

Specifications Guide

European Natural Gas

Latest update: August 2021

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DETAILED SPECIFICATIONS

All the assessments listed here employ Platts Assessments Methodology, as published at https://www.spglobal.com/platts/plattscontent/_assets/_files/en/our-methodology/methodology-specifications/platts-assessments-methodology-guide.pdf.

These guides are designed to give Platts subscribers as much information as possible about a wide range of methodology and specification questions.

This guide is current at the time of publication. Platts may issue further updates and enhancements to this guide and will announce these to subscribers through its usual publications of record. Such updates will be included in the next version of this guide. Platts editorial staff and managers are available to provide guidance when assessment issues require clarification.

Platts European natural gas assessments

Platts assessments reflect market value at the end of the normal trading cycle. For European gas we define this as:

UK day-ahead intra-day – 11:00 London time

UK day-ahead and forward contracts – 16:30 London time.

Continental European day-ahead and forward contracts – 16:30 London time.

Ahead of certain UK public holidays, Platts assesses the market earlier than normal, at 12:00pm London time. This is to take account of typically much lower liquidity and the earlier end of trade.

Contract definitions

Unless otherwise stated, contract definitions for all European gas assessments are as follows:

Within Day: delivered during the same day of assessment

Day-ahead: delivered next working day after assessment

Weekend: delivered Saturday, Sunday

Working week + 1: delivered Monday-Friday of the front week

Balance of Month: delivery starting two working days forward until the end of month. Platts' assessment ends two UK business days before the end of the month.

Months: All months are calendar months

Quarters: Q1 = January to March, Q2 = April to June, Q3 = July to September, Q4 = October to December

Seasons: Winter = October to March, Summer = April to September

Gas year: October 1-September 30

Calendar Year: January 1-December 31

Platts assessments of European gas prices typically reflect a gross calorific value, or higher heating value, basis.

Platts assessment ranges

Platts publishes fixed price assessments in Market Data categories EG and EF for European gas markets, however for those introduced before July 2015 a low-high range around its midpoint assessments is published. The low and high reflect a fixed value either side of the midpoint. These ranges are

standardized as follows:

Primary assessments in Eur/MWh: plus/minus 5 euro cent for the most liquid continental European hubs. Applicable markets: Dutch Title Transfer Facility (TTF).

Primary assessments in Eur/MWh: plus/minus 10 euro cent. Applicable markets: Austrian Virtual Trading Point (VTP), French Point d'Exchange de Gaz (PEG), German GASPOOL, German NetConnect Germany (NCG), Italian Punto di Scambio Virtuale (PSV).

Primary assessments in p/th: plus/minus 0.10 p/th. Applicable markets: Belgian Zeebrugge Beach (ZEE), UK National Balancing Point (NBP).

Standard volumes

Platts assessments are based on standard contract definitions and volumes, as outlined in the following sections of this document. These vary according to market.

For UK NBP and Belgian Zeebrugge Beach gas markets, the standard prompt trade is 25,000-500,000 th/d in 25,000 th/d increments. The standard forward trade is 25,000 or 50,000 th/d. For the Dutch TTF, the Italian PSV, the French PEG, the German GASPOOL and NCG, the Austrian VTP, the Spanish Punto Virtual de Balance (PVB), the Czech VTP, and the Slovakian VTP, the standard

lot size is 30 MW, with larger lot sizes in 30 MW increments common on the prompt.

Trades involving smaller or larger volumes may be considered for the purpose of determining Platts European gas assessments.

When Platts assessments are published

Platts publishes assessments on all UK working days.

Platts provides a continuous daily series for all European spot gas prices, including coverage of weekends and UK bank holidays. On Fridays the day-ahead price is for delivery on the Monday. On the last working day before a UK public holiday additional day-ahead prices are assessed.

Platts publishes weekend assessments for the NBP and TTF on all UK working days. Platts publishes weekend assessments for Zeebrugge Beach, PEG, GASPOOL and NCG, PSV, Austrian VTP, PVB, Czech VTP and Slovakian VTP on Friday or on the last working day of the week in the event of a Friday UK public holiday.

Flow-date pricing

Flow-date prices store prompt gas prices against the day on which the gas is delivered to the purchaser, rather than on the day that the gas was traded. For example, the October 1 assessment of day-ahead gas trades that took place on that day would be databased against October 1 on a trade-date basis, but against October 2 on a flow-date basis.

Platts day-ahead flow date prices create a price point for every day of the year in a single continuous sequence by combining the day-ahead trade-date gas price assessment from Monday to Friday with the Friday assessment of the weekend price. Friday's weekend price is used to provide the flow date price points for Saturday and Sunday. The flow date sequence also takes values from the additional day-ahead prices that are assessed ahead of UK public holidays.

Monthly Averages

The monthly average prices are based on the monthly averages of day-ahead and month-ahead assessments made during the month in question.

