Regulation A:

Principles for the electricity market

December 2007

Rev. 1

In case of any discrepancy between the Danish text and the English translation, the Danish text shall prevail

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Introduction

This regulation describes the general principles and terms relating to the Danish electricity market model as well as the transmission system operator's commercial transactions and tariffing principles.

The principles and rules applying to the electricity market model are described in more detail in Energinet.dk's other electricity market regulations for electricity.

This regulation differs from Energinet.dk's other market regulations in being descriptive rather than normative. In case of conflict between this regulation and the other market regulations, the latter shall prevail.

The regulation is primarily aimed at present and future players on the wholesale market.

The regulation is effective within the framework of the Danish Electricity Supply (Consolidated) Act no. 1115 of 8 November 2006 with subsequent amendments.

The regulation has been issued under the provisions of part 3 of Executive Order no. 1463 of 19 December 2005 regarding transmission system operation and the use of the electricity transmission grid etc. (the executive order on system operation).

The regulation was submitted to public hearing from 8 December 2006 to 15 January 2007 and has been notified to the Danish Energy Regulatory Authority.

Complaints about the regulation shall be filed with the Danish Energy Regulatory Authority, Nyropsgade 30, DK-1780 Copenhagen V.

This regulation takes effect on 1 February 2007 and supersedes Eltra's Regulation A1, "Guidelines for electricity trade", parts 1 – 3, and Elkraft System's "Market Description: Who does what?".

This regulation is supplemented by a glossary.

Further information and answers to queries can be obtained from Energinet.dk's contact person responsible for regulation A, see Energinet.dk's website www.energinet.dk, where the latest applicable regulation can also be downloaded.

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1. Players on the electricity market

Several types of players are active on the electricity market, and in practice a player often has two or more roles, operating simultaneously as producer, end customer, electricity supplier and balance responsible party (BRP).

The producer generates electricity and sells it prior to the delivery hour to the supplier or to Nord Pool. In the actual delivery hour, the producer sells/buys electricity to/from the transmission system operator on the regulating power market, see Energinet.dk's regulation C2.

The electricity supplier (electricity trader) buys electricity from the producer, from Nord Pool or from another supplier and resells it to the end customers.

The end customer uses the electricity purchased from the electricity supplier.

The balance responsible party (BRP) is a player who has concluded an agreement on balance responsibility with the transmission system operator, see Energinet.dk's regulation C1. The BRP undertakes the tasks incumbent on him pursuant to this agreement, see section 2.1.

The grid company operates the grids and performs all metering work. The grid company submits the metered consumption and production data for each individual BRP to the transmission system operator, who uses the data for set-tling imbalances.

The company with a supply obligation is a supplier licensed to supply end customers not exercising their right to freely choose another supplier (market access).

The transmission system operator is responsible for the security of supply of the electricity system, including the safeguarding of the physical balance, and for the drawing up of market rules that will ensure a well-functioning electricity market.

Nord Pool is the common Nordic electricity exchange, which operates three market places: Elspot, Elbas and Eltermin.

Elspot and **Elbas** are market places for physical trade in electricity as described in detail in sections 3.1.1 and 3.1.2.

Eltermin is the market place for financial trade (hedging).

2. Main principles for the Danish electricity market model

2.1 Balance responsibility

It is a fundamental principle of the market model that a balance responsible party (BRP) shall be assigned to every instance of production, consumption and trade.

Basically, customers, producers and electricity traders are BRPs, ie financially liable for imbalances in their own consumption, production or trade. Opting to renounce this balance responsibility involves a commitment to assign it to another BRP.

The rules applying to balance responsibility are described in detail in Energinet.dk's regulation C1.

2.2 Metering

It is also a fundamental principle that production and consumption as a minimum shall be metered on an hourly basis.

Hourly values are metered and settled in Eastern Denmark. Quarter-hourly metering is performed in Western Denmark, but settlement is based on hourly values.

Small customers, see Energinet.dk's regulation H2, and small producers, see Energinet.dk's regulation D1, are exempt as the values required for settlement purposes are estimated on the basis of, for example, monthly or annual metering.

2.3 Daily operation of the electricity market

The daily operation of the electricity market can be divided into three phases.

The day before the day of operation

Not later than the day before the day of operation, the electricity suppliers trade – bilaterally or via Nord Pool Elspot – with each other, with producers or with end customers in order to cover their consumption and sell their output in the subsequent 24-hour period.

In the afternoon of the day before the day of operation, the BRPs shall submit binding notifications for production, consumption and trade for the subsequent 24-hour period to the transmission system operator, see Energinet.dk's regulation C3. The BRP is responsible for ensuring that the notifications balance.

