

CRU Indices
Level 1.5 Steel Price Assessments:
Operations Manual

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1. Product definitions

- 1.1. CRU's product definitions refer to "standardised trades" and are strictly adhered to. A document containing all of CRU's steel price definitions is available separately.

2. Data providers

- 2.1. "CRU's Level 1.5 Steel Price Assessments" are based upon data submitted by steel industry participants (our "data providers"), who collectively represent the whole supply chain, and include producers, consumers, stockists and traders.
- 2.2. Our data providers must have access to data relating to spot market transactions and are therefore typically employed in the sales/marketing department or purchasing/finance department of their companies.
- 2.3. Data providers are selected by CRU Indices, and only those that (in the opinion of CRU Indices) have significant steel pricing/industry knowledge, integrity and who are also trustworthy and reliable are approached for participation. Data providers are expected to adhere to the code of conduct policies set by their employer.
- 2.4. All data providers are required to sign a "data providers' agreement". By so doing, they agree:
 - to provide the required information to CRU Indices Ltd. by the specified deadline;
 - to provide high quality data
 - not to disclose to anyone outside of their company that they are contributing data to "CRU's Level 1.5 Steel Price Assessments";
 - not to discuss their data submissions with anyone outside of their company, and this includes CRU staff engaged in the creation of reports/news stories and related consulting activities
- 2.5. Each data provider is supplied with a "data providers' pack", which clearly outlines the data that they are required to submit. In addition, CRU Indices Ltd. staff contact each data provider before their first submission to ensure that they are entirely clear on what is expected of them.
- 2.6. Each data provider is given a "contributor ID". This is a randomly assigned alphanumeric string, which serves to prevent any CRU steel industry analyst, who may need to view the data submissions for quality assurance purposes (see section 6), from linking individual data points with individual companies.
- 2.7. Data providers submit to CRU Indices Ltd. a single price for each product, based upon CRU's strict price definitions. This price represents the average price for the spot orders placed in the week (defined as Sunday through

Saturday) before publication of the relevant CRU steel price assessment. All data submitted is used solely for the purpose of calculating the final CRU steel price assessments.

3. Raw data collection and storage

- 3.1. The collection of raw data is looked after by CRU Indices Ltd, a Delaware incorporated company tasked with managing “CRU’s Level 1.5 and 2.0 Price Assessments”. CRU Indices Ltd. staff are not involved in other aspects of CRU’s business, such as market analysis or journalistic activities.
- 3.2. Data providers are sent an email on the Friday before publication of the relevant CRU steel price assessment. This email provides advance notice of when the “data submission window” will open and close. For each “CRU Level 1.5 Steel Price Assessment”, the “data submission window” opens each Friday before publication and closes on the Tuesday before publication.
- 3.3. Upon the opening of a “data submission window” open, data providers are sent an email. This includes a URL that directs data providers to the login page to the “data collection platform” on www.cruindices.com. Data Providers are only allowed to submit data for the products for which they are registered. The page includes measures designed to eliminate the risk of errors in data entry. For example, all data providers are required to confirm the price that they are submitting.
- 3.4. At least six hours before the “data submission window” closes –the “data collection platform” identifies the registered data providers that have not yet submitted data. Each are then sent a further email, reminding them of when the “data submission window” is set to close. Again, this email will contain a URL that directs data providers to the login page to the “data collection platform” on www.cruindices.com
- 3.5. In the event of a data provider experiencing technical difficulties in submitting data to CRU Indices Ltd., back-up procedures are in place. Data providers are, for example, permitted to submit data via fax or from a pre-defined email address, using templates provided in the “data providers’ pack”. On such occasions, CRU Indices Ltd. staff will input the data into the “data collection platform” on behalf of the data provider.
- 3.6. Data providers are permitted to provide multiple submissions or corrections to the data submitted, provided that these are received by the time the “data submission window” is closed. The last submission that the data provider submits before the “data submission window” is closed is the only submission that is considered for inclusion in subsequent price assessment calculations.
- 3.7. All data submissions are stored to deal with queries should they arise.

- 3.8. The database used to store data submissions is hosted in a physically separate location to CRU Indices Ltd., on servers in a “clustered array” environment. These servers synchronise in real-time, providing a fully redundant “hot” back-up of each other, giving immediate failover to the alternative server should a critical part of the infrastructure fail. In addition, a daily data backup process allows copies of the data to be taken from the databases and outside of the live infrastructure.
- 3.9. Data stored is only directly accessible to employees of CRU Indices Ltd. However, CRU Indices Ltd. has the authority to provide a “cleansed version” of the data to CRU’s steel industry analysts, who may need to view the data for quality assurance purposes (see section 6).
- 3.10. The “cleansed version” of the data comprises the price submissions, along with the associated contributor ID of each participant. At no point is data released along with the true identities of the data providers.

