Jet Fuel Hedging and Trading at ICE

February 2012

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WELCOME: ICE JET FUEL HEDGING AND TRADING AT ICE

TODAY'S SESSION

Content

ICE: Introduction

- Trading and Clearing Oil at the ICE
- Crude and Products: Brent, WTI, Dubai, Gasoil, Jet differentials and flat prices, options

- ICE : Host to global oil benchmarks
  - ICE Brent - worlds preferred crude benchmark
  - ICE Gasoil - global product benchmark – transparency, liquidity and flexibility (Gasoil screen shot)
- The ICE Jet offering:
  - Proxy hedging via futures – Brent, Gasoil
  - OTC- Jet 54 USGC, CIF NWE, Sing Gasoil
  - Straight-through processing, comprehensive risk tools with real time responsiveness
- Why ICE?
  - Hedge efficiency: Brent/Jet correlation- product prices discovered internationally, seaborne crude and products most reliable benchmarks therefore
  - Margin offsets for maximum capital efficiency/minimum cash flow volatility
  - Gasoil liquidity
  - OTC flexibility via those bases
  - Global instrument reach for global carriers
- New ICE Low Sulphur Gasoil Futures – the best solution yet for Jet hedging
- Q&A
- Conclusion

ICE OVERVIEW

IntercontinentalExchange (ICE) is a leading operator of integrated futures exchanges and over-the-counter (OTC) markets, clearing houses, trade processing and data services for the global derivatives markets.

Global distribution

- Screens distributed in more than 70 countries
- 4 regulated futures exchanges / 2 OTC marketplaces
- 5 clearing houses in the U.S., Europe and Canada

Diversified markets

- Energy, emissions, agricultural, equity index, currency and credit products
- Futures, OTC and Options

Acting ahead of financial reform

- Clearing, market transparency and regulation

Innovation and execution

- Delivering on industry needs ahead of the curve

ICE COMMODITY & DERIVATIVES MARKETS

ICE Regulated FuturesExchanges

U.S. & CANADA

AGRICULTURAL

Cocoa
Coffee
Cotton
Sugar
Orange Juice
Barley
Canola

FINANCIAL

Currency Pairs
U.S. Dollar Index
Russell Indexes

EUROPE ENERGY

Brent Crude
WTI Crude
Gas Oil
ASCI Crude
European Natural gas
U.K. Electricity
Coal
Emissions

ICE OTC

OTC CONTRACTS

OTC Energy
Oil and refined products
Physical/Financial gas
Physical/Financial power
Natural gas liquids
Emissions

OTC Credit – Creditex
CDS – indexes, single names, structured products

OTC Iron Ore

BRIX

ICE Data & Services

MARKET DATA

Real-time prices/screens
Indices and end of day reports
Tick-data, time and sales
Market price validations
Forward Curves

SERVICES

ICE eConfirm
ICE Link
YellowJacket
Ballista
Chatham Energy
Coffee Grading
ICE mobile

Global Clearing Houses

ICE Clear U.S., ICE Clear Canada

ICE Clear Europe – CDS and Energy

The Clearing Corp, ICE Clear Credit

Integrated Markets, Clearing and Technology

BRENT AND GASOIL: TWO GLOBAL BENCHMARKS

ICE – Host to *Global* oil benchmarks

- What benchmarks are, why they help, core reference pricing
- ICE has two seaborne benchmarks which correlate with Jet, which is a globally discovered and arbitraged price also:

Reasons to trade:

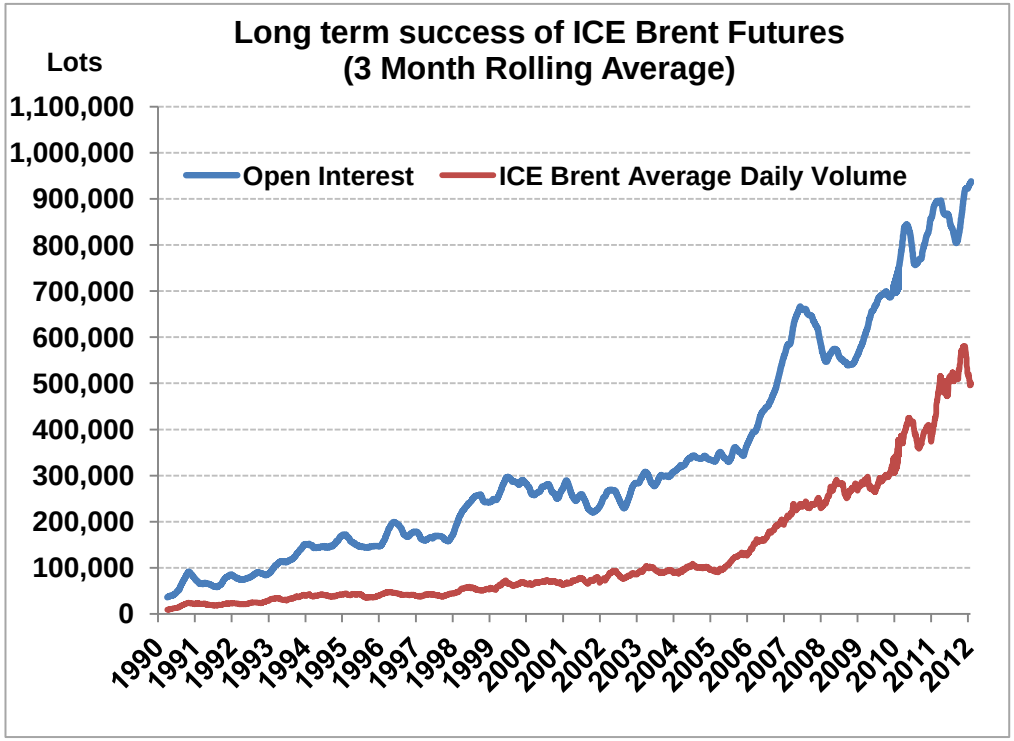
- No.1 Globally significant crude and No. 1 Global refined petroleum product
- Highly liquid, on-screen futures
- Offers multiple outright, spread and differential trading opportunities and strategies
- Only ICE offers these two contracts, plus:
  - Low Sulphur Gasoil Futures (launch September 2011)
  - ICE WTI crude futures
  - All tradable simultaneously and electronically on-screen, for up to 22 hours per day, 6 days a week
- Substantial margin offset between Jet swaps, ICE, Brent, Gasoil, Low Sulphur Gasoil and WTI, plus related markets

ICE BRENT: THE GLOBAL CRUDE BENCHMARK

LONG-TERM TRENDS

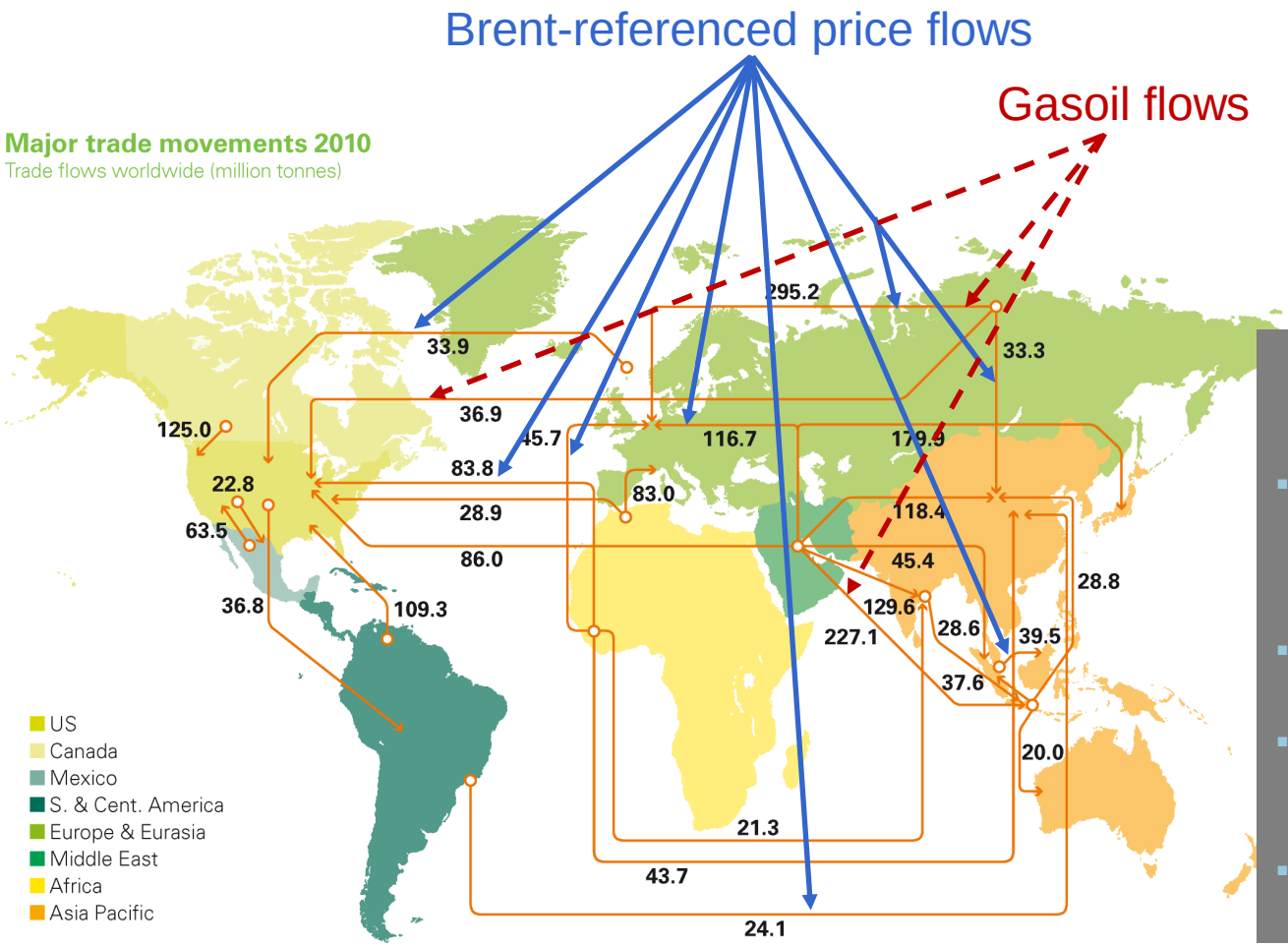
What trends can we identify?

