OPIS 45

HANDBOOK & METHODOLOGY GUIDE

Barge Trading and Pricing

- Jet Fuel
- Diesel
- Gasoil
- DMA

ABOUT

OPIS in the U.S. and Around the World

OPIS is an innovative price reporting agency that led the field in introducing refinery rack pricing and live price tickers. Today OPIS is the most comprehensive actor in spot, wholesale and retail pricing. We hold gas liquids and U.S. West Coast refined product benchmarks. We process two million retail prices a day, so more than 40 million drivers use our service to find the cheapest fuel to fill their car.

OPIS has been present in Europe and Asia since 2007 and publishes a wide range of oil product market assessments, a number of ticking price services and highly accurate live tracking of oil product cargoes into and out of Europe and the USA.

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WHY

A New Pricing Method for Oil Products in Europe

In recent years, spot markets in Europe have been in poor health. The leading European assessors have seen sharply falling liquidity. Sometimes markets are priced for months on end despite a complete lack of trade. Sometimes weeks pass with not even a bid or offer, and the number of market participants can be less than a handful.

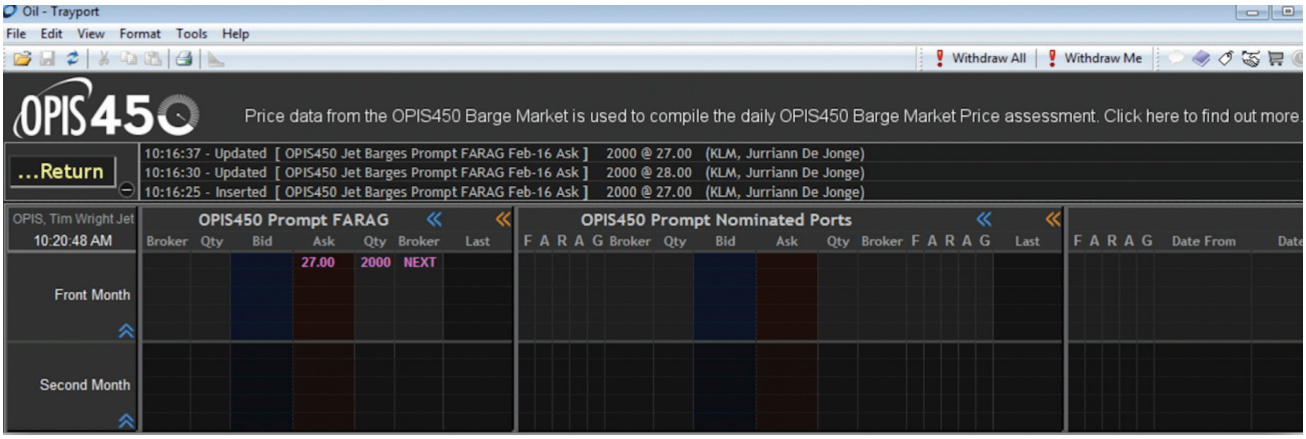
This state of affairs prompted OPIS to develop an alternative assessment method that addresses these problems and is based on the barge market around Rotterdam.

The resulting OPIS450 Barge Market Assessment is a radical departure from the leading single-point-in-time or market on close approach.

It harnesses the massive volume of trade on the futures markets that underly oil product markets and combines this with live premium values from a new all-day electronic marketplace on the respected Trayport trading platform.

OPIS450 provides, for the first time, live all-day physical oil product pricing in Europe. For the jet fuel market, this appears on the OPIS450 Europe Jet Ticker, which since January 2016 has merged price information from ICE futures with traded differentials on Trayport. It also shows European jet fuel prices alongside jet fuel prices in the U.S. Gulf Coast, New York and Los Angeles.

For diesel, marine diesel and heating oils, OPIS450 Price Reports will show the full price curve of the day in a graph showing assessed value every minute of the trading day.



