

Introduction to download of market data

Updating of market data

Twice a week our webpage is updated with the latest approved data. When updating our homepage we update three months back in time to make sure that all changes made in connection with corrected settlements are included.

Our webpage allows you to choose between the EURO and the DKK currency code. All units shown remain the same regardless of your choice of currency code, however, the prices shown per MW or MWh are quoted in EUR or DKK respectively. Some of the underlying data are available in EUR and others in DKK only; this may cause minor deviations when converting the currencies. The exchange rates published by The National Bank of Denmark are used when converting our spot prices.

When changing from winter time to summer time at the end of March one night consists of only 23 hours because the third hour is left out. However, this page will still have 24 hours leaving the third hour blank. When changing from summer time to winter time at the end of October one night consists of 25 hours because the third hour is repeated. On this page the third hour will only appear once and data will be either an average (MW or price) or it may be a sum (MWh) of the two hours.

The Danish electricity grid in general

Denmark has two separate electricity systems: Western Denmark (Jutland and Funen) and Eastern Denmark (Sealand).

Market couplings are made between the Danish electricity systems and on one side our Nordic neighbour countries and on the other side the German electricity system. The energy then flows between the areas. The interconnections are called Kontiskan (DK-West to Sweden), Skagerrak (DK-West to Norway), DK-West to Germany, Oresund (DK-East to Sweden) and Kontek (DK-East to Germany).

Energinet.dk is the Danish transmission system operator (TSO) and is therefore responsible for security of supply in Denmark. Also our neighbour countries have one transmission system operator each; Statnett (SN) is the TSO in Norway, Svenska Kraftnet (SvK) in Sweden, E.ON Netz (ENE) in North-western Germany and Vattenfall Europe Transmission (VET) in Eastern Germany.

Market players dealing physically in the electricity markets are called balance responsible parties.

Contact information

For further information regarding download of market data please send an email to: markedsdata@energinet.dk.

Explanation to down load of market data

Elspot price¹

In Nord Pool Spot market players can buy and sell electricity for delivery the following day in their own area - Norway, Sweden, Finland, Denmark or Germany. The day-ahead prices indicate the balance between supply and demand.

The system price: The system price is the unlimited balancing price at the Nordic electricity market irrespective of capacity congestions in the individual interconnections between the areas. The system price therefore serves as a reference price to which the area prices can be compared.

The area prices: Congestions may occur due to limited transmission capacity between the areas. In case of congestions Nord Pool Spot attempts to transfer as much current as possible from surplus areas to deficit areas, however, congestions will cause differences in the area prices. Ie the prices in areas of surplus will be lower than the prices in areas of deficit. Transmission capacity is implicitly included in the price area formation as day-ahead capacities are published at Nord Pool Spot every day before 10:00.

Time series	Definition
DK-West	Spot prices in Western Denmark
DK-East	Spot prices in Eastern Denmark
Norway	Spot prices in Norway
Sweden (SE)	Spot prices in Sweden (SE) (ceased on 31 October 2011)
Sweden (SE3)	Spot prices in Sweden (SE3)
Sweden (SE4)	Spot prices in Sweden (SE4)
Kontek	Spot prices in North-eastern Germany (ceased on 9 November 2009)
System	System price for the Nordic countries
European Power Exchange (EPEX)	Spot price in North-western Germany
Price difference DK-West and EPEX	Price difference between Western Denmark and North-eastern Germany

Capacity on transmission lines²

The TSOs decide how much capacity is to be transferred, and the capacity for the coming day is published at Nord Pool Spot every day before 10:00.

Time series	Definition
DK-West to Norway	Export capacity from Western Denmark to Norway in MWh per hour
Norway to DK-West	Import capacity from Norway to Western Denmark in MWh per hour
DK-West to Sweden	Export capacity from Western Denmark to Sweden in MWh per hour
Sweden to DK-West	Import capacity from Sweden to Western Denmark in MWh per hour
DK-West to Germany	Export capacity from Western Denmark to Germany in MWh per hour
Germany to DK-West	Import capacity from Germany to Western Denmark in MWh per hour
DK-West to the Nordic countries	Export capacity from Western Denmark to the Nordic countries in MWh per hour
The Nordic countries to DK-West	Import capacity from the nordic countries to Western Denmark in MWh per hour
DK-East to Sweden	Export capacity from Eastern Denmark to Sweden in MWh per hour

¹ http://www.nordpoolspot.com/Documents/Product%20Sheets/6689-01%20NP_prisberegning.pdf

² <http://www.nordpoolspot.com/reports/capacities/>

Sweden to DK-East	Import capacity from Sweden to Eastern Denmark in MWh per hour
DK-East to Germany	Export capacity from Eastern Denmark to Germany in MWh per hour
Germany to DK-East	Import capacity from Germany to Eastern Denmark in MWh per hour

Scheduled trade (incl. Intraday) on transmission lines³

Scheduled trade on the transmission lines is the flow of electricity from areas of surplus to areas of deficit resulting from the Nord Pool Spots price calculation. Please note that it is the scheduled trade not the physical exchange. Negative values indicate export of electricity out of Denmark and positive values indicate import to Denmark.