- Brent the global physical standard, growing in Asia. Up to 70% of global international physical pricing references Brent
- Liquidity growth in existing sweet futures benchmarks, benchmark longevity/inertia
- Pricing relevance moving West to East, new complex refining/upgrading capacity favours seaborne, *not* pipeline US domestic landlocked grades
- European distillates now major price driver of refining margins, keeping sweets in Europe
- Relative decline of gasoline and FO destruction on upgrades
- WTI still an important US (financial) benchmark
- But price dislocation issues continuing through 2010 & more significantly in 2011 – pipeline bottlenecks and storage constraints
- Brent, ASCI, LLS and others now more relevant in US for physical pricing, growth of US Gulf's significance, fwd significance



GLOBAL CONTRACTS, GLOBAL OIL FLOWS

MAJOR OIL TRADE MOVEMENTS



Some Criteria for Global benchmarks:

- Globally representative grade with substantial production/consumption volume
- Reflective of underlying global oil economics
- Relative stability to other less economically or more economically-valuable crudes
- Wide acceptance by the oil industry as representative

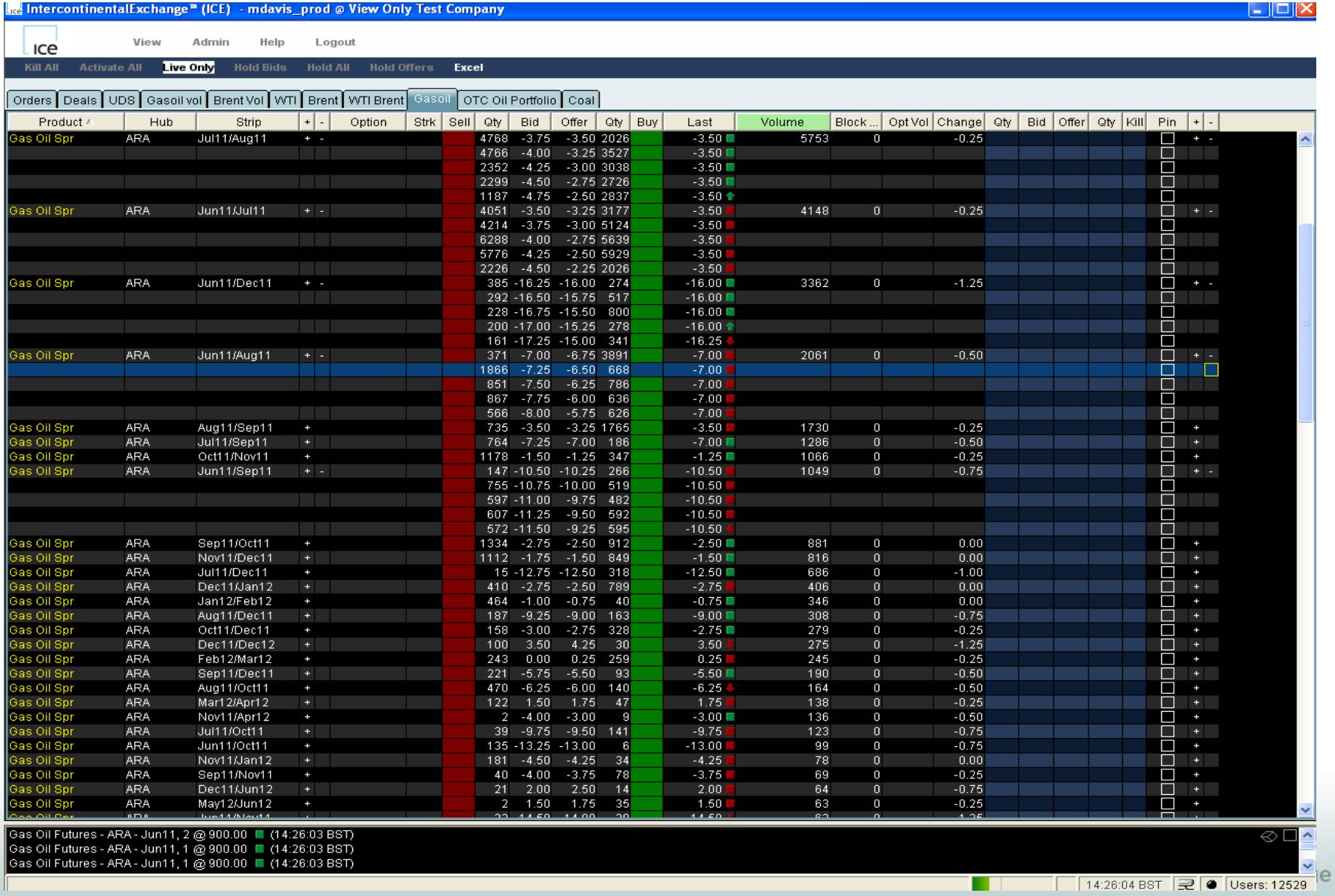
Source: BP Statistical Review of World Energy June 2011

ICE FUTURES EUROPE:
THE ICE GASOIL FUTURES CONTRACT

- The ICE Gasoil contract is the key European oil products benchmark
- ICE Gasoil is now a global benchmark for all heating oil, flowing east and west
- All European middle distillates products are priced at a differential to ICE Gasoil
- As of September 2011, traders can also trade the Low Sulphur (10ppm) Gasoil Futures Contract
- The new contract reflects the global move to lower sulphur specification middle distillates
- Low Sulphur Gasoil will ultimately replace the existing 0.1% Sulphur Gasoil to become the key European oil products benchmark

