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3 October 2012
EOR-JSS-ASJ-KAC/
BTV-IMA

Ancillary services to be delivered in Denmark Tender conditions

Valid from 3 October 2012

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0. Introduction

This document is divided into several sections, each describing the tender conditions applicable to a particular type of ancillary service. In addition to these specific conditions, the document includes a section on general commercial conditions as well as a section on the practical handling of the various services and their ranking and mutual dependencies.

Suppliers must enter into a main agreement with Energinet.dk concerning the supply of ancillary services. The main agreement sets out the framework within which transactions take place on an ongoing basis, simplifying the processes involved. Unless otherwise agreed, suppliers having entered into a main agreement are not obliged to submit bids for reserves to the daily auctions concerning reserves.

Main agreements are made only with balance responsible parties (BRPs) for production or consumption in Eastern or Western Denmark. Also, the plants which are to supply the ancillary services must be approved by Energinet.dk.

Requests for a main agreement should be sent to Energinet.dk, Market Development or System Operation Development. Requests for the approval of plants should be sent to System Operation Development.

1. Ancillary services

In any power system, a balance must be struck at all times between the generation and the consumption of electricity. Changes in consumption and disturbances at production facilities affect the system balance and cause grid frequency deviations. Energinet.dk buys ancillary services to ensure access at all times to such resources as are necessary to ensure the stable and reliable power system operation.

The ancillary services which are procured from power generators and electricity consumers in Denmark and in neighbouring countries are used for various purposes, and different requirements therefore apply to the supply of the various services. These requirements are regulated by ENTSO-E RG Continental Europe (formerly UCTE¹) Operation Handbook – Policy 1, Joint Nordic System Operation Agreement (formerly Nordel²) and by Energinet.dk's regulations for grid connection.

Requirements to be met by suppliers of ancillary services vary slightly depending on whether the services are to be supplied in Eastern Denmark, ie east of the Great Belt (called DK2) or in Western Denmark, ie west of the Great Belt (called DK1). These tender conditions are therefore divided into subsections describing conditions for DK1 and DK2, respectively.

The following ancillary services to be delivered in DK1 are covered by these tender conditions:

- Primary reserves
- Secondary reserves, LFC (Load Frequency Control)
- Manual reserves
- Short-circuit power, reactive reserves and voltage control.

The following ancillary services to be delivered in DK2 are covered by these tender conditions:

- Frequency-controlled disturbance reserve
- Frequency-controlled normal operation reserve
- Manual reserves
- Short-circuit power, reactive reserves and voltage control.

Bids are invited for all reserves as upward regulation reserves and downward regulation reserves, except frequency-controlled disturbance reserves in respect of which bids are invited for upward regulation reserves only.

¹ UCTE has now been replaced by ENTSO-E Regional Group Continental Europe.

² Nordel has now been replaced by ENTSO-E Regional Group Nordic.

1.1 Primary reserve, DK1

In the event of frequency deviations, the primary reserve regulation must ensure that the balance between production and consumption is restored, stabilising the frequency at close to, but deviating from 50 Hz.

Primary reserve regulation is automatic and provided by production or consumption units which, by means of control equipment, respond to grid frequency deviations.

Primary reserve consists of and is requested as an upward regulation reserve or a downward regulation reserve, as required.

The TSOs within ENTSO-E RG Continental Europe's synchronous area are jointly responsible for ensuring the availability of sufficient primary reserves. Each TSO is obliged to provide a share of the combined requirement for primary reserves of the ENTSO-E RG Continental Europe grid. The combined requirement in the ENTSO-E RG Continental Europe grid is +/- 3,000 MW, of which Energinet.dk is obliged to supply a proportionate share. The share to be supplied by Energinet.dk is determined by the generation taking place in Western Denmark relative to the entire ENTSO-E RG Continental Europe generation, and is determined once a year.

Energinet.dk buys primary reserves at daily auctions. The requirement is published on Energinet.dk's website. In 2011, the requirement is +/-27 MW.

The rules of ENTSO-E RG Continental Europe allow for the import/export of primary reserves, which means that suppliers outside DK1 can offer these reserves. These rules permit TSO-to-TSO exchanges and are limited to neighbouring TSOs or to TSOs within the same Control Block, ie Germany. A special agreement has to be made between the TSOs involved. Energinet.dk can enter into agreements with other TSOs in ENTSO-E RG Continental Europe for the delivery of max. +/-90 MW.

Similarly, it is possible to import/export several hundred MWs of reserves to and from Norway, Sweden and Finland as well as DK2 as long as interconnection capacity is sufficient. The maximum volumes are described in Nordic Grid Code 2007.

1.1.1 Technical conditions

1.1.1.1 Response and response time

The primary regulation must be supplied at a frequency deviation of up to +/-200 mHz relative to the reference frequency of 50 Hz. This will normally mean in the 49.8-50.2 Hz range. A deadband of +/-20 mHz is permitted.

The reserve must as a minimum be supplied linearly at frequency deviations of between 20 and 200 mHz. The first half of the activated reserve must be supplied within 15 seconds, while the last half must be supplied in full within 30 seconds at a frequency deviation of +/- 200 mHz.

It must be possible to maintain the regulation until the automatic and/or manual regulating reserve can take over, however maximally 15 minutes.

Following the end of the regulation, the reserve must be re-established after 15 minutes.

1.1.1.2 Accuracy of measurements

The accuracy of frequency measurements for primary regulation must be better than 10 mHz. The sensitivity of frequency measurements must be better than +/-10 mHz.

The resolution of the player's SCADA system must be better than 1 second, and selected signals must be able to document the facilities' response to frequency deviations. The supplier must store the signals for at least one week.

1.1.1.3 Information/data

Each individual production or consumption unit supplying primary regulation must be connected via information technology to Energinet.dk's Control Centre in Erritsø, Denmark.

For each individual production or consumption unit, the Control Centre must at least have online access to:

- Status of production or consumption unit in/out (circuit-breaker indication)
- Primary regulation
 - Regulation function disconnected or connected
 - Reserved primary reserve, upward regulation + [MW]
 - Reserved primary reserve, downward regulation - [MW]
- Measurement from the production or consumption unit
 - Net production or consumption at the point of connection (MW)

Requirements and place of delivery for reports and measurements must be agreed with Energinet.dk.

Costs incidental to IT connections and maintenance must be borne by the supplier.

1.1.1.4 Combined deliveries

A delivery can be made up of supplies from several production units with different properties which collectively can provide the required response within the required response time. A delivery can also be made up of supplies from several consumption units with different properties which collectively can provide the required response within the required response time. Any system for such combined deliveries must be verified to Energinet.dk.

1.1.2 Daily procurement of primary reserve

Energinet.dk buys two types of primary reserve, upward regulation power (in case of underfrequency) and downward regulation power (in case of overfrequency). An auction is held once a day for the coming day of operation. For the purpose of the auction, the 24-hour period is divided into six equally sized blocks of four hours each:

- Block 1: 00.00 - 04.00
- Block 2: 04.00 - 08.00
- Block 3: 08.00 - 12.00
- Block 4: 12.00 - 16.00
- Block 5: 16.00 - 20.00
- Block 6: 20.00 - 24.00

1.1.2.1 Bidding by player

Bids in connection with daily capacity auctions should be submitted to Energinet.dk via Ediel. Communication via Ediel is described in further detail in Annexe 1.

Bids must be submitted so that they are received by Energinet.dk by 15.00 on the day before the day of operation at the latest. Registration is based on Energinet.dk's automatic registration of time of receipt. Bids received after 15.00 are rejected unless otherwise notified by email to all participating bidders.

Players may amend bids already submitted up until 15.00. The bids received by Energinet.dk by 15.00 are binding on the bidder.

The bids must state an hour-by-hour volume and a price for the following day of operation. As volume is stated the number of MWs which the bidder is offering to make available, and it must be the same within each block. The price is the price per MW asked by the bidder to make the volume stated available. The price must be stated as a price per MW per hour and must be the same for the entire block. If a bid states different prices or volumes for the individual hourly periods of a block, the price and volume stated for the first hour of the block will apply.

Each bid must be entered for a minimum of 0.3 MW and must always be stated in MW to one decimal point and in DKK/MW or EUR/MW to two decimal points.

Please note that for practical reasons, the units used by Ediel are MWh and DKK/MWh rather than the correct MW and DKK/MW, see Annexe 1.

Bids are indicated in the same way for upward and downward regulation, with a distinction being made between upward and downward regulation by means of product codes, see Annexe 1. Both volume and price must thus always be indicated by a positive sign.

1.1.2.2 Energinet.dk's acceptance of bids

Energinet.dk sorts the bids for upward and downward regulation capacity according to price per MW and covers its requirements by selecting bids according to increasing price.

Bids are always accepted in their entirety or not at all. In situations where acceptance of a bid for more than 5 MW will lead to excess fulfilment of the requirement for reserves in the block in question, Energinet.dk can disregard such bids.

If two bids are priced the same, and Energinet.dk needs only one, Energinet.dk can freely choose which of the two bids to accept. The same applies if three or more bids are priced the same.

If the number of bids received is insufficient to cover Energinet.dk's requirements, Energinet.dk will send an email to all players asking them to submit more bids.

1.1.2.3 Pricing and payment

All bids for upward regulation accepted will receive an availability payment corresponding to the price of the highest bid for upward regulation accepted. The same applies with regard to downward regulation.

No calculation is made of energy volumes supplied from primary reserves. Supplies of energy from primary reserves are settled like ordinary imbalances.

1.1.2.4 Feedback to player

At 15.30, Energinet.dk informs the player of the bids which Energinet.dk has accepted and of the availability payment allocated on an hour-by-hour basis.

Energinet.dk does not send signals for the reserve to be activated during the day of operation. Activation of reserves is based on the supplier's own frequency measurements.

