

# Methodology and Specifications Guide

## European Electricity Assessments and Indices

<b>Introduction</b>	<b>2</b>	<b>PEP and Conti Indices</b>	<b>10</b>
Platts MOC assessments	2	<b>Spark spreads</b>	<b>10</b>
Platts midday assessments	2	<b>Clean spark spreads</b>	<b>10</b>
Platts UK Forward Baseload indices	2	<b>Dark spreads</b>	<b>11</b>
Platts Power Index (PPI)	2	<b>Clean dark spreads</b>	<b>11</b>
Forward Power Price Indices	3	<b>Cross-fuels comparisons</b>	<b>11</b>
Bank Holiday close	3	Natural gas	11
Standard contract definitions	3	Gasoil	11
Confirmation of trades	3	Fuel oil	12
Sleeve/round trip/wash trades	3	Coal	12
Spread trades	3	<b>Glossary</b>	<b>12</b>
Other non-standard transactions	3		
When Platts assessments and indices are published	4		
Roll dates	4		
<b>UK electricity market coverage</b>	<b>4</b>		
“Schedule 5”	4		
Specifications	4		
<b>Central European power coverage</b>	<b>7</b>		
Specifications	7		
Germany	7		
Switzerland	7		
<b>French, Dutch, Spanish, Belgian, Czech, Hungarian and Polish power coverage</b>	<b>7</b>		
Specifications	7		
France	7		
The Netherlands	8		
Belgium	8		
Spain	8		
Czech Republic	9		
Hungary	9		
Poland	9		

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## INTRODUCTION

Platts methodology for assessing European power markets has developed over a number of years. It draws on our experience in the international oil markets and in the US gas and power markets. Platts sets great importance on producing independent reports, indices and assessments. The indices and assessments we publish are not compiled in alliance with any other participant in the market.

Platts indices and assessments are based on our own surveys of market participants completed by Platts price reporters each day. Assessments aim to reflect the fair, repeatable value of the commodity at the close of normal business.

At the same time, Platts indices and assessment give priority weighting to confirmed trades and aim to maintain realistic spreads between markets and products. Therefore, the methodology for compiling these is relatively complex.

Platts assessments are based on a survey of as broad a cross-section of the market as possible. This includes canvassing brokers, traders, foreign and local producers, distributors and endusers. Usually, key market players are contacted by phone or e-mail on a daily basis, while other smaller players are canvassed on a less frequent but regular basis. In addition, some companies e-mail us trade and market information, which we would consider in conjunction with other information gathered during our phone surveys. In each case, we aim to speak to those participants that were most active in the market on that particular day.

Platts reporters aim to call 8-10 players per market each day, but in practice would call as many players as we need until we are comfortable that we have sufficient information to start assessing the market. Most calls are made from mid- to late-afternoon London time. Platts market reporters may also call market participants at other times for intra-day market updates.

Platts discloses publicly the days of publication of its price assessments and indices, and the times during each trading day in which Platts considers transactions in determining its assessments and index levels. The dates of publication and the assessment periods are subject to change in the event of outside circumstances that affect Platts' ability to adhere to its normal publication schedule. Such circumstances include network outages, power failures, acts of terrorism and other situations that result in an interruption in Platts' operations at one or more of its worldwide offices. In the event that any such circumstance occurs, Platts will endeavor, whenever feasible, to communicate publicly any changes to its publication schedule and assessment periods, with as much advance notice as possible.

### PLATTS MOC ASSESSMENTS

Platts market-on-close assessments are closing prices based on the most recent trades and/or bids and offers prevailing at the

end of the normal trading cycle. For European power we define this as:

All day-ahead contracts – 12:00 noon London time.

All daily forward contracts – 16:30 London time. (Forward time stamp alignment to 16:30 London time as of November 1, 2009.)

The market-on-close assessment reflects the tradable value of the commodity at the given points in time, based on repeatable trades, bids and offers. In addition, only bids and offers that are raised or lowered in realistic increments would be considered.

Confirmed trades are given preference when making the assessment. In the absence of trade, Platts reporters look at firm bids and offers and how these have moved on the day. Finally, if there are no qualified trades in a product and no firm bids and offers in the market, we look at spreads against other products or markets (e.g. Q2 versus Q3, French power versus German power etc.).

Platts monitors the market structure throughout the day to ensure that market-on-close business converges with prevailing market values at the stated assessment times.

### PLATTS MIDDAY ASSESSMENTS

Platts midday assessments are prices based on the most recent trades and/or bids and offers at 12:00 noon London time. Platts publishes midday assessments for German month-ahead, quarter-ahead and year-ahead baseload power contracts.

### PLATTS UK FORWARD BASELOAD INDICES

Platts UK forward baseload indices are based on the midpoints of the Platts price assessments for day-ahead baseload, weekend and month-ahead baseload.

The daily assessments are published in *European Power Daily* and on *European Power Alert* every business day and are available as a data feed.

### PLATTS POWER INDEX (PPI)

The PPI is a weighted forward power index, using the mid-points of Platts German front-month, front-quarter and front-year baseload assessments to indicate curve movements in continental Europe's benchmark power market. Front-month is weighted singularly, front-quarter three-fold and front-year 12-fold. The front-year contract will roll over on the last trading day of November each year.

The published change in value always refers to the nearest two index values, i.e. the end-of-day PPI will compare to the previous

midday PPI and the next midday PPI will compare to the last end-of-day PPI.

Example on September 12, 2008:

October baseload Eur86.50/MWh x 1 = 86.50

Q4 2008 baseload Eur88.40/MWh x 3 = 265.2

Cal 2009 baseload Eur79.50/MWh x 12 = 954

PPI = 1,305.7

PPI in Eur/MWh (divide by 16) = Eur81.61/MWh.

### FORWARD POWER PRICE INDICES

Platts publishes three baseload Continental Forward Power indices: ContiMonth, ContiQuarter, ContiCal. The indices are based on Platts month-ahead, quarter-ahead and year-ahead assessments for the German, French, Belgian and Dutch markets, giving each country a weighting according to demand. Demand figures are taken from the the association of transmission system operators in continental Europe, the UCTE.

The demand data is updated annually in mid-April and provided by the Union for Coordination of Transmission of Electricity, UCTE.

### BANK HOLIDAY CLOSE

On certain days ahead of a UK Bank Holiday, such as Christmas Eve and New Year's Eve, Platts assesses the market-on-close price earlier than normal, at 12.00 noon London time. This is to take account of typically much lower liquidity and the earlier end of trade. The cut-off point for all indices, daily and forward, would also be 12:00 noon London time on these days.

### STANDARD CONTRACT DEFINITIONS

Platts assessments are based on standard contract definitions and volumes, as outlined in subsequent sections of this document. These vary according to the market. For day-ahead power trade, the standard lot size considered in all markets other than Czech Republic and Poland is 50-100 MW. In the Czech and Polish market lot sizes of 5-25 MW are considered. For UK forward power trade, Platts considers trades of 10 MW or 20 MW. For German and French forward power markets, Platts considers trades from 10-25 MW in 5 MW increments. For Dutch and Belgian forward power markets Platts considers trades from 5-15 MW in 5 MW increments. For the Spanish power market, trades of 10-25 MW in 5 MW increments are considered. For Czech and Polish forward power markets Platts considers trades from 5-25 MW in 5 MW increments

Other volumes may be considered indirectly for the purpose of Platts assessments. However, they would not be included in Platts indices and they would not be used as the sole basis of any assessments.

### CONFIRMATION OF TRADES

When considering transactional information, Platts aims wherever possible to confirm trades reported by market participants with the counterparty and broker involved in the trade.

Therefore, we request that market parties supply details of the contract type, location, price, volume, timing of the trade, whether the trade was a buy or a sell, counterparty, broker and platform with each trade.

Priority when compiling indices and assessments will be given to trades which can be fully confirmed with the counterparties as bona fide. If details of the timing, counterparty and broker are not provided, Platts reporters must use their judgment to decide whether to include the individual trade in the index or assessments.

### SLEEVE/ROUND TRIP/WASH TRADES

All trades discovered to be "round trip" or "wash" trades are excluded from all Platts assessments and indices. For this reason Platts requests information on counterparties, volumes and timings of transactions and Platts reporters may call for additional information from reporting companies with regard to certain trades as part of its market surveys.

Transactions involving a "sleeve" – a middleman to facilitate a trade between two counterparties that are otherwise prevented from trading with each other — are generally excluded from Platts indices and assessments.

### SPREAD TRADES

Trades concluded as one leg of a transaction linked to a similar trade in another product or market – spread trades – are excluded from Platts indices. Here it is the difference between the two products or markets, not the outright values, that is important.

### OTHER NON-STANDARD TRANSACTIONS

Transactions between affiliates, subsidiaries or otherwise related companies are also generally excluded from Platts indices and assessments.

Transactions involving counterparties for whom trade with the majority of market participants is restricted would also be discounted. This is because the price tag on the deal may be inflated or depressed as a result of the special relationship between the companies involved.

