

WMBA & LEBA Response to FSA CP 12_36 The regulation and supervision of benchmarks

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Key Points

- We agree that the publication of benchmarks and indices remains very important to the ongoing functioning of financial markets and therefore require universally accepted and perhaps further strengthened integrity.
- WMBA and LEBA published indices are aggregated and averaged daily series of traded rates. They require a very different governance framework to estimated prices. These arithmetical processes do not require the scope of direct regulation since the market itself effectively fulfils that role as it scrutinises the output rates very closely and continuously.
- We recognise real risks arising from the genesis of this current process as essentially being the tale of two cats: the LIBOR issues arose predominantly because the market was trying to measure a rate that wasn't trading [["Macavity Cat"](#)]; whilst in attempts to coerce submissions from participants who don't see a commercial or market rationale in a penal regulatory environment risks sampling non-marginal market rates [["Schrödinger Cat"](#)].
- We believe that the answers lie principally in the conduct of business requirements and supervision. It is however of paramount importance that the regulators and their principles do not remove this utility by adding costs and burdens to the submitters and compilers such that they would choose not to participate in the process unless coerced. *Once forced to submit, it's likely that the rates published are no longer freely marginal and therefore without most of their original value and utility.*
- Published benchmarks and indices themselves should not be regulated products; rather regulation should apply to market participants contributing to such through their

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authorisation and ongoing supervision. We remain highly concerned at the costs and obligations being proposed in the UK to those benchmarks currently being proposed for supervision. These would be prohibitive for this Association to continue in its role.

- Competent Authorities should be the supervisor to relevant benchmarks and indices but not the calculation agent since both roles are not complimentary.
 - Given the voluntary basis of submissions, new criminal sanctions are not appropriate given the stated objectives. Rather, a civil code should apply until the parameters of existing criminal fraud are reached. The principle of 'Caveat Emptor' helps overcome many of the issues that the IOSCO consultation highlights. Competition, open access and less restrictive intellectual property rights around indices would make great strides towards market resilience, efficacy and cost effectiveness.
 - Incentives encouraging more liquid use of unsecured lending markets, using Basle relief, are a more appropriate way towards the repair of these markets, which would in turn aid traded prices to be used to inform benchmarks.
 - In the case of Libor and Euribor, we understand the imperative requirement for i) the need for a real funding benchmark that can be trusted and relevant to borrowers in all sections in the economy and which reflects the cost of funds to the lenders; and ii) a benchmark pricing and revaluation curve for all other derivative and off-balance sheet exposures.
 - Aggregated and averaged daily series of traded rates such as OIS, compiled by the WMBA across all relevant venues can provide a tool to inform a benchmark curve to service market users.
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Introduction

The Wholesale Markets Brokers' Association (WMBA) and the London Energy Brokers' Association (LEBA) (jointly referred to in this document as the 'WMBA') are the European industry associations for the wholesale intermediation of Over-the-Counter (OTC) markets in financial, energy, commodity and emissions markets and their traded derivatives. Our members are Limited Activity and Limited Licence firms that act solely as intermediaries in wholesale financial markets.

The WMBA considers it appropriate to reply as its members are active in arranging liquidity and executing the majority of trades across all the relevant markets including Cash Deposits, Money Market and Interest Rate Swaps (IRS). Additionally the WMBA collates and publishes a large set of indices daily in overnight index swaps (OIS), repo and energy related markets that for the settlement price to a significant part of the OTC markets and also as the basis for variation margin for a number of CCPs. These indices are based on actual bids/ offers and traded prices.

In short, we believe that LIBOR and EURIBOR [together with similar such indices] as daily benchmarks with a large outstanding notional amount of contracts to which they provide a key reference; they are of great importance and needs to be underpinned and imbued with greater integrity. Traded markets, may inform a benchmark curve taking reference from unsecured OIS, secured and collateralised repo markets, short term government securities and implied interest rates from FX forwards. Each of these has its own benefits and drawbacks such as sparse liquidity nodes, implied basis, selective market participation and credit risks. However, taken collectively within a framework of good governance they may inform and audit the daily LIBOR benchmarking process.

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Q1: Do you agree that our suggested capital requirements for the administrator will give enough time for an orderly transition to a new administrator?

Whilst the WMBA does not intend to be the LIBOR administrator we do remain concerned that our role as administrator of OIS settlement indices together with further indices in energy products could at a later stage be brought into a similar regime. We note that such a set of obligations would be beyond the resources of the Associations and therefore to the detriment of the market as a whole.