From the OPIS450 Barge Market on Trayport, OPIS captures live ticks of market value – the level of the highest executable bid or lowest executable offer, and any deals that are transacted. This "Last Value" approach creates unparalleled visibility of market trading levels.

WHAT

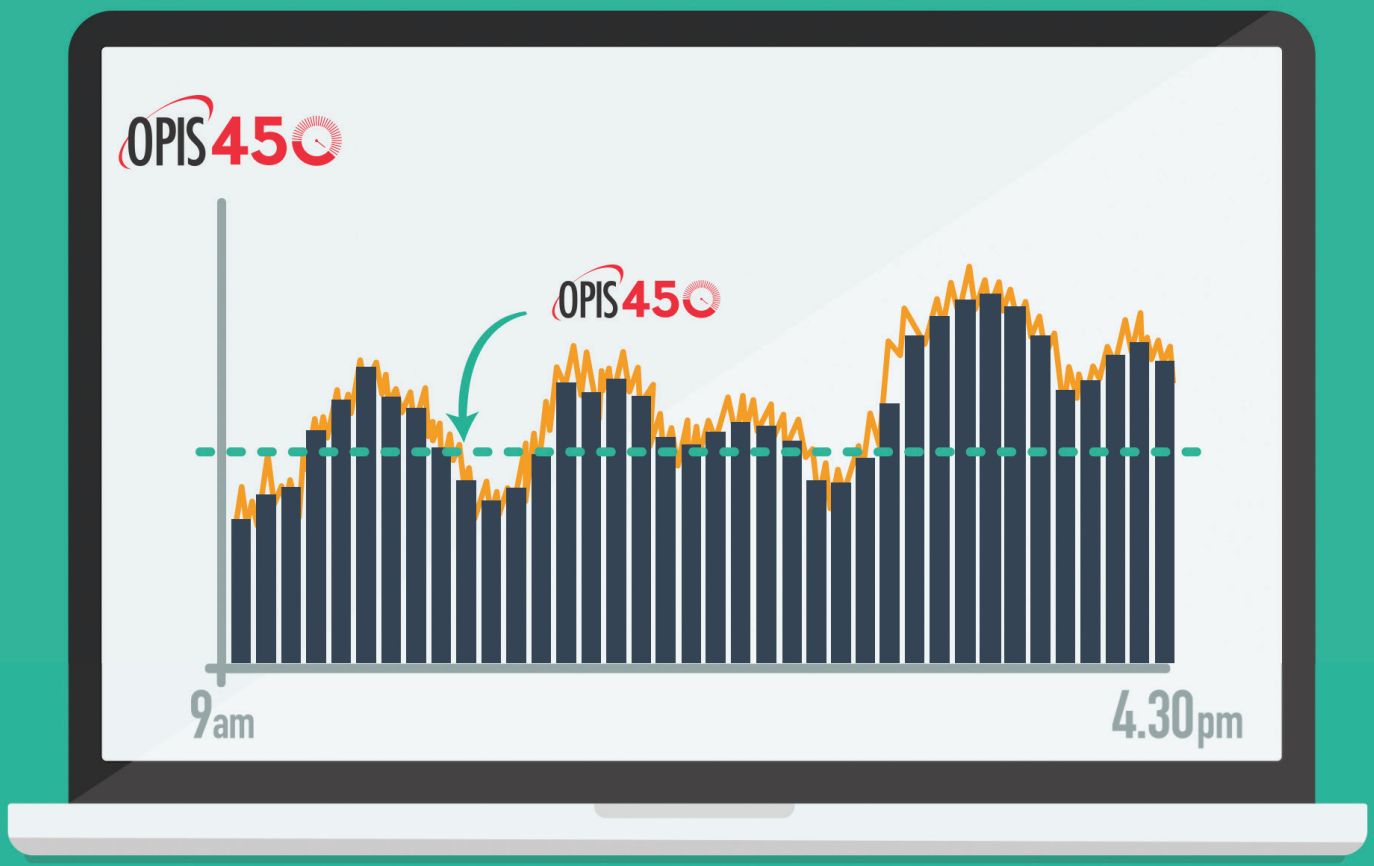
A New Way to Trade Road Fuels, Marine Fuels and Heating Oil in Europe

During Spring 2017, OPIS is excited to announce the launch of new trading screens with integrated price discovery for the important ARA oil market. Building on the success of the OPIS450 Jet Barge Market in 2016, trading screens for Ultra Low Sulfur Diesel (ULSD), 0.1% Gasoil, 50ppm Gasoil and Marine Diesel Fuel will be added to the OPIS450 Barge Market.

