



GENERAL INDEX

General Index Methodology Framework

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1 Introduction

General Index Benchmarks Ltd (GXBL) generates pricing data for many commodities across geographical markets. The price markers, indexes, benchmarks or assessments as they are commonly known in commodity markets, are produced under a standard set of procedures that is mathematical, consistent and fully transparent.

While GXBL fully recognises that commodities trade in different ways due to the particularities of each market, the approach taken to price assessment generation is consistent across all the markets analysed. GXBL's assessments are all underpinned by consistent, logical mathematical processes and the same systems are applied across all price assessments from physical to derivatives, listed or unlisted instruments.

GXBL's systems and processes have been designed and built to be compliant with EU's Benchmark Regulation¹, as currently applicable in the UK, and the IOSCO Principles for Oil Price Reporting Agencies. For that reason, GXBL uses the terms "price assessment" and "benchmarks" interchangeably within this document and other supporting documents.²

1.1 Methodology is code

GXBL's underpinning principle is based on a rigorous treatment of methodology as code. What this means is that GXBL's price assessments are consistent, logical mathematical constructs based on a transparent methodology, using input data that has been rigorously tested and assessed to make sure it meets the highest standards of quality and integrity.

Every price assessment is governed by this Methodology Framework and an associated Methodology Fact Sheet ("Fact Sheet") that contains information that pertains specifically to the price assessment. Methodology Fact Sheets contain details of the commodities being assessed, their delivery location and timing parameters, volumes, assessment approach and timings, market-specific approaches and any other details appropriate to the specific series.

This Methodology Framework document delineates the overarching GXBL principles for benchmark generation and the Methodology Fact Sheets provide the specific details governing the highlighted individual benchmarks. Where there is a conflict between the Methodology Framework and a Fact Sheet, the Fact Sheet prevails.

In general, each Fact Sheet contains:

- A detailed explanation aimed to facilitate a benchmark subscriber's or competent authority's ability to understand how the calculation was developed.

¹ 1 Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 (Text with EEA relevance) (hereafter "**BMR**")

² For the purpose of this document, we do not differentiate between an "index" and a "benchmark" within the meaning of BMR.

- Procedures applied where there is no transaction data, or transaction data does not meet the minimum threshold, or where transaction data does not meet the criteria for inclusion in the benchmark calculation.
- Time requirements for the submission of data, including methods of transmission of data.
- Criteria that identify the minimum amount of transaction data required for a particular benchmark calculation.
- Guidelines that control the review process and the use of statistical models when inference of value is required.

The document also provides the rationale for the adoption of a particular methodology, including any price normalization techniques and other determinants such as time periods or window that govern the acceptability of the data submissions.

1.2 Introduction to Assessment Series

Every assessment series that GXBL publishes has an associated Fact Sheet that defines the unique parameters of that price and any benchmark-specific methodologies. The Fact Sheet enables understanding of the methodology that underpins any of the price assessments. To fully understand the methodology that underpins GXBL's price assessments the associated Fact Sheet must also be referred to in addition to this document. Calculations are done to one more decimal place than the published benchmark (as defined in the relevant Fact Sheet) and then rounded to get to the final output number.

2 Methodology

2.1 Introduction

All benchmarks administered by GXBL are subject to both the GX Framework Methodology, and a specific Fact Sheet. GXBL adopts a common approach across all benchmarks with regard to how quality and compliance is assured, and how judgement, where required, is applied.

All benchmarks administered by GXBL are subject to the GX Framework Methodology (this document) and the Fact Sheet relevant to the specific benchmark, and both of these documents should be read in conjunction with each other to understand how methodology is applied to any specific benchmark.

GXBL Methodology is underpinned by the following:

- Published prices are objective representations of the value of the commodity as per standards commonly accepted in the marketplace.
- The market standards are codified in Methodology Fact Sheets.
- Published prices conform with the stated methodology detailed in the Fact Sheets.
- Commodity index processes are codified to ensure that the assessment systems are able to produce a fully auditable price.
- Systems and processes that reflect the Compliance and Regulatory standards of the industry and its stakeholders.

2.2 Criteria and procedures that are used to develop benchmarks

GXBL develops benchmarks in response to market needs, including but not limited to the development of physical trading hubs, where market stakeholders have indicated the need for a new benchmark or where GXBL believe a new assessment or index will provide greater transparency to specific commodities or market areas. GXBL develops some benchmarks that are based on the contribution of input data and others that are based on readily available information.