As such we would highlight the differences between indices comprising aggregated and averaged trades, and those requiring submitters to exercise judgement. Specifically, in employing confirmed traded prices from markets subject to the Market Abuse Directive, to REMIT, and to codes of conduct such as the Bank of England's NIPs code; the responsibilities that the FSA seeks to confer and then to supervise onto both submitters and to the administrator are already adhered to by way of existing FSA authorisations.

Q2: Are there any other rules we should consider for the administrator?

The WMBA strongly asserts that users should undertake 'caveat emptor'. Therefore additional rules specific for LIBOR, an index measuring a form of lending which does not exist in reality, may subsequently become standard, but inappropriate for further products which could be added to the regulated suite at later dates.

Further, ongoing consumer choice in benchmarks and a material move away from the intellectual property rights which have covered this sector would simply, cheaply and quickly alleviate many or most of the problematic issues which this consultation seeks to address.

Q3: Do you think there are any other rules we should consider for the submitters?

The WMBA does not believe so.

Q4: For what period should submitters be mandated to keep records?

The WMBA believes records should be kept in accordance with the respectively pertaining market abuse regulations.

Q5: How frequently do you think the external audits should occur?

Given the specific nature of LIBOR, audits may be required with a frequent periodicity since there are no market transactions to maintain a real time and ongoing peer review process. We would emphasise that whilst WMBA & LEBA data is scrutinised by an audit committee in addition to a controlling supervisory committee, we would argue that external audits would not be appropriate in fields such as those published by the WMBA & LEBA.

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Q6: Do you agree with our proposals to apply the new CF40 controlled function regardless of where the submitting activity takes place?

The WMBA believes this is suitable and appropriate in the case of LIBOR. However in the cases of WMBA and LEBA indices it would be neither appropriate nor suitable. Indeed the cost benefits that would pertain would be disproportionate and introduce regulatory arbitrage.

DP1: Do you agree that the specific indicators and methodology we have identified adequately capture those institutions that will maintain the integrity of the LIBOR rates?

The WMBA agrees with the FSA.

DP2: What are your views on how many institutions should form the 'super-set' that contributes to LIBOR?

The WMBA would encourage the widest possible 'super-set' of contributors. We therefore note the contradictory objectives of higher penalties and closer enforcement together with wider participation. The outcome would appear to be, as referred to by Commissioner Barnier this week, which a compulsory regime is established. This brings into play the issue of 'Schrödinger's Cat' – institutions purely complying out of coercion will not seek to make true and objective marginal rate representations, but would further seek to migrate towards a common and populated modal reply.

DP3: Do you agree with our approach to determining currency expertise?

The WMBA agrees with the FSA.

DP4: What do you think is the best process for expanding the LIBOR panels and encouraging firms to participate?

Given the comments to DP2 above we note the obverse incentives.

Quite simply to the WMBA, the answers lie entirely in a rejuvenated trading market in unsecured term interbank lending. Measurement then becomes simple and regulation should essentially comprise a combination of constant and real time peer review allied to an international code of conduct. Evidently such a market would require restarting, and this could be achieved, in our view by extending the model used in the "Funding for Lending Scheme". That is, supervised Capital and Liquidity ratios are reduced in accordance with compliance with the stated objectives.

The outcome here would be more lending, cheaper compliance and a real and efficient curve for the costs of wholesale money.

DP5: Do you agree with our proposed approach for determining the circumstances in which the FCA would take up its powers to require submission to LIBOR?

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The WMBA notes the approach taken, but in reference to the answers above finds a coercive approach deleterious to the good measurement of the subject matter and essentially therefore to form part of an orderly wind down of the unsecured lending markets.

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Annexes

Wholesale Markets Brokers' Association & London Energy Brokers' Association

The Wholesale Markets Brokers' Association (WMBA) and the London Energy Brokers' Association (LEBA) (co-referred to in this document as the 'WMBA') are the European industry associations for the wholesale intermediation of Over-the-Counter (OTC) markets in financial, energy, commodity and emissions markets and their traded derivatives. Our members are Limited Activity and Limited Licence firms that act solely as intermediaries in the said wholesale financial markets. As Interdealer Brokers (IDBs), the WMBA members' principal client base is made up of global banks and primary dealers. The replies below to the questions in the paper should be seen in the context of WMBA members acting exclusively as intermediaries and not as own account traders. (Please see www.wmba.org.uk and www.leba.org.uk for information about the associations, its members and products.) For this reason, some of the questions in the Consultation Paper are not entirely relevant to WMBA members' activities even though they are to most of their clients. Further, some answers take into account industry views and experience.