The approved notification can be changed up to one hour before the delivery hour as a result of new Elbas transactions or bilateral trade, as the case may be.

The day of operation

During the day of operation, the transmission system operator is responsible for maintaining the system's balance, ie for imports/exports, frequency and voltage keeping within the agreed limits. This is achieved by monitoring the system via on-line metering and, if necessary, by intervening. This may be done in cooperation with other transmission system operators.

By intervening is meant, for instance, that the transmission system operator buys electricity (upward regulation) from or sells electricity (downward regulation) to players on the regulating power market, thus eliminating the deficit/surplus observed.

The transmission system operator is committed to ensuring that sufficient reserves are available at any time to cover outages, etc., see section 3.3.

After the day of operation
After the day of operation, meter data on consumption and production is collected. For various reasons, actual consumption and production may deviate from the schedule. If consumption exceeds the purchased volume (negative imbalance), the transmission system operator will buy the difference. If less electricity has been consumed than scheduled (positive imbalance), the surplus is bought by the transmission system operator. Electricity traded in this way is called balancing power.

3. Market places

3.1 Nord Pool

With its two markets for physical trade in electricity, Elspot and Elbas, the common Nordic electricity exchange, Nord Pool, is an important element in the Nordic market model.

Nord Pool has divided the Nordic market into several bidding areas. Denmark is divided into two areas whereas Sweden and Finland each constitute one area. Norway may be divided into several areas as required, and finally there is a bidding area in Vattenfall Europe Transmission's area in Germany.

Nord Pool uses the concept implicit auction, by which transfer capacity is allocated concurrently with electricity being traded. This means that all trade between bidding areas must take place via Nord Pool.

3.1.1 Elspot

Electricity for delivery the next day is traded on Elspot. The trade results in a price that may be characterised as the market price of electricity in the Nordic countries.

Trade via Elspot follows the time schedule below:

- Every day by 10:00, the Nordic transmission system operators make guaranteed transfer capacity between the bidding areas available to Elspot for the following day of operation.
- 12:00 noon is the players' bidding deadline for trade in electricity for the following day of operation (buying and selling bids).
- Subsequently, Nord Pool calculates the price. Initially, Nord Pool adds up all the buying and selling bids arriving at the price (system price) that strikes a balance between purchase and sale in the whole area. If sufficient transfer

capacity between the areas is available, a common market price equal to the system price will become effective in all the areas. This is seldom the case, however.
- In situations of insufficient transfer capacity (congestion), the Nordic countries are divided into different price areas (market splitting). A price area may comprise one or more bidding areas. A bidding area's price is called the area price.
- At 13:00, Nord Pool announces the traded volumes and prices for the following day of operation.

3.1.2 Elbas

On Elbas (Nord Pool's intraday market), electricity can be traded up to one hour before the delivery hour. The purpose of Elbas is to make it possible for players to buy and sell as required in order to ensure balance right up to the delivery hour, eg in case of outages.

Apart from being able to ensure balance by appropriate buying and selling on Elbas, Danish players can also make bilateral transactions up to one hour before the delivery hour[1]. Bilateral transactions can only be made within each individual bidding area.

3.2 The regulating power market

As described in section 2.3, the transmission system operator is committed to maintaining the balance in the delivery hour. This is achieved by buying upward or downward regulation reserves on the regulating power market, see Energinet.dk's regulation C2.

Through their respective BRPs, producers submit bids for increased production (upward regulation) or reduced production (downward regulation) to the common Nordic regulating power market. It is up to the individual players if and when they choose to be active on the regulating power market, provided they have not concluded an agreement about reserve capacity with Energinet.dk (see section 3.3).

Only production units operating on market terms may submit bids to the regulating power market, thereby supplying ancillary services to the transmission system operator. Producers of PO production (eg time-of-day tariff) are therefore excluded.

Consumers are also entitled to submit this type of bids for upward and downward regulation.

3.3 The reserve capacity market

Via Nordel and UCTE, Energinet.dk is subject to internationally established requirements in relation to the availability of sufficient reserve capacity to cover the possible outage of the largest unit in Eastern or Western Denmark (by largest unit is meant a production unit or an international connection).

[1] At present, it is not technically possible to make these bilateral transactions. They will only be possible when a new system for handling notifications and schedules is introduced.

To ensure that sufficient reserve capacity is available on the regulating power market, Energinet.dk therefore concludes reserve capacity agreements, according to which Energinet.dk pays players a fixed availability payment for being available and submitting bids for upward/downward regulation to the regulating power market.