These electronic markets are hosted using the well-established Trayport platform. Traders and brokers can use the screens to trade Exchange for Physical (EFP) differentials for prompt and custom-timed delivery on an ARA or nominated-port basis. Floating price deals can also be transacted with spot contracts pricing out against OPIS or Platts indices.

There are a variety of trading 'stacks' for each market, where brokers can place orders on behalf of clients, or traders can place their own bids or offers, indicating their nominated broker as they do. Stacks marked OPIS450 are monitored by OPIS's data systems to generate instantaneous value assessments. These prompt market values are averaged each minute to create the 450 price marks which are used in the day's OPIS450 assessment.

Trading stacks which do not bear the OPIS450 logo are provided as a service to the industry, and are not included in daily price assessments.



WHAT

What is OPIS450?

OPIS captures data from the two platforms electronically and creates a one-minute average price for each of the 450 minutes between 9am and 4.30pm London time. These 450 one-minute marks for the underlying future and for the product premium are then added to each other. Once they've been verified by editors and compliance staff, the 450 prices are averaged to create the OPIS450 Barge Assessment.

Two further prices are published to provide flexibility.

The **OPIS450 Differential** tallies the prevailing value of premiums in each of the 450 minutes of the trading day and then averages them.

This differential can be added to the day's LS Gasoil Futures settlement to provide a further accurate pricing tool to the market which is called the **OPIS450 Diff + Settle.**

WHO

We're here to answer your OPIS450 questions

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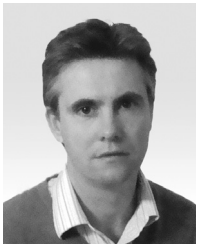

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CONTRACT INDICES

OPIS450 provides a reliable and robust index price

By creating a price index based on live, executable differential values and adding these to futures prices every minute of the day, OPIS is effectively taking into account close to 10,000 price marks each month to publish its monthly average price.

Compared with a single-point-in-time assessment, OPIS considers that this makes the assessment resilient. It is simply impractical to seek to manipulate an assessment which is averaged from 10,000 price marks. Consider that a closing market assessment is made of just 22 or 23 closing prices per month.

OPIS450 also takes account of the value of deals currently not reported to pricing agencies. This is because OPIS450 continually reflects live, executable value from bids, offers and deals at any point in time. This means OPIS450 captures the actual price levels at which such deals would have been transacted, even when deals are not reported to price reporting agencies. This effectively addresses the concern that deals may be selectively provided or withdrawn from market assessment procedures.

HOW

OPIS450 Assessment Methodology – Europe Jet, Middle Distillates and Diesel Marine Fuel

OPIS450 is a way of pricing oil products based on their live value. OPIS450 pricing is assessed by taking the average of 450 one-minute price marks assessed for each of the 450 minutes between 9am and 4.30pm London time. This pricing assessment provides a real choice to those contracting for long-term supply or trading in the European spot market. It's based, not on cargo trading, but on the more liquid and accessible barge trade in and around Rotterdam. This market is well-supplied and is traded by both suppliers and end-users.

OPIS450 ASSESSMENT OF REAL-TIME VALUE

Before the start of each trading day, a differential value for product barges will be published in OPIS market reports and price tickers.

This will remain the prevailing value used for assessment that day until there is new market information.

The differential value will change throughout the day when there is a higher bid seen, or a lower offer, or a trade.

