European Daily Electricity Markets Methodology

Methodology last updated: 24 May 2017

Date of last formal methodology consultation: 01 July 2016
Expiry date for this methodology: 01 July 2018

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Introduction to European Daily Electricity Markets (EDEM)

European Daily Electricity Markets (EDEM) contains independent price assessments and indices for mature and emerging electricity markets, as well as in-depth analysis on price drivers, authoritative commentary on each day's trading activity and daily news. Coverage for some markets stretches back as far as 1997 and a comprehensive price history database is available for this report.

EDEM is published every English working day in the evening as a PDF with data also available through an FTP feed.

General methodology

ICIS continuously develops, reviews and revises its methodologies in consultation with industry participants. Product specifications and trading terms and conditions used are intended to reflect typical working practices prevalent in the industry.

ICIS publishes market assessments based on information continuously gathered from market participants about: spot transactions, spot bid and offer levels, contract and tender price negotiations, prices of related commodities, and relevant transmission costs.

ICIS does not make retrospective adjustments or changes to price assessments based on information received after publication time in all cases or after any cut-off point specified in individual methodology documents.

ICIS regards all arm's length transactions which meet its specification criteria as carrying equal weight.

ICIS uses proprietary models where necessary to normalise data to the typical specifications for cargo size and date ranges given for each commodity.

Some ICIS assessments are the product of calculation alone, for example in markets where insufficient market activity takes place to permit price assessment, or where a market habitually itself sets prices according to a formula. Such calculated assessments are noted as such in their detailed methodology specifications.

ICIS endeavours to cross-check all the transaction information it gathers. ICIS will not use information for assessment purposes where such checks call into doubt the accuracy of the original information, or where a transaction appears to have occurred under circumstances that render it non-repeatable or otherwise markedly unusual.

Rationale for electricity methodology

All ICIS electricity prices contained in EDEM are intended to provide a reliable and accurate measure of physical market value on the over-the-counter traded markets.

In order to do this, ICIS has adopted two different methodological approaches, which can be applied as reliable measures but at different stages in the development of trade at a particular location: assessment and index.

Assessment

For markets at all stages of development, ICIS deems its assessment methodology to be appropriate. Assessments in EDEM are made at the close of the trading day, as this is the time at which most companies need to mark their positions to market and finalise their physical trading positions.

Some companies choose to use the midpoint between this bid and offer as the best indicator of market value.

ICIS assessments reflect the value of the market at the last point of liquidity for that market. The last point of liquidity is defined as the latest time of day when a wide range of market participants based in that market's local timezone are still actively trading and available to be contacted for information.

ICIS uses transaction data as well as bid and offer data in its assessment process. Transaction information is used to verify bid or offer information when available.

Where a transaction can be confirmed at exactly the time of the published market close, it will not necessarily supersede a firm bid-offer spread. This is because on the more active electricity markets, ICIS considers the depth and continuity of bid/offer information to be the most reliable measure of market value. On the less active contracts, there will not typically be a transaction exactly at the ICIS published assessment time. See the section entitled "Exercise of judgement" below.

Index

An index is formed using transaction data only. This methodology can provide a reliable measure of market value when markets have developed to a point of relatively high liquidity. A mechanistic, deals-based index for a contract with low liquidity leads to erratic switches from defined default methodologies.

This is why ICIS will not typically publish an index until it has at least six months' worth of data showing that at least 10 deals have been completed for each index period.

Indices are not considered to be an accurate way to represent price differentials between different geographies and delivery contracts, as they do not represent market value at a set point in time, but rather an average of deals done over a given period of time.

All ICIS indices are formed of a weighted average of physical deals done. Criteria for inclusion or exclusion of deals are described below.

The indices are published as a single value, to three decimal places.

Primary price references

Primary price references published in EDEM are as follows. All prices are assessed each working day in England and Wales unless otherwise stated.

Market	Assessments	Indices	Units quoted
UK	Baseload and Peaks Day-ahead, three working days ahead (except on English and Welsh public holidays), Weekend (Baseload only), two weeks ahead, four months ahead, four quarters ahead, seven seasons ahead, annual contract ahead	Day Ahead, Day Ahead Peaks, Weekend, Monthly index	£/MWh
German	Baseload and Peaks Day-ahead, three working days ahead (except on English and Welsh public holidays), Weekend (Baseload only), two weeks ahead, four months ahead, six quarters ahead, four calendar years ahead	Day Ahead, Day Ahead Peaks, Weekend, Monthly index	€/MWh
French	Baseload and Peaks Day-ahead, three working days ahead (except on English and Welsh public holidays), Weekend (Baseload only), two weeks ahead, four months ahead, four quarters ahead, three calendar years ahead	Day Ahead, Day Ahead Peaks, Weekend, Monthly index	€/MWh
Dutch	Baseload Day-ahead, Weekend, week ahead, three months ahead, three quarters ahead, two calendar years ahead. Peaks one month ahead, one calendar year ahead		€/MWh
Italian	Baseload and Peaks two weeks ahead, four months ahead, four quarters ahead, two calendar years ahead	Monthly index	€/MWh
Czech	Baseload Day-ahead, Weekend (on last UK working day of the week), week-ahead, two months ahead, three quarters ahead, two calendar years ahead	Day Ahead, Weekend, Monthly index	€/MWh
Hungarian	Baseload and Peaks Day-ahead, Weekend (Baseload only, on last UK working day of the week), Week-ahead, three months ahead, four quarters ahead, two calendar years ahead	Day Ahead, Day Ahead Peaks, Weekend, Monthly index	€/MWh
Polish	Baseload Week-ahead, two months ahead, three quarters ahead, two calendar years ahead. Extended Peaks one month ahead, one calendar year ahead	Monthly index	Zl/MWh
Romanian	Baseload two months ahead, two quarters ahead, one calendar year		New Lei/MWh
Turkish	Baseload Week ahead, three months ahead, four quarters ahead, calendar year, rolling calendar year		TL/MWh, converted to €/MWh at forward currency rates
Spanish	Baseload three months ahead, three quarters ahead, two calendar years ahead. Quoted weekly on a Wednesday, or previous UK working day.		€/MWh
Bulgarian	Baseload one month ahead. Quoted weekly on a Thursday or previous UK working day.		€/MWh
Greek	Baseload one month ahead. Quoted weekly on a Thursday or previous UK working day.		€/MWh

Definition of traded electricity

UK: Power delivered or withdrawn from the British transmission system operated by National Grid.

Germany: Power delivered or withdrawn from the German/Austrian market area, comprising the transmission systems operated by TransnetBW GmbH, TenneT TSO GmbH and TenneT Offshore GmbH, Amprion GmbH, 50Hertz Transmission GmbH and Austrian Power Grid AG.

France: Power delivered or withdrawn from the French transmission system operated by Réseau de Transport d'Électricité (RTE).

Netherlands: Power delivered or withdrawn from the Dutch transmission system operated by TenneT TSO BV.

Spain: Power delivered or withdrawn from the Spanish transmission system operated by Red Eléctrica de España SA (REE).