2.3 Collection and usage of input data

Contributors are encouraged to submit data electronically and in structured formats which are then databased. GXBL works with the industry to determine acceptable methods of submission, timings and structures to ensure usability in the benchmark formation. Acceptable formats include, among others, spreadsheets, email, direct feeds, chat messaging screens, instant/text messaging, on-screen capture and telephone.

All collected data is stored, the time of receipt logged and re-processed into structured data that can be used in GX's assessment systems and algorithms. While not all data is used as input data for a particular benchmark, all data received is stored, and its reason for exclusion or inclusion in a benchmark assessment logged and disclosed.

Once data has been received and processed, the GXBL validation engine determines the data points to be included in the benchmark assessment, and when necessary filters out aberrant data and logs the incident.

Some methodologies have different weightings for asynchronous or dissimilar variations in product qualities such as winter and summer seasons. The mathematical engine is codified to determine the weighting and the reasons for inclusion or exclusion. This ensures full alignment with the benchmark Fact Sheet and also with the regulatory standards. This process is monitored throughout the day by GXBL's pricing analysis team.

2.4 Guidelines that control the exercise of judgement and use of models and extrapolation

GXBL is a data company fully focused on the production of benchmarks rather than on news or other journalistic information. GXBL technology has been designed to eliminate, wherever possible, the need for ad hoc judgement in the price assessment process.

GXBL data is objectively produced and measured against a set of conditions with no room for subjectivity. Data is algorithmically evaluated to determine if the information is accurate and fitting within normal standard deviations of data.

To ensure a broad level of market coverage, GXBL sources data from principals, brokers, exchanges, trading venues, and any other relevant market source. Data is sourced from both supervised and unsupervised entities, including:

Supervised	Unsupervised
Brokers	Brokers
Trading Principles	Oil and refined product wholesalers
Exchanges	Oil and refined product retailers
	Market surveys
	Public websites
	Shipping Companies
	Other data providers
	Trade bodies

No source will be considered unless it has been approved by the GXBL Compliance Committee and entered into the Approved Data Contributor List, which is also used to track whether a contributor is a supervised entity or not using the European Securities and Markets Authority database, found at

<https://registers.esma.europa.eu/>

Sources may change from day to day, depending on who is active in a particular market, and the pricing analysts work to ensure that on any one day, for any benchmarks based on the contribution of input data, no more than 50% of the input data informing the benchmark has been received from a supervised entity. Where this limit is at risk of being breached, the analyst must immediately inform the Data Review Group, so appropriate mitigating action can be taken.

In liquid markets, where there is sufficient transaction data to meet the minimum quantity thresholds, no further evaluation is required to validate incoming data.

In illiquid markets, where at times there is insufficient transaction data to meet the minimum quantity criteria (and sometimes also a lack of bid/offer data), rules are applied, defined on the relevant Fact Sheet for each benchmark, explaining how and when other information should be used, and how it should be treated to form a valid data input. This might be through mechanisms such as extrapolating from market structure, reference to other related markets through spread relationships to liquid benchmarks or in reference to commodity exchange data.

2.5 Procedures and practices that are designed to ensure consistency between its assessors in exercising their judgement

By maximising electronic data collection and focusing on the objective evaluation of data GXBL ensures a market representative output and an consistent approach across markets. Once data has been evaluated and accepted as a valid input, the process of price assessment calculation is automated – removing any possibility of inconsistency.

2.6 Relative importance assigned to each criterion used in benchmark calculation

Priority is given to input data in the following order, unless otherwise specified in the relevant Fact Sheet.

- (i) concluded and reported transactions;
- (ii) bids and offers;
- (iii) other information.

Where concluded and reported transactions are not given priority, the reasons are explained in the relevant Fact Sheet.

2.7 Criteria and procedures that address assessment periods where one or more contributors submit input data that constitute a significant proportion of the total input data for that benchmark

Where a small number of contributors are responsible for a significant proportion of the total input data (75% unless otherwise specified on the relevant Fact Sheet) for a benchmark, the validity of the input data is tested with other market stakeholders through surveying, by phone, email or other electronic means before being released for inclusion in the assessment calculations.