1.1.2.5 Obligations of player

For the availability payment to be effected, the capacity must in fact be available. This means that the availability payment is cancelled if it subsequently turns out that the capacity is not available, for example due to breakdowns, see sections 2.2 and 2.3.

In case of incidents which mean that a plant cannot supply primary reserve, the reserve must be re-established at one or more plants capable of supplying the reserve as soon as possible and within 30 minutes of the incident at the latest. If the supplier is unable to re-establish the reserve, Energinet.dk should be contacted within 15 minutes and informed where and when the reserve can be re-established.

1.1.2.6 Planning by player

The player's operational schedules prior to and during the day of operation must state the volumes of primary upward regulation power and primary downward regulation power which have been reserved on an hour-by-hour basis, see Regulation C3: Handling of notifications and schedules.

1.1.3 Checking the services

The services are checked on a test basis and in case of significant frequency deviations. Energinet.dk's checking takes the form of requesting documentation from the player's SCADA system of the plants' response to naturally occurring frequency deviations, see section 1.1.1.2.

1.2 Secondary reserve, DK1 (LFC)

In the event of major operational disturbances, the LFC is the reserve used to indirectly restore frequency to 50 Hz following the stabilisation of the frequency by means of primary regulation.

The secondary reserve serves two purposes. One is to release the primary reserve which has been activated, ie restore the frequency to 50.00 Hz. The other purpose is to restore any imbalances on the interconnections to follow the agreed plan.

Secondary reserve regulation is automatic and provided by production or consumption units which, by means of control equipment, respond to signals received from Energinet.dk.

The secondary reserve consists of upward and downward regulation reserves which are requested as a combined, symmetrical reserve. The upward regulation reserve can be provided by a number of production units or, alternatively, consumption units. Likewise, the downward regulation reserve can be provided by either production units or consumption units, but production and consumption must be kept separate within the same type of reserve, see section 1.2.1.3.

Energinet.dk buys the secondary reserve on a monthly basis. Requirements are published at Energinet.dk's website on the 10th day of the previous month at the latest.

ENTSO-E RG Continental Europe's recommendation is of a secondary reserve of approx. +/- 90 MW, but the individual TSOs (in DK1: Energinet.dk) can increase their reserves to levels far in excess of 90 MW. This reserve is thus not required to be of a certain size. Energinet.dk's requirements are determined on the basis of ENTSO-E RG Continental Europe's recommendations, especially taking account of the uncertainty of wind forecasting.

New rules are about to be introduced in ENTSO-E RG Continental Europe, and according to these it will be possible to purchase one third of the reserve outside DK1. Similarly, DK1 players can supply one third of the other TSOs' requirements for secondary reserves, subject to availability of transmission capacity. Such supplies are currently not covered by these tender conditions as the trade terms for such exchanges are not yet in place.

1.2.1 Technical conditions

1.2.1.1 Response and response time

Secondary reserve is primarily supplied by units in operation. It must be possible to supply the reserve requested within 15 minutes. Alternatively, the reserve can be supplied by a combination of units in operation and fast-start units. The reserve to be supplied within any coming five-minute period must be provided by units in operation.

It must be possible to maintain regulation continuously.

The regulation signal is sent online as an output value from Energinet.dk to each balance-responsible party for production (BRP for production) with reference to the bid. In those instances where both production and consumption are used, one output value for generation and another for consumption are sent.

1.2.1.2 Information/data

All production or consumption units supplying or contributing to the supply of LFC reserve must be connected via information technology to Energinet.dk's Control Centre in Erritsø, Denmark. For each individual production or consumption unit, the Control Centre must generally have online access to:

- Status reports, production or consumption unit in/out
- Online measurements of production and consumption (MW)

- Currently possible reserve up (MW)
- Current max gradient up (MW/min)
- Current time constant for upward regulation (sec.)

- Currently possible reserve down (MW)
- Current max gradient down (MW/min)
- Current time constant for downward regulation (sec.)

Moreover, signals to do with the regulation itself must be exchanged as described in Annexe 2.

Requirements and place of delivery for reports and measurements must be agreed with Energinet.dk.

Costs incidental to IT connections and maintenance must be borne by the supplier.

1.2.1.3 Combined deliveries

A delivery can be made up of supplies from several production units with different properties which collectively can provide the required response within the required response time. A delivery can also be made up of supplies from several consumption units with different properties which collectively can provide the required response within the required response time. Any system for such combined deliveries must be verified to Energinet.dk.

A delivery can be made up of supplies from a mix of consumption and production units, provided that the following conditions are met:

- Balance responsibility for the consumption and production units must rest with the same BRP.
- The BRP must split up the services so that all upward regulation resources refer to production units, while all downward regulation resources refer to consumption units or vice versa. Thus, upward regulation cannot be provided by a mix of consumption and production units.
- The BRP submits a symmetrical bid for the month stating that the bid concerns the supply of combined services.
- Energinet.dk handles the supply of the services as two separate asymmetrical bids in the SCADA system. Energinet.dk sends two separate regulation signals to the player – one for the production units (upward regulation) and one for the consumption units (downward regulation). The player must then ensure that the signal is sent to the relevant consumption and production units.

If the supplier wants to provide regulation in the form of both consumption and production, two sets of regulation signals must be sent in respect of the potential consumption and production reserves, see section 1.2.1.2.

1.2.2 Procurement of secondary reserve

Energinet.dk buys the secondary reserve on a monthly basis. The reserve is procured as a combined, symmetrical reserve for upward and downward regulation.

1.2.2.1 Bidding by player

The player's bid must be sent by email to:

Energinet.dk
Tonne Kjærsvvej 65
DK-7000 Fredericia, Denmark
Email: info@energinet.dk

Bids must be marked: **"Tilbud på reguleringsreserver (måned år)" (Bids for regulation reserves (month, year)).**

The bids submitted will not be opened in the presence of the bidders.

The bids submitted must be based on the current conditions, including the technical part. The bidder should use the '**BID FORM**' when bidding, as described in further detail in Annex 3.

The deadline for submitting secondary reserve bids is published on Energinet.dk's website. It is published concurrently with the announcement of the secondary reserve requirement. Secondary reserve bids must be valid until the last day of the month before the service is to be delivered.

Bids may be submitted for:

- The entire desired volume – or
- Parts of the desired volume
- Entire periods – or
- Parts of the desired periods.

Any reservations must be listed in full in the bid. Each individual reservation must be reasoned.

Reservations concerning the award criteria and the use of the bidder's terms and conditions of sale and delivery will be regarded as non-compliant and will be rejected.

1.2.2.2 Energinet.dk's acceptance of bids

Following receipt of the bids, a bid evaluation will be carried out and any negotiations with relevant bidders will be held.

In assessing the bids received, special emphasis will be placed on the following criteria, ranked in order of priority:

- Price of service
- Place of delivery
- The technical properties of the production and consumption unit.

Energinet.dk can choose to order volumes other than those offered and can change the agreement periods, subject to agreement with the supplier.

Energinet.dk reserves the right to freely choose – in full or in part – between the bids received, postpone parts of a bid and place orders with more bidders.

Energinet.dk will fix the price of any reservations so as to prevent any bidder from gaining advantages relative to the other bidders by making reservations.

Energinet.dk reserves the right to reject bids containing reservations that cannot be priced.

1.2.2.3 Pricing and payment

The price of secondary reserves is agreed individually by the bidder and Energinet.dk based on the bid submitted and any subsequent negotiations.

1.2.2.4 Feedback to player

Following the evaluation of the bids and the end of any negotiations, a contract will be drawn up with the bidder(s) chosen in the form of a purchase order.

1.2.2.5 Obligations of player

For the availability payment to be effected, the capacity must in fact be available. This means that the availability payment is cancelled if it subsequently turns out that the capacity is not available, for example due to breakdowns, see sections 2.2 and 2.3.

In case of incidents resulting in a plant being unable to supply secondary reserve, the reserve must be re-established at one or more plants which can supply the reserve as soon as possible and within 30 minutes of the incident at the latest. If the supplier is unable to re-establish the reserve, Energinet.dk should be contacted within 15 minutes and informed where and when the reserve can be re-established.

1.2.2.6 Planning by player

The player's operational schedules prior to and during the day of operation must specify the volumes of secondary upward regulation power and secondary downward regulation power which have been reserved on an hour-by-hour basis, see Regulation C3: Handling of notifications and schedules.

1.2.3 Checking the services

Regular checks are performed to ascertain that the reserves are available based on online measurements.

In case of regulation of consumption units, operational schedules must be available.

1.2.3.1 Paying for energy volumes

Supplies of energy from secondary upward regulation reserves are settled per MWh at the DK1 electricity spot price plus DKK 100/MWh, however based at least on the regulating power price for upward regulation. Supplies of energy from secondary downward regulation re-

services are settled per MWh at the DK1 electricity spot price less DKK 100/MWh, however not exceeding the regulating power price for downward regulation.

The energy supplied is calculated on the basis of registrations in Energinet.dk's SCADA system as an integrated value of expected activated output per quarter.

1.3 Frequency-controlled normal operation reserve, DK2

In the event of frequency deviations, the frequency-controlled normal operation reserve ensures that the equilibrium between production and consumption is restored, keeping the frequency close to 50 Hz.

Frequency-controlled normal operation reserve is automatic regulation provided by production or consumption units which, by means of control equipment, respond to grid frequency deviations. Frequency-controlled normal operation reserve consists of both upward and downward regulation reserves and is provided as a symmetrical reserve where upward and downward regulation reserves are purchased together.

The TSOs within the Nordic synchronous area are jointly responsible for the supply of frequency-controlled normal operation reserves.

Each individual TSO contributes to the total frequency-controlled normal operation reserve in the ENTSO-E RG Nordic grid. The combined requirement in the ENTSO-E RG Nordic grid is 600 MW, of which Energinet.dk is obliged to supply a proportionate share. The share to be supplied by Energinet.dk is determined by the production taking place in Eastern Denmark relative to the entire ENTSO-E RG Nordic production, and is determined once a year for a calendar year at a time.