Italy: Power delivered or withdrawn from the Italian transmission system operated by Terna - Rete Elettrica Nazionale SpA.

Czech Republic: Power delivered or withdrawn from the Czech transmission system operated by ČEPS, a.s.

Poland: Power delivered or withdrawn from the Polish transmission system operated by PSE SA.

Hungary: Power delivered or withdrawn from the Hungarian transmission system operated by MAVIR ZRt.

Serbia: Power delivered or withdrawn from the Serbian transmission system operated by JP Elektromreža Srbije (EMS).

Romania: Power delivered or withdrawn from the Romanian transmission system operated by CN Transelectrica SA.

Turkey: Power delivered or withdrawn from the Turkish transmission system operated by Turkish Electricity Transmission Co (TEİAŞ).

Bulgaria: Power delivered or withdrawn from the Bulgarian transmission system operated by Electroenergien Sistemen Operator EAD (ESO).

Greece: Power delivered or withdrawn from the Greek transmission system operated by Independent Power Transmission Operator SA (IPTO).

Switzerland: Power delivered or withdrawn from the Swiss transmission system operated by Swissgrid.

Belgium: Power delivered or withdrawn from the Belgian transmission system operated by Elia System Operator SA.

Slovakia: Power delivered or withdrawn from the Slovak transmission system operated by SEPS, a.s.

Coverage history

ICIS market coverage history		
Country	**Price assessment start dates**	**Trades series start dates**
UK	7 Apr 1997	10 Dec 1997
German	9 Aug 1999	27 Sep 2000
Spanish	2 Jan 2001	26 Mar 2001
Dutch	8 Jan 2001	8 Mar 2001
French	11 Jul 2001	11 Jul 2001
Czech	22 Aug 2006	12 Sep 2006
Italian	7 Jun 2007	14 Jun 2007
Polish	19 Apr 2010	29 Jun 2009
Hungarian	19 Apr 2010	29 Jun 2009
Romanian	19 Apr 2010	19 Apr 2010
Serbian	19 Apr 2010 (last assessed 25 May 2017)	19 Apr 2010
Turkish	3 Mar 2011	3 Mar 2011
Bulgaria	5 Apr 2012	
Greek	5 Apr 2012	
Belgian	n/a	18 Jan 2011
Swiss	n/a	18 Jan 2011

ICIS Heren indices published and start dates	
Day-ahead Indices	
UK Day-ahead	18 Aug 2000
German Day-ahead	1 Feb 2002
French Day-ahead	30 Apr 2007
Czech Day-ahead	11 Apr 2007
Hungarian Day-ahead	19 Apr 2010
Weekend Indices	
UK	5 Jan 2001
German	3 May 2002
French	4 May 2007
Czech	13 Apr 2007
Hungarian	19 Apr 2010
Monthly Indices	
UK	1 Feb 1999
German	1 Jul 2001
French	1 Aug 2001
Czech	1 Jun 2007
Hungarian	1 Apr 2010
Polish	1 Apr 2010
Italian	1 January 2011
Day-ahead Peak Indices	
UK	17 Jan 2011
German	17 Jan 2011
French	17 Jan 2011
Hungarian	17 Jan 2011

Recent changes to this methodology

Date	Price reference	Change
24 May 2017	Dutch, Czech, Polish and Serbian power price assessments; Czech Day-ahead Peaks index; secondary data	Removes specific assessments and indices from coverage, renames two exchanges
18 October 2016	Assessments	Clarifies methodology used to assess spot or prompt contracts if using fundamentals. Clarifies plant efficiencies in spark and dark spread calculations.
9 August 2016	Assessments	Updates criteria for assessing a bid-offer spread as non-indicative
30 March 2016	UK, German, French power price assessments; dark spreads	Adds assessments, updates definition of frequency of working days price assessments; updates coal source for dark spreads
13 May 2015	UK, German, French, Dutch power price assessments. Updates secondary data	Adds assessments, increases frequency. Removes UK electricity EFA calendar references. Adds HUPX, BSP Southpool, OKTE, GB Virtual Hub Price
19 September 2014	UK clean spark and dark spreads including carbon price support	Removes specific carbon price support level
30 July 2014	Clean spark and clean dark spread calculations	Updates spark and dark spread calculations
30 July 2014	Polish power price assessments	Updates typically observed last point of liquidity
5 December 2013	Assessments	Adds section: PRICE ASSESSMENTS – Data used key
1 November 2013	UK power price assessments	UK power methodology changed from EFA to Gregorian. Adds detail. Removes repetition.
23 September 2013	Turkish power price assessments	Adds assessment.
19 August 2013	Spark and dark spread calculations	Updates and expands spark and dark spread calculations.
28 May 2013	Turkish power price assessments	Assessments updated from weekly to daily and added additional assessment.
28 May 2013	Secondary data	Added Greek SMP data.
18 March 2013	Italian spark spreads	Added Italian spark spreads.
2 January 2013	Turkish power price assessments	Added assessment.
26 November 2012	Turkish power price assessments	Added assessment.
29 October 2012	SEE regional Baseload spreads	Added spread calculations.

Price assessments

General definitions

All price assessments published in EDEM represent ICIS' close-of-day bid-offer ranges for electricity delivered at a number of physical transmission grids.

Assessments are based on bids and offers widely available to the market closest to the typically observed last point of liquidity. "Bid" is deemed to be the highest price bid by buyers at this time.

"Offer" is deemed to be the lowest price offered by sellers at this time.

The times below represent the latest point of liquidity typically observed for each market. ICIS does not consider bids and offers and transactions made available to the market after these times, except as indicators of market trend over the ICIS close.

ICIS latest point of liquidity timing Excludes Day-ahead, see PRICE ASSESSMENTS - GENERAL DEFINITIONS	
Market	**Typically observed last point of liquidity**
UK	16:30
German	16:00
French	16:00
Dutch	16:00
Czech	15:30
Italian	16:30
Hungarian	15:30
Polish	14:30
Romanian	15:30
Turkish	15:30
Spanish	16:00
Bulgarian	15:30
Greek	15:30

The above latest point of liquidity timings do not apply on the final working day immediately preceding 25 December and 1 January each year, when all markets are assessed at 12:00 London time.

Typically, on the trading session before a contract could last be traded before delivery, liquidity will fall before the ICIS published closing time for its assessments. In these instances ICIS will work back in time from its published closing time to the last point of liquidity during the trading session and assess value at that point.

In addition, for Day-ahead and Weekend contracts for delivery on the next calendar day, ICIS excludes transaction and bid/offer activity taking place after 11:00 London time. This typically reflects the time after which OTC trade has stopped and represents OTC value ahead of exchange outturn.

PRICE ASSESSMENTS – Guidelines for the exercise of judgement

ICIS gives priority to the highest bid and the lowest offer in its assessment process.

ICIS first attempts to establish a firm bid/offer spread as the basis for its assessments. ICIS also discovers transaction information. This transaction information is used as supporting evidence to establish market value. Where this transaction information is within the established bid/offer spread it may also be used to narrow the ICIS assessment bid/offer spread.