### WHEN PLATTS ASSESSMENTS AND INDICES ARE PUBLISHED

Platts publishes a day-ahead assessment for continental European power markets seven days a week on each day of the year. These are databased both by trade date and by flow date. Saturday, Sunday and Monday assessments are calculated each Friday and assessments for bank holidays are calculated on the last working day before the bank holiday.

Platts publishes PEP and Conti power indices seven days a week on each day of the year. These are databased both by trade date and by flow date. Saturday, Sunday and Monday indices are calculated each Friday and indices for bank holidays are calculated on the last working day before the bank holiday.

Platts publishes UK day-ahead power market assessments and indices for Monday to Friday and a single weekend assessment for Saturday and Sunday. On Fridays, the day-ahead price reflects Monday's delivery date.

Platts publishes forward assessments for power, the Platts Power Index (PPI) and the Continental Forward Power Price Indices, on all UK working days. A calendar of UK bank holidays is published on our web site at [www.platts.com](http://www.platts.com).

### ROLL DATES

All continental European weekly power contracts roll on the first working day of each new week. All continental European monthly power contracts roll on the first working day of each new month. Quarterly, seasonal and annual power contracts follow the rolling convention for months.

UK power contracts roll according to the EFA calendar, which uses a series of four- or five-week blocks. The roll dates for these contracts to February 2013 are printed on page 5 of this document in the section on UK power market specifications.

## UK ELECTRICITY MARKET COVERAGE

Platts assesses over-the-counter trade under the Grid Trade Master Agreement contract for the day ahead, weekend (Fridays only), week ahead, next three months, next two quarters, next four seasons and next April annual contract. Platts also produces daily and forward indices for a variety of delivery periods. These include a day-ahead baseload index for each working day of the week, a single weekend index published on Fridays, and a month-ahead baseload index published on all UK working days.

The UK power market trades under EFA calendar terms. Under this calendar (similar to financial calendars), there are 12 monthly blocks in the year, running in four blocks of three months. In each three-month block, the months are broken down into four-four-five week months. Roll dates out to February 2013 are provided on pages 5 and 6.

### "SCHEDULE 5"

A "Schedule 5" was inserted into some standard GTMA contracts between some trading counterparties in the early days of NETA. Under contracts with Schedule 5 turned on (Schedule 5 On), balancing and transmission losses are settled separately, and do not form part of the contract price. Under GTMA contracts with Schedule 5 turned Off (Schedule 5 Off), or with Schedule 5 not included, these charges are a component of the contract price, and charges are typically deemed to be settled as 55:45, buyer:seller. As of July 2001, GTMA Schedule 5 Off had been established as the industry standard. Platts has provided benchmarks only for Schedule 5 Off since June 1, 2001.

### SPECIFICATIONS

**Delivery:** Prices are for firm delivery on the high-voltage (380-kV) grid network of England, Wales and/or Scotland. This includes the Scotland-Northern Ireland interconnector but not Northern Ireland itself. Distribution network costs are not included. All prices are for physically delivered trades.

**Unit:** All prices are quoted in GBP/MWh with Eur/MWh equivalents.

**Lot size:** Qualifying trades are 50-100 MW for prompt (day-ahead, week-ahead and weekend delivery) and 10 MW or 20 MW for forwards.

**Timing:** Baseload = 23:00-23:00, Peak = 07:00-19:00.

#### EFA Block definitions (London time)

Block 1 = 23:00-03:00

Block 2 = 03:00-07:00

Block 3 = 07:00-11:00

Block 4 = 11:00-15:00

Block 5 = 15:00-19:00

Block 6 = 19:00-23:00.

Day-ahead = Baseload for delivery from 23:00 the day of trade until 23:00 to day after. Peaks for delivery 07:00-19:00 the day following trade.

## Platts roll dates for UK power market indices

Roll date	Front Month	Front Quarter	Front Season	Front Annual
25-Feb-08	Apr-08	Q2 08	Summer 08	April 08 annual
31-Mar-08	May-08	Q3 08	Winter 08	April 09 annual
28-Apr-08	Jun-08	Q3 08	Winter 08	April 09 annual
26-May-08	Jul-08	Q3 08	Winter 08	April 09 annual
30-Jun-08	Aug-08	Q4 08	Winter 08	April 09 annual
28-Jul-08	Sep-08	Q4 08	Winter 08	April 09 annual
25-Aug-08	Oct-08	Q4 08	Winter 08	April 09 annual
29-Sep-08	Nov-08	Q1 09	Summer 09	April 09 annual
27-Oct-08	Dec-08	Q1 09	Summer 09	April 09 annual
24-Nov-08	Jan-09	Q1 09	Summer 09	April 09 annual
29-Dec-08	Feb-09	Q2 09	Summer 09	April 09 Annual
26-Jan-09	Mar-09	Q2 09	Summer 09	April 09 Annual
23-Feb-09	Apr-09	Q2 09	Summer 09	April 09 Annual
30-Mar-09	May-09	Q3 09	Winter 09	April 10 Annual
27-Apr-09	Jun-09	Q3 09	Winter 09	April 10 Annual
25-May-09	Jul-09	Q3 09	Winter 09	April 10 Annual
29-Jun-09	Aug-09	Q4 09	Winter 09	April 10 Annual
27-Jul-09	Sep-09	Q4 09	Winter 09	April 10 Annual
24-Aug-09	Oct-09	Q4 09	Winter 09	April 10 Annual
28-Sep-09	Nov-09	Q1 10	Summer 10	April 10 Annual
26-Oct-09	Dec-09	Q1 10	Summer 10	April 10 Annual
23-Nov-09	Jan-10	Q1 10	Summer 10	April 10 Annual
4-Jan-10	Feb-10	Q2 10	Summer 10	April 10 annual
1-Feb-10	Mar-10	Q2 10	Summer 10	April 10 annual
1-Mar-10	Apr-10	Q2 10	Summer 10	April 10 annual
5-Apr-10	May-10	Q3 10	Winter 10	April 11 annual
3-May-10	Jun-10	Q3 10	Winter 10	April 11 annual
31-May-10	Jul-10	Q3 10	Winter 10	April 11 annual
5-Jul-10	Aug-10	Q4 10	Winter 10	April 11 annual
2-Aug-10	Sep-10	Q4 10	Winter 10	April 11 annual
30-Aug-10	Oct-10	Q4 10	Winter 10	April 11 annual
4-Oct-10	Nov-10	Q1 11	Summer 11	April 11 annual
1-Nov-10	Dec-10	Q1 11	Summer 11	April 11 annual
29-Nov-10	Jan-11	Q1 11	Summer 11	April 11 annual
3-Jan-11	Feb-11	Q2 11	Summer 11	April 11 annual
31-Jan-11	Mar-11	Q2 11	Summer 11	April 11 annual
28-Feb-11	Apr-11	Q2 11	Summer 11	April 11 annual
4-Apr-11	May-11	Q3 11	Winter 11	April 12 annual
2-May-11	Jun-11	Q3 11	Winter 11	April 12 annual
30-May-11	Jul-11	Q3 11	Winter 11	April 12 annual
4-Jul-11	Aug-11	Q4 11	Winter 11	April 12 annual
1-Aug-11	Sep-11	Q4 11	Winter 11	April 12 annual
29-Aug-11	Oct-11	Q4 11	Winter 11	April 12 annual
3-Oct-11	Nov-11	Q1 12	Summer 12	April 12 annual
31-Oct-11	Dec-11	Q1 12	Summer 12	April 12 annual
28-Nov-11	Jan-12	Q1 12	Summer 12	April 12 annual
2-Jan-12	Feb-12	Q2 12	Summer 12	April 12 annual
30-Jan-12	Mar-12	Q2 12	Summer 12	April 12 annual
27-Feb-12	Apr-12	Q2 12	Summer 12	April 12 annual
2-Apr-12	May-12	Q3 12	Winter 12	April 13 annual
30-Apr-12	Jun-12	Q3 12	Winter 12	April 13 annual
28-May-12	Jul-12	Q3 12	Winter 12	April 13 annual
2-Jul-12	Aug-12	Q4 12	Winter 12	April 13 annual

