OPIS tracks the Chicago market following generic pipeline deals, due to the fact that several lines feed this region. There are three monthly cycles that are dictated by the trading practices of cash market players.

In cases where it is close to the end of the month trading timing, OPIS reserves the right to roll coverage forward to the more liquid month. Editors track the prompt cycle as well as "any-month timing" barrels that can be lifted in the same calendar or forward calendar month.

**Group 3**

Ranges represent product FOB Central Oklahoma locations for shipment on the Magellan Pipeline.

**Specifications**

OPIS tracks Magellan specs for:

Gasoline

-Conventional unleaded: 87, 89, and 91 octane;

\*\*All gasoline grades follow seasonal environmental requirements.

Distillates

-Low-sulfur No. 2 oil (On Road): 500 ppm maximum sulfur --

420 ppm maximum at origin, minimum cetane 40;

-Ultra-low-sulfur diesel: 15 ppm maximum sulfur --

8 ppm sulfur maximum at origin; minimum cetane 40;

-Jet fuel;

-Ultra-low-sulfur No. 1 oil (this is a seasonal assessment typically running from

Oct. 15 through April 1, depending on seasonal refinery production changes and spot liquidity).

**Chicago**

Ranges represent FOB Chicago area, reflecting origin pipelines that include the West Shore, Badger and Wolverine lines. Chicago takes product from the Explorer Pipeline, which runs from the Gulf Coast to the Midwest.

**Specifications**

OPIS tracks pipeline quality specs for:

Gasoline

-Conventional unleaded: 87, 89, and 91-93 octane;

-RBOB: 84.6 and 91.4 octane, pre-blend;

\*\*All gasoline grades follow seasonal environmental requirements.

Distillates

-High-sulfur No. 2 oil;

-Low-sulfur No. 2 oil (On Road): 500 ppm maximum sulfur --

420 ppm maximum at origin, minimum cetane 40;

-Low-sulfur No. 2 oil (Off Road): 500 ppm maximum sulfur --

420 ppm maximum at origin, minimum cetane 40;

-Ultra-low-sulfur diesel: 15 ppm maximum sulfur --

8 ppm sulfur maximum at origin; minimum cetane 40;

-Jet fuel: 400 ppm maximum sulfur;

-Ultra-low-sulfur No. 1 oil (this is a seasonal assessment typically running from

Oct. 15 through April 1, depending on seasonal refinery production changes and spot liquidity).

Blendstocks

-Ethanol: Denatured fuel-grade ethanol FOB Kinder Morgan Argo terminal, typically up to barge volume, 10,000 bbl. Prompt assessments are 3-10 days out.

-Biodiesel: Soy methyl ester (SME) B100 in rail volume not including any tax credits for blending, FOB Argo terminal, 3-15 days from the published date.

**U.S. West Coast****Price Discovery**

Editors confirm and record deals done for gasoline and distillate products with a minimum pipeline size of 10,000 bbl in California and 5,000 bbl in the Pacific Northwest. As the majority of the market is done on an EFP basis, we follow deals as basis discounts or premiums to the New York Mercantile Exchange. We consider fixed-price deals only if they fall within the full-day

differential range based off the NYMEX at settlement. Fixed price deals in California spot markets are converted to an EFP when reported and confirmed and then reapplied to the NYMEX settlement price.

OPIS does publish "prompt" ranges, which are trades that reflect "any month / buyers option" transactions. "Buyers option" gives the buyer the choice of taking delivery in any of the four cycles in throughout the month. In Los Angeles, OPIS identifies the prompt Kinder Morgan cycle for timing clarity but ranges are buyer option/any month lifting.

OPIS works with the Kinder Morgan Pipeline to determine the timing of the various cycles throughout the month. Typically, each month has four pumping cycles. However, once a cycle has been frozen by KM, it is termed "inside the freeze" and deals reported inside this freeze are excluded from daily ranges, although they may be noted in the commentary. In cases where it is close to the end of the months trading cycle, OPIS reserves the right to roll coverage forward to the more liquid month.

## U.S. West Coast

For the Los Angeles market, OPIS follows the Kinder Morgan West Line, and in the Bay area the OPIS assessment is for the Kinder Morgan Zero Line. In the Pacific Northwest, prices are FOB Portland - Olympic Pipeline and jet fuel is FOB Seattle barge.

## Specifications

OPIS tracks Kinder Morgan specs for:

### Gasoline

- Conventional unleaded, both regular and premium;
- California Reformulated Blendstock for Oxygenate Blending (CARBOB), both regular and premium;
- Seasonal gasoline blends in Arizona and Las Vegas;

### Distillates

- California Air Resources Board Spec ultra low sulfur diesel (CARB No. 2 oil);
- Ultra Low Sulfur diesel, which does not meet CARB specs;
- Jet fuel.

### Blendstocks

- Ethanol: Denatured fuel-grade ethanol FOB Los Angeles-area and FOB San Francisco Bay-area terminals for railcar shipments, typically more than single 29,000 gallon railcar loads. Prompt assessments are 5-15 days out.

## Frequently Asked Questions Regarding OPIS West Coast Methodology

## OPIS Feedstocks Pricing

**Note:** Because of the often thin nature of feedstocks trading, OPIS ranges for various products may often encompass a relatively wide range of specifications. Our expertise is on the editorial side and we make no claims of any proficiency in the field of petroleum engineering. Editors are instructed to exclude bbls which are deemed "off spec" from particular price ranges, but we are often not privy to a long list of specifications for individual cargo and barge loads.

While every effort is made to include completed transactions within price range assessments, because of illiquidity, the assessments are often entirely subjective and based on a reasonable judgment as to where buyers and sellers would meet on common ground.

What follows is an approximation of "ballpark" specifications for feedstocks covered in daily OPIS Overnight publication.

## Specifications

### Vacuum Gasoil

Price ranges for low sulfur VGO reflect material with a maximum 0.6% sulfur content. Transactions of material of lower sulfur would be included in the price range, with superior qualities



putting such bbls at the high end of an individual trading range.

Other typical specs would be: API Gravity of 22 min/30 max.; 110 degree F. max.; CCR of 0.5% max.; Metals (ppm): Vanadium 1.5 max., Sodium 2.0 max., Iron 2.0 max., Copper 1.0 max, Nickel 1.0 max.; Aniline, 180 F. min.; Flash Point, 150 F. min.; Nitrogen, (wt %), 1,300 max.; Distillation, 425 F. IBP min., 1,100 F. FBP max.

Medium sulfur VGO would typically reflect 0.7-1.4% sulfur max. material; API Gravity, 22 min/30 max.; 110 F. Pour; CCR, 0.5% max. Metals (ppm): Vanadium 1.5% max., Sodium 2.0 max., Iron 2.0 max., Copper 1.0 max, Nickel 1.0 max.; Aniline, 170 F. min.; Flash Point, 150 F. min.; Nitrogen (WT%), 1,500 max.; Distillation, 425 F. IBP min., 1,100 F. FBP max.

High sulfur VGO is typically 1.5% sulfur or higher; API Gravity, 22 min./30 max.; 110 F. max. Pour; CCR, 0.5% max.; Metals (ppm): Vanadium 1.5 max., Sodium 2.0 max., Iron 2.0 max., Copper 1.0 max., Nickel 1.0 max.; Aniline, 170 F. min.; Flash Point, 150 F. Min., Nitrogen (WT%), 1,500 max.; Distillation, 425 F. IBP min., 1,100 F. FBP max.

VGO cargo price assessments reflect minimum 200,000 bbl parcels, delivered ex-duty basis to Gulf Coast ports. VGO barge price assessments represent domestic transactions for barges on a delivered Houston basis. For all VGO, specifications such as aniline number, metals content, nitrogen, etc. are considered only in so far as material that has content outside of the "normal" range will not be included in the price ranges.

### **Naphtha**

Values for domestic naphtha reflect a minimum 40 N+A or similar reformer grade material with typical specifications of 100-110 degrees F. initial point; 360-385 Degrees F. end point, 20 min. color on full range bbls; with typical 150 Degree F. initial point, 360-370 degree end point; typical 40-42 N+A, 20 min. color for heavy bbls.

### **Paraffinic Naphtha**

Assessment is typically reflective of material with the following specifications: 65 minimum paraffin content, 68 API gravity, 500 ppm maximum sulfur, 12.5 maximum RVP, 50 ppm maximum MTBE, 50 ppm maximum lead, 1 ppm maximum H<sub>2</sub>S, and 20 minimum color.

### **Straight Run Residual Fuel**

Prices for Gulf Coast low sulfur straight run residual fuel tend to reflect transactions, delivered into the Gulf Coast inside duty, for Algerian 0.3% material out of Skikda or 0.5% material and similar grades out of NW Europe. Other low sulfur grades may from time to time be included when made available to Gulf Coast buyers.

High sulfur straight run values at the Gulf Coast typically reflect delivered Gulf Coast values for A-960, or E-4 material, but may often include high sulfur straight run from domestic sources and various material from offshore sources such as the Mediterranean.

### **Light Cycle Oil**

OPIS assessments for light cycle oil generally reflect material with 1.2% to 1.8% sulfur. Gravity is generally 14-17 API, and cetane is typically within a range of 20-25. The upper limit for color is 2.5, and the end point is no higher than 690-700 degrees Fahrenheit. Some higher-sulfur grades of LCO command similar prices as 1.2-1.8% sulfur material, and trade of those grades may be reflected in OPIS assessments from time to time. OPIS assessments for low sulfur light cycle oil reflect material with a maximum sulfur content of 0.5%. Other quality specifications affecting the value of a spot LCO volume may be taken into consideration, such as haze, and if some of these specifications are not within the parameters of what most traders consider typical, and if a volume traded at a discount for that reason, OPIS will take this into account when establishing ranges. OPIS LCO assessments reflect the delivered value at various Gulf Coast locations.

### **West Coast Alaskan North Slope (Ans) Vacuum Gasoil**

Price ranges for low-sulfur VGO reflect 0.25-0.3% sulfur material. Other typical specs: API gravity 19-25; CCR 0.5% max; all Metals less than 1 ppm; Sodium less than 2 ppm; Aniline typically 150-175 F.; Nitrogen (WT%) ranges 1,500-2,000 ppm.

High sulfur VGO can range between 0.3-1.5% sulfur material, but most typical sulfur spec would be just in excess of 1%. Other "typical" specs would include: API gravity 19-25; CCR 0.5% max; all Metals less than 1 ppm; Sodium less than 2 ppm; Aniline typically 150-175 F.; Nitrogen (WT%)

less than 3,000 ppm.

Cycle Oil material has a maximum sulfur content of 0.5%, with a typical Viscosity of 2.5-3.5%. Lower viscosity material is generally discounted. Gravity is usually 17-20.

**Time Stamp** (time is EST)

6:30 p.m. - OPIS International Feedstocks Intelligence

## **OPIS NGL Spot Pricing**

### **Price Discovery**

Many of the daily prices we report provide key benchmarks for some of the largest buyers and sellers of NGLs in the world. Large utilities, petrochemical companies, industrial and manufacturing companies, rail companies, fleets, natural gas producers, gas processing companies, refiners, pipeline companies, and state and local governments buy and sell NGLs based on OPIS spot market assessments.

Editors confirm and record deals done for NGLs on a fixed price basis or in a relationship to another product or location or timing (example: E-P mix at a differential to purity ethane, TET propane at a differential to non-TET propane, prompt a penny over any current month). Editors respect the wishes of sources to remain anonymous in their activities in the market and any information we receive regarding parties in deals will be kept confidential.

OPIS tracks any current month, prompt, and out month trading for NGLs. OPIS NGL prices labeled as "any current month" represent transactions for product that buyer and seller agree will be delivered at any time during the current calendar month. OPIS NGL prices labeled as "prompt current month" represent transactions for product that buyer and seller agree will be delivered within the next 48 hours. OPIS NGL prices labeled as "out month" represent transactions for product that buyer and seller agree will be delivered any time in the next calendar month.

### **Data Integrity**

Because of the subjectivity of publishing NGL spot ranges, editors talk to a very broad cross section of participants including domestic and international producers, endusers, refiners, processors, traders, brokers, shippers, wholesalers, and retailers.

Ranges represent where the bulk of product is moving and do not include deals struck under extraordinary circumstances and far outside the range of other deals reported on a given day, or far above or below confirmed seller or buyer levels, or under certain volumes, generally 10,000 bbl at Mont Belvieu and 2,500 bbl in the Midwest markets, though deals done in these volumes are not automatically included by virtue of the volume, and deals done in smaller volumes may at times be included at the discretion of the editor.

Editors have the ability to reflect transactions reached on electronic platforms within published ranges, but posted "bid/asked" numbers or even confirmed deals on such networks are viewed subjectively by OPIS staff. It is up to individual OPIS editors to determine whether prices quoted on electronic platforms fall within the reasonable realm of where business is being done -- OPIS will not include a price within its daily ranges simply because it appeared on an electronic platform.

