



**NordREG**  
Nordic Energy Regulators

# A COMMON DEFINITION OF THE SYSTEM OPERATORS' CORE ACTIVITIES

Report 4/2006

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# Preface

The Nordic Ministers' Council in Narsarsuaq in June 2005 stated that further investigations concerning efficient functioning of the Nordic Electricity Market are necessary, and among others invited the Nordic Regulators (NordREG) to:

*Establish a common definition of the system operators' core activities in the Nordic countries. The roles of all relevant actors should be clarified.*

*Tasks performed by the system operators, but not directly connected with the system operators' core activities must be separated and be financed transparently. The costs must in principle be borne by the party who has the advantage of the activity.*

NordREG's group on the efficient regulation of the TSOs in the Nordic countries (TSO Working Group) was invited to take on this task.

In accordance with the request from the Nordic Ministers' Council NordREG was requested to present their report by March 1, 2006.

NordREG has consulted with Nordel during the work.

The Members of the TSO Working Group of NordREG for this particular task were:

Ms. Margareta Bergström, Swedish Energy Markets Inspectorate  
Mr. Johan Björnars Roupe, Swedish Energy Markets Inspectorate  
Ms. Edna Grepperud, Norwegian Water Resources and Energy Directorate  
Mr. Roar Kristensen, Norwegian Water Resources and Energy Directorate  
Mr. Antti Kivipuro, Energy Market Authority  
Ms. Ritva Hirvonen, Energy Market Authority  
Ms. Linda Aaberg, Danish Energy Regulatory Authority

Denmark chaired the group.

# A common definition of the system operators' core activities - Summary and conclusions

As a follow-up to the Nordic Ministers' Akureyri-declaration and Nordel's report *Enhancing Efficient Functioning of the Nordic Electricity Market* the Nordic Ministers' Council stated in June 2005 that further investigations are necessary to establish a common definition of the system operators' core activities in the Nordic countries and NordREG was invited to elaborate the topic further.

In this report a common definition of the system operator's core activities in the Nordic countries is identified and also a list of non-core activities is introduced. As a starting point the common tasks for system responsibility as identified by Nordel has been used for the work. The term TSO is employed as a common denominator in the report. It is found out that the TSOs carry out common core activities in the roles as a transmission operator, a system operator and a balance settlement responsible.

The core activities for the TSO as a transmission network operator<sup>1</sup> are:

- Maintain the adequate transmission system in the long run and network development plan on the national as well as on the Nordic level using sophisticated analysis and planning methods and tools.
- Plan the transmission network on the national as well as on the Nordic level utilising new investments, renewal and maintenance of existing network components so that the network is secure to operate and adequate transmission capacity is guaranteed.
- Aim at timely network expansions using enhanced information exchange between the Nordic TSOs, and on the national level between the TSO and distribution and regional network operators, large consumers and large producers.
- Secure the technical compatibility with networks across the border and within a country by establishing connection requirements on the national level and ensuring that the national requirements are compatible across the Nordic power system.

The core activities for the TSO as a system operator<sup>2</sup> are:

- Define common technical requirements for the secure system operation using common planning, operation, connection and data exchange procedures.

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<sup>1</sup> Stated also within Nordel's core task "ensure and maintain adequacy of the transmission system in the long run".

<sup>2</sup> Stated also within Nordel's core tasks "ensure the operational security of the power system" and "maintain the momentary balance between demand and supply".

- Secure the system operation with the operational planning for the following year by using information exchange between TSOs enabling the TSOs to make the best possible forecast of the global grid situation in order to assess the flows in their network and the available transmission capacities and coordinating the maintenance operation across the borders.
- Exercise consistent and coordinated transmission capacity calculation procedures to secure the system operation for the day-ahead when establishing the capacity available to the markets.
- Implement common procedures for the congestion management in the case of congestions according to the EC Regulation 1228/2003 and guidelines under it.
- Secure the power system operation during the operational hour according to the binding operational agreement and utilising the available resources within the power system effectively with the help of measurements and control systems.
- Manage disturbances by proper system protection planning and activate remedial actions without delay using the automatic and manual disturbance reserves and automatic load shedding if required; in the case of the system blackout ensure the black start capability and rapid system restoration.
- Maintain balance between supply and demand within the operational hour by the automatic frequency control and the regulation market including demand response.
- Manage the shortage situation together with authorities by up-to-date action plans and agreements including enforced disconnections.

The core activity for the TSO as a balance settlement responsible (not necessarily within the same entity) is:

- Execute the national balance settlement by setting imbalance pricing and settlement principles for imbalances and by setting routines for measuring and reporting.

The core activities of the Nordic TSOs are quite similar. However, the organisation of the core activities under the legislative framework, and the way they are conducted is differently managed within the Nordic countries, just as the regulator's role is not the same in all the Nordic countries with regard to the supervision of the TSO.

NordREG recommends a further study based on the core activities defined in this report evaluating if and how a more harmonised Nordic regulatory set-up could contribute to an enhanced development of the common Nordic electricity market in co-operation between NordREG, Nordel and relevant stakeholders. This evaluation should comprise an examination of whether partly or full harmonisation or the setting of common minimum standards for the regulation of TSOs would encourage the market development further. This evaluation may further map:

- if further harmonised detailed and consistent regulation should be handled within the framework of the Grid Code or if the national laws and regulations should be further specified, or

- if further harmonised detailed and consistent regulation is necessary, and if this cannot be implemented via the Grid Code nor can be implemented in four national laws and regulations to the effect desired it may further be considered to be carried out through a some kind of legally binding Nordic agreement.

In order to carry out national duties different non-core activities are also employed on the Nordic TSOs. The costs of these non-core activities of the TSOs shall be separated from the core activities and financed transparently. Further studies on the costs of non-core activities and their separation from common core activities would be appropriate, and may be recommended to be conducted when Nordel has finished their study on this topic.

# 1 Introduction

## 1.1 Background

As a follow-up to the Nordic Ministers' Akureyri-declaration and to the proposals given in answer hereto in the Nordel Report Enhancing Efficient Functioning of the Nordic Electricity Market the Nordic Ministers' Council in Narsarsuaq in June 2005 stated that further investigations are necessary, and among others invited the Nordic Regulators to:

*Establish a common definition of the system operators' core activities in the Nordic countries. The roles of all relevant actors should be clarified.*

*Tasks performed by the system operators, but not directly connected with the system operators' core activities must be separated and be financed transparently. The costs must in principle be borne by the party who has the advantage of the activity.*

In consequence the "Elmarkedsgruppen" under the Nordic Ministers' Council contacted the group of Nordic Regulators, NordREG, stating that it is important to follow up on the Minister's statement in Narsarsuaq in June 2005 and on the Nordel Report. The "Elmarkedsgruppen" invited NordREG to take on the above mentioned task.

NordREG's group, recently established to evaluate whether the regulation of the TSOs in the Nordic countries is adequately harmonised and efficiently sustains to the development of the Nordic electricity market (TSO Working Group), was requested to take on the task of drafting a report on core activities in response to the "Elmarknadsgruppen" request.

In the Nordel report the following tasks were identified as common in system responsibility for all TSOs (transmission system operator):

1. Ensure operational security of the power system
2. Maintain the momentary balance between demand and supply
3. Ensure and maintain adequacy of the transmission system in the long run
4. Enhance efficient functioning of the electricity market

The timeframe set by the "Elmarknadsgruppen" for the regulators' report on core activities is 1.3.2006.

## 1.2 Presentation of the nature of the TSOs in the Nordic Countries

In this report the term TSO is employed as a common denominator. The following overall definition of the transmission system operators' (TSOs') roles is stipulated by law in each Nordic country:

**Sweden:** Svenska Kraftnät is an authority. According to its governmental instruction, it is charged with the task to manage, develop and operate Sweden's national grid and overseas links in an economically efficient and environmentally responsible way. Svenska Kraftnät is also charged with selling transmission capacity. The national

electricity grid encompasses the country's 400 and 220 kV power lines. This role can be described as the role of Transmission operator (TO).

In carrying out these tasks Svenska Kraftnät shall also:

- Develop the national grid based on socially efficient considerations
- Further competition in the electricity market
- Further research, development and demonstration of new technology

As a transmission operator Svenska Kraftnät is financed mainly through transmission tariffs. Three year investment plans are submitted to the government yearly and approved through yearly decrees.

In its role as a TO Svenska Kraftnät is subject to regulation as a grid company. The Energy Markets Inspectorate issues concessions for power lines except for international lines, where the government decides. The Energy Markets Inspectorate is also responsible for supervising that the transmission fees are reasonable.

Svenska Kraftnät is also the system Operator under the Electricity Act. This entails having the overall responsibility for electrical plants working together in an operationally-reliable way so that a state of balance between the production and consumption of electricity can be maintained throughout the country or parts of the country. Svenska Kraftnät has the right to issue binding rules in its role as system responsible authority (SO).

The task to keep the system balanced is carried out through a number of balancing responsible parties, who sign a contract with Svenska Kraftnät. According to the Electricity Act the Energy Markets Inspectorate has to approve that the methods of the standard contract are objective and non-discriminatory before Svenska Kraftnät can sign any agreements. The role as a SO also includes the responsibility for the settlement between the balancing responsible parties. The role as a system operator is mainly financed by the market players through imbalance payments. In order to secure peak load capacity in all situations, a temporary law has charged Svenska Kraftnät with the task to procure maximum 2000 MW of reserve capacity for extreme winter peaks. The cost of this reserve capacity is paid for by the balance responsible parties.

Affärsverket Svenska kraftnät ("Svenska Kraftnät") is a state authority.

*Reference: Chapter 8, section 1 of the Swedish Electricity Act (1997:857) in conjunction with Regulation (1994:1806) concerning system responsibility for electricity, paragraph 1.*

**Norway:** Statnett SF is given the authority to operate as the Norwegian TSO by licence. The Energy Act and regulations under this states the over all purpose as to facilitate an efficient power market and satisfactory quality of supply in the power system. Further more it shall ensure that the system responsibility is exercised in a socially efficient manner, including taking public and private interest that are affected into consideration. Statnett SF is also given the authority to settle the financial balance by license (B). In addition to this, Statnett SF has a trade license due to its ownership of transmission grid.

According to principles for exercising the system responsibility the system operator shall provide frequency regulation and ensure momentary balance in the power system at all

times, act in a neutral and non-discriminatory manner in relation to everyone covered by these regulations, develop market solutions which will help to ensure the efficient development and utilisation of the system, to the greatest possible extent make use of instruments which are based on market principles, coordinate and follow up the actions of licensees and end users in order to achieve a satisfactory quality of supply and efficient utilisation of the power system, and prepare and distribute information about power system-related matters that have a bearing on the power market, as well as matters of significance to the general quality of supply.

NVE is delegated the responsibility to establish regulations for system operation. The regulations were put into force in 2002. It is only NVE that may grant exemption from the regulations.

NVE does necessary check to ensure that provisions contained in the regulations are adhered to. NVE has also the authority to and is responsible for the settlement of disputes regarding regulations for system operation.

**Finland:** The Electricity Market Act states that electricity network operation calls for a licence issued by the Energy Market Authority. In the electricity system licence, the Energy Market Authority orders one grid operator to be responsible for the technical operability and reliability of Finland's electricity system and to discharge the duties involved in national balance responsibility in an appropriate manner that is equitable and non-discriminatory to all electricity market participants (system responsibility). The Energy Market Authority has ordered Fingrid to be the system responsible grid operator in Finland.

According to the Electricity Market Act the system responsible grid operator shall upkeep and develop its activities and services within the system responsibility and maintain, operate and develop its electricity system and other equipment needed for fulfilling the system responsibility and the connection to other systems, so that the prerequisites for an efficiently functioning electricity market can be ensured. In order to meet the responsibilities, the system responsible grid operator may impose terms and conditions on the use of the power transmission system, as well as on the use of the power plants and loads connected to the power transmission system. These terms and conditions shall be submitted to the Energy Market Authority for approval. In addition the grid operator under the system responsibility shall publish, and make known to the Energy Market Authority, the currently valid terms of services associated with the system responsibility.

Further provisions on the contents and fulfilment of the systems responsibility may be given by ministerial decree. Certain provisions regarding the duties and obligation of the system responsible grid operator are also included in the Fingrid's licence. For example it has been stated in the conditions of the licence that Fingrid must keep the unbundled accounts for balancing services.

The Electricity Market Act also includes general obligations regarding system operation (i.e are applicable to all network operators whether operating the distribution network or the transmission network). The most essential general obligations are the obligation to develop the network, the obligation to connect and the obligation to transmit. Network operators should also keep their prices at the reasonable level and terms of the network services equitable and non discriminatory to all users.

According to the Electricity Market Act the task of the Energy Market Authority is to supervise that the provisions of this Act and any rules and regulations issued under it, as well as Regulation (EC) No 1228/2003 are complied with. However, the construction of cross-border power lines, and the import and export of electricity are supervised by the Ministry of Trade and Industry.

By its decision, the Energy Market Authority shall confirm the following terms of services and methods of pricing services before their take-up to be complied with by the system operator and the grid operator under the systems responsibility: (1) methods to determine the system operator's return on its system operations and the fees charged for the transmission service during the surveillance period; (2) terms of the system operator's transmission service; (3) terms and methods of the system operator's connection service to determine the fees charged from the connection; (4) terms of the services under the systems responsibility of the grid operator subjected to the systems responsibility and methods to determine the fees charged for the services.

Where anyone infringes against or neglects his obligations laid down in the Electricity Market Act or any provisions issued under it, or in Regulation (EC) No 1228/2003 the Energy Market Authority shall oblige him to correct his mistake or omission. The Energy Market Authority may impose a conditional fine to make a decision effective.