4. Error detection procedures - raw data

- 4.1. Data submissions are subject to pro-active checks in order to detect errors. For example, each price submitted by a data provider must fall within the acceptable price range set by CRU’s steel industry analysts. A price submission that falls outside of this range is flagged-up for further investigation by CRU Indices Ltd..
- 4.2. As part of this further investigation, staff of CRU Indices Ltd. examine the previous price submissions provided by that data provider. If this shows that the price submissions from the data provider in question have consistently fallen outside of the range set by CRU’s steel industry analysts, the submission may be included in the calculation of the final price assessment. However, if there is any doubt whatsoever, a telephone call is initiated with the data provider to discuss the submission further.
- 4.3. If, following such a telephone call, CRU Indices Ltd. staff are satisfied without doubt that the price submission is valid, then it is included in the final price calculation. If there are still doubts over the validity of the price submission, it is rejected and not used in the final price calculation.
- 4.4. All price submissions that have passed this initial check are then subjected to a series of automated statistical checks by the “data collection platform”.
- 4.5. First, individual price submissions are compared with the previous price submission made by that data provider. Submissions beyond a specific percentage range (+/-15%, although this is actively adjusted by CRU steel industry analysts in situations of significant market volatility) from the previous submission are flagged-up as “suspect”. At this point, CRU Indices Ltd. staff check with CRU’s steel industry analysts whether such a change is plausible.

- 4.6. If the answer is “yes”, those price submissions are included in the subsequent price assessment calculations. If the answer is “no”, those price submissions are removed from the subsequent calculations. At no point will CRU Indices Ltd. share the identity of the data provider with CRU’s steel industry analysts.
- 4.7. Second, once all of the price submissions have been received, those that fall beyond a specific percentage (+/-10%) from the average of all the price submissions received are flagged-up as suspect. At this point, CRU Indices Ltd. staff check with CRU’s steel industry analysts whether such a situation is plausible.
- 4.8. If the answer is “yes”, those price submissions, , are included in the subsequent price assessment calculations. If the answer is “no”, those price submissions, are removed from the subsequent calculations. Again, at no point will CRU Indices Ltd. share the identity of the data provider with CRU’s steel industry analysts.

5. Calculation procedures for final price assessments

- 5.1. “CRU’s Level 1.5 Steel Price Assessments” are an average of the price submissions that have been passed for inclusion in the calculation.
- 5.2. In the absence of any data being submitted, CRU steel industry analysts would consider using reported trades to arrive at a price assessment, and in so doing they would use their judgement and other market information to assess whether the trades gave a true reflection of the market price.

6. Error detection/resolution procedures - final price assessments

- 6.1. The final price assessments calculated by CRU Indices Ltd. are subject to an “observation period”. During this period, CRU’s steel industry analysts can view the “cleansed version” of the raw data.
- 6.2. Final price assessments that appear reasonable are released for publication. If an assessment is flagged-up by CRU’s steel analysts as being suspect (based upon their understanding of the current market), they request that CRU Indices Ltd. conduct an audit of the data collection and assessment calculation procedures.
- 6.3. In the unlikely event that a suspect submission passes the statistical tests imposed on incoming data, that submission is identified and removed from the price assessment calculations.
- 6.4. As stated in section 3.9, this “cleansed version” of the data will comprise the price submissions, along with the associated contributor ID of each participant. At no point is data released along with the true identities of the participants.

- 6.5. Only when CRU's steel industry analysts are happy that the calculation has been based upon reliable data is the assessment released for publication. This will be granted by 5.00pm (London, UK) on the Tuesday before publication.
- 6.6. No adjustments will be made to the definitive CRU steel price assessments after they have been published.

7. Dissemination of the final price assessments

- 7.1. CRU steel prices assessments are published every Wednesday by 2.00pm (London, UK) unless they are evolving in a "shadow period".
- 7.2. If, for whatever reason, it is not possible to publish a definitive price, CRU will always publish a provisional price by 2.00pm (London, UK), but reserves the right to change this. If this happens, it will be clearly indicated that the price published is provisional.

8. Other information

- 8.1. To ensure that CRU Indices Ltd. is following the procedures outlined in this "Operations Manual", it will – from time-to-time – be audited.