CBO (Cross Border Optimization) is a special service provided by Nord Pool to ensure that exchange of electricity across the border between Jutland and Germany remains similar to the price areas in Western Denmark and Kontek respectively. Market players may leave the administration of the transmission capacity bought to Nord Pool who ensures that the electricity flows from low-price areas to high-price areas. The CBO exists only between Western Denmark and the Kontek price area.⁴

Time series	Definition
DK-West and Norway:	Scheduled exchange of electricity between Western Denmark and Norway in MWh per hour
DK-West and Sweden:	Scheduled exchange of electricity between Western Denmark and Sweden in MWh per hour
DK-West and Germany:	Scheduled exchange of electricity between Western Denmark and Germany in MWh per hour
DK-West and the Nordic countries:	Scheduled exchange of electricity between Western Denmark to the Nordic countries (Norway + Sweden) in MWh per hour
DK-East and Sweden:	Scheduled exchange of electricity between Eastern Denmark and Sweden in MWh per hour
DK-East and Germany:	Scheduled exchange of electricity between Eastern Denmark and Germany in MWh per hour
Spot-exchange (Nord Pool CBO) DK-West and Germany:	Scheduled exchange of electricity between Western Denmark and Germany (Kontek price area) in MWh pr. time (ceased on 9 November 2009)

Physical exchange on transmission lines

Exchange made physically on the transmission lines

Time series	Definition
DK-West and Norway:	Physical exchange between Western Denmark and Norway in MWh per hour
DK-West and Sweden:	Physical exchange between Western Denmark and Sweden in MWh per hour
DK-West and Germany:	Physical exchange between Western Denmark and Germany in MWh per hour (including the flow between Denmark and Flensburg)
DK-East and Sweden:	Physical exchange between Eastern Denmark and Sweden in MWh per hour
DK-East and Germany:	Physical exchange between Eastern Denmark and Germany in MWh per hour

³ <http://www.nordpoolspot.com/reports/flow/>

⁴ http://www.nordpoolspot.com/Documents/Product%20Sheets/CBO_English.pdf

Great Belt (transmission line)

Exchange made physically on the transmission lines

Time series	Definition
Capacity DK-West to DK-East:	Capacity from Western Denmark to Eastern Denmark in MWh per hour
Capacity DK-East and DK-West:	Capacity from Eastern Denmark to Western Denmark in MWh per hour
Scheduled trade DK-West to DK-East:	Scheduled trade from Western Denmark to Eastern Denmark in MWh per hour
Scheduled trade DK-East to DK-West:	Scheduled trade from Eastern Denmark to Western Denmark in MWh per hour
Physical exchange DK-West to DK-East:	Physical exchange from Western Denmark to Eastern Denmark in MWh per hour
Physical exchange DK-East to DK-West:	Physical exchange from Eastern Denmark to Western Denmark in MWh per hour

Nord Pool turnover

Nord Pool turnover (purchase and sale respectively) is calculated as a sum of the scheduled transactions between Nord Pool and the individual market players.

Nord Pool Purchase DK-West:	Total amount purchased at Pool Spot from West Danish market players in MWh per hour
Nord Pool Sale DK-West:	Total amount sold by Nord Pool Spot to West Danish market players in MWh per hour
Nord Pool Purchase DK-East:	Total amount purchased at Nord Pool Spot and Eastern Danish market players in MWh per hour
Nord Pool Sale DK-East:	Total amount sold by Nord Pool to Eastern Danish market players in MWh per hour

Production and consumption

Production from central power stations (eg Skærbækværket, Studstrupværket and Herningværket), local CHPs (eg small district power stations, market gardens, etc), wind power production - including production from offshore wind turbines respectively - and total consumption of electricity in Eastern and Western Denmark respectively.