Example: the published differential value is $30, based on yesterday's closing value. A broker then posts a real-time bid of $30.50 on the third-party screen prior to 9am London time. At 9am the OPIS450 begins with that differential value of $30.50. The value used for assessment will stay at $30.50 until there is a higher bid, or a lower offer, or a new trade.

In order to capture real-time bids, offers, and trades, OPIS has linked to a third-party trading screen known as the OPIS450 Barge Market, which is hosted on the Trayport trading platform.

OPIS will publish all differential values relative to the front month LS Gasoil future, and will translate any differential based on a second month future into a differential versus the front month future at that time.

In the event of a crossover between a port-specific bid and offer, OPIS will use the offer for assessment purposes.

Example: the market is bid for jet at $19/ton Rotterdam for 2,000 tons, and offered at $18.50 Antwerp for 2,000 tons. The offer sets the value.

A port-specific offer should not pass lower than a bid with matching port requirements but different volumes without testing the bid.

Example: the market is offered at $19 Rotterdam for 3,000 tons, and bid at $19 FARA for 2,000 tons. The seller should test the bid before being able to offer lower.

New bids and offers should be placed sequentially, with guidance of $1 increments to the current differential value that is setting the index.

All bids and offers on screen must be executable in real-time.

In the event of a trade, the buyer or seller should firstly test the repeatability of the deal at the same differential value, or draw back to a lower differential bid or higher differential offer. After testing the repeatability of the trade, the buyer can issue a lower differential bid and the seller can issue a higher differential offer.

Companies should inform OPIS of credit or trading restrictions they have with other companies that are using the OPIS450 screens on Trayport. This may lead to pricing data being disregarded if a counterparty is considered unable to trade.

Standard industry nomination and pricing procedures apply.

Inability to execute a bid or offer posted on the Trayport screen must be flagged to OPIS.

Editors will also be able to manually input bids, offers and trades from other third party sources if the information is deemed live, executable and seen by a wide number of market participants.

After 4.30pm, editors will review the data from Trayport and may remove bids, offers or trades that are regarded out of kilter with market value, and have noticeably altered the assessment of the average differential.

ELECTRONIC PLATFORMS AND DATA FEEDS

OPIS450 relies on two electronic trading platforms. In the event of an interruption to the electronic feed from Trayport, brokers will be asked to send live bids and offers to

OPIS's editors, and these values will appear on then appear on OPIS450 Product Tickers and be used in the day's assessment.

In the event of an interruption to the ICE Futures feed, OPIS will publish the average of the differential moves and the LS Gasoil settle as the OPIS450 Assessment.

OPIS450 JET BARGE ASSESSMENT

From 4 January, 2016, the OPIS450 Jet Barge Assessment reflects the real-time value of prompt-loading jet fuel in the ports of Flushing, Antwerp, Rotterdam, Amsterdam and Ghent (FARAG) between 9am and 4.30pm London time. The closing time will be 12.30pm during certain holiday periods listed in the OPIS Holiday Schedule when oil product markets cease trading at lunchtime.

The assessment is based on 2,000 to 3,000 metric ton FOB barges, loading 3-7 days forward on Monday and Tuesday, and 5-9 days forward on Wednesday, Thursday and Friday. Loading times may be changed to allow trade during unusual trading conditions. The specification is Jet A1, Defstan 91-91 latest issue, 0.800 specific gravity, EU qualified.

Product differentials traded on a third-party trading platform are used in the assessment process. Live prices can be followed on the OPIS450 Europe Jet Ticker, before an evening assessment is made and published each product trading day in the OPIS Europe Jet, Diesel & Gasoil Report.

For mark-to-market and index pricing purposes, three prices will be published: an outright OPIS450 price, an OPIS450 differential, and a composite of the OPIS450 and the ICE Futures LS Gasoil Settlement price.

OPIS CIF JET CARGO ASSESSMENT

In addition to the barge assessments, OPIS will publish jet cargo prices based on 30,000 tons delivered into the ports of either Rotterdam and/or Le Havre, arriving in 10-30 days' time.