2.8 Criteria according to which transaction data may be excluded from a benchmark calculation.

As per 2.5 and 2.9, the acceptance of input data into the calculation process is the only stage of the benchmark administration process where judgement may sometimes be required. Transaction data may be excluded if it does not meet the criteria for inclusion or if GXBL has grounds to believe that the transaction is not a true reflection of an arms-length executable deal. The criteria for inclusion for each physical market are set-out in each Fact Sheet and GXBL will judge input data against the criteria specified in the Fact Sheet. Section 3.2 outlines the steps taken to verify input data. Data may be excluded from a benchmark calculation if:

- It objectively does not meet the criteria as set out in the relevant Fact Sheet as an executable bid/offer or transaction made on an arm's length basis
- The Data Review Group judges it to be anomalous in line with 3.2

2.9 Explanation of use of subjectivity in price assessments

All market data received is stored. Subjectivity is restricted to whether or not received data is a true reflection of the market or submitted in error. Where data is rejected, the reason for rejection is automatically logged, and the information flagged as excluded. GXBL does not use expert judgment for the purpose of calculation of any of its benchmarks and all benchmark-setting processes are automated.

3 Quality and Integrity of Benchmarks Calculations

3.1 Product Specifications

The methodology criteria that define the physical commodity are outlined in the relevant Fact Sheet. The relevant Fact Sheets explain the reasons when and how reported transactions may not be given priority.

Priority to input data is always in the following order, unless specified in the relevant Fact Sheet:

- (i) concluded and reported deals in the market being assessed;
- (ii) bids and offers;
- (iii) other information., including but not limited to related markets, locations, financial exchange information and market structure.

3.2 Verification of input data

GXBL receives input data from a broad range of sources, including trading principals, brokers, exchanges and trading venues to ensure that the breadth of data received reflects market realities. GX encourages contributors to submit all input data that meets the criteria for inclusion in the benchmark assessment and encourage major contributors to provide binding commitments that all qualifying data will be submitted. There may still be instances where input data received is excluded if it is not in line with the market-specific criteria set-out in the relevant Fact Sheet.

Eligible contributors

To be an accepted input data contributor, a contributor must be involved in the market as a market participant or enabler (such as a trader or brokers), with direct insight into physical or paper market activity and pricing. Data contributors are accepted at the Company level, the individual level (submitters) and also the system level (where automated data provision is proposed). GXBL reserves the right to accept or refuse to accept data contributors at the Company, individual level and system level.

Other input data sources

Data from recognised financial markets (exchanges), back-office aggregators, post-trade processing providers, system providers and market-place providers may also be accepted as input data for the purpose of conducting a price assessment. A number of factors are taken into account before GXBL accepts data contributions – and GXBL reserve the right to refuse to accept input data from any provider if there are grounds to believe that the data does not meet the basic requirements of quality, integrity and reliability, in line with the BMR.

Input data integrity

GXBL recognises that the integrity of input data is paramount to the integrity of the benchmark assessments. This includes the requirement that bids, offers and transactions meet the criteria for inclusion and are done on a bona-fide, arms-length and executable basis. GXBL may review any input data submitted to ensure

data integrity. To this end, GXBL works with the compliance departments and front office of data contributors as required.

For accepted input data contributors and other input data sources, GXBL continuously monitors data submissions in a manner that is appropriate to the transmission mechanism. Anomalous or suspicious transactions are immediately flagged for review to the Data Review Group by the appropriate pricing analyst or Price Assessor. GXBL's approach depends on the source and transmission method for the incoming data and includes the following:

Direct feed from back-office system	Ongoing monitoring by GXBL systems
Other forms of electronic submission	GXBL system deal-matches transactions. GXBL systems aim to verify single-sourced data before issuing the assessment. Sole-sourced data from accepted contributors is accepted as valid. Any deviations from this process are documented on the relevant Fact Sheet.
Telephone submissions	Data is transcribed into structured data by GXBL analyst. GXBL system deal-matches transactions. GXBL system works to verify single-sourced data before issuing the assessment.

GXBL work to ensure that all market data not received directly from back-office systems is verified by a minimum of two (2) principals or brokers. Data from front-office sources is discouraged and is only accepted as valid where the contributing source has validated internal oversight in place.

Unless specified in the Fact Sheet, inter-affiliate transactions are not included in the benchmark calculation.

For each price GXBL provides a concise explanation describing the size and liquidity of the physical market being assessed (such as the number and volume of transactions submitted), the range and average volume and range and average of price, and indicative percentages of each type of input data that have been considered in a calculation.

3.3 Quality and Integrity Monitoring

The quality and integrity of input data is monitored on an ongoing basis by GX systems and market analysts.

GXBL reserves the right to exclude any submitted data if there are grounds to believe that it is not a true representation of an arms-length executable transaction. In such a case, the reason for exclusion is logged and disclosed.

Should GXBL have grounds to believe that any input data contributor or other input data source ceases to be a reliable provider of high-quality data, the right to submit data may be revoked.