ICE GASOIL FUTURES LIQUIDITY

SCREEN LIQUIDITY, MARKET DEPTH

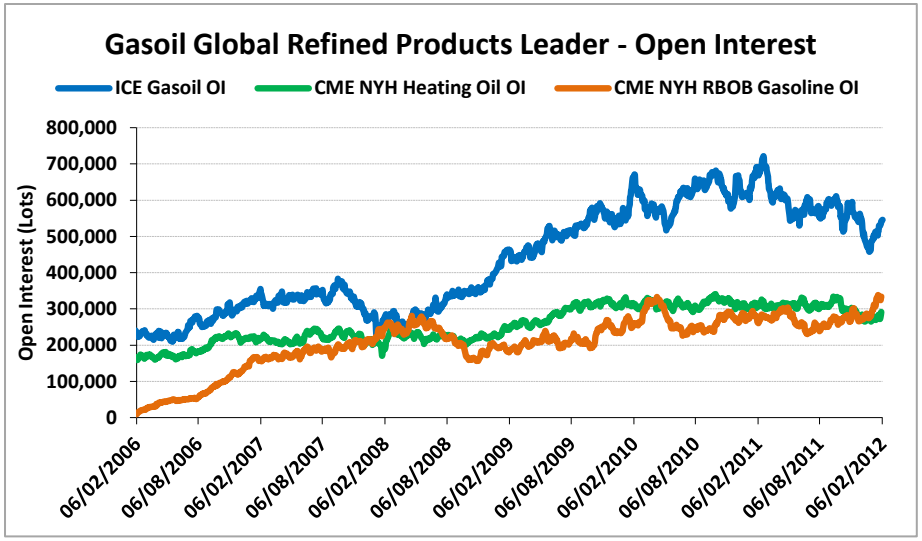


JET 'PROXY' HEDGING & OTC BASIS: ICE GASOIL FUTURES

GROWTH IN FORWARD CURVE LIQUIDITY

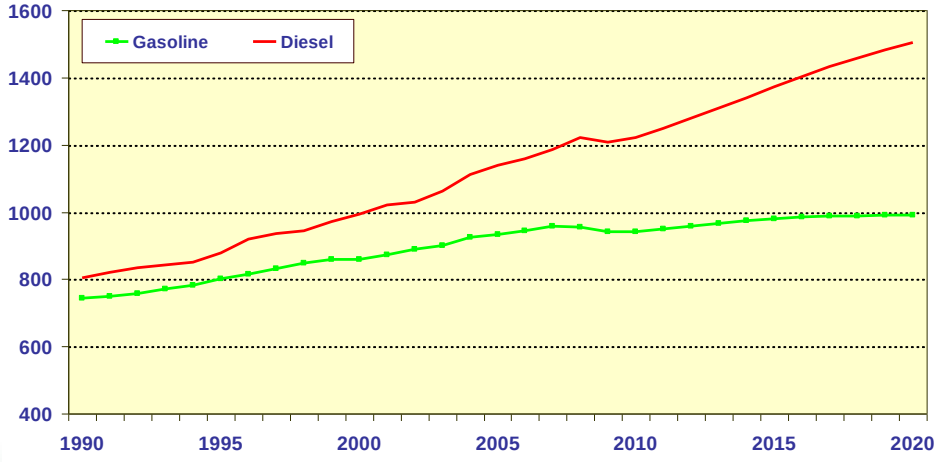
ICE Gasoil - a global refined product leader

- Pricing flows east & west
- Larger than Gasoline and Heat put together
- Open Interest has doubled since 2008
- Superior roll returns
- Global status growing following move to 0.1% sulphur (and now to 10ppm, particularly in Europe)
- Liquidity extending faster down curve: crude-equivalent spread liquidity @ 500 lots
- Fastest growing major oil contract, underlies global distillate market



ICE Low Sulphur Gasoil (10ppm Diesel Barges)

- Contract launch in September 2011
- Will provide an effective hedging instrument-essential in a rising diesel demand world
- Spread trading between the two gasoil futures contracts will be available on ICE Futures



Global demand for diesel/gasoil will grow over the next decade, while gasoline demand stagnates Source: Purvin and Gertz

TRADING AND CLEARING JET & RELATED INSTRUMENTS

OTC PRODUCT BASIS SWAP 'SATELLITES' AROUND ICE GASOIL & LOW SULPHUR GASOIL

ICE Gasoil & LS Gasoil Futures core benchmarks

- **Futures liquidity underpins OTC Jet**
- **Thereafter flexible hedge basis via OTC, despite standardisation**

- Futures can do the broad work in price discovery and hedging for 85-96% of the flat price in Jet or any distillate, depending how close basis is to that of futures
- Futures are settled by physical delivery on expiry of the front-month – amount of oil going to delivery is relatively small compared to the overall size of the contract (esp. post ADP)
- ADP flexibility around location, grade and timing of the oil delivery
- OTC universe can address 100% of Jet pricing on broad or narrow basis (Futures settlements or Quotes/index-based averages)
- First line swaps or options use futures settlements, but sit in OTC universe:
    - Broad basis, but different pay off to futures, no physical delivery
- First line swaps leverage futures liquidity:
    - Simple instruments for Gasoil base to Jet
    - Don't have to trade via futures if too volatile, too much engagement
    - Can lock down OTC contract terms this way

TRADING AND CLEARING JET & RELATED INSTRUMENTS

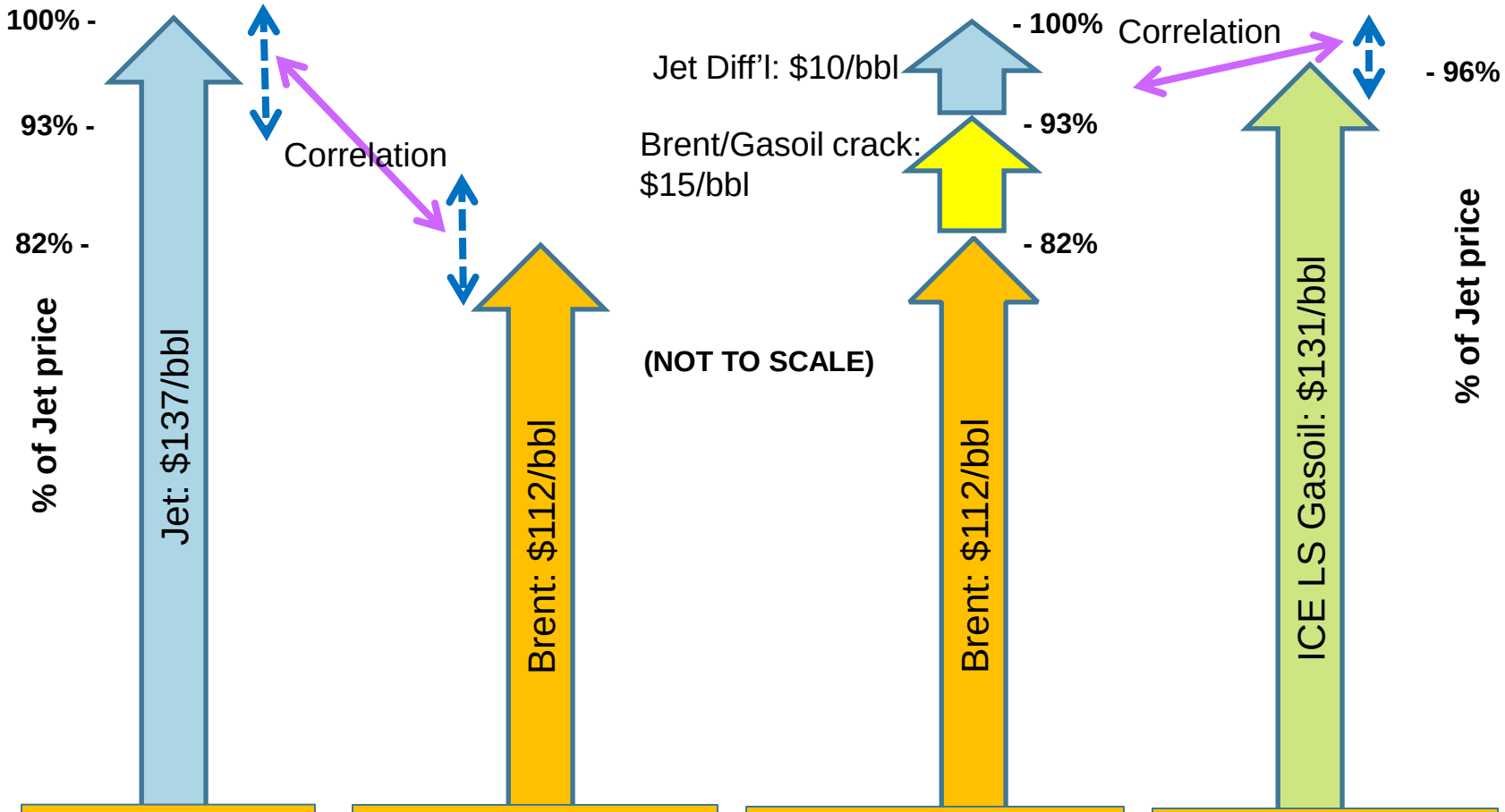
OTC BASIS SWAPS ‘SATELLITES’ AROUND ICE GASOIL , LOW SULPHUR GASOIL

Flexible basis via OTC, despite standardisation

Product, location, time

- Three types of basis risk- product, location, time
- Differential swaps address product/geographical basis risk- Key global Jet arbitrages
- The trade off in liquidity/basis: differentials and margins apply in OTC too
- Wide range of instruments optimise liquidity, minimise basis risk with choices of specific OTC Jet hedges to address all three kinds of basis risk
- Global reach, forward price discovery via liquidity and transparency
- Instrument summary: A trade off between liquidity and basis: differentials and margins – ICE Brent, LS Gasoil & Gasoil provide the liquidity, Jet & related basis swaps address those issues with a choice of specific linear or non-linear (Options) instruments

JET PRICING & HEDGE COMPONENTS (JET CIF NWE EXAMPLE)



Jet outright price:
- Platts CIF NWE
- USGC Jet 54
- Singapore Jet FOB

Crude 'proxy' hedge:
- ICE Brent crude futures
- Seaborne
- Correlation critcial
- Forward liquidity-2/3 years
- Relevant to all global price discovery

Basis risk 'slice & dice:
- Platts CIF NWE
- USGC Jet 54
- Singapore Jet FOB
- Can hedge parts opportunistically,
- Hedge crude first, then crack, then diff'l

Low Sulphur Gasoil 'proxy' hedge:
- Platts CIF NWE
- USGC Jet 54
- Singapore Jet FOB