*Reference: Chapter 4 Section 16 of Finnish Electricity Market Act, the Chapter 4 Sections 9-14 of Finnish Electricity Market Act and Chapter 9 of Finnish Electricity Market Act.*

**Denmark:** The state owned Energinet.dk handles system responsible activity and electricity transmission activity. System responsibility is according to the Electricity Act defined as the activity concerning the overall responsibility for upholding security of supply and an efficient use of an integrated electricity supply system. Further more according to the act on Energinet.dk the objective is to secure an efficient operation and expansion of the overall electricity- and gas infrastructure, including international connections at all levels, and to secure transparent and equal access for all user's of the grid.

Energinet.dk handles system responsible and transmission electricity activity in context with a coherent and comprehensive planning as well as electricity and gas transmission activity, according to the acts.

The tasks include ensuring the technical quality and balance of the system, ensuring the availability of adequate production capacity, cooperation with other grid operators, publication of the following day's plans for production, consumption and trade, regulation on connection, conditions for grid access, metering and regulation on the market players responsibilities in connection with the technical quality and balance, balance settlement, information to the market with significance on price formation, and preparation of a plan for the future necessary transmission capacity above 100 kV and at least 10 years of security of supply.

Also Energinet.dk has the responsibility of operation and maintenance of transmission grids, which in the Electricity act is defined as "Collective electricity supply grid which has as its purpose to transport electricity from production locations to a general centre in

the distribution grid or to join to other coherent electricity supply grids”, i.e. grids > 150 kV and all international connections.

The regulators role concerns system, as well as transmission as balance settlement issues, and the regulator monitors among others the above mentioned activities according to law and further regulation. No license is required in Denmark.

*Reference: § 2 in Energinet.dk Act , § 5 and chapter 5 and 11 in the Electricity Act and the regulation on system responsible activity and transmission grid*

## 1.3 EU definition of the TSO

The EU does not operate with the term “system operator”, and as such no definition of system operator is included, but EU defines the “transmission system operator”.

According to the electricity directive (2003/54/EC) the:

*“transmission system operator” means a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long term ability of the system to meet reasonable demands for the transmission of electricity.*

Furthermore in articles 9-12 of the Directive the TSO’s tasks, the unbundling requirements, the rules on dispatch and balancing and the rules on confidentiality are addressed.

In the directive’s preamble it is stated that: *For competition to function, network access must be non-discriminatory, transparent and fair priced.* Following this it is stated *In order to complete the internal electricity market, non-discriminatory access to the network of the transmission or the distribution system operators is of paramount importance.*

It goes without saying that the directive stipulates that all regulation must be non-discriminatory, objective and transparent.

In the directive transmission grid is not directly defined, but “transmission” according to the directive means *the transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors, but not including supply.*

According to the Council Regulation on conditions for access to the network for cross-border exchanges in electricity, called the CBT regulation (1228/2003), the same definitions as in the electricity directive apply.

Summing up according to EU law the TSO must be unbundled and must act objectively and transparently.

### 1.3.1 Objectivity, unbundling and transparency in the Nordic countries

**Sweden:** The Swedish TSO is a governmental “affärsverk”. As a transmission operator (TO) it acts as a state owned company. As a system operator (SO) it is an authority.

The SO has according to the electricity act the power to make decisions. Decisions are made under respect of the public administration act and the act on access to records.

**Norway:** The Norwegian TSO is 100% state owned public company under minister's regulation.

Statnett has according to the Electricity Act and regulations pursuant to the Act, the power to make individual decisions as lined out in the regulations. Decisions are made under respect of the Public Administration Act and the Freedom of Information Act.

**Finland:** The Finnish TSO is partially state owned (12 %) and partially private owned (Fortum 25 %, PVO 25 % and Insurance companies 38%) public company. It operates under a license granted by Energy Market Authority..

As regards the TSO's core tasks the Finnish TSO doesn't have powers to make any administrative decisions governed by the public administration act and the act on access to records doesn't apply to it<sup>3</sup>. However there are provisions in Electricity Market Act and in other general legislation regarding TSO's obligation to provide and publish information (such as prices, the terms and conditions of provided services and the financial information of the company).

**Denmark:** Energinet.dk is 100% state owned public company under the minister's regulation, and subject to the monitoring of the Regulator.

The company, although not part of a vertically integrated company, is according to the Electricity Act obliged to establish a compliance programme describing the measures in order to avoid discriminative behaviour. A description of the programme is published once a year together with the annual report, and must be notified to the regulator.

The members of the board are appointed by the minister (except 3 employees), and must be independent of commercial interests in electricity production and trade.

The TSO has according to the Electricity Act the power to make decisions. Decisions are made with due respect to the public administration act, the act on access to records and the act on the ombudsmand, just as Energinet.dk is obliged to publish regulations on connection to the grid, grid access , metering etc. These must be notified to the regulator, who has the power to order changes.

### **1.3.2 The transmission grid in the Nordic countries**

As mentioned above the electricity directive does not define transmission grid, but "transmission" according to the directive means *the transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors, but not including supply.*

The Nordic countries have different definitions of transmission grid, ranging from 400 kV to 110 kV, just as it differs as concerns the grids not owned by the TSO, - either put at the disposal of the TSO for the purpose of the market or not.

# 2 Core and non-core activities

## 2.1 Introduction

Nordel has in its report *Enhancing Efficient Functioning of the Nordic Electricity Market* noted that there are differences in what is normally meant by system responsibility in different countries.

In Finland and Sweden, the scope is limited to the operational security and in addition to that the TSOs have a number of other tasks and responsibilities (e.g. network development, promotion of efficient functioning of the market).

In Denmark and Norway, all of these tasks are included within the broad definition of system responsibility.

In all countries, these tasks are seen, however, as an aggregate where all four parts support each other. According to the Nordel report tasks, which are common in systems responsibility for all TSOs, are to:

1. Ensure the operational security of the power system
2. Maintain the momentary balance between demand and supply
3. Ensure and maintain adequacy of the transmission system in the long term
4. Enhance efficient functioning of the electricity market

The Elmarknadsgruppen has agreed with Nordel that these tasks create the common core tasks of system responsibility in the Nordic countries.

Besides these tasks, the TSOs can also have other duties that are not included in the common core tasks of the system responsibility. There are differences in these duties. The differences can be due to a different division of responsibilities between the TSOs and the authorities.

This report elaborates the core tasks defined by Nordel in more detail defining core activities to fulfil these core tasks. This is due to the fact that Nordic legislation differs in detail and more detailed definitions within these core tasks contribute to the further development of harmonisation process. In defining the core activities the compliance with the electricity directive 2003/54/EC, the EC Regulation 1228/2003 and guidelines under it has been taken into account.

In order to fulfil the four tasks mentioned in the Nordel's report, NordREG Working Group has found that the TSOs act in three different roles in the Nordic electricity framework. The roles are not clearly stated in the present national legislations. The roles defined by NordREG are the roles that must be fulfilled but not necessarily within the same entity. They are as follows:

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<sup>3</sup>According to the Act on guarantee of origin of electricity produced from renewable energy sources the public administrative act and the act on access to records shall apply to TSO when it administrating the tasks relating to issuing guarantees of origin.

- Transmission operator
- System operator
- Balance settlement responsible<sup>4</sup>

Tasks 1 and 2 mentioned in the Nordel report (“ensure the operational security of the power system” and “maintain the momentary balance between demand and supply”) are fulfilled by the TSO when it is acting as a system operator. Task 3 (“ensure and maintain adequacy of the transmission system in the long run”) is fulfilled by the TSO when it is acting as a transmission operator. The task 4 (“Enhance efficient functioning of the electricity market”) concerns all three roles, i.e. transmission operator, system operator as well as balance settlement responsible together.

The core activities are presented in the chapters 2.2 – 2.4, and appendix 1 listing the core activities also includes evaluation of these activities against the Nordic Grid Code and EU legislation. Appendix 1.1 – 1.4 includes an evaluation of the core activities against national legislations.

The non-core activities are presented in chapter 2.7.

## 2.2 Transmission operator

In this connection it may be recalled that the EU electricity directive defines the transmission system operator, as cited above in chapter 1.3. Further the following may be extracted as tasks for the transmission operator:

- contribute to security of supply through adequate transmission capacity
- comply with minimum standards for the maintenance and development of the transmission system, including interconnection capacity
- ensure the long term ability of the system to meet reasonable demands for the transmission electricity
- ensure non-discrimination between users and information necessary for efficient access to the system

In the Nordic countries the core activities of the transmission operator are described in chapters 2.2.1 – 2.2.4. An overview of the core activities is moreover presented in Appendix 1 including reference to EU-legislation and to the Grid Code (comprising the Nordic TSOs’ agreements on rules and recommendations for operation, connection, planning and data exchange).

Comparing these core activities with the legislative status in the Nordic countries as presented in Appendix 1.1 – 1.4 it is found out that they are mostly included in national legislation although the level of details differ among the countries. It should be studied further how these differences or deficiencies described in Appendix 1.1 – 1.4 affect the objective of the common Nordic electricity market and if there is a need for further harmonisation to enhance the market operation and cooperation between TSOs.

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<sup>4</sup> This role does not include the physical part of the balancing mechanism...

### **2.2.1 Adequate transmission system in the long run**

TSOs are responsible for the development and maintenance of the transmission network according to the national legislation. In the Nordic perspective every TSO is responsible for the development and maintenance of the network in its own country i.e. in a Nordic subsystem.

TSOs ensure that there is adequate transmission network capacity in the long run. The present and future transmission capacity needs are analysed using sophisticated power system analysis programmes modelling the power system behaviour in detail. In order to carry out this task TSOs have the mandate to collect information from existing transmission users of their plans to consume or to produce electricity in the short and long run.

### **2.2.2 Secure network to operate**

Based on the plans from network users TSOs prepare and maintain the development plan for their network including new investments for increased transmission needs and also plans for renewal of existing network. Plans for renewal of existing network and the long-run maintenance program of existing network components secure that failures of existing network components are minimised and the network is maintained in the most cost efficient way.

### **2.2.3 Timely network expansion**

To secure the adequate transmission capacity it is essential to take care of that network expansions are made in a timely manner. For this purpose the information exchange between TSO and distribution and regional network operators and between Nordic TSOs is crucial.

Nordic TSOs collectively study, analyse and agree on cross-border investments and also investments within Nordic countries to secure adequate transmission capacity for the Nordic electricity market. To fulfil this task TSOs have established the Nordic system development plan which is updated frequently. The result of the Nordic planning cooperation among TSOs is a common basis regarding the need for the development of the transmission system. The follow-up of the cross-border investment plans should be organised to find out the status and the realisation of the plans.

### **2.2.4 Technical compatibility with other networks**

To secure the compatibility between transmission networks across the border and networks connected to it, e.g. distribution and regional network, the TSO set rules for the connection. The responsibility is to be defined either by the legislation or by the network licence.

At the Nordic level the compatibility is presently dealt with in the Nordic Grid Code where recommendations for the planning of the transmission network and the connection rules are defined.

The Planning Code defines how the planning work should be made and what methods should be used to evaluate the network investments. It also defines the method for the

definition of the transmission capacity and criteria for the dimensioning of the system according to the fault type, the allowed consequences and the operational situation.

The Connection Code defines the general connection requirements for production units and other equipment connected to the transmission network including the quality of supply and the requirements for the thermal and hydro production units to secure the operation of the system also during frequency and voltage deviations from normal values. National connection rules may supplement these Nordic Connection recommendations.

However, it is to be remembered that Planning and Connection Codes are only recommendations and not binding as such. The status as a recommendation may lead to the different interpretations among the TSOs, which may have also an effect on the functioning of the electricity markets.

## 2.3 System operator

The EU electricity Directive and the EU Regulation 1228/2003 set the following tasks for (transmission) system operators:

- Contribute to security of supply through adequate system reliability
- Managing energy flows on the system, taking into account exchanges with other interconnected systems,
- Ensure a reliable and efficient system and availability of all necessary ancillary services
- Principles for congestion management
- Providing other interconnected system operators with sufficient information and implementation of information exchange mechanisms to ensure security of networks in the context of congestion management
- Ensure non-discrimination between users and information necessary for efficient access to the system
- Dispatching of generating installations and the use of the interconnectors, including objective, transparent and non-discriminatory rules
- Publication of safety, operational and planning standards, including a scheme for total transfer capacity and estimates of transfer capacity for each day

In the Nordic countries the core activities of the system operator are described in chapters 2.3.1 – 2.3.7. Comparing these core activities with the legislative status in the Nordic countries presented in Appendix 1 it is found out that they are mostly included in legislation although the level of details differ among the countries. Also some of the core activities are included in EU Regulation 1228/2003 and Guidelines for Congestion Management under preparation. It should be studied further how the differences or deficiencies among Nordic countries presented in Appendix 1 affect the objective of the common Nordic electricity market and if there is need for further harmonisation to enhance the market operation and cooperation between TSOs. Also in this context it may

be considered to take the newly adopted EU directive concerning measures to safeguard security of electricity supply and infrastructure investment into account.

### **2.3.1 Common technical requirements for secure system operation**

The TSOs are responsible for the secure operation of the power system under their control in a short term time frame. Principally this means that the TSO manages the operation of the power system using the existing resources installed in its system.