3.4 Integrity of the Reporting Process

GXBL price production and benchmark administration systems provide industry-leading traceability around the formation and calculation of the prices and official benchmarks provided. The receipt and initial processing of input data is, wherever possible, automated and processed by GXBL's systems according to input data inclusion and exclusion rules with reasons recorded, independently of the market expert overseeing the specific assessment.

The system is built to highlight any suspected anomalous or suspicious transaction data. GXBL's compliance function is able to review any day's benchmark assessment, review the input data received, the decisions made as to whether or not to include specific submissions, and the automated calculation that produced the benchmark assessment. Any potentially anomalous data is highlighted to the relevant market analyst for review to then determine if the data should be rejected from the assessment calculation. GXBL has procedures in place for managers and employees to report internally infringements of the BMR.

3.5 Supervision of assessors and release of benchmarks to the market

GXBL systems allow a high degree of transparency, allowing analysts, Pricing Directors and other members of the senior management team to review the evolution of a particular price assessment in real-time.

GXBL normally receives input data electronically from data contributors, direct from their systems. GXBL then de-duplicate this data, where it has been received from multiple sources in order to produce a revised set of input data. This revised set of input data is then assessed against the benchmark criteria for inclusion and all data that meets the criteria for inclusion is then subject to the benchmark algorithms as defined in the Methodology Fact Sheet Flow Chart. The benchmark is then released to the market. A Price Assessor (Pricing Director) monitors these automated processes.

Under certain circumstances, the manual approval of a Price Assessor is required prior to a benchmark being released to the market. Those circumstances include:-

- where the benchmark uses input data that has not been received electronically and directly from a data contributor;
- where conflicting input data is received (e.g. two parties reporting different details with regard to a transaction);
- where the system is not able to automatically de-duplicate input data (for instance, where it is unclear if a deal has been reported twice, or if two identical deals happened).
- where a piece of input data is more than two standard deviations from the mean of data received for the trading period; and
- where GXBL is operating under BCP procedures.

4 Changes to Methodology

GXBL as an administrator of a commodity benchmark has adopted explicit procedures for developing, maintaining and amending methodologies and these

are documented below. GXBL's approach to methodology is underpinned by the overriding objective that the administrator must ensure the continued integrity of its benchmark calculations and implement changes for good order of the particular market to which such changes relate.

4.1 The procedure for internal review and approval of GX methodologies, as well as the frequency of such review

Methodology Framework and Methodology Fact Sheets are reviewed annually to ensure they are up to date. In addition, GXBL monitors markets continuously and may determine from time to time that a methodology requires an intra-year review. If a change is determined to be necessary and likely, the issue is notified to the GX Benchmark Committee highlighting any change to the market structure, or that the current methodology needs to be amended to include more relevant parameters and then a review process is initiated. Changes to product specification, industry-accepted contracting terms or broader trading practices are all examples of events that could trigger a review process.

4.2 The procedure for external review of GX methodologies

Scheduled change

Where the relevant GX Benchmark Committee has determined that a review of methodology /Fact Sheet is appropriate, details of the proposed changes are publicised on the GX website, and also circulated to all subscribing companies, inviting comments within a prescribed time period. Where there is a material change in methodology, or a cessation of a benchmark is being proposed, this time period will be a minimum of 6 weeks. In addition to registered users, companies are invited to nominate an individual or individuals to receive methodology announcements, and these stakeholders also receive details of any proposed changes. Unless anonymity is requested, GXBL publishes responses to any proposed methodology changes at www.general-index.com.

The fixed timeline for the consultation process as materiality will be the determining factor on what timeline is appropriate. For a material change in methodology or cessation of a benchmark, we would expect a consultation period to be a minimum of 6 weeks

Emergency change

If market integrity is at risk as a result of an exceptional market change, for instance as the result of an industrial accident, shutdown of a market or other extraordinary event, GX may apply changes to a methodology with the approval of the relevant Benchmark Committee on a prompt basis. This prompt procedure only occurs if the short-term integrity of the price assessment is deemed to be at risk, and it is not possible to conduct an external review within a timeframe that ensures the ongoing integrity of the assessment.

These prompt reviews are only triggered by extremely unusual market events. In such a situation, the change and the rationale for such a change is circulated within 24 hours of the change being implemented, and an external review concluded in as short a time as is practicable.