## Platts roll dates for UK power market indices

Roll date	Front Month	Front Quarter	Front Season	Front Annual
30-Jul-12	Sep-12	Q4 12	Winter 12	April 13 annual
27-Aug-12	Oct-12	Q4 12	Winter 12	April 13 annual
1-Oct-12	Nov-12	Q1 13	Summer 13	April 13 annual
29-Oct-12	Dec-12	Q1 13	Summer 13	April 13 annual
26-Nov-12	Jan-13	Q1 13	Summer 13	April 13 annual
31-Dec-12	Feb-13	Q2 13	Summer 13	April 13 annual
28-Jan-13	Mar-13	Q2 13	Summer 13	April 13 annual
25-Feb-13	Apr-13	Q2 13	Summer 13	April 13 annual
1-Apr-13	May-13	Q3 13	Winter 13	April 14 annual
29-Apr-13	Jun-13	Q3 13	Winter 13	April 14 annual
27-May-13	Jul-13	Q3 13	Winter 13	April 14 annual
1-Jul-13	Aug-13	Q4 13	Winter 13	April 14 annual
29-Jul-13	Sep-13	Q4 13	Winter 13	April 14 annual
26-Aug-13	Oct-13	Q4 13	Winter 13	April 14 annual
30-Sep-13	Nov-13	Q1 14	Summer 14	April 14 annual
28-Oct-13	Dec-13	Q1 14	Summer 14	April 14 annual
25-Nov-13	Jan-14	Q1 14	Summer 14	April 14 annual
30-Dec-13	Feb-14	Q2 14	Summer 14	April 14 annual
27-Jan-14	Mar-14	Q2 14	Summer 14	April 14 annual
23-Feb-14	Apr-14	Q2 14	Summer 14	April 14 annual
31-Mar-14	May-14	Q3 14	Winter 14	April 15 annual
28-Apr-14	Jun-14	Q3 14	Winter 14	April 15 annual
26-May-14	Jul-14	Q3 14	Winter 14	April 15 annual
30-Jun-14	Aug-14	Q4 14	Winter 14	April 15 annual
28-Jul-14	Sep-14	Q4 14	Winter 14	April 15 annual
25-Aug-14	Oct-14	Q4 14	Winter 14	April 15 annual
29-Sep-14	Nov-14	Q1 15	Summer 15	April 15 annual
27-Oct-14	Dec-14	Q1 15	Summer 15	April 15 annual
24-Nov-14	Jan-15	Q1 15	Summer 15	April 15 annual
29-Dec-14	Feb-15	Q2 15	Summer 15	April 15 annual
26-Jan-15	Mar-15	Q2 15	Summer 15	April 15 annual
23-Feb-15	Apr-15	Q2 15	Summer 15	April 15 annual
30-Mar-15	May-15	Q3 15	Winter 15	April 16 annual
27-Apr-15	Jun-15	Q3 15	Winter 15	April 16 annual
25-May-15	Jul-15	Q3 15	Winter 15	April 16 annual
29-Jun-15	Aug-15	Q4 15	Winter 15	April 16 annual
27-Jul-15	Sep-15	Q4 15	Winter 15	April 16 annual
24-Aug-15	Oct-15	Q4 15	Winter 15	April 16 annual
28-Sep-15	Nov-15	Q1 16	Summer 16	April 16 annual
26-Oct-15	Dec-15	Q1 16	Summer 16	April 16 annual
23-Nov-15	Jan-16	Q1 16	Summer 16	April 16 annual
4-Jan-16	Feb-16	Q2 16	Summer 16	April 16 annual
1-Feb-16	Mar-16	Q2 16	Summer 16	April 16 annual
29-Feb-16	Apr-16	Q2 16	Summer 16	April 16 annual
4-Apr-16	May-16	Q3 16	Winter 16	April 17 annual
2-May-16	Jun-16	Q3 16	Winter 16	April 17 annual
30-May-16	Jul-16	Q3 16	Winter 16	April 17 annual
4-Jul-16	Aug-16	Q4 16	Winter 16	April 17 annual
1-Aug-16	Sep-16	Q4 16	Winter 16	April 17 annual
29-Aug-16	Oct-16	Q4 16	Winter 16	April 17 annual
3-Oct-16	Nov-16	Q1 17	Summer 17	April 17 annual
31-Oct-16	Dec-16	Q1 17	Summer 17	April 17 annual
28-Nov-16	Jan-17	Q1 17	Summer 17	April 17 annual

Weekend = Baseload for delivery from 23:00 Friday until 23:00 on Sunday.

Week-ahead = Delivered each day Monday-Sunday the following week for baseload and delivered each day Monday-Friday the following week for peak.

Months = UK EFA months are comprised of four- or five-week blocks. They follow the pattern 4-4-5, meaning March, June, September and December have five weeks and other months have four.

Winter = The period from October-March. Exact dates depend on the EFA calendar.

Summer = The period from April-September. Exact dates depend on the EFA calendar.

April Annual = April-March.

**Roll dates:** Forward contracts roll according to the EFA calendar.

NOTE: The UK market also has off-peak contracts (19:00-07:00 London time) and overnight contracts (23:00-07:00 London time). These contracts do not form part of Platts assessments.

## CENTRAL EUROPEAN POWER COVERAGE

### SPECIFICATIONS

#### Germany

**Delivery:** Prices are for firm delivery on the German high-voltage (380-kV) grid network. Distribution network costs are not included. All prices are for physically delivered trades.

**Unit:** All prices are in Eur/MWh. Deutsche Mark equivalents were provided until January 1, 2001, when the euro replaced the Deutsche Mark as Germany's national currency.

**Lot size:** Qualifying trades are 25-50 MW for prompt (day-ahead, week-ahead and weekend delivery) and 5-25 MW in 5 MW increments for forwards.

**Timing:** Baseload = 00:00-24:00 CET, Peak = 08:00-20:00 CET.

Day-ahead = Delivery next day from day of assessment.

Weekend = Baseload for delivery each day Saturday-Sunday.

Week-ahead = Delivered each day Monday-Sunday the following week for baseload and delivered each day Monday-Friday the following week for peak.

All forward months are calendar months.

All forward years are calendar years.

**Roll dates:** Forward contracts roll on the first working day of each month.

#### Switzerland

**Delivery:** Prices are for firm delivery on the Swiss high voltage (380-kV) grid at the Laufenburg International hub. All prices are for physically delivered trades.

**Units:** All prices are in Eur/MWh. Swiss franc equivalents are provided.

**Lot size:** Standard qualifying trades are 25-50 MW (for day-ahead).

**Timing:** Baseload = 00:00-24:00 CET, Peak = 08:00-20:00 CET.

Day-ahead = Delivery day after day of assessment.

## FRENCH, DUTCH, SPANISH, BELGIAN, CZECH, HUNGARIAN AND POLISH POWER COVERAGE

### SPECIFICATIONS

#### France

**Delivery:** Prices are for firm delivery on France's high-voltage (400/220-kV) electricity network. Distribution network costs are not included. All prices are for physically delivered trades.

**Units:** All prices are in Eur/MWh.

**Lot size:** Qualifying trades are 25-50 MW for prompt (day-ahead, week-ahead and weekend delivery) and 5-25 MW in 5 MW increments for forwards.

**Timing:** Baseload = 00:00-24:00 CET, Peak = 08:00-20:00 CET.

Day-ahead = Delivery next day from day of assessment.

Weekend = Baseload for delivery each day Saturday-Sunday.

Week-ahead = Delivered Monday-Sunday the following week.

All forward months are calendar months.

All forward years are calendar years.

All forward month and year peak assessments include public holidays.

**Roll dates:** Forward contracts roll on the first working day of each month.

## The Netherlands

**Delivery:** Prices are for firm delivery on the Dutch high-voltage (380-kV) electricity network. Distribution network costs are not included. All prices are for physically delivered trades.

**Units:** All prices are in Eur/MWh.

**Lot size:** Qualifying trades are 25-50 MW for prompt (day-ahead, week-ahead and weekend delivery) and 5-25 MW in 5 MW increments for forwards.

**Timing:** Baseload = 00:00-24:00 CET, Peak = 08:00-20:00 CET.

Day-ahead = Delivery next day from day of assessment.

Weekend = Baseload for delivery each day Saturday-Sunday.

Week-ahead baseload = Delivered Monday-Sunday the following week.

Week-ahead peak = Delivered Monday-Friday the following week.

All forward months are calendar months.

All forward years are calendar years.

Balance of the year = from the month-ahead to the end of the current calendar year.

Note: peaks for forward months, quarters and years do not include public holidays.

**Roll dates:** Forward contracts roll on the first working day of each month.

**NOTE:** The Dutch market also has 16-hour peak contracts (07:00-23:00), which is an historical feature that is gradually being withdrawn. These contracts do not form part of Platts assessments. Peak hours are in line with the continental power markets, 08:00-20:00 CET.

## Belgium

**Delivery:** Prices are for firm delivery on the Belgian high-voltage (380-kV) grid network. Distribution network costs are not included. All prices are for physically delivered trades.

**Unit:** All prices are in Eur/MWh.

**Lot size:** Qualifying trades are 5-25 MW for prompt (day-ahead, week-ahead and weekend delivery) and 5-25 MW in 5 MW increments for forwards.

**Timing:** Baseload = 00:00-24:00 CET.

Day-ahead = Delivery next day from day of assessment.

Weekend = Baseload for delivery each day Saturday-Sunday. Week-ahead baseload = Delivered Monday-Sunday the following week.

All forward months are calendar months.

All forward years are calendar years.

Note: peaks for forward months, quarters and years do not include public holidays.

**Roll dates:** Forward contracts roll on the first working day of each month.

**Note:** The Belgian market also has peak contracts (08:00-20:00 CET) and 16-hour peak contracts (07:00-23:00 CET). These do not form part of Platts assessments.

## Spain

**Delivery:** Prices are for firm delivery on Spain's high-voltage (400/220-kV) electricity network. Distribution network costs are not included.