The day-ahead average is the flow-date average of spot prices assessed for the month and includes weekend and public holiday delivery. To illustrate, a January 31 day-ahead assessment would not be included in the January average because the gas would flow February 1.

The month-ahead average is the trade-date average of all month-ahead assessments during the month in question.

Monthly Averages include conversions in various currencies and units of measurement based on energy content.

PLATTS UK GAS MARKET COVERAGE

	p/th	Eur/MWh	\$/MMBtu	Eur/Gj
Platts UK NBP Assessments				
Within-Day	AAIGI00	AALJE00	GNCMW00	AAIGL00
DA 11:00 (working day ahead assessed intraday Monday to Thursday)	GNDAV00	GNDAT00	GNDAW00	GNDAU00
DA 11:00 (working day ahead assessed intraday Friday)	GNDAV28	GNDAT28	GNDAW28	GNDAU28
Day ahead 16:30 (trade date)	NGAAA00	AALJG00	GNCWU00	GNCUU00
Day ahead + 1*	NGAAA27	AALJG27	GNCWU27	GNCUU27
Day ahead + 2*	NGAAA28	AALJG28	GNCWU28	GNCUU28
Weekend	AAAXS00	AALJI00	GNCWV00	GNCUV00
Working week+1	AAOGC00	AAOGF00	GNCWP00	AAOGI00
Balance of month	NGAAC00	AALJM00	GNCWB00	GNCUB00
Month ahead	NGAAE00	AALJO00	GNCWM10	GNCUM10
Second month ahead	NGAAG00	AALJQ00	GNCWM20	GNCUM20
Quarter ahead	NGAAM00	AALJW00	GNCWQ10	GNCUQ10
Second quarter ahead	NGAAO00	AALJY00	GNCWQ20	GNCUQ20
Season 1	GNSNV00	GNSNT00	GNCWSN0	GNSNU00
Season 2	AAOWZ00	AAOXE00	GNCWSN1	AAOXJ00
Season 3	AAOXA00	AAOXF00	GNCWSN2	AAOXK00
Season 4	AAOXB00	AAOXG00	GNCWSN3	AAOXL00
Calendar year	GNCVZ00	GNCTZ00	GNCWZ00	GNCUZ00
Platts UK NBP Flow-Date Series				
Day-ahead 11:00 flow-date	GNDAV21	GNDAT21	GNDBW21	GNDAU21
Day-ahead 16:30 flow-date	GNCVF21	GNCTF21	GNCWF21	GNCUF21
Platts UK NBP Intra-Day Gas Prices - Next Day				
DA	GNDAV00	GNDAT00	GNDAW00	GNDAU00
DA + 1*	GNDAV27	GNDAT27	GNDAW27	GNDAU27
DA + 2*	GNDAV28	GNDAT28	GNDAW28	GNDAU28
DA + 3*	GNDAV29	GNDAT29	GNDAW29	GNDAU29
DA + 4*	GNDAV30	GNDAT30	GNDAW30	GNDAU30
Platts UK NBP Intra-Day Gas Prices - EFA Day-Ahead				
DA	GNEAV00			
DA + 1*	GNEAV27			
DA + 2*	GNEAV28			
DA + 3*	GNEAV29			
DA + 4*	GNEAV30			

PLATTS UK GAS MARKET COVERAGE

	p/th	Eur/MWh	\$/MMBtu	Eur/Gj
Platts UK NBP Intra-Day Gas Prices - Within-Day				
D	GNWDV00			
D + 1	GNWDV27			
D + 2	GNWDV28			
D + 3	GNWDV29			
D + 4	GNWDV30			

**Day ahead + 1 and Day ahead + 2 assessed ahead of UK bank holidays. DA + 3 and DA + 4 intraday also assessed ahead of UK bank holidays. DA + 1 and DA + 2 intraday assessments, when published on a Friday, reflect Sunday delivery and Monday delivery respectively.*

Platts UK gas market coverage

Platts assesses prices for firm, physical delivery in the UK at the National Balancing Point (NBP).

In addition to standard contract definitions, UK NBP includes the following:

EFA Day-ahead = this accounts for the difference between the start of the gas day and the start of the electricity day. The electricity day starts at 11pm. The EFA day-ahead is calculated by adding 6/24ths of within-day to 18/24ths of day-ahead.

Day-ahead (11am) = for next-day delivery assessed at 11am. In the Platts UK NBP Assessment table in European Gas Daily and the relevant fixed pages, the contract refers to the next working day.

The UK NBP is assessed in UK pence/therm, with equivalent prices provided in euro per megawatt hour, euro per gigajoule and US dollars per million British thermal units.

Quality: As defined by UK network operator National Grid.