Operating as the hub of the global financial market infrastructure, IDBs are MiFID compliant and highly regulated intermediaries by virtue of their regulatory authorisation and from being subject to supervision under CAD. Our members are neutral, independent, and multi-lateral, and provide free, fair and open access to their trading venues for all suitably authorised and regulated market participants. IDBs do not take positions in the markets in which they operate and their collective service as the gateway to the global financial marketplace creates price discovery and significant liquidity. All transactions, whether executed via voice, hybrid or fully electronic means, are immediately captured at the point of trade, are subject to straight-through-processing and are made available for transparent and timely transaction reporting to the relevant regulators.

WMBA Members:

- BGC Partners
- EBS Group Ltd
- GFI Group Inc
- Gottex Brokers SA
- ICAP plc
- Martin Brokers (UK) Ltd
- Reuters Transaction Services Ltd
- Sterling International Brokers Ltd
- Tradition (UK) Ltd
- Tullett Prebon plc
- Vantage Capital Markets LLP

LEBA Members:

- BGC Partners
- Evolution Markets Ltd
- GFI Group, Inc
- ICAP Energy Ltd
- PVM Oil Associates Ltd
- Spectron Group Ltd
- Tradition Financial Services Ltd
- Tullett Prebon Energy Ltd

For further information please visit www.wmba.org.uk and www.leba.org.uk

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WMBA Indices – SONIA, EURONIA, RONIA

Sterling Overnight Index Average ("SONIA")

Introduced in March 1997, SONIA is the Sterling Overnight Index Average ("SONIA"). The index tracks actual market overnight funding rates.

SONIA is the weighted average rate to four decimal places of all unsecured sterling overnight cash transactions brokered in London by contributing WMBA member firms between midnight and 4.15pm with all counterparties in a minimum deal size of £25 million.

The index is a weighted average overnight deposit rate for each business day. Each rate in the average is weighted by the principal amount of deposits which were taken on that day.

DATA VENDORS: SONIA is available to view by subscription and is also available on the following data vendor pages: Thomson Reuters, SONIA1; Bloomberg, WMBA.

Contributing Brokers: ICAP plc, Martin Brokers (UK) Ltd, Sterling International Brokers Ltd, Tradition (UK) Ltd, and Tullett Prebon plc.

Definition of an Overnight Indexed Swap (OIS): An OIS is a fixed rate interest rate swap against a floating rate index, e.g. SONIA. It replicates a mismatched deposit position through either: a short-term loan funded by an overnight deposit, or an overnight loan funded by a short-term deposit. In this way, OIS allow banks to manage their liquidity requirements more effectively.

Required documentation: OIS structures are completed using International Swaps and Derivatives Association (ISDA) documentation. Click [here](#) to view the ISDA SONIA definition.

Euro Overnight Index Average ("EURONIA")

Introduced in January 1999, EURONIA is the Euro Overnight Index Average ("EURONIA"). This index tracks actual market overnight funding rates.

EURONIA is the weighted average rate to four decimal places of all unsecured euro overnight cash transactions brokered in London by contributing WMBA member firms between midnight and 4.00pm with all counterparties in a minimum deal size of £25 million.

The index is a weighted average overnight deposit rate for each business day. Each rate in the average is weighted by the principal amount of deposits which were taken on that day.

DATA VENDORS: EURONIA is available to view by subscription and is also available on the following data vendor pages: Thomson Reuters, EURONIA1; Bloomberg, WMBA.

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Contributing Brokers: ICAP plc, Martin Brokers (UK) Ltd, Sterling International Brokers Ltd, Tradition (UK) Ltd, and Tullett Prebon plc.

Definition of an Overnight Indexed Swap (OIS): An OIS is a fixed rate interest rate swap against a floating rate index, e.g. EURONIA. It replicates a mismatched deposit position through either: a short-term loan funded by an overnight deposit, or an overnight loan funded by a short-term deposit. In this way, OIS allow banks to manage their liquidity requirements more effectively.

Required documentation: OIS structures are completed using International Swaps and Derivatives Association (ISDA) documentation. Click [here](#) to view the ISDA EURONIA Definition.

Repurchase Overnight Index Average ("RONIA")

Introduced in 2011, RONIA is the Repurchase Overnight Index Average ("RONIA"). This index tracks actual market overnight funding rates.

RONIA is the weighted average rate to four decimal places of all secured sterling overnight cash transactions brokered in London by contributing WMBA member firms between midnight and 4.15pm with all counterparties with no minimum deal size.