JET FUTURES & OTC PRODUCT EXAMPLES

ICE Brent Futures	ICE Brent Option (American style) on Futures
Brent 1st Line Swap	0.1% Gasoil Crack vs. Brent 1st Line Swap
Singapore Jet FOB Cargo Swap	ICE Low Sulphur Gasoil Futures
Jet barges FOB ARA swap	Heating Oil /Gas Oil Arb Swap
Brent Average Price option	ICE Heating Oil Futures
Gasoil Average Price Option	USGC Jet 54 Swap vs. Heat swap
0.5% Singapore Gasoil vs. Gasoil 1st Line Swap (E/W swap)	ICE Low Sulphur Gasoil 1st line swap vs. Brent 1st Line Swap
Jet Cargoes CIF NWE vs. (LS) Gasoil 1st Line Swap	Sing Jet Cargoes vs. 0.5% Sing Gasoil Swap (‘Regrade’ swap)

JET FUTURES/OTC DISTILLATE HEDGE/TRADE EXAMPLES

Trader buying Jet in NWE, buy-side hedge	Buy ICE Brent futures or first line swap longer-term, buy ICE (LS) Gasoil crack in medium-term, buy Jet differential swap nearer-term to cover remaining product basis to physical Jet (10ppm ULSD Barges ARA /Cargoes NWE vs. ICE Gasoil 1st Line Swap) or buy ICE LS Gasoil futures
Trader buying Jet rateably in USGC, Platts-related	Buy ICE Brent futures or options on ICE Brent in 'Collar' pattern (Long OTM call strip, Sell OTM Put strip) or: Buy ICE Brent longer-term plus Heat crack medium term
Airline has Jet term contract, budget max. for fuel	Buys ICE LS Gasoil Average Price Option (Call) to cover upside risk (budget target for fuel at cap level)
Consumer buying Jet rateably on Platts Sing MOPS monthly average, prefers OTC	Buys Sing Jet Swap – converts floating back to fixed price after swap reconciliation (Clears to maximise capital efficiency) or: 0.5% Gasoil Swap/ in medium term - add regrade swap for relevant tenor opportunistically (shorter-term)
Airline has crude hedge, concerned gasoil/jet basis to crude to widen	Can hedge ICE (LS) Gasoil or Sing crack, plus Jet Cargoes vs. Gasoil 1st Line Diff'l Swap, or Jet crack to Brent
Choices basis – East/West gasoil or Jet	Can also deliver physical gasoil into futures screen (if not +/- EFP before)

WHY USE ICE IN JET MARKETS?

- Why hedge and trade Jet at ICE?
  - Hedge efficiency: ICE Brent/Jet correlation - product prices discovered internationally, seaborne crude/products correlate better
  - Margin offsets for maximum capital efficiency/minimum cash flow volatility in clearing- offset examples
  - ICE Gasoil liquidity – screen shot follows
  - OTC flexibility via those bases – list of relevant OTC instruments in Jet
  - ICE offers a global instrument reach for global carriers

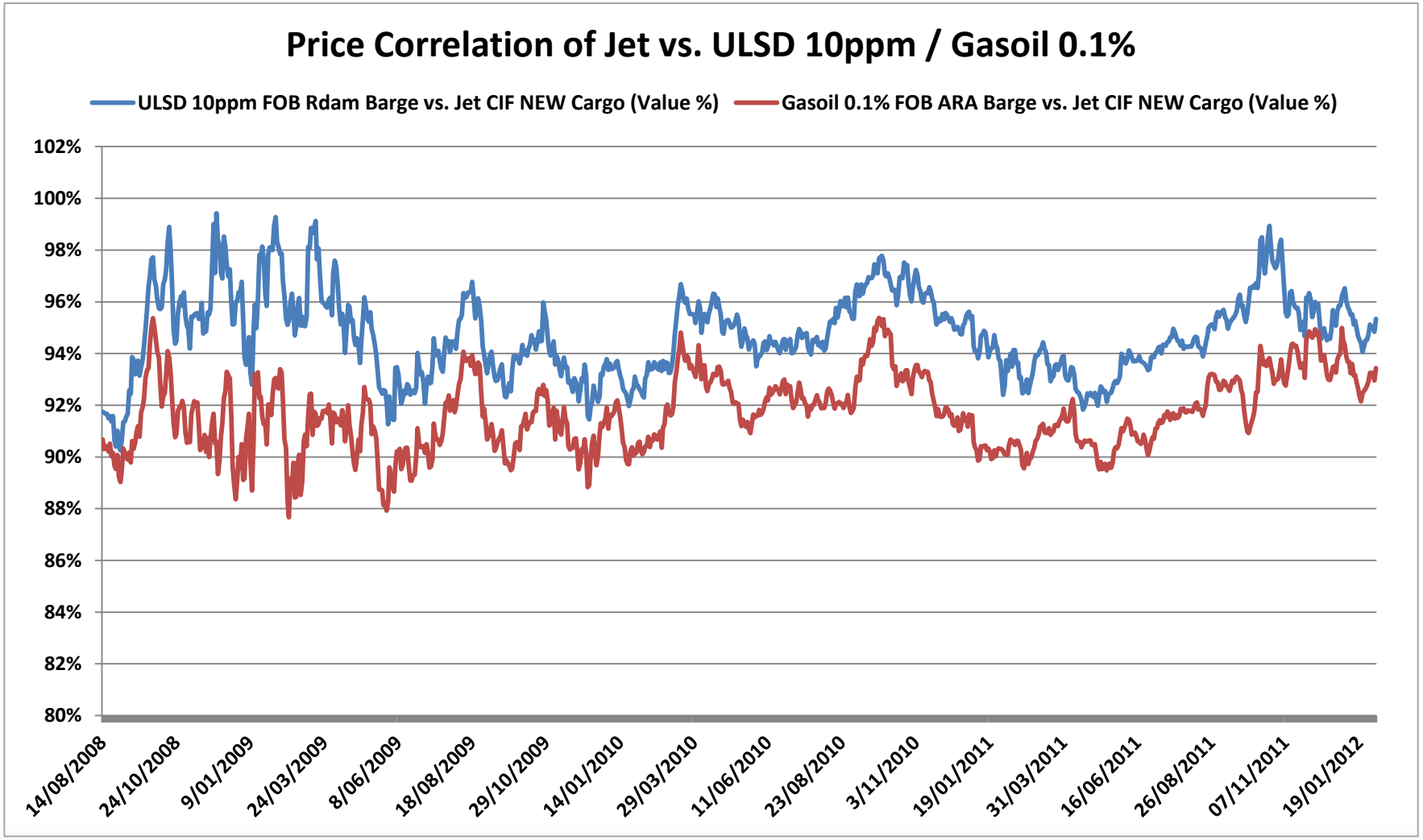
ICE LOW SULPHUR GASOIL FUTURES

THE NEW ONE-STOP SOLUTION FOR JET HEDGING AT ICE

ICE Low Sulphur Gasoil Futures:

- Price correlation – see price chart, R-squared, less basis difference, closest likely hedge mechanism
- Jet futures historically struggled to attract liquidity; this is closest equivalent likely to attract deep liquidity
- On-screen liquidity – visibility, access and relevance
- Especially suitable – diesel and jet association in blending
- A transport, not a heating fuel
- Likely to be liquid ahead of its US competitor