PLATTS CONTINENTAL EUROPEAN GAS MARKET COVERAGE

	Eur/MWh	p/th	\$/MMBtu	Eur/Gj
Platts Dutch TTF Assessments				
Day ahead (trade date)	GTFTX00	GTFVX00	GTFWD00	GTFUX00
Day ahead + 1*	GTFTX27	GTFVX27	GTFWD27	GTFUX27
Day ahead + 2*	GTFTX28	GTFVX28	GTFWD28	GTFUX28
Weekend	GTFTW00	GTFVW00	GTFWD00	GTFUW00
Balance of month	GTFAA00	GTFAB00	GTFAD00	GTFAC00
Month ahead	GTFTM01	GTFVM01	GTFWM10	GTFUM01
Second month ahead	GTFTM02	GTFVM02	GTFWM20	GTFUM02
Quarter ahead	GTFTQ01	GTFVQ01	GTFWQ10	GTFUQ01
Second quarter ahead	GTFTQ02	GTFVQ02	GTFWQ20	GTFUQ02
Season 1	GTFTSN1	GTFVSN1	GTFWSN1	GTFUSN1
Season 2	GTFTSN2	GTFVSN2	GTFWSN2	GTFUSN2
Season 3	GTFTSN3	GTFVSN3	GTFWSN3	GTFUSN3
Season 4	GTFTSN4	GTFVSN4	GTFWSN4	GTFUSN4
Gas year	GTFTY00	GTFVY00	GTFWX00	GTFUY00
Calendar year 1	GTFTZ00	GTFVZ00	GTFWZ00	GTFUZ00
Calendar year 2	GTFTCY2	GTFVCY2	GTFWCY2	GTFUCY2
Calendar year 3	GTFTCY3	GTFVCY3	GTFWCY3	GTFUCY3
Platts Dutch TTF Flow-Date Series				
Day-ahead flow-date	GTFTF21	GTFVF21	GTFWF21	GTFUF21
Platts Belgian Zeebrugge Beach Assessments				
Day ahead (trade date)	AALKK00	AADON00	GZBWD00	AADNX00
Day ahead + 1*	AALKK27	AADON27	GZBWD27	AADNX27
Day ahead + 2*	AALKK28	AADON28	GZBWD28	AADNX28
Weekend	AALKM00	AADOP00	GZBWW00	AADNZ00
Month ahead	AALKQ00	AADOS00	GZBWM10	AADOE00
Quarter ahead	AALKW00	AADOY00	GZBWQ10	AADOK00
Season 1	GZBTSN0	GZBVSN0	GZBWSN0	GZBUSN0
Season 2	AAOXR00	AAOXO00	GZBWSN1	AAOXU00
Platts NBP-Zeebrugge Basis Differentials				
Day ahead	AAMPL00	AAMPI00	--	AAMPJ00
Day ahead + 1*	AAMPL27	AAMPI27	--	--
Day ahead + 2*	AAMPL28	AAMPI28	--	--
Month ahead	AAMPP00	AAMPM00	--	AAMP000
Platts Belgian Zeebrugge Beach Flow-Date Series				
Day-ahead flow-date	AALKK21	AADON21	GZBWF21	GZBUF21

PLATTS CONTINENTAL EUROPEAN GAS MARKET COVERAGE

	Eur/MWh	p/th	\$/MMBtu	Eur/Gj
Platts German NCG Assessments				
Day ahead (trade date)	GERTD00	GERVD00	GERWD00	GERUD00
Day ahead + 1*	GERTD27	GERVD27	GERWD27	GERUD27
Day ahead + 2*	GERTD28	GERVD28	GERWD28	GERUD28
Weekend	GERTT00	GERVT00	GERWT00	GERUT00
Month ahead	GERTM00	GERVM00	GERWM00	GERUM00
Platts German NCG Flow-Date Series				
Day-ahead flow-date	GERTF21	GERVF21	GERWF21	GERUF21
Platts German GASPOOL Assessments				
Day ahead (trade date)	GBBTD00	GBBVD00	GBBWD00	GBBUD00
Day ahead + 1*	GBBTD27	GBBVD27	GBBWD27	GBBUD27
Day ahead + 2*	GBBTD28	GBBVD28	GBBWD28	GBBUD28
Weekend	GBBTT00	GBBVT00	GBBWT00	GBBUT00
Month ahead	GBBTM00	GBBVM00	GBBWM00	GBBUM00
Platts German GASPOOL Flow-Date Series				
Day-ahead flow-date	GBBTF21	GBBVF21	GBBWF21	GBBUF21
Platts French PEG Assessments				
Day ahead (trade date)	GPGTD00	GPGVD00	GPGWD00	GPGUD00
Day ahead + 1*	GPGTD27	GPGVD27	GPGWD27	GPGUD27
Day ahead + 2*	GPGTD28	GPGVD28	GPGWD28	GPGUD28
Weekend	GPGTT00	GPGVT00	GPGWT00	GPGUT00
Month ahead	GPGTM00	GPGVM00	GPGWM00	GPGUM00
Platts French PEG Flow-Date Series				
Day-ahead flow-date	GPGTF21	GPGVF21	GPGWF21	GPGUF21
Platts Italian PSV Assessments				
Day ahead (trade date)	GPVTD00	GPVVD00	GPVWD00	GPVUD00
Day ahead + 1*	GPVTD27	GPVVD27	GPVWD27	GPVUD27
Day ahead + 2*	GPVTD28	GPVVD28	GPVWD28	GPVUD28
Weekend	GPVTT00	GPVVT00	GPVWT00	GPVUT00
Month ahead	GPVTM00	GPVVM00	GPVWM00	GPVUM00
Quarter ahead	GPVTQ01	GPVVQ01	GPVWQ01	GPVUQ01
Season ahead	GPVTSN1	GPVVSN1	GPVWSN1	GPVUSN1
Calendar year	GPVTY00	GPVVY00	GPVWY00	GPVUY00