As a system operator the TSO sets common technical operational requirements for the equipment connected to the system to secure the system operation as planned. The planning criteria used in the network development phase (described in chapter 2.2) are the basis for the expected system operation under normal and disturbed state. Additional operational measures, such as automatic system protection schemes, is used during system operational planning phase if they lead to a more secure network operation or to an increase of the transmission capacity between and within subsystems of the Nordic power system. Requirements for the connection also form a basis for the power system operation.

The TSO needs information and measurements from the system and thus it has the obligation to require information and data from the transmission network users.

Common technical requirements both for planning, connection and data exchange have been implemented on the Nordic level. The purpose of the Connection Code (one part of the Nordic Grid Code) is to specify binding minimum technical requirements to new installations and to the renewal of existing installations to ensure the operational reliability of the Nordic power system. More detailed national requirements may be decided by the TSO in the respective country according to their mandate. These national requirements are based on the minimum requirements set in the Connection Code but they may also be stricter than requirements set in the Connection Code due to the national circumstances.

However, these technical requirements shall be non-discriminatory and the TSO is transparent in setting these requirements and their impact on secure operation of the system.

### **2.3.2 Operational security of the power system - operational planning timeframe**

The responsibility for the secure functioning of the power systems covers the operational planning time frame of approximately one year ahead. In the operational planning phase the TSO defines and publishes the forecasts for the transmission capacity taking into account the scheduled maintenance and other works leading to the scheduled outages in the network. Coordination of the scheduled outages is executed by the TSOs to minimise the effects on the transmission capacity. This coordination and cooperation extends to other Nordic TSOs. The TSOs shall as far as possible, coordinate scheduled outages and other measures that have an impact on the joint Nordic system operation.

The operation agreement (Operation Code) between TSOs includes joint criteria for the system security when the operational planning is considered. Dimensioning faults of a subsystem, e.g. faults having the largest impact on the transmission capacity of power

system, are not allowed to have serious consequences in other subsystems i.e. other TSO's region. TSOs agree that the system security is to be maintained on such a level that dimensioning faults do not lead to the extensive or cascading disturbances in the interconnected Nordic power system.

The TSOs maintain the up-to-date simulation model of the Nordic power system to be able to define the transmission capacity of the grid and the effects of the scheduled outages on the transmission capacity in the operational planning time frame.

### **2.3.3 Operational security of the power system - for day-ahead**

The TSO updates the forecasted transmission capacity of the grid prior to the day before the operation. A day before the operation the TSO defines and publishes the transmission capacity available for the electricity markets leading to the capacity allocation and congestion management procedures to secure the power system operation if there is not enough transmission capacity available for the markets. Congestion management shall be addressed with non-discriminatory market based solutions according to the EC Regulation 1228/2003. In the Nordic electricity market congestions are managed for a day-ahead in the Elspot market by market splitting. The TSOs should use the counter trade to secure the system operation in the cases when transmission capacities need to be reduced after the Elspot market has been closed. Moreover, use-it-or-loose-it principle has been used to allocate capacity between Nordic and Continental markets.

The transmission capacity of the interconnections between the subsystems is determined in cooperation by the TSOs concerned. Decisions of the available transmission capacity are based on current operational practises that are of significance to the transmission capacity and agreed between TSOs concerned. A transmission reliability margin may be reserved between the transmission and trading capacity of the interconnection. The margin shall be defined in a consistent way among the Nordic TSOs. Principles for the calculation of total transmission capacity and transmission reliability margin have to be public according to EC Regulation 1228/2003. The TSOs agree on the available transmission capacity for the trade between the subsystems on a daily basis before the day-ahead Elspot trade.

The TSOs handle the internal limitations in the transmission capacity in a coordinated and consistent manner. According to the Nordel ad hoc group report and the Swedish Energy Agency report from the year 2004 there are significant differences between the TSOs in the opinion and practice regarding the issue of handling internal limitations by reducing the trading capacity to other Elspot areas. This requires the development of consistent common guidelines for the handling of internal bottlenecks within the countries.

### **2.3.4 Operational security of the power system during the operating hour**

The technical requirements set by the TSOs and the operational planning aim at securing the operation of the power system during the operational hour. During the operational hour the TSOs as system operators utilise the resources of the system, e.g. active and reactive reserves and measurements, to control the secure operation of the system. Data exchange on measurements across the power system and to some extent also the neighbouring power system during the operational hour is managed by the TSOs to

supervise the system operation and to take remedial actions. Routines, means and data for information exchange between the Nordic TSOs shall be agreed upon.

The voltage of the power system is maintained at the allowed range with the voltage control utilising the equipment under control of the TSOs, e.g. capacitors, reactors and tap changers in the transformers. The common Nordic operational procedures during the operational hour are to be agreed supplemented by the national procedures if required.

During the operational hour the transmission on an interconnector shall not exceed the allowed transmission capacity. If a limit is exceeded, remedial actions is performed immediately within a time span agreed between TSOs (currently 15 minutes) to restore the system to the secure operational state. The TSOs in co-operation shall train the personnel of control centre to restore the system to the secure state as soon as possible after transmission limits have been exceeded.

### **2.3.5 Disturbance handling and remedial action**

In the case of disturbances the remedial actions are executed to restore the system to the secure state as soon as possible. The TSO is responsible for remedial actions in the case of disturbances within its power system. In the case of disturbances on an interconnector, the TSOs concerned are responsible for necessary actions on their side of the interconnector, unless otherwise agreed. These remedial actions may include e.g. activation of momentary and fast disturbance reserves, reactive reserves and the automatic load shedding. In the case of blackouts the black start capability is maintained within a TSO's power system. The restoration of the affected part of the system after a blackout is executed as soon as possible. For this purpose the restoration plans are to be maintained and personnel trained to manage these exceptional incidents.

### **2.3.6 Maintain balance within operational hour**

The TSO as the system operator is responsible in maintaining the balance between supply and demand during the operational hour within their power system. Every Nordic TSO is responsible for planning its power system into balance hour by hour as well as for maintaining the balance during the hour of operation. Within an operational hour the TSOs maintains the balance by the automatic frequency control and by acquiring the balance power from markets e.g. through the common Nordic regulation market. The TSOs collaborate towards minimising the cost of the balance regulation by utilising one another's regulation resources when this is technically and financially appropriate.

The capacity and structure of the Nordic transmission grid allows the balancing power to be shared but only as far as there is transmission capacity available. Regulations on the regulation market are normally activated in the merit order from the common Nordic list of regulation bids. In the event of bottleneck, the regulating power market is split up into price areas consistent with the Nord Pool Elspot market.

Demand response/flexibility can be used also to balance demand and supply. The regulation market shall include also bids from consumption. Entry barriers for the consumption to participate in the regulation markets are to be minimised by the TSOs to decrease the costs of balance control.

The TSOs jointly maintain the frequency and time deviation that is appropriate to the joint Nordic system operation and to the quality of supply. Presently coordination in the control of the interconnected Nordic synchronous power system is based on the frequency control due to the common Nordic regulation market and the system operation agreement.

### **2.3.7 Management of shortage situation**

The TSOs also prepare to manage the energy and power shortage situations. They together with authorities prepare plans for handling shortage situations, which are agreed and coordinated within the Nordic electricity market. Measures for shortage situations may include e.g. earmarked power reserves and forced load shedding.

## **2.4 Balance settlement responsible**

The EU electricity directive does not define balance settlement responsibility. The following is stipulated as concerns balancing in general:

*Rules adopted by the transmission system operators for balancing the electricity system shall be objective, transparent and non-discriminatory, including rules for the charging of system users of their networks for energy imbalance. Terms and conditions, including rules and tariffs, for the provision of such services by transmission system operators shall be established pursuant to a methodology in a non-discriminatory and cost reflective way and shall be published.*

In the Nordic countries the balancing core activities are the following:

The TSOs are presently responsible for the national balance settlement within their power system. The arrangements for balance pricing and balance settlement vary in the Nordic countries.

Differences in the balance pricing and settlement have been seen as one of the obstacles for the common Nordic retail market. The common wholesale market functions with these varying implementations of the balance pricing and settlement but a more efficient function should be achieved with the harmonised common Nordic balance settlement.

The TSOs shall set common rules for the imbalance pricing and settlement principles in the common Nordic balancing mechanism. They shall also manage the routines for measuring and reporting on the Nordic level.

The responsibilities of the TSOs are recommended to be reconsidered when the common Nordic balance settlement is considered. These tasks can be included among non-core tasks in the future when common balance settlement for Nordic market is established.

If so more studies are needed on how the common Nordic financial balance settlement is to be organised and what settlement tasks are to be assigned to the TSOs.

## **2.5 Enhance efficient functioning of the electricity market**

According to the electricity directive the TSO must be designated with regard to considerations of efficiency and economic balance. The scope of the directive is among

others to establish common rules relating to the organisation and functioning of the electricity sector and access to the market. In the preamble to the EU electricity directive it is as one of the directive's objectives stated: *...However, important shortcomings and possibilities for improving the functioning of the market remain....*, see second "whereas" in the preamble. Although not a directly defined task for the TSO, it may on the background of the directive's objectives be pointed out that enhancing the efficient functioning of the electricity market is an objective for the TSO to take into account.

In the Nordel report it is stated that the TSO's role as market facilitator is part of the system responsibility. Not all have this duty, but it is a kind of in-built criteria in the electricity market framework established in Nordic countries.

Although not as a core activity in itself, many of the system operator's means in order to achieve the goals as a transmission and system operator are at the same time means to enhance efficient functioning of the market. Just as the general requirement to act objectively, transparently and non discriminatory as required by the EC directive, backs this up.

The means concerning system operation as listed in the chart on core activities in Appendix 1 may be seen as to back up market enhancement, especially when designing the rules on the day to day operation and cooperation between TSOs, including criteria for determining next day's capacity and thus the market capacity.

The balance between supply and demand should also be mentioned in the context of efficient functioning of the electricity market. Rules to balance the system are necessary due to the need to secure and finance the momentary balance of the system and thus as well necessary for the quality of supply as the secure supply. In the EU directive it is pointed out: *In order to ensure effective market access for all market players, including new entrants, non discriminatory and cost-reflective balancing mechanisms are necessary.* Although balancing in itself rather is a result of the market than a prerequisite for the market, the balancing mechanism must, however, be designed in a way that it does not disrupt market functioning, and may also be designed to enhance it, among others as concerns the TSOs purchase of balancing power.

The issue of promoting competition is differently handled in the Nordic countries. Promoting competition is an obligation for the system operators in Sweden and Denmark. In Norway the system operator shall develop market solutions that will help to ensure an efficient development and use of the power system. In Finland the system operator is obliged to upkeep and to develop its activities and services within the system responsibility and maintain, operate and develop its electricity system and other equipment needed for fulfilling the system responsibility and the connection to other systems, so that the prerequisites for an efficiently functioning electricity market can be ensured.

The Nordic power exchange, Nord Pool is owned by the four Nordic TSOs, and trade on Nord Pool enhances the efficient functioning of the market. Nord Pool is subject to the Norwegian authorities' surveillance, and the market surveillance department at Nord Pool monitors trade in both the physical and financial market.

Further it is mentioned in the Nordel report that the Danish TSO is monitoring the market and will give notice to authorities when observing possible abuse of market power. The other Nordic TSOs do not have this task, as market monitoring fundamentally is seen as a task of the competition and regulatory authorities. Thus in the Nordic context the market monitoring is seen as a non-core activity for the TSO.

The TSOs, however, enhance efficient functioning of the electricity market when performing their core activities as transmission operator, system operator and balance settlement responsible.

## **2.6 Implementation of core activities within Nordic legal framework**

The Grid Code comprises the Nordic TSOs' agreements on rules and recommendations on operation, connection, planning and data exchange.

During the consultation Nordel stated that the Nordic Grid Code is too complex to be the basis for a harmonisation of the further ruling as concerns the core activities.

NordREG finds that the Grid Code includes most of the above identified core activities. However, although a very valuable instrument in the present cooperation, the Grid Code from a strict legal point of view is a rather weak and unclear document when it comes to e.g. handling disputes and thus the transparency in dispute resolution. Further, the extent to which the rules of the Nordic Grid Code are to be applied and interpreted differ, as the rules to some extent are unclear and are differently implemented in the Nordic countries, just as individual bilateral arrangements exist. A short legal assessment of the Nordic Grid Code is presented in Appendix 3.

Nordel proposes rather to include the harmonised definition of the core tasks in the national legislation because of its importance. The Nordel Lawyers Group's report "Promemoria", 2005-09-11, points out that the overall four core tasks identified in the Nordel Report from February 2005 on enhancing efficient functioning of the Nordic electricity market, are differently regulated in the Nordic countries.

NordREG acknowledges the importance of a harmonised definition, and has identified the national laws and regulations according to which the identified core activities are covered. The national laws and regulations are, however, just as is the case for the Grid Code, not identical in the detail, and thus the way they are fulfilled in the everyday administration of the 4 Nordic TSOs may differ, see Appendix 1.1. -1.4.

On this background it should be studied further how these differences or deficiencies described in Appendix 1.1 – 1.4 affect the objective of the common Nordic electricity market and if there is a need for further harmonisation to enhance the market operation and cooperation between TSOs. If further harmonised detailed and consistent regulation is necessary it may be considered if this should be handled within the framework of the Grid Code or if the national laws and regulations should be further specified.

Also it may be considered if the specifications to be implemented may prove to be controversial given the different organisational models of the Nordic TSOs and

recognising that four national adjustments of the more detailed regulation may not result in a unified TSO administration of rules affecting the enhancement of an efficient market.