JET - LOW SULPHUR GASOIL ALIGNMENT



ICE LOW SULPHUR GASOIL

HEDGING AND TRADING OPPORTUNITIES

ICE Low Sulphur Gasoil futures & options

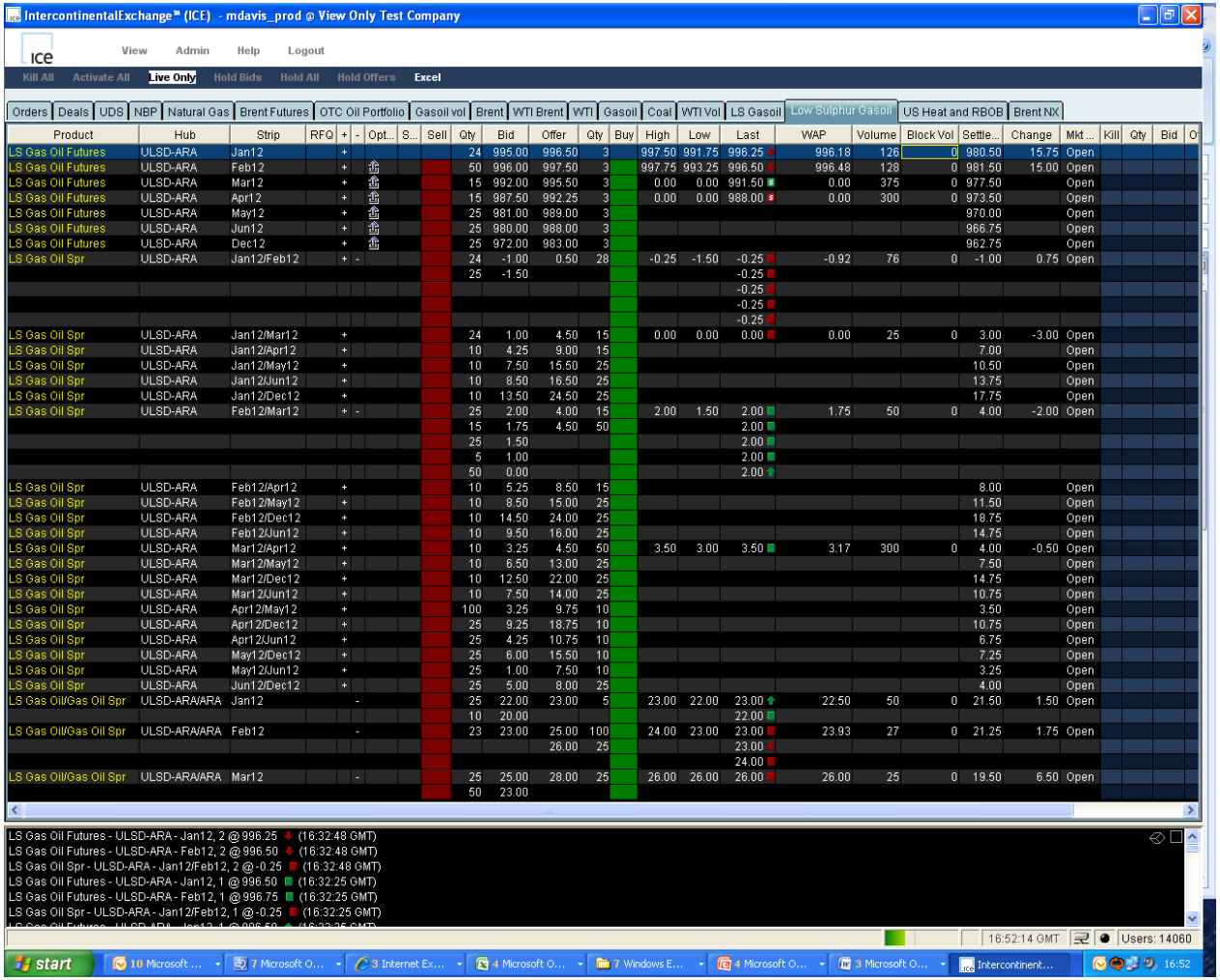
- Outrights to Dec 2016
- Spreads
- Options

On-screen intercommodity spreads

- LS Gasoil vs. Gasoil the 'Hi-Lo Gasoil 'or 'LOGO' spread *(ULS-GAS)*
- LS Gasoil crack vs. Brent *(ULS-BRN)*
- Heating Oil / Low Sulphur Gasoil *(HO-ULS)*
- RBOB / Low Sulphur Gasoil *(RBR-ULS)*
- RBOB / Gasoil - please note this spread is being introduced based on the existing ICE Gasoil Future (1000ppm) *(RBR-GAS)*

Low Sulphur OTC

- First line swaps, cracks, differential swaps to LSG, including Diesel, Jet, Gasoil physical

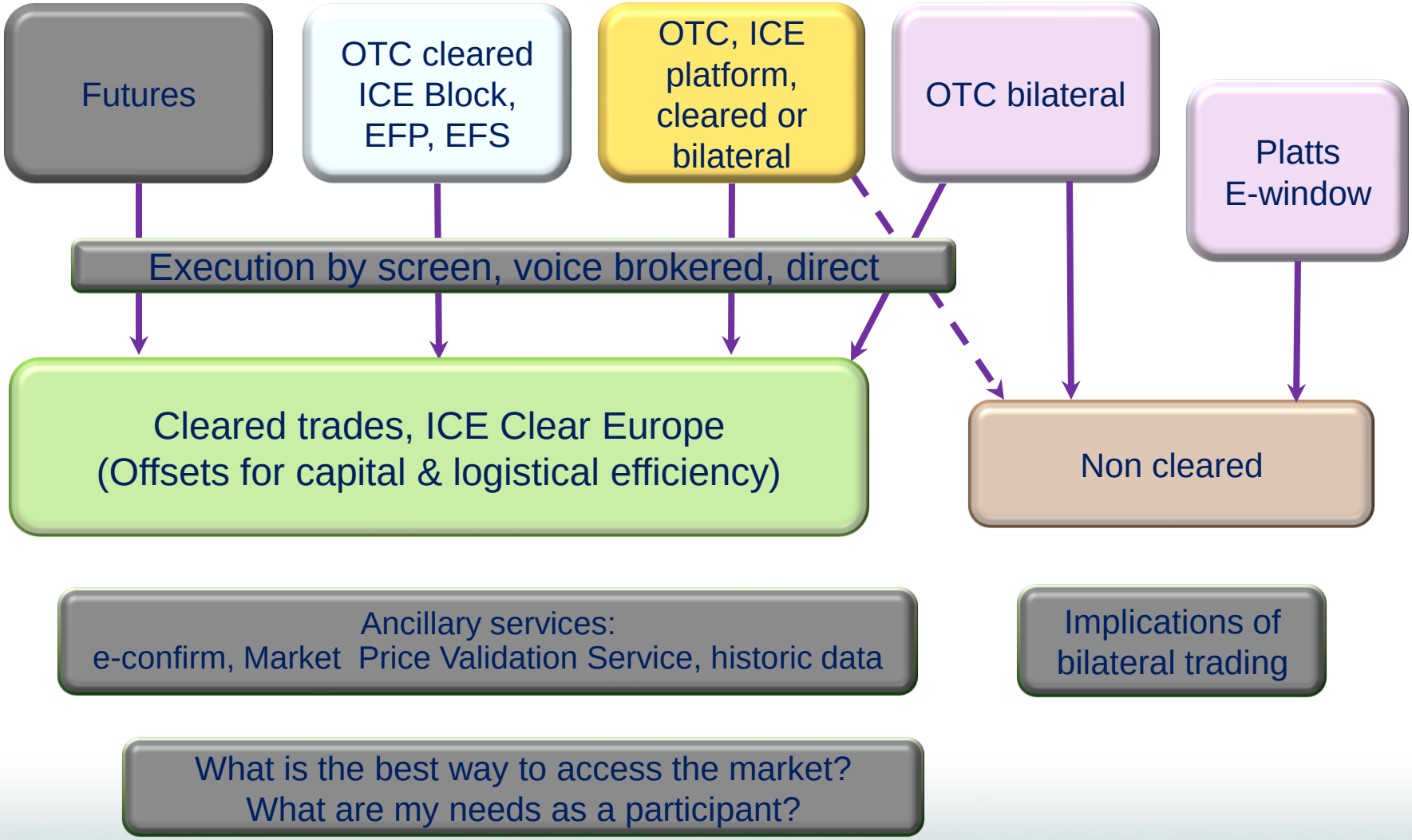


LOGICAL OFFSETS FOR CAPITAL EFFICIENCY, CASH FLOW

Logical Commodity Side A	Product A	Logical Commodity Side B	Product B	New Credit per leg (%)
JCN	Jet CIF NWE Cargoes Swap	BRN	IPE Brent Futures	60%-78%
JCN	Jet CIF NWE Cargoes Swap	BSP	1st Line Swap - Brent	60%-80%
JCN	Jet CIF NWE Cargoes Swap	GAS	IPE Gas Oil Futures	68%-95%
JCN	Jet CIF NWE Cargoes Swap	GSP	1st Line Swap - GasOil	65%-95%
JCN	Jet CIF NWE Cargoes Swap	ULS	Low Sulphur Gasoil Future	68%-95%
JCN	Jet CIF NWE Cargoes Swap	ULA	Low Sulphur Gasoil 1st Line Swap	65%-95%
JRG	Jet Kero Barges FOB RDAM vs Gasoil 1st Line Swap	GAS	IPE Gas Oil Futures	20%
JRJ	Jet Kero Barges FOB RDAM vs Jet Kero Cargoes CIF NWE Swap	GAS	IPE Gas Oil Futures	20%
SRS	Singapore Jet Kerosene Swap	BRN	IPE Brent Futures	50%-85%
SRS	Singapore Jet Kerosene Swap	BSP	1st Line Swap - Brent	50%-85%
SRS	Singapore Jet Kerosene Swap	GAS	IPE Gas Oil Futures	45%-85%
SRS	Singapore Jet Kerosene Swap	GSP	1st Line Swap - GasOil	45%-85%
SVS	Singapore Jet Kerosene vs. 0.5% Gasoil Swap	GAS	IPE Gas Oil Futures	25%
DOR	Diesel 10ppm FOB Rotterdam Barges Swap	BRN	IPE Brent Futures	60%-80%
DOR	Diesel 10ppm FOB Rotterdam Barges Swap	GAS	IPE Gas Oil Futures	68%-95%
DCC	Diesel 10ppm CIF NWE Cargoes Swap	BRN	IPE Brent Futures	65%-80%
DCC	Diesel 10ppm CIF NWE Cargoes Swap	GAS	IPE Gas Oil Futures	68%-95%
UCM	ULSD 10ppm CIF MED Swap	BRN	IPE Brent Futures	60%-80%
UCM	ULSD 10ppm CIF MED Swap	GAS	IPE Gas Oil Futures	65%-95%