### **Specifications**

OPIS NGL spot market products offer twice-a-day market assessments - at midday and following the futures' market's close at the end of a business day. In addition to in-depth market analysis that explains what factors are influencing price direction, OPIS provides a range of actual spot prices, reporting a daily market "low", "high", "average" for each of the products in each of these markets: Mont Belvieu, Conway, Bushton, Napoleonville, Geismer/Sorrento, and Hattiesburg. OPIS provides once-weekly assessments in these markets: Sarnia and Edmonton, Canada, and Los Angeles, Bakersfield, and San Francisco, CA.

Accepted industry standards:

- c3 (propane) 90,830 btu/gal, .507 relative density, liquid
- nc4 (normal butane) 102,916 btu/gal, .584 relative density liquid
- ic4 (isobutane) 98,950 btu/gal, .563 relative density liquid
- c5 (natural gasoline) 115,021 btu/gal, .664 relative density liquid

Mixed and field grade products vary depending on market conditions, the gas stream or crude slate from which they are obtained, and no specs are available as these are not deemed fungible and are

tested on a per batch basis.

**Time Stamp** (all times are EST)

10:30 a.m. - Propane Daily

1:30 p.m. - NGL/LP Gas Mid-day market update

6:30 p.m. - NGL/LP Gas Final Report

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# **platts**

## ***Methodology and Specifications Guide***

### ***Asian Naphtha***

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**LATEST UPDATE: JUNE 2004**

## INTRODUCTION

Platts assesses naphtha markets in the Asian and Middle East regions to reflect values prevailing at the close of the market, specifically at 1730 Singapore time.

The numbers reflect spot prices prevailing in the quoted regions and are based primarily on bids-offers and deals done on a fixed price basis.

In the cases where there are no spot transactions done on a fixed prices basis, markets may be assessed relative to other locations.

The following document explains in detail the process used in the main markets.

## JAPAN NAPHTHA ASSESSMENTS

Platts quotes several time cycles for the Japan naphtha assessments. The time cycles are reflective of half monthly cycles.

Platts publishes 3 cycles as follows:

- 1) 30-45 days forward
- 2) 45-60 days forward
- 3) 60-75 days forward

This quotes are rolled over on the 1st and 16th of each month.

For example, on Apr 1, Platts assesses:

- 1) Second half May
- 2) First half June
- 3) Second half June

These quotes would be rolled over on Apr 16.

The quotes will then read as:

- 1) First half June
- 2) Second half June
- 2) First half July

The main quote for Japan (Mean of Platts Japan or MOPJ) reflects the lows and the highs of the second and third published cycles. This maintains a consistency in the rollovers and sets the price as a 45-75 day market.

## ARAB GULF NAPHTHA ASSESSMENTS

The Arab Gulf quotations, because of lack of outright transactions, are assessed as a freight netback. Most of the physical naphtha deals in Asia are done on floating basis.

The Arab Gulf quotations (for both 55,000mt (Naphtha) and 75,000mt (Naphtha LR2), are assessed as freight netbacks from MOPJ.

Platts will use its daily assessments of the freight market (published in the Platts Clean Tankerwire) to determine the netback.

Assessments are issued for clean and dirty tanker markets. In these reports, freights are assessed and fixtures are listed, alongside with comments of the important factors moving the freight markets.

In a typical Arab Gulf calculation the following methodology would apply:

On Apr 15, 2004:

MOPJ Naphtha quote:	\$347.25-349.25
Freight cost (LR1):	\$27.225
Freight cost (LR2):	\$24.503
MOPAG Netback:	\$320.05-322.05
MOPAG (LR2)Net-back:	\$322.75-324.75

For a detailed explanation on freight netback basis points see freight attachment

Please note that the world scale rates used in Platts daily assessments have a one-day lag as they are done out of Platts UK office. The assessments usually emerge very late in the Asian day, and as such, Platts uses the previous day's Worldscales assessments.

The assessments for Singapore naphtha share some of the characteristics of both the AG and Japan assessments. Most of the deals are done on a floating basis although at times there is fixed price talk. Fixed price talk in Singapore is reflected in the "Experimental" spot naphtha assessment.

For purposes of the assessments in the experimental quote, Platts will include fixed price deals, fixed price bids and offers and floating transactions of a minimum of 100,000 barrels loading in one berth. The closing window is 5.30pm Singapore time and all the transactions up to that time will be considered in the assessments.

As such, its Singapore naphtha prices are going to follow prices prevailing in other large consuming markets such as Japan and Korea minus an assessed freight. Its price therefore will have a 'floor' established by those importing centers.

In all these calculations, the gravity of the naphtha is a critical issue as most end users are concerned with the price of their commodities, which are quoted on a weight basis.

Platts has traditionally used a conversion factor in its calculation of 9 barrels per metric tonne. This reflects the stated 0.69 to 0.71 gravity as per our guide for specifications.

In a typical freight derived assessment, the price in the Japan selling market minus the Singapore-Japan freight cost would equal FOB Singapore.

**FOB SINGAPORE NAPHTHA ASSESSMENTS**

The FOB Singapore naphtha assessment is established using a freight netback from CIF Japan. Platts converts the naphtha quoted in Japan in dollars per tonne to dollars per barrel. The conversion is done using a 9 bbl per metric tonne factor. The calculation is as follows:

$$(1ST \text{ Published Cycle minus (Sing-Japan) freight})/9 -0.05)$$

The assessed freight is for a medium range vessel of 30,000 tonnes. Port charges, otherwise imposed in Japan, are deducted in the FOB Singapore naphtha quote and are set at 0.05cts per barrel.

Please also note that the implicit contango or backwardation between the cycles is also taken into account.

Platts FOB Singapore naphtha quotations are for 15-30 days from publication on a rolling basis.

Thus on April 20, Platts would be assessing May 5 through May 20.

In a typical example:

As for Apr 15:  
 Price in Japan: 349.00-349.50 (2nd half May)  
 less freight: 19.118  
 Fob Singapore: 330.13  
 Barrel basis: 36.68  
 less costs: 36.63 or 36.60-36.65

On the day of the rollover of the cycles in Japan, that is, on the 1st and the 16th of the month, the FOB Singapore quotation will absorb the backwardation or contango of the lapsed cycle in Japan for 5 days inclusive of Saturday and Sunday. For example, on April 16, the contango between 2nd half May and 1st half June was around \$0.25/mt and remains constant throughout the 5 days. Platts will factor in this contango on declining scale till April 20th:

Day of month: 1st	2nd	3rd	4th	5th	6th onwards
Day of month: 16th	17th	18th	19th	20th	21st onwards
100%	80%	60%	40%	20%	0

Platts also assesses naphtha in Singapore on a fixed price basis equivalent. These assessments are published in the experimental quote. Platts will include fixed price deals, fixed price bids and offers and floating transactions of a minimum of 100,000 barrels loading in one berth. The closing window is 5.30pm Singapore time and all the transactions up to that time will be considered in the assessments.

**NAPHTHA FREIGHT RATES FOR 2004**

Platts assessments use a freight calculation establishing a freight value from the Arab Gulf to Japan. The freight calculation is set on a Quoin Island basis to Chiba/Yokohama. Platts sets a freight from a typical naphtha loading port in the Middle East to Quoin Island. This calculation is an average of Jubail, Mina Al Ahmadi, Shuaba, Ras tanura, Ruwais, Mina Abdulla. A detailed calculation is provided below:

Please note that Platts uses medium range vessels to establish its Singapore freight netback from Japan. Medium range vessels are typically built with a capacity of 30,000 mt. Platts further adjusts the size downward to 26,250 mt because of the lighter gravity of naphtha. This implies that vessels built to carry 30,000 mt of denser material would normally carry smaller naphtha loads as naphtha is lighter. For the Japan to Arab Gulf netbacks Platts uses two vessels sizes. One assessment is derived using a long range 1 vessel of 55,000 mt. The second assessment uses a LR2 vessel of 75,000 mt. The LR1 vessel size is adjusted to 52,500 mt. The LR2 assessment however has no downward adjustment.

Singapore to Chiba= 6.97

Spot WS X 30 / 26.25 X 6.97 =

Quoin Island to Chiba/Yokohama = 13.26

Jubail/Mina Al Ahmadi to Quoin Island:	1.38 + 0.27=1.65
Shuaiba/Ras Tanura to Quoin Island:	1.48
Ruwais/Mina Abdulla to Quoin Island:	1.63
	4.76 / 3 = 1.59

AG to Chiba = Base rate Quoin Island to Chiba/Yokohama= 13.26  
 plus average of 6 ports to Quoin Island= 1.59  
 Total: 14.85

Spot Worldscale x 55 / 52.50 x 14.85 =

Naphtha LR2 netback:

75,000mt ship spot worldscale x 14.85 =

## Methodology and Specifications Guide

### Petroleum Products & Gas Liquids: US, Caribbean and Latin America

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**LATEST UPDATE: FEBRUARY 2007**

## GENERAL METHODOLOGY

*Platts Americas refined product assessments reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST. Platts only takes into consideration arms-length, transparent and verifiable market activity.*

**Units:** Product prices in the US are reported in US cents per gallon for gasoline, jet fuel and diesel. Residual fuel oils are priced in US dollars per barrel in the US with the exception of the US West Coast pipeline 180 and 380 CST fuel oils, which are assessed in US dollars per metric tonne. Latin products assessments are reported in US dollars per barrel.

**Specifications:** Product specifications for motor fuels vary across the US depending on prevailing regulations and trading practices. The specifications also change due to existing pipeline requirements. Pipelines may typically request the delivery of specifications tighter than those contractually agreed to deliver at the end of the pipeline. Platts grades reflect the quality delivered into the pipeline. The guide will provide a listing of the quotations and the main specifications reflected in the Platts assessments. Gasoline specifications vary widely depending on the time of the year and the location. General gasoline specifications follow:

**Reid vapor pressure (RVP):** RVP can vary from a current low of 7.0 pounds per square inch (summer), to a high of 15.0 psi (winter). Allowable RVP will vary seasonally, depending on the area. Platts makes announcements during the course of the year regarding the specification changes.

**Oxygenated gasoline:** The US Environmental Protection Agency requires oxygenated gasoline during the winter months in carbon monoxide non-attainment areas. The definition of winter months may start as early as October and run through March. In general, the EPA requires the non-attainment areas to use gasoline with a minimum 2.7% oxygen by weight. Both reformulated and conventional grades of gasoline may be oxygenated during the winter months to aid in compliance with carbon monoxide standards as prescribed by the Clean Air Act.

**Conventional Gasoline:** All gasoline not considered RFG is conventional. Under the Clean Air Act provisions, conventional gasoline produced or sold in the US after Jan 1, 1995 must be at least as clean as gasoline produced or sold during the 1990 baseline period, as specified by the Clean Air Act. Benzene content is limited to a maximum of 1.3%.

**Reformulated Blendstock for Oxygenate Blending (RBOB):** RBOB is an unfinished gasoline product that lacks an oxygenate. The oxygenate in question is always ethanol, because ethanol can not be transported in a pipeline. Ethanol is blended into RBOB at the wholesale rack terminal. A California version of RBOB is generally known as CARBOB.

**Regions of coverage:** In the Americas products market, Platts covers the New York cargoes and barges, Boston cargoes, Chicago, Group 3, Buckeye pipeline, gas liquids for Mount Belvieu, Mount Belvieu TET and Conway, Gulf Coast waterborne and pipeline, West Coast pipeline prices for Los Angeles, San Francisco, Seattle, Portland and Phoenix and West Coast waterborne. Platts also covers cargo markets in the Caribbean. A list of sample assessments follows and you can jump to the section that interests you by following the links provided.

**Assessment basis:** Platts has been considering in its gasoline assessment processes in the Americas spot market activity based on NYMEX RBOB gasoline. Spot trading positions and spot deals related to other reference points are considered in the assessment process through normalization to the RBOB calculation basis.

**Trading platforms:** Platts' policy on electronic platforms is that it will treat firm trading positions and deals from Internet platforms as it does any other information from principals or from intermediaries such as voice brokers. Platts cannot make any guarantee in advance about how and whether the information will be incorporated in its final assessment. All trading positions and deals submitted to Platts need to meet general requirements on openness, transparency and repeatability and Platts then makes an assessment based on published assessment parameters, using all the information available. Platts always seeks direct verification from the principals to a bid/offer deal, and will not disintermediate the actual market-maker, whether a deal is done on- or off-line.

## PLATTS POLICY ON UNSCHEDULED NYMEX CLOSURES

Platts established in late 2001, in the wake of the September 11-related closure of the New York Mercantile Exchange, a policy on price assessments should a similar incident occur, or should the NYMEX close as a result of another unplanned event.