There are two prices.

Firstly, the price versus the average of LS Gasoil Futures between 9am and 4.30pm London time (OPIS450 LS Gasoil), and secondly, the price versus the LS Gasoil ICE Settlement at 4.30pm London time.

The first of these prices will be published in the OPIS450 Europe Jet Price Summary (including when this is appended to the OPIS Europe Jet, Diesel & Gasoil Report). The second price is published as normal with OPIS's other legacy jet fuel assessments on page 1 of the aforementioned report.

Values will be assessed from information provided by brokers and traders during the day.

OPIS will also publish netback prices for Mediterranean and the Arab Gulf jet fuel, based on daily freight assessments. The netbacks will be based on the OPIS450 Jet Barge Assessment.

OPIS450 DMA BARGE ASSESSMENT DYED AND OPIS450 DMA BARGE ASSESSMENT UNDYED

From Summer 2017, the OPIS450 DMA Barge Assessments reflect the real-time value of prompt-loading Diesel Marine Fuel A in the ports Antwerp, Rotterdam, Amsterdam (ARA) between 9am and 4.30pm London time. The closing time will be 12.30pm during certain holiday periods listed in the OPIS Holiday Schedule when oil product markets cease trading at lunchtime.

The assessment is based on 1,000 to 3,000 metric ton FOB barges (plus or minus 5% in buyer's option), loading 3-7 days forward on Monday and Tuesday, and 5-9 days forward on Wednesday, Thursday and Friday. Loading times may be changed to allow trade during unusual trading conditions. The specification is DMA ISO8217 v 2010. OPIS will publish both a dyed and an undyed DMA assessment.

OPIS will set out a schedule for changing the seasonal specification of ULSD for winter, intermediate and summer grades in seasonal market announcements. The dates may vary from year-to-year.

Product differentials traded on a third-party trading platform are used in the assessment process.

For mark-to-market and index pricing purposes, for each of the dyed/undeyed

products, three prices will be published: an outright OPIS450 DMA price, an OPIS450 differential, and a composite of the OPIS450 and the ICE Futures LS Gasoil Settlement price.

OPIS450 ULSD BARGE ASSESSMENT

From Summer 2017, the OPIS450 ULSD Barge Assessments reflect the real-time value of prompt-loading ultra-low sulfur diesel in the ports Antwerp, Rotterdam, Amsterdam (ARA) between 9am and 4.30pm London time. The closing time will be 12.30pm during certain holiday periods listed in the OPIS Holiday Schedule when oil product markets cease trading at lunchtime.

The assessment is based on 1,000 to 3,000 metric ton FOB barges (plus or minus 5% in buyer's option), loading 3-7 days forward on Monday and Tuesday, and 5-9 days forward on Wednesday, Thursday and Friday. Loading times may be changed to allow trade during unusual trading conditions. The quality is German specification diesel with a maximum sulfur content of 10ppm. The typical density is basis 0.845 kg/l (actual specific gravity ranges from 0.82 to 0.845 kg/l).

OPIS will set out a schedule for changing the seasonal specification of ULSD for winter, intermediate and summer grades through seasonal market announcements. The dates may vary from year-to-year.

Product differentials traded on a third-party trading platform are used in the assessment process.

For mark-to-market and index pricing purposes, OPIS will publish an outright OPIS450 ULSD barge price, an OPIS450 ULSD differential, and a composite of the OPIS450 ULSD differential and the ICE Futures LS Gasoil Settlement price.

OPIS450 50ppm GASOIL BARGE ASSESSMENT

From Summer 2017, the OPIS450 50ppm Gasoil Barge Assessments reflect the real-time value of prompt-loading ultra-low sulfur diesel in the ports Antwerp, Rotterdam, Amsterdam (ARA) between 9am and

4.30pm London time. The closing time will be 12.30pm during certain holiday periods listed in the OPIS Holiday Schedule when oil product markets cease trading at lunchtime.