**Unit:** All prices are in Eur/MWh.

**Lot size:** Qualifying trades are 25-50 MW for prompt (day-ahead and week-ahead delivery) and 5-25 MW in 5 MW increments for forwards.

**Timing:** Baseload = 00:00-24:00 CET.

Day-ahead = Delivery next day from day of assessment.

Week-ahead = Delivered Monday-Sunday the following week.

Balance of the month = the day after tomorrow until the end of the month. For example, on the 11th of September, the BOM would be from the 13th until the 30th.

Balance of the year = from the month-ahead to the end of the current calendar year.

All forward months are calendar months.

All forward years are calendar years.

**Roll dates:** Forward contracts roll on the first working day of each month.

**Note:** The Spanish market also has peak contracts (09:00-21:00 CET). These do not form part of Platts assessments.

## Czech Republic

**Delivery:** Prices are for firm delivery on the Czech high-voltage (380-kV) grid network. Distribution network costs are not included. All prices are for physically delivered trades.

**Unit:** All prices are in Eur/MWh. Trade is in euros in the OTC market and on the Prague Power Exchange (PXE). Day-ahead and intraday trade on the market operator OTE's exchange is in Czech crowns. OTE also gives the conversion into euros for its day-ahead indices. Platts publishes these directly from OTE. Platts assesses OTC trades only.

**Lot size:** Qualifying trades are 5-25 MW for prompt (day-ahead, week-ahead and weekend delivery) and 5-25 MW in 5 MW increments for forwards.

**Timing:** Baseload = 00:00-24:00 CET, Peak = 08:00-20:00 CET.

Day-ahead = Delivery next day from day of assessment.

Week-ahead = Delivered each day Monday-Sunday the following week for baseload and delivered each day Monday-Friday the following week for peak.

All forward months are calendar months.

All forward years are calendar years.

**Roll dates:** Forward contracts roll on the first working day of each month.

**Note:** The Czech market has extended peak contracts (06:00-22:00 CET), which is an historical feature of the industrial consumer need to have power distributed early and late in the day, e.g. pulp factories. Extended peak trades regularly in the day-ahead product, seldom in the other contracts. These contracts do not form part of Platts assessments. Peak hours are in line with the German market, 08:00-20:00 CET.

## Hungary

**Delivery:** Prices are for firm delivery on the Hungarian high-voltage (400-kV) electricity network. Distribution network costs are not included. All prices are for physically delivered trades.

**Unit:** All prices are in Eur/MWh.

**Lot size:** Qualifying trades are 5-25 MW for prompt (day-ahead, week-ahead and weekend delivery) and 5-25 MW in 5 MW increments for forwards.

**Timing:** Baseload = 00:00-24:00 CET.

Day-ahead = Delivery next day from day of assessment.

Week-ahead = Delivered each day Monday-Sunday the following week for baseload.

All forward months are calendar months.

All forward years are calendar years.

**Roll dates:** Forward contracts roll on the first working day of each month.

**Note:** The Hungarian market also has peak contracts (08:00-20:00 CET). These do not form part of Platts assessments.

## Poland

Platts introduced daily baseload and peak Polish power assessments on July 1, 2010. Prior to that, starting in 2005; Platts assessed the Polish power market on a monthly basis based on actual trade, bids and offers for baseload and peakload contracts delivered in the next three calendar months, next quarter and next calendar year. Monthly prices were published in the first working week of each month, based on information supplied by market participants covering trade in the previous calendar month.

**Delivery:** Prices are for firm delivery on PSE's high voltage electricity network. Distribution network costs are not included. All prices are for physically delivered trades.

**Units:** All prices are in Zloty per megawatt hour. Euro equivalents are also given.

**Lot size:** Qualifying trades are 5-25 MW for prompt (day-ahead and week-ahead delivery) and 5-25 MW in 5 MW increments for forwards.

**Timing:** Baseload = 00:00-24:00 CET. Peak = 07:00-22:00 CET, excluding weekends and public holidays.

Day-ahead = Delivery next day from day of assessment.

Week-ahead baseload = Delivered Monday-Sunday the following week.

Week-ahead peak = Delivered Monday-Friday the following week.

All forward months are calendar months.

All forward years are calendar years.

**Roll dates:** Contracts roll on the first working day of the following month.

**Contract:** Platts considers trades done according to standard EFET or other similar terms and conditions.

**Special conditions:** Platts considers all normal transactions for physically delivered power in Poland for the purpose of the assessment. However, any power bought for export with special arrangements for capacity included in the price are discarded. Assessments assume the buyer pays excise duty.

## PEP AND CONTI INDICES

Platts Pan-European Power (PEP) Index and Continental (Conti) Power Index are demand-weighted day-ahead baseload indices indicating price trends for Europe's free electricity markets as a whole. Europe is moving towards a continental market model, and while transmission constraints mean the reality may be some way off, these indices meet the demand for representative, Europe-wide indices.

The indices use the mid-points of Platts assessments for the European power markets, giving each country a weighting according to demand. As spot trade has developed at a different pace in each European market, Platts has used demand weighting to replace traditional trade volume weightings to give a more representative price for the pan-European market. Demand figures are taken from the latest statistics published by the UK's National Grid and European association of grid operators, the UCTE.

The Conti Index is based on Platts day-ahead assessments for Germany, Switzerland, the Netherlands, Belgium and France. These countries are closely linked through interconnection and share many of the same market fundamentals.

The PEP index is based on all the assessments used in the Conti index, plus Platts assessments for the UK and Spanish day-ahead markets. This index gives a picture of the value of power across all of the major free markets in Europe, including the "electricity islands" in Spain and the UK. These markets often move independently of the central markets in the Conti index. The PEP and Conti indices are published in Eur/MWh, for every day in the year. These are databased by trade date (ie the date of the day-ahead trade) and by flow date. Saturday, Sunday and Monday indices are calculated each Friday and indices for bank holidays are calculated on the last working day before the bank holiday.

Saturday and Sunday PEP and Conti indices use the midpoint of the weekend assessment for the UK in lieu of a daily price for those two days.

## 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.

Prices are quoted for the UK, Benelux and German markets.

UK spark spreads are based on NBP gas assessments and equivalent UK electricity assessment. For the UK, Platts publishes spark spreads for day-ahead, three months ahead, two quarters ahead, and four seasons ahead.

Belgian spark spreads are based on Zeebrugge gas assessments and equivalent Belgian power assessment. For Belgium, Platts publishes spark spreads for day-ahead, three calendar months ahead, and two quarters ahead.

Dutch spark spreads are based on Dutch TTF gas assessments and equivalent Dutch power assessment. For the Netherlands, Platts publishes spark spreads for day-ahead, two calendar months ahead, two quarters ahead, and one calendar year ahead.

German prices will be based on TTF gas assessments and equivalent German power assessments, until such time as a liquid physical forward market for German gas becomes available. For Germany, Platts publishes spark spreads for day-ahead, two calendar months ahead, two quarters ahead, and one calendar year ahead.

The source of all gas prices is *European Power Alert* and *European Gas Daily*. The source of all power prices is *European Power Alert* and *European Power Daily*.

Platts calculates the spark spread for gas-fired plants with standard efficiencies of 50% and 60%.

Note: UK gas and power contracts roll at different times of the month. Therefore, Platts takes UK power conventions as the basis for its forward spark spreads contracts.

## CLEAN SPARK SPREADS

Platts clean spark spreads are indicative prices giving the average difference between the cost of gas and emissions, and the equivalent price of electricity on any given day.

Prices are quoted for the UK, Benelux and German markets.

UK clean spark spreads are based on NBP gas assessments, equivalent EU emissions Allowances assessments, and equivalent UK electricity assessment. For the UK, Platts publishes clean spark spreads for day-ahead, three months ahead, two quarters ahead, and four seasons ahead.

Belgian clean spark spreads are based on Zeebrugge gas assessments, equivalent EUA assessments, and equivalent Belgian power assessment. For Belgium, Platts publishes clean spark spreads for day-ahead, three calendar months ahead, and two quarters ahead.

Dutch clean spark spreads are based on Dutch TTF gas assessments, equivalent EUA assessments, and equivalent Dutch power assessment. For the Netherlands, Platts publishes clean spark spreads for day-ahead, two calendar months ahead, two quarters ahead, and one calendar year ahead.

German clean spark spreads will be based on TTF gas assessments, equivalent EUA assessments, and equivalent

German power assessments, until such time as a liquid physical forward market for German gas becomes available. For Germany, Platts publishes clean spark spreads for day-ahead, two calendar months ahead, two quarters ahead, and one calendar year ahead.

The source of all gas prices is *European Power Alert* and *European Gas Daily*. The source of all power prices is *European Power Alert* and *European Power Daily*. The source of all emissions prices is *Emissions Daily*.

Platts calculates the clean spark spread for gas-fired plants with standard efficiencies of 50% and 60%, and carbon intensity of 0.055 kg CO<sub>2</sub>/MMBtu.