The exception is the Day-ahead contract, where the latest transaction, in so far as it complies with this methodology, is prioritised.

Where no confirmed bid and offer or transaction information is available ICIS will use other types of market information to assess value. The most regular form of alternative market information used to make assessments is the value of spreads, either between contracts for different delivery periods in the same market, between contracts for the same delivery period on other European markets, or between the electricity and fuel markets, such as spark spreads.

ICIS may also use the ratio between Baseload and Peakload contracts to establish value for the less liquid contract.

ICIS only uses spread information between markets where a strong price correlation has been demonstrated by past trading activity.

ICIS discovers the value of time, geographic and spark spreads through the collection of spread trade and bid/offer information.

Where ICIS uses spread information in its assessment process, it gives priority to information available during the last liquid market. If this is not available, it will take evidence of market activity closest to this time.

Where only a bid or offer is available, or where the bid/offer spread is wider than the ICIS published maximum (see section below: "Width of bid/offer spreads"), confirmed spread information may take priority over bid/offer information in forming the assessment. The value of component periods within a given contract will typically be used where confirmed market information is available for these component periods and not the contract itself. Similarly, where confirmed market information is available for a contract for a longer delivery period, this will typically be used to assess component contracts.

If an assessment of value cannot be made through spread information, interpolation or extrapolation, and no bid, offer or transaction data is available, ICIS may assess a contract based on fundamentals. In the case of working day contracts, where the fundamental outlook changes day by day near to delivery, assessing based on the previous day's spreads to other contracts may not be a reliable indicator of value. In this case, an ICIS Analytics formula may be used where available to arrive at a mid-point of value. This formula is based on fundamentals including, but not limited to, forecasts of wind power, solar power, demand, residual demand, weather data and fuel prices.

Where transaction information is available, it may be superseded by market spread information in instances where the transaction is deemed not to be repeatable. ICIS may make this judgement in cases where there is no bid/offer information immediately following the transaction to support a movement in value. It may also make this judgement where a single deal at the latest point of liquidity falls outside of the prevailing range of confirmed bid/offer or spread activity at other times of day. This logic also applies to situations where a bid/offer spread at the close is uncorrelated with the rest of the day's market activity and where ICIS can discover no fundamental reason for the change in market structure.

ICIS may also disregard transaction information where the deal is for a contract with a delivery period overlapping another more liquid contract, and where market information for the more liquid of the two indicates a different price level or price trend. This is because on actively traded power markets, participants do not typically leave arbitrage between a contract and its constituent parts.

In the absence of any of the above market information, ICIS may use other types of market data, including but not limited to tender results, the cost of physical transmission capacity and related derivative contracts. This type of data will typically only be used in markets in the early stages of development.

PRICE ASSESSMENTS – Data used key

For each assessment published in EDEM, ICIS gives a concise description of which type of market data was used to form the assessment. This is done using a standardised key code. A single letter published alongside the assessment denotes the type of information used as the primary basis for the assessment. Any other type of information ICIS may have gathered for that assessment can be considered as supporting and of secondary importance in the formation of the assessment.

The definition of the key is as follows:
B – Bid/offer
T – Transaction
S – Spread
F – Fundamentals
I – Interpolation/extrapolation

PRICE ASSESSMENTS – Exclusion of data

In line with its Editorial Standards policy, ICIS reporters actively seek to identify anomalous market information and exclude it from the assessment process. For electricity market assessments, this is done by the daily information gathering and verification process carried out by reporters, whereby market transaction, bid and offer information is confirmed and verified by multiple sources. The context of ICIS reporters' knowledge of the fundamental supply/demand situation on a given market is also used to verify transaction data that appears to be anomalous but may be done at a price level explained by changes in the physical market.

In assessing electricity markets, ICIS takes into consideration only arm's length transactions between non-affiliated parties.

ICIS does not accept bids or offers that are not firm. Any bid or offer which is demonstrably not firm will be disregarded and further bids or offers from the same counterparty may also be disregarded. For example, if a company indicates to the market that it is bidding or offering at a certain price and volume but ICIS can confirm that it later refused to transact when that bid was hit or offer lifted, it will not use that company's bid/offer information.

ICIS also excludes from its assessment process transactions where ICIS reporters have reasonable grounds to doubt the transaction is representative of typical market behaviour: for

example, where a deal is concluded disregarding the best bid or offer on the market; where there is evidence that a market participant has disclosed only part of its market activity to ICIS; or where a transaction lies outside the prevailing range of typical market activity as established through other market evidence.

ICIS actively seeks to verify the time at which reported transactions took place. If such verification cannot be obtained, ICIS may exclude the transaction information.

ICIS records instances of anomalous data and reviews these instances on a regular basis with a view to determining if a pattern exists.

Where market reporters have concerns over the behaviour of a market participant, this will be escalated using the ICIS Escalation Process for Compliance and Regulatory Issues. This can be found in the company's Compliance Manual.

PRICE ASSESSMENTS – Indicative assessments

ICIS seeks confirmation of bids and offers from at least three independent and non-affiliated market participants, or an automated and independent screenshot including the highest bid and lowest offer available to the market at a particular point in time, in order to assess a price as non-indicative. If spread value has been confirmed at the latest point of liquidity and the price of the related outright contract value has been confirmed, ICIS will not mark an assessment as indicative.

ICIS will not publish a bid/offer spread wider than £1.00/MWh, €1.00/MWh, Zloty 10.00/MWh, New Lei 10.00/MWh or Turkish Lira 10.00/MWh. If the confirmed bid/offer spread is wider than this range, ICIS will narrow the spread using the alternative market evidence described above and mark the assessment as indicative.

If a stand-alone transaction is confirmed and conforms to the ICIS methodology, but no bid-offer information is available, ICIS will either confirm the transaction level conforms to spread information available at the latest point of liquidity on that market, or otherwise mark that assessment as indicative.

PRICE ASSESSMENTS – Width of bid/offer spreads

ICIS publishes a minimum bid/offer spread of £0.05/MWh, €0.05/MWh, Zloty 0.05/MWh or New Lei 0.05/MWh, and a maximum of £1.00/MWh, €1.00/MWh, Zloty 10.00/MWh, New Lei 10.00/MWh or Turkish Lira 10.00/MWh.

PRICE ASSESSMENTS – Types of market information used and collection process

ICIS gathers market information primarily via telephone, instant messenger and e-mail. Lists of transactions are primarily collected electronically and ICIS employs a data management team to collect and de-duplicate this data. ICIS has designed bespoke programmes to standardise the various data feeds received, for the purposes of reporter verification and publication.

Market information includes bids, offers and deals done by sources or seen/heard by sources. ICIS reporters also investigate the reasons for market price movements and cross-check information received against market fundamentals data, primarily gathered from transmission system operators.

Information is typically gathered between 10:00 and 17:30 London time on the day the assessment is published. ICIS may disregard information received after 17:30 London time.

On the working days immediately preceding 25 December and 1 January, when these are English working days, ICIS assesses markets earlier and gathers information between 09:00 and 13:15 London time.