RONIA eligible transactions are Delivery by Value (DBV) which is a mechanism whereby a CREST member who has borrowed money against overnight gilt collateral may have gilts on its account to the required value delivered automatically by the system to the CREST account of the money lender.

The index is a weighted average overnight deposit rate for each business day. Each rate in the average is weighted by the principal amount of deposits which were taken on that day.

DATA VENDORS: RONIA is available to view by subscription and is also available on the following data vendor pages: Thomson Reuters, RONIA1; Bloomberg, WMBA.

Contributing Brokers; BGC Partners, ICAP Plc, Martin Brokers (UK) Ltd, Sterling International Brokers Ltd, Tradition (UK) Ltd, Tullett Prebon plc.

Definition of a Secured Overnight Index Swap (SOIS): A Secured Overnight Index Swap (SOIS) is a repurchase agreement in which securities are sold provided that they will be repurchased on the following day. Financial institutions use overnight repos as a means of raising short-term money for financing inventories through either: a short-term loan funded by an overnight deposit, or an overnight loan funded by a short-term deposit. In this way, SOIS allow banks to manage their liquidity requirements more effectively.

Required documentation: SOIS structures are completed using International Swaps and Derivatives Association (ISDA) documentation. Click [here](#) to view the ISDA RONIA Definition.

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LEBA Indices – Gas, Power, Carbon

LEBA Carbon Indices

The LEBA Carbon Indices were introduced in March 2005 covering European Union Allowances (EUA) and Certificates of Emission Reduction (CER). The Indices are the volume weighted averages of all transactions during a given period or during the whole of the day, dependent on the particular index. Closing prices are the averages of all indications obtained from all the contributing members. For full details of each index, please see the specifications below.

Contributing Brokers: Evolution Markets Limited, GFI Brokers Ltd, ICAP Energy, Marex Spectron Ltd, Tradition Financial Services Ltd, Tullett Prebon Energy

LEBA Carbon EUA Index; Price Calculation Methodology

LEBA Carbon EUA - Daily Index: The Index price will be calculated every trading day using the volume-weighted average of EUA trades transacted by LEBA firms for physical delivery on any relevant forward periods, and any associated Strip Prices.

LEBA Carbon EUA – 08:00 to 10:00 Index: The Index price will be calculated every trading day using the volume-weighted average of EUA trades transacted by LEBA firms for physical delivery on the first two nearby annual forward delivery periods between 08:00am and 10:00am.

LEBA Carbon EUA – Spot Index: The Index price will be calculated every trading day using the volume-weighted average of EUA trades transacted by LEBA firms for physical delivery on Spot.

LEBA Carbon EUA – Daily Closing Prices: Closing Prices will be calculated every trading day using price assessments collected directly from contributing member firms at around 17.00 London time. Additional prices may be collected from contributing members at regular intervals during the course of the trading day.

LEBA Carbon CER Index: Price Calculation Methodology

LEBA Carbon CER- Daily Index: The Index price will be calculated every trading day using the volume-weighted average of CER trades transacted by LEBA contributing member firms for spot physical delivery on any relevant forward periods, and any associated Strip Prices.

LEBA Carbon CER – Daily Closing Prices: Closing Prices will be calculated every trading day using price assessments collected directly from contributing member firms at around 17.00 London time. Additional prices may be collected from contributing members at regular intervals during the course of the trading day.

LEBA Power Indices

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LEBA started compiling indices covering the European power markets in 2003. LEBA publish indices covering the prompt UK power market up to one month ahead. The LEBA UK Power Prompt Indices were introduced in July 2003 initially covering Day Ahead and Week Ahead UK Power. The indices are the volume weighted averages of all transactions during a given period or during the whole of the day, dependent on the particular index. A Month Ahead window index was added in 2010. For full details of each index, please see the specification below. LEBA will commence the publication of additional indices covering the UK and Continental European power markets in the near future.

Contributing Brokers: GFI Brokers Ltd, ICAP Energy, Marex Spectron Ltd, Tullett Prebon Energy

All LEBA UK Power Indices will be published daily at approximately 18.00hrs London time on the LEBA website (except where indicated *)

Baseload Indexes:

Day Ahead (7.30 - 9.00am): Calculated using a volume-based, weighted average of all day ahead baseload trades executed in London by contributing brokers between 07.30 hrs and 09.00 hrs London time each day. The Index values electricity trades for baseload delivery on the day following the deal date (Trade Day). The delivery day is the Index day. Weekends shall not be included in the Index. In the calculation of the Index, previous business day convention shall apply.