Note: UK gas and power contracts roll at different times of the month. Therefore, Platts takes UK power conventions as the basis for its forward spark spreads contracts.

## DARK SPREADS

Platts dark spreads are indicative prices giving the average difference between the cost of coal and the equivalent price of electricity on any given day.

Prices are quoted for the German market.

German dark spreads are based on CIF ARA coal assessments and equivalent German electricity assessments. For Germany, Platts publishes dark spreads for two months ahead, two quarters ahead and two calendar years ahead.

The source of all coal prices is *Coal Trader International*. The sources of all power prices are *European Power Alert* and *European Power Daily*.

The formula for German dark spreads uses an energy conversion factor of 7.1 (converting 1 metric ton of coal into MWh) and a fuel efficiency factor (coal) of 35%.

The full formula is as follows: Baseload power price in euro– ((coal price in US dollar ÷ exchange rate) ÷ energy conversion factor) ÷ fuel efficiency factor)

## CLEAN DARK SPREADS

Platts clean dark spreads are indicative prices giving the average difference between the cost of coal and emissions, and the equivalent price of electricity on any given day.

Prices are quoted for the German market.

German clean dark spreads are based on CIF ARA coal assessments, equivalent EU emissions Allowances assessments, and equivalent German electricity assessments. For Germany,

Platts publishes clean dark spreads for two months ahead, two quarters ahead and two calendar years ahead.

The source of all coal prices is *Coal Trader International*. The sources of all power prices are *European Power Alert* and *European Power Daily*. The source of all emissions prices is *Emissions Daily*.

The formula for German clean dark spreads uses an energy conversion factor of 7.1 (converting 1 metric ton of coal into MWh), a fuel efficiency factor (coal) of 35% and a carbon intensity factor of 0.96.

The full formula is as follows: Baseload power price in euro– ((coal price in US dollar ÷ exchange rate) ÷ energy conversion factor) ÷ fuel efficiency factor)) - (EUA price in euro x carbon intensity factor)

## CROSS-FUELS COMPARISONS

Platts cross-fuels 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 Euro cents/kWh and US cents/kWh. The conversions assume the following plant efficiencies:

Natural Gas: 55%, Fuel Oil: 32%, Gasoil: 32%, Coal: 34%.

The standard specifications and sources of each fuel type are as follows:

### NATURAL GAS

**Quality:** As specified by UK transporter National Grid.

**Volumes:** All prices are based on a standard contract lot size of 25,000-50,000 th/d.

**Delivery:** All prices are for physical delivery at the UK's National Balancing Point.

**Timing:** balance month, one calendar month ahead, two calendar months ahead, and one quarter ahead.

Source: *European Gas Daily*.

### GASOIL

**Quality:** Gasoil with 0.1% sulfur content, including French Fuel Oil Domestique (FOD) and German Deutsche Industrie Norm (DIN) heating oil grades with a density of 0.845 g/ml and a sulfur content of 0.1% maximum. The assumed calorific value is 18,500 Btu/lb.

**Volume:** Prices are for 10,000-25,000 mt cargoes Handy-size Russian cargoes delivered basis ARA and meeting DIN/FOD are also included.

**Delivery:** Prices are for cargoes delivered CIF Northwest Europe. This normally means cargoes delivered in a Le Havre/Hamburg port range.

**Timing:** Spot = 10-25 days ahead of publication, forward prices (one calendar month ahead, two calendar months ahead and one quarter ahead) are based on the volume weighted average prices published by ICE for its futures contracts the previous day.

Source: *Platts Global Alert/ICE Futures*.

## FUEL OIL

**Quality:** 1% sulfur fuel oil prices are based on a maximum 1% sulfur content.

Cargo assessments are typically based on a viscosity of 380 centistokes at 50 degrees C, a specific gravity of 0.965 to 0.990 g/ml. 3.5 % sulfur fuel oil prices typically represent bunker grade material with a 3-4% sulfur content, specific gravity of 0.998-0.991 g/ml and a viscosity of 380 to 420 centistokes at 50 degrees C, a maximum of 300 parts per million of vanadium. The assumed calorific value is 17,800 Btu/lb.

**Volume:** 1% sulfur cargo prices typically reflect cargo parcels of 17,000-25,000 mt each, although smaller volumes may be considered. Cargoes up to 50,000 mt may also be taken into account for physical (spot) prices. 3.5% sulfur prices typically represent FOB barges of 1,000-5,000 mt.

**Delivery:** 1% sulfur prices are for cargoes sold FOB Northwest Europe. 3.5% sulfur prices are for barges sold FOB Amsterdam-Rotterdam-Antwerp.

**Timing:** For 1% prices, spot = 10-25 days ahead of publication. Forward contracts are for one calendar month ahead, two calendar months ahead and one quarter ahead. 3.5% sulfur prices are for barges loading 2-15 days forward.

Source: *Platts Global Alert*.

## COAL

**Quality:** Prices are for steam coal standardized to 6,000 kilocalories per kilogram (10,800 Btu/lb) with a maximum 1% sulfur content.

**Volume:** Standard cargo volumes consider Capesize vessels.

**Delivery:** Prices are based on cargoes delivered CIF Northwest Europe (Amsterdam-Rotterdam-Antwerp).

**Timing:** Prices are assessed daily for the prompt month-ahead delivery and weekly for the 90-day forward delivery. Full methodology at [www.platts.com](http://www.platts.com).

Source: *Platts International Coal Report/Coal Trader International*.

## GLOSSARY

**ABANDON**—To allow an option to expire worthless

**ALTERNATING CURRENT (AC)**—A periodic current, the average value of which over a period is zero. Typically refers to a current that reverses its direction at regularly recurring intervals of time and that has alternately positive and negative values. Almost all electricity utilities generate AC electricity because it can easily be transformed to higher or lower voltages

**ALTERNATING CURRENT DISTRIBUTION**—The supply of electricity from one or more major receiving stations to the point of consumption. Energy is generally supplied at a voltage that can be directly used by large rotating machinery and step-down transformers are used to reduce the voltage for most commercial or residential utilization

**AMERICAN STYLE OPTION**—An option which can be exercised by the buyer (holder) at anytime during its life

**AMPERE (AMP)**—The unit of measurement of electrical current produced in a circuit by 1 volt acting through a resistance of 1 ohm. The measure of the rate of flow of electrons past a given point in an electric conductor such as a power line

**ANCILLARY SERVICES**—Any service required by a system operator to deliver electricity to the ultimate consumer. Ancillary services include balancing services, load following, or providing kilovars (reactive power)

**ANTHRACITE**—A hard, black coal with high energy content, often referred to as hard coal

**ARBITRAGE**—The simultaneous purchase of a commodity/derivative in one market and the sale of the same, or similar, commodity/derivative in another market in order to exploit price differentials

**AT-THE-MONEY**—An option whose exercise price is equal, or close to, the current price in the underlying market

**AVAILABLE BUT NOT NEEDED CAPACITY**—Net capability of main generating units that are operable, but not considered necessary to carry load and cannot be connected to load within 30 minutes

**AVERAGE COST PRICING**—A pricing mechanism based on dividing the total cost of providing electricity incurred in a period by the number MWh (wholesale) and kWh (retail) sold in the same period

**AVOIDED COST**—The cost to produce or procure electric power that an electricity utility does not incur because it purchases this increment of power from a qualifying facility. It may include a capacity payment and/or an energy payment component

**BACKWARDATION**—A market where the price for nearby delivery is higher than for further forward months

**BALANCING**—The requirement imposed by electricity grids or natural gas pipelines that supply and demand be equal over a certain time period

**BARREL**—A volumetric unit of crude oil, equivalent to 42 US gallons

**BASELOAD**—The minimum amount of electric power delivered or required over a given period of time at a steady rate. The minimum continuous load or demand in a power system over a given period of time

**BASELOAD CAPACITY**—The generation units normally used to meet demand around-the-clock

**BASELOAD PLANT**—A plant normally operated to take all or part of the minimum continuous load of a system, and which consequently produces electricity at an essentially constant rate. A base load plant typically has relatively high fixed costs and low unit operating costs. Traditionally, nuclear plants have been considered as base load plants

**Bcf**-billion cubic feet

**Bcm**-billion cubic meters

**BEARISH**—Belief that a price will fall

**BID**—A proposal to buy a commodity/derivative at a specified price

**BID PRICE**—The price at which a buyer is prepared to buy

**BIOMASS CONVERSION**—The process by which organic materials, such as wood waste or garbage, are burned for direct energy or electrical generation, or by which these materials are converted to synthetic natural gas

**BITUMINOUS COAL**—The most common coal, which is dense, black and has a moisture content of less than 20%. Used for generating electricity, making coke, and space heating

**BLACK START**—A rapid start up of an off-line generation source

**BLACKOUT**—The emergency loss of the source of electricity serving an area caused by failure of the generation, transmission, or distribution system

**BRITISH THERMAL UNIT (Btu)**—The amount of energy necessary to raise the temperature of one pound of water one degree Fahrenheit

**BROWNOUT**—The partial reduction of electrical voltages caused by customer demand being higher than anticipated or by the failure of the generation, transmission, or distribution system