If further harmonised detailed and consistent regulation is necessary, and this cannot be implemented via the Grid Code nor can be implemented in four national laws and regulations to the effect desired it may further be considered to be carried out through a legally binding Nordic agreement

## **2.7 Identification of non-core activities**

Apart from the common core activities identified in chapters 2.2 – 2.4 the TSOs may have further activities that according to national legislation are considered as core activities. Also the TSOs may have activities that are considered to be non-core. In this context the non-core activities are those that are not seen to be necessary for the functioning of the TSO.

### **2.7.1 Balance forecasts and long-term balance between supply and demand**

The cooperation of the TSOs to maintain the power system operation within the operational planning horizon also includes the preparation of energy and power balances within the Nordic power system leading to forecasts of balances in the coming winter and also for the next three years. However, in all the Nordic countries it is the market participants who should develop the production capacity. Investments in the production capacity should be made by the market players based on the economic incentives from expected market prices.

The task to make balance forecasts for the next winter and coming three years may be delegated to the TSO, but it is not considered to be among core activities within the Nordic context.

The long-term balance between supply and demand is defined by executing generation adequacy studies. The generation adequacy illustrates the ability of the system to cover the power demand at any time in the future. This generation adequacy is considered to be outside the core activities of the TSO's system security function due to the fact that the adequacy of the new and existing production capacity for present and future demands should be handled by the markets.

However, securing the longer term balance between supply and demand, e.g. maintaining power reserves, may be delegated to the TSO as some Nordic countries have done but it is not considered to be among core activities within the Nordic context.

### **2.7.2 Non-core activities**

Some non-core activities are carried out by all Nordic TSOs. They are all engaged in issuing of renewable certificates and tasks related to energy preparedness and crisis handling. Also the Nordic TSOs have subsidiaries carrying out non core-activities. These are not included in the following list.

The following non-core activities may be mentioned for each country:

**Sweden:**

- Since July 2005, Svenska Kraftnät also has the system responsibility for the national supply of natural gas
- Maintaining capacity reserves according to temporary law
- Contingency planning
- Data transfer
- Energy certificates
- Dam security
- Company owning gas turbines
- Safety security

**Norway:**

- Consulting and advisory services within Statnett's Engineering division.
- Responsible for the equipment to and expertise for handling all transportation of heavy/special loads belonging to the Norwegian power system.

**Finland:**

- Appointed to be the issuer for the guarantees of origin for renewable energy production
- Issuer of RECS certificates for renewable energy production
- Consult services

**Denmark:**Ensure long term security of supply:

- Responsible for the presence of adequate production capacity
- Cover extra costs for isolated electricity networks (islands)
- Ensure that storage of fuel is adequate (by ministerial order)

Long term planning:

- Execute a comprehensive and coherent planning founding the basis for evaluating:
  - current and future market issues,
  - security of supply,
  - system operation
  - research and development, and

which within a 10 year horizon are necessary for a future environmentally friendly and energy efficient transmission and distribution system (> 100 kV incl. all cross border lines).

- Prepare plan for the future necessary transmission and distribution capacity above 100 kV in at least 10 years perspective.
- Annual reports to the Minister on environmental issues concerning the development of the most important environmental conditions for electricity and CHP expansion

Competition:

- contribute to the best possible conditions for competition on the markets production and trade

Environmentally friendly electricity

- Distribution of costs
- Administration of payments and
- Control of grid companies' payments

Other Public service obligations:

- Carry out research and development on environmentally friendly electricity and energy efficient transmission and distribution.
- Ensure research, development and demonstration projects that are necessary for environmentally friendly production technologies

Operation and expansion of Natural gas system

The costs of these non-core activities of the TSOs shall be separated from the core activities and financed separately and transparently. Further studies on the costs of non-core activities and their separation from common core activities would be appropriate, and may be recommended to be conducted when Nordel has finished their study on this topic.

# 3 Conclusions

## 3.1 Present status and tasks of Nordic TSOs

The overall definition of the Nordic TSOs is rather similar in the Nordic countries and takes the requirements given in EC Directive into account, e.g. unbundling, transmission system operation, non-discrimination.

However, the Nordic TSOs differ to some extent in legal status and definition of tasks.

Concerning the legal status there are some differences. Sweden's TSO is an authority, Norway, and Denmark have state owned companies, and in Finland it is a limited company with the state as a minority owner.

Concerning security of supply, the TSOs' focus is mainly on the operational security. In Denmark, however, the TSO moreover has the overall responsibility of security of supply, and is as such involved in security of supply in the longer term, and is obliged to produce coherent and comprehensive planning within a 10 year horizon, just as Sweden's TSO according to temporary law must make maximum 2000 MW peak load reserve available.

Concerning transmission the regulatory setup on the obligation to make new investments differs.

Concerning balancing of the system the Nordic TSOs act according to the system agreement (part of the Grid Code) and focus on the momentary balance, but make individual decisions regarding the security of supply of their subsystems partly in order to comply with national requirements partly to comply with the national system.

All Nordic TSOs have to contribute to the functioning of the market. It is a kind of in-built criteria in the electricity market framework, but to some extent exercised in different ways among Nordic countries.

Moreover, the Nordic countries have different definitions of transmission grid, ranging from 400 kV to 110 kV, just as the regulation differs as concerns the grids not owned by the TSO, either put at the disposal of the TSO for the purpose of the market or not.

## 3.2 Core and non-core activities

The core activities of the Nordic TSOs are quite similar. The following core activities for the TSOs are identified as follows (see also appendix 1):

Core activities for the TSO as a transmission network operator:

- Maintain the adequate transmission system in the long run and network development plan on the national as well as on the Nordic level using sophisticated analysis and planning methods and tools.
- Plan the transmission network on the national as well as on the Nordic level utilising new investments, renewal and maintenance of existing network

components so that the network is secure to operate and adequate transmission capacity is guaranteed.

- Aim at timely network expansions using enhanced information exchange between the Nordic TSOs, and on the national level between the TSO and distribution and regional network operators, large consumers and large producers.
- Secure the technical compatibility with networks across the border and within a country by establishing connection requirements on the national level and ensuring that the national requirements are compatible across the Nordic power system.

Core activities for the TSO as a system operator:

- Define common technical requirements for the secure system operation using common planning, operation, connection and data exchange procedures.
- Secure the system operation with the operational planning for the following year by using information exchange between TSOs enabling the TSOs to make the best possible forecast of the global grid situation in order to assess the flows in their network and the available transmission capacities and coordinating the maintenance operation across the borders.
- Exercise consistent and coordinated transmission capacity calculation procedures to secure the system operation for the day-ahead when establishing the capacity available to the markets.
- Implement common procedures for the congestion management in the case of congestions according to the EC Regulation 1228/2003 and guidelines under it.
- Secure the power system operation during the operational hour according to the binding operational agreement and utilising the available resources within the power system effectively with the help of measurements and control systems.
- Manage disturbances by proper system protection planning and activate remedial actions without delay using the automatic and manual disturbance reserves and automatic load shedding if required; in the case of the system blackout ensure the black start capability and rapid system restoration.
- Maintain balance between supply and demand within the operational hour by the automatic frequency control and the regulation market including demand response.
- Manage the shortage situation together with authorities by up-to-date action plans and agreements including enforced disconnections.

Core activity for the TSO as a balance settlement responsible (not necessarily within the same entity):

- Execute the national balance settlement by setting imbalance pricing and settlement principles for imbalances and by setting routines for measuring and reporting.

The organisation of the core activities under the legislative framework, and the way they are conducted, is differently managed within Nordic countries, just as the regulator's role is not the same in all the Nordic countries with regard to the supervision of the TSO.

Some differences or deficiencies in the more detailed national legislations are presented in Appendix 1.1 – 1.4. It may be further studied, how they affect the objective of the common Nordic electricity market and if there is a need for further harmonisation to enhance the market operation and cooperation between TSOs.

In order to carry out national duties different non-core activities are employed on the Nordic TSOs. The non-core activities are quite different from country to country. The costs of these non-core activities of the TSOs shall be separated from the core activities and financed separately and transparently. Further studies on the costs of non-core activities and their separation from common core activities would be appropriate, and may be recommended to be conducted when Nordel has finished their study on this topic.

### **3.3 Future work**

A further study is called for evaluating if and how a harmonised Nordic regulatory set-up according to defined core activities could contribute to an enhanced development of the common Nordic electricity market in co-operation between NordREG, Nordel and relevant stakeholders. This evaluation should comprise an examination of whether partly or full harmonisation or the setting of common minimum standards for the regulation in selected priority areas would encourage the market development further. This evaluation may further map:

- if further harmonised detailed and consistent regulation should be handled within the framework of the Grid Code or if the national laws and regulations should be further specified, or
- if further harmonised detailed and consistent regulation is necessary, and if this cannot be implemented via the Grid Code nor can be implemented in four national laws and regulations to the effect desired it may further be considered to be carried out through a legally binding Nordic agreement.

# Appendix 1

## Core activities of the TSOs in the Nordic countries

Transmission operator		Cfr. EC legislation <b>Dir.2003/54/EC Reg. 1228/2003</b>	Cfr. Nordel Grid Code <b>See app. 3 for short legal assessment</b>
<b>Goals</b>	<b>Means</b>		
Adequate transmission system in long run	Network development plan  Analysis & planning methods & tools  New investments	Dir. art. 9 (1a), &11(5)  Reg. art. 6(6)	Part 2; Planning Code
Secure network to operate	New investments  Renewal and maintenance of existing network components	Dir. art. 9(1b) & 11(5)  Reg. art. 6(6)	Part 2; Planning Code
Timely network expansion	Information exchange between Nordic TSOs  Information exchange between TSO and <ul style="list-style-type: none"> <li>- distribution network operators</li> <li>- regional network operators</li> <li>- large consumers</li> <li>- large producers</li> </ul>	Dir. Art. 9(1d) & 9(1f)	Part 5; Data Exchange Agreement,  Part 3; System operation agreement,
Technical compatibility with other networks (across border and	Connection requirements on national level  Compatibility	Dir. Art. 5 & 9(1c)	Part 4; Connection Code,

within a country)	across the borders on connection requirements		
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System operator		Cfr. EC legislation <b>Dir.2003/54/EC</b> <b>Reg. 1228/2003</b>	Cfr. Nordel Grid Code
Goals	Means		
Common technical requirements for secure system operation	Common planning, operation, connection and data exchange procedures	Dir. art. 5	Part 3; System operation agreement
Operational security of the power system – operation planning timeframe	Up-to-date simulation model for Nordic power system  Calculation of available transmission capacity  Coordination of maintenance  Operation across the borders	Dir. art. 9(1c), Reg. art. 5	Part 2; Planning Code  Part 3; System operation agreement,  Part 5; Data Exchange Agreement
Operational security of the power system – for day-ahead	Consistent and coordinated transmission capacity calculation procedures  Common procedures for congestion management	Dir. art. 9(1c), Reg. art. 5 & 6	Part 3; System operation agreement
Operational security of the power system during the operating hour	Utilisation of available resources within a power system  Measurement and	Dir. art. 9(1c) & 11(1, 2, 6)	Part 3; System operation agreement

	control systems		
Disturbance handling & remedial actions	System protection planning Active and reactive reserves Automatic load shedding Black start capability Restoration planning	Dir. art 11(6)	Part 3; System operation agreement
Maintain balance within operational hour	Automatic frequency control Regulation market Demand response	Dir. art. 9 (1c) & 11 (6, 7)	Part 3; System operation agreement
Management of shortage situation	Up-to-date action plans and agreements Enforced disconnections (load shedding)		Part 3; System operation agreement
Enhance efficient functioning of the market		Objective of Directive	

Balance responsible (financial)		Cfr. Nordel Grid Code	Cfr. EC legislation <b>Dir.2003/54/EC</b> <b>Reg. 1228/2003</b>
<b>Goals</b>	<b>Means</b>		
Balance settlement	Imbalance pricing Settlement procedures for imbalances Routines for measuring and reporting	Dir. art. 11(7)	Part 3; System operation agreement

# Appendix 1.1

## Core activities of the TSOs in the Nordic countries / Sweden

Transmission operator		Legal status <sup>1)</sup>
Goals	Means	
Adequate transmission system in long run	Network development Network analysis New investments	1 § SvK-I  2 § SvK-I; Total investment budget approved in yearly governmental decree Investments subject to concession (EL) <sup>5</sup>
Secure network to operate	Maintenance of network components	1 § SvK-I
Timely network expansion	Information exchange between Nordic TSOs	Governmental Decree, Annual instructions from the Government
Technical compatibility with other networks (across border and within a country)	Connection requirements (national level) Cross-border connection agreement	8 chapter 1 § EL <sup>6</sup> , 16 § SAF <sup>7</sup>  Bilateral agreements between TSOs Connection and planning code

System operator		Legal status <sup>1)</sup>
Goals	Means	
Common technical requirements for secure system	Svk Ordinance Common planning, operation,	8 chapter 1 § EL

<sup>6</sup> Electricity Act (1997:857)

<sup>7</sup> Regulation on System responsibility (1994:1806)

operation	connection and exchange procedures	
Operational security of the power system – operation planning timeframe	Up-to date simulation model for Nordic power system  Calculation of available transmission capacity  Co-ordination of maintenance  Operation across the borders	(coming EU regulations)
Operational security of the power system – for day-ahead	Consistent and coordinated transmission capacity procedures  Common procedures for congestion management	No direct regulations, however, there are criteria set out in the Electricity Act (EL) on network activities.
Operational security of the power system during the operating hour	Utilisation of available resources within the power system  Measurement and control systems	8 chapter 2 § EL
Disturbance handling & remedial actions	System protection planning  Active and reactive reserves  Automatic load shedding  Black start capability  Restoration planning	EL  EL  SvK's Technical Regulation, EL  SvK's Technical Regulation, EL