Day Ahead Weekend Index (7.30 - 9.00am): Calculated using a volume-based, weighted average of all weekend ahead baseload trades executed in London by contributing brokers between 07.30 hrs and 09.00 hrs London time each day. The Index values electricity trades for baseload delivery on the weekend following the deal date (Trade Day). The delivery days are the Index days. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 07.30hrs and 09.00hrs London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Working Days Index (7.30am – 5.00pm): Calculated using a volume-based, weighted average of all day ahead baseload trades executed in London by contributing brokers between 07.30hrs and 17.00hrs London time on Trade Day. The Index values electricity trades for baseload delivery on the working day following Trade Day. The delivery day is the Index day. Weekends shall not be included in the Index. In the calculation of the Index, previous business day convention shall apply.

Day Ahead Weekend Index (7.30am – 5.00pm): Calculated using a volume-based, weighted average of all weekend ahead baseload trades executed in London by contributing brokers between 07.30hrs and 17.00hrs London time each day. The Index values electricity trades for baseload delivery on the weekend following the deal date (Trade Day). The delivery days are the Index days. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 07.30hrs and 17.00hrs London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

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All Days Saturday Index (7.30am – 5.00pm): Calculated using a volume-based, weighted average of all Saturday baseload trades executed in London by contributing brokers between 07.30hrs and 17.00hrs London time each day. The Index values electricity trades for baseload delivery on Saturday following the deal date (Trade Day). The delivery days are the Index days. In the Index, Saturday shall be calculated using a volume-based, weighted average of all Saturday trades executed in London by contributing brokers between 07.30hrs and 17.00hrs London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

All Days Sunday Index (7.30am – 5.00pm): Calculated using a volume-based, weighted average of all Sunday baseload trades executed in London by contributing brokers between 07.30hrs and 17.00hrs London time each day. The Index values electricity trades for baseload delivery on Sunday following the deal date (Trade Day). The delivery days are the Index days. In the Index, Sunday shall be calculated using a volume-based, weighted average of all Sunday trades executed in London by contributing brokers between 07.30hrs and 17.00hrs London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Month Ahead Window Index (4.00 – 4.15pm): Calculated using a volume-based, weighted average of all month-ahead baseload trades executed in London by contributing brokers between 16.00hrs and 16.15 hrs London time each trading day. The Month Ahead Window Index values baseload trades for delivery in the EFA month following the EFA month in which the deal is executed. The index month is the delivery month e.g. the index published on the 17 June 2009 is based on all the trades executed on the 17 June 2009 for delivery every day during the EFA month of July 2009.

Month Ahead Window Index Average: Calculated once a month on the last trading day of the EFA month e.g. in EFA month July 2009 the Month Ahead Index will refer to EFA August 2009. At the end of EFA July 2009 (Friday 24th July) LEBA will publish the Month Ahead Window Index Average for August 2009 as well as the Month Ahead Window Index for that day. It will be calculated by taking the average of all the individual daily Month Ahead Window indices for the relevant EFA month. The Index will also include a total volume figure for that month in addition to the Index. * The Index will be published at approximately 18.00hrs London time on the last trading day of the EFA month on the LEBA website.

Block Indexes:

Monday – Friday Peak Blocks 3&4&5 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all day ahead peak blocks 3&4&5 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for peakload delivery on the working day following Trade Day. The delivery day is the Index day. In the calculation of the Index, previous business day convention shall apply.

Monday – Friday Blocks 1&2 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all day ahead blocks 1&2 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for block delivery on the working day following Trade Day. The delivery day is the Index day. In the calculation of the Index, previous business day convention shall apply.

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Monday – Friday Blocks 3&4 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all day ahead blocks 3&4 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for block delivery on the working day following Trade Day. The delivery day is the Index day. In the calculation of the Index, previous business day convention shall apply.

Monday – Friday Block 5 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all day ahead block 5 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for block delivery on the working day following Trade Day. The delivery day is the Index day. In the calculation of the Index, previous business day convention shall apply.

Monday – Friday Block 6 Index (7.30am – 9.00am): The Monday – Friday Block 6 Index (7.30am – 9.00am) is calculated using a volume-based, weighted average of all day ahead block 6 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for block delivery on the working day following Trade Day. The delivery day is the Index day. In the calculation of the Index, previous business day convention shall apply.