All US crude assessments will be produced. Platts believes there will be adequate OTC trade in the Brent/WTI market and the market for grade differentials to produce an accurate assessment. That policy also will apply to Latin American crudes.

Based on past history, Platts does not believe there will be adequate flat price OTC trade in the markets for light ends in the US Gulf Coast, US Atlantic Coast and the US Midcontinent to serve as a substitute for an outright NYMEX settlement. Instead, those markets will be assessed by adjusting the prior day's NYMEX settlement up or down by an amount equivalent to the equalized per gallon price of the \$/bbl movement in the Platts' WTI assessment for Gulf Coast and Midcontinent, and its 15-day Brent assessment for the US Atlantic Coast. New assessments of market differentials will then be applied against those prices to determine the final assessment. West Coast light ends, residual



fuel, bunker fuel, LPG, MTBE and other blendstocks will be produced as normal.

*Platts also reserves the right to suspend assessments should there be a major calamity, such as the events of September 11, 2001.*

## US ATLANTIC COAST

Platts covers markets in New York and Boston for both cargoes and barges, barrels loading into the Buckeye Pipeline at Linden, New Jersey, and barrels loading into the Laurel Pipeline at Boothwyn, Pennsylvania.

**Assessment time:** Platts' assessment for US Atlantic Coast refined product assessments reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST. Platts only takes into consideration arms-length, transparent and verifiable market activity.

**Loading/delivery time:** Cargo assessments are 5-15 days from date of publication. Barge, Buckeye and Laurel Pipeline assessments reflect loading 3-7 days away from date of publication. Although the Buckeye assessment is a pipeline grade, it is scheduled on a basis similar to barges.

Platts US Atlantic Coast Laurel pipeline gasoline spot price assessments reflect market activity 3-7 days from the date of publication or the next prompt cycle that is scheduled as it relates to the conventional premium grade.

**Volume:** Cargo assessments reflect parcels with a minimum of 150,000 bbl up to normal vessel size limitation. Most products parcels delivered into the US markets are carried in medium range vessels, with occasional deliveries using long range vessels. Barge assessments, Buckeye and Laurel deliveries reflect volumes of 10,000 bbl minimum up to 100,000 bbl.

### GASOLINE & DISTILLATES

Platts covers five unleaded octane gasoline grades in the US Atlantic Coast: 87, 89 and 93 Octane. RBOB grade Octanes are UNL 83.7 and PREM 91.3 Octane is defined as RON plus MON divided by two. Platts reflects various RVP grades depending on the time of the year. Platts assessments are for conventional gasoline.

**Regular unleaded:** 87 octane, R+M/2, lead content 0.01 grams per gallon, gravity 62 API. Sometimes referred to as 48 grade.

**Unleaded midgrade:** 89 octane, R+M/2, lead 0.01 grams per gallon, gravity 62 API.

**Super premium unleaded:** 93 octane, R+M/2, lead 0.01 grams per gallon, gravity 62 API.

Effective November 3, 2003, Platts launched daily spot price assessments for New York Harbor and Buckeye Pipeline **Conventional Unleaded 87,89 and 93 that will reflect specifications limiting the gasoline to a 0.3 vol% max MTBE.** The new gasoline blend will be required as New York and Connecticut ban MTBE as a gasoline additive from January 1, 2004.

Effective November 3, 2003, Platts launched daily spot price assessments for regular (83.7 octane) and premium (91.4 octane) **RBOB gasoline for barges delivered into New York Harbor, and for delivery into the Buckeye pipeline at Linden, New Jersey.** Platts' new Buckeye RBOB assessments will effectively replace Platts' current Buckeye reformulated (RFG) gasoline assessments. The existing RFG Buckeye Pipeline Unleaded 87,89 and 93 assessments were discontinued after November 14, 2003.

**Jet Kero:** The cargo assessments reflect jet-A1 meeting the latest issue of DEFSTAN 91-91 specifications. The barge assessment reflects Colonial Pipeline reference 54 grade, the sulfur content is 0.3% sulfur; 37-51 API gravity; **108° F min flash;** and freeze point -40° F max.

**Low Sulfur Jet Kerosene:** For cargoes and barges, the assessments reflect Colonial Pipeline 55 grade with 37-51 API gravity, 123° F flash point, minus 40° F freeze point, 42 cetane and 0.04% sulfur. Low sulfur jet kerosene is typically used as low sulfur blendstock to mix with diesel.

**Ultra Low Sulfur Jet Kerosene:** For cargoes and barges (max 15ppm sulfur), the assessments reflect Colonial Pipeline 55 grade with 37-51 API gravity, 123° F flash point, minus 40° F freeze point, 42 cetane. Low sulfur jet kerosene is typically used as low sulfur blendstock to mix with diesel.

**No.2 oil:** The assessment reflects 40 cetane, sulfur content 0.2% maximum at New York Harbor, and up to 0.5% outside New York, gravity 34 API, 130° F minimum flash.

**Low Sulfur and Ultra Low Sulfur Diesel (formerly known as Low sulfur No. 2 oil):** Low Sulfur Diesel assessments reflect 42 cetane, max 500 ppm sulfur and 130 F minimum flash.

Effective May 1, 2006, Platts introduced daily ULSD and daily LS Diesel off-road assessments with the following specifications:

**Boston** - assessments reflect material with 40 cetane, max 15 ppm sulfur, 30 API gravity and 130 F min flash point;

**New York Harbor Barges and Cargoes** - assessments reflect material with 40 cetane, max 15 ppm sulfur, 30 API gravity and 130 F min flash point;

**Buckeye Pipeline** - assessments reflect material with 40 cetane, max 8 ppm sulfur, 30 API gravity and 130 F min flash point;

**Off Road LS Diesel** assessments reflect a max 500 ppm sulfur.

### GASOLINE RVP CHANGES

RVP levels are effective for gasoline in New York harbor, Boston, Buckeye and Laurel Pipeline.

January through most of February: 15.0 RVP for all grades.

February 28: RVP changes to 13.5 RVP for all grades.

With prices effective around mid-March, Platts begins quoting supplemental 7.1 RVP RFG unleaded prices. Also effective at that time, Platts will add the supplemental 9.0 RVP conventional unleaded prices. The date fluctuates on the basis of market activity.

13.5 RVP conventional and RFG unleaded prices will continue to appear as the main assessments and be carried through mid-April or when market activity declines.

In mid-April, when the 13.5-RVP assessments end, the 7.1 RVP RFG and 9.0 RVP conventional unleaded become the main assessments and will run through summer.

Near the first week of September, the precise date dependent upon liquidity, Platts will add 13.5 RVP assessments for RFG and conventional gasoline. The 7.1 RVP RFG and the 9.0 RVP conventional prices will appear as supplemental assessments until mid-September.

At that time, with the precise date to be determined, Platts will stop assessing supplemental 7.1 RVP RFG and 9.0 RVP conventional prices. At that time, Platts will only assess 13.5 RVP for both RFG and conventional gasoline. Near the end of October, Platts will change the basis for its gasoline assessments to 15.0 RVP.

### MTBE

**Assessment time:** Platts' assessment methodologies for US feedstocks and blendstocks reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST (2:15 p.m. Central time).

Specifications are for material with minimum 95% MTBE, 1,500 ppm maximum water and 500 ppm maximum methanol. RVP is 8-10 psi. Octane is 109 R+M/2. Oxygen is 18.2% by weight. US

Gulf Coast assessments include volumes of 25,000 bbl or greater traded FOB Houston-Texas City. Smaller volume transactions and deals done outside of the Houston-Texas City area are used only as a guide in the assessment process.

Assessments focus on deals lifting 5-15 days from date of publication, excluding prompt business for immediate lifting. Assessments cover physical spot trade and not paper deals. Platts FOB New York Harbor MTBE assessment is for the same spec material as the US Gulf Coast but volumes are 10,000 bbl or greater.

### ETHANOL

Ethanol in New York is assessed on an FOB basis, in tank, for minimum 1,000 barrels, 5-15 days out from the date of publication. The assessment is for denatured, domesticated material.

### RESIDUAL FUEL OIL

**Assessment time:** Platts' assessment methodologies for US residual fuel oil reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST (2:15 p.m. Central time).

**Size:** 25,000-120,000 barrels for barges. 120,000+ barrels for cargoes (one or multiple bottoms).

**Location:** Cargo price assessment is delivered, in a Boston-Maryland range. Barge price assessment is delivered basis New York Harbor.

**Timing:** Cargo — Platts considers in its assessment process cargoes bid/offered/traded with a 5 day delivery range within the 5-20 days forward assessment delivery window. Barge – delivery 3-10 days out.

Platts assessments reflect verified, repeatable, on-spec deals reported prior to deadline. Platts also takes into account firm, credible bids and offers reported by brokers and principals. In the absence of deals, bids and offers, Platts will assess what in its editorial opinion reflects a transactable value of fuel oil delivered 5-20 days forward based on an interpolation along the forward fuel oil curve and by taking into account prevailing physical premiums or discounts.

Additionally, Platts will utilize the forward curve for deals done partly on a floating basis and partly on a fixed price basis. If for instance, a deal is done on a 50-50 basis, with half of the deal done on a fixed price basis and the other half floating, Platts will determine the implied value for the floating part of the transaction. Platts will calculate the implied value of the floating

portion of the transaction whenever fully floating or partly floating deals are done.

### SPECIFICATIONS

**0.3%S HP:** 10.5api min-24.9 api max, 300ssf visc max, 110 F pour, 149,000 BTUs, 175 F min flash, EXPANDED SPECIFICATIONS: 1.0% BS&W, 0.3% max sediment.

**0.3%S LP:** 10.5api min-24.9 api max, 1,000 ssu visc max (at 100 degrees F), 60 F pour max, 150 F min flash.

**0.7%S:** 10 api min, 300 ssf visc max, 0.5 % nitrogen max, 150ppm vanadium max, 8 max asphaltenes, 151,500 BTUs, EXPANDED SPECIFICATIONS: 0.1% ash, 1% BS&W, 150 min flash, 60 max pour.

**1.0%S:** 0.5 nitro max, 150 vanadium max, EXPANDED SPECIFICATIONS: 10.1 api min -18.0 api max, 70 min-250 max visc, 150 min flash, 60 max deg F pour, 0.1 maxash, 1.0 BS&W, water by distillation 1.0% max, sediment by extraction 0.1% max, 150 vanadium max, 60 sodium max, 8 asphaltenes, 151,000 btus min, 50 ppm H2S max, 200 al+sil max

**2.2%S:** 10api min, 300 ssf visc max, 300ppm vanadium max, 100 max alu/sil, EXPANDED SPECIFICATIONS: 150 min flash, 1% BS&W, 0.1% ash.

**2.2%S Boston:** 10api min, 300 ssf visc max, 300ppm vanadium max, 100 max alu/sil, EXPANDED SPECIFICATIONS: 150 min flash, 1% BS&W, 0.1% ash.

**3.0%:** 10api min, 300 ssf visc max, 300ppm vanadium max, 100 max alu/sil, EXPANDED SPECIFICATIONS: 150 min flash, 1% BS&W, 0.1% ash.

*Trading positions with other quality specifications will be normalized for assessment purposes to be comparable with the updated Platts-specification basis.*

### FEEDSTOCKS & BLENDSTOCKS

**Assessment time:** Platts' assessment methodologies for US feedstocks and blendstocks reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST (2:15 p.m. Central time).

**Vacuum Gasoil:** VGO assessments reflect material CIF 50,000 bbl and higher, north of Hatteras. The timing range is 7-21 days. Three sulfur grades are assessed: Under 0.5%, 1.0% and over 2%. The Aniline point is generally 180 minimum. Conradson carbon residue is generally 0.7% maximum.

**Straight Run:** Straight run assessments reflect material CIF 50,000 bbl and higher, north of Hatteras. The timing range is 7-21 days. Low Sulfur: 0.3% sulfur, approximately 20-22 degrees API gravity and viscosity is 1,000 ssu or approximately 100 ssf. The product generally is low pour with a pour point of 60° F. High Sulfur: 2.0 to 3.5% sulfur and approximately 15-20 degrees API gravity.

### US GULF COAST

**Assessment time:** Platts US Gulf Coast refined product assessments reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST (2:15 p.m. Central time). Platts only takes into consideration arms-length, transparent and verifiable market activity.

**Pipeline** prices are for product moving on the Colonial Pipeline with input at Pasadena, Texas. Pipeline assessments reflect southern grade products on the Colonial Pipeline with the exception of the supplemental northern grade gasoline, which represents northern grade material.