Maintain balance within operational hour	Automatic frequency control Regulation market Demand Response	8 chapter 1,2 § EL  Not regulated
Management of shortage situation	Up-to date plans and agreements  Enforced disconnections  Temporary capacity reserve	8 chapter 2 § EL  Temporary law
Enhance efficient functioning of the market		I-Svk § 2

Balance responsible (financial)		Legal status <sup>1)</sup>
Goals	Means	
Balance settlement	Imbalance pricing  Settlement procedures for imbalances  Routines for measuring and reporting  Agreements between the Nordic and neighbouring TSOs	8 chapter 4 § EL, balancing agreements 8 chapter 11 § EL  SAF, Network Agreements  8 chapter 6 § EL, 23 § MF <sup>8</sup>

1) Legal abbreviations in 3<sup>rd</sup> column:

- EL: Electricity Act (1987: 867)
- Svk: Instruction for Svenska Kraftnät (1991: 2013)
- SAF: Regulation on system responsibility (1984: 1806)

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<sup>8</sup> STEM mätföreskrifter

# Appendix 1.2

## Core activities of the TSOs in the Nordic countries / Norway

Transmission operator		Legal status
Goals	Means	
Adequate transmission system in long run	<p>Network development plan</p> <p>Analysis &amp; planning methods &amp; tools</p> <p>New investments</p>	<p>The system operator shall help facilitate the development of the transmission grid in a way that efficiently promotes the interests of society. REA § 5A-1, 6 section.</p> <p>The Norwegian Water Resources and Energy Directorate may assign a special responsibility to a licensee to coordinate the preparation of a long-term power system plan for a defined portion of the central grid. EP § 2, 2 section.</p> <p>The power system plan shall describe the process, planning assumptions, the current power supply system, future transmission conditions, and expected measures and investment.</p> <p>The power system plan shall present statistics with data on power generation, transmission and consumption of electrical energy, and describe factors of importance to the development of the power system in the planning area.</p> <p>The power system plan shall describe various alternatives for the development of the power system in the planning area. Simplified socio-economic evaluations of the alternatives shall be carried out. EP § 4.</p>
Secure network to operate	<p>New investments</p> <p>Renewal and</p>	<p>The licensee is obligated to keep the installation in satisfactory operationally reliable condition at all times, including</p>

	<p>maintenance of existing network components</p>	<p>providing for maintenance and modernisation that ensures a satisfactory delivery quality. REA § 3-4 litra a.</p>
<p>Timely network expansion</p>	<p>Information exchange between Nordic TSOs</p> <p>Information exchange between TSO and</p> <ul style="list-style-type: none"> <li>- distribution network operators</li> <li>- regional network operators</li> <li>- large consumers</li> <li>- large producers</li> </ul>	<p>The system operator shall provide information about matters of significance for the development of an efficient energy market.</p> <p>The system operator shall inform licensees and system operators in other countries about matters that are necessary for the safe operation, efficient utilisation and development of their installations, as well as about matters which are of significance for the quality of supply in the area. RSO § 24.</p>
<p>Technical compatibility with other networks (across border and within a country)</p>	<p>Connection requirements on national level</p> <p>Compatibility across the borders on connection requirements</p>	<p>The party that is granted a local area licence shall provide electrical energy to the customers within the geographical area where the licence is applicable. EA § 3-3.</p> <p>The licensee shall inform the system operator about plans for new installations or changes in its existing installations that may affect other licensees in regard to the operation and utilisation of the regional and central grid system. New installations or changes may not be commissioned without the approval of the system operator. RSO § 14.</p>

System operator		Legal status
<b>Goals</b>	<b>Means</b>	
Common technical requirements for secure system	Common planning, operation, connection and data	The licensee shall inform the system operator about plans for new installations or changes in its existing installations that

operation	exchange procedures	<p>may affect other licensees in regard to the operation and utilisation of the regional and central grid system. RSO § 14.</p> <p>The system operator may instruct the licensee to send him the metering data and reports that are necessary for the efficient operation and utilisation of the power system. RSO § 18.</p> <p>The system operator may demand the installation and use of equipment for automatic intervention in the power system in order to avoid breakdowns, or to increase transmission limits in the regional and central grid system (system protection). RSO § 21.</p>
Operational security of the power system – operation planning timeframe	<p>Up-to-date simulation model for Nordic power system</p> <p>Calculation of available transmission capacity</p> <p>Coordination of maintenance</p> <p>Operation across the borders</p>	<p>The system operator shall determine maximum permitted limits for trading electricity between elspot areas on an hourly basis (trading limits). The system operator shall provide notification of defined trading limits in reasonable time before they are used. RSO § 6.</p> <p>The licensee draws up plans for the efficient implementation of operational shutdowns at its own installations in the regional and central grid system and production units that are connected to it. The system operator shall co-ordinate the licensees' planned operational shutdowns in the regional and central grid system and production units which are connected to it. No one may implement an operational shutdown without the approval of the system operator. The system operator may reprioritise operational shutdowns that have already</p>

		<p>been determined at its own initiative or in accordance with an enquiry from the licensee. RSO § 17</p>
Operational security of the power system – for day-ahead	<p>Consistent and coordinated transmission capacity calculation procedures</p> <p>Common procedures for congestion management</p>	<p>The system operator shall determine maximum permitted limits for trading electricity between elspot areas on an hourly basis (trading limits). The system operator shall provide notification of defined trading limits in reasonable time before they are used. RSO § 6.</p> <p>The system operator shall define elspot areas in order to deal with major and long term bottlenecks in the regional and central grid system. The system operator shall normally define separate elspot areas when a shortage of energy is expected in a limited geographical area. Other bottlenecks in the regional and central grid system should normally be dealt with by using the regulating power market. Any additional costs involved in deviating from the normal sequences employed by the regulating power market are to be covered by the system operator. The system operator shall provide notification of defined elspot areas in reasonable time before they are used. RSO § 5.</p> <p>Licenseses in the regional and central grid system shall prepare inventories showing the maximum transmission limits which apply to the various parts of their system. These inventories shall be presented to the system operator for approval. The system operator may determine operational transmission limits in respect of the regional and central grid system. These transmission limits shall not exceed the maximum transmission limits which apply to the various parts of the system unless already agreed with the licensee. RSO § 7.</p>

<p>Operational security of the power system during the operating hour</p>	<p>Utilisation of available resources within a power system</p> <p>Measurement and control systems</p>	<p>The system operator may set the switch positions needed to operate the regional and central grid system at any one time (grid connection diagram). RSO § 16.</p> <p>The system operator may instruct the licensee to provide regulation capacity and accompanying rotating reserves within the technical limitations of the production units. The system operator shall have adequate power reserves at its disposal at all times. RSO § 9.</p> <p>The system operator may set voltage limits and limits for the exchange of reactive power in the regional and central grid system. Production units connected to the regional and central grid system shall contribute by producing reactive power within the units' technical limitations. RSO § 15</p> <p>The system operator may instruct the licensee to send him the metering data and reports that are necessary for the efficient operation and utilisation of the power system. RSO § 18.</p> <p>Those covered by these regulations shall provide the system operator with the information that is necessary for carrying out the duties of the system operator, including taking the initiative to provide information about conditions in their own installations that are important for the safe operation, efficient utilisation and development of the power system. RSO § 23</p> <p>The system operator shall prepare and distribute information about power system-related matters that have a bearing on the power market, as well as matters of significance to the general quality of supply.</p>
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		RSO § 4 litra f
Disturbance handling & remedial actions	System protection planning	The system operator may determine type, locations and settings of protection and reconnection equipment in the regional and central grid system and production units that are connected to it (relay plans). The licensee is responsible for providing satisfactory protection in its own installations, including the implementation of relay plans. RSO § 20.
	Active and reactive reserves	The system operator may instruct the licensee to provide regulation capacity and accompanying rotating reserves within the technical limitations of the production units. The system operator shall have adequate power reserves at its disposal at all times. RSO § 9.
	Automatic load shedding	Production units connected to the regional and central grid system shall contribute by producing reactive power within the units' technical limitations. RSO § 15  The system operator may demand the installation and use of equipment for automatic intervention in the power system in order to avoid breakdowns, or to increase transmission limits in the regional and central grid system (system protection). RSO § 21
	Black start capability	Not regulated.
	Restoration planning	The licensee shall draw up a plan for the efficient restoration of normal operations of its own installations in the event of operational failures occurring in the regional and central grid system and connected production units. The plan shall be presented to the system operator for approval. The system operator shall co-ordinate intervention in the event of operational

		<p>failures affecting several licensees. The system operator shall determine who is to undertake frequency regulation in areas which are temporarily without any physical connection to adjacent transmission grids. RSO § 12.</p>
<p>Maintain balance within operational hour</p>	<p>Automatic frequency control  Regulation market  Demand response</p>	<p>The system operator shall provide frequency regulation and ensure momentary balance in the power system at all times. RSO § 4 litra a</p> <p>The system operator shall operate and develop a regulating power market in order to deal with deviations from planned production and expected consumption during the operational hour, as well as other undesirable situations in respect of the power system. RSO § 11.</p> <p>When submitting bids in respect of each individual hour in the individual elspot areas, licensees shall ensure that they achieve the planned balance between their commitments and rights, including their own production.</p> <p>For each elspot area, licensees shall report to the system operator on a daily basis by 19.00 hours, unless otherwise determined by the system operator, their own production schedules and accompanying regulation capacity and rotating reserves (for each station/station group) on an hourly basis for the next 24 hours.</p> <p>Production schedules shall be prepared in accordance with the licensee's commitments and rights.</p> <p>The system operator may call for small step-by-step changes to be made to a production schedule and for this to be specified using 15-minutes values if the desired change in production exceeds a limit established by the system operator. The licensee undertakes to adhere to the submitted production schedules.</p>

		<p>The licensee may change production schedules in accordance with decisions adopted by the system operator.</p> <p>The system operator may advance or postpone planned production changes by up to fifteen minutes. The system operator shall pay for any losses incurred by the producer in this respect.</p> <p>The system operator may instruct the licensee to adjust its production schedules to suit any limitations that have arisen in the transmission grid due to revisions or operational failures. The system operator determines how available capacity should be allocated among several licensees.</p> <p>The system operator may determine limits for the regulation of planned output from DC links and for large individual users.</p> <p>RSO § 8</p> <p>The system operator may set the switch positions needed to operate the regional and central grid system at any one time (grid connection diagram).</p> <p>RSO § 16</p> <p>Whenever possible, the system operator shall employ policy instruments that are based on market-based principles, including the operation and development of a balancing market.</p> <p>REA § 5A-1, 4. section</p>
Management of shortage situation	Up-to-date action plans and agreements	<p>The licensee shall draw up a plan for the efficient restoration of normal operations of its own installations in the event of operational failures occurring in the regional and central grid system and connected production units. The plan shall be presented to the system operator for approval.</p> <p>The system operator shall co-ordinate intervention in the event of operational failures affecting several licensees.</p> <p>The system operator shall determine who is to undertake frequency regulation in areas which are temporarily without any physical connection to adjacent</p>

	<p>Enforced disconnections (load shedding)</p>	<p>transmission grids.</p> <p>In critical operational situations, the system operator may requisite capacity by demanding that all available production and consumption should be declared in the regulating power market after the price on the electricity spot market has been set. In the event of operational failures, the system operator may call for all available regulation power in the production system in order to restore normal operations. The price of non-declared production shall be set at the regulating power market price for the elspot area, unless otherwise agreed. RSO § 12.</p> <p>The system operator is responsible for continually preparing and developing necessary means for handling periods with a highly critical power situation. The system operator shall inform the Norwegian Water Resources and Energy Directorate about means prepared according to this paragraph. Means for handling periods with a highly critical power situation may not be implemented without a decision by the Norwegian Water Resources and Energy Directorate. RSO § 22a</p> <p>The licensee shall draw up plans for dealing with the involuntary curtailment of demand. These plans shall be presented to the system operator for approval. In exceptional operational situations, the system operator may instruct the licensee to carry out a brief involuntary curtailment of demand. Such instructions shall comprise the load to be shed and the expected duration, and may also specify which customer groups should be disconnected. The reconnection of demand may not take place unless approved by the system operator. RSO § 13</p>
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<p>Enhance efficient functioning of the market</p>		<p>System operation shall be exercised in a way that efficiently promotes the interests of society.          REA § 5A-1, 1. section</p> <p>These regulations shall facilitate an efficient power market and a satisfactory quality of supply in the power system. The regulations shall ensure that the system responsibility is exercised in a socially efficient manner, including taking public and private interests that are affected into consideration.          RSO § 1</p> <p>The system operator shall develop market solutions which will help to ensure the efficient development and utilisation of the system.          RSO § 4 litra c</p>
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Balance responsible (financial)		Legal status
Goals	Means	
<p>Balance settlement</p>	<p>Imbalance pricing</p> <p>Settlement procedures for imbalances</p> <p>Routines for measuring and reporting</p>	<p>The Ministry lays down regulations governing metering, settlement and invoicing.          Authority to coordinate the metering and settlement of power trading, is delegated to the party designated by the Ministry under further stipulated conditions. The entity responsible for settlement shall see that all feeds into and taps from the grid of electrical energy will be correctly settled so that an economic balance in the power market is achieved.          Anyone who fully or partly owns or operates a grid, power generation or an organised marketplace pursuant to section 4-5, together with trading companies and end users is required to comply with the instructions of the entity responsible for settlement during the coordination of the settlement, and to comply with the provisions relating to metering, settlement and invoicing specified in or pursuant to</p>