**BULLISH**—Belief that a price is going to rise

**BUSBAR**—The point at which power is available for transmission. A conductor or group of conductors that serve as a common connection for two or more circuits, generally in the form of insulated cable, rigid rectangular or round bars, or stranded overhead cables held under tension

**BUSBAR COST**—The cost of producing one kWh of electricity delivered to, but not through, the transmission system (typically US)

**CALL OPTION**—An option that gives the buyer (holder) the right but not the obligation to buy a specified quantity of an underlying futures at a fixed price, on or before a specified date. The grantor of the option is obliged to deliver the future at the fixed price if the holder exercises the option

**CAPACITOR**—A transmission element designed to inject reactive power into the transmission network. Also used to increase voltages, reduce loadings, and increase available kW output from generators. Capacitor ratings typically given in Megavars

**CAPACITY**—The power output rating of a generator, typically in megawatts, measured on an instantaneous basis

**CAPACITY (PURCHASED)**—The amount of capacity available for purchase from other power systems

**CAPACITY CHARGE**—One element of a two-part pricing method used in power transactions (energy charge is the other element. Assessed on the amount of capacity being purchased, typically Eur(GBP, NOK)/MWh

**CAPACITY MARGIN**—The amount of capacity above planned peak system demand available to provide for scheduled maintenance, emergency outages, system operating requirements, and unforeseen demand

**CASH MARKET**—The physical market underlying a futures or options contract

**CASH AND CARRY**—An arbitrage transaction involving the simultaneous purchase of a cash commodity with borrowed money and the sale of the appropriate futures contract

**CASH SETTLEMENT**—The settlement of futures or options by paying a cash difference, rather than taking/making physical delivery

**CIRCUIT**—A conductor or a system of conductors through which electric current flows

**CLEARING**—The process of matching trades, settling trades and provision of a guarantee for traded contracts, often a service performed by exchanges

**CLEARING FEE**—A fee charged by a clearing house for clearing trades

**CLOSE OUT**—Finalizing a transaction by making an equal and opposite trade to an open position

**COGENERATION**—The simultaneous production of both useable heat or steam and electricity from a common fuel source

**COMBINED CYCLE**—The combination of one or more gas turbine and steam turbines in an electric generation plant. An electric generating technology in which electricity is produced from otherwise lost waste heat exiting from one or more gas (combustion) turbines. The heat is routed to a conventional boiler or to a heat recovery steam generator for use by a steam turbine in the production of electricity. This process increases the efficiency of the electric generating unit

**CONDUCTOR**—A substance or body, usually in the form of a wire, cable, or busbar, that allows a current of electricity to pass continuously along it

**CONNECTION**—The physical junction (transmission lines, transformers, switch gear, etc) between two electric systems permitting the transfer of electricity

**CONTANGO**—Where the prompt price a commodity/derivative is less than the price of further forward markets. Often described as the “healthy” state of commodities markets, except where seasonality is very strong

**CONTI INDEX**— Platts demand-weighted index of continental European power assessments

**CONTRACT**—A binding agreement between a buyer and a seller in a transaction

**CONTRACT FOR DIFFERENCES (CFD)**—A cash-settled futures contract between a supplier and buyer that is referenced to a settlement price

**CUBIC FEET/METERS PER SECOND**—A measurement of gas or water flow representing one cubic foot of gas or water moving past a given point in one second

**CURRENT**—A flow of electrons in an electrical conductor. The rate of movement of the electricity, measured in amperes

**CURTAILABLE RATE**—An option offered by utilities to customers who can accept specified amounts of service reduction in return for reduced electric rates

**DECLINING BLOCK RATE**—A fall in an electricity rate when an increase in consumption cuts the cost to a utility of providing service

**DELTA HEDGING**—The process whereby the grantor of an option decides to buy or sell more or less of an underlying futures contract in order to protect against being declared upon by the options holder. If delta hedging, the grantor of a call option will

buy more of the futures contract if it rises in value towards the strike price (as the probability of being declared upon rises towards 100%). The grantor of a put option will typically sell more of the underlying futures contract if it slides in value (as the probability of being declared upon rises towards 100%)

**DELTA NEUTRAL**—When the grantor of an option has balanced the probability of being declared upon through buying/selling the underlying futures contract

**DEGREE DAY**—A measure of seasonal variation and intensity of temperature. In residential customer load, the more negative degree days in a year than the norm, the higher the electricity/gas consumption.

**DEMAND**—The rate at which electricity is delivered to or by a system at a given instant or averaged over a designated period, usually expressed in kilowatts or megawatts

**DEMAND SIDE MANAGEMENT (DSM)**—All activities or programs undertaken by an electricity system or consumers to influence the amount and timing of electricity use

**DIRECT CURRENT (DC)**—An electricity current that flows in one direction with a magnitude that does not vary or that varies only slightly

**DIRTY POWER**—Momentary disturbances in transmission that only able to be detected by sensitive electronic equipment

**DISCOUNT**—The amount by which a future or option is priced below its existing market value

**DISPLACEMENT**—The substitution of less expensive energy generation for more expensive generation. Usually this means reducing or shutting down production at a high cost plant and using cheaper generation when it is available

**DISTRIBUTION**—The system of lines, transformers and switches that connect between the transmission network and customer load. The transport of electricity to ultimate use points such as homes and businesses (relatively low voltages)

**ECONOMY ENERGY**—Energy sold on a non-firm basis and subject to recall at the discretion of the selling party

**EFP**—Exchange of futures for physical, refers to the exchange of a futures position for a physical (swap) position

**ELECTRO-MAGNETIC FIELDS (EMF)**—Invisible force fields that surround the movement of electricity

**EMBEDDED COST**—The historical cost of all facilities in the power supply system

**ENABLING AGREEMENT**—An agreement that provides the general terms and conditions for the purchase, sale, or exchange of electricity but does not list specific contract details or obligate either party to perform.

**ENERGY CHARGE**—That portion of the charge for electricity based upon the electric energy (kWh) consumed or billed. The commodity charge

**EXERCISE**—The procedure by which an option holder takes up the rights to the contract and is delivered a long (call) or short (put) futures position by the grantor at a fixed price

**EXIT FEE**—A fee that is paid by a customer leaving a utility network intended to compensate the utility in whole or part for the loss of fixed cost contribution from the exiting customer

**EXPIRY (OPTIONS)**—The date by which an option holder must decide whether to exercise or abandon an option

**FIRM ENERGY**—Energy sales which, although not subject to interruption for economic purposes, may be interrupted under force majeure conditions

**FIRM GAS**—Gas sold on a continuous basis for a defined contract term

**FIRM POWER**—Electricity capacity intended to be available at all times during the period covered by a guaranteed commitment to deliver, even under adverse conditions, but subject to force majeure interruptions. Firm power consists of either firm energy, firm capacity, or both

**FIXED CHARGE**—The charge calculated to recover all or a portion of the fixed costs of a utility, including generation facility and transmission lines, meters, and some taxes

**FIXED COST**—Cost of facilities incurred regardless of the amount of energy produced. Such costs normally include capital costs, the cost of financing construction, and insurance

**FLUE GAS DESULFURIZATION UNIT (SCRUBBER)**—Equipment used to remove sulfur oxides from the combustion gases of a boiler plant before discharge to the atmosphere. Chemicals like lime are used

**FORCE MAJEURE**—A contractual provision which contemplates forgiveness of an obligation to perform due to uncontrollable events such as acts of God, war or forces of the elements that are out of the control of the parties

**FORCED OUTAGE RATE**—The rate of shutdown of a generating unit, transmission line, or other facility for emergency reasons or a condition in which the generating equipment is unavailable for load because of unanticipated breakdown

**FUEL CELL**—A device that generates direct current to electricity by means of an electrochemical process

**FUEL SWITCHING**—Substituting one fuel for another based on price and availability. Large industries often have the capability of using either oil or natural gas to fuel their operation and of making the switch on short notice

**FULL-FORCED OUTAGE**—The net capability of main generating units that is unavailable for load for emergency reasons

**FUTURES CONTRACT**—An agreement to make or take delivery of a commodity at a fixed date or strip of dates in the future, at a price agreed upon at the time of dealing

**GENERATION**—The process of producing electricity by transforming other forms of energy such as steam, heat or falling water. Also, the amount of electricity produced, expressed in kilowatt-hours (kWh) or megawatt-hours (MWh)

**GEOHERMAL**—Power generated from heat energy derived from hot rock, hot water, or steam below the earth's surface

**GIGAWATT**—One billion watts

**GIGAWATT HOUR (GWh)**—One billion watt-hours

**GRID**—The layout of an electrical transmission system or a synchronized transmission network

**GTMA**—Grid Trade Master Agreement agreed for the UK electricity market in 2000. Replaced the pool-based EFA power market in the UK in March 2001

**GROSSKROTZENBURG**—A switchyard just south of Frankfurt-am-Main. As the single connection point between grids operated by RWE, PreussenElektra and Bayernwerk (now E.ON), this long-forgotten delivery point formed the basis of the current German electricity market before successive Association Agreements simplified transmission charges between grids. Understood to be the single German delivery point for power trading between April 1999 and February 2000