ICE ENERGY OFFERING:

FULL PRODUCT SUITE, FUTURES, SWAPS & PHYSICAL, TRADED AND CLEARED



JET HEDGING &TRADING AT THE ICE

SUMMARY/ CONCLUSIONS

Our position: ICE central to global jet/distillate trading, hedging & clearing
A one-stop solution for maximum access, convenience and capital efficiency

- Liquid futures markets in Brent & both Gasoil futures, calendar spreads, cracks and options available
- ICE clears the range of Jet and related distillates swaps as well - offsets with Gasoil futures and Gasoil First line swaps (Balmo's available), Sing Gasoil, Sing Jet, time spreads of same
- ICE the primary home for exposure to trading and hedging across the whole global distillate matrix, futures, swaps and options, global markets
- ICE Gasoil crack tradable as a future or OTC crack spread – ICE the only liquid venue where this is possible
- 80%+ margin offset- ICE Gasoil/Brent futures crack, or for first-line swaps
- Changing nature of the distillate flows could lead to more exposure for ICE Gasoil
- Removes legging risk, maximises capital and logistical efficiency
- Gasoil OI up relative to competitors, indices using more Gasoil

JET, BENCHMARKS AND OIL PRICING

CONCLUSION

Summary/conclusion: What do we expect and need from oil benchmarks?

- Market views - Analysts, traders, policymakers, investors want global benchmarks which respond to macro influences, liquidity and longevity, with consistency in relational/matrix pricing
  - Normal benchmark requirements - liquidity, longevity, relevance
  - Looking for liquid and robust relative pricing relationships
  - Correlations that follow economic logic
  - Consumption and production emphasis shifting from West to East
  - Q: Is WTI serving markets well?

What do ICE Brent and ICE Gasoil (1000ppm and 10ppm) have to offer?

- Progressive price evolution, for investors this means consistently higher roll return, less volatile returns, and for spread and relational pricing this means less risk
- Deep liquidity for passive and active strategies
- They are water-borne contracts which respond to global, non-local fundamental conditions
- They side-step localised land-based choke points avoiding price vacuums

ICE Oil contracts performance drivers:

- ICE Gasoil Open Interest is larger than Heat and RBOB Gasoline combined, doubling since 2008
- ICE Brent Futures Open Interest growing faster than WTI
- Brent prices 65-70% of global physical crude, and is growing, especially in Asia
- ICE Brent and Gasoil better reflect global macro conditions, more representative term structure – thus outperform WTI and Heat over 3 months through 10 years for indices

JET FUEL HEDGING AND TRADING AT ICE

Q & A

Mike Davis - Director of Market Development
ICE Futures Europe

Q & A

Appendices follow:

- OTC Products Clearing
- Introduction to Margining

RESOURCES

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TRADING & HEDGING JET AT ICE

MORE INFORMATION & RESOURCES

Additional resources for ICE Jet products:

Product Information:

ICE Crude Product Brochure

ICE Low Sulphur Gasoil Webinar Presentation

Webinars

Contract Specifications:
Related Contract Specifications:
https://www.theice.com/productguide/ProductGroupHierarchy.shtml?groupDetail=&group.groupId=31

Fees:
Futures: https://www.theice.com/publicdocs/futures/ICE_Futures_Fees.pdf
OTC: https://www.theice.com/publicdocs/agreements/ICE_OTC_Commodity_Clearing_Fees.pdf

Clearing House information:
ICE Clear Europe:
https://www.theice.com/clear_europe.jhtml

Margins (updated regularly):
https://www.theice.com/clear_europe_span_parameters.jhtml

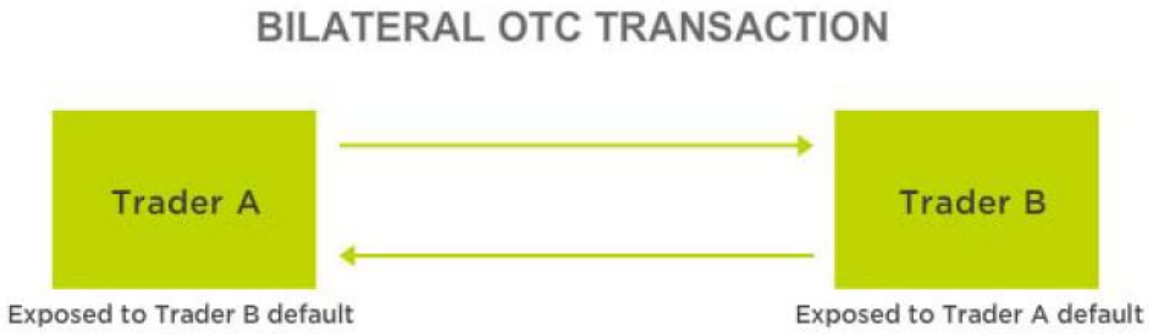
List of Clearing Members:
https://www.theice.com/publicdocs/clear_europe/ICE_Clear_Europe_Clearing_Member_List.pdf

ICE Clear Europe notices: – circulars
https://www.theice.com/notices/ClearEuropeCirculars.shtml

END

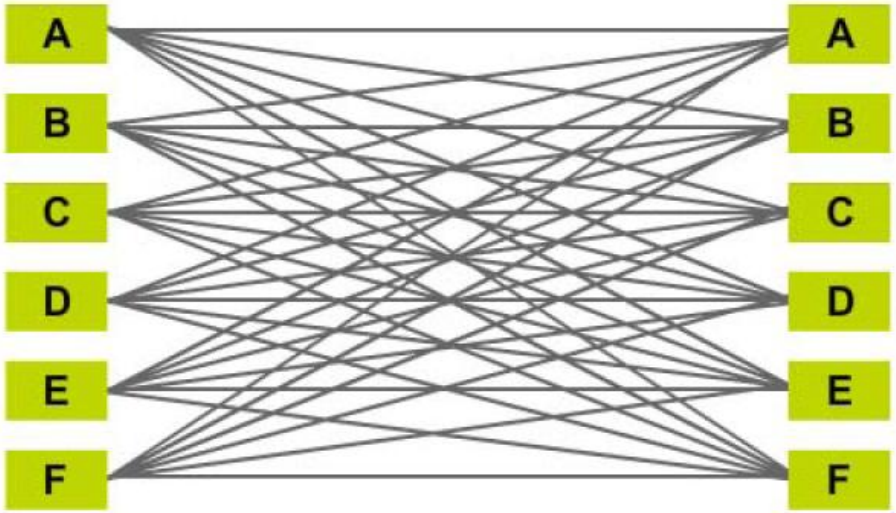
APPENDIX:
OTC PRODUCTS CLEARING

OTC EXECUTION, 2 WAYS TO TRADE OTC ENERGY



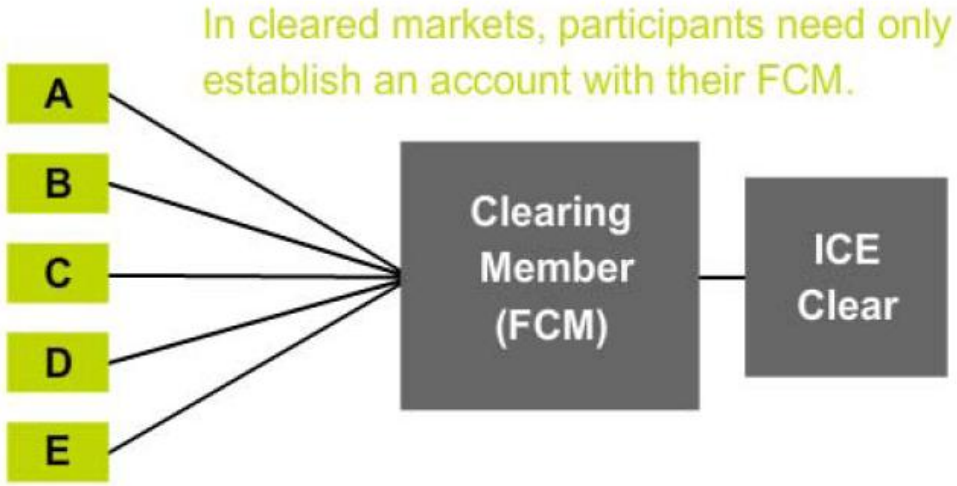
In bilateral markets, participants maintain direct credit lines with one another.