Monday – Friday Peak Blocks 3&4&5 Index (7.30am – 5.00pm): Calculated using a volume-based, weighted average of all day ahead peak blocks 3&4&5 trades executed in London by contributing brokers between 0730hrs and 1700hrs London time on Trade Day. The Index values electricity trades for peakload delivery on the working day following Trade Day. The delivery day is the Index day. In the calculation of the Index, previous business day convention shall apply.

Weekend Peak Blocks 3&4&5 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all weekend peak blocks 3&4&5 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for peak load delivery on the weekend following the deal date (Trade Day). The delivery days are the Index days. In the calculation of the Index, previous business day convention shall apply.

Weekend Blocks 1&2 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all weekend blocks 1&2 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for blocks 1&2 delivery on the weekend following the deal date (Trade Day). The delivery days are the Index days. In the calculation of the Index, previous business day convention shall apply.

Weekend Blocks 3&4 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all weekend blocks 3&4 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for blocks 3&4 delivery on the weekend following the deal date (Trade Day). The delivery days are the Index days. In the calculation of the Index, previous business day convention shall apply.

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Weekend Block 5 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all weekend block 5 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for block 5 delivery on the weekend following the deal date (Trade Day). The delivery days are the Index days. In the calculation of the Index, previous business day convention shall apply.

Weekend Block 6 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all weekend block 5 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for block 6 delivery on the weekend following the deal date (Trade Day). The delivery days are the Index days. In the calculation of the Index, previous business day convention shall apply.

Weekend Block 6 Index (7.30am – 9.00am): Calculated using a volume-based, weighted average of all weekend block 5 trades executed in London by contributing brokers between 0730hrs and 0900hrs London time on Trade Day. The Index values electricity trades for block 6 delivery on the weekend following the deal date (Trade Day). The delivery days are the Index days. In the calculation of the Index, previous business day convention shall apply.

LEBA Coal Pricing Indices

The LEBA Coal Pricing Indices were introduced in September 2010 covering API 2 OTC Cleared CIF Rotterdam Coal Swap Contract and API 4 Cleared FOB Richards Bay Coal Swap Contract. The LEBA Coal pricing Indices are the averages of indications provided by all contributing member companies. For full details of each aspect of the index, please see the specification below.

Contributing Brokers: GFI Brokers Ltd, ICAP Energy, Marex Spectron Ltd, Tradition Financial Services Ltd, Tullett Prebon Energy

OTC Cleared CIF Rotterdam Coal Swap Contract: Description: CIF Rotterdam coal swap contract API 2 quality. Currency: US (\$). Minimum Tick Size: Five cents per tonne, \$0.05/tonne. Contract Series: Front 4 contract months, the front 4 to 7 quarter contracts (i.e. quarter contracts up to the end of the front calendar year), 5 season contracts and up to 4 calendar years. Expiry Day: Month contracts will cease trading at the close of business on the last Friday of the contract delivery period. Quarters, seasons and calendar years cease trading as a quarter/season/calendar year at the close of business on the last Friday of the first month contract in that quarter/season/calendar year.

OTC Cleared FOB Richards Bay Coal Swap Contract: Description: Cash settled FOB Richards Bay coal swap contract API 4 quality. Currency: US (\$). Minimum Tick Size: Five cents per tonne, \$0.05/tonne. Contract Series: Front 4 contract months, the front 4 to 7 quarter contracts (i.e. quarter contracts up to the end of the front calendar year), 5 season contracts and up to 4 calendar years. Expiry Day: Month contracts will cease trading at the close of business on the last Friday of the contract delivery period. Quarters, seasons and calendar years cease trading as a quarter/season/calendar year at the close of business on the last Friday of the first month contract in that quarter/season/calendar year.

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OTC Cleared API 2 Coal Options Contract: Description: Cash settled Premium Paid Option on the underlying API 2 Forward contract for the corresponding expiry. Currency: US (\$). Pricing: US (\$) and cents per metric tonne. Minimum Tick Size: \$0.01 per tonne. Option Type: Options are European style single expiry options. Last Trading Day: 17:00 hours UK time on the first working day of the month prior to commencement of the underlying forward swap contract. Contract Series: 3 to 7 quarter contracts and 3 whole tradable calendar contracts. All option contracts expire into the underlying contract of the corresponding contract series. Business Days: UK business days.

OTC Cleared API 4 Coal Options Contract: Description: Cash settled Premium Paid Option on the underlying API 4 Forward contract for the corresponding expiry. Currency: US (\$). Pricing: US (\$) and cents per metric tonne. Minimum Tick Size: \$0.01 per tonne. Option Type: Options are European style single expiry options. Last Trading Day: 17:00 hours UK time on the first working day of the month prior to commencement of the underlying forward swap contract. Contract Series: Front 3 to 7 tradable quarter contracts and 3 whole tradable calendar contracts. All option contracts expire into the underlying contract of the corresponding month. Business Days: UK business days.