**HEDGE**—The reduction of risk by covering anticipated commitments at a fixed price in the future through a futures or options contract. Buyers and sellers can hedge

**HYDROELECTRIC PLANT**—A plant in which the turbine generators are driven by falling water

**IMPEDENCE**—The opposition in an electrical circuit to the flow of alternating current (AC)

**IN-LIEU ENERGY**—Energy exchanged between a reservoir owner and the owner of a downstream project. The agreement allows reservoir owners to retain water above a reservoir's energy content curve; however, owners of downstream projects may request release of such water

**INDEPENDENT POWER PRODUCER (IPP)**—A non-utility power generator that typically sells the power it generates to electricity utilities at wholesale prices

**INTERCONNECTION**—Facilities that connect two electricity or gas grids or control areas

**INTERMEDIATE LOAD**—The range from base load to a point between base load and peak. This point may be the midpoint, a percent of the peakload, or the load over a specified time period

**INTERRUPTIBLE DEMAND**—The amount of customer demand that, in accordance with contractual arrangements, can be interrupted by direct control of the system operator, remote tripping, or by action of the customer at the direct request of the system operator

**INTERRUPTIBLE GAS**—Gas sold to customers with a provision that permits curtailment or cessation of service at the discretion of the supplier or transporter

**IN-THE-MONEY**—An option which has intrinsic value. A put option is in-the-money when its strike price is above the value of the underlying futures contract. A call option is in-the-money when its strike price is below the value of the underlying futures contract

**INITIAL MARGIN**—The returnable collateral required to establish an options position

**INTRINSIC VALUE**—The value to an option holder if (s)he were to exercise an option today

**JOULES**—A measure of energy equal to 1 watt second

**KILOWATT (kW)**—A unit of electricity equal to one thousand watts

**KILOWATT-HOUR (kWh)**—A unit of electricity equivalent to one kilowatt of power used for one hour. One kilowatt-hour is equal to 1,000 watt-hours. An average household will use between 800-1300 kWh/month

**KILOWATT YEAR (kW-y)**—A unit of electrical capacity equivalent to one kilowatt of power used for 8760 hours

**LAMBDA**—The measure of the rate at which fuel is consumed relative to electric output, expressed in Btu's per kWh

**LAUFENBURG**—An electricity delivery hub in Switzerland, divided between Laufenburg National and Laufenburg International (see Platts Guide to Specifications above)

**LIGNITE**—A brownish-black coal of low rank with high inherent moisture and volatile matter (used almost exclusively for electric power generation). It is also referred to as brown coal

**LOAD**—The amount of electricity delivered or required at any specific point or points on a system. The load of an electricity system is affected by many factors and changes on a daily, seasonal, and annual basis, typically following a pattern. System load is usually measured in megawatts (MW)

**LOAD CURVE**—A curve of power versus time showing the level of a load for each time period covered. The horizontal axis is time and the vertical axis is load (MW)

**LOAD FACTOR**—The ratio of average load to peak load during a specific period of time, expressed as a percent. The load factor indicates to what degree energy has been consumed compared to maximum demand or the use of units relative to total system capability. An system's load factor shows the variability in all customers' demands

**LOAD MANAGEMENT**—The management of load patterns in order to better use the system. Generally, load management attempts to shift load from peak use periods to other periods of the day or year

**LOAD SHAPE**—Variations in the power load over a daily, weekly or annual period

**LONG**—When the holder of futures positions has contract to buy more than (s)he has contracted to sell

**LONG-RUN MARGINAL COSTS**—All costs associated with the lowest cost incremental unit including variable production costs and capital costs

**LOOP FLOW**—The tendency of electricity to flow along the path of least resistance, which may not necessarily be the same as that intended in the contract between the two transmitting entities. If power sold along a contractual path goes a different physical path, the power-flow may interfere with control of the systems which were unaware of the contractual power transfer

**LOSS OF LOAD PROBABILITY (LOLP)**—A measure of expectation that system demand will exceed capacity during a given period, often expressed as the expected number of days per year

**MARGINAL COST PRICING**—A system of pricing designed to ignore all costs except those associated with producing the next increment of power generation. Sometimes referred to as incremental cost pricing

**MARGINAL PRICE OF ENERGY**—Price for power from a unit which is already running. (System Lambda + markup)

**MARK-TO-MARKET**—To revalue futures/option positions using current market prices to determine profit/loss. The profit/loss can then be paid/collected daily (see variation margin)

**MEGAWATT (MW)**—A unit of electrical power equal to one million watts or one thousand kilowatts

**MEGAWATT-HOUR (MWh)**—One million watt-hours of electricity. A unit of electrical energy which equals one megawatt of power used for one hour

**MMBtu**—One million British thermal units

**MMcf**—One million cubic feet of natural gas.

**MOTHBALL**—To place a generating facility in an inactive state so that it can neither be brought into operation immediately nor counted towards reserve margin

**MUNICIPAL UTILITY**—A utility owned and operated by a municipality or group of municipalities

**NAMEPLATE CAPACITY**—The full-load continuous rating of a generator or other electric power production equipment under specific conditions as designated by the manufacturer. Installed generator nameplate rating is usually indicated on a nameplate physically attached to the generator

**NATURAL GAS**—A naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in porous geological formations beneath the earth's surface, often in association with crude. The principal constituent is methane

**NET CAPABILITY**—The maximum load-carrying ability of a power plant under specified conditions for a given time interval. Capability is determined by design characteristics, physical conditions, energy supply and operating limitations such as cooling and circulating water supply and temperature, headwater and tailwater elevations, and electrical use

**NET GENERATION**—Gross generation less the electric energy consumed at the generating station for station use.

**NETWORK**—An interconnected system of electrical transmission lines, transformers, switches and other equipment connected together in such a way as to provide reliable transmission of electricity

**NORTHERN ZONE**—Between February 1, 2000 and July 1, 2000 Germany's electricity grids were divided into northern and southern zones, for trading purposes. Northern Zone, as defined in Verbandvereinbarung II (the Second Association Agreement on grid access), was comprised by 380 kV grids run by PreussenElektra (later part of E.ON), Veag, HEW, Bewag and VEW). The Southern Zone comprised the 380 kV grids run by Bayernwerk (later part of E.ON), EnBW and RWE.

**NUCLEAR FUEL**—Fissionable materials that have been enriched to such a composition that, when placed in a nuclear reactor, will support a self-sustaining fission chain reaction, producing heat in a controlled manner for process use

**NUCLEAR POWER PLANT**—A facility in which heat produced in a reactor by the fissioning of nuclear fuel is used to drive a steam turbine

**NUCLEAR REACTOR**—A device in which a fission chain reaction can be initiated, maintained and controlled. Nuclear reactors are used in the power industry to produce steam for electricity

**OFFER**—An indication of willingness to sell a specified amount of a commodity at a specific price

**OFF-PEAK**—Light load hours. The time of the day when an power system would experience its lightest load, usually in the middle of the night

**OHM**—The unit of measurement of electrical resistance. The resistance of a circuit in which a potential difference of 1 volt produces a current of 1 ampere

**OPEN INTEREST**—The number of contracts left open in a market which need to be closed out or taken through to delivery

**OPEN OUTCRY**—A trading system in which members trade verbally on a trading floor

**OPERATING RESERVE MARGIN**—The amount of unused available capability that can be applied to the system within ten minutes at peakload for a utility system, expressed as a percentage of total capability

**OUT-THE-MONEY** – An option which has no intrinsic value. A put option is out-of-the-money when its strike price is below the value of the underlying futures contract. A call option is out-of-the money when its strike price is above that of an the underlying futures contract

**PEAK DEMAND**—The maximum load during a specified period of time

**PEAK LOAD**—The maximum electrical load demand in a stated period of time. On a daily basis, peak loads occur at midmorning and/or in the early evening

**PEAK LOAD PLANT**—A plant usually housing low-efficiency, quick response steam units, gas turbines, diesels, or pumped-storage hydroelectric equipment normally used during the maximum load periods. Characterized by quick start times and generally high operating costs, but low capital costs

**PEAKING CAPACITY**—Capacity of generating equipment normally reserved for operation during the hours of highest daily, weekly, or seasonal loads.

**PEP INDEX**—Platts demand-weighted index of all European electricity assessments

**PHYSICAL DELIVERY**—The transfer of ownership of an underlying commodity between a buyer and seller to settle a futures contract following expiry

**POSTAGE STAMP RATE**—A rate for electric transmission that does not vary according to distance from the source of the power supply. So-called because postage stamps for letters are typically at a fixed price, regardless of destination, within the same country.