Energinet.dk buys the frequency-controlled normal operation reserve in collaboration with Svenska Kraftnät through daily auctions. The requirement is published on Energinet.dk's website. In 2012, Energinet.dk's share is 23 MW, while Svenska Kraftnät's share is 230 MW.

1.3.1 Technical conditions

1.3.1.1 Response and response time

The normal operation reserve must be supplied at a frequency deviation of up to +/-100 mHz relative to the reference frequency of 50 Hz. This means in the 49.9-50.1 Hz range. Deliveries must be made without deadband.

The reserve must as a minimum be supplied linearly at frequency deviations of between 0 and 100 mHz. The activated reserve must be supplied within 150 seconds, regardless of the size of the deviation.

It must be possible to maintain regulation continuously.

1.3.1.2 Accuracy of measurements

The accuracy of frequency measurements for frequency-controlled normal operation reserves must be better than 10 mHz. The sensitivity of frequency measurements must be better than +/-10 mHz.

The resolution of the player's SCADA system must be better than 1 second, and selected signals must be able to document the plants' response to frequency deviations. The supplier must store the signals for at least one week.

1.3.1.3 Information/data

Each individual production or consumption unit supplying frequency-controlled normal operation reserve must be connected via information technology to Energinet.dk's Control Centre in Erritsø, Denmark.

For each individual production or consumption unit, the Control Centre must at least have online access to:

- Status of production or consumption unit in/out (circuit-breaker indication)
- Frequency-controlled normal operation reserve
 - Regulation function disconnected or connected
 - Reserved frequency-controlled normal operation reserve, upward regulation + [MW]
 - Reserved frequency-controlled normal operation reserve, downward regulation - [MW]
- Measurement from the production or consumption unit
 - Net production or consumption at the point of connection (MW)

Requirements and place of delivery for reports and measurements must be agreed with Energinet.dk.

Costs incidental to IT connections and maintenance must be borne by the supplier.

1.3.1.4 Combined deliveries

A delivery can be made up of supplies from several production units with different properties which collectively can provide the required response within the required response time. A delivery can also be made up of supplies from several consumption units with different properties which collectively can provide the required response within the required response time. Any system for such combined deliveries must be verified to Energinet.dk.

A delivery can be made up of supplies from both consumption and production units if the balance responsibility for the consumption and production units rests with the same balance responsible party – see, however, section 1.3.2.5.

1.3.2 Daily procurement of frequency-controlled normal operation reserve

Energinet.dk purchases frequency-controlled normal operation reserve in collaboration with Svenska Kraftnät. Frequency-controlled normal operation reserve is purchased as a symmetrical product where the supplier must also provide both upward regulating power (in case of underfrequency) and downward regulating power (in case of overfrequency).

Energinet.dk's and Svenska Kraftnät's total requirement (253 MW in 2012) is purchased at daily auctions where part of the requirement is purchased two days before the day of operation (D-2), and the remaining part is purchased the day before the day of operation (D-1).

The supplier can submit bids hourly or as block bids. Block bids submitted to the auction two days before the day of operation (D-2) can have a duration of up to six hours. Block bids submitted to the auction the day before the day of operation (D-1) can have a duration of up to three hours. The player determines the hour at which the block bid commences. However, the block bid must end within the day of operation.

1.3.2.1 Bidding by player

Bids in connection with daily capacity auctions should be submitted to Energinet.dk via Ediel. Communication via Ediel is described in further detail in Annexe 1.

Bids submitted to the auction two days before the day of operation (D-2) must be submitted so that they are received by Energinet.dk by 15.00 two days before the day of operation at the latest. Registration is based on Energinet.dk's automatic registration of time of receipt. Bids received after 15.00 are rejected unless otherwise notified by email to all participating bidders.

The player can change bids already submitted for D-2 until 15.00. Bids already received by Energinet.dk by 15.00 are binding on the bidder.

Bids submitted to the auction the day before the day of operation (D-1) must be submitted so that they are received by Energinet.dk by 20.00 on the day before the day of operation at the latest. Registration is based on Energinet.dk's automatic registration of time of receipt. Bids received after 20.00 are rejected unless otherwise notified by email to all participating bidders.

The player can change bids already submitted for D-1 until 20.00. Bids already received by Energinet.dk by 20.00 are binding on the bidder.

From 16 November 2012, the following deadlines for the auction the day before the day of operation apply (D-1):

Bids submitted to the auction the day before the day of operation (D-1) must be submitted so that they are received by Energinet.dk by 19.00 on the day before the day of operation at the latest. Registration is based on Energinet.dk's automatic registration of time of receipt. Bids received after 19.00 are rejected unless otherwise notified by email to all participating bidders.

The player can change bids already submitted for D-1 until 19.00. Bids already received by Energinet.dk by 19.00 are binding on the bidder.

The bids must state an hour-by-hour volume and a price for the day of operation. The volume stated is the number of MWs which the bidder is offering to make available. If the player uses block bids, the volume must be the same within each block. The price is the price per MW asked by the bidder to make the volume stated available. The price must be stated as a price per MW per hour. If the player uses block bids, the price must be the same for the entire block. If the player uses block bids and the player's bid states different prices or volumes for the individual hourly periods of a block, the price and volume stated for the first hour of the block will apply.

Each bid must be entered for a minimum of 0.3 MW and must always be stated in MW to one decimal point and in whole DKK/MW or EUR/MW to two decimal points.

If a player submits a bid in DKK/MW, Energinet.dk will convert the bid to EUR/MW before forwarding it to Svenska Kraftnät. Energinet.dk always uses the latest official exchange rate from Nord Pool. This means that Energinet.dk uses the exchange rate for D-1 for auctions held two days before the day of operation (D-2). For auctions held one day before the day of operation (D-1), Energinet.dk uses the exchange rate for the day of operation (D). Ener-

ginet.dk uses four decimal points when converting between exchange rates and when calculating average prices, but rounds off to two decimal points. If a player submits a bid in EUR/MW, Energinet.dk will forward the bid directly to Svenska Kraftnät.

Please note that for practical reasons, the units used by Ediel are MWh and DKK/MWh rather than the correct MW and DKK/MW, see Annexe 1.

Both volume and price must always be stated in positive values.

1.3.2.2 Acceptance of bids

As a general rule, bids for frequency-controlled normal operation reserve are always sorted according to price per MW, and Energinet.dk's and Svenska Kraftnät's total requirement is covered by selecting the bids according to increasing price, however such that the TSOs incur the least costs.

Bids are always accepted in their entirety or not at all.

If two bids are priced the same, and Energinet.dk and Svenska Kraftnät need only one, Energinet.dk and Svenska Kraftnät can freely choose which of the two bids to accept. The same applies if three or more bids are priced the same.

If not enough bids are received to cover Energinet.dk's and Svenska Kraftnät's requirements, Energinet.dk will send an email to all players asking them to submit more bids.

1.3.2.3 Pricing and payment

All accepted bids for frequency-controlled normal operation reserves will receive an availability payment corresponding to the price offered by the player (pay-as-bid).³

Energy supplied from frequency-controlled normal operation reserves, upward, is settled per MWh with the regulating power price for upward regulation. Supplies of energy from frequency-controlled normal operation reserves, downward, are settled per MWh with the regulating power price for downward regulation.

The energy supplied is calculated on the basis of registrations in Energinet.dk's SCADA system as an integrated value of expected activated output per hour.

1.3.2.4 Feedback to player

For bids submitted to the auction two days before the day of operation, Energinet.dk will two days before the day of operation, by 16.00 at the latest, inform the player of the volume (MW) which Energinet.dk/Svenska Kraftnät have accepted and of the average availability payment (DKK/MW) allocated on an hour-by-hour basis. The average is calculated as a simple average. Energinet.dk always uses the latest official exchange rate from Nord Pool when converting the result of the auction to DKK. The feedback is preliminary until the final exchange rate for the day of operation is available.

For bids submitted to the auction the day before the day of operation, Energinet.dk will the day before the day of operation, at 21.00, inform the player of the volume which Energinet.dk/Svenska Kraftnät have accepted and of the average availability payment allocated on an hour-by-hour basis.

³ Subject to rounding in connection with exchange rate conversions.

The final settlement of reserved frequency-controlled normal operation reserves is made in DKK using Nord Pool's official exchange rate for the day of operation when converting the result of the auction.

Energinet.dk does not send signals for the reserve to be activated during the day of operation. Activation of reserves is based on the supplier's own frequency measurements.

1.3.2.5 Obligations of player

For the availability payment to be effected, the capacity must in fact be available. This means that the availability payment is cancelled, and the player must cover any additional costs incurred in connection with cover purchases if it subsequently turns out that the capacity is not available, for example due to breakdowns, see sections 2.2 and 2.3.

In case of incidents which mean that a plant cannot supply frequency-controlled normal operation reserve, the reserve must be re-established at one or more plants capable of supplying the reserve as soon as possible and within 30 minutes of the incident at the latest. If the supplier is unable to re-establish the reserve, Energinet.dk should be contacted within 15 minutes and informed where and when the reserve can be re-established.

1.3.2.6 Planning by player

The player's operational schedules prior to and during the day of operation must state the volumes of frequency-controlled normal operation reserve which have been reserved on an hour-by-hour basis, see Regulation C3: Handling of notifications and schedules. The schedules must be updated after the auction results have been issued and in connection with changed operating conditions.

Suppliers that use both consumption and production for the regulation (see section 1.3.1.4) must for settlement purposes (see section 1.3.2.3) submit schedules that state how many MW reserves from consumption units that supply upward or downward regulation, respectively, and how many MW reserves from production units that supply upward or downward regulation, respectively.