The assessment is based on 1,000 to 3,000 metric ton FOB barges (plus or minus 5% in buyer's option), loading 3-7 days forward on Monday and Tuesday, and 5-9 days forward on Wednesday, Thursday and Friday. Loading times may be changed to allow trade during unusual trading conditions. The quality is German specification heating oil with a maximum sulfur content of 50ppm. The typical density is basis 0.845 kg/l.

Product differentials traded on a third-party trading platform are used in the assessment process.

For mark-to-market and index pricing purposes, OPIS will publish an outright OPIS450 50ppm Gasoil price, an OPIS450 50ppm Gasoil differential, and a composite of the OPIS450 50ppm differential and the ICE Futures LS Gasoil Settlement price.

OPIS450 1000ppm GASOIL BARGE ASSESSMENT

From Summer 2017, the OPIS450 1000ppm Gasoil Barge Assessments reflect the real-time value of prompt-loading ultra-low sulfur diesel in the ports Antwerp, Rotterdam, Amsterdam (ARA) between 9am and 4.30pm London time. The closing time will be 12.30pm during certain holiday periods listed in the OPIS Holiday Schedule when oil product markets cease trading at lunchtime.

The assessment is based on 1,000 to 3,000 metric ton FOB barges (plus or minus 5% in buyer's option), loading 3-7 days forward on Monday and Tuesday, and 5-9 days forward on Wednesday, Thursday and Friday. Loading times may be changed to allow trade during unusual trading conditions. The quality is gasoil heating oil grade with a specific gravity of 0.845 kg/l and with a maximum sulfur content of 0.1%

Product differentials traded on a third-party trading platform are used in the assessment process.

For mark-to-market and index pricing purposes, OPIS will publish an outright OPIS450 1000ppm Gasoil price, an OPIS450 1000ppm Gasoil differential, and a composite of the OPIS450 1000ppm Gasoil differential and the ICE Futures LS Gasoil Set-tlement price.

Read the complete OPIS450 Methodology here: www.opisnet.com/opis450-methodology

PUTTING OPIS450 TO WORK

How to make use of the electronic market, ticker and the new index

OPIS450 is designed to address serious weaknesses in the existing pricing mechanisms many end-users and suppliers use in high value supply contracts. It provides an unprecedented level of price visibility and transparency, with a robust and resilient methodology that is fair and more representative of the way oil trades.

How you put it to use depends on how your company interacts with the fuel markets.

I'm an Airline. I Contract for Jet Fuel Supply but Don't Trade it in a Spot Market

By requesting your supplier to reference the OPIS450 Jet Barge Price in your contract, you are supporting a genuine alternative to single-point pricing. This new all-day pricing model can be monitored electronically on a laptop, iPhone or tablet at any time of the trading day, or even out of hours.

OPIS is a very affordable alternative to competitive pricing platforms and is backed up with high-quality, ticker-based news and a daily report which leads its field.

Airlines are among the largest and most powerful end users of oil products in the world today – and that market share of oil product supply is growing each year.

Many airlines have sought to diversify their dependence on a single pricing methodology by apportioning some of their volume to competitive pricing agency assessments. This is an excellent way of engaging with the project to return spot markets to a healthier, more robust state.

When airlines do this, spot market participants will use the new alternative trade platforms to a greater extent, further increasing liquidity, but under more a more robust pricing methodology.

Consider the following:

- Subscribe to the OPIS450 Europe Jet Ticker and follow markets on your laptop or mobile device
- Subscribe to the OPIS Europe Jet, Diesel & Gasoil Report which carries the official daily assessment, along with news, analysis and market commentary

I'm a Trader and I Buy and Sell Barges of Jet Fuel

If you buy and trade jet fuel in Europe, the OPIS450 Barge Market offers a recognised, independent trading venue which is used today in some 160 markets by more than 3,700 traders.

In fact, Trayport technology today underpins more than 85% of all power, gas, coal, emissions and freight futures and forwards trading in Europe.