Time series	Definition
DK-West Primary production:	Sum of production from central power stations in Western Denmark
DK-West Local production:	Sum of production from local CHPs in Western Denmark
DK-West Wind Power production	Sum of wind power production in Western Denmark
DK-West Gross consumption:	Sum of the West Danish consumption incl. transmission loss
DK-West Net consumption:	Sum of the West Danish consumption excl. transmission loss
DK-East Primary production:	Sum of production from central power stations in Eastern Denmark
DK-East Local production:	Sum of production from local CHPs in Eastern Denmark
DK-East Wind Power production:	Sum of wind power production in Eastern Denmark
DK-East Gross consumption:	Sum of the East Danish consumption incl. transmission loss
DK-East Net consumption:	Sum of the East Danish consumption excl. transmission loss

Real-time Market

A lot of elements can cause imbalance in the electricity system, eg errors in forecasts of wind or consumption, and outage in transmission grids or power stations, etc. Maintaining balance between consumption and production in the electricity system and fulfilling contracts with eg Sweden or Norway may require an up or down regulation of production and consumption in the Danish electricity system (east or west). For this purpose a so-called regulating power market is established as a common market for the Nordic countries. The principle of the regulating power market is the market players forwarding their bids on how much capacity they can offer for up or down regulations and which prices they require. Regulating power bids are graded according to price. If it proves necessary to up regulate, the lowest price bid is chosen as the TSO *buys* the capacity offered by the market players. Conversely, if it proves necessary to down regulate, the highest price bid is chosen as the TSO *sells* the capacity which the market players wish to buy at the specific price.⁵

Nord Pool Elbas⁶ is the Nordic trading centre for trading electricity up to one hour before delivery hour. At the Elspot market it may take up to 36 hours from a contract has changed hands until the actual delivery hour. During this time the consumption and production situation may easily have changed. Elbas makes it therefore easier for the market players to reach balance through trading. Elbas has existed in Eastern Denmark since 2006, whereas Western Denmark did not join the Elbas until April 2007.⁷

Time series	Definition
DK-West System imbalance - surplus of power:	Surplus of power at the Western Danish system (need for down regulation) in MWh per hour
DK-West System imbalance - deficit of power:	Deficit of power at the Western Danish system (need for up regulation) in MWh per hour
DK-West Regulating power - downward regulation:	The actual amount down-regulated in Western Denmark in MWh per hour
DK-West Regulating power - upward regulation:	The actual amount up-regulated in Western Denmark in MWh per hour
DK-West Price for balancing power - down regulation:	The price for down-regulation in Western Denmark per MWh
DK-West Price for balancing power - up regulation:	The price for up-regulation in Western Denmark per MWh
DK-West Price for balancing power for consumption:	Price for imbalancing power for consumption in Western Denmark per MWh
DK-West Elbas - average price:	Average Elbas price per MWh for Western Denmark per MWh
DK-West Elbas - Maximum price:	Maximum Elbas price per MWh for Western Denmark per MWh
DK-West Elbas - Minimum price:	Minimum Elbas price per MWh for Western Denmark per MWh
DK-East System imbalance - surplus of power:	Surplus of power at the East Danish system (need for down-regulation) in MWh per hour
DK-East System imbalance - deficit of power:	Deficit of power at the East Danish system (need for up-regulation) in MWh per hour
DK-East Price for balancing power - down regulation:	Price for down-regulation in Eastern Denmark per MWh

⁵ Markedsforskrifter for Øst og Vest:

<http://www.energinet.dk/da/servicemenu/Bibliotek/Regler+og+forskrifter/Markedsforskrifter+fælles+for+el+øst+og+el+vest/Fælles+markedsforskrifter+for+eløst+og+elvest.htm>

⁶ <http://www.nordpool.com/information/publications/Elspot/ElbasEng.pdf>

⁷ http://www.energinet.dk/NR/rdonlyres/469E2ED8-A1D9-459A-A9C4-1B1855FCF2D7/0/13091907_v2_IndførelseafElbasmarkediVestdanmarkpr11april20071DOC1.DOC

DK-East Price for balancing power - up regulation:	Price for up-regulation in Eastern Denmark per MWh
DK-East Price for balancing power for consumption:	Price for imbalancing power for consumption in Eastern Denmark per MWh
DK-East Elbas - Average price:	Average Elbas-price per MWh for Eastern Denmark per MWh
DK-East Elbas - Maximum price:	Maximum Elbas price per MWh for Eastern Denmark per MWh
DK-East Elbas - Minimum price:	Minimum Elbas price per MWh for Eastern Denmark per MWh

Daily auction of transmission capacity across the West Danish - German border⁸

The capacity across the West Danish - German border is administered by Energinet.dk and E.ON Netz. Market players can provide transmission capacity as the capacity available is offered at two different auctions: An annual auction and a monthly auction. One third of the available capacity is offered at the annual auction, one third at the monthly auction and the last third of available capacity is offered to Market Coupling.