1.3.3 Checking the services

The services are checked on a test basis and in case of significant frequency deviations. Energinet.dk's checking takes the form of requesting documentation from the player's SCADA system of the plants' response to naturally occurring frequency deviations, see section 1.3.1.2.

1.4 Frequency-controlled disturbance reserve, DK2

In the event of major system disturbances, the frequency-controlled disturbance reserve is a fast reserve used for regulating the frequency following substantial frequency drops resulting from the outage of major generation plants or lines.

Frequency-controlled disturbance reserve is an automatic upward regulation reserve provided by production or consumption units which, by means of control equipment, respond to grid frequency deviations. The reserve is activated automatically in the event of sudden frequency drops to under 49.9 Hz and remains active until balance has been restored or until regulation by means of the manual reserve takes over.

Each individual TSO contributes to the total frequency-controlled disturbance reserve in the ENTSO-E RG Nordic grid. The combined requirement in the ENTSO-E RG Nordic grid is the dimensioning fault (largest nuclear power station in operation) less 200 MW and is distributed in proportion to the dimensioning faults of each individual area. Energinet.dk's share is determined by the largest dimensioning fault in Eastern Denmark and is fixed each Thursday for the coming week.

Energinet.dk buys frequency-controlled disturbance reserve in collaboration with Svenska Kraftnät through daily auctions. The requirement is published on Energinet.dk's website. In 2012, Energinet.dk's total share is approx. 150-180 MW, and Svenska Kraftnät's share is approx. 410 MW.

Some of the disturbance reserve is supplied to the ENTSO-E RG Nordic area from the HVDC interconnections between Germany and Zealand, Jutland and Sweden and Jutland and Zealand, which means that Energinet.dk's actual required purchases often range between 25 and 55 MW.

1.4.1 Technical conditions

1.4.1.1 Response and response time

Frequency-controlled disturbance reserve must be able to:

- Supply inverse-linear power at frequencies between 49.9 and 49.5 Hz
- Supply 50% of the response within 5 seconds
- Supply the remaining 50% of the response within an additional 25 seconds.

1.4.1.2 Accuracy of measurements

The accuracy of frequency measurements for frequency-controlled disturbance reserves must be better than 10 mHz. The sensitivity of frequency measurements must be better than +/- 10 mHz.

The resolution of the player's SCADA system must be better than 1 second, and selected signals must be able to document the plants' response to frequency deviations. The supplier must store the signals for at least one week.

1.4.1.3 Information/data

Each individual production or consumption unit supplying or contributing to the supply of frequency-controlled disturbance reserve must be connected via information technology to Energinet.dk's Control Centre in Erritsø, Denmark.

For each individual production or consumption unit, the Control Centre must at least have online access to:

- Status of production or consumption unit in/out (circuit-breaker indication)
- Frequency-controlled disturbance reserve
 - Regulation function disconnected or connected
 - Reserved frequency-controlled disturbance reserve, upward regulation + [MW]
- Measurement from the production or consumption unit
 - Net production or consumption at the point of connection (MW)

Requirements and place of delivery for reports and measurements must be agreed with Energinet.dk.

Costs incidental to IT connections and maintenance must be borne by the supplier.

1.4.1.4 Combined deliveries

A delivery can be made up of supplies from several production units with different properties which collectively can provide the required response within the required response time. A delivery can also be made up of supplies from several consumption units with different properties which collectively can provide the required response within the required response time. Any system for such combined deliveries must be verified to Energinet.dk.

1.4.2 Daily procurement of frequency-controlled disturbance reserve

Energinet.dk purchases frequency-controlled disturbance reserve as upward regulating power in collaboration with Svenska Kraftnät. Energinet.dk's and Svenska Kraftnät's total requirement (approx. 445-465 MW in 2012) is purchased at daily auctions where part of the requirement is purchased two days before the day of operation (D-2), and the remaining part is purchased the day before the day of operation (D-1).

The supplier can submit bids hourly or as block bids. Block bids submitted to the auction two days before the day of operation (D-2) can have a duration of up to six hours. Block bids submitted to the auction the day before the day of operation (D-1) can have a duration of up to three hours. The player determines the hour at which the block bid commences. However, the block bid must end within the day of operation.

1.4.2.1 Bidding by player

Bids in connection with daily capacity auctions should be submitted to Energinet.dk via Ediel. Communication via Ediel is described in further detail in Annexe 1.

Bids submitted to the auction two days before the day of operation (D-2) must be submitted so that they are received by Energinet.dk by 15.00 two days before the day of operation at the latest. Registration is based on Energinet.dk's automatic registration of time of receipt. Bids received after 15.00 are rejected unless otherwise notified by email to all participating bidders.

The player can change bids already submitted for D-2 until 15.00. Bids already received by Energinet.dk by 15.00 are binding on the bidder.

Bids submitted to the auction the day before the day of operation (D-1) must be submitted so that they are received by Energinet.dk by 20.00 on the day before the day of operation at the latest. Registration is based on Energinet.dk's automatic registration of time of receipt. Bids received after 20.00 are rejected unless otherwise notified by email to all participating bidders.

The player can change bids already submitted for D-1 until 20.00. Bids already received by Energinet.dk by 20.00 are binding on the bidder.

From 16 November 2012, the following deadlines for the auction the day before the day of operation apply (D-1):

Bids submitted to the auction the day before the day of operation (D-1) must be submitted so that they are received by Energinet.dk by 19.00 on the day before the day of operation at the latest. Registration is based on Energinet.dk's automatic registration of time of receipt. Bids received after 19.00 are rejected unless otherwise notified by email to all participating bidders.

The player can change bids already submitted for D-1 until 19.00. Bids already received by Energinet.dk by 19.00 are binding on the bidder.

The bids must state an hour-by-hour volume and a price for the day of operation. The volume stated is the number of MWs which the bidder is offering to make available. If the player uses block bids, the volume must be the same within each block. The price is the price per MW asked by the bidder to make the volume stated available. The price must be stated as a price per MW per hour. If the player uses block bids, the price must be the same for the entire block. If the player uses block bids and the player's bid states different prices or volumes for the individual hourly periods of a block, the price and volume stated for the first hour of the block will apply.

Each bid must be entered for a minimum of 0.3 MW and must always be stated in MW to one decimal point and in whole DKK/MW or EUR/MW to two decimal points.

If a player submits a bid in DKK/MW, Energinet.dk will convert the bid to EUR/MW before forwarding it to Svenska Kraftnät. Energinet.dk always uses the latest official exchange rate from Nord Pool. This means that Energinet.dk uses the exchange rate for D-1 for auctions held two days before the day of operation (D-2). For auctions held one day before the day of operation (D-1), Energinet.dk uses the exchange rate for the day of operation (D). Energinet.dk uses four decimal points when converting between exchange rates and when calculating average prices, but rounds off to two decimal points. If a player submits a bid in EUR/MW, Energinet.dk will forward the bid directly to Svenska Kraftnät.

Please note that for practical reasons, the units used by Ediel are MWh and DKK/MWh rather than the correct MW and DKK/MW, see Annexe 1.

Both volume and price must always be stated in positive values.

1.4.2.2 Acceptance of bids

As a general rule, bids for frequency-controlled disturbance reserve are always sorted according to price per MW, and Energinet.dk's and Svenska Kraftnät's total requirement is cov-

ered by selecting the bids according to increasing price, however such that the TSOs incur the least costs.

Bids are always accepted in their entirety or not at all.

If two bids are priced the same, and Energinet.dk and Svenska Kraftnät need only one, Energinet.dk and Svenska Kraftnät can freely choose which of the two bids to accept. The same applies if three or more bids are priced the same.

If not enough bids are received to cover Energinet.dk's and Svenska Kraftnät's requirements, Energinet.dk will send an email to all players asking them to submit more bids.

1.4.2.3 Pricing and payment

All bids accepted for upward regulation will receive an availability payment corresponding to the price offered by the player (pay-as-bid).⁴

No calculation is made of energy volumes supplied from frequency-controlled disturbance reserves. Supplies of energy from frequency-controlled disturbance reserves are settled like ordinary imbalances.

1.4.2.4 Feedback to player

For bids submitted to the auction two days before the day of operation, Energinet.dk will two days before the day of operation, by 16.00 at the latest, inform the player of the volume (MW) which Energinet.dk/Svenska Kraftnät have accepted and of the average availability payment (DKK/MW) allocated on an hour-by-hour basis. The average is calculated as a simple average. Energinet.dk always uses the latest official exchange rate from Nord Pool when converting the result of the auction to DKK. The feedback is preliminary until the final exchange rate for the day of operation is available.

For bids submitted to the auction the day before the day of operation, Energinet.dk will the day before the day of operation, at 21.00, inform the player of the volume which Energinet.dk/Svenska Kraftnät have accepted and of the average availability payment allocated on an hour-by-hour basis.

Energinet.dk does not send signals for the reserve to be activated during the day of operation. Activation of reserves is based on the supplier's own frequency measurements.

1.4.2.5 Obligations of player

For the availability payment to be effected, the capacity must in fact be available. This means that the availability payment is cancelled, and the player must cover any additional costs incurred in connection with cover purchases if it subsequently turns out that the capacity is not available, for example due to breakdowns, see sections 2.2 and 2.3.

In case of incidents which mean that a plant cannot supply frequency-controlled disturbance reserve, the reserve must be re-established at one or more plants capable of supplying the reserve as soon as possible and within 30 minutes of the incident at the latest. If the supplier is unable to re-establish the reserve, Energinet.dk should be contacted within 15 minutes and informed where and when the reserve can be re-established.

⁴ Subject to rounding in connection with exchange rate conversions.

1.4.2.6 Planning by player

The player's operational schedules prior to and during the day of operation must state the volumes of frequency-controlled disturbance reserve which have been reserved on an hour-by-hour basis, see Regulation C3: Handling of notifications and schedules. The schedules must be updated after the auction results have been issued and in connection with changed operating conditions.