**PREMIUM**—The price paid by the option holder to the option grantor

**PRICE CAP**—A method of setting a utility distribution company's rates where a maximum allowable price level is established by regulators, flexibility in individual pricing is allowed, and where efficiency gains can be encouraged and captured by the company

**PRIME MOVER**—The engine, turbine, water wheel or similar machine that drives an electric generator; or, for reporting purposes, a device that converts energy to electricity

**PUMPED-STORAGE HYDROELECTRIC PLANT**—A plant that generates electricity by using water pumped during off-peak periods into an elevated storage reservoir. At peak periods, when additional generating capacity is needed, the water is released from the elevated storage reservoir to turbine generators in a power plant at a lower elevation. A hydroelectric power plant that uses both pumped water and natural stream flow to produce electricity is a Combined Pumped-Storage Hydroelectric Plant

**PUT OPTION**—An option that gives the holder the right (but not the obligation) to sell a specified quantity of the underlying instrument at a fixed price, on or before a specified date. The grantor of the option has the obligation to take delivery of the underlying instrument if the option is exercised

**RALLY**—A rapid rise in a price

**RENEWABLE SOURCE**—A power source that is continuously or cyclically renewed by nature like solar, wind, hydroelectric, geothermal or biomass

**RESERVE CAPACITY**—Extra generating capacity available to meet unanticipated demands for power or to generate power in the event of loss of generation

**RESERVOIR**—A structure which stores water for later use in the production of electricity

**ROLL OVER**—The transfer of a position from one futures period to another—involving the purchase (sale) of the nearby month and simultaneous sale (purchase) of a further-forward month

**RUN-OF-RIVER PLANT**—A hydroelectric plant which depends chiefly on the flow of a stream as it occurs for generation, as opposed to a storage project, which has space available to store water from one season to another. Some run-of-river projects have a limited storage capacity (pondage) which permits them to regulate streamflow on a daily or weekly basis

**SCHEDULE 5**— A clause inserted in some UK power contracts in the early days of Neta. Under schedule 5 balancing and transmission loss costs are settled separately from the contract price

**SETTLEMENT PRICE**—A price established at the close of a trading day used to calculate the settlement of futures contracts

**SHORT**—When the holder of a futures position has contracted to sell more than (s)he has contracted to buy

**SOLAR GENERATION**—The use of radiation from the sun to substitute for electricity or natural gas heating

**SOUTHERN ZONE**—Between February 1, 2000 and July 1, 2000 Germany's electricity grids were divided into northern and southern zones, for trading purposes. Northern Zone, as defined in Verbandvereinbarung II (the Second Association Agreement on grid access), was comprised by 380 kV grids run by

PreussenElektra (later part of E.ON), Veag, HEW, Bewag and VEW). The Southern Zone comprised the 380 kV grids run by Bayernwerk (later part of E.ON), EnBW and RWE.

**SPILL**—Release of water from a reservoir over a spillway rather than putting it through turbines to generate electricity. A spillway is the overflow structure of a dam

**SPINNING RESERVE**—Unused capacity available from units connected to and synchronized with the grid to serve additional demand. The spinning reserve must be under automatic control to instantly respond to system requirements

**SPOT MARKET**—A market where goods are traded through rapid negotiation. Opposite of long-term contracting.

**SPREAD**—The differential between two futures periods, or the difference between bids and offers for a specific period

**SPREAD (OPTIONS)**—An option trade in which two or more open positions are established in order to trade the differentials and offset risk. Option spreads may use different strike prices and/or expiry dates

**STEAM GENERATION PLANT**—A thermal electricity generating plant which creates steam to drive a turbine

**STRANDED INVESTMENT/STRANDED COSTS**—An investment with a cost recovery schedule that was initially approved by regulatory action that subsequent regulatory action or market forces has rendered not practically recoverable. Costs that utilities are currently permitted to recover through their rates but whose recovery may be impeded or prevented by the advent of competition in the industry

**STRIKE PRICE**—The price at which an option holder has the right to buy or sell an underlying commodity/derivative

**SUBSTATION**—Facility equipment that switches, changes, or regulates electric voltage. An electric power station which serves as a control and transfer of power flow, transform voltage levels, and serve as delivery points to industrial customers

**SUPERCONDUCTOR**—A material that becomes a perfect conductor of electricity when chilled to cold temperatures. Developments beginning in 1986 have raised the threshold temperature to levels which, in the near future, may provide wires capable of conducting large electric currents without line loss. Almost all substances have some resistance to electrical currents and this causes the loss of some of the electrical power generated. Only a superconducting wire could prevent such line losses because a current that is started in a superconductor can flow forever

**SUPERCONDUCTIVITY**—The flow of electric current without resistance in certain metals and alloys at temperatures near

absolute zero. Perpetual motion on an atomic scale; the conduction of electricity without the slightest power loss; perfect conductivity

**SURPLUS ENERGY**—Energy generating capability that is beyond the immediate needs of the producing system. This energy may be sold on an interruptible basis or as firm power

**SWITCHING STATION/SWICH YARD**—Facility used to tie together two or more electric circuits through switches. The switches are selectively arranged to permit a circuit to be disconnected, or to change the electric connection between the circuits

**SYSTEM LAMBDA**—The marginal, variable production cost of electricity at a given level of system output

**SYSTEM OPERATOR**—A person or entity who operates the electric system

**TARIFF**—Rates an regulated entity will charge to provide service to its customers as well as the terms and conditions that it will follow in providing service

**TERAWATT HOURS (TWh)**—Thousand Gigawatt hours

**THERMAL GENERATION**—The production of electricity from plants that convert heat energy into electrical energy. The heat in thermal plants can be produced from a number of sources such as coal, oil, gas or nuclear fuel

**TIERED RATES**—A rate design which divides customer use into different tiers, or blocks, with different prices charged for each

**TIME VALUE**—The time component in a premium for an option art. Typically the time value of an option declines as it moves closer to expiry

**TOLLING ARRANGEMENT**—An arrangement whereby a party moves fuel to a power generator and receives kilowatt hours (kWh) in return for a pre-established fee

**TOLLING FEE**—A fee paid for use of electric generation assets used to convert fuel to power

**TRANSFORMER**—An electrical device for changing the voltage of alternating current

**TRANSMISSION**—The network of high voltage lines, transformers and switches used to move electricity from generators to the distribution system. Also used to interconnect different utility systems and independent power producers together into a synchronized network. Transmission is considered to end when the energy is transformed for distribution to the consumer

**TRANSMISSION LOSS**—The power lost in transmission between one point and another. It is measured as the difference between

the net power passing the first point and the net power passing the second point

**TRANSMISSION VOLTAGE**—Voltage levels utilized for bulk transmission systems: generally 69 KV-750 KV AC or DC

**TURBINE**—The part of a generating unit usually consisting of a series of curved vanes or blades on a central spindle, which is spun by the force of water, steam or hot gas to drive an electricity generator

**TWO-PART RATE**—A charge for electricity consisting of a demand (kW) component and an energy or commodity (kWh) component

**UNCOVERED POSITION (FUTURES)**—Where a long market player has bought more of a commodity than he has agreed to sell, or where a short market player has sold more of a commodity than (s)he has to deliver

**UNCOVERED POSITION (OPTIONS)**—When the grantor of an options position has no cover in the underlying futures market against a price swing in the holder's favour (see delta hedging)

**VAR**—Voltage-Ampere-Reactive. A measure of reactive power

**VARIABLE COSTS**—The total costs incurred to produce energy, excluding fixed costs which are incurred regardless of whether the resource is operating. Variable costs usually include fuel, increased maintenance and additional labor

**VARIATION MARGIN**—Profits and losses on open positions which are calculated daily by the mark-to-market process, which are then paid or collected daily

**VOLATILITY (HISTORICAL VOLATILITY)**—The degree to which a particular price has fluctuated in the past

**VOLATILITY (OPTIONS)**—A value attributed to an underlying futures contract which determines the premium that is set by the grantor. Includes an element of historical volatility, and the volatility which the grantor of an option believes will still be seen in that futures contract

**VOLT**—The unit of measurement of electromotive force. It is equivalent to the force required to produce a current of one ampere through a resistance of one ohm. The unit of measure for electrical potential. Generally measured in kilovolts or kV. Typical transmission level voltages are 115 kV, 230 kV and 500 kV

**VOLTAGE CONTROL**—The control of transmission voltage adjustments in generator reactive output and transformer taps, and by switching capacitors and inductors on the transmission and distribution systems

**VOLTAGE REDUCTION**—Any intentional reduction of system voltage by 3 percent or greater for reasons of

maintaining the continuity of service of the bulk electric power supply system

**WATT**—A measure of real power production or usage equal to one Joule per second. The rate of energy transfer equivalent to 1 ampere flowing under a pressure of 1 volt

**WATT HOUR (Wh)**—An electrical energy unit of measure equal to 1 watt of power supplied to, or taken from, an electricity circuit steadily for 1 hour

**WHEELING**—The use of the transmission facilities of one system to transmit power for another system. Wheeling can apply to either wholesale or retail service

**WHEELING SERVICE**—The movement of electricity from one system to another over transmission facilities of intervening systems. Wheeling service contracts can be established between two or more systems

**WHOLESALE WHEELING**—The transmission of electricity from a wholesale supplier to another wholesale supplier by a third party