		<p>this Act. Decisions that are made by the entity responsible for settlement while exercising his responsibility for settlement are exempted from Chapters IV-VI and VIII of the Public Administration Act. EA § 4-3</p> <p>The system operator shall operate and develop a regulating power market in order to deal with deviations from planned production and expected consumption during the operational hour, as well as other undesirable situations in respect of the power system.</p> <p>If it is obvious that the market is failing to set socio-economically efficient prices within a limited geographical area, the system operator may suspend offers on the regulating power market and make use of declared volumes at prevailing electricity spot prices for the area. In such an event the bidder shall be informed of this. RSO § 11</p> <p>The entity with settlement responsibility may collect fees from grid companies and entities with balancing responsibility for settlement of the regulating power balance. Ediel System Support may collect fees from grid companies, providers and entities with balancing responsibility for the operation and maintenance of and instruction about Ediel messages included in these regulations.</p> <p>These fees shall cover the costs of efficient operation. RMS § 4-8.</p> <p>RMS chapter 4.</p>
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Legal abbreviations:

- The Energy Act EA
- Regulations to the Energy Act REA
- Regulations of the System Operator RSO
- Regulations concerning Energy Planning EP
- Regulations concerning Metering and Settlement RMS



# Appendix 1.3

## Core activities of the TSOs in the Nordic countries / Finland

Transmission operator		Legal status
Goals	Means	
Adequate transmission system in long run	<p>Network development plan</p> <p>Analysis &amp; planning methods &amp; tools</p> <p>New investments</p>	<p>The TSO shall maintain, operate and develop its electricity system and the connections to other systems in accordance with its customers' reasonable needs, and to secure, for its part, the supply of sufficiently high-standard electricity to its customers. Electricity Market Act (EMA) 9§</p> <p>A licence shall be obtained from the electricity market authority for the construction of a power line with a nominal voltage of 110 kilovolts or above. For the construction of a cross-border power line with a nominal voltage of 110 kilovolts or above, a licence shall be obtained from the Ministry. The condition for granting a licence is that construction of a power line is necessary in order to secure electricity transmission. In addition, the condition for construction of a cross-border line is that its construction is otherwise appropriate in terms of the development of the electricity market and of mutuality. Terms considered necessary for the conditions of the licence can be included in the licence. The licence does not specify the course of the power line. EMA 18§</p>
Secure network to operate	<p>New investments</p> <p>Renewal and maintenance of existing network components</p>	<p>EMA 9§, EMA 18§</p> <p>The TSO shall upkeep and develop its activities and services within the systems responsibility and maintain, operate and develop its electricity system and other equipment needed for fulfilling the</p>

		systems responsibility and the connection to other systems, so that the prerequisites for an efficiently functioning electricity market can be ensured. EMA 16§
Timely network expansion	<p>Information exchange between Nordic TSOs</p> <p>Information exchange between TSO and</p> <ul style="list-style-type: none"> <li>- distribution network operators</li> <li>- regional network operators</li> <li>- large consumers</li> <li>- large producers</li> </ul>	
Technical compatibility with other networks (across border and within a country)	<p>Connection requirements on national level</p> <p>Compatibility across the borders on connection requirements</p>	<p>The TSO may impose conditions regarding the consumption and the production connected to the transmission system. Conditions shall not be to the detriment of competition in the electricity market. EMA 16§</p> <p>The TSO defines the level of reliability in the national transmission network and maintains technical requirements in accordance with Nordic and national dimensioning standards. The TSO also agrees on procedures securing technical functioning of the system with parties, who are acting in the power system. Network licence (NL)</p>

System operator		
<b>Goals</b>	<b>Means</b>	
Common technical requirements for secure system operation	Common planning, operation, connection and data exchange procedures	The TSO shall upkeep and develop its activities and services within the systems responsibility and maintain, operate and develop its electricity system and other equipment needed for fulfilling the

		<p>systems responsibility and the connection to other systems, so that the prerequisites for an efficiently functioning electricity market can be ensured. EMA 16§</p> <p>The TSO must arrange that all necessary contracts for securing the technical function of the system and maintaining the reliability of the system are valid. The TSO must also take care of that the necessary exchange of metering data is arranged between parties operating in the power system and the TSO. NL</p> <p>The TSO has to provide information to parties connected to the power system which is necessary to them as regards to maintenance of the reliability in their operation as well as information necessary for balancing. NL</p>
Operational security of the power system – operation planning timeframe	<p>Up-to-date simulation model for Nordic power system</p> <p>Calculation of available transmission capacity</p> <p>Coordination of maintenance</p> <p>Operation across the borders</p>	<p>The TSO shall upkeep and develop its activities and services within the systems responsibility and maintain, operate and develop its electricity system and other equipment needed for fulfilling the systems responsibility and the connection to other systems, so that the prerequisites for an efficiently functioning electricity market can be ensured. EMA 16§</p> <p>The TSO is responsible for the electricity transmission in the Finnish transmission network and interconnectors. NL</p>
Operational security of the power system – for day-ahead	<p>Consistent and coordinated transmission capacity calculation procedures</p> <p>Common procedures for congestion management</p>	
Operational security of the power system during the operating	Utilisation of available resources within a power	The TSO is responsible for operation and control of the network. NL

hour	system Measurement and control systems	
Disturbance handling & remedial actions	System protection planning Active and reactive reserves Automatic load shedding Black start capability Restoration planning	The TSO is responsible for operation control of the network and disturbance handling and restoration of the power system to the normal state. NL  The TSO is entitled to restrict loads in appropriate manner and to control production in situations when the reliability of the system is endangered. NL
Maintain balance within operational hour	Automatic frequency control Regulation market Demand response	The TSO maintains the frequency by adequate production reserves according to the mutual agreement of Nordic TSOs. The TSO shall continuously secure the adequacy of reserves. NL  The TSO is responsible for maintaining the national power balance within each operational hour. NL
Management of shortage situation	Up-to-date action plans and agreements Enforced disconnections (load shedding)	The TSO is entitled to restrict loads in appropriate manner and to control production in situations when the reliability of the system is endangered. NL
Enhance efficient functioning of the market		The TSO shall upkeep and develop its activities and services within the systems responsibility and maintain, operate and develop its electricity system and other equipment needed for fulfilling the systems responsibility and the connection to other systems, so that the prerequisites for an efficiently functioning electricity market can be ensured. EMA 16§

Balance responsible (financial)		Legal status
Goals	Means	
Balance settlement	Imbalance pricing  Settlement procedures for imbalances  Routines for measuring and reporting	<p>The terms of acquisition for electricity needed for maintaining national balance responsibility, and the terms of trade for balancing electricity, shall be equitable and non-discriminatory to all electricity market participants, and they shall not contain any conditions or limitations that would be unfounded or that would obviously restrict competition within electricity trade. However, these terms shall take account of the conditions necessitated by the reliability and efficiency of the electricity system. The pricing of balancing electricity shall be reasonable. EMA 16 a §</p> <p>Electricity market participants are required to provide measurement data and other information on electricity generation, use and supply needed for fulfilling the balance responsibility and for balance determination. Further provisions on the notification procedure may be given by ministerial decree. EMA 16 d §</p>

# Appendix 1.4

## Core activities of the TSOs in the Nordic countries / Denmark

Transmission operator		Cfr. Law <sup>1)</sup>
Goals	Means	
Adequate transmission system in long run	<p>Obligation to maintain, rebuild and expand transmission grid, and expansion only according to plan as presented to minister.</p> <p>Execute a comprehensive and coherent planning founding the basis for evaluating the necessity of changes, dismantling and new installations as concerns grids above 100 kV, incl. all cross border lines, within at least a 10 year horizon..</p>	<p>EA: §§ 20, 27a &amp; 28, s.2</p> <p>MoSR § 9</p>
Secure network to operate	<p>Obligation to maintain technical quality in the whole network system.</p> <p>The regional transmission grid must be set at the disposal of Energinet.dk.</p> <p>Minister can order Energinet.dk to maintain, rebuild and expand regional transmission- or distribution grid.</p> <p>Plants and installations must comply with technical demands and standards, and Energinet.dk must issue technical regulations on connection of generation and consumers in cooperation with regional transmission grid owners and distribution grid owners.</p>	<p>EA § 28, s.2</p> <p>EA § 21</p> <p>EA § 20</p> <p>EA § 26 &amp; MoSR § 7</p>
Timely network expansion	<p>Obligation to prepare plans for expansion and significant changes, and to present plan to minister.</p> <p>Works may at the earliest be initiated 6 weeks after the presentation</p> <p>Minister can order system responsible to establish and run transmission grids and grids at sea (small islands).</p>	<p>En.dkA §4 &amp; chapters 4 &amp; 5 in MoSR</p> <p>En.dkA § 4</p> <p>EA § 20</p>

	Minister can order Energinet.dk to maintain, rebuild and expand regional transmission- or distribution grid.	
Technical compatibility with other networks (across border and within a country)	<p>Obligation to:</p> <p>Maintain, rebuild and expand Transmission grid in cooperation with regional transmission grid owners.</p> <p>Issue technical regulations in cooperation with regional transmission grid owners and distribution grid owners.</p> <p>Cooperate with system responsables in other countries as concerns:</p> <ul style="list-style-type: none"> <li>■ TPA and transit</li> <li>■ market issues etc.</li> <li>■ pooling of transmission connections, among others handling of balance- and capacity problems and entering into necessary common agreements on system operation (Grid Code)</li> </ul>	<p>EA § 28, s. 2</p> <p>EA § 28, s. 2 &amp; § 22, s. 2 &amp; § MoSR?</p> <p>EA § 28, s. 2 &amp; MoSR § 2 + Nordic Grid Code</p>

System operator		Cfr. law <sup>1)</sup>
<b>Goals</b>	<b>Means</b>	
Common technical requirements for secure system operation	<p>Obligation to secure physical balance between consumption and supply.</p> <p>Issue technical regulation on access to and use of the collective grid system.</p> <p>Cooperate with system responsables in other countries as concerns coordinated operation</p>	<p>EA § 27a, s.1 and 59a, s. 1 &amp; 4</p> <p>MoSR § 9</p> <p>EA § 28, s. 2</p>
Operational security of the power system – operation planning timeframe	<p>Carry out system responsible operation against a background of a coordinated and united planning.</p> <p>Ensure the necessary generation capacity in the united supply system.</p> <p>May tender for measure to uphold the necessary supply security, i.e. reserve capacity, DSM etc.</p> <p>Installations and plants &gt; 25 MW may not be</p>	<p>En.dk.A § 2, s. 2</p> <p>EA § 27a s. 1</p> <p>EA § 27d, s. 2</p> <p>EA § 27b</p>

	taken out of operation for longer time without approval from Energinet.dk.	
Operational security of the power system – for day-ahead	<p>The day before operation day Energinet.dk:</p> <ul style="list-style-type: none"> <li>publishes information on the transfer capacity;</li> <li>approves plans on expected production, consumption and trade, as reported by the users of the collective system, which may be accompanied by orders to change plans;</li> <li>may after approval of plans order changes to production volume or order more plants to be ready for operation;</li> <li>may issue regulations on generation companies' obligation to report units &gt; 25 MW to be taken out of production in a period up till 4 weeks, and if assessed to be a risk for supply security may request more plants to be ready for operation.</li> </ul>	<p>EA:</p> <p>§ 27c, s. 1</p> <p>§ 27c, s. 3</p> <p>§ 27c, s. 4</p>
Operational security of the power system during the operating hour	<p>In case of imminent danger of or in case of grid collapse Energinet.dk may order changes of production, trade and consumption.</p> <p>Obligation to transfer information to other system responsables in order to honour cooperation obligation and in order to honour the receiving system responsables tasks.</p> <p>Trade of system services with neighbouring System responsables</p>	<p>EA § 27c, s. 7</p> <p>MoSR § 2</p>
Disturbance handling & remedial actions	<p>I case of imminent danger of or in case of grid collapse Energinet.dk may order changes of production, trade and consumption.</p> <p>And is obliged to transfer information to other system responsables</p> <p>Trade of system services with neighbouring System responsables</p>	<p>EA § 27c, s. 7</p> <p>MoSR § 2</p> <p>EA § 28, s. 2</p>
Maintain balance within operational hour	<p>Energinet.dk is responsible for the balance.</p> <p>And may demand necessary information from the users.</p> <p>Use-it-or-lose-it (Reserved grid capacity)</p> <p>And is obliged to transfer information to other system responsables</p>	<p>EA § 27a, s. 1</p> <p>EA § 27a</p> <p>MoSR § 6</p> <p>MoSR § 2</p>

Management of shortage situation	See above	
Enhance efficient functioning of the market	In performing tasks contribute to ensure the best possible conditions for competition on the production and trade markets	EA § 31, s. 1

Balance responsible (financial)		Cfr. Law <sup>1)</sup>
<b>Goals</b>	<b>Means</b>	
Balance settlement	<p>Obligation to issue Regulation on balance agreements (excl. old windmills, decentralised CHP, waste fired plants).</p> <p>Pricing and settlement principles for imbalances</p> <p>Obligation in cooperation with Distribution to issue Regulation on measuring and reporting.</p>	<p>EA § § 27c, s. 10 &amp; § 76</p> <p>EA § 27s, s. 4 &amp; § 76 &amp; MoSR § 7</p> <p>EA §§ 28, s. 2 and 22, s. 2 &amp; 3 &amp; MoSR § 7</p>

1) Legal abbreviations in 3<sup>rd</sup> column

- EA: Electricity Act
- En.dkA: Act on Energinet.dk:
- MoSR : Ministerial order on system responsible
- MoER: Ministerial order on economic regulation on system responsible
- SRreg.: System responsible issued regulation:
  - connection
  - grid access
  - technical quality and balance
  - metering

# **Appendix 2**

**The electricity directive, 2003/54/EC &**

**The Council Regulation on CBT, 1228/2003**

**DIRECTIVE 2003/54/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**of 26 June 2003**

**concerning common rules for the internal market in electricity and repealing Directive 96/92/EC**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF  
THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 47(2), Article 55 and Article 95 thereof,

Having regard to the proposals from the Commission <sup>(1)</sup>,

Having regard to the Opinion of the European Economic and Social Committee <sup>(2)</sup>,

Having consulted the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the Treaty <sup>(3)</sup>,

Whereas:

(1) Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity <sup>(4)</sup> has made significant contributions towards the creation of an internal market for electricity.