Shipments on the Colonial Pipeline system are scheduled according to cycles. There are typically six cycles per month for a total of 72 cycles per year. For example, cycles 1, 2, 3, 4, 5, and 6 are for January, cycles 7, 8, 9, 10, 11, and 12 are for February, etc. Each cycle lasts approximately five days. Due to market conditions, cycles may carry premiums or discounts versus the next shipment. The cycle schedule is dictated by Colonial Pipeline, and is subject to change during the course of the year. Hence, rollover dates for the Platts assessments cannot be announced in advance. The cycles among products differ. Gasoline 13th cycle and distillate 13th cycle will not necessarily be in alignment.

For gasoline assessments, Platts rolls the premium, RBOB and Atlanta grades in conjunction with new cycle changes for the conventional unleaded gasoline (noted as M-grade by Colonial Pipeline). This is done to eliminate misalignments between the various gasoline products' RVP levels, NYMEX basis months and regrade values.

Waterborne barrels represent different locations depending on product, and locations are noted within product categories below. Assessments for fuel oil generally reflect product being lifted within the next 7 to 14 days. Waterborne assessments for gasoline and distillates are concurrent with the pipeline cycles. Waterborne assessments for light ends cover barge (minimum 50,000 bbl) and cargo movements being shipped out of ports located in the Houston/Pasadena area. Product can be moving from a US Gulf Coast location to another US port or for export. Prices are on an FOB basis.

**GASOLINE**

**Regular unleaded:** 87 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity.

**Unleaded midgrade:** 89 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity.

**Super premium unleaded:** 93 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity.

**Ultra Low Sulfur 30 unleaded 87 ("Atlanta" grade):** 87 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity, 30ppm max sulfur.

**Ultra Low Sulfur 30 unleaded 93 ("Atlanta" grade):** 93 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity, 30ppm max sulfur.

Effective November 3, 2003, Platts launched daily spot price assessments for regular (83.7 octane) and premium (91.4 octane) **RBOB gasoline for delivery into the Colonial Pipeline** at Pasadena, Texas. Platts will initially assess only the prompt Colonial pipeline cycle, but will add forward cycle assessments as liquidity develops. Initial indications suggest that two grades of RBOB will be available for shipping, 5.7% ethanol blendable RBOB and 10% ethanol blendable RBOB, but only 10% ethanol blendable RBOB will be actively traded.

**GASOLINE RVP CHANGES**

Specific dates for the changing of RVP specifications can not be projected, because the actual dates of shipping cycles on the Colonial Pipeline varies. However, below is a projected schedule for conventional gasoline, based on past practice.

Conventional gasoline on the Colonial Pipeline is the "M" grade, with a numerical designation that applies to the RVP level.

Beginning in early March, when the 7th cycle becomes prompt, Platts will begin assessing M3 gasoline, which carries an RVP of 11.0.

Beginning mid-March, when the 8th cycle becomes prompt, Platts will begin assessing M2 gasoline, which carries an RVP of 9.0.

Beginning early April, when the 10th cycle becomes prompt, Platts will begin assessing M1 gasoline, which carries an RVP of 7.8. At this time, Platts will also begin to assess its summer supplemental quote, which carries an RVP of 9.0. This will last until early September.

(Please note that Platts' primary gasoline assessment will always be the grade with the lowest RVP regulations. As a result, the 9.0

RVP summer grade for northern destinations is considered the supplemental assessment, and the 7.8 assessment is considered the primary assessment. The Platts data code for Gulf Coast pipeline gasoline will reflect the 7.8 RVP grade, not the 9.0 RVP grade, which has its own date code.)

In early September, or at the end of the 26th cycle, Platts will cease its 9.0 RVP summer supplemental assessments. The primary assessment will then correspond to M3, which carries a RVP of 11.5.

Beginning in mid-October, and running through February, Platts will begin assessing M4 gasoline, with an RVP of 13.5.

Beginning early March or whenever the 7th cycle becomes prompt, Platts will begin assessing M3 gasoline with an RVP of 11.5.

Beginning mid March or whenever the 8th cycle becomes prompt, Platts will begin assessing M2 gasoline with an RVP of 9.0.

Beginning early April or whenever the 10th cycle becomes prompt through early September, Platts will begin assessing M1 gasoline with an RVP of 7.8. At this time Platts will also begin publishing a summer supplemental quote and will lower the RVP on RFG unleaded and RFG premium from 7.8 to 7.1. The summer supplemental quote will hold an RVP of 9.0.

In early September or at the end of the 26th cycle 7.1, 7.8 and 9.0 RVP will cancel out and Platts will begin assessing M3 gasoline with an RVP of 11.5 through the next four cycles. The summer supplemental assessment will end. 11.5 RVP will cancel out in October or at the end of the 30th cycle.

**MTBE**

**Assessment time:** Platts' assessment methodologies for US feedstocks and blendstocks reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST (2:15 p.m. Central time).

Specifications are for material with minimum 95% MTBE, 1,500 ppm maximum water and 500 ppm maximum methanol. RVP is 8-10 psi. Octane is 109 R+M/2. Oxygen is 18.2% by weight. US Gulf assessments include volumes of 25,000 bbl or greater traded FOB Houston-Texas City. Smaller volume transactions and deals done outside of the Houston-Texas City area are used only as a guide in the assessment process. Assessments focus on deals lifting 2-15 days from date of assessment, excluding prompt business for immediate lifting. Assessments cover physical spot trade and not paper deals.

**NAPHTHA**

**Assessment time:** Platts' assessment methodologies for US feedstocks and blendstocks reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST (2:15 p.m. Central time).

**Standard naphtha:** assessments represent product moving into and out of the Gulf Coast. Imports are assessed on an inside duty basis. The assessment reflects 40 N+A, typically a reforming grade, with a gravity of 56-60 API.

**Heavy naphtha:** Effective Feb 3, 2003, Platts added a daily spot price assessment for heavy naphtha in the US Gulf Coast, with a typical API gravity of 52 to 53, and an initial boiling point of 180F, intended for reforming.

**DISTILLATES**

**Jet Kerosene:** Jet/Kero 54 reflects material with 37-51 API gravity, 108° F flash point, minus 40° F freeze point, and 0.3% sulfur. Jet/Kero 55 grade reflects product with 37-51 API gravity, 123° F flash point, minus 40° F freeze point, 42 cetane and 0.04% sulfur.

**Ultra Low Sulfur Jet Kero:** Waterborne and pipeline (max 15ppm sulfur), the assessments reflect Colonial Pipeline 55 grade with 37-51 API gravity, 123° F flash point, minus 40° F freeze point, 42 cetane. Low sulfur jet kerosene is typically used as low sulfur blendstock to mix with diesel.

**No. 2 Oil:** No 2 Oil reflects material with 40 cetane, 0.2% sulfur, 30 API gravity and 130° F min flash point.

**Low Sulfur Diesel:** Low Sulfur No. 2 oil specifications reflect 40 cetane, max 500 ppm sulfur, 30 API gravity and 130° F min flash point.

Effective May 1, 2006, Platts introduced daily **ULSD** and daily **LS Diesel off-road** assessments for the US Gulf Coast with the following specifications: assessments reflect material with 40 cetane, max 8 ppm sulfur, 30 API gravity and 130 F min flash point; Off Road LS Diesel assessments reflect a max 500 ppm sulfur content.

**RESIDUAL FUEL**

**Assessment time:** Platts' assessment methodologies for US residual fuel oil reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST (2:15 p.m. Central time).

Assessments are FOB and represent product basis Houston or New Orleans, 4-12 days out from the day of assessment. Both barge lots and cargoes are covered by the assessments.

Platts reserves the right to not strictly include charter party differentials between other Gulf Coast points and one of those two cities if it believes there are other factors that are more important, such as if a cargo is being exported on a Worldscale basis.

Assessments may be influenced by blending costs associated with bringing off-specification material to the correct specification. Also, assessments take into consideration the value of different end users for the same material, e.g. straight-run fuel used as a feedstock.

The typical quantity for barge assessments is 40,000 bbl to 125,000 bbl. However, the inability of a terminal to receive certain standard barge sizes may exclude certain sales from the Platts assessment, even if a sale is made within the specified quantities. Cargo sizes are up to 50,000mt.

**No.6 1.0%:** 6 min API, 25-225 SSF, 0.4 max nitrogen, 100 max calcium, 200 max vanadium, 120 max al+si, 150 F min flash point, 0.8 max asphaltene, 0.1 max ash;

**No.6 Slurry Oil:** Platts has changed existing assessment specifications for US Gulf Coast 1% S 8 API fuel oil to better reflect current market conditions as of Aug 15th, 2006. The relevant assessment description now reads "Slurry Oil" with the following specifications: 1% S typical, 1 min API, 225 max SSF, 140 F min flash, 0.15 max ash, 1% max water and sediment, minimum volume 25,000 barrels. Trading positions with other quality specifications would be normalized for assessment purposes to the modified specification basis.

**No.6 3.0%:** 3% S max, 10.2 min API, 150-250 SSF, 450 max vanadium, 0.1 max ash, 150 F min flash point, 60 F max pour;

**No.6 3.5%:** Typically 3.5% S with material with up to 4.5% S max considered in the assessment process, 10.2 min API, 150-300 SSF, 80 max al+si, 300 max vanadium, 18 max CCR;

**Trading positions with other quality specifications will be normalized for assessment purposes to be comparable with the updated Platts-specification basis.**

Platts discontinued its US Gulf Coast 0.7% S residual fuel assessment on Jan 1, 2003.

**Forward curve and fixed/floating trades:** Platts will seek the value of a floating transaction by extrapolating prices along the forward curve. For example, in assessing the value of a transaction completed in a backwardated market that was done on a floating basis, Platts will seek to determine the market's valuation of fuel oil loading on those days in advance, and work any differentials off that number. The resulting number will not be strictly viewed as the value of the transaction, but will be taken into account in the assessment process.

**FEEDSTOCKS & BLENDSTOCKS**

**Assessment time:** Platts' assessment methodologies for US feedstocks and blendstocks reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST (2:15 p.m. Central time).

**Vacuum Gasoil:** VGO assessments reflect material CIF 50,000 bbl and higher, basis Gulf Coast. The timing range is 7-21 days. Three sulfur grades are assessed: Under 0.5%, 1.0% and over 2%. The Aniline point is generally 180 minimum. Conradson carbon residue is generally 0.7% maximum.

**Straight Run:** Straight run assessments reflect material CIF 50,000 bbl and higher, basis Gulf Coast or East Coast. The timing range is 7-21 days, Gulf Coast. Low Sulfur: 0.3% sulfur, approximately 20-22 degrees API gravity and viscosity is 1,000 ssu or approximately 100 ssf. The product generally is low pour with a pour point of 60° F. High Sulfur: 2.0 to 3.5% sulfur and approximately 15-20 degrees API gravity.

**Alkylate:** The alkylate assessment reflects waterborne FOB liftings 50,000 bbl and higher, basis Houston. Delivery range is 7-21 days. The alkylate assessment reflects material 5.5 RVP, with 92-93 octane.

**Reformate:** The reformate assessment reflects waterborne FOB liftings 50,000 bbl and higher, basis Houston. Delivery range is 7-21 days. Reformate is 30-55 API, 0.5-2.5 RVP, 0.5 Sulfur, 95-110 RON.

**Raffinate:** The raffinate assessment reflects waterborne FOB liftings 50,000 bbl and higher, basis Houston. Delivery range is 7-21 days. Raffinate is 60-70 API, 2.0-6.0 RVP, 0.5 Sulfur, 55-65 RON.

**US ATLANTIC & GULF COAST RESIDUAL FUEL PAPER MARKETS**

Platts publishes paper market price assessments for 1.0% sulfur fuel oil on the US Atlantic Coast and 3.0% sulfur fuel oil on the US Gulf Coast:

The paper price assessments are for the immediate forward month and the next three forward months. The immediate forward month assessment expires on the last business day of the month. For example: in any given March, the paper months assessed will be April, May, June and July.

The quarterly paper market is based on the calendar quarters: January-March, April-June, July-September and October-December. The next four quarters are assessed. Quarterly paper markets are assessed until the last business day of the preceding calendar quarter. On the first business day of a new quarter, the assessment will reflect the next calendar quarter. For example, between any given January 1 through March 31, the first quarter to be assessed will be the second quarter, April-June.

**ETHANOL**

Effective May 1, 2006, Platts launched a daily Houston ethanol spot price assessment. The assessment reflects FOB, in tank, domesticated, fuel grade, denatured ethanol, typically 1,000 to 10,000 barrels 3-15 days ahead of publication date.

**BIODIESEL**

The daily Houston spot price assessment reflects truck or rail volume delivered in the Houston area. The standard for the Houston and Chicago spot assessments is 99.9% biodiesel, excluding any tax rebates or other refunds specific to biodiesel.