1.4.3 Checking the services

The services are checked on a test basis and in case of significant frequency deviations. Energinet.dk's checking takes the form of requesting documentation from the player's SCADA system of the plants' response to naturally occurring frequency deviations, see section 1.4.1.2.

1.5 Manual reserve, DK1 and DK2

Manual reserve is a manual upward and downward regulation reserve which is activated by Energinet.dk's Control Centre. The reserve is activated by manually ordering upward and downward regulation by the relevant suppliers. The reserve relieves the LFC and the frequency-controlled normal operation reserve in the event of minor imbalances and ensures balance in the event of outages or restrictions affecting production plants and international connections.

These reserves are put up for sale at daily auctions. Manual reserves are requested in DK1 and DK2 to meet the demand during individual hours.

The manual reserve is used to restore system balance. The reserve is activated from Energinet.dk's Control Centre in Erritsø via the regulating power market.

1.5.1 Technical conditions

1.5.1.1 Response and response time

The manual reserve must be supplied in full within 15 minutes of activation.

1.5.1.2 Activation

The reserve is activated by amending operational schedules or consumption forecasts following the prior exchange of notifications between Energinet.dk and the supplier.

1.5.1.3 Information/data

Each individual production or consumption unit supplying manual reserve must be connected via information technology to Energinet.dk's Control Centre in Erritsø, Denmark. The Control Centre must at least have online access to:

- Status reports concerning production or consumption unit in/out
- Measurements of the production or consumption unit's
 - net production or consumption at the point of connection
 - net production by balance responsible parties.

Requirements and place of delivery for reports and measurements must be agreed with Energinet.dk.

Costs incidental to IT connections and maintenance must be borne by the supplier.

1.5.1.4 Combined deliveries

A delivery can be made up of supplies from several production units with different properties which collectively can provide the required response within the required response time. A delivery can also be made up of supplies from several consumption units with different properties which collectively can provide the required response within the required response time. Any system for such combined deliveries must be verified to Energinet.dk. A delivery cannot be made up of supplies from a mix of consumption and production units, see Regulation C1.

1.5.2 Daily procurement of manual reserve

Energinet.dk buys two types of manual reserve in DK1 and DK2, upward regulation power and downward regulation power. An auction is held once a day for each of the hours of the coming day of operation, see however section 1.5.4.

Energinet.dk announces the expected reserve requirement, stated in MW, for the upcoming day of operation on its website by 9.00 on the day before the day of operation at the latest.

1.5.2.1 Bidding by player

Bids in connection with daily capacity auctions should be submitted to Energinet.dk via Ediel. Communication via Ediel is described in further detail in Annexe 1.

Bids must be submitted so that they are received by Energinet.dk by 9.30 on the day before the day of operation at the latest. Registration is based on Energinet.dk's automatic registration of time of receipt. Bids received after 9.30 are rejected unless otherwise notified by email to all participating bidders.

Players may amend bids already submitted up until 9.30. The bids received by Energinet.dk by 9.30 are binding on the bidder.

The bids must state an hour-by-hour volume and a price for the following day of operation. As volume is stated the number of MWs which the bidder is offering to make available during the hour in question. The price is the price per MW asked by the bidder to make the volume stated available during the hour in question.

Each bid must be entered for a minimum of 10 MW and a maximum of 50 MW and must always be stated in MW to one decimal point and in DKK/MW or EUR/MW to two decimal points.

Please note that for practical reasons, the units used by Ediel are MWh and DKK/MWh rather than the correct MW and DKK/MW, see Annexe 1.

Bids are indicated in the same way for upward and downward regulation, with a distinction being made between upward and downward regulation by means of product codes, see Annexe 1. Both volume and price must thus always be indicated by a positive sign.

1.5.2.2 Energinet.dk's acceptance of bids

Energinet.dk sorts the bids for upward and downward regulation capacity according to price per MW and covers its requirements by selecting bids according to increasing price.

In special cases, Energinet.dk may need capacity to be available at a particular geographical location. In such situations, Energinet.dk can disregard bids not complying with this requirement. In such special situations, all participating players are notified by email.

Bids are always accepted in their entirety or not at all. In situations where acceptance of a bid for more than 25 MW will lead to excess fulfilment of the requirement for reserves during the hour in question, Energinet.dk can disregard such bids.

If two bids are priced the same, and Energinet.dk needs only one, Energinet.dk can freely choose which of the two bids to accept. The same applies if three or more bids are priced the same.

If the number of bids received is insufficient to cover Energinet.dk's requirements, Energinet.dk will send an email to all players asking them to submit more bids.

1.5.2.3 Pricing

All bids for upward regulation accepted will receive an availability payment corresponding to the price of the highest bid for upward regulation accepted. The same applies to downward regulation.

1.5.2.4 Feedback to player

At 10.00, Energinet.dk informs the player of the bids which Energinet.dk has accepted and of the availability payment allocated on an hour-by-hour basis.

1.5.2.5 Obligations of player

For the availability payment to be effected,

- 1) the player must subsequently submit a bid for activating all the capacity for which an availability payment is obtained
- 2) the capacity must in fact be available.

The obligation mentioned under 1) concerns only those hours for which the player receives availability payment. The player is welcome to submit bids for the activation of capacity in excess of the capacity for which the availability payment is obtained.

The obligation under 2) means that the availability payment is cancelled if it subsequently turns out that the capacity is not available, for example due to breakdowns, see sections 2.2 and 2.3.

In case of incidents which mean that a plant cannot supply manual reserves, the reserve must be re-established at one or more plants capable of supplying the reserve as soon as possible and within 30 minutes of the incident at the latest. If the supplier is unable to re-establish the reserve, Energinet.dk should be contacted within 15 minutes and informed where and when the reserve can be re-established.

1.5.2.6 Payment for energy volumes

The calculation of the energy volumes supplied (regulating power) from manual reserves and the settlement of regulating power are based on Regulation C2 – The balancing market and balance settlement.

1.5.2.7 Planning by player

Regulating power orders must be included in the player's operational schedules (DK2) and power schedules (DK1) prior to and during the day of operation.

1.5.3 Checking the services

The services are checked on a test basis. Energinet.dk's checking takes the form of analysing the response from suppliers in connection with activations.

In case of regulation of consumption units, operational schedules must be available.

1.5.4 Procurement of additional manual reserves

If the Great Belt Power Link is fully loaded from DK2 to DK1, Energinet.dk may require manual reserves in excess of the ones purchased in DK1 in the morning. In these instances, Energinet.dk will host an additional auction in the afternoon. The afternoon auction is

conducted in the same way as the morning auction with the exception that separate bid IDs are used for exchanging bids relating to this auction.

The deadlines applying to afternoon auctions of manual reserves are as follows:

- The players are notified directly of the requirement for additional manual reserves by 14.30 at the latest
- On days when the requirement is not zero, an email stating the requirement is sent to the players
- The players must submit their bids to Energinet.dk by 15.00 at the latest
- Energinet.dk completes the auction and notifies the players of the results by 15.30 at the latest.

1.6 Short-circuit power, reactive reserves and voltage control, DK1 and DK2

Short-circuit power, reactive reserves and voltage control are services ensuring stable and safe power system operation.

Every day, just after the first operational schedules have been received towards the end of the afternoon, Energinet.dk checks:

- Load flow
- Short-circuit power
- n-1 situations
- Reactive reserves.

If changes occur during the day of operation, these checks must be performed again.

For the time being, short-circuit power and reactive reserves can only be supplied by the central power stations as they are connected to the main high-voltage grid.

There is a need for three central power stations to be in operation in both DK1 and DK2. In DK1, three units at three different power station sites must be in operation.

1.6.1 Ensuring short-circuit power, reactive reserves and voltage control in the main high-voltage grid

Energinet.dk can decide to request the forced operation of plants at different times:

- a. On a monthly basis
- b. On a weekly basis
- c. Very early on the previous day
- d. After closing of spot market, before auctioning of frequency-controlled services
- e. Concurrently with auctioning of frequency-controlled services
- f. After receipt of first operational schedule
- g. During day of operation if required.

If capacity featuring these properties is insufficient, the power system operator/balance operator will take measures to establish a sufficient level of system security. This may lead to special regulation and/or forced operation and will be handled by Energinet.dk's operator by phone.

Forced operation will be settled as billed. As far as is possible, bids for alternative ways of resolving the problem will be obtained. Players may thus be asked to place their bids at relatively short notice.

Separate payment is not offered for the volumes of short-circuit power, MVA, and reactive power, MVar, supplied.

See also section 3.5 concerning the ordering of reactive reserve/voltage control.

1.6.2 Bids on a monthly or weekly basis or on request

Bids submitted on a monthly or weekly basis or on request should be sent to:

Energinet.dk
Tonne Kjærsvej 65
DK-7000 Fredericia, Denmark
Email: info@energinet.dk

The bids submitted must be based on the current conditions, including the technical part. The bidder should use the '**BID FORM**' when bidding, as described in further detail in Annex 3.

The bids submitted will not be opened in the presence of the bidders.

1.6.3 Ordering services

After follow-up negotiations, if any are required, Energinet.dk will place an order for the services in the form of a purchase order.

1.6.4 Obligations of player

Energinet.dk pays the supplier to keep plants in operation. Payment is conditional on the plants being in operation, and payment is cancelled if it subsequently turns out that the plants are not available, see sections 2.2 and 2.3. However, section 2.3.1 on covering purchases does not apply in case of the breakdown of plants supplying short-circuit power, reactive reserves and voltage control in DK1 and DK2. In case of breakdowns, Energinet.dk assumes the risk by covering the expenses of starting up another plant.

2. Commercial terms

2.1 Payment

All expenses, including grid tariffs etc. for energy supplies, are borne by the supplier.