The OPIS450 Barge Market is a broker-led marketplace. Traders can hit the bids or offers of other traders in this marketplace, but will nominate their broker as they do. OPIS believes the role of the broker is a valuable and important one. OPIS is also committed to not developing a broking or matchmaking business model, which in our view could bring the independence of price reporting agencies into question.

I'm a Broker and I Help Clients Source the Best Value

Brokers fulfill an important function in spot markets and the OPIS450 Barge Market takes account of this by being a broker-led platform. Brokers can hit bids or offers on behalf of their clients. Traders can hit other traders, but as they do they choose a nominated broker.

Brokers in the European jet barge market have reacted positively to the OPIS Barge Market since its infrastructure offers them a series of benefits but is also compatible with phone and yahoo broking when needs be.

I'm a Supplier of Jet Fuel and I Want to Respond to Customers Requests

Several international airlines have publicly committed to supporting the development of a competitive alternative to existing jet fuel benchmark holders. End-users of marine diesel fuel have also reacted positively to increased choice in the market.

OPIS is a flexible and responsive company that will make price history available to you when you are considering offering on an OPIS450 Barge index to your customers.

As you provide alternative price agency terms to end-users, you'll find that you are unlocking suppressed demand for pricing alternatives and more transparent pricing.

As a supplier, you'll get expert market analysis in OPIS's European distillate pricing reports. In jet fuel, suppliers can benefit from inexpensive access to the OPIS450 Europe Jet Ticker which provides not only up to the second jet prices in Northwest Europe, but also ticking prices for U.S. Gulf Coast, New York and Los Angeles.

Consider the following:

- Ask OPIS about providing price history to facilitate your first airline quotations
- Subscribe to the OPIS450 Europe Jet Ticker
- Subscribe to the OPIS Europe Jet, Diesel & Gasoil Report – the publication of record of the OPIS450 Jet Barge Assessment

PRICE DISCOVERY & DATA INTEGRITY

OPIS reflects real bids, offers and trades in the assessment process. Traders indicate their buying or selling interest as premiums or discounts to front- or second-month futures through nominated brokers. All bids and offers must be firm and executable.

OPIS has one of the most experienced jet fuel pricing teams in the business and gathers unparalleled intelligence on the product trade flows that can affect pricing in particular locations. This experience is brought to bear on the OPIS450 market assessment process each evening when market data is verified first by price editors and secondly by compliance approvers. By assessing second-by-second live value, OPIS gains a further metric with which to take a view of the validity of any reported market activity. By its nature, bid and offer levels are broadcast to the market in real time. Since they can be aggressed by matching buyers or sellers, they must reflect genuine value. For the sake of transparency, the full data set of the 450 one-minute price markers is published each evening, along with a summary report carrying the price report assessments.

PUBLICATION OF RECORD

OPIS450 jet price assessments are published principally in the OPIS Europe Jet, Diesel & Gasoil Report. Live price levels in Europe, U.S. Gulf Coast, New York and Los Angeles are displayed around the clock on the OPIS450 Europe Jet Ticker. During an introductory period, the OPIS450 assessments are being made available to OPIS450 Ticker users as well as subscribers to the OPIS Europe Jet, Diesel & Gasoil Report.

COMPLIANCE

OPIS is an IOSCO-Compliant Price Reporting Agency

OPIS was one of the initial signatories of the International Organization of Securities Commissions (IOSCO) voluntary compliance standards for Oil Price Reporting Agencies (PRAs).

OPIS retains PricewaterhouseCoopers LLP to audit our systems, processes and pricing assessments to make sure we are 100% compliant with the IOSCO standards. Now in our fourth year of independent auditing of our key benchmarks, we are once again extremely proud to say that OPIS spot price assessments conform to the Principles for Oil Price Reporting Agencies as established by IOSCO.

More detail on OPIS's Global Compliance Strategy and the IOSCO Principles can be found on the OPIS website at www.opisnet.com/about/methodology.aspx.

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