The daily Chicago assessment reflects truck or rail volume delivered at Argo or other major storage facilities in the Chicago area. Timing is 3-10 days from the date of publication. The truck volume assessed is typically 150 barrels, and rail volumes assessed is typically 700 barrels.

Volumes sold FOB in-tank at terminals in the Houston Ship Channel or Chicago will also be considered and will be normalized for assessment purposes to the standard specification basis. These FOB in-tank volumes typically range between 1,000 and 3,000 barrels.

Platts uses the following industry standard specification for its daily Houston and Chicago biodiesel spot price assessments: ASTM specification for Biodiesel (B100) -- (47 min cetane, 15 max ppm sulfur, 0.05% max water and sediment, 130 degrees Celsius min flash point).

**CHICAGO**

**Assessment time:** Platts Chicago refined product assessments reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST.

Assessments are made on an FOB Chicago Area Pipeline basis, a grouping of Chicago pipelines that includes the West Shore, Badger and Wolverine lines. This system takes product off the Explorer pipeline, which runs from the Gulf Coast into the Midwest. Platts has established cycle changes every ten days, on the 5th, 15th, and 25th of the month. The assessments reflect product moving on the prompt cycle.

**GASOLINE & RBOB**

**Regular unleaded:** 87 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity.

**Midgrade unleaded:** 89 octane R+M/2; lead 0.01 grams per gallon; 62 API gravity.

**Premium unleaded:** 93 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity.

**RBOB** (Reformulated Blendstock for Oxygenated Blending): 84.6 octane R+M/2; 62 API gravity.

**PBOB** (Blendstock for Oxygenated Blending).

For all grades of gasoline, Reid Vapor Pressure varies during the year from 9.0 psi in the summer to 15.0 psi in the winter. The RVP conversion schedule typically follows the Explorer Pipeline schedule with the following dates:

- February 25 (or beginning of 1st cycle March trade): Platts assessment of 15.0 RVP unleaded will convert to 13.50 RVP unleaded.
- March 15 (or beginning of 3rd cycle March trade): Platts assessment of 13.50 RVP unleaded will convert to 9.0 RVP unleaded.
- September 16: Platts assessment of 9.0 RVP unleaded will convert to 11.50 RVP unleaded.
- October 1: Platts assessment of 11.50 RVP unleaded will convert to 13.50 RVP unleaded.
- December 1: Platts assessment of 13.50 RVP unleaded will convert to 15.0 RVP unleaded.

The Platts assessment of RBOB in the Chicago market will switch to summer-grade VOC material on March 25, the start of first-cycle April trade, in line with seasonal Explorer pipeline specification changes.

**DISTILLATES**

**Jet/kero:** Assessments reflect material with 0.3% sulfur, 37-51 API gravity and 108 degrees F minimum flash point.

**Ultra Low Sulfur Jet Kero:** This is also known as No. 1 oil. It is an assessment that runs from approximately October 15 to April 1, depending on seasonal refinery production changes. Specifications include 0.04% sulfur and 37-51 API gravity.

**Low Sulfur Diesel:** Assessments reflect material with 500 ppm

sulfur max and 42 centane.

**Low Sulfur Diesel off-road:** Assessments reflect material with 500 ppm sulfur max and 42 centane.

**ULSD:** Assessments reflect 40 cetane, max 12 ppm sulfur, 30 API gravity and 130 F min flash point.

**ETHANOL**

Assessments reflect FOB Chicago area terminals, 5-10 day delivery. Assessments are for a typical refinery grade ethanol, 115 octane, 18 RVP.

**GROUP THREE**

**Assessment time:** Platts Group Three refined product assessments reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST.

Assessments are made on an FOB Tulsa, Oklahoma, basis for product moving on the Magellan Pipeline system which runs from Tulsa, north through the US Midcontinent, and terminates in Minnesota and Wisconsin. Assessments reflect prompt cycle barrels scheduled into the line. Trade is assessed against the front month futures contract through the penultimate day of each month.

Assessments reflect market activity 1-3 days ahead of publication date with trading positions of 10,000 barrels min, with the exception of Premium(A-grade) and Jet (Q-grade), where market activity with a minimum of 5,000 barrels will be considered for assessment purposes.

**Regular unleaded:** 87 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity

**Premium unleaded:** 91 octane R+M/2; lead, 0.01 grams per gallon; 62 API gravity

For all grades of gasoline, Reid Vapor Pressure ranges from 9.0 psi for summer months to 13.5 for winter months. The Platts RVP conversion schedule follows the Magellan RVP schedule with the following typical dates:

- February 1: Platts assessment of 15.0 RVP unleaded will convert to 13.5 RVP unleaded.

- February 16: Platts assessment of 13.50 RVP unleaded will convert to 10.0 RVP unleaded.
- March 1: Platts assessment of 10.0 RVP unleaded will convert to 8.50 RVP unleaded.
- May 1: Platts assessment of 8.50 RVP unleaded will convert to 9.0 RVP unleaded.
- September 16: Platts assessment of 9.0 RVP unleaded will convert to 10.0 RVP unleaded.
- October 1: Platts assessment of 10.0 RVP unleaded will convert to 11.50 RVP unleaded.
- November 1: Platts assessment of 11.50 RVP will convert to 13.5 RVP unleaded.
- December 1: Platts assessment of 13.50 RVP will convert to 15.0 RVP unleaded.

## DISTILLATES

**Jet Kerosene:** Assessments reflect material with 0.3% sulfur, 37.5 API gravity and 110 degrees F minimum.

**Low-sulfur Jet Kerosene:** Also known as Y grade. This is a seasonal assessment that runs from approximately October 15 through April 1, depending on seasonal refinery production changes. Specifications are 0.047% sulfur, 37 degrees minimum. The assessment is published when spot trading begins. API gravity, minimum 125 degrees F to maximum 160 degrees F flash point.

**Low Sulfur Diesel:** Assessments reflect material with 42 centane, 500 ppm sulfur max, 30 API gravity and 140 degrees F flash point.

**Low Sulfur Diesel off-road:** Assessments reflect material with 42 centane, 500 ppm sulfur max, 30 API gravity and 140 degrees F flash point.

**ULSD:** assessments reflect material with 40 cetane, max 12 ppm sulfur, 30 API gravity and 130 F min flash point.

## US WEST COAST

**Timing:** Platts US West Coast refined product assessments reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST. Platts only takes into consideration arms-length, transparent and

verifiable market activity.

Pipeline volumes are generally 10,000-25,000 bbl, with 10,000 bbl the minimum lot size for inclusion in Platts assessments. Assessments are for product moving on the Kinder Morgan Energy Partners Pipeline (formerly the Santa Fe Pacific Pipeline) system in California and the Olympic Pipeline system in the Northwest.

Platts assesses the so-called any-barrel, which can be scheduled for any cycle during the current month. Portland and Seattle product assessments reflect prompt market activity up to four days ahead of publication date.

Product is scheduled for delivery on Kinder Morgan's pipeline. Shipments on the Kinder Morgan Energy Partners Pipeline system are scheduled according to cycles. There are typically four cycles every month for a total of 48 cycles per year. For example, cycles 1, 2, 3 and 4 are for January, cycles 5, 6, 7 and 8 are for February, etc. Each cycle lasts approximately 7.5 days, but changes in the schedule may occur and are decided by the pipeline company. Shipments on the Olympic Pipeline system also are scheduled according to cycles. There are typically five cycles every month with the exception of February, which has four, for a total of 59 cycles per year. Each cycle lasts approximately six to seven days, but changes in the schedule may occur and are decided by the pipeline company.

Platts does not include distressed trades within its assessments. Specifically, distressed deals include barrels that must be accepted within eight days or less. Distressed deals also include barrels that are bought and sold within the Kinder-Morgan "pipeline freeze." The freeze is defined as the period of time for which the pipeline shipper will no longer accept changes to its scheduled deliveries.

Platts assessments of US West Coast jet fuel will roll from the current to the next forward month eight days prior to the end of the month. Assessments will be rolled on the preceding business day if the eighth day falls on a weekend or public holiday.

**Waterborne:** Jet and gasoline waterborne cargoes generally are in barge lots, while non-CARB diesel, the so-called EPA diesel (see below), generally trades as cargoes. Cargoes are for delivery 14-21 days out from date of publication. Cargoes cover export or import at any location from Los Angeles to Seattle, but the market keys off Los Angeles prices. Barges or cargoes with delivery dates less than two weeks is considered distressed. Domestic but offshore-lightered barrels are treated as if they were domestic.



**GASOLINE & CARBOB**

**Gasoline:** Conventional standard gravity is 57-58 API. Sulfur specifications are very stringent in California with 0.03% maximum for unleaded gasoline. Bromine is less than 30 parts per million at Los Angeles. RVP ranges from 7.0 to 13.5 for Los Angeles, 7.0 to 15.0 for San Francisco and 9.0 to 15.0 for Seattle and Portland.

**Unleaded 87:** R+M/2; lead content 0.01 grams/gal.

**Premium Unleaded:** 92 octane, R+M/2; lead content 0.01 grams/gal.

**CARBOB:** CARBOB is a non-oxygenated blendstock meeting California gasoline specifications. It is blended with ethanol to produce finished gasoline that meets CARB specifications. On Dec 2, 2002, Platts introduced four new physical CARBOB gasoline assessments for the US West Coast market. The assessments apply to the Los Angeles and San Francisco markets and cover both lower octane and premium grade versions of CARBOB gasoline. CARBOB gasoline does not contain MTBE as an oxygenate, and is instead intended to be blended with ethanol.

All products must be deliverable into Kinder Morgan's California pipeline system for done deals to warrant inclusion in the Platts daily assessment. The conventional grade CARBOB has an octane level of 85.5 and the premium CARBOB has an octane level of 90.0. Both grades of gasoline must be blendable to 5.7 percent ethanol. All CARBOB gasoline deals must involve product which meets the California Air Resources Board requirements as well as Kinder Morgan's specifications for CARB phase 3 gasoline.

Paper CARBOB assessments follow physical CARBOB requirements and consist of a one, two and three month out assessment; a one and two quarter out assessment; and a one year out assessment.

**Arizona/Las Vegas:** Platts assesses several grades of gasoline that trade in the Arizona/Phoenix and Las Vegas markets, respectively. Arizona and Las Vegas markets generally are supplied out of the US West Coast, but consume gasoline with specifications designed specifically for their areas. Both the AZBOB and the LVBOB are blendstocks that are blended with ethanol.

In **Arizona**, Platts assesses a Clean Burning Gasoline grade (CBG) between March 1 and October 14. After October 14, an Arizona Blendstock for Oxygenate Blending (AZBOB) is assessed until March 1. This is consumed in the Phoenix metropolitan area.

In **Las Vegas**, Platts assess a winter grade Las Vegas Blendstock for Oxygenate Blending (LVBOB) between Oct 1 and March 24. A conventional gasoline is consumed during the remainder of the year.

**SPECIFICATIONS**

**Arizona CBG:** 87 and 91 octane grades; sulfur, 89 ppm max; lead, 0.03 gm/gal.

**AZBOB:** 87 and 91 octane grades; sulfur 89 ppm max; lead, 0.03 gm/gal.

**LVBOB:** 87 and 91 octane grades; sulfur 80 ppm max; lead, 0.03 gm/gal

**GASOLINE RVP CHANGES**

The various grades of gasoline on the West Coast have a variable series of RVP changes with the following approximate dates subject to Kinder Morgan pipeline scheduling:

**Los Angeles CARBOB:** Jan 1, 12.5; Mar 6, 5.78; Nov 1, 10.5; Dec 1, 12.5.

**Los Angeles conventional and CARB:** Jan 1, 13.5; Feb 14, 7.0; Nov 1, 11.5; Dec 1, 13.5.

**San Francisco Conventional and CARB:** Jan 1, 15.0; Feb 1, 13.5; Mar 6, 6.8 for premium and 7.0 for regular; Apr 14, 7.0; Nov 1, 13.5; Dec 1, 15.0.

**San Francisco CARBOB:** Jan 1, 15.0; Mar 6, 5.78; Nov 1, 12.5; Dec 1, 14.0.

**Arizona CBG:** Mar 1, 8.0; Apr 7, 7.0; Sep 23, 8.0; assessment withdrawn on October 14.

**Arizona BOB (AZBOB):** Oct 14-Mar 1, 8.0

**Las Vegas LVBOB:** Oct 1 through Mar 24, 8.0; assessment withdrawn on that date.

**Portland/Seattle:** Jan 1, 15.0; Mar 1, 13.5; Mar 24, 11.5; Apr 1, 9.0; Sep 14, 11.5; Oct 1, 13.5; Dec 1, 15.0.

**DISTILLATES**

**Jet Kero:** Pipeline assessments reflect material Jet-A 0.3% S 37-51 API, flash point is 105 degrees F minimum, freeze point is minus 40 degrees maximum, delivered on the Kinder Morgan Pipeline System, with an option to deliver at Los Angeles International Airport (LAX). Physical assessments roll with the Kinder Morgan Pipeline Schedule. Waterborne assessments reflect DEFSTAN 91-91.