ICIS will never use information received after assessments have been published to retroactively correct an assessment.

PRICE ASSESSMENTS – Transaction data threshold

ICIS does not impose a minimum transaction data threshold on its assessment process.

Alongside its role in assessing the more active and mature electricity markets, ICIS plays a role in bringing price transparency to new markets where trading and market information can be sporadic. Such markets are not conducive to minimum data thresholds.

In the absence of both transaction and bid/offer information, ICIS procedures are described above in the "Exercise of Judgement" section.

ICIS does impose a minimum data threshold on its indices, however (see section below: "DEFINITION OF HEREN INDICES").

PRICE ASSESSMENTS - Verification of sources

ICIS verifies that all sources are active participants in the European electricity markets by checking they have a shipper and/or supplier licence or are registered to trade at a relevant venue.

In addition, ICIS reporters use the indicators contained in the section entitled Validation Checks on Sources from the company's Data Standards Policy. This policy can be read in full in the ICIS Compliance Manual.

PRICE ASSESSMENTS – Definitions of periods

Prices for the Baseload profile quoted are for power delivered at a flat rate throughout the specified delivery period.

Peaks prices quoted are for power delivered during the peak period of working days and do not include Weekend delivery.

Prices quoted as extended peaks are differentiated from the peaks loadshape in use elsewhere in a region, for example in Poland.

See table on following page for specific timings for each market.

All forward contracts are delivered according to the Gregorian calendar.

Day-ahead: Day-ahead prices are for power to be delivered for the next working day (in England and Wales) following the date of the report. Thus, in a report published on Friday, the Day-ahead quote would apply to the following Monday, unless this was a public holiday in England and Wales.

The day-on-day difference shows the difference to the previous Day-ahead delivery period. For example, the day-on-day difference on a Wednesday would show the price difference between the Wednesday Day-ahead contract (for Thursday delivery) compared with the Tuesday Day-ahead contract (for Wednesday delivery).

Any English public holiday will be treated as a single trading day on all markets and will be assessed as a separate period in the price assessment table. On markets where Day-ahead indices are calculated, a separate index will also be calculated for that English public holiday. This is for the purpose of continuity in our price series.

Working days: Working day prices (designated by the day of the week) are for power to be delivered for the designated day of the week following the date of the report.

The day-on-day difference shows the difference to the previous day's assessment for the same delivery period. For example, the day-on-day difference for the Wednesday working day assessed on a Tuesday would show the price difference to the same Wednesday working day assessed on a Monday.

ICIS does not publish an assessment for working days that deliver two or more working days after an English public holiday.

Weekend: Weekend prices are for power delivered from 23:00:00 on the Friday following the date of the report in the UK, and from 00:00:00 local time on the Saturday following the date of the report on continental markets, to 22:59:59 on the following Sunday in the UK and 23:59:59 local time on continental European markets.

Week-ahead: Week-ahead prices are for power to be delivered each day from 23:00:00 Sunday following the date of the report to 22:59:59 the following Sunday in the UK, and from 00:00:00 local time on Monday following the date of the report to 23:59:00 on the following Sunday for Baseload. Peakload contracts are for power delivered each day from 07:00:00 to 22:59:59 Monday to Friday in the UK and from 08:00:00 to 19:59:59 Monday to Friday on continental European markets.

Loadshapes for each market in local time			
Market	**Baseload**	**Peaks**	**Extended Peaks**
UK	23:00:00-22:59:59	07:00:00-18:59:59 Monday to Friday	
German	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
French	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Dutch	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Czech	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	06:00:00-21:59:59 Monday to Friday, includes public holidays
Italian	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Hungarian	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	06:00:00-21:59:59 Monday to Friday, includes public holidays
Polish	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	07:00:00-21:59:59 Monday to Friday, excludes public holidays
Romanian	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	07:00:00-22:59:59 Monday to Friday, includes public holidays
Turkish	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Spanish	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Bulgaria	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Greek	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Swiss	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Belgian	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	
Slovak	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	06:00:00-21:59:59 Monday to Friday, includes public holidays
Serbian	00:00:00-23:59:59	08:00:00-19:59:59 Monday to Friday	06:00:00-21:59:59 Monday to Friday, includes public holidays

Months: Each month quoted represents power to be delivered on each day of the calendar month for Baseload, and for Monday to Friday for Peakload contracts.

Quarters: The quarters are three-month periods beginning on 1 January (Q1), 1 April (Q2), 1 July (Q3) and 1 October (Q4). Each represents power to be delivered on each day of the quarter for Baseload, and for Monday to Friday for Peakload contracts.

Seasons: The seasons are six-month periods beginning on 1 April (Summer) and 1 October (Winter).

Years: EDEM price assessment yearly quotes are for calendar years unless otherwise stated. Each assessment listed represents electricity to be delivered on each day of the 12-month period for Baseload, and for Monday to Friday for Peakload contracts. April Annual refers to electricity supplied for a year from 1 April of a particular year while October Annual refers to electricity supplied for a year from 1 October.

The Rolling front year contract assessed in the Turkish market has a delivery period for the next 12 months, beginning on the first calendar day of the month ahead of the publication date.

UK-specific Load Shapes: Daily power traded on the UK market is by custom split into six four-hour Week Day (WD) or Weekend (WE) periods.

The periods are laid out as indicated in the table below.

UK block profiles		
Time period	**Weekday**	**Weekend**
23:00:00-02:59:00	WD1	WE1
03:00:00-06:59:59	WD2	WE2
07:00:00-10:59:59	WD3	WE3
11:00:00-14:59:59	WD4	WE4
15:00:00-18:59:59	WD5	WE5
19:00:00-22:59:59	WD6	WE6

Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period 23:00:00 to 22:59:59, ie WD 1-6 and WE 1-6 (if the period traded includes a weekend).

In the context of the UK market, Peak prices quoted are for power delivered during the peak period of working days (07:00:00-18:59:00), ie WD 3, 4 & 5, and do not include Weekend delivery, ie Winter Peaks includes WD 3-5 but NOT WD 1, 2 & 6 and NOT WE 1-6. Off-peaks refers to WD 1, 2 & 6 and WE 1-6 (if the period traded includes a weekend).

Various other non-standard load shapes are traded on the UK power market. Where these are reported in EDEM, EDEM will provide a definition based on the WD/WE periods they comprise.

Bulgarian price assessments: Bulgarian Baseload prices quoted are for power export only, at a flat rate throughout the specified delivery period 00:00:00-23:59:59, and include export fees. This is an exception to the standard price assessment methodology, and reflects a particular interest in export opportunities from that market.

REGIONAL SPREADS – European, France-Italy, Central and Eastern Europe, South East Europe & Turkey

The Regional baseload spreads maps show price differentials between the named markets for key contracts in graphic form, to illustrate cross-border trading opportunities.

These differentials are based on price assessments, and reflect the premium of the first-named market to the second-named market. If the first-named market is assessed below the second-named, the spread will be negative.