Index Publication: LEBA member firms will submit their marks for each current trading period to LEBA at the end of every trading day for calculation. The marks will then be averaged and an Index of that average published.

LEBA will endeavour to publish the Indexes at 18:30 London time on the London business day of the trading day, and may publish the Indexes on the LEBA website on or after that time. However, LEBA does not guarantee to be able to publish the data by this time. LEBA will not publish on days that are not trading days, but will publish the Index on the next London business day. Last Trading Day: 17:00 hours UK time on the first working day of the month prior to commencement of the underlying forward swap contract.

LEBA European Gas Pricing Indices

The LEBA European Gas Pricing Indices were introduced in June 2006 with the daily calculation of the TTF day ahead and weekend indices. CEGH, NCG, GPI, Peg North, PEG South, PSV and Zeebrugge were subsequently added. The LEBA European Gas Pricing Indices are the weighted average day ahead and weekend trades transacted through LEBA members. For full details of each aspect of the indices, please see the respective specifications below.

Contributing Brokers: GFI Brokers Ltd, ICAP Energy, Marex Spectron Ltd, Tradition Financial Services Ltd, Tullett Prebon Energy

LEBA Zeebrugge Pricing Index: Price Calculation Methodology

Day-ahead Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 08:00 and 17:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index,

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weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 08:00 and 17:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Day-ahead Window Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 16:20:00 hours and 16:30:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 16:20:00 hours and 16:30:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Month Ahead Index: The Month Ahead Index is calculated using a volume-based, weighted average of all Month-ahead trades executed in London by contributing brokers between 08:00 hours and 17:00 hours London time each day. The Index values gas trades for delivery within the month following the deal date (Trade Day). The delivery month is the Index month. In the calculation of the Index, previous business day convention shall apply.

Trades to be included in the Index: LEBA Zeebrugge Indexes: For a trade to be included in the Index it must occur on a trading day between 08:00 and 17:00 London time, on the trade date. If other delivery dates become liquid then these also will be calculated in addition to the dates above. For the purposes of these Indexes, trading days are every day except Saturday, Sunday, New Years Day, Good Friday, Easter Monday, Christmas Day and Boxing Day.

LEBA TTF Pricing Index: Price Calculation Methodology

Day-ahead Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 08:00 and 17:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 08:00 and 17:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Day-ahead Window Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 16:20:00 hours and 16:30:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 16:20:00 hours and 16:30:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

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Month Ahead Index: The Month Ahead Index is calculated using a volume-based, weighted average of all Month-ahead trades executed in London by contributing brokers between 08:00 hours and 17:00 hours London time each day. The Index values gas trades for delivery within the month following the deal date (Trade Day). The delivery month is the Index month. In the calculation of the Index, previous business day convention shall apply.

Trades to be included in the Index: LEBA TTF Indexes: For a trade to be included in the Index it must occur on a trading day between 08:00 and 17:00 London time, on the trade date. If other delivery dates become liquid then these also will be calculated in addition to the dates above. For the purposes of these Indexes, trading days are every day except Saturday, Sunday, New Years Day, Good Friday, Easter Monday, Christmas Day and Boxing Day.

LEBA NCG Pricing Index: Price Calculation Methodology

Day-ahead Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 08:00 and 17:00 hours London time each day. The Index values gas trades for delivery on the business day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 08:00 and 17:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Day-ahead Window Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 16:10:00 hours and 16:20:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 16:10:00 hours and 16:20:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Month Ahead Index: The Month Ahead Index is calculated using a volume-based, weighted average of all Month-ahead trades executed in London by contributing brokers between 08:00 hours and 17:00 hours London time each day. The Index values gas trades for delivery within the month following the deal date (Trade Day). The delivery month is the Index month. In the calculation of the Index, previous business day convention shall apply

Trades to be included in the Index: LEBA NCG Index: For a trade to be included in the Index it must occur on a trading day between 08:00 and 17:00 London time, on the trade date. All trades, including Private and Confidential Trades (P&C), will be included in the Index. If other delivery dates become liquid then these also will be calculated in addition to the dates above. For the purposes of these Indexes, trading days are every day except Saturday, Sunday, New Years Day, Good Friday, Easter Monday, Christmas Day and Boxing Day.