5 Cessation of a Benchmark

From time to time, GXBL may consider the cessation of a benchmark. In such a situation, GXBL follow the same process as outlined in Section [4]. Assessors

6 Ensuring Consistency and Continuity

Day-to-day responsibility for benchmark assessments lies with GXBL's Pricing Directors, all of whom have a minimum of three (3) years price-assessment experience. They are supported by junior analysts, who are both supported by the Pricing Directors and subject to structured training. Performance of all staff is reviewed formally on an annual basis, and informally on an ongoing basis. Guidelines for selecting price assessors are maintained internally in the GX Policy Manual.

6.1 Arrangements to ensure consistency

GXBL operate a pairing system, whereby the Pricing Director for one market, serves as a backup to a second – ensuring consistency at all times. Furthermore, by limiting the use of subjectivity, and maximising the use of technology, GXBL are able to provide a high level of consistency both across benchmarks and across assessors and analysts.

6.2 Continuity and Succession Planning

Through use of technology, and by relying on objective parameters for the evaluation of input data GXBL is able to provide a high level of consistency across markets. GXBL expects Pricing Directors to spend a minimum of three years in role, and review succession plans on an annual basis.

7 Compliance and Oversight Framework

7.1 Oversight of Methodology

Oversight of Methodology, and its application, and GXBL's compliance with all applicable regulation, is the responsibility of the Head of Compliance. The Head of Compliance is responsible for:

- Conducting annual review of methodology, or more frequently if a change is considered necessary in line with section 0.
- Overseeing any changes to methodology
- Assuring the integrity of the pricing processes through monitoring and audit, and that contributors comply with all data quality and integrity expectations
- Ensuring that the input data received is reflective of market realities
- Monitoring the input data received and the validation processes that assure it.
- Reporting to regulatory authorities as required.
- Working with data contributors to ensure the integrity of their data submission protocols.
- Running internal and external audits of GXBL's administration of benchmarks for regulatory and compliance purposes.

7.2 Corrections

GXBL is not a journalistic organisation and instead uses algorithms to consistently apply methodology – GXBL’s “methodology as code” principle. Subjectivity, in so far as it is required, is restricted to the inclusion or otherwise of received input data. Additionally, GXBL encourage data contributors to use secure electronic means for contributing data, thereby minimising data integrity issues. GXBL issues a correction if:

- Input data has been incorrectly included or excluded
- The methodology has not been applied correctly by data processing systems.

In such circumstances, GXBL issues a correction following a review of the benchmark calculations by a senior manager.

7.3 Conflicts of Interest

Managing both real and perceived conflicts of interest is critical in terms of assuring the integrity of our benchmarks and GXBL have clearly defined policies documenting how conflicts of interest are identified and mitigated. Please refer to the GX Policy Manual for detail.

7.4 Confidential Information

Generally, the trade data that GXBL receive is not considered confidential, and nor do we solicit the submission of confidential information. In fact, in many markets, the demand for transparency is such that making trade data more broadly available is a key part of delivering market transparency.

Where confidential information is received, appropriate processes are put in place to ensure that such information is only made accessible to those that need to receive and/or process it, and those arrangements are agreed with the provider of the confidential information.

7.5 Modern Slavery

GXBL has a zero-tolerance approach to modern slavery within the business and any third parties doing business with GXBL and other group companies.

7.6 Sanctions

GXBL takes seriously its responsibilities for complying with sanctions applied by governments and inter-governmental bodies and is committed to ensuring that they are enforced throughout the business.

7.7 Data Security

GXBL views secure and robust data management as a critical foundation of its market assessment activities. As such, it takes a best-practice approach to using policy, process and technology to ensure end-to-end data integrity.

7.8 Staff Training and Attestations

All staff involved in the creation and administration of benchmarks are trained commodity analysts, with knowledge and understanding of the markets they cover as well as GXBL policies and procedures. Guidelines relation to the selection of price assessors are maintained in the GX Policy Manual.

7.9 Monitoring and Audit

The Head of Compliance is responsible for the internal auditing of benchmarks to certify that GXBL's General Methodology and Fact Sheets are adhered to at all times.

GXBL is audited annually for compliance with the International Organisation of Securities Commissions' (IOSCO) Principles for Oil Price Reporting Agencies and the BMR. Reviews are made available on the GX website within three months of each audit.

7.10 Business Continuity

All of GXBL's systems have been designed to ensure availability in excess of 99.9% and support remote collaborative working for analysts. Local systems are also available that can be accessed and used with full compliance of the processes and procedures outlined in this document, in the event of a catastrophic systems failure. Full details are documented in the General Index Business Continuity Plan.

8 Complaints Handling

GXBL has a dedicated complaints handling policy in place. This can be found on the GXBL website.