PLATTS CONTINENTAL EUROPEAN GAS MARKET COVERAGE

	Eur/MWh	p/th	\$/MMBtu	Eur/Gj
Platts Italian PSV Flow-Date Series				
Day-ahead flow-date	GPVTF21	GPVVF21	GPVNF21	GPVUF21
Platts Austrian VTP Assessments				
Day ahead	GABTD00	GABVD00	GABWD00	GABUD00
Day ahead + 1*	GABTD27	GABVD27	GABWD27	GABUD27
Day ahead + 2*	GABTD28	GABVD28	GABWD28	GABUD28
Weekend	GABTT00	GABVT00	GABWT00	GABUT00
Month ahead	GABTM00	GABVM00	GABWM00	GABUM00
Platts Austrian VTP Flow-Date Series				
Day-ahead flow-date	GABTF21	GABVF21	GABWF21	GABUF21
Platts Spanish PVB Assessments				
Day ahead	GAPGA00	GAPGB00	GAPGC00	GAPGD00
Day ahead + 1*	GAPHA00	GAPHB00	GAPHC00	GAPHD00
Day ahead + 2*	GAPIA00	GAPIB00	GAPIC00	GAPID00
Weekend	GAPWA00	GAPWB00	GAPWC00	GAPWD00
Month ahead	GAOCA00	GAOCD00	GAOCC00	GAOCB00
Second month ahead	GAPCE00	GAPCF00	GAPCG00	GAPCH00
Quarter ahead	GAPAC00	GAPAB00	GAPAA00	GAPAD00
Second quarter ahead	GAPBC00	GAPBB00	GAPBA00	GAPBD00
Season ahead	GAPCI00	GAPCN00	GAPCO00	GAPCP00
Calendar year	GAPCC00	GAPCB00	GAPCA00	GAPCD00
Calendar year 1	GAPCM00	GAPCN00	GAPCO00	GAPCP00
Platts Spanish PVB Flow-Date Series				
Day-ahead flow-date	GAPGA21	GAPGB21	GAPGC21	GAPGD21
Platts Spanish PVB/LNG Differentials				
Platts MED minus Spanish PVB gas				
Month ahead differential	PVBTM01	PVBVM01	PVBWM01	PVBUM01
Platts Czech Republic VTP Assessments				
Day ahead	GCZDT00	GCZDV00	GCZDW00	GCZDU00
Day ahead + 1*	GCZDT27	GCZDV27	GCZDW27	GCZDU27
Day ahead + 2*	GCZDT28	GCZDV28	GCZDW28	GCZDU28
Weekend	GCZWT00	GCZWV00	GCZWW00	GCZWU00
Month ahead	GCZMT00	GCZMV00	GCZMW00	GCZMU00
Platts Czech Republic VTP Flow-Date Series				
Day-ahead flow-date	GCZDT21	GCZDV21	GCZDW21	GCZDU21

PLATTS CONTINENTAL EUROPEAN GAS MARKET COVERAGE

	Eur/MWh	p/th	\$/MMBtu	Eur/Gj
Platts Slovakian VTP Assessments				
Day ahead	GSKDT00	GSKDV00	GSKDW00	GSKDU00
Day ahead + 1*	GSKDT27	GSKDV27	GSKDW27	GSKDU27
Day ahead + 2*	GSKDT28	GSKDV28	GSKDW28	GSKDU28
Weekend	GSKWT00	GSKWV00	GSKW00	GSKWU00
Month ahead	GSKMT00	GSKMV00	GSKMW00	GSKMU00
Platts Slovakian VTP Flow-Date Series				
Day-ahead flow-date	GSKDT21	GSKDV21	GSKDW21	GSKDU21

*Day ahead + 1 and Day ahead + 2 assessed ahead of UK bank holidays.

Platts Continental European gas coverage

Platts assesses the following continental European hubs: Dutch TTF, Belgian Zeebrugge Beach, German GASPOOL and NCG, French PEG; Italian PSV; Austrian VTP; Spanish PVB; Czech VTP; and Slovakian VTP.

Zeebrugge Beach is assessed in UK pence/therm, with equivalent prices provided in euro per megawatt hour, euro per gigajoule and US dollars per million British thermal units. All other continental European hubs are assessed in euro per megawatt hour with equivalent values given in pence/therm, euro per gigajoule and US dollars per million British thermal units.