If, by way of example, a producer has concluded a monthly capacity agreement with Energinet.dk, he is committed to submitting bids to the regulating power market for each hour of the relevant month. Unless otherwise agreed, the producer determines the activation price quoted hour by hour.

3.4 International connections

3.4.1 Norway and Sweden

The entire trading capacity on the interconnections with Norway and Sweden is made available to Nord Pool (Elspot and Elbas), and implicit auctioning is used as described in section 3.1.

3.4.2 Germany

The interconnection between Eastern Denmark and Germany is operated according to the same principle as the one applying to the interconnections with Norway and Sweden.

However, on the interconnection between Western Denmark and Germany, daily, monthly and annual auctioning of capacity is used. The German transmission system operator, E.ON Netz, is in charge of the auctions. The terms applying to the auctions can be found on the website "Auctions on the Danish/German border"[2] and are continuously updated.

Players buying capacity on the border at the auction are free to make the capacity available to the market, handing it over to Nord Pool. The purpose is to improve trade on the border. Nord Pool's service is called "Cross Border Optimisation" (CBO).

4. The transmission system operator's commercial transactions

4.1 PO production

Energinet.dk is balance responsible for PO production. A production forecast (wind power and CHP) is prepared the day before the day of operation.

Energinet.dk is also "supplier" (buyer) of the PO production. Energinet.dk enters the anticipated PO production into Nord Pool's spot market in the form of a price-independent sales bid and pays the selling price plus subsidy, etc., to the plant owners.

Subsequently, the difference between the forecast and the actual production is calculated, and Energinet.dk settles this imbalance internally according to the

[2] http://www.eonnetz-eltra-auctions.org/

general rules, see Energinet.dk's regulation C2. The balancing cost and subsidies are financed via the PSO tariff.

4.2 Wind turbines on market terms

Pursuant to section 59a(4) of the Danish Electricity Supply Act, Energinet.dk shall offer to assume balance responsibility for the electricity production of wind turbines that no longer fall within the stipulations relating to purchase obligations (wind turbines on market terms). Energinet.dk's balance responsibility shall be undertaken at the costs associated with the balance responsibility.

Energinet.dk's tasks are the same as apply to PO production.

4.3 Grid losses

Energinet.dk is balance responsible for consumption in relation to grid losses occurring on the international connections and in the 132 and 400 kV grids.

The day before the day of operation, Energinet.dk prepares a grid loss forecast and purchases the equivalent volume on Elspot making price-independent buying bids. Subsequently, the imbalance between the forecast and the actual grid loss is calculated according to the general rules, see Energinet.dk's regulation C2.

As a general rule, Energinet.dk does not act as a player on Elbas when conducting its commercial transactions, one of the reasons being that it can be difficult to ensure that such transactions are transparent to the market. Likewise, Energinet.dk does not use Nord Pool's financial market for hedging its transactions. A change of practice would in either case be based on well-defined and publicised rules.

5. The transmission system operator's tariffs

The transmission system operator's electricity tariffs are divided into tariffs for consumption and tariffs for production.

The tariffs applicable at any given time can be found on Energinet.dk's website and have been notified to the Danish Energy Regulatory Authority. The tariffs are calculated in accordance with Energinet.dk's regulation B, and the methods applied have been approved by the Danish Energy Regulatory Authority.

5.1 Tariffs for consumption

The tariffs for consumption are used for settlement between the transmission system operator and the grid companies and fall in 3 categories: system tariff, grid tariff and PSO tariff.

The system tariff covers costs in relation to security of supply and quality of supply. The system tariff is adjusted at the turn of the year but may also be subject to changes during the year.

The grid tariff for consumption covers costs in relation to the operation and maintenance of the main grid (132 – 400 kV grids), including payments to regional transmission companies. The tariff also covers the operation and maintenance of the international connections. The grid tariff is adjusted at the turn of the year but may also be subject to changes during the year.

The PSO tariff primarily covers subsidies for PO production and for local CPH units as well as R&D funding and its administration. The PSO tariff is subject to quarterly adjustments.

5.2 Tariff for production

Production units operating on market terms pay a special grid tariff for production (feed-in tariff), which means that wind turbines and local CHP units that are still subject to a purchase obligation are exempt.

The tariff is settled with the BRP for the production and is adjusted once a year.

5.3 The ETSO scheme

Energinet.dk is a member of the cooperative body ETSO (Association of European Transmission System Operators).

ETSO has created a voluntary scheme for the settlement of costs in connection with cross-border electricity trade. The scheme only comprises transmission system operators and does not involve cross-border trade between players.