1. Parties must have existing industry standard/defined contract
2. Participants may pre-approve eligible counterparties through credit filter
3. Prices on the WebICE screen are color coded - White prices eligible for execution, red prices not eligible



OTC CLEARED TRADES

1. Use of financial intermediary (i.e., FCM) to bridge credit gap
2. Eliminate counterparty exposure
3. Credit/risk management consolidated for efficiency
4. More counterparties/liquidity available
5. Block trading available
6. Daily mark-to-market

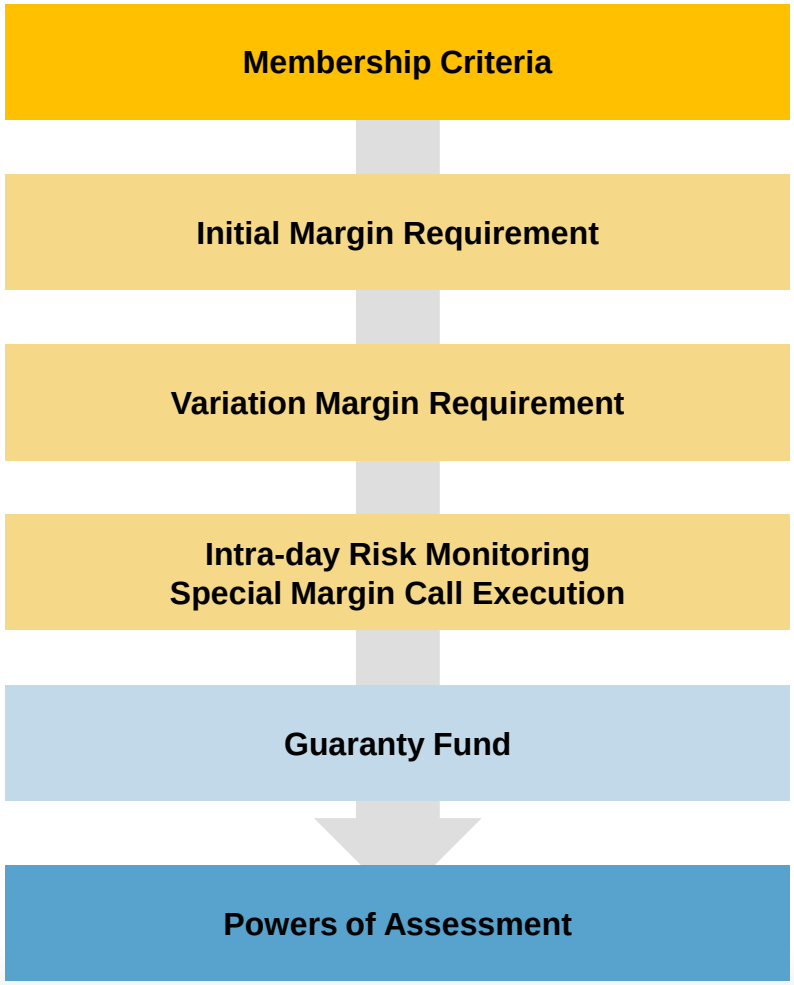


OTC CLEARING BENEFITS

- Reduced counterparty risk
- Increased trading opportunities
- Efficient use of capital
- Maintains anonymity
- Multilateral netting
- Streamlined front to back office operations
- Increased market transparency

- Reduced cost of holding trades across a portfolio of futures and OTC contracts when margin offsets are taken into account

RISK WATERFALL

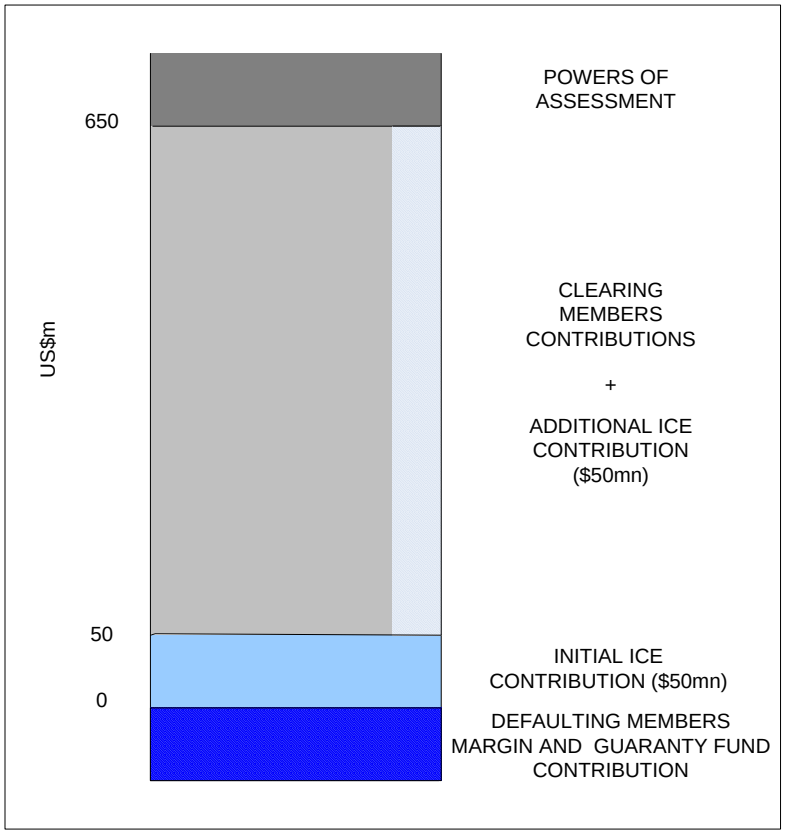


- **Ensure each Clearing Member has sufficient financial resources, operational capabilities and risk management experience**
- **Collateralize potential Clearing Member portfolio loss under normal market conditions**
- **Adjust Clearing Member collateral through a daily debit/credit based on EOD mark-to-market**
- **Identify additional margin requirements based on a comparison of unrealized P/L to Risk Margin, understanding unusual market fluctuations, etc.**
- **Mutualize losses under extreme but plausible market scenarios (i.e., 99.9% confidence interval). Includes ICE contribution**
- **Oblige Clearing Members to contribute additional default funding**

ENERGY GUARANTY FUND

- ICE Clear Europe makes an initial contribution of $50mn to the Guaranty Fund which sits in front of Members' obligations and contributes an additional $50mn to the mutualised fund

- Members' contributions to the Energy Guaranty Fund are calculated by analyzing the largest intra-day exposures over the previous three months and pro-rating the Fund contribution



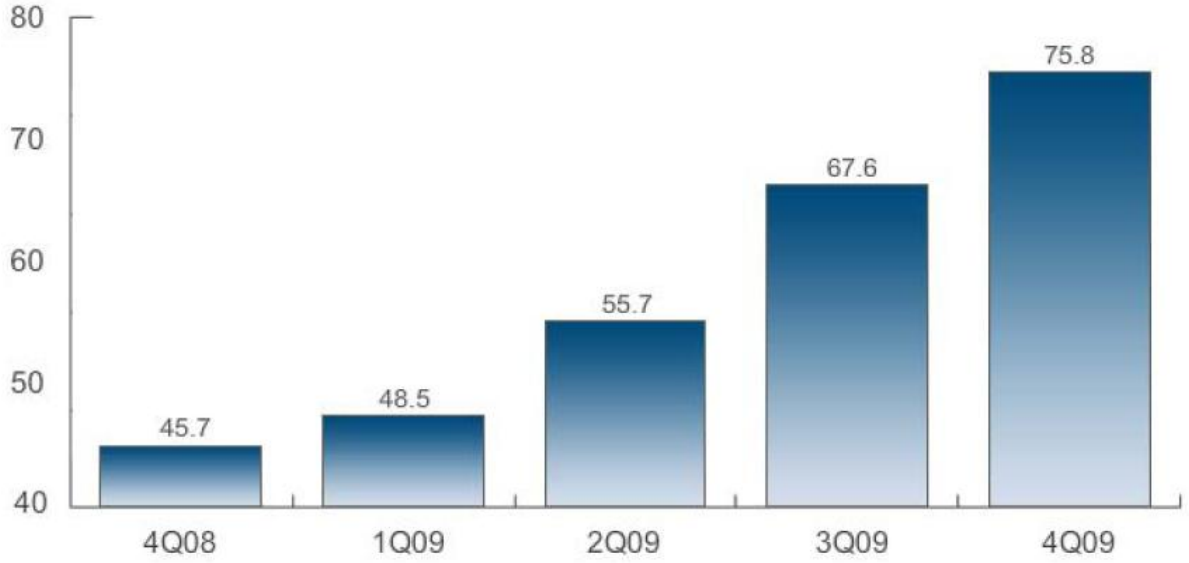
CLEARING VOLUMES

ICE OTC ENERGY

ICE operates the leading global OTC marketplace for natural gas, power oil and NGLs.