Specifications

Dutch Title Transfer Facility (TTF)

Delivery: Prices are for firm, physical delivery at the Dutch Title Transfer Facility.

Quality: Prices are for high cal gas. Other specs are as defined by Dutch network operator Gasunie.

Belgian Zeebrugge Beach

Delivery: Prices are for firm, physical delivery at the Zeebrugge

Beach hub operated by Huberator. This is not the same as the virtual Zeebrugge Trading Point launched in late 2012.

Quality: Prices are for high cal gas. Other specs are as defined by the Belgian network operator Fluxys.

In addition to the standard contracts previously listed, Platts publishes assessments for the basis spread between Zeebrugge Beach and the UK NBP; these are limited to spot and front-month contracts.

NetConnect Germany (NCG)

Delivery: Prices are for firm, physical delivery at the NetConnect Germany trading point.

Quality: Prices are for high cal gas. Other specs are as defined by the German network operator.

German GASPOOL

Delivery: Prices are for firm, physical delivery at the GASPOOL hub.

Quality: Prices are for high cal gas. Other specs are as defined by the German network operator.

French Point d'Exchange de Gaz (PEG)

Delivery: Prices are for firm, physical delivery at the Point d'Exchange de Gaz.

Quality: Prices are for high cal gas. Other specs are as defined by the French network operator.

Italian Punto di Scambio Virtuale (PSV)

Delivery: Prices are for firm, physical delivery at the Punto di Scambio Virtuale.

Quality: Prices are for high cal gas. Other specs are as defined by the Italian network operator.

Austrian Virtual Trading Point (VTP)

Delivery: Prices are for firm, physical delivery at the Central European Gas Hub (CEGH)'s Virtual Trading Point. This includes Baumgarten, Austria.

Quality: Prices are for high cal gas. Other specs are as defined by the Austrian network operator.

Spanish Punto Virtual de Balance (PVB)

Delivery: Prices are for firm, physical delivery at the Punto Virtual de Balance.

Quality: Prices are for high cal gas. Other specs are as defined by the Spanish network operator.

Czech Virtual Trading Point (VTP)

Delivery: Prices are for firm, physical delivery at the Virtual Trading Point.

Quality: Prices are for high cal gas. Other specs are as defined by the Czech network operator.

Slovakian Virtual Trading Point (VTP)

Delivery: Prices are for firm, physical delivery at the Virtual Trading Point.

Quality: Prices are for high cal gas. Other specs are as defined by the Slovakian network operator.

PVB/LNG Differential

The Spanish PVB/LNG month-ahead price differential is calculated from the Platts MED converted to Eur/MWh minus Platts assessment of Spanish PVB gas in Eur/MWh. The

differential is converted to \$/MMBtu, p/th and Eur/Gj.

Further information on the MED is available in the Platts Liquefied Natural Gas Assessments and Netbacks methodology and specifications guide at www.platts.com.

NW EUROPE OIL-INDEXED GAS CONTRACT PRICE INDICATOR (GCI)

	Eur/MWh	p/th	\$/MMBtu
Platts NWE Oil-Indexed Gas Indicator			
Current month	PNWTM00	PNWVM00	PNWWM00
Month ahead	PNWTM20	PNWVM20	PNWWM20
Second month ahead	PNWTM30	PNWVM30	PNWWM30
Platts NBP, TTF vs NWE Oil-Indexed Gas Indicator			
NBP day ahead - current month	GNCTDI0	GNCVDI0	GNCWDI0
NBP day ahead - month ahead	GNCTMI0	GNCVMI0	GNCWMI0
NBP day ahead - second month ahead	GNCTM20	GNCVM20	GNCWM20
TTF day ahead - current month	GTFTDI0	GTFVDI0	GTFWDI0
TTF day ahead - month ahead	GTFMTI0	GTFVMI0	GTFWMI0
TTF day ahead - second month ahead	GTFM20	GTFVM20	GTFWM20

NW Europe oil-indexed gas contract price indicator (GCI)

The Platts NW Europe oil-indexed gas contract price indicator (GCI) is a gas price indicator showing the out-turn price of a model oil-linked long-term NW Europe gas sales contract. This is calculated monthly for the current month, month ahead and second month ahead. Platts publishes daily the differentials between this monthly number and its existing gas price assessments for the day-ahead, month-ahead and second month ahead contracts at the UK NBP and Dutch TTF.

The monthly indicator price is calculated in Euro per MWh. Platts also publishes converted values in pence/therm and \$/MMBtu using the exchange rate on the day the monthly indicator is calculated.

The monthly indicator price is calculated according to a model long-term oil-indexed gas sales contract. Platts takes average low sulfur fuel oil and 0.1% gasoil prices for northwest Europe and converts these into a Euro per MWh price based on the average US dollar/Euro exchange rate over a six-month period and giving a 45% weighting to gasoil and a 55% weighting to fuel oil. After combining the gasoil and fuel oil prices, a fixed discount factor of 30% is applied in producing the gas price indicator to reflect the fact that sales contracts usually price gas below the straight oil-equivalent price.