The price of reserving capacity is based on the marginal principle ie. the lowest bid activated determines the price of all the capacity sold.

Time series	Definition
Price DK-West to Germany	Price of the capacity sold from Western Denmark to Germany per MW
Price Germany to DK-West	Price of the capacity from Germany to Western Denmark per MW
Capacity DK-West to Germany	Capacity available from Western Denmark to Germany in MW
Capacity Germany to DK-West	Capacity available from Germany to Western Denmark in MW
Sold DK-West to Germany	Capacity sold from Western Denmark to Germany in MW
Sold Germany to DK-West	Capacity sold from Germany to Western Denmark in MW
Unutilised capacity (spot flow) DK-West to Germany	Unutilised capacity from Western Denmark to Germany in MW
Unutilised capacity (spot flow) Germany to DK-West	Unutilised capacity from Germany to Western Denmark in MW
Capacity (CBO) DK-West to Germany	The sum of the capacity from Western Denmark to Germany supplied by the market players to Nord Pool Spot (ceased on 9 November 2009)
Capacity (CBO) Germany to DK-West	The sum of capacity from Germany to Western Denmark supplied by the market players to Nord Pool Spot (ceased on 9 November 2009)

Annual and monthly auctions of transmission capacity across the West Danish - German border

As described under daily auction

Time series	Definition
Capacity sold DK-West and Germany	Capacity sold from Western Denmark to Germany in MWh per hour - sum of annual and monthly reservation. Generally, within the month the amount will be fixed

⁸ Kilde: <http://www.eonnetz-eltra-auctions.org/>

	unless periods of constraints occur.
Capacity sold Germany and DK-West	Capacity sold from Germany to Western Denmark in MWh per hour - sum of annual and monthly reservation. Generally, within the month the amount will be fixed unless periods of constraints occur.
Unutilised capacity DK-West and Germany	Unutilised capacity from Western Denmark to Germany in MWh per hour - sum of annual and monthly reservations.
Unutilised capacity Germany and DK-West	Unutilised capacity from Germany to Western Denmark in MWh per hour - sum of annual and monthly reservations.

Total congestion income on international connections⁹

The international connections to Norway and Sweden are completely at the disposal of Nord Pool Spot and in return the TSOs receive the congestion rent. Congestion rent is calculated as the difference in spot prices between the two price areas multiplied by the estimated exchange between the two areas concerned. In NORDEL (Denmark, Norway, Sweden, Finland, Iceland) the congestion rent is distributed according to a scale agreed upon. With regard to the KONTEK interconnection the congestion rent is paid to Energinet.dk, Vattenfall Europe Transmission and Vattenfall AB (Vattenfall's trading company in Sweden) according to a scale agreed upon.

The interconnection between Western Denmark and Germany is at the disposal of the market at annual, monthly and daily auctions at which payment for utilisation of the interconnection - and thereby the congestion rent - is calculated on the basis of demand and supply. The congestion rent is equally divided between Energinet.dk and E.ON Netz.

Time series	Definition
DK-West and Norway	Total amount of congestion rent at the interconnection between Western Denmark and Norway in DKK (EUR) per hour
DK-West and Sweden	Total amount of congestion rent at the interconnection between Western Denmark and Sweden in DKK (EUR) per hour
DK-West and Germany: Annual auction	Total amount of congestion rent at the interconnection to Germany based on the annual auction of the transmission capacity in DKK (EUR) per hour
DK-West and Germany: Monthly auction	Total amount of congestion rent at the interconnection to Germany based on the monthly auction of the transmission capacity in DKK (EUR) per hour
DK-West and Germany	Total amount of congestion rent at the interconnection between Western Denmark and Germany in DKK (EUR) per hour
DK-West and Germany: Daily auction	Total amount of congestion rent at the interconnection to Germany based on the daily auction of transmission capacity in DKK (EUR) per hour
DK-West and DK-East	Total amount of congestion rent at the interconnection between Western Denmark and Eastern Denmark in DKK (EUR) per hour
DK-East and Sweden	Total amount of congestion rent at the interconnection between Eastern Denmark and Sweden in DKK (EUR) per hour
DK-East and Germany	Total amount of congestion rent at the interconnection between Eastern Denmark and Germany in DKK (EUR) per hour

⁹ <http://www.energinet.dk/NR/rdonlyres/B1422346-5892-43E1-8B68-3215C7358114/0/ForskriftBViik%C3%A5rforadgangtilelmarkedet.pdf>

Purchase of manual reserves - daily auction

Energinet.dk maintains the balance in the electricity system through the regulating power market, but in order to secure a minimum of supply of regulating power, manual regulating reserves are purchased. I.e. market players sell reserve capacity to Energinet.dk, and they are thereby obliged to be at disposal in case the necessity for up- or down-regulation should occur. All market players who have sold reserve capacity to Energinet.dk receive equal availability payments according to the marginal principle. Only the total amount of reserve capacity purchased is published, not the individual trades.