**Ultra Low Sulfur Diesel ("EPA diesel"):** Meets EPA ultra low sulfur diesel specifications, but not California Air Resources Board specifications. Also reflects the Kinder Morgan Pipeline

Specifications of 35% maximum aromatics, 8 ppm sulfur content and 40 Cetane minimum.

**CARB Diesel:** Meets the specifications of the California Air Resources Board. It also reflects the Kinder Morgan Pipeline Specifications for max aromatics of 10% (or 35% if produced within the restrictions of a CARB Executive Order). Other specs are Cetane 40 Minimum, 30 API gravity, and 8 ppm (parts per million) sulfur content.

**Gasoil:** Assessment reflects material with 45 cetane, 0.5% sulfur; typically 32-33 API gravity. This is a waterborne assessment only.

**High Sulfur Diesel** (Portland and Seattle only): Reflects diesel fuel with sulfur content of 5,000 ppm. Meets other specifications of Olympic Pipeline System.

**Low Sulfur Diesel** (Portland and Seattle only): Reflects diesel fuel with sulfur content of 500 ppm. Meets other specifications of Olympic Pipeline System.

## FUEL OIL

Industrial fuel oil 380 and IFO 180 assessment in the US West Coast reflect trade in the marine fuel (bunker) market. IFO 380 has viscosity of 380 CST, 2.5-4.0% sulfur, 150-600 mg/kg vanadium, 0.5-1.0% water and 0.1-0.2% ash. IFO 180 is the same as IFO 380 in all respects except viscosity, which is 180 CST.

No 6, 0.5%S and 1.0%S: Percentages relate to content of sulfur as a percent by weight. Power generation units, i.e. electric utility companies, usually use the low sulfur grades. This quote is used to distinguish larger volumes, whether for import or export.

## ETHANOL

Effective November 3, 2003, Platts launched two daily spot price assessments for **Ethanol in the Los Angeles Area**. The assessments reflect 800 bbl rail car deliveries into the Gardena, Wilmington and Carson terminals, 7-14 and 15-30 days ahead of publication date. Other terminals may be included in the future as this new spot market develops. The assessments are quoted in cents per gallon and reflect full-day market activity for typical refinery grade ethanol, 115 octane, 18 RVP.

## US GAS LIQUIDS

**Assessment Schedule:** Platts US Gas Liquids assessments reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen

during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST. Platts only takes into consideration arms-length, transparent and verifiable market activity.

US prices reflect business done only on barrels for any days in the specified delivery month – also known as “any barrels” — and product loading at least three days from the date of the report. Wet and prompt bbls are not reflected in Platts price assessments. Platts assesses the current month until 3 calendar days until the end of the month before switching its assessment forward by one month.

**Size:** Platts revised volume requirements for its US LPG spot price assessments effective Aug 15th 2006 to the following specifications: 5,000 barrels min for all Conway Pipeline deals, 10,000 barrels min for Iso-butane at Mont Belvieu, and 25,000 barrels min for all other LPG products and pipelines.

**Location:** Platts publishes assessments on a FOB Mont Belvieu, Texas basis, and FOB Conway, Kansas basis for all gas liquids. Platts also assesses propane at Bushton, Kansas and Hattiesburg, Mississippi and natural gasoline on various points of the Mississippi River in Louisiana. Product specifications are the same for Mont Belvieu and Conway assessments. Product specifications are the same for all locations.

**Ethane (C2):** Platts publishes an assessment for purity ethane and another for ethane/propane mix. Ethane assessments reflect material with a specific gravity of 0.3546 and a boiling point of -89° C. Purity ethane is 95% pure or better. Ethane/propane mix is comprised of 80% ethane and 20% propane. Conversion rate is 7.42 US gallons per MT.

**Propane (C3):** Propane is assessed at Mont Belvieu on a non-TET and TET basis. TET material moves on the former Texas Eastern Transmission pipeline, now owned by Texas Eastern Products Pipeline Co, which runs from South Texas northward and terminates near Albany, New York and Philadelphia, Pennsylvania. Despite the new ownership, the terms TET and non-TET are still widely used by the industry. Product specifications are the same for both Mont Belvieu and Conway. Assessments reflect material with a specific gravity of 0.5077 and a boiling point of -43° C. Conversion rate: 5.21 US gallons per metric tonne.

**Normal Butane (C4):** Butane is assessed at Mont Belvieu on a non-TET and TET basis. TET material moves on the former Texas Eastern Transmission pipeline, now owned by Texas Eastern Products Pipeline Co, which runs from South Texas northward to Ohio and terminates in Massachusetts. Despite the new ownership, the terms TET and non-TET are still widely used by the industry. Product specifications are the same for both Mont Belvieu and Conway.

Assessments reflect material with a specific gravity of 0.5844 and a boiling point of -1° C. The conversion rate is 4.53 US gallons per metric tonne.

**Iso-butane (IC4):** Iso-butane is assessed on a TET and non-TET basis. Iso-butane assessments reflect material with a specific gravity of 0.5631 and a boiling point of -12° C. The conversion rate is 4.70 US gallons per metric tonne. Product specifications are the same for Mont Belvieu and Conway.

**Natural Gasoline (C5):** Natural gasoline is reported on a non-Targa and a Targa basis. Targa is a major terminal in the Mont Belvieu area. Platts also assess a TET-location natural gasoline price, and a natural gasoline assessment for "the River". This assessment covers various points on the Mississippi River in Louisiana, including (but not limited to) Napoleonville, Terrebonne and Norco. Assessments reflect material with a specific gravity of 81 degrees API, RVP 12-14, boiling point of 90° F, sulfur 0.1% and octane in the low 70s R+M/2. The conversion rate is 3.97 US gallons per metric tonne.

## CARIBBEAN CARGOES

Platts defines the Caribbean as including any Caribbean islands. Caribbean prices are assessed on an FOB basis, depending on market conditions. There is no central delivery or loading point for the assessments. Prices reflect business 7-21 days from date of publication.

In the absence of confirmed transactions, assessments for light ends in the Caribbean are based on a spread against corresponding US Gulf Coast light ends pipeline assessments. Gasoil and jet fuel are assessed against No. 2 ad jet assessments, respectively. Naphtha is assessed against USGC waterborne naphtha. Fuel oil is assessed against US Atlantic Coast levels for similar specification material.

Naphtha, jet kerosene and gasoil are assessed as cts/gal, and a conversion to \$/mt is provided. Fuel oil is assessed on a \$/bbl bases.

**Naphtha:** Assessments reflect material of 40 N+A reforming grade with gravity of 66 API.

**Jet Kerosene:** Assessments reflect DEFSTAN 91-91, 0.3% sulfur, 38.9-51.0 API gravity, 38° C minimum flash and minus 47° C maximum freeze point.

**Gasoil:** Assessments reflect material with 40 cetane, 0.2% sulfur, 30 API gravity and 130° F minimum flash.

**Fuel Oil:** No 6 2.0% assessments reflect material with 225-300 ssf viscosity and 10-12 API gravity. No 6 2.8% assessments reflect material with 200-250 ssf viscosity and 10-12 API gravity.

## LATIN AMERICAN PRODUCTS

**Assessment time:** Platts' assessment for Latin refined product assessments reflect the prevailing market price at 03:15 p.m. EST. Platts also takes into its editorial consideration bids, offers and transactions seen during the assessment day. These inputs are analyzed and normalized to reflect a market value at 03:15 p.m. EST. Platts only takes into consideration arms-length, transparent and verifiable market activity. All assessments are reported in US dollars per barrel.

### ARGENTINA

**Gasoil:** minimum of 45 cetane, 0.5% sulfur.

Loading port is Buenos Aires. The assessment is FOB/CIF Buenos Aires and takes into consideration only export/import transactions. Minimum cargo size is 30kmt or about 215,000 bbl.

**Gasoline:** Unleaded 83 RON minimum, 10 RVP maximum, 0.71-0.74 specific gravity, 0.1% sulfur by weight. This assessment is FOB Buenos Aires. Only exports are considered. Minimum cargo size is 30kmt or about 250,000 bbl.

**Fuel Oil:** 0.6% sulfur, 14 API, 550 CST.

Fuel oil is assessed FOB Buenos Aires. Only exports are considered. Minimum cargo size 30,000mt or about 190,000 bbl.

### BRAZIL

**Fuel Oil:** 0.4% sulfur, 17 API, 150-200 ssf.

Brazilian fuel oil is assessed FOB Statia or Bahamas, per Petrobras practices. Only exports are assessed. This product is sold in cargo or barge parcels, 50,000 bbl minimum.

Effective May 1, 2006, Platts launched a daily Ethanol spot price assessment for cargoes FOB Brazil. The assessment reflects anhydrous cargoes of 100,000 barrels, 10-30 days ahead of publication date. Other grades of ethanol, such as hydrous, will be normalized to the Platts specification basis.

**COLOMBIA**

Fuel Oil: 1.5% sulfur, 6 API, 300 ssf.

Colombian fuel oil is assessed FOB Mamonal (Cartagena), or FOB Covenas, Colombia. Minimum cargo size is 200,000 bbl. Only exports are considered.

**ECUADOR**

Fuel Oil: 1.9% sulfur, 12-14 API, 250 ssf and 1.5% sulfur 12-14 API, 250 ssf

Ecuadoran fuel oil 1.9%S is assessed FOB Esmeraldas, while fuel oil 1.5%S is assessed FOB La Libertad, Ecuador. Only exports are considered. Minimum cargo size is 150,000 bbl. Typical size is about 190,000 bbl for both ports.

**PERU**

Naphtha: 49 N+A, full range, 63 API.

Peruvian naphtha is assessed FOB Talara, or Pampilla, Peru, and minimum cargo size is 180,000 bbl.

Fuel Oil: 0.9% sulfur, 15 API, 600 CST and 1.4% sulfur, 12.5 API, 1,000 CST.

Fuel oil 0.9%S is assessed FOB Talara, Peru for a minimum cargo size of 180,000 bbl. Peruvian fuel oil 1.4%S is assessed FOB La Pampilla, Peru. Minimum cargo size is 180,000 bbl. Typical volumes out of La Pampilla are 300-330,000 bbl.

**WEEKLY JET FUEL ASSESSMENTS**

Platts publishes weekly jet fuel contract price assessments for Jet-A or DEFSTAN 91-91 (commercial) grade fuel, delivered to major airlines at listed major airports or delivery locations in the US. The assessments are typically adjusted based on spot assessments for jet in the applicable location (e.g., the Houston assessment is adjusted against USGC spot prices). The assessment does not apply to "Fixed base operators" servicing corporate jets, or to truck deliveries to specific operators or terminals. Typical contracts are 50,000-200,000 bbl month. Platts weekly jet fuel assessments are published every Friday in Platts Oilgram Price Report (OPR).

**LUBES AND ASPHALT**

Platts assesses base oil lubes once a month, on the last business day of each month, for the following grades: SN100, SN500, and Bright Stock. The assessments are made for the following locations: US Gulf Coast, Europe (Northwest Europe), and Asia (Singapore). Lube assessments are priced in \$/MT and based on market talks throughout the month. Lube assessments are published in Platts Oilgram Price Report (OPR) on the first business day of each month.

**PLATTS ASPHALT ASSESSMENTS**

Platts assesses US spot asphalt once a month, on the last business day of each month, for the following locations: Arkansas, Colorado, Montana, California, Illinois, Georgia, Minneapolis/St. Paul, Ohio, Oklahoma/Kansas (wholesale), Oklahoma/Kansas (rack), Philadelphia/New York, Texas, and Louisiana. Asphalt assessments are priced in \$/Ton at the rack (unless specified otherwise) and based on market talks/deals throughout the month. Asphalt assessments are published in Platts Oilgram Price Report (OPR) on the first business day of each month.

**PLATTS BASE OIL LUBE POSTED PRICES**

Platts publishes lube posted prices for the following companies (locations): Sunoco (Mid-Continent), Conoco (US Gulf), Citgo (US Gulf), Motiva (US Gulf), ExxonMobil (East Coast and Gulf Coast), and Chevron (West Coast). Postings are priced in cts/gal and can be found on Platts Global Alert page 277, 278, 279, and in Platts Oilgram Price Report (OPR). Posted prices are updated as soon as a company updates its posted prices, and are published at the beginning of each month in Platts Oilgram Price Report, even if there are no changes to company posted prices for the respective month.

**THE PLATTS INDEX**

The Platts Index gives a broad view of the state of the oil industry by putting markets for several different crudes and products on the same footing: a base period between July 1987 and December 1988, and a translation of that base period into the number 100.00. Prices for each index component were averaged for that period, and the result constitutes 100 in the Platts Index.