Where price assessments are made in a currency other than euros, the assessment is converted to euros using the daily currency exchange rates for the delivery period – ie, a forward exchange rate rather than a spot rate.

Spreads within price assessment tables are calculated on the same basis as those calculated in graphics, and reflect a particular interest in cross-border trading opportunities within the relevant market.

Italian price assessments: The Italian spread to France included within the Italian price assessment table is calculated by subtracting the midpoint of the Italian front-month Baseload price assessment in €/MWh from the midpoint of the French front-month Baseload price assessment, and the same calculation for the corresponding Peaks contracts.

Bulgarian and Greek price assessments: The spread to Turkey is calculated by subtracting the midpoint of the Turkish front-month Baseload price assessment in €/MWh from the midpoint of the Bulgarian or Greek front-month Baseload price assessment.

Indices

THE HEREN INDEX – General definition

All ICIS' market indices are volume-weighted averages of trades gathered and verified by ICIS during the course of its market reporting activities. All of the trades verified by ICIS and not excluded according to the criteria set out below are published by ICIS on a daily basis via its FTP service, and transactions for a selection of key contracts are summarised in EDEM on a daily basis.

INDICES – Guidelines for the exercise of judgement

ICIS reporters are responsible for identifying anomalous trades and excluding them before the index is calculated. Please see the section below "Criteria for Exclusion of Data".

INDICES – Criteria for the exclusion of data

In line with its Editorial Standards policy, ICIS reporters actively seek to identify anomalous deals and exclude them from the index creation process. For electricity market indices this is done by the daily information gathering and verification process carried out by reporters, whereby transaction information is confirmed and verified by multiple sources.

Confirmation is sought from both parties to the deal. If, as is often the case, both counter-parties are unwilling to confirm, confirmation is accepted from one side only. However, corroboration is also sought from other market participants. If no direct confirmation is available, the deal may still be included if it is corroborated by other market sources and if ICIS itself regards it as being within the prevailing market trend for the period in question.

ICIS only accepts arm's-length transactions between non-affiliated parties for inclusion in its indices.

ICIS does not accept "wash" or "round-trip" trades for inclusion within its indices.

ICIS excludes from its indices transactions where market reporters have reasonable grounds to doubt that a transaction is representative of typical market behaviour: for example, where a deal is concluded disregarding the best bid or offer on the market; where there is evidence that a market participant has disclosed only part of its market activity to ICIS; or where a transaction lies outside the prevailing range of typical market activity as established through other market evidence.

The context of ICIS reporters' knowledge of the fundamental supply/demand situation on a given market is also used to verify transaction data that appears to be anomalous but may be done at a price level explained by changes in the physical market.

Deals may be excluded if ICIS is not able to satisfactorily confirm the transaction time.

Where sleeve deals have been identified and are not deemed to be off-market, ICIS will remove one leg of the sleeve in order to prevent skewing of the index through double volume reporting for one agreed transaction price.

ICIS records instances of anomalous data and reviews these instances on a regular basis with a view to determining if a pattern exists.

Where market reporters have concerns over the behaviour of a market participant, this will be escalated using the ICIS Escalation Process for Compliance and Regulatory Issues. This can be found in the company's Compliance Manual.

INDICES – Volume

ICIS sets a maximum volume limit above which deals will automatically be excluded as non-standard. The maximum limit for all markets is 1,000 MWh/hour for prompt deals and 500 MWh/hour for curve deals.

INDICES – Types of market information used and collection process

ICIS gathers market information via telephone, instant messenger and e-mail. Lists of transactions are primarily collected electronically and ICIS employs a data management team to collect and de-duplicate this data. ICIS has designed bespoke programmes to standardise the various data feeds received, for the purposes of reporter verification and publication.

Market information includes bids, offers and deals done by sources or seen/heard by sources. ICIS reporters also investigate the reasons for market price movements and cross-check information received during the course of this information gathering process against market fundamentals data, primarily gathered from transmission system operators.

Information is typically gathered between 10:00 and 17:30 London time on the day the assessment is published. ICIS may disregard information received after 17:30 London time.

Transactions eligible for inclusion in ICIS indices must have been conducted between 06:00 and 17:30 London time on an English working day.

On the working day immediately preceding 25 December and 1 January, ICIS assesses markets earlier and gathers transaction information between 09:00 and 13:15 London time.

Transactions eligible for inclusion in ICIS indices in the above circumstances must have been conducted between 06:00 and 13:15 London time.

ICIS will never use information received after indices have been published to retroactively correct an index.

FORMULATION OF HEREN INDICES

ICIS publishes a variety of volume-weighted trade-based indices for different contracts. These are priced in £/MWh for the UK market, in €/MWh for the German, French, Czech, Hungarian and Italian markets, and Zl/MWh for the Polish market.

Each index requires a minimum of three transactions. When there are fewer than three eligible transactions over the calculation period, the index value is published as the average of the midpoints for the price assessment of the relevant contract.

Contract delivery periods are identical to those described above in Price Assessments – Definitions of Periods.

Day Ahead Index – UK, Germany, France, Czech Republic, Hungary

The Electricity Heren Day Ahead Index is a volume-weighted average of all Day-ahead Baseload electricity transactions included in EDEM for the next working day in England and Wales, where the markets are typically assessed, and is published each working day.

The Index day is for electricity delivered on the first working day following the date of publication. Thus, the Index published on 27 March values Baseload power traded on 27 March for delivery on 28 March. The Day Ahead Index published on a Friday values power to be delivered on Monday, or on Tuesday when the Monday is a public holiday in England and Wales. Separate holiday indices will be calculated for English and Welsh public holidays.

Day Ahead Peaks Index – UK, Germany, France, Czech Republic, Hungary

The Electricity Heren Day Ahead Peaks Index is a volume-weighted average of all Day-ahead Peaks electricity transactions included in EDEM for the next working day in England and Wales, where the markets are typically assessed, and is published each working day.

The Index day is for power delivered on the first working day following the date of publication. Thus, the Index published on 27 March values Peakload power traded on 27 March for delivery on 28 March. The Day Ahead Peaks Index published on a Friday values power to be delivered on Monday, or on Tuesday when the Monday is a public holiday in England and Wales. Separate holiday indices for the Germany, French, Czech and Hungarian markets will be calculated for English and Welsh public holidays, although peaks indices will not be calculated for the UK as these are non-working days in England and Wales.

Weekend Index – UK, Germany, France, Czech Republic, Hungary

The Electricity Heren Weekend Index is a volume-weighted average of all Weekend Baseload transactions included in EDEM, and is published every Friday (or the final working day of the week when Friday is a public holiday in England and Wales) in EDEM.

The Weekend Index is for electricity to be delivered for the forthcoming weekend. It values power traded for the forthcoming weekend period over the immediately preceding working days. Thus, the Index published on, for example, Friday 6 April values power traded on 2-6 April for delivery on 7-8 April. It is published on the working day immediately prior to the Weekend period.