Payment for the services purchased at daily auctions (primary reserve, frequency-controlled normal operation reserve, frequency-controlled disturbance reserve and manual reserve) is settled monthly by Energinet.dk through the issue of a credit note. Energinet.dk effects payment on the 25th day of the following month. If this is not a business day, payment is effected on the following business day.

In those cases where more than one invoice/credit note has been issued to the same BRP, eg for consumption and for production, net payment is made, unless otherwise agreed.

Amounts owed by Energinet.dk to a BRP will be settled net.

Payment for the services purchased on a monthly basis (LFC reserve and short-circuit power, reactive reserves and voltage control) is effected based on the invoice issued by the supplier, the due date being the 25th day of the following month. If this is not a business day, the due date is the following business day.

Prior to effecting the monthly payments, Energinet.dk reserves the right to withhold payment and to effect a set-off in such payment if it turns out that the supplier has not fulfilled/is not fulfilling its obligations under the contract, see sections 2.2 and 2.3.

2.2 Non-performance

2.2.1 Non-delivery/delivery of non-conforming services

In case of non-delivery of the service, including non-availability of the service and delivery of a non-conforming service, the payment made to the supplier is reduced proportionally, corresponding to the period of non-delivery of a conforming service. The period is calculated per commenced hour relative to the total number of hours in the contract period.

In case of non-delivery of the service, including non-availability of the service and delivery of a non-conforming service, Energinet.dk may also quarantine the supplier to allow the supplier time to remedy the situation prior to resuming deliveries. The quarantine period stipulated by Energinet.dk can be from 2 days and up to 30 days, depending on the nature and scope of non-performance, previous instances of non-performance and the information provided by the supplier to Energinet.dk prior to the non-performance, see below – last paragraph.

During the quarantine period, the supplier is precluded from taking part in the daily auction to which the non-available services relate.

In case of non-performance, Energinet.dk notifies the supplier of the quarantine immediately, the start date and the duration of the quarantine period.

The supplier is obliged to keep Energinet.dk informed at all times of incidents which will lead to non-delivery of the service as defined in the first paragraph.

In the event of non-performance by the supplier, Energinet.dk is obliged to complain to the supplier not later than three weekdays after the day of operation during which non-

performance took place. Otherwise, Energinet.dk is no longer entitled to take action for breach of contract.

2.2.2 Non-conformities/remedial action

In case of the supply of non-conforming services during the term of this agreement, the supplier is entitled and obliged to remedy the situation without undue delay.

In the event that the supplier does not take such remedial action as is required within a reasonable deadline stipulated by Energinet.dk, Energinet.dk is entitled to arrange for such remedial action to be taken for the supplier's account.

2.2.3 Cancellation

Either party may, subject to two days' notice, cancel the main agreement in case of material breach of contract by the other party.

2.3 Compensation

2.3.1 Covering purchases

Energinet.dk can demand that any additional expenses incurred in connection with performing covering purchases to replace non-deliveries be borne by the supplier in breach.

2.3.2 Compensation

In the event of cancellation of the agreement by one of the parties due to breach on the part of the other party, the other party is liable in damages in accordance with the general rules of Danish law. The parties are not liable for operating losses, loss of profit or other indirect losses unless caused by gross negligence or premeditation.

2.4 Force majeure

Neither party is liable for matters outside their control which the parties should not have taken into account when concluding the agreement and which the party should not, reasonably, have avoided or overcome. Examples of force majeure include war, terror, natural disasters, etc.

The first paragraph in section 2.2.1 also applies to non-deliveries due to force majeure.

Energinet.dk does not accept breakdowns, lawful strikes or lockouts as force majeure.

2.5 Expert appraisal

In the event of disputes or where necessary in order to preserve the state of the evidence, the parties can request an expert appraisal in respect of the service.

The expert is appointed by the Danish Institute of Arbitration (Danish Arbitration).

2.6 Mediation

Settlement of any disputes arising from this agreement which cannot be settled amicably by the parties is first attempted through mediation. The mediation takes place according to the applicable rules for mediation under the Danish Institute of Arbitration.

2.7 Arbitration and governing law

This agreement is governed by Danish law.

Any dispute arising out of this contract, and which cannot be resolved through the procedure described in section 2.6, must be settled in accordance with the arbitration rules of the Danish Institute of Arbitration (Danish Arbitration). Each party appoints one arbitrator, whereas the chairman of the arbitration tribunal is appointed by the Institute. If one of the parties has not appointed an arbitrator within 30 days of having submitted or received information about the request for arbitration, such arbitrator is appointed by the Institute according to the above-mentioned rules.

In connection with disputes concerning amounts of less than DKK 500,000, the arbitral tribunal, however, consists of one member only to be appointed by the Council of the Danish Institute of Arbitration.

The arbitration tribunal considers the allocation of legal costs, including attorneys' fees. The award of the arbitration tribunal is final and binding on the parties.

2.8 Amendments

Throughout the term of the agreement, Energinet.dk is entitled to change the technical conditions for the services if such changes are founded on changing requirements with regard to security of supply and the efficient use of the electricity supply system as a whole. Changes are subject to one month's written notice to all suppliers. The announcement of changes must state the reasons for such changes and include a list of the changes made.

2.9 Publication

Energinet.dk is entitled to publish the results of the individual auctions on its website.

2.10 Approval by authorities

These tender conditions have been registered with the Danish Energy Regulatory Authority, see the provisions of the Danish Electricity Supply Act.

3. Practical requirements with regard to services

3.1 Organisational requirements

The supplier must state a place of contact or a contact person who can be contacted by Energinet.dk's Control Centre 24 hours a day.

The place of contact/the contact person is responsible for the supplier's production or consumption unit which is used to supply the service tendered.

The supplier must provide information about current staffing.

Communication between Energinet.dk's Control Centre and the place of contact or the contact person is by telephone.

3.2 Reporting obligation

The supplier must immediately inform Energinet.dk if the supplier is unable to supply the contractually agreed service in full.

3.3 Prioritisation of ancillary services

In case of insufficient ancillary services, the services should usually be prioritised as follows:

1. Primary reserve in DK1 and frequency-controlled disturbance reserve in DK2, respectively
2. LFC reserve in DK1 and frequency-controlled normal operation reserve in DK2, respectively
3. Manual reserves.

3.4 Approval procedure

Prior to delivery, the supplier must, through documentation and testing, prove that the technical requirements are met. The test is conducted at least three weeks prior to the agreed delivery date.

Testing and trial will be agreed in further detail with Energinet.dk's Control Centre in Erritsø prior to conclusion of the contract.

All expenses relating to testing/performance testing will be borne by the supplier.

Energinet.dk can, during the term of the contract, request documentation for the supply of the tendered service on a regular basis.

The supplier must provide adequate documentation for the services supplied. Energinet.dk reserves the right to carry out regular performance testing.

All measures required in connection with performance testing must be taken and paid for by the supplier.

3.4.1 Conversion or modification of plants

If conversions or similar modifications of a more permanent nature result in changes to plant data, the supplier must immediately inform Energinet.dk of this if the changed data have a bearing on the supply of ancillary services. The supplier must perform tests to verify the changed data to Energinet.dk. See also Technical Regulation TF 5.4.1 – Outage planning.

3.5 Ordering reactive reserve/voltage control

Energinet.dk is responsible for ensuring that voltage control of the plants is adjusted to the reactive balance in the entire system on Zealand and in the Jutland and Funen area.

The reactive power varies as a function of grid voltage. The set-point value is only relevant at the time of setting and should not be adjusted until a new voltage set-point value is announced by Energinet.dk.

In case of changes to the reactive balance, and thereby the voltage distribution in the system, the plants automatically adjust the reactive production. Using passive reactive components, Energinet.dk balances the voltage in the 132 kV and 400 kV grids to ensure that the plants' production/consumption of reactive power is within acceptable values. If this cannot bring production/consumption within acceptable values, Energinet.dk orders the supplier to change the reactive production/consumption until acceptable levels are achieved.

Ordering in DK2:

Ordering takes place using the production telegraph between Energinet.dk and the supplier.

Energinet.dk initially orders as follows:

1. Plant name
2. Requested reactive power Q (Mvar with sign).

Orders which Energinet.dk would like to be effected immediately must be put into production immediately by the supplier. If necessary, several orders may be placed at the same time for parallel activation at several plants.

The reactive power supplied can be any reactive power value within the plants' capacity.

Once the order has been given to the power station, the supplier acknowledges receipt of the order.

Ordering in DK1:

Ordering takes place using the production telegraph between Energinet.dk and the supplier.

Orders which Energinet.dk would like to be effected immediately must be put into production immediately by the supplier. If necessary, several orders may be placed at the same time for parallel activation at several plants.

The reactive power supplied can be any reactive power value within the plants' capacity.

Once the order has been given to the power station, the supplier acknowledges receipt of the order.

3.6 Handling of notifications and schedules in case of outages of production or reserves

This section describes in brief how BRPs for production – in addition to observing the duty of notification mentioned in section 3.2 – should act if they lose production capacity during the day of operation due to breakdowns etc.

The description below covers *balanced schedules* and *imbalances in schedules*.

- *Imbalances in schedules* describe operational schedules which are not in line with energy plans.
- *Balanced schedules* are operational schedules which are in line with energy plans.

(Energy plans = contract trading, spot trading, Elbas trading and intraday trading).

3.6.1 Handling of reserves by BRPs for production

How the BRP for production should handle production outages depends on the answers to the following questions:

- Does the BRP for production have its own reserves available for handling production outages?
 - Has the BRP for production voluntarily offered regulating power?
 - Has the BRP for production sold reserves to the TSO?
- Does the BRP for production not have its own reserves available for handling production outages?
 - Has the BRP for production sold reserves to the TSO?

It is the responsibility of the BRP for production to keep check on its own reserves and the reserves sold to the TSO.