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LEBA GPI Pricing Index: Price Calculation Methodology

Day-ahead Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 08:00hrs and 17:00hrs London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 08:00hrs and 17:00hrs London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Day-ahead Window Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 16:00:00 hours and 16:10:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 16:00:00 hours and 16:10:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Trades to be included in the Index: LEBA GPI Index: For a trade to be included in the Index it must occur on a trading day between 08:00 and 17:00 London time, on the trade date. All trades, including Private and Confidential Trades (P&C), will be included in the Index. If other delivery dates become liquid then these also will be calculated in addition to the dates above. For the purposes of these Indexes, trading days are every day except Saturday, Sunday, New Years Day, Good Friday, Easter Monday, Christmas Day and Boxing Day.

LEBA CEGH Pricing Index: Price Calculation Methodology

Day-ahead Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 08:00hrs and 17:00hrs London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 08:00hrs and 17:00hrs London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Day-ahead Window Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 16:10:00 hours and 16:20:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 16:10:00 hours and 16:20:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

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Trades to be included in the Index: LEBA CEGH Index: For a trade to be included in the Index it must occur on a trading day between 08:00 and 17:00 London time, on the trade date. All trades, including Private and Confidential Trades (P&C), will be included in the Index. If other delivery dates become liquid then these also will be calculated in addition to the dates above. For the purposes of these Indexes, trading days are every day except Saturday, Sunday, New Years Day, Good Friday, Easter Monday, Christmas Day and Boxing Day.

LEBA PEG North Pricing Index: Price Calculation Methodology

Day-ahead Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 08:00hrs and 17:00hrs London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 08:00hrs and 17:00hrs London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Day-ahead Window Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 16:10:00 hours and 16:20:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 16:10:00 hours and 16:20:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Trades to be included in the Index: LEBA PEG North Index: For a trade to be included in the Index it must occur on a trading day between 08:00 and 17:00 London time, on the trade date. All trades, including Private and Confidential Trades (P&C), will be included in the Index. If other delivery dates become liquid then these also will be calculated in addition to the dates above. For the purposes of these Indexes, trading days are every day except Saturday, Sunday, New Years Day, Good Friday, Easter Monday, Christmas Day and Boxing Day.

LEBA PEG South Pricing Index: Price Calculation Methodology

Day-ahead Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 08:00hrs and 17:00hrs London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 08:00hrs and 17:00hrs London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

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Day-ahead Window Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 16:20:00 hours and 16:30:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 16:20:00 hours and 16:30:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Month Ahead Index: The Month Ahead Index is calculated using a volume-based, weighted average of all Month-ahead trades executed in London by contributing brokers between 08:00 hours and 17:00 hours London time each day. The Index values gas trades for delivery within the month following the deal date (Trade Day). The delivery month is the Index month. In the calculation of the Index, previous business day convention shall apply.

Trades to be included in the Index: LEBA PEG South Index: For a trade to be included in the Index it must occur on a trading day between 08:00 and 17:00 London time, on the trade date. If other delivery dates become liquid then these also will be calculated in addition to the dates above. For the purposes of these Indexes, trading days are every day except Saturday, Sunday, New Years Day, Good Friday, Easter Monday, Christmas Day and Boxing Day.

LEBA PSV Pricing Index: Price Calculation Methodology

Day-ahead Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 08:00 and 17:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 08:00 and 17:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Day-ahead Window Index: The Day-ahead Index is calculated using a volume-based, weighted average of all Day-ahead trades executed in London by contributing brokers between 16:20:00 hours and 16:30:00 hours London time each day. The Index values gas trades for delivery on the day, or days in the case of weekends, following the deal date (Trade Day). The delivery day is the Index day. In the Index, weekends shall be calculated using a volume-based, weighted average of all weekend trades executed in London by contributing brokers between 16:20:00 hours and 16:30:00 hours London time on the previous business day. In the calculation of the Index, previous business day convention shall apply.

Month Ahead Index: The Month Ahead Index is calculated using a volume-based, weighted average of all Month-ahead trades executed in London by contributing brokers between 08:00 hours and 17:00 hours London time each day. The Index values gas trades for delivery within the month following the deal date (Trade Day). The delivery month is the Index month. In the calculation of the Index, previous business day convention shall apply.

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Trades to be included in the Index: LEBA PSV Indexes: For a trade to be included in the Index it must occur on a trading day between 08:00 and 17:00 London time, on the trade date. If other delivery dates become liquid then these also will be calculated in addition to the dates above. For the purposes of these Indexes, trading days are every day except Saturday, Sunday, New Years Day, Good Friday, Easter Monday, Christmas Day and Boxing Day.

Contact

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