Because the 'Weekend' period is generally interpreted within European power markets as referring purely to Saturday and Sunday and not including any contiguous public holidays, the Weekend Index is based purely on deals for the two-day Saturday and Sunday delivery period. EDEM will include separate Indices for any public holidays that are contiguous with the weekend.

Monthly Index – UK, Germany, France, Czech Republic, Hungary, Italy, Poland

The Electricity Heren Monthly Index is calculated on the final working day prior to the start of delivery, and is first published by ICIS on that day.

The index is a volume-weighted average of all Month-ahead Baseload transactions included in EDEM which took place in the month preceding the Index Month, or the EFA month preceding the Index Month in the UK up to October 2014. Thus, for the July Index, only entire July deals which took place in the June period, or the EFA month of June in the UK, were eligible.

Other primary data tables in EDEM

EDEM TRADES TABLES – General and country-specific definitions

Trading data is published for the Belgian, Czech, French, German, Hungarian, Italian Financial, Italian Physical, Dutch, Polish, Romanian, Serbian, Slovak, Spanish, Swiss, Turkish and UK markets on a daily basis. Full trade listings are available by FTP download. The over-the-counter (OTC) transactions provided are those reliably identified by EDEM on the date of the report. Deals are listed by delivery date, volume and price.

Although ICIS aims to publish as many trades as possible, we cannot guarantee to have all trades done during the day.

Deals excluded by ICIS reporters as non-standard or anomalous are not included in this data.

In EDEM under the page with the title 'Trades' three tables are published. The first table shows the total volume traded in each market, in MWh, with a percentage breakdown of trade between curve and prompt contracts. Prompt is defined as all contracts with delivery up to Balance-of-month. Curve is defined as all contracts with delivery including and forwards of the front calendar month. The total number of trades is also listed.

The second table shows the daily high and low Baseload trades and the third table shows the daily high and low Peaks trades for each market for the following key contracts: Day-ahead, front month, front quarter and front Calendar Year, all in MWh. If no trade has been reported then "n/a" will be shown.

Trading data for the Turkish market reported to ICIS is published alongside the Turkish market commentary, including standard and non-standard contracts.

Spark and dark spreads

ICIS calculates its spark and dark spreads as the cost of power per MWh minus the cost of the fuel needed to generate that power. The cost of fuel is calculated using industry standard plant efficiencies to take account of energy not converted into electrical energy and therefore lost.

A positive spread means that it is theoretically profitable to generate electricity for the period in question, while a negative spread means that generation would be a loss-making activity. However, it is important to note that the spreads do not take into account additional generating charges beyond fuel and carbon, such as operational costs.

Spark spreads are calculated as the cost of power per MWh minus the cost of gas. ICIS uses the Day-ahead index for Day-ahead electricity and gas values in the UK and Germany, and the midpoint of baseload power price assessments for all other calculations, except for peak spark and clean peak spark spreads, which use the midpoint of peak power price assessments. Gas indices and price assessment values use data from sister publication ESGM, using the NBP for UK calculations; the TTF for German calculations as the TTF hub is currently the most liquid gas market in the region, and is widely used as a reference for German gas prices; and the Italian PSV for Italian calculations (please see ESGM methodology for an explanation of how those values are reached). The UK gas price in pence/therm (British thermal unit) is converted to £/MWh by dividing by a standard factor of 2.93071.

ICIS uses the standard gas-fired plant efficiency factor of 49.13% (gross calorific value) for its spark spreads – an industry standard to allow for efficient spark spread trading – on the basis that 100,000 therms of gas could generate 60MW of power. The spark spread value is therefore the power price minus the gas price divided by 0.4913.

Spark spread = power price - (gas price/0.4913).

ICIS also calculates additional gas-fired plant efficiency (gross calorific value) of 52.11% to reflect the increased efficiency of newer gas-fired power plants, on the basis that 55,000 therms of gas could generate 35MW of power.

Dark spreads are calculated as the cost of power per MWh minus the cost of coal.

ICIS uses Baseload power price assessments for all dark spread contracts, and ICE Rotterdam coal futures settlements.

The cost of coal in US dollars per tonne is converted to the local currency using forward rates constructed by ICIS using currency data from Bloomberg. The cost per tonne figure is converted to MWh by dividing by 6.978 – based on the energy content of coal CIF ARA coal swaps represent, which is 6,000kCal/kg NAR (net as received) – and converted to MWh using conversion factors from the International Energy Agency.

ICIS calculates its dark spreads using the industry standards of 35% plant efficiency (net calorific value).

Dark spread = power price – (((coal price converted to local currency)/6.978)/0.35)

ICIS calculates additional coal-fired plant efficiencies of 38% and 40% (net calorific value) in some markets, to reflect increased efficiency of newer coal-fired power plants.

The cost of emissions for **clean spark spreads** is calculated by multiplying the cost of carbon emissions allowances published by the ICE exchange, converted to local currency where necessary, and multiplied by the emissions intensity factor.

ICIS uses the UK government natural gas conversion factor (dating from June 2013) of 0.18404 tonnes of carbon dioxide equivalent emitted per MWh on the basis of gross calorific value, in line with how gas is traded (http://www.transco.co.uk/services/cvalue/cvinfo.htm).

The UK government figure has been chosen on the basis that the UK has the most liquid traded spark spread market. UK government carbon dioxide emissions conversion factors are issued by the Department for Environment, Food and Rural Affairs (DEFRA): http://www.ukconversionfactorscarbonsmart.co.uk/

The emissions intensity factor is calculated by dividing the carbon dioxide equivalent emitted per MWh by the standard plant efficiency. For a clean spark spread for a 49.13% efficient gas plant, the emissions intensity factor used is therefore (0.18404 divided by a plant efficiency of 0.4913).

Clean spark spread = spark spread - (emissions price x (0.18404/0.4913)).

For a clean spark spread for a 52.11% efficient gas plant, the emissions intensity factor used is (0.18404 divided by a plant efficiency of 0.5211).

To calculate **clean dark spreads**, ICIS uses the Intergovernmental Panel on Climate Change (IPPC) emissions conversion factor (dating from 2006) of 0.34056 tonnes of carbon dioxide equivalent emitted per MWh of power generated from coal on the basis of net calorific value, in line with how coal is traded. The IPCC emissions conversion factor has been chosen as an international figure to reflect the coal market, and the resulting emissions factor is in widespread use within the power industry. The IPCC taskforce on national greenhouse gas inventories on energy emissions dating from 2006 can be found here: http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html

The emissions intensity factor is calculated by dividing the carbon dioxide equivalent emitted per MWh by the standard plant efficiency. For a clean dark spread for a 35% efficient coal-fired plant, the emissions intensity factor used is therefore (0.34056 divided by a plant efficiency of 0.35).

Clean dark spread = dark spread - (emissions price x (0.34056/0.35)).

A clean dark spread for a 38% efficient coal-fired plant uses an emissions intensity factor of (0.34056 divided by a plant efficiency of 0.38), and a clean dark spread for a 40% efficient coal-fired plant uses an emissions intensity factor of (0.34056 divided by a plant efficiency of 0.40).