The transmission system operators compensate each other for the transit occurring in the national grids. The transmission system operators are compensated for transit whenever electricity has both been fed into and extracted from the grid outside the transit country, ie no compensation is paid for imports and exports.

Appendix 1: Glossary

Balance responsibility	Responsibility for discrepancies between bought/sold electricity and actual consumption/production.
Balance responsible party (BRP)	A player approved by and party to an agreement with Energinet.dk regarding balance responsibility. The player is financially liable for discrepancies between the submitted notifications and schedules and the actual consumption/production. A BRP can be balance responsible for production, consumption and/or trade.
Balancing market	Deviations from submitted notifications and schedules attributable to BRPs cause imbalances in the entire electricity system. The transmission system operator maintains balance by buying regulating power. The costs of buying regulating power are distributed among the BRPs relative to their individual purchase or sale of balancing power. The term "balancing market" stands for the purchase of regulating power as well as the purchase/sale of balancing power.
Balancing power	Imbalances incurred by a BRP are covered by buying from or selling to the BRP. Energy traded in this way is called balancing power.
Bidding areas	Geographically, Nord Pool has divided the Nordic exchange area into several bidding areas. Denmark is divided into two bidding areas: Western Denmark (DK1) and Eastern Denmark (DK2).
Bilateral trade	Direct trade between two parties.
Congestion (bottleneck)	Transfer constraint in the electricity grid. The transmission system operator is committed to preventing transactions that may lead to overload or may otherwise jeopardise operational reliability.
Counter-trade	Counter-trade is used, for instance, in case of internal grid constraints in a bidding area and is effected by upward regulation on one side of the bottleneck and downward regulation on the other.
Downward regulation	In case of surplus energy in the system, the transmission

	system operator neutralises the surplus by activating bids for downward regulation on the regulating power market. As a consequence, the player will reduce his production or increase his consumption and buy the equivalent volume from the transmission system operator.
Electricity supplier (electricity trader)	Electricity suppliers buy electricity from a producer, from Nord Pool or from another supplier and sell it to end customers. If the supplier does not assume balance responsibility for his own sale, he must have an agreement with another BRP.
ETSO	The Association of European Transmission System Operators. The organisation represents the transmission system operators in the EU countries, Norway and Switzerland.
Grid company	The grid company operates the electricity grid and is responsible for all meter readings. The grid company submits meter data on consumption and production for each BRP to the transmission system operator for the settlement of imbalances.
Implicit auction	In the case of implicit auctions, the electricity exchange allocates transfer capacity concurrently with electricity being traded, ie the player does not have to buy cross-border transfer capacity at a separate auction.
Intraday market	On the intraday market, players may trade up to one hour before the delivery hour. Nord Pool's intraday market is called Elbas.
Market coupling	Two electricity exchanges cooperate to implement cross-border electricity trade on the border between the two electricity exchange areas.
Market splitting	One electricity exchange handles the flows in its own area, dividing the area into several price areas in case of congestion.
Metered data collector	The metered data collector responsible for a given metering point is the grid company in whose area the metering point is situated. The metered data collector is responsible for both operational metering and settlement metering.
Nord Pool	The Nordic electricity exchange, which is the common Nordic trading place for the physical and financial purchase and sale of electricity.

Nordel	Nordel is the cooperative body of the Nordic transmission system operators.
PO production	Electricity produced in local CHP units with a maximum capacity of 5 MW and renewable energy (wind turbines and various kinds of biomass, biogas and solar cells), which Energinet.dk is obliged to purchase at statutory prices.
Price areas	In case of congestion between two bidding areas, several price areas will be formed. A price area may cover one or more bidding areas.
Regulating power market	To maintain balance in the delivery hour the transmission system operator buys upward or downward regulation reserves on the regulating power market.
Reserve capacity market	The transmission system operator enters into agreements on reserve capacity to ensure that sufficient reserve capacity is available. Players concluding reserve capacity agreements receive an availability payment for offering capacity to the regulating power market.
System price	The market price of electricity on the common Nordic market, without allowing for congestion.
UCTE	The Union for the Co-Ordination of Transmission of Electricity is a cooperative body for the transmissions system operators on the European continent who jointly operate the interconnected West European synchronous AC system. Energinet.dk is an associated member.
Upward regulation	In case of a deficit of energy in the system, the transmission system operator neutralises the deficit by activating bids for upward regulation on the regulating power market. As a consequence, the player will increase his production or reduce his consumption and sell the equivalent volume to the transmission system operator.