3.6.2 BRP for production has available reserves

If the BRP for production has reserves to cover production outages, the BRP for production can use its own reserves to make up for the imbalance or elect to send an updated operational schedule (not balanced) stating the unavailable production.

If the BRP for production elects to use its own reserves to make up for the production outage, an updated operational schedule must be sent (balanced).

If the BRP for production elects not to use its own reserve to make up for the imbalance, an updated operational schedule is sent (not balanced).

3.6.2.1 BRP for production voluntarily offers regulating power

BRPs for production having their own reserves can offer these to the regulating power market during the day of operation.

If the reserves of the BRP for production have been offered (voluntarily) to the regulating power market, and if these reserves are affected by the production outage to the extent that they are no longer available either in part or in full, the BRP for production must submit new regulating power bids (or possibly withdraw existing bids).

3.6.2.2 BRP for production has sold reserves

If the BRP for production has sold reserves to the TSO, and the reserve sold is impacted by the outage, the BRP for production has two options.

A:

- The BRP for production can choose to observe the existing operational schedule for the plants not affected by the production outage.
- The BRP for production cannot make the reserve sold available or can only make part of the reserve available, and must therefore inform the TSO about the non-available reserve.
- If the unavailable reserve is a manual reserve, new regulating power bids must be submitted.

B:

- Alternatively, the current production can be adjusted (if possible) to re-establish the reserve.
- If the available production is adjusted to re-establish the lacking reserve, the TSO must be informed of this.

In both cases, the BRP for production must submit an updated operational schedule.

3.6.3 BRP for production has no available reserves

In the event of a production outage, a BRP for production that does not have its own reserves and has not sold reserves to the TSO must submit a new updated operational schedule (not balanced).

3.6.3.1 BRP for production has sold reserves

In the event that a BRP for production does not have its own reserves but has sold reserves to the TSO, the BRP for production must submit a new operational schedule (not balanced) if the outage does not affect the reserve sold.

If the outage affects the reserve sold, the BRP for production has two options:

A:

- The BRP for production can choose to observe the existing operational schedule for the plants not affected by the production outage.
- The BRP for production cannot make the reserve sold available or can only make part of the reserve available, and must therefore inform the TSO about the non-available reserve.
- If the unavailable reserve is a manual reserve, new regulating power bids must be submitted.

B:

- Alternatively, the current production can be adjusted (if possible) to re-establish the reserve.
- If the available production is adjusted to re-establish the lacking reserve, the TSO must be informed of this.

In both cases, the BRP for production must submit an updated operational schedule.

3.6.4 Information

BRPs for production having sold reserves to the TSO and electing to downward regulate the remaining production during an outage to re-establish the reserve must inform the TSO by telephone before regulating production downwards.

The TSO must be informed before submission of the updated operational schedule.

The BRP for production must inform the TSO by telephone immediately if the reserve sold cannot be made available.

Annexe 1: Ediel communication

Bids in connection with daily capacity auctions are submitted to Energinet.dk via Ediel in the format currently used in Eastern and Western Denmark for manual reserves. Before the agreement can come into force, the necessary time series must be created subject to the normal deadlines, ie 14 days beforehand.

Energinet.dk's contact is Johnny Larsen, JLA@energinet.dk, tel. +45 76 22 42 61.

All time series are exchanged as DELFOR messages.

Product codes etc. for use in bidding for upward and downward regulation capacity are stated in Tables 1, 2 and 3.

Table 1: Bidding for upward regulation capacity

Product code	Object ID	Description	Unit	Comments
1025	[To be completed by market player]	Bid no. 1 upward regulation Volume	MWh	A bid consists of a volume and a price
5018	[To be completed by market player]	Bid no. 1 upward regulation Price	DKK/MWh	
1025	[To be completed by market player]	Bid no. 2 upward regulation Volume	MWh	A bid consists of a volume and a price
5018	[To be completed by market player]	Bid no. 2 upward regulation Price	DKK/MWh	
...	...	...	...	Repeated for all upward regulation bids

Table 2: Bidding for downward regulation capacity

Product code	Object ID	Description	Unit	Comments
1025	[To be completed by market player]	Bid no. 1 downward regulation Volume	MWh	A bid consists of a volume and a price
5016	[To be completed by market player]	Bid no. 1 downward regulation Price	DKK/MWh	
1025	[To be completed by market player]	Bid no. 2 downward regulation Volume	MWh	A bid consists of a volume and a price

5016	[To be completed by market player]	Bid no. 2 downward regulation Price	DKK/MWh	
...	...	...	...	Repeated for all downward regulation bids

Table 3: Bidding for symmetrical reserve capacity

Product code	Object ID	Description	Unit	Comments
1025	[To be completed by market player]	Bid no. 1 FNR/FDR bid D-1/D-2 Volume	MWh	A bid consists of a volume and a price
5021	[To be completed by market player]	Bid no. 1 FNR/FDR Price D-1	DKK/MWh or EUR/MWh	
5022	[To be completed by market player]	Bid no. 1 FNR/FDR Price D-2	DKK/MWh or EUR/MWh	
....	....	....	....	Repeated for all symmetrical bids

Similarly, product codes etc. for Energinet.dk's feedback to players are stated in Table 4.

Table 4: Market result per player

Product code	Object ID	Description	Unit	Comments
1025	[To be completed by Energinet.dk]	Reserved volume upward regulation	MWh	0 if no reservation is made with player
1025	[To be completed by Energinet.dk]	Reserved volume downward regulation	MWh	0 if no reservation is made with player
5018	[To be completed by Energinet.dk]	Marginal price upward regulation	DKK/MWh	
5016	[To be completed by Energinet.dk]	Marginal price downward regulation	DKK/MWh	
5023	[To be completed by Energinet.dk]	Reserved volume FNR D-1	MWh	
5024	[To be completed by Energinet.dk]	Reserved volume FNR D-2	MWh	
5025	[To be completed by Energinet.dk]	Reserved volume FDR D-1	MWh	
5026	[To be completed by Energinet.dk]	Reserved volume FDR D-2	MWh	
5027	[To be completed by Energinet.dk]	Average FNR price per player (D-1)	DKK/MWh	
5028	[To be completed by Energinet.dk]	Average FNR price per player (D-2)	DKK/MWh	
5029	[To be completed by Energinet.dk]	Average FDR price per player (D-1)	DKK/MWh	
5030	[To be completed by Energinet.dk]	Average FDR price per player (D-2)	DKK/MWh	
5031	[To be completed by Energinet.dk]	Average FNR price SE/DK2 (D-1)	DKK/MWh	
5032	[To be completed by Energinet.dk]	Average FNR price SE/DK2 (D-2)	DKK/MWh	
5033	[To be completed by Energinet.dk]	Average FDR price SE/DK2 (D-1)	DKK/MWh	
5034	[To be completed by Energinet.dk]	Average FDR price SE/DK2 (D-2)	DKK/MWh	

Codes for differentiating between hourly bids and block bids for frequency-controlled normal operation reserves and frequency-controlled disturbance reserves are agreed separately with Energinet.dk. Object ID will state whether the result for frequency-controlled normal operation reserves and frequency-controlled disturbance reserves is preliminary or final in relation to the exchange rate conversion, see sections 1.3.2.4 and 1.4.2.4.

Emergency procedure

If Ediel communication is not available for reasons for which Energinet.dk is responsible, Energinet.dk will notify the players by telephone that bids must be submitted to Energinet.dk in an Excel spreadsheet using the email address gridcontrol@energinet.dk, the deadline

being 10.00 (for manual reserves) or 15.00 (for primary and frequency-controlled reserves) or 20.00 (for frequency-controlled reserves – the time is changed to 19.00 from 16 November 2012). Energinet.dk's spreadsheet template must be used. The template is sent to the player upon commencement of the agreement.

The players must submit their bids via the spreadsheet so that Energinet.dk receives the manual reserve bids by 10.15 at the latest. By 10.30 at the latest, Energinet.dk will inform the participating players of the volumes and prices that apply for the coming day of operation.

For the primary reserves, frequency-controlled normal operation reserves (D-2 auction) and frequency-controlled disturbance reserves (D-2 auction), the players must submit their bids via the spreadsheet so that Energinet.dk receives them by 15.45 at the latest. By 16.30 at the latest, Energinet.dk will inform the participating players of the volumes and prices that apply for the coming day of operation.

For frequency-controlled normal operation reserves (D-1 auction) and frequency-controlled disturbance reserves (D-1 auction), the players must submit their bids via the spreadsheet so that Energinet.dk receives them by 20.45 at the latest. By 21.30 at the latest, Energinet.dk will inform the participating players of the volumes and prices that apply for the coming day of operation.

From 16 November 2012, the deadlines are changed as follows: For frequency-controlled normal operation reserves (D-1 auction) and frequency-controlled disturbance reserves (D-1 auction), the players must submit their bids via the spreadsheet so that Energinet.dk receives them by 19.45 at the latest. By 21.30 at the latest, Energinet.dk will inform the participating players of the volumes and prices that apply for the coming day of operation.

The players are notified of the result of the auction by email, or alternatively by fax.

Annexe 2: LFC reserve supplied from consumption and production

Secondary reserve is an automatic 15-minute power regulation function that reacts to an online regulation signal sent by Energinet.dk to the plants via the balance responsible party (BRP).

In order to supply this reserve, a new function must be built into the plants' control units. The function ensures that the plants regulate up and down in response to an online regulation signal from Energinet.dk. The online regulation signal is an addition/a correction to the plants' existing power regulation signal.

The reference of the regulation is the suppliers' power schedules.

The online regulation signal sent by Energinet.dk must be distributed to the plants participating in the secondary regulation by the BRP so that the combined reaction matches the regulation signal sent by Energinet.dk.

The plants must do an online calculation of the reserve available for upward regulation and the reserve available for downward regulation (MW) and send their calculations online to the BRP for production that collects the results and compiles a combined result which is sent to Energinet.dk.