For the UK market, ICIS calculates additional clean spark and dark spread values to take the carbon price support (CPS) tax on fuels for electricity generators into account, to reflect more realistic generation costs. The support level is announced two years in advance. Details can be found here: http://www.hmrc.gov.uk/climate-change-levy/carbon-pf.htm

ICIS calculates the CPS impact by converting the emissions price to sterling and adding the UK government-designated carbon price support, then factoring in the relevant emissions intensity factor.

CPS clean spark spread = UK spark spread - ((emissions price converted to £) + (carbon price support)) x (emissions intensity factor of 0.18404/0.4913)).

The clean spark to clean dark spread subtracts the clean dark spread at 35% efficiency from the clean spark spread at 49.13% efficiency to show which type of generation is theoretically more profitable for a given contract period. A positive spread implies gas-fired generation would be more profitable, while a negative spread implies coal-fired plant would be more profitable. However, this number is indicative and does not take into account additional generating charges beyond fuel and emissions, such as operational costs.

Secondary data in EDEM

Power Plant Outages

ICIS publishes a list of power plant outages from external sources across a number of key markets with, where known, the date of the outage, the reason for the outage and the estimated plant/unit restart date.

Other data

The following information is published in EDEM but is based on secondary data not generated by ICIS.

Across The Market: The Across The Market table compares the Day-ahead prices of Europe's leading electricity markets (either OTC, exchange or index-based, varying by country), including the UK Heren Day-ahead Baseload index. Prices are quoted in €/MWh and are compared with the prices collected during the previous working day in the UK.

EPEX Germany/Austria Day Ahead Prices: The German platform of the EPEX Spot exchange offers Day-ahead hourly spot trading contracts. The prices published are the average hourly price of power traded at the exchanges for Day-ahead power in €/MWh. See the exchange's website – www.epexspot.com – for further details.

EPEX French Day Ahead Prices: The French platform of the EPEX Spot exchange offers Day-ahead hourly spot trading contracts. The prices published are the average hourly price of power traded at the exchanges for Day-ahead power in €/MWh. See the exchange's website – www.epexspot.com – for further details.

Italian IPEX Results: GME, the Italian electricity market operator, publishes the Baseload and Peak results of its Day-ahead electricity exchange, the PUN index, on its website. See the market operator's website – www.mercatoelettrico.org – for further details.

Nordic Prices: Prices for the Nordic electricity market (covering Norway, Sweden, Denmark and Finland) are reproduced from the Nord Pool exchange's closing Best Buyer/Best Seller prices for key Baseload contracts. See the exchange's website – www.nasdaqomx.com – for further details.

The System Price is an average Day-ahead price based on bids for purchase and sale of hourly contracts and block contracts that cover all 24 hours of the next day. Prices are determined through auction trade for each delivery hour.

Nord Pool volume is the total volume of electricity traded on the Nord Pool futures exchange for the day in question.

EPEX Netherlands: The Netherlands platform of the EPEX Spot exchange offers Day-ahead hourly spot trading contracts. The prices published are the average of these hourly prices expressed in Day (Baseload), Peak Hours (8-20) and Off-Peaks (20-8) terms in €/MWh. See the exchange's website – www.epexspot.com – for further details.

EPEX Belgium: The Belgian platform of the EPEX Spot exchange offers Day-ahead hourly spot trading contracts. The prices published are the average of these hourly prices expressed in Day (Baseload), Peak Hours (9-20) and Off-Peaks (1-8, 21-24) terms in €/MWh. See the exchange's website – www.epexspot.com – for further details.

Austrian EXAA: The Austrian EXAA (Energy Exchange Austria) operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The EXAA prices published in EDEM represent the average of the 24 prices, represented as the Baseload price, as well as the Peaks price and a maximum and minimum price. The volume is the total volume traded for the following day. See the market operator's website – www.exaa.at – for further details.

Spanish Pool Price: OMEL, the Spanish electricity market operator, publishes the hourly results of its Day-ahead electricity pool on its website. The Spanish Pool Price published in EDEM represents the Baseload and Peak price averages of the hourly prices. See the market operator's website – www.omel.es – for further details.

PPX: The Polish Power Exchange (PPX) operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The PPX price published in EDEM represents the weighted average of the 24 prices. The volume is the total volume traded for the following day. See the market operator's website – www.polpx.pl – for further details.

Romanian OPCOM: Romania's OPCOM operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The OPCOM price published in EDEM represents the average of the 24 prices. See the market operator's website – www.opcom.ro – for further details.

Czech OTE Day-ahead: The Czech Republic's OTE operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The OTE price published in EDEM represents the average of the 24 prices. See the market operator's website – www.ote-cr.cz – for further details.

Hungarian HUPX: Hungary's HUPX operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The HUPX price published in EDEM represents the average of the 24 prices. See the market operator's website – www.hupx.hu – for further details.

Slovenian BSP Southpool: Slovenian exchange BSP Southpool operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The BSP Southpool price published in EDEM represents the average of the 24 prices. See the market operator's website – www.bsp-southpool.com – for further details.

Slovakian OKTE: Slovakia's OKTE operates a Day-ahead short-term market offering 24 hourly power contracts for delivery the following day. The OKTE price published in EDEM represents the average of the 24 prices. See the market operator's website – www.okte.sk – for further details.

UK Electricity Balancing Market System Sell And Buy Prices: The UK electricity Balancing Mechanism is used by the National Grid as a means of balancing power flows on to and off the electricity transmission system. For further information on the function of the balancing market and a definition of the terms used in the table, please refer to the website www.bmreports.com.

APX Power UK Spot Contracts: These charts, provided by APX UK, give a breakdown of the prices and volumes for spot electricity traded on the exchange on a daily, two-hourly, four-hourly and half-hourly basis. For more information on the data please visit the Exchange's website at www.apxgroup.com.

ICE Baseload UK Electricity Futures: This table represents the closing prices for the InterContinental Exchange's (ICE) key UK electricity Baseload futures contracts. For more information on the data please visit the exchange's website at www.theice.com.

Endex Dutch Electricity Futures Exchange: This table represents the closing prices for the Endex exchange's key Dutch electricity Baseload and Peaks futures contracts. For more information on the data please visit Endex's website at www.theice.com/endex.

GB Virtual Hub Price: This table represents the settlement prices for the GB Virtual Hub, consisting of the N2EX exchange's Day Ahead Market (DAM) Index (auction) and the APX exchange's day-ahead market auction. For more information on the data please visit the exchanges' websites at www.n2ex.com and www.apxgroup.com.

Turkish PMUM data: This table represents the time-weighted average for Baseload and Peakload hours using the hourly settlements from the Turkish balancing market PMUM, operated by Turkish electricity transmission system operator TEIAS. For more information on the data, please visit www.teias.gov.tr.

Greek SMP data: This table represents the Greek system marginal price (SMP) for electricity delivered to the Greek grid on the date shown. For more information on the data, please visit www.desmie.gr.

Weather

Pan-European weather forecasts on a 1-5 day and 6-10 day basis are provided to EDEM by Weather Services International. For more information, please e-mail: energy@wsieurope.com or visit the company's website.