Different companies may use different contract formulae and the indicator price is only a model of one potential contract arrangement that could be used in the industry. The model is based on the traditional contracts in use in past years, but does not include any additional discount factors to account for

possible contract renegotiations. Contracts used by industry normally have a six- to nine-month time lag. The Platts current month indicator is based on average prices for periods three to eight months ago. The forward month indicator is based on average prices for periods two to seven months ago. The forward month +1 indicator is based on average prices for periods one to six months ago.

For example, on October 1 the current month price would reflect average prices three to eight months ago, i.e. gasoil and fuel oil prices during February to July. The month-ahead price would reflect two to seven months ago, i.e. March to August. The month-ahead + 1 price would reflect one to six months ago, i.e. April to September.

Spark Spreads

Platts spark spreads are indicative prices giving the average difference between the cost of gas and the equivalent price of electricity on any given day on a high heating value (HHV) basis.

UK spark spreads are based on Platts NBP gas assessments and the equivalent UK electricity assessment. German spark spreads are based on TTF gas assessments and equivalent German power settlement prices from the European Energy Exchange (EEX).

Platts also publishes spark spreads for the Italian and Spanish markets. The Italian spark spreads are based on Platts PSV gas assessments and equivalent Italian power settlement prices from EEX. The Spanish spark spreads are based on Platts PVB gas assessment and equivalent Spanish power settlement prices from OMIP.

Further information on spark spread methodology and symbols is available in the Platts European Electricity Assessments and Indices methodology and specifications guide at www.platts.com.

PLATTS COAL SWITCHING PRICE INDICATOR (CSPI)

	UK (p/th)	UK (Eur/MWh)	Netherlands (Eur/MWh)
Month ahead	EUKVM00	EUKTM00	EDUTM00
Quarter ahead	EUKVQ00	EUKTQ00	EDUTQ00
Year ahead	EUKVY00	EUKTY00	EDUTY00

Coal Switching Price Indicator (CSPI)

Platts Coal Switching Price Indicator (CSPI) calculates the threshold at which gas is more competitive than coal as an input fuel in power generation. When the gas price is higher than the CSPI, CCGT generation is more expensive than coal-fired generation and vice versa.

Platts CSPI data is quoted for the UK and the Netherlands and is expressed in Eur/MWh and for the UK only in p/th.

Platts CSPI data is based on the Platts CIF ARA coal forward curve assessment that corresponds to each CSPI delivery period and on third-party EU Allowance (EUA) prices.

For the UK CSPI, Platts incorporates the cost of the UK government's CPS levy (see table below). For the calendar year ahead UK CSPI, a time-weighted average of the CPS will be used to reflect the presence of two confirmed UK CPS rates for any given calendar year.

For the Dutch CSPI, Platts incorporates the cost of the Dutch coal tax at Eur0/mt.

Previous Dutch coal tax rates were Eur14.40/mt for calendar year 2015 and Eur14.27/mt for calendar year 2014.

Platts calculates the CSPI using the following carbon emission factors: gas 0.18404 mtCO₂/MWh; coal 0.34056 mtCO₂/MWh (thermal basis, before combustion).

Platts calculates the CSPI using the following efficiencies: UK CCGT 45% and 50% HHV; UK coal 35% LHV; Dutch CCGT 45% and 50% HHV; Dutch coal 40% LHV.

CPS CONFIRMED RATES

Year	Levy in GBP/mt
April 1, 2014 - March 31, 2015	9.55
April 1, 2015 - March 31, 2016	18.08
April 1, 2016 - March 31, 2017	18.00
April 1, 2017 - March 31, 2018	18.00
April 1, 2018 - March 31, 2019	18.00
April 1, 2019 - March 31, 2020	18.00
April 1, 2020 - March 31, 2021	18.00

The full CSPI formula is as follows:

UK CSPI_EUR (Eff = 50%, Eff = 45%) = Eff * [Coal_Price/35% + (EF_Coal/35% - EF_CCGT/Eff)* (EUA_Price + UK_CPS)]

UK CSPI_p (Eff = 50%, Eff = 45%) = UK CSPI_EUR (Eff = 50%, Eff = 45%) * EURGBP * 2.9307

Dutch CSPI (Eff = 50%, Eff = 45%) = Eff * [Coal_Price/40% + (EF_Coal/40% - EF_CCGT/Eff)* (EUA_Price + Dutch_CT/40%)]

Formula Definitions:

Coal_Price = Platts CIF ARA coal price assessment as quoted in USD/mt and converted into Eur/MWh

EUA_Price = EUA prices as listed on the European Energy Exchange (EEX) and quoted in Eur/mt