(2) Experience in implementing this Directive shows the benefits that may result from the internal market in electricity, in terms of efficiency gains, price reductions, higher standards of service and increased competitiveness. However, important shortcomings and possibilities for improving the functioning of the market remain, notably concrete provisions are needed to ensure a level playing field in generation and to reduce the risks of market dominance and predatory behaviour, ensuring non-discriminatory transmission and distribution tariffs, through access to the network on the basis of tariffs published prior to their entry into force, and ensuring that the rights of small and vulnerable customers are protected and that information on energy sources for electricity generation is disclosed, as well as reference to sources, where available, giving information on their environmental impact.

(3) At its meeting in Lisbon on 23 and 24 March 2000, the European Council called for rapid work to be undertaken to complete the internal market in both electricity and gas sectors and to speed up liberalisation in these sectors with a view to achieving a fully operational internal market. The European Parliament, in its Resolution of 6 July 2000 on the Commission's second report on the state of liberalisation of energy markets, requested the Commission to adopt a detailed timetable for the achievement of accurately defined objectives with a view to gradually but completely liberalising the energy market.

(4) The freedoms which the Treaty guarantees European citizens — free movement of goods, freedom to provide services and freedom of establishment — are only possible in a fully open market, which enables all consumers freely to choose their suppliers and all suppliers freely to deliver to their customers.

(5) The main obstacles in arriving at a fully operational and competitive internal market relate amongst other things to issues of access to the network, tariffication issues and different degrees of market opening between Member States.

(6) For competition to function, network access must be non-discriminatory, transparent and fairly priced.

(7) In order to complete the internal electricity market, non-discriminatory access to the network of the transmission or the distribution system operator is of paramount importance. A transmission or distribution system operator may comprise one or more undertakings.

(8) In order to ensure efficient and non-discriminatory network access it is appropriate that the distribution and transmission systems are operated through legally separate entities where vertically integrated undertakings exist. The Commission should assess measures of equivalent effect, developed by Member States to achieve the aim of this requirement, and, where appropriate, submit proposals to amend this Directive. It is also appropriate that the transmission and distribution system operators have effective decision-making rights with respect to assets necessary to maintain, operate and develop networks when the assets in question are owned and operated by vertically integrated undertakings. It is necessary that the independence of the distribution system operators and the transmission system operators be guaranteed especially with regard to generation and supply interests. Independent management structures must therefore be put in place

<sup>(1)</sup> OJ C 240 E, 28.8.2001, p. 60, and OJ C 227 E, 24.9.2002, p. 393.

<sup>(2)</sup> OJ C 36, 8.2.2002, p. 10.

<sup>(3)</sup> Opinion of the European Parliament of 13 March 2002 (OJ C 47 E, 27.2.2003, p. 350), Council Common Position of 3 February 2003 (OJ C 50 E, 4.3.2003, p. 15) and Decision of the European Parliament of 4 June 2003 (not yet published in the Official Journal).

<sup>(4)</sup> OJ L 27, 30.1.1997, p. 20.

between the distribution system operators and the transmission system operators and any generation/supply companies.

It is important however to distinguish between such legal separation and ownership unbundling. Legal separation does not imply a change of ownership of assets and nothing prevents similar or identical employment conditions applying throughout the whole of the vertically integrated undertakings. However, a non-discriminatory decision-making process should be ensured through organisational measures regarding the independence of the decision-makers responsible.

- (9) In the case of small systems the provision of ancillary services may have to be ensured by transmission system operators (TSOs) interconnected with small systems.
- (10) While this Directive is not addressing ownership issues it is recalled that in case of an undertaking performing transmission or distribution and which is separated in its legal form from those undertakings performing generation and/or supply activities, the designated system operators may be the same undertaking owning the infrastructure.
- (11) To avoid imposing a disproportionate financial and administrative burden on small distribution companies, Member States should be able, where necessary, to exempt such companies from the legal distribution unbundling requirements.
- (12) Authorisation procedures should not lead to an administrative burden disproportionate to the size and potential impact of electricity producers.
- (13) Further measures should be taken in order to ensure transparent and non discriminatory tariffs for access to networks. Those tariffs should be applicable to all system users on a non discriminatory basis.
- (14) In order to facilitate the conclusion of contracts by an electricity undertaking established in a Member State for the supply of electricity to eligible customers in another Member State, Member States and, where appropriate, national regulatory authorities should work towards more homogenous conditions and the same degree of eligibility for the whole of the internal market.
- (15) The existence of effective regulation, carried out by one or more national regulatory authorities, is an important factor in guaranteeing non-discriminatory access to the network. Member States specify the functions, competences and administrative powers of the regulatory authorities. It is important that the regulatory authorities in all Member States share the same minimum set of competences. Those authorities should have the competence to fix or approve the tariffs, or at least, the methodologies underlying the calculation of transmission and distribution tariffs. In order to avoid uncertainty and costly and time consuming disputes, these tariffs should be published prior to their entry into force.
- (16) The Commission has indicated its intention to set up a European Regulators Group for Electricity and Gas which would constitute a suitable advisory mechanism for encouraging cooperation and coordination of national regulatory authorities, in order to promote the development of the internal market for electricity and gas, and to contribute to the consistent application, in all Member States, of the provisions set out in this Directive and Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas <sup>(1)</sup> and in Regulation (EC) No 1228/2003 of the European Parliament and of the Council of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity <sup>(2)</sup>.
- (17) In order to ensure effective market access for all market players, including new entrants, non discriminatory and cost-reflective balancing mechanisms are necessary. As soon as the electricity market is sufficiently liquid, this should be achieved through the setting up of transparent market-based mechanisms for the supply and purchase of electricity needed in the framework of balancing requirements. In the absence of such a liquid market, national regulatory authorities should play an active role to ensure that balancing tariffs are non discriminatory and cost-reflective. At the same time, appropriate incentives should be provided to balance in-put and off-take of electricity and not to endanger the system.
- (18) National regulatory authorities should be able to fix or approve tariffs, or the methodologies underlying the calculation of the tariffs, on the basis of a proposal by the transmission system operator or distribution system operator(s), or on the basis of a proposal agreed between these operator(s) and the users of the network. In carrying out these tasks, national regulatory authorities should ensure that transmission and distribution tariffs are non-discriminatory and cost-reflective, and should take account of the

<sup>(1)</sup> See p. 57 of this Official Journal.

<sup>(2)</sup> See p. 1 of this Official Journal.

long-term, marginal, avoided network costs from distributed generation and demand-side management measures.

infrastructure, including interconnection capacity and decentralised electricity generation, are important elements in ensuring a stable electricity supply.

- (19) All Community industry and commerce, including small and medium-sized enterprises, and all Community citizens that enjoy the economic benefits of the internal market should also be able to enjoy high levels of consumer protection, and in particular households and, where Member States deem it appropriate, small enterprises should also be able to enjoy public service guarantees, in particular with regard to security of supply and reasonable tariffs, for reasons of fairness, competitiveness and indirectly to create employment.
- (20) Electricity customers should be able to choose their supplier freely. Nonetheless a phased approach should be taken to completing the internal market for electricity to enable industry to adjust and ensure that adequate measures and systems are in place to protect the interests of customers and ensure they have a real and effective right to choose their supplier.
- (21) Progressive market opening towards full competition should as soon as possible remove differences between Member States. Transparency and certainty in the implementation of this Directive should be ensured.
- (22) Nearly all Member States have chosen to ensure competition in the electricity generation market through a transparent authorisation procedure. However, Member States should ensure the possibility to contribute to security of supply through the launching of a tendering procedure or an equivalent procedure in the event that sufficient electricity generation capacity is not built on the basis of the authorisation procedure. Member States should have the possibility, in the interests of environmental protection and the promotion of infant new technologies, of tendering for new capacity on the basis of published criteria. New capacity includes inter alia renewables and combined heat and power (CHP).
- (23) In the interest of security of supply, the supply/demand balance in individual Member States should be monitored, and monitoring should be followed by a report on the situation at Community level, taking account of interconnection capacity between areas. Such monitoring should be carried out sufficiently early to enable appropriate measures to be taken if security of supply is compromised. The construction and maintenance of the necessary network infrastructure, including interconnection capacity, should contribute to ensuring a stable electricity supply. The maintenance and construction of the necessary network
- (24) Member States should ensure that household customers and, where Member States deem it appropriate, small enterprises, enjoy the right to be supplied with electricity of a specified quality at clearly comparable, transparent and reasonable prices. In order to ensure the maintenance of the high standards of public service in the Community, all measures taken by Member States to achieve the objectives of this Directive should be regularly notified to the Commission. The Commission should regularly publish a report analysing measures taken at national level to achieve public service objectives and comparing their effectiveness, with a view to making recommendations as regards measures to be taken at national level to achieve high public service standards. Member States should take the necessary measures to protect vulnerable customers in the context of the internal electricity market. Such measures can differ according to the particular circumstances in the Member States in question and may include specific measures relating to the payment of electricity bills, or more general measures taken in the social security system. When universal service is also provided to small enterprises, measures to ensure that this universal service is provided may differ according to households and small enterprises.
- (25) The Commission has indicated its intention to take initiatives especially as regards the scope of the labelling provision and notably on the manner in which the information on the environmental impact in terms of at least emissions of CO<sub>2</sub> and the radioactive waste resulting from electricity production from different energy sources, could be made available in a transparent, easily accessible and comparable manner throughout the European Union and on the manner in which the measures taken in the Member States to control the accuracy of the information provided by suppliers could be streamlined.
- (26) The respect of the public service requirements is a fundamental requirement of this Directive, and it is important that common minimum standards, respected by all Member States, are specified in this Directive, which take into account the objectives of common protection, security of supply, environmental protection and equivalent levels of competition in all Member States. It is important that the public service requirements can be interpreted on a national basis, taking into account national circumstances and subject to the respect of Community law.

- (27) Member States may appoint a supplier of last resort. This supplier may be the sales division of a vertically integrated undertaking, that also performs the functions of distribution, provided that it meets the unbundling requirements of this Directive.
- (28) Measures implemented by Member States to achieve the objectives of social and economic cohesion may include, in particular, the provision of adequate economic incentives, using, where appropriate, all existing national and Community tools. These tools may include liability mechanisms to guarantee the necessary investment.
- (29) To the extent to which measures taken by Member States to fulfil public service obligations constitute State aid under Article 87(1) of the Treaty, there is an obligation according to Article 88(3) of the Treaty to notify them to the Commission.
- (30) The requirement to notify the Commission of any refusal to grant authorisation to construct new generation capacity has proven to be an unnecessary administrative burden and should therefore be dispensed with.
- (31) Since the objective of the proposed action, namely the creation of a fully operational internal electricity market, in which fair competition prevails, cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale and effects of the action, be better achieved at Community level, the Community may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve that objective.
- (32) In the light of the experience gained with the operation of Council Directive 90/547/EEC of 29 October 1990 on the transit of electricity through transmission grids<sup>(1)</sup>, measures should be taken to ensure homogeneous and non-discriminatory access regimes for transmission, including cross-border flows of electricity between Member States. To ensure homogeneity in the treatment of access to the electricity networks, also in the case of transit, that Directive should be repealed.
- (33) Given the scope of the amendments that are being made to Directive 96/92/EC, it is desirable, for reasons of clarity and rationalisation, that the provisions in question should be recast.
- (34) This Directive respects the fundamental rights, and observes the principles, recognised in particular by the Charter of Fundamental Rights of the European Union,

HAVE ADOPTED THIS DIRECTIVE:

## CHAPTER I

### SCOPE AND DEFINITIONS

#### Article 1

##### Scope

This Directive establishes common rules for the generation, transmission, distribution and supply of electricity. It lays down the rules relating to the organisation and functioning of the electricity sector, access to the market, the criteria and procedures applicable to calls for tenders and the granting of authorisations and the operation of systems.

#### Article 2

##### Definitions

For the purposes of this Directive:

1. 'generation' means the production of electricity;
2. 'producer' means a natural or legal person generating electricity;
3. 'transmission' means the transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors, but not including supply;
4. 'transmission system operator' means a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long term ability of the system to meet reasonable demands for the transmission of electricity;
5. 'distribution' means the transport of electricity on high-voltage, medium voltage and low voltage distribution systems with a view to its delivery to customers, but not including supply;
6. 'distribution system operator' means a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the distribution system in a given area and, where applicable, its interconnections with other systems and for ensuring the long term ability of the system to meet reasonable demands for the distribution of electricity;
7. 'customers' means wholesale and final customers of electricity;
8. 'wholesale customers' means any natural or legal persons who purchase electricity for the purpose of resale inside or outside the system where they are established;

<sup>(1)</sup> OJ L 313, 13.11.1990, p. 30. Directive as last amended by Commission Directive 98/75/EC (OJ L 276, 13.10.1998, p. 9).