Renewable weather forecast data for up to six days ahead are provided to EDEM by ICIS Tschach Solutions.

Currency conversions

Forward currency rates are calculated using 29 pricing points, sourced from Bloomberg, at 16:30 London time every day. The pricing points used are all of those available: spot, one week ahead, 24 months ahead, and three to five years ahead.

Using these points, ICIS calculates a smooth curve which provides rates for each day out to five years. From these values, ICIS calculates rates corresponding to the contracts quoted in EDEM.

Other principles and guidelines

Changes to methodology

All markets evolve, and ICIS has a duty to ensure its methodologies for market-reporting evolve in step with markets.

ICIS therefore regularly conducts internal reviews of the appropriateness of its methodologies.

Draft changes are then made public and comment requested from industry participants, with a minimum one-month notice period, except where, exceptionally, a force majeure event (natural disaster, war, bankruptcy of a trading exchange etc) makes necessary a shorter notice period.

ICIS is committed to reviewing all comments on proposed methodology changes, but in some cases may find it necessary to alter its methodologies against the wishes of some market participants.

In addition, ICIS has a formal methodology consultation process. The company commits to holding this consultation every two years for EDEM. The date of the last consultation launched and the expiry date by which the company commits to conducting the next consultation can be seen at the top of the methodology document.

Please also refer to the Methodology Consultation Process section of the company's Compliance Manual. This contains detailed flow charts documenting the internal and external review and consultation process.

Consistency

ICIS achieves consistency between its assessors in exercising their judgement by requiring all assessors to understand and follow this detailed methodology as well as the company's Editorial Standards document. In addition, ICIS employees are required to complete standard training before undertaking the work of a market reporter. Every reporter's work is peer reviewed daily and spot checked by senior management.

Adherence to these processes is documented at every stage.

Data standards

ICIS has a public Data Standards Policy which covers the type and quality of information it asks market participants to report.

The following principles relate to ICIS electricity market assessments and commentaries:

- Where possible, please allow access to active market traders and allow them to comment on active news stories.
- Where possible, please provide market data from both front and back-office functions.
- Where possible, please provide complete data and not a subsection.
- Flag inter-affiliate transactions.
- Flag sleeve trade.
- Flag spread trades.
- When a source or contact leaves the organisation please contact ICIS to the replacement (ICIS requests that both the source and the organisation contacts them).
- Where information is not validated by the source (i.e. rumour) please indicate as such.

Delivery locations

Locations for ICIS EDEM assessments and indices are chosen to reflect areas of traded liquidity. For most markets, delivery is at a national transmission grid, or for export to a neighbouring transmission grid.

Key submitter dependency

Because of the sometimes thinly-traded nature of certain electricity markets and the existence of markets where there are a limited pool of active counterparties, ICIS does not employ minimum rules on the number of submitters. This is particularly true of the newest European traded markets, where ICIS plays a key role in bringing price transparency and efficient trading to markets in the early stages of development.

For all markets ICIS only considers bid/offer data to be confirmed when it has been verified by three independent, non-affiliated sources. If this was not the case then ICIS will mark an assessment indicative. See section above, "Price Assessments – Indicative Assessments".

Market Communication

ICIS communicates with a broad range of market participants – traders, brokers, back-office employees, supply managers, operations personnel and company executives – to obtain market information.

ICIS communicates with participants by telephone, email, instant messenger and face to face. All instant messenger, email communication and notes of any face-to-face communication are archived and details of telephone communication are logged and data-based.

ICIS does not accept instant messenger communication from unknown parties, and reporters are required to verify a market participant's identity prior to using instant message communication.

ICIS does not regard in any way as binding, attempts by market participant companies to restrict ICIS communication with their employees. ICIS has a duty to its subscribers to obtain the maximum possible amount of market information. ICIS treats all communication from market participants as confidential.

ICIS reporters are bound by a Code of Conduct to report to their superiors any coercive or threatening communication from market participants, or any offers of inducements of any kind intended to influence an assessment.

Where improper communication appears to have taken place, ICIS will communicate in the first instance with senior management at the company or companies involved, and if necessary with relevant market authorities.

ICIS expects the highest standards of propriety from all market participants, and regards all communications from market participants as representative of the views of an individual's employer.

ICIS is committed to the highest levels of customer service, and has a formal feedback and complaints policy, which can be viewed here http://www.icis.com/about/icis-feedback-policy/.

Market data verification

ICIS will always make best endeavours to confirm bids, offers and transactions with the relevant party/parties. ICIS attempts to cross-check all market data received from a buy or sell-side participant with a participant's trading counterparty.

Where both counterparties to a transaction cannot or will not confirm the data, ICIS seeks corroboration from other market sources.

Where transaction or bid/offer information has been received from a trader rather than from a company's back office, ICIS always seeks confirmation from other sources.

Where ICIS has grounds to doubt an item of market data, it may request further evidence that a transaction has taken place, including documentary evidence.

ICIS treats transaction data received from active brokerages as confirmed and treats bid/offer information as firm. This information will be considered in conjunction with other sources during the assessment and index process as described above.

In markets with low liquidity and a low number of counterparties, ICIS may choose to use unconfirmed data, but only in so far as it is aligned with other market information and comes from a source deemed reliable by ICIS based on previous interactions.

Minimum data threshold

Because of the sometimes thinly-traded nature of certain electricity markets and contracts, ICIS does not have a minimum data threshold for its assessment methodologies in these markets. ICIS' electricity methodology is designed to function accurately under all market conditions and to make use of parallel data where no direct transaction or bid/offer data is available. See the section entitled "Price Assessments – Exercise of Judgement" above.

ICIS does implement a minimum data threshold for its indices, however. ICIS will not typically publish an index until it has at least six months' worth of data showing that at least 10 deals have been completed for each index period.

When an index series is launched, ICIS publishes a minimum number of transactions an index must meet in order for a weighted average to be calculated. If the number of deals falls below this threshold, ICIS reverts to a default methodology using its assessments or previous index values. These defaults are specified above in the section entitled "Indices – definitions". ICIS does not consider such methodology switches desirable in terms of consistency and transparency and endeavours not to launch an index where it believes there is a likelihood that the minimum data threshold will not be met.

Selection of participants

ICIS' policy on general market data is that it welcomes all information regardless of source or constitution as long as it is provided in good faith as true.

However, only active market participants verified as such by existing active industry participants and verified as a viable business by ICIS investigations will be allowed to contribute price data to ICIS for the purpose of assessing tradable market value under this methodology.

Units

ICIS assesses electricity markets in the units which attract the majority of trade. For European power trading areas quoted by ICIS, trading activity has conformed to one standard unit, either euros per megawatt hour (€/MWh), £/MWh, Zloty/MWh or New Lei/MWh.

Units of energy are used for trading purposes in all active European markets, rather than units of volume.

In the early days of market development, however, there may be multiple units trading. ICIS will typically assess using the most regularly traded unit and publish parallel assessments in other active units.

ICIS Contact Details

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