The index itself first appeared in July, 1990. Each day, Platts spot assessments are incorporated into a weighted formula based on consumption patterns for products, and supply patterns for crude. The result is a single number that can be used for quick comparisons of a product's status, both over time and against other products or crudes. For example, the gasoil/heating-oil index is weighted 42% to Europe, including assessments from Northwest Europe and the Mediterranean, 43% to North America, including assessments from New York, Boston, and the US Gulf Coast; and 15% to the Pacific Rim, including assessments from Singapore and Japan.

- The prices for the base period were averaged, resulting in a base price of approximately 46.5 cts/gal. That equates to 100 on the Platts Index. The ratio between each day's new price and 46.5 cts will be applied to the 100.00 base, and the result is that day's index.


**Energy Information Administration**  
Official Energy Statistics from the U.S. Government

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*Petroleum Navigator*

<b>Summary</b>	<b>Prices</b>	<b>Crude Reserves &amp; Production</b>	<b>Refining &amp; Processing</b>	<b>Imports/Exports &amp; Movements</b>	<b>Stocks</b>	<b>Consumption/Sales</b>	<b>Publications &amp; Analysis</b>
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## Prime Supplier Sales Volumes

(Thousand Gallons per Day)

 Area:  Period: 

Show Data By:								
<input checked="" type="radio"/> Product	<input type="radio"/> Area	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	View History
Motor Gasoline		15,404.6	15,264.8	14,858.6	15,947.1	16,532.7	16,016.5	<a href="#">1983-2007</a>
Regular		12,755.1	12,756.6	12,429	13,355.3	13,766	13,285.4	<a href="#">1983-2007</a>
Conventional Regular		6,507.1	6,402.6	6,309.1	6,870.1	6,981.3	6,842.1	<a href="#">1993-2007</a>
Oxygenated Regular		-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Regular		6,247.9	6,354	6,119.9	6,485.2	6,784.7	6,443.3	<a href="#">1993-2007</a>
Midgrade		613.5	605.5	584.7	641	639.6	626.9	<a href="#">1988-2007</a>
Conventional Midgrade		154.8	144.4	138.3	160.1	164.6	168.7	<a href="#">1993-2007</a>
Oxygenated Midgrade		-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Midgrade		458.7	461.1	446.4	480.9	475	458.2	<a href="#">1993-2007</a>
Premium		2,036	1,902.8	1,844.9	1,950.8	2,127.1	2,104.1	<a href="#">1983-2007</a>
Conventional Premium		447.5	381.1	396.9	446.3	543.7	580	<a href="#">1993-2007</a>
Oxygenated Premium		-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Premium		1,588.6	1,521.6	1,448	1,504.5	1,583.4	1,524.2	<a href="#">1993-2007</a>
Conventional (All Grades)		7,109.4	6,928.2	6,844.3	7,476.5	7,689.6	7,590.8	<a href="#">1993-2007</a>
Oxygenated (All Grades)		-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated (All Grades)		8,295.2	8,336.7	8,014.3	8,470.6	8,843.1	8,425.7	<a href="#">1993-2007</a>
Aviation Gasoline		2.4	W	2.7	6	8.9	7.6	<a href="#">1983-2007</a>
Naphtha-Type Jet Fuel		-	-	-	-	-	-	<a href="#">1983-2007</a>
Kerosene-Type Jet Fuel		1,713.1	1,732.8	1,778.8	1,803.3	1,872.9	2,204.4	<a href="#">1983-2007</a>
Propane (Consumer Grade)		1,760.5	1,303.2	924.2	676.7	527.9	500.8	<a href="#">1983-2007</a>
Total Distillate and Kerosene		12,004.5	8,934	6,953.2	NA	4,830	4,510.7	<a href="#">1983-2007</a>
Kerosene		601.6	W	W	57.3	W	W	<a href="#">1983-2007</a>
No. 1 Distillate		311.9	W	W	W	W	W	<a href="#">1983-2007</a>
No. 2 Distillate		10,379.8	7,914.1	6,311.9	W	4,492.4	4,185.8	<a href="#">1983-2007</a>
No. 2 Fuel Oil		7,095.4	4,869.1	3,537.5	1,837.5	1,187.8	1,193.7	<a href="#">1983-2007</a>
No. 2 Diesel Fuel		NA	NA	NA	NA	NA	NA	<a href="#">1983-2007</a>
Ultra Low-Sulfur		2,213.7	2,190.9	2,091.8	2,432.6	2,749.2	2,485.5	<a href="#">2007-2007</a>
Low-Sulfur		399.7	349.4	304.6	W	316	290.1	<a href="#">1993-2007</a>
High-Sulfur		671	504.7	377.9	324.5	239.5	216.5	<a href="#">1993-2007</a>
No. 4 Fuel Oil		711.2	478.1	309.1	113.8	83.7	77	<a href="#">1983-2007</a>
Residual Fuel Oil		6,653.9	5,536.9	5,207.5	3,575.9	4,008.4	3,643.6	<a href="#">1983-2007</a>
Sulfur Less Than or Equal to 1%		4,624.4	3,230.4	2,495.3	1,289.6	1,214.4	803.4	<a href="#">1983-2007</a>
Sulfur Greater Than 1%		2,029.5	2,306.6	2,712.3	2,286.3	2,793.9	2,840.3	<a href="#">1983-2007</a>

Last Updated 09/24/2007

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

**Notes:** Values shown for the current month are preliminary. Values shown for previous months are revised. Data are final upon publication in the Petroleum Marketing Annual. Beginning January 2007, oxygenated gasoline is included in conventional gasoline and ultra-low sulfur diesel was added. In conjunction with these changes, total No. 2 diesel fuel has been eliminated to help ensure that sensitive data reported to EIA by individual survey respondents may not be closely estimated using the aggregates published by EIA. Totals may not equal the sum of the components due to rounding. See Definitions, Sources, and Notes link above for more information on this table.

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## Petroleum Navigator

Summary	Prices	Crude Reserves & Production	Refining & Processing	Imports/Exports & Movements	Stocks	Consumption/Sales	Publications & Analysis
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### Prime Supplier Sales Volumes

(Thousand Gallons per Day)

Area:  Period:

Show Data By:								
<input checked="" type="radio"/> Product	<input type="radio"/> Area	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	View History
Motor Gasoline		11,330.3	11,133.5	11,446.6	11,928.1	12,527.7	11,980.8	<a href="#">1983-2007</a>
Regular		9,452.7	9,381.1	9,672.8	10,078.6	10,638.7	10,010.3	<a href="#">1983-2007</a>
Conventional Regular		-	-	-	-	-	-	<a href="#">1993-2007</a>
Oxygenated Regular		-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Regular		9,452.7	9,381.1	9,672.8	10,078.6	10,638.7	10,010.3	<a href="#">1993-2007</a>
Midgrade		378.7	372.7	372.8	402.3	397.5	397.2	<a href="#">1988-2007</a>
Conventional Midgrade		-	-	-	-	-	-	<a href="#">1993-2007</a>
Oxygenated Midgrade		-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Midgrade		378.7	372.7	372.8	402.3	397.5	397.2	<a href="#">1993-2007</a>
Premium		1,498.9	1,379.7	1,401	1,447.2	1,491.5	1,573.4	<a href="#">1983-2007</a>
Conventional Premium		-	-	-	-	-	-	<a href="#">1993-2007</a>
Oxygenated Premium		-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Premium		1,498.9	1,379.7	1,401	1,447.2	1,491.5	1,573.4	<a href="#">1993-2007</a>
Conventional (All Grades)		-	-	-	-	-	-	<a href="#">1993-2007</a>
Oxygenated (All Grades)		-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated (All Grades)		11,330.3	11,133.5	11,446.6	11,928.1	12,527.7	11,980.8	<a href="#">1993-2007</a>
Aviation Gasoline		W	7.7	7.2	8.2	9.1	15	<a href="#">1983-2007</a>
Naphtha-Type Jet Fuel		-	-	-	-	-	-	<a href="#">1983-2007</a>
Kerosene-Type Jet Fuel		3,662.6	3,563.5	3,710.3	3,884.7	3,768.7	3,693.9	<a href="#">1983-2007</a>
Propane (Consumer Grade)		638	510.6	391.8	371.4	345.6	263.7	<a href="#">1983-2007</a>
Total Distillate and Kerosene		8,189	7,261.2	5,949.8	4,673.8	4,072.8	4,078.8	<a href="#">1983-2007</a>
Kerosene		121	55.9	W	19.8	3.6	W	<a href="#">1983-2007</a>
No. 1 Distillate		W	W	W	W	W	W	<a href="#">1983-2007</a>
No. 2 Distillate		7,959.1	7,115.3	5,818.5	4,581.7	3,992.1	3,998.3	<a href="#">1983-2007</a>
No. 2 Fuel Oil		3,599.3	3,226.8	1,859.7	1,003.9	799.3	740.8	<a href="#">1983-2007</a>
No. 2 Diesel Fuel		NA	NA	NA	NA	NA	NA	<a href="#">1983-2007</a>
Ultra Low-Sulfur		3,233.3	3,073.5	3,177	2,800.2	2,653.3	2,604.7	<a href="#">2007-2007</a>
Low-Sulfur		531.4	376.6	369.3	454.8	415.2	480.9	<a href="#">1993-2007</a>
High-Sulfur		595	438.4	412.4	322.9	124.3	171.8	<a href="#">1993-2007</a>
No. 4 Fuel Oil		W	W	W	W	W	W	<a href="#">1983-2007</a>
Residual Fuel Oil		2,388.1	2,028.7	1,280.3	1,041.6	1,113	1,348.4	<a href="#">1983-2007</a>
Sulfur Less Than or Equal to 1%		W	1,180.5	391.8	W	324	506.1	<a href="#">1983-2007</a>
Sulfur Greater Than 1%		W	848.2	888.5	W	789	842.3	<a href="#">1983-2007</a>

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- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

**Notes:** Values shown for the current month are preliminary. Values shown for previous months are revised. Data are final upon publication in the Petroleum Marketing Annual. Beginning January 2007, oxygenated gasoline is included in conventional gasoline and ultra-low sulfur diesel was added. In conjunction with these changes, total No. 2 diesel fuel has been eliminated to help ensure that sensitive data reported to EIA by individual survey respondents may not be closely estimated using the aggregates published by EIA. Totals may not equal the sum of the components due to rounding. See Definitions, Sources, and Notes link above for more information on this table.

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**Prime Supplier Sales Volumes**

(Thousand Gallons per Day)

 Area:  Period: 

Show Data By: <input checked="" type="radio"/> Product <input type="radio"/> Area	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	View History
Motor Gasoline	4,349.1	4,316.6	4,310	4,455.9	4,515.6	4,323.8	<a href="#">1983-2007</a>
Regular	3,722.3	3,728.9	3,717.5	3,826.7	3,876.5	3,687.6	<a href="#">1983-2007</a>
Conventional Regular	-	-	-	-	-	-	<a href="#">1993-2007</a>
Oxygenated Regular	-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Regular	3,722.3	3,728.9	3,717.5	3,826.7	3,876.5	3,687.6	<a href="#">1993-2007</a>
Midgrade	127.3	123.5	122	128.4	128.1	130.3	<a href="#">1988-2007</a>
Conventional Midgrade	-	-	-	-	-	-	<a href="#">1993-2007</a>
Oxygenated Midgrade	-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Midgrade	127.3	123.5	122	128.4	128.1	130.3	<a href="#">1993-2007</a>
Premium	499.6	464.2	470.4	500.8	510.9	506	<a href="#">1983-2007</a>
Conventional Premium	-	-	-	-	-	-	<a href="#">1993-2007</a>
Oxygenated Premium	-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated Premium	499.6	464.2	470.4	500.8	510.9	506	<a href="#">1993-2007</a>
Conventional (All Grades)	-	-	-	-	-	-	<a href="#">1993-2007</a>
Oxygenated (All Grades)	-	-	-	-	-	-	<a href="#">1993-2007</a>
Reformulated (All Grades)	4,349.1	4,316.6	4,310	4,455.9	4,515.6	4,323.8	<a href="#">1993-2007</a>
Aviation Gasoline	W	W	W	W	W	W	<a href="#">1983-2007</a>
Naphtha-Type Jet Fuel	-	-	-	-	-	-	<a href="#">1983-2007</a>
Kerosene-Type Jet Fuel	213.5	194.3	199.9	208.9	190.1	237.5	<a href="#">1983-2007</a>
Propane (Consumer Grade)	224.5	156.2	110.3	83.2	82.6	70.1	<a href="#">1983-2007</a>
Total Distillate and Kerosene	3,908	3,003	2,202.7	1,540.4	1,289	1,185.5	<a href="#">1983-2007</a>
Kerosene	13	W	W	0.7	W	W	<a href="#">1983-2007</a>
No. 1 Distillate	W	W	W	W	W	W	<a href="#">1983-2007</a>
No. 2 Distillate	3,827.7	2,955.7	2,173.7	1,520.4	1,279.9	1,175	<a href="#">1983-2007</a>
No. 2 Fuel Oil	2,937.4	2,144.8	1,445.4	712.1	461	379.7	<a href="#">1983-2007</a>
No. 2 Diesel Fuel	NA	NA	NA	NA	NA	NA	<a href="#">1983-2007</a>
Ultra Low-Sulfur	691.1	640.2	629	738.8	751.2	719.5	<a href="#">2007-2007</a>
Low-Sulfur	68	64.6	46.6	52.4	W	W	<a href="#">1993-2007</a>
High-Sulfur	131.2	106.1	52.8	17.1	W	W	<a href="#">1993-2007</a>
No. 4 Fuel Oil	W	W	W	W	W	W	<a href="#">1983-2007</a>
Residual Fuel Oil	193.9	152.4	361.3	W	W	W	<a href="#">1983-2007</a>
Sulfur Less Than or Equal to 1%	W	W	W	W	W	W	<a href="#">1983-2007</a>
Sulfur Greater Than 1%	W	W	W	W	W	W	<a href="#">1983-2007</a>