The plants must do an online calculation of the available regulation gradient (MW/minute) and send their calculations online to the BRP for production that collects the results and compiles a combined result which is sent to Energinet.dk.

Secondary reserves are typically activated more or less constantly and are normally supplied by 'operating'/'rolling' part-load units, but can also be supplied by fast-start units, see section 1.2.1.1.

The LFC reserve can be supplied from both consumption and production as symmetrically separate deliveries, see section 1.2.1.3.

If the BRP wants to supply the LFC reserve from both consumption and production, two sets of regulation signals must be exchanged with Energinet.dk; one set for consumption and one for production.

A switch between the supply being based on consumption or production is indicated online by means of the signals for 'MW RESERVE UP' and 'MW RESERVE DOWN'.

The signals must be exchanged via an ICCP TASE.2 connection (IEC standard).

The signals to be exchanged are:

ICCP INPUT

MXU	MW RESERVE UP
MXD	MW RESERVE DOWN
RTU	RAMP UP
RTD	RAMP DOWN

DEV	DEVIATION EXPECTED (Imbalance which the BRP for production expects to regulate)
TCU	TIME CONSTANT UP
TCD	TIME CONSTANT DOWN
AUTO	INDICATION (Status signal indicating that the plant is available for LFC regulation)

ICCP OUTPUT

EBAS	SETPOINT EXPECTED
EXPV	REGULATION EXPECTED
LFC	LFC REGULATION CONTROL (ON/OFF, INDICATION)

The signals are sent every four seconds.

In connection with the use of both production and consumption, two sets of regulation signals are sent, defined as:

Production:

MXU(P) – MW reserve up
MXD(P) – MW reserve down

Consumption:

MXU(C) – MW reserve up
MXD(C) – MW reserve down

(P for production, C for consumption).

The signals are interpreted by Energinet.dk as described in the following scenarios.

Scenario 1 – production only used.

MXU(P) ≠ 0
MXD(P) ≠ 0
MXU(C) = 0
MXD(C) = 0

Scenario 2 – consumption only used.

MXU(P) = 0
MXD(P) = 0
MXU(C) ≠ 0
MXD(C) ≠ 0

Scenario 3 – production used for upward regulation, consumption used for downward regulation.

MXU(P) ≠ 0
MXD(P) = 0
MXU(C) = 0
MXD(C) ≠ 0

Scenario 4 – production used for downward regulation, consumption used for upward regulation.

MXU(P) = 0

MXD(P) ≠ 0
MXU(C) ≠ 0
MXD(C) = 0

In case of breakdowns, the BRP sends the TASE.2 signal 'AUTO INDICATION' to Energinet.dk. At the same time, the power balance operator is informed via telephone and email.

Annexe 3: BID FORM

For services purchased on a monthly, weekly or daily basis (secondary reserves in DK1 and possibly short-circuit power, reactive reserves and voltage control in DK1 and DK2), Energinet.dk wants to receive bids using the bid form. This annexe describes the bid form in detail, looking at each individual field.

The form is an Excel spreadsheet, which is shown at the end of this document. The spreadsheet has a sheet for DK1 and a sheet for DK2. The bid form can be downloaded from Energinet.dk's website.

The green fields are for entering data. The blue fields should be left unchanged.

DK1

Row 1

These are the column designations referred to in the text both in this annexe and in the bid form.

Row 2

The name of the supplier must be entered in cell B2.

Row 3

The supplier states a bid no. in accordance with the ID nomenclature: "Player designation_area_year_month_sequential number".

Rows 6 to 14

- If the bid covers a whole month, this is indicated in cells C6..D6.
- If the bid covers a whole week, this is indicated in cells C9..D9.
- If the bid covers a whole day, this is indicated in cell C12.
- If the bid covers a particular period, this is indicated in cells C14 and F14.

Cell C17

Field for entering the number of central power stations in operation. Wind power and local CHP plants must enter a 0. Players with central power stations are free to enter 0, 1, 2 or 3. In this way, the costs of forced operation can be calculated. This is necessary for Energinet.dk, especially if the cheapest regulation services are offered by players other than the central power stations.

Only one central power station may be included per power station site.

Energinet.dk pays the supplier to keep plants in operation.

In case of breakdowns, Energinet.dk assumes the risk by covering the costs of starting up another plant.

Cells C20..M21

The bids will be seen as a price (DKK) per period. The duration of the period is generally one calendar month, but the period may be shortened by the player or may be specified by Energinet.dk to allow for planned outages etc.

Cell C21

Field for entering the price for guaranteeing the operation of the number of central power stations mentioned in cell C17 without simultaneous regulation reserves.

- Players without central power stations must enter a 0 in both cell C17 and cell C21.
- Players with central power stations **can** enter a 0 in both cell C17 and cell C21 if they cannot or do not want to guarantee the availability of a voltage-control unit.

Cells E20..M20

Secondary power (Psec) is entered as guaranteed power in MW.

- The power values must be entered as increasing values; any gaps should be entered with a small difference in power (≤ 1).
- Not all fields have to be used.

Cells C21..M21

Field for entering the price for the period bid for.

Energinet.dk will interpolate the form to calculate a total cost price for secondary reserves. The interpolation will result in purchases of whole MWs.

Cell B23

Field for entering comments and any reservations.

Cell B25

Field for entering the plants covered by the bid, identified by their shortnames or GSRN numbers.

DK2

Row 1

These are the column designations referred to in the text both in this annexe and in the bid form.

Row 2

The name of the supplier must be entered in cell B2.

Row 3

The supplier states a bid no. in accordance with the ID nomenclature: "Player designation_area_year_month_sequential number".

Rows 6 to 14

- If the bid covers a whole month, this is indicated in cells C6..D6.
- If the bid covers a whole week, this is indicated in cells C9..D9.
- If the bid covers a whole day, this is indicated in cell C12.
- If the bid covers a particular period, this is indicated in cells C14 and F14.

Cells C17..M17

Players with central power plants are encouraged to submit bids for keeping plants in operation during the period, either in the form of plant-specific bids and/or bids for a number of unspecified plants. Day-specific bids may include start-up expenses.

Energinet.dk pays the supplier to keep plants in operation.

In case of breakdowns, Energinet.dk assumes the risk by covering the costs of starting up another plant.

Cells C19..M19

The bids will be seen as a price (DKK) per period. The duration of the period is generally one calendar month, but the period may be shortened by the player or may be specified by Energinet.dk to allow for planned outages etc.

Cell B21

Field for entering comments and any reservations.

Cell B23

Field for entering the plants covered by the bid, identified by their shortnames or GSRN numbers.

BID FORM

A	B	C	D	E	F	G	H	I	J	K	L	M	← Coloumn no.	
Supplier:	To be filled in												Row no↓	
Bid no.:	To be filled in												3	
DK1	The supplier states a bid no. in accordance with the ID nomenclature: "Player designation_area_year_month_sequential number".												4	
		Year	Month											5
	Period:													6
		or												7
		Year	Week											8
		or												9
		Day												10
		or												11
		from 00:00 on			to 23:59 on									12
														13
														14
														15
														16
	No. of central power stations in operation	To be filled in	(0, 1, 2, 3)											17
	Automatic secondary regulation reserve, symmetrical +/-.													18
	Volume [MW]	0	1	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	19
	Marginal price [DKK/MW/period]	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	20
													21	
Comments, reservations (if any)													22	
													23	
													24	
Plants involved: GSRN numbers or shortname													25	

A player may submit up to four bids per area, depending on the number of central power stations in operation.

The green fields are entry fields. The blue fields must not be changed.

Field C21 specifies the price keeping the number of central power stations specified in cell C17 in operation, without simultaneous automatic regulating service.

Players without central power stations must enter 0 in cells C17 and C21.

Players with central power stations **may** enter 0 in cells C17 and C21 if it is not possible to issue a guarantee for a voltage-control unit.

Secondary reserve is entered as guaranteed power [in MW] in fields E20..M20.

Power values are to be entered with increasing values. Any gaps should be entered with a small difference in power.

As such, the bids are offered as ramps - not as staged bids.

All fields need not be filled in.

The price for the period offered is entered into fields C21..M21.

If forced operation only is offered, field C21 is filled in.

If secondary reserve only is offered, the fields D20..M21 are filled in.

Energinet.dk will interpolate the form to calculate a total price for secondary reserves.

The interpolation will result in purchases of whole MWs.

BID FORM

A	B	C	D	E	F	G	H	I	J	K	L	M	← Column no.
Supplier:	To be filled in												Row no↓
Bid no.:	To be filled in				The supplier states a bid no. in accordance with the ID nomenclature: "Player designation_area_year_month_sequential number"							3	
		Year	Month									4	
DK2	Period:												5
		or											6
			Year	Week									7
		or											8
			Day										9
		or											10
													11
		or											12
			from 00:00 on		to 23:59 on								13
													14
												15	
												16	
	Central power stations in operation	ASV2	ASV5	STV2	AVV1	AVV2	KYV21	KYV22	AMV3	1 un-specified plant	2 un-specified plants	3 un-specified plants	17
													18
	Price [DKK/plant/period]	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	To be filled in	19
													20
Comments, reservations (if any)												21	
												22	
Plants involved: GSRN numbers or shortname												23	

Players with central power stations are encouraged to submit bids for keeping plants in operation during the period, either in the form of plant-specific bids and/or bids for a number of unspecified plants. Day-specific bids may include start-up expenses.

Energinet.dk pays the supplier to keep plants in operation; breakdowns excepted.
In case of breakdowns, Energinet.dk assumes the risk by covering the costs of starting up another plant.

The green fields are entry fields.

Cells C19..M19 specify the prices for committing to keeping the number of central power stations indicated in cells C17..M17 in operation.
Players without central power stations cannot submit such bids.
Players with central power stations may enter 0 in cells C19..M19 if there is no obligation to keep a unit in operation.