EF_CCGT = Emissions factor CCGT

EF_Coal = Emissions factor coal

UK_CPS = UK Carbon Price Support

Dutch_CT = Dutch coal tax

UK CSPI_EUR = UK Coal Switching Price Indicator, quoted in Eur/MWh

UK CSPI_p = UK Coal Switching Price Indicator, quoted in p/th

Dutch CSPI = Dutch Coal Switching Price Indicator, quoted in Eur/MWh

PLATTS CROSS-FUEL COMPARISONS

	p/th	Eur/MWh	\$/MMBtu
Coal CIF ARA			
Month ahead	AANCB00	AANCA00	AANCD00
90 Days	AANCF00	AANCE00	AANCH00
UK gas prices at NBP			
Balance month	AANCJ00	AANCI00	AANCL00
Month ahead	AANCN00	AANCM00	AANCP00
Second month ahead	AANCR00	AANCQ00	AANCT00
Quarter ahead	AANCV00	AANCU00	AANCX00
Dutch gas at TTF			
Month ahead	AANDB00	AANDA00	AANDD00
Second month ahead	AANDF00	AANDE00	AANDH00
Quarter ahead	AANDJ00	AANDI00	AANDL00
Fuel oil 1% (NW Europe cargoes)			
Month ahead	AANDN00	AANDM00	AANDP00
Second month ahead	AANDR00	AANDQ00	AANDT00
Quarter ahead	AANDV00	AANDU00	AANDX00
Electricity (UK baseload)			
Month ahead	AANEJ00	AADGT00	AANEL00
Second month ahead	AANED00	AADNU00	AANEF00
Quarter ahead	AANEG00	AADXW00	AANEI00
Electricity (German baseload)			
Month ahead	AANFA00	AACRY00	AANFC00
Second month ahead	AANFD00	AACYE00	AANFF00
Quarter ahead	AANFG00	AACYN00	AANFI00

Cross-fuel comparisons

Platts cross-fuel comparisons are indicative prices of the costs of burning oil, gas and coal in power stations. In each case, the price of the fuel for spot and forward delivery is converted into an equivalent electricity price, quoted in pence/therm, Eur/MWh and \$/MMBtu. The conversions assume the following plant efficiencies:

Natural Gas: 50%, Coal: 35%, Fuel Oil: 32%.

Coal and distillates are priced at ARA.

The standard specifications and sources of each fuel type can be found in the following documents listed on <http://www.platts.com/methodology-specifications>:

Electricity: Platts European Electricity Specifications

Coal: Platts Coal Specifications

Fuel oil: Platts European Oil Products Specifications

REVISION HISTORY

August 2021: Platts completed an annual update to the European natural gas methodology and specifications guide to ensure greater consistency of layout and structure across Platts' published methodology guides. Platts also reviewed all content during this update.

September 2020: Platts completed an annual update to the European natural gas methodology and specifications guide to ensure greater consistency of layout and structure across Platts' published methodology guides. Platts also reviewed all content during this update. PVB/LNG Differential: changed EAM to MED due to LNG methodology change. CPS confirmed rates: added in April 1, 2020 – March 31, 2021.

September 2019: Platts completed an annual update to the European natural gas methodology and specifications guide to ensure greater consistency of layout and structure across Platts' published methodology guides. Platts also reviewed all content during this update.

June 2019: Platts completed an annual update to sections 1 to 6 of Platts Methodology and Specifications Guides in April 2019, and moved these sections into a standalone Methodology Guide. Platts launched day-ahead, weekend and month-ahead natural gas assessments for both the Czech Republic and Slovakia on June 17.

October 2018: Platts renamed the French PEG Nord day-ahead and weekend assessments to French PEG assessments and discontinued the French TRS day-ahead and weekend assessments on October 31.

October 2018: Platts launched Spanish PVB day-ahead and weekend assessments as well as the corresponding day-ahead spark spread and clean spark spreads with both 45% and 50% efficiency. Platts renamed the French PEG Nord month-ahead assessment to French PEG assessment and discontinued the

French TRS month-ahead assessment. Platts discontinued several gas assessments on the UK NBP, the Dutch TTF, the Belgian Zeebrugge Beach, the German NCG and the German GASPOOL hubs. Platts also discontinued the UK month-ahead+2 spark spreads, clean spark spreads and clean spark spreads (CPS).

July 2018: Platts launched Italian PSV Year-ahead assessments as well as the corresponding spark spread and clean spark spreads with both 45% and 50% efficiency, Platts launched Spanish PVB Month-Ahead +1, Season-ahead and Year-ahead+1 assessments as well as the corresponding spark spread and clean spark spreads with both 45% and 50% efficiency.

May 2018: Platts updated the Spark Spread section of this guide to change the source of the power component in the calculations from Platts assessments to third-party exchange.

May 2018: Platts updated its European natural gas methodology and specifications guide in May 2018 as part of the annual review. This update included the introduction of new dialogue in parts 1-6 to enhance the clarity and usefulness of all guides, and to introduce greater consistency of layout and structure across all published methodology guides. Methodologies for market coverage were not changed through this revamp, unless specifically noted in the methodology guide itself.