Last Updated 09/24/2007

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**Notes:** Values shown for the current month are preliminary. Values shown for previous months are revised. Data are final upon publication in the Petroleum Marketing Annual. Beginning January 2007, oxygenated gasoline is included in conventional gasoline and ultra-low sulfur diesel was added. In conjunction with these changes, total No. 2 diesel fuel has been eliminated to help ensure that sensitive data reported to EIA by individual survey respondents may not be closely estimated using the aggregates published by EIA. Totals may not equal the sum of the components due to rounding. See Definitions, Sources, and Notes link above for more information on this table.

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**Total Stocks**

(Thousand Barrels)

Area: Period: 

Show Data By: <input checked="" type="radio"/> Product <input type="radio"/> Area	09/07/07	09/14/07	09/21/07	09/28/07	10/05/07	10/12/07	View History
Total Motor Gasoline	24,954	24,659	25,427	25,784	25,568	25,644	<a href="#">1990-2007</a>
Distillate Fuel Oil	32,592	33,659	32,929	33,566	33,370	34,585	<a href="#">1990-2007</a>
15 ppm Sulfur and Under	7,697	8,004	6,875	6,962	6,909	6,801	<a href="#">2004-2007</a>
> 15 ppm to 500 ppm Sulfur	4,529	4,267	4,566	4,693	4,464	4,747	<a href="#">1993-2007</a>
> 500 ppm Sulfur	20,366	21,388	21,488	21,911	21,997	23,037	<a href="#">1993-2007</a>
Residual Fuel Oil	11,020	11,159	11,330	11,492	11,526	11,108	<a href="#">1990-2007</a>
Propane/Propylene	2,480	2,447	2,335	2,272	2,240	2,350	<a href="#">1993-2007</a>

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- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

**Notes:** Product stocks include those domestic and Customs-cleared foreign stocks held at, or in transit to, refineries and bulk terminals, and stocks in pipelines. Stocks held at natural gas processing plants are included in "Other Oils" and in totals. All stock levels are as of the end of the period. Crude oil stocks include those domestic and Customs-cleared foreign crude oil stocks held at refineries, in pipelines, in lease tanks, and in transit to refineries. Distillate fuel oil stocks located in the "Northeast Heating Oil Reserve" are not included. Data may not add to total due to independent rounding. See Definitions, Sources, and Notes link above for more information on this table.

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## Weekly Inputs, Utilization & Production

(Thousand Barrels per Day, Except Where Noted)

 Area:  Period: 

Show Data By: <input checked="" type="radio"/> Data Series <input type="radio"/> Area	09/07/07	09/14/07	09/21/07	09/28/07	10/05/07	10/12/07	View History
<b>Refinery Inputs and Utilization</b>							
Crude Oil Inputs	7,321	7,248	6,980	7,234	7,332	7,477	<a href="#">1992-2007</a>
Gross Inputs	7,449	7,440	7,042	7,296	7,478	7,507	<a href="#">1990-2007</a>
Gasoline Blending Components	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
RBOB with Ether	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
RBOB with Alcohol	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
CBOB	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
GTAB Reformulated	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
GTAB Conventional	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
All Other	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
<b>Production by Product</b>							
Finished Motor Gasoline	3,158	3,184	3,152	3,116	3,238	3,295	<a href="#">1993-2007</a>
Reformulated	418	370	361	360	416	415	<a href="#">1993-2007</a>
Blended with Ether	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
Blended with Alcohol	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
Non Oxygenated	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
Conventional	2,740	2,814	2,791	2,756	2,822	2,880	<a href="#">1994-2007</a>
Blended with Alcohol	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
Other Conventional	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
Kerosene-Type Jet Fuel	646	676	583	586	676	724	<a href="#">1990-2007</a>
Commercial	585	563	541	515	587	637	<a href="#">1993-2007</a>
Military	61	113	42	71	89	87	<a href="#">1993-2007</a>
Distillate Fuel Oil	1,911	1,961	1,967	1,993	2,038	2,088	<a href="#">1990-2007</a>
15 ppm Sulfur and Under	1,275	1,269	1,189	1,231	1,287	1,379	<a href="#">2004-2007</a>
> 15 ppm to 500 ppm Sulfur	442	518	513	554	460	456	<a href="#">1993-2007</a>
> 500 ppm Sulfur	194	174	265	208	291	253	<a href="#">1993-2007</a>
Residual Fuel Oil	354	291	264	317	271	298	<a href="#">1990-2007</a>
Propane/Propylene	692	633	620	627	732	642	<a href="#">1993-2007</a>

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**Notes:** Beginning in 1993, motor gasoline production and product supplied includes blending of fuel ethanol and an adjustment to correct for the imbalance of motor gasoline blending components. See Definitions, Sources, and Notes link above for more information on this table.

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## Petroleum Navigator

Summary	Prices	Crude Reserves & Production	Refining & Processing	Imports/Exports & Movements	Stocks	Consumption/Sales	Publications & Analysis
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### Weekly Inputs, Utilization & Production

(Thousand Barrels per Day, Except Where Noted)

Area:  Period:

Show Data By: <input checked="" type="radio"/> Data Series <input type="radio"/> Area	09/07/07	09/14/07	09/21/07	09/28/07	10/05/07	10/12/07	View History
<b>Refinery Inputs and Utilization</b>							
Crude Oil Inputs	2,696	2,590	2,692	2,704	2,551	2,430	<a href="#">1992-2007</a>
Gross Inputs	2,784	2,672	2,772	2,791	2,606	2,508	<a href="#">1990-2007</a>
<b>Gasoline Blending Components</b>							
RBOB with Ether	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
RBOB with Alcohol	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
CBOB	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
GTAB Reformulated	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
GTAB Conventional	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
All Other	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
<b>Production by Product</b>							
<b>Finished Motor Gasoline</b>							
Reformulated	1,058	1,038	1,030	1,012	1,093	1,056	<a href="#">1993-2007</a>
Blended with Ether	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
Blended with Alcohol	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
<b>Non Oxygenated</b>							
Conventional	484	473	472	558	488	427	<a href="#">1994-2007</a>
Blended with Alcohol	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
Other Conventional	NA	NA	NA	NA	NA	NA	<a href="#">2004-2007</a>
<b>Kerosene-Type Jet Fuel</b>							
Commercial	363	401	396	421	383	382	<a href="#">1993-2007</a>
Military	46	39	50	33	29	34	<a href="#">1993-2007</a>
<b>Distillate Fuel Oil</b>							
15 ppm Sulfur and Under	514	465	453	504	448	456	<a href="#">2004-2007</a>
> 15 ppm to 500 ppm Sulfur	41	52	43	34	42	39	<a href="#">1993-2007</a>
> 500 ppm Sulfur	75	23	82	19	67	100	<a href="#">1993-2007</a>
Residual Fuel Oil	162	177	188	181	142	157	<a href="#">1990-2007</a>

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**Notes:** Beginning in 1993, motor gasoline production and product supplied includes blending of fuel ethanol and an adjustment to correct for the imbalance of motor gasoline blending components. See Definitions, Sources, and Notes link above for more information on this table.

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Summary	Prices	Crude Reserves & Production	Refining & Processing	Imports/Exports & Movements	Stocks	Consumption/Sales	Publications & Analysis
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### Prime Supplier Sales Volumes

(Thousand Gallons per Day)

Area:  Period:

Show Data By:	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	View History
<input checked="" type="radio"/> Product <input type="radio"/> Area							
Motor Gasoline	43,353.9	44,281.9	43,479.2	44,569.5	45,393.2	43,644.4	1983-2007
Regular	34,211	35,306.7	34,930	35,873.2	36,409.1	34,935.2	1983-2007
Conventional Regular	-	-	-	-	-	-	1993-2007
Oxygenated Regular	-	-	-	-	-	-	1993-2007
Reformulated Regular	34,211	35,306.7	34,930	35,873.2	36,409.1	34,935.2	1993-2007
Midgrade	2,428.2	2,366.2	2,261.6	2,380.7	2,330.6	2,307.9	1988-2007
Conventional Midgrade	-	-	-	-	-	-	1993-2007
Oxygenated Midgrade	-	-	-	-	-	-	1993-2007
Reformulated Midgrade	2,428.2	2,366.2	2,261.6	2,380.7	2,330.6	2,307.9	1993-2007
Premium	6,714.7	6,609	6,287.6	6,315.6	6,653.4	6,401.3	1983-2007
Conventional Premium	-	-	-	-	-	-	1993-2007
Oxygenated Premium	-	-	-	-	-	-	1993-2007
Reformulated Premium	6,714.7	6,609	6,287.6	6,315.6	6,653.4	6,401.3	1993-2007
Conventional (All Grades)	-	-	-	-	-	-	1993-2007
Oxygenated (All Grades)	-	-	-	-	-	-	1993-2007
Reformulated (All Grades)	43,353.9	44,281.9	43,479.2	44,569.5	45,393.2	43,644.4	1993-2007
Aviation Gasoline	45.4	54.3	45.2	54.6	86.8	76.2	1983-2007
Naphtha-Type Jet Fuel	-	-	-	-	-	-	1983-2007
Kerosene-Type Jet Fuel	11,222.6	10,777.5	11,421	11,269.4	12,072.9	11,133.2	1983-2007
Propane (Consumer Grade)	2,121.2	1,685.4	1,473.6	1,387.4	1,319.2	1,216.3	1983-2007
Total Distillate and Kerosene	10,582.3	11,322.5	11,646.9	12,292.8	12,304.4	12,078.4	1983-2007
Kerosene	W	W	W	W	W	W	1983-2007
No. 1 Distillate	-	-	-	-	-	-	1983-2007
No. 2 Distillate	10,574.9	11,315.7	11,641.3	12,289.7	12,294.8	12,065	1983-2007
No. 2 Fuel Oil	W	-	-	-	-	-	1983-2007
No. 2 Diesel Fuel	NA	NA	NA	NA	NA	NA	1983-2007
Ultra Low-Sulfur	10,554.6	11,161.5	11,628.4	W	W	W	2007-2007
Low-Sulfur	-	W	W	-	-	-	1993-2007
High-Sulfur	W	W	W	W	W	W	1993-2007
No. 4 Fuel Oil	W	W	W	W	W	W	1983-2007
Residual Fuel Oil	5,024.4	4,294.5	5,071.5	4,939	3,745.9	3,937.5	1983-2007
Sulfur Less Than or Equal to 1%	W	W	829.7	811.6	746.6	685.8	1983-2007
Sulfur Greater Than 1%	W	W	4,241.9	4,127.4	2,999.3	3,251.7	1983-2007

Last Updated 09/24/2007

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Summary	Prices	Crude Reserves & Production	Refining & Processing	Imports/Exports & Movements	Stocks	Consumption/Sales	Publications & Analysis
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## Oxygenate Production

Area: Period-Unit: 

Show Data By:		Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	View History
<input checked="" type="radio"/> Product	<input type="radio"/> Area							
Fuel Ethanol		10,795	11,892	11,716	12,573	12,553	13,051	<a href="#">1992-2007</a>
Methyl Tertiary Butyl Ether (MTBE)		1,821	2,277	1,959	2,003	1,694	2,088	<a href="#">2005-2007</a>
Merchant Plants		1,692	2,123	1,849	1,920	1,595	1,980	<a href="#">1992-2007</a>
Captive Plants		129	154	110	83	99	108	<a href="#">1992-2007</a>

Last Updated 09/28/2007

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