OTC Energy Contract Volume

(in millions)



ENERGY PRODUCTS

- Over 800 products listed for natural gas, power and refined oil products
- Over 300 cleared products
- Brokered and electronic markets

ENERGY CUSTOMERS

- Commercial energy companies ~51%
- Banks/Financial institution ~24%
- Liquidity providers (prop/algo/funds) ~25%

NEXT STEPS

The simplest way to start trading cleared OTC contracts on ICE is to call or email the ICE Help Desk:
Phone: +1 770 738 2101 (US), + 44 (0) 20 7488 5100 (UK)
e-mail: ICEHelpdesk@theice.com

HELPFUL LINKS

OTC Cleared Energy Markets https://www.theice.com/otc_energy_cleared.jhtml
ICE OTC Energy Markets general overview

Cleared OTC Product List https://www.theice.com/publicdocs/ICE_OTC_Cleared_Product_List.pdf
ICE OTC Energy Markets general overview

OTC Clearing Members List https://www.theice.com/publicdocs/clear_europe/ICE_Clear_Europe_Clearing_Member_List.pdf
An updated list of ICE OTC Clearing Firms

OTC Clearing Guide https://www.theice.com/publicdocs/ICE_Clearing_Guide.pdf
An informative user's guide for Clearing Firms and participants

ICE Help Desk https://www.theice.com/help_desk.jhtml
For all administrative, trading, and technical related inquiries

END

INTRODUCTION TO MARGINING

TYPES OF MARGINING

- **Initial/Original Margin:** the returnable amount required to be collateralized in order to open a futures position.
  - Margins are charged in order to cover a member's position in the case of default .
  - Can be met in cash or other forms of security i.e. treasury bonds.

- **Variation Margin:** the marked to market daily profit or loss on each futures position held.
  - The additional margin required to bring the balance in a margin account back to the initial margin level when a margin call is undertaken.
  - Today's revaluation occurs with reference to t-1's settlement/closing prices for t's open position.

  - **Margin Call:** A request for extra margin when the balance in the margin account falls below the **maintenance margin** (minimum amount to be collateralized in order to keep an open position) level.

MARGINS EXPLAINED

- ICE Clear Europe Risk Management sets margin rates in accordance with the ICE Clear Risk Management Committee procedures.

- Market participants are notified of margin rate changes via email circulars and on the ICE website.

- Margin rates usually change on a monthly basis, however they can be changed more often should the need to reflect market volatility be necessary.

SPAN (Standard Portfolio Analysis of Risk) ®

- The system ICE Clear Europe uses to calculate each clearing member's initial margin requirement.
- Used by all major derivative markets world wide.
- SPAN® considers the portfolio of positions held by a clearing member and determines the worst probable loss that the portfolio might sustain, over a particular time period and given a set level of market volatility.
- Given a range of market scenarios, this tool can be used to undertake a set of calculations to see how individual positions and portfolios will react.

SPAN® SCANNING RANGE

- ICE Futures Europe publishes all its margin rates on the following website: **https://www.theice.com/margins.jhtml**

- **An appropriate range of price changes, which take into account actual or anticipated changes in market volatility, for each contract. ICE Clear Europe will then calculate the impact such a price movement will have on the member's positions. Margin Parameters are set to cover at least 99% of one-day price moves observed in the previous 60 business days.**

- *e.g. if the scanning range for ICE Brent is $6.50 and oil is currently trading at $120/barrel, ICE's Margining System SPAN® will consider what would happen if the oil price should fall to $113.50 ($120-$6.50) or rise to $126.50 ($120 + $6.50), in one day. Here a scanning loss would occur if the member was one lot long in Brent and the price fell by $6.50. Whereas a scanning loss would occur if a member was one lot short and the price of oil rose by $6.50.*

SPAN® TIERING

- **The grouping of expiries within a particular commodity that have similar risk characteristics.**
  - The tiering system varies between futures and OTC products and also within these product groups.
  - Tiering is subject to change, please check scanning ranges page on:

    https://www.theice.com/margins.jhtml

Futures Tiering structure for ICE Brent and WTI Futures, whose relative structure will not change:

Tier 1 = Front month (M1)
Tier 2 = Second Month (M2)
Tier 3 = Third to Fourth Month (M3 – M4)
Tier 4 = Fifth to Sixth Month (M5 – M6)
Tier 5 = Seventh to Ninth Month (M7 – M9)
Tier 6 = Tenth to Twelfth Month (M10 – M12)
Tier 7 = Thirteenth Month to Eighteenth Month (M13 – M18)
Tier 8 = Nineteenth Month to Twenty-fourth Month (M19 – M24)
Tier 9 = Twenty-fifth Month onwards (M25 onwards)

e.g. ICE Brent Futures Scanning Ranges (as of 30 November 2009), Tiers 1 - 4

Tier 1: *January 2010 = $4,000 (100%) Initial Margin*
Tier 2: *February 2010 = $4,000 (100%) Initial Margin*
Tier 3: *March 2010 – April 2010 = $4,000 (100%) Initial Margin*
Tier 4: *May 2010 – June 2010 = $4,000 (100%) Initial Margin*

SPAN® TIERING CONTINUED

- For OTC swaps like a 3.5% Rotterdam Barge Swap, there are less tiers available.

e.g. Scanning Range for 3.5% Rotterdam Barge Swap:

Tier 1:	*M1*	*$16,575 Initial Margin*
Tier 2:	*M2*	*$21,250 Initial Margin*
Tier 3:	*M3-M6*	*$21,250 Initial Margin*
Tier 4:	*M7-M12*	*$21,250 Initial Margin*
Tier 5:	*M13 onwards*	*$21,250 Initial Margin*

Some OTC swaps, will have no tiering structure in place.

- e.g. Scanning Range for Gasoil vs. Brent 1st Line Swap:

Tier 1:	*M1 onwards*	*$20,000 Initial Margin*

INTER-COMMODITY MARGIN OFFSETS

- **Inter-commodity offsets are available, which allows reduced rates on initial margins for those that trade various contracts on ICE.**

- **Margin offsets apply to opposing positions (i.e. long vs. short positions) held in various contracts.**

e.g. Long 4 lots January 2010 1% FOB Rotterdam Barges and Short 3 lots January 2010 Brent Futures

Initial margins WITHOUT margin offsets:

*$13,485 (Front month) * 4 lots = $53,940 (1% FOB Rotterdam Barges) +*

$4,000 (Front month) 3 lots = $12,000 (Brent Futures) =* ***$65,940***

Initial margins WITH margin offsets:

The margin offset between M1 1% FOB Rotterdam Barges and M1 Brent Futures is 50%.

*$ 13,485 (M1) * 4 = $53,940 (1% FOB Rotterdam Barges) +*

$ 4,000 (M1) 3 = $12,000 (Brent Futures) = ($65,940*(1-0.50))=* ***$32,970***

A saving of $32,970

3 LEGGED OFFSET

OTC GasOil Crack	Brent Futures	GasOil Futures
+ 10 Sep 09	+ 34 Oct 09 + 41 Nov 09 TOTAL = 75 LOTS	- 31 Sep 09 - 69 Oct 09 TOTAL = 100 Lots

- The 10 lots of GasOil Crack must be hedged with Brent and GasOil Futures in a 3:4 ratio. Therefore our 10 lots of GasOil Crack, which equates to 10,000 Mts of diff is hedged with 75,000 Bbls of Brent and 100,000 Mts of GasOil.
- In July 09 the Tier 3 GOC is hedged with the 2nd month Brent contract (October 2009) which trades for 10 of the 22 trading days in September and the 3rd month Brent contract (November 2009) which trades 12 of the 22 trading days in September. Thus we calculate the ratio of Oct 09 Brent contracts to Nov 09 contracts as (10/22*75) and (12/22*75) equals 34 and 41 lots respectively.
- For the GasOil Futures the relevant hedging contracts are September 09 which trades for 7 of the 22 trading days and October 09 which trades for 15 of the 22 trading days. Thus we calculate the ratio of Sep 09 GasOil contracts to Oct 09 contracts as (7/22*100) and (15/22*100) equals 31 and 69 lots respectively.

Product	Tier	Margin	Position	Margins	
Sept GOC	Tier 3	$ 20,000 per lot	+ 10	$ 200,000	*Offset T3 vs T2 vs T3 : 86%*
Oct BRN	Tier 2	$ 4128	+ 34	$ 140,352	
Oct GAS	Tier 3	$ 3400	- 69	$ 234,600	
Nov BRN	Tier 3	$ 4128	+ 41	$ 169,248	*Offset T3 vs T3 vs T2 : 86%*
Sept GAS	Tier 2	$ 3400	- 31	$ 105,400	
			Total Margin	**$ 849,600**	
			With Offsets	**$ 118, 944**	***A saving of 86%***

It is important to remember that on the SPAN calculation the system will immediately look for the highest credit rate and exact ratio of contracts(in this instance 4:30:40). If those ratios are not exactly proportionate then the remainder will be margined at a different delta. It will go through as many calculations as possible to give a credit.