Time series	Definition
DK-West Availability compensation - upward regulation	Payment in DKK (EUR) per MWh to the market players at disposal in connection with upward regulation in Western Denmark
DK-West Availability compensation - downward regulation	Payment in DKK (EUR) per MWh to the market players at disposal in connection with downward regulation in Western Denmark
DK-West Total purchased - upward regulation	Total amount of manual upward regulating reserves purchased in Western Denmark in MW per hour
DK-West Total purchased - downward regulation	Total amount of manual downward regulating reserves purchased in Western Denmark in MW per hour
DK-East Availability compensation - upward regulation	Payment in DKK (EUR) per MWh to the market players at disposal in connection with upward regulation in Eastern Denmark
DK-East Availability compensation - downward regulation	Payment in DKK (EUR) per MWh to the market players at disposal in connection with downward regulation in Eastern Denmark
DK-East Total purchased - upward regulation	Total amount of manual upward regulating reserves purchased in Eastern Denmark in MW per hour
DK-East Total purchase - downward regulation	Total amount of manual downward regulating reserves purchased in Eastern Denmark in MW per hour

Purchase of frequency controlled reserves - daily auction

Energinet.dk purchases rapidly reacting reserves in order to ensure that - in case of frequency deviation - the balance between production and consumption is re-established and the frequency thereby stabilizes close to 50 Hz.

The frequency controlled reserves are purchased by auction on daily basis in blocks of four hours. All market players who have sold frequency controlled reserves to Energinet.dk are paid the same standby payment cf. the marginal price principle. Only the purchased volume of reserves is published and not the trade with the individual market player.

Time series	Definition
DK-West Standby payment - primary upward regulation	Payment in DKK (EUR) per MWh to the market players offering primary upward regulation in Western Denmark
DK-West Standby payment - primary downward regulation	Payment in DKK (EUR) per MWh to the market players offering primary downward regulation in Western Denmark
DK-West Total purchased - primary upward regulation	Total purchased volume of primary upward regulation reserves in Western Denmark in MW per hour
DK-West Total purchased - primary down-	Total purchased volume of primary downward regu-

ward regulation	lation reserves in Western Denmark in MW per hour
DK-East Standby payment - FNR ^{*)} upward regulation	Payment in DKK (EUR) per MWh to the market players offering frequency controlled ordinary operating reserves for upward regulation in Eastern Denmark
DK-East Standby payment - FNR ^{*)} downward regulation	Payment in DKK (EUR) per MWh to the market players offering frequency controlled ordinary operating reserves for downward regulation in Eastern Denmark
DK-East Total purchased - FNR ^{*)} upward regulation	Total purchased volume of frequency controlled ordinary operating reserves for upward regulation in Eastern Denmark in MW per hour
DK-East Total purchased - FNR ^{*)} downward regulation	Total purchased volume of frequency controlled ordinary operating reserves for downward regulation in Eastern Denmark in MW per hour
DK-East Standby payment - FDR ^{**)} upward regulation	Payment in DKK (EUR) per MWh to market players offering frequency controlled disturbance reserves for upward regulation in Eastern Denmark
DK-East Standby payment - FDR ^{**)} downward regulation	No data available (not relevant)
DK-East Total purchased - FDR ^{**)} upward regulation	Total purchased volume of frequency controlled disturbance reserves for upward regulation in Eastern Denmark in MW per hour
DK-East Total purchased - FDR ^{**)} downward-regulation	No data available (not relevant)

^{*)} FNR: Frequency controlled ordinary operating reserve

^{**)} FDR: Frequency controlled disturbance reserve

Fixed residual consumption

The residual consumption is calculated hour by hour and consists of the total consumption of the individual grid area deducted the consumption of all remote meter reading customers.

Time seriesc	Definition
DK-West	Fixed residual consumption for Western Denmark in MWh per hour
DK-East	Fixed residual consumption for Eastern Denmark in MWh per hour

Secondary trade with capacity

Transmission capacity on the Western Danish - German border purchased by either the annual or the monthly auction can be resold in blocks of one calendar week's duration. However, at the turn of the month it is possible to sell part of a week.

Time series	Definition
DK-West and Germany	Secondary trade in capacity between Western Denmark and Germany in MW per hour (ceased on 31 December 2011)