October 2017: Platts launched Spanish PVB Quarter-ahead, Quarter-Ahead +1 and Year-ahead assessments as well as the corresponding spark spread and clean spark spreads with both 45% and 50% efficiency,

July 2017: Platts revises balance of month assessment methodology to bring into line with industry standards. The last assessment day for TTF and NBP balance of month contracts changed to two UK business days before the end of the month.

May 2017: Platts updated the Coal Switching Price Indicator section of this methodology guide to change the source of

European emissions prices from Platts assessments to third-party exchange.

May 2017: Platts revamped its European natural gas methodology and specifications guide in May 2017. This revamp was completed to enhance the clarity and usefulness of all guides, and to introduce greater consistency of layout and structure across all published methodology guides. Methodologies for market coverage were not changed through this revamp, unless specifically noted in the methodology guide itself.

April 2017: Platts discontinued its Dutch TTF Working week +1 assessment

March 2017: Platts launched a Dutch TTF Balance of month assessment

February 2017: Platts removed references to duplicate UK NBP index symbols discontinued on February 3, 2017.

October 2016: Platts renamed its Spanish gas assessments PVB (formerly Almacenamiento Operativo Comercial; AOC).

October 2016: Platts discontinued several Zeebrugge Beach assessments (working-days-next-week, balance-of-month, month-ahead +3, quarter-ahead +3).

September 2016: Platts updated the former Currency conversions section of this guide. The source and timestamp for the foreign exchange data used to convert Platts European natural gas assessments to foreign currency equivalents was revised from Tullett Prebon at 16:00 London time to Platts 16:30 London time assessment. Platts also removed references to the previous calculations for exchange rates. Prior to June 2014, exchange rates were published with a working-day time lag, with the previous day's exchange rate close used in calculations.

August 2016: Platts updated this guide to remove references to Turkish spark spreads. Platts discontinued assessments of

the Turkish power market effective August 1, 2016, with Turkish dark and spark spreads also discontinued. Price history remains available in Market Data category EM.

July 2016: Platts began publishing Zeebrugge Beach weekend assessments on a Friday or on the last working day of the week in the event of a Friday UK public holiday. Before July 1, 2016, Platts published weekend assessments for Zeebrugge on all UK working days.

October 2015: The UK gas day start changed to 5am on October 1, 2015. Due to the change, the gas day was only 23 hours long (6am-5am) on September 30, 2015. On this day, the EFA day-ahead was calculated by adding 7/23rds of within-day to 16/23rds of day-ahead. Up until September 30, 2015, the gas day start was 6am. Until September 29, 2015, the EFA day-ahead was calculated by adding 7/24ths of within-day to 17/24ths of day-ahead.

October 2015: Platts launched month-ahead assessments of the Spanish gas market.

October 2015: Platts discontinued cross-fuel comparisons data containing Gasoil 0.1% sulfur content and Fuel Oil 3.5% sulfur content on European Power Alert. The equivalent data had been

discontinued in the table published in European Gas Daily in March 2015.

October 2015: Platts began publishing cross-fuel comparisons in European Gas Daily in \$/MMBtu. At the same time, Platts discontinued publishing the equivalent data in Eur/Gj in European Gas Daily. Cross-fuel comparisons data in Eur/Gj remains available on European Power Alert and in Platts Market Data.

August 2015: Platts changed the day-ahead average published in European Gas Daily: Monthly Averages to flow-date average from trade-date average.

July 2015: Platts began publishing a single midpoint value for each of its European natural gas assessments and standardized low-high ranges.

March 2015: Platts renamed its day-ahead and weekend assessments for southern French gas as PEG Sud/TRS on March 31, 2015.

March 2015: Platts renamed its month-ahead assessments for southern French gas as PEG Sud/TRS on March 2, 2015.

March 2015: Platts began publishing cross-fuel comparisons data in European Gas Daily in Eur/MWh from March 2, 2015. The table was also updated on the same day to incorporate Dutch TTF gas and German baseload electricity prices, providing cross-fuel comparisons data for the Continental European markets in addition to the UK.

December 2014: Platts updated the plant efficiencies used in its cross-fuel comparisons calculations. Previous plant efficiencies were: Gas 55%, Fuel Oil: 32%, Gasoil: 32%, Coal: 34%.

January 2014: Platts began publishing UK NBP day-ahead intra-day assessments.

January 2013: Platts Austrian day-ahead gas assessments began reflecting the Austrian VTP, due to the inclusion from 2013 of the Baumgarten hub within the VTP trading point.

December 2012: Platts Austrian month-ahead gas assessments began reflecting the Austrian VTP.

November 2009: Timestamp for UK day ahead contracts changed from 12:00 noon London time to 16:30 London time. Timestamps for Continental forward contracts changed from 17:00 London time to 16:30 London time.