9. 'final customers' means customers purchasing electricity for their own use;
10. 'household customers' means customers purchasing electricity for their own household consumption, excluding commercial or professional activities;
11. 'non-household customers' means any natural or legal persons purchasing electricity which is not for their own household use and shall include producers and wholesale customers;
12. 'eligible customers' means customers who are free to purchase electricity from the supplier of their choice within the meaning of Article 21 of this Directive;
13. 'interconnectors' means equipment used to link electricity systems;
14. 'interconnected system' means a number of transmission and distribution systems linked together by means of one or more interconnectors;
15. 'direct line' means either an electricity line linking an isolated production site with an isolated customer or an electricity line linking an electricity producer and an electricity supply undertaking to supply directly their own premises, subsidiaries and eligible customers;
16. 'economic precedence' means the ranking of sources of electricity supply in accordance with economic criteria;
17. 'ancillary services' means all services necessary for the operation of a transmission or distribution system;
18. 'system users' means any natural or legal persons supplying to, or being supplied by, a transmission or distribution system;
19. 'supply' means the sale, including resale, of electricity to customers;
20. 'integrated electricity undertaking' means a vertically or horizontally integrated undertaking;
21. 'vertically integrated undertaking' means an undertaking or a group of undertakings whose mutual relationships are defined in Article 3(3) of Council Regulation (EEC) No 4064/89 of 21 December 1989 on the control of concentrations between undertakings<sup>(1)</sup> and where the undertaking/group concerned is performing at least one of the functions of transmission or distribution and at least one of the functions of generation or supply of electricity;
22. 'related undertaking' means affiliated undertakings, within the meaning of Article 41 of the Seventh Council Directive 83/349/EEC of 13 June 1983 based on Article 44(2)(g) (\*) of the Treaty on consolidated accounts<sup>(2)</sup>, and/or associated undertakings, within the meaning of Article 33(1) thereof, and/or undertakings which belong to the same shareholders;
23. 'horizontally integrated undertaking' means an undertaking performing at least one of the functions of generation for sale, or transmission, or distribution, or supply of electricity, and another non electricity activity;
24. 'tendering procedure' means the procedure through which planned additional requirements and replacement capacity are covered by supplies from new or existing generating capacity;
25. 'long-term planning' means the planning of the need for investment in generation and transmission and distribution capacity on a long term basis, with a view to meeting the demand of the system for electricity and securing supplies to customers;
26. 'small isolated system' means any system with consumption of less than 3 000 GWh in the year 1996, where less than 5 % of annual consumption is obtained through interconnection with other systems;
27. 'micro isolated system' means any system with consumption less than 500 GWh in the year 1996, where there is no connection with other systems;
28. 'security' means both security of supply and provision of electricity, and technical safety;
29. 'energy efficiency/demand-side management' means a global or integrated approach aimed at influencing the amount and timing of electricity consumption in order to reduce primary energy consumption and peak loads by giving precedence to investments in energy efficiency measures, or other measures, such as interruptible supply contracts, over investments to increase generation capacity, if the former are the most effective and economical option, taking into account the positive environmental impact of reduced energy consumption and the security of supply and distribution cost aspects related to it;

(\*) The title of Directive 83/349/EEC has been adjusted to take account of the renumbering of the Articles of the Treaty establishing the European Community in accordance with Article 12 of the Treaty of Amsterdam; the original reference was to Article 54(3)(g).

(2) OJ L 193, 18.7.1983, p. 1. Directive as last amended by Directive 2001/65/EC of the European Parliament and of the Council (OJ L 283, 27.10.2001, p. 28).

(1) OJ L 395, 30.12.1989, p. 1. Regulation as last amended by Regulation (EC) No 1310/97 (OJ L 180, 9.7.1997, p. 1).

30. 'renewable energy sources' means renewable non-fossil energy sources (wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases);
31. 'distributed generation' means generation plants connected to the distribution system.

## CHAPTER II

### GENERAL RULES FOR THE ORGANISATION OF THE SECTOR

#### Article 3

#### Public service obligations and customer protection

1. Member States shall ensure, on the basis of their institutional organisation and with due regard to the principle of subsidiarity, that, without prejudice to paragraph 2, electricity undertakings are operated in accordance with the principles of this Directive with a view to achieving a competitive, secure and environmentally sustainable market in electricity, and shall not discriminate between these undertakings as regards either rights or obligations.

2. Having full regard to the relevant provisions of the Treaty, in particular Article 86 thereof, Member States may impose on undertakings operating in the electricity sector, in the general economic interest, public service obligations which may relate to security, including security of supply, regularity, quality and price of supplies and environmental protection, including energy efficiency and climate protection. Such obligations shall be clearly defined, transparent, non-discriminatory, verifiable and shall guarantee equality of access for EU electricity companies to national consumers. In relation to security of supply, energy efficiency/demand-side management and for the fulfilment of environmental goals, as referred to in this paragraph, Member States may introduce the implementation of long term planning, taking into account the possibility of third parties seeking access to the system.

3. Member States shall ensure that all household customers, and, where Member States deem it appropriate, small enterprises, (namely enterprises with fewer than 50 occupied persons and an annual turnover or balance sheet not exceeding EUR 10 million), enjoy universal service, that is the right to be supplied with electricity of a specified quality within their territory at reasonable, easily and clearly comparable and transparent prices. To ensure the provision of universal service, Member States may appoint a supplier of last resort. Member States shall impose on distribution companies an obligation to connect customers to their grid under terms, conditions and tariffs set in accordance with the procedure laid down in Article 23(2). Nothing in this Directive shall prevent Member States from strengthening the market position of the domestic,

small and medium-sized consumers by promoting the possibilities of voluntary aggregation of representation for this class of consumers.

The first subparagraph shall be implemented in a transparent and non-discriminatory way and shall not impede the opening of the market provided for in Article 21.

4. When financial compensation, other forms of compensation and exclusive rights which a Member State grants for the fulfilment of the obligations set out in paragraphs 2 and 3 are provided, this shall be done in a non-discriminatory and transparent way.

5. Member States shall take appropriate measures to protect final customers, and shall in particular ensure that there are adequate safeguards to protect vulnerable customers, including measures to help them avoid disconnection. In this context, Member States may take measures to protect final customers in remote areas. They shall ensure high levels of consumer protection, particularly with respect to transparency regarding contractual terms and conditions, general information and dispute settlement mechanisms. Member States shall ensure that the eligible customer is in fact able to switch to a new supplier. As regards at least household customers, these measures shall include those set out in Annex A.

6. Member States shall ensure that electricity suppliers specify in or with the bills and in promotional materials made available to final customers:

- (a) the contribution of each energy source to the overall fuel mix of the supplier over the preceding year;
- (b) at least the reference to existing reference sources, such as web-pages, where information on the environmental impact, in terms of at least emissions of CO<sub>2</sub> and the radioactive waste resulting from the electricity produced by the overall fuel mix of the supplier over the preceding year is publicly available.

With respect to electricity obtained via an electricity exchange or imported from an undertaking situated outside the Community, aggregate figures provided by the exchange or the undertaking in question over the preceding year may be used.

Member States shall take the necessary steps to ensure that the information provided by suppliers to their customers pursuant to this Article is reliable.

7. Member States shall implement appropriate measures to achieve the objectives of social and economic cohesion, environmental protection, which may include energy efficiency/demand-side management measures and means to combat climate change, and security of supply. Such measures may include, in particular, the provision of adequate economic

incentives, using, where appropriate, all existing national and Community tools, for the maintenance and construction of the necessary network infrastructure, including interconnection capacity.

8. Member States may decide not to apply the provisions of Articles 6, 7, 20 and 22 insofar as their application would obstruct the performance, in law or in fact, of the obligations imposed on electricity undertakings in the general economic interest and insofar as the development of trade would not be affected to such an extent as would be contrary to the interests of the Community. The interests of the Community include, amongst others, competition with regard to eligible customers in accordance with this Directive and Article 86 of the Treaty.

9. Member States shall, upon implementation of this Directive, inform the Commission of all measures adopted to fulfil universal service and public service obligations, including consumer protection and environmental protection, and their possible effect on national and international competition, whether or not such measures require a derogation from this Directive. They shall inform the Commission subsequently every two years of any changes to such measures, whether or not they require a derogation from this Directive.

#### Article 4

### Monitoring of security of supply

Member States shall ensure the monitoring of security of supply issues. Where Member States consider it appropriate they may delegate this task to the regulatory authorities referred to in Article 23(1). This monitoring shall, in particular, cover the supply/demand balance on the national market, the level of expected future demand and envisaged additional capacity being planned or under construction, and the quality and level of maintenance of the networks, as well as measures to cover peak demand and to deal with shortfalls of one or more suppliers. The competent authorities shall publish every two years, by 31 July at the latest, a report outlining the findings resulting from the monitoring of these issues, as well as any measures taken or envisaged to address them and shall forward this report to the Commission forthwith.

#### Article 5

### Technical rules

Member States shall ensure that technical safety criteria are defined and that technical rules establishing the minimum technical design and operational requirements for the connection to the system of generating installations, distribution systems, directly connected consumers' equipment, interconnector circuits and direct lines are developed and made public. These technical rules shall ensure the interoperability of systems and shall be objective and non discriminatory. They shall be notified to the Commission in accordance with

Article 8 of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society Services <sup>(1)</sup>.

#### CHAPTER III

### GENERATION

#### Article 6

### Authorisation procedure for new capacity

1. For the construction of new generating capacity, Member States shall adopt an authorisation procedure, which shall be conducted in accordance with objective, transparent and non discriminatory criteria.

2. Member States shall lay down the criteria for the grant of authorisations for the construction of generating capacity in their territory. These criteria may relate to:

- (a) the safety and security of the electricity system, installations and associated equipment;
- (b) protection of public health and safety;
- (c) protection of the environment;
- (d) land use and siting;
- (e) use of public ground;
- (f) energy efficiency;
- (g) the nature of the primary sources;
- (h) characteristics particular to the applicant, such as technical, economic and financial capabilities;
- (i) compliance with measures adopted pursuant to Article 3.

3. Member States shall ensure that authorisation procedures for small and/or distributed generation take into account their limited size and potential impact.

4. The authorisation procedures and criteria shall be made public. Applicants shall be informed of the reasons for any refusal to grant an authorisation. The reasons must be objective, non discriminatory, well founded and duly substantiated. Appeal procedures shall be made available to the applicant.

<sup>(1)</sup> OJ L 204, 21.7.1998, p. 37. Directive as amended by Directive 98/48/EC (OJ L 217, 5.8.1998, p. 18).

*Article 7***Tendering for new capacity**

1. Member States shall ensure the possibility, in the interests of security of supply, of providing for new capacity or energy efficiency/demand-side management measures through a tendering procedure or any procedure equivalent in terms of transparency and non-discrimination, on the basis of published criteria. These procedures can, however, only be launched if on the basis of the authorisation procedure the generating capacity being built or the energy efficiency/demand-side management measures being taken are not sufficient to ensure security of supply.

2. Member States may ensure the possibility, in the interests of environmental protection and the promotion of infant new technologies, of tendering for new capacity on the basis of published criteria. This tender may relate to new capacity or energy efficiency/demand-side management measures. A tendering procedure can, however, only be launched if on the basis of the authorisation procedure the generating capacity being built or the measures being taken are not sufficient to achieve these objectives.

3. Details of the tendering procedure for means of generating capacity and energy efficiency/demand-side management measures shall be published in the *Official Journal of the European Union* at least six months prior to the closing date for tenders.

The tender specifications shall be made available to any interested undertaking established in the territory of a Member State so that it has sufficient time in which to submit a tender.

With a view to ensuring transparency and non-discrimination the tender specifications shall contain a detailed description of the contract specifications and of the procedure to be followed by all tenderers and an exhaustive list of criteria governing the selection of tenderers and the award of the contract, including incentives, such as subsidies, which are covered by the tender. These specifications may also relate to the fields referred to in Article 6(2).

4. In invitations to tender for the requisite generating capacity, consideration must also be given to electricity supply offers with long term guarantees from existing generating units, provided that additional requirements can be met in this way.

5. Member States shall designate an authority or a public body or a private body independent from electricity generation, transmission, distribution and supply activities, which may be a regulatory authority referred to in Article 23(1), to be responsible for the organisation, monitoring and control of the tendering procedure referred to in paragraphs 1 to 4. Where a transmission system operator is fully

independent from other activities not relating to the transmission system in ownership terms, the transmission system operator may be designated as the body responsible for organising, monitoring and controlling the tendering procedure. This authority or body shall take all necessary steps to ensure confidentiality of the information contained in the tenders.

## CHAPTER IV

**TRANSMISSION SYSTEM OPERATION***Article 8***Designation of Transmission System Operators**

Member States shall designate, or shall require undertakings which own transmission systems to designate, for a period of time to be determined by Member States having regard to considerations of efficiency and economic balance, one or more transmission system operators. Member States shall ensure that transmission system operators act in accordance with Articles 9 to 12.

*Article 9***Tasks of Transmission System Operators**

Each transmission system operator shall be responsible for:

- (a) ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity;
- (b) contributing to security of supply through adequate transmission capacity and system reliability;
- (c) managing energy flows on the system, taking into account exchanges with other interconnected systems. To that end, the transmission system operator shall be responsible for ensuring a secure, reliable and efficient electricity system and, in that context, for ensuring the availability of all necessary ancillary services insofar as this availability is independent from any other transmission system with which its system is interconnected;
- (d) providing to the operator of any other system with which its system is interconnected sufficient information to ensure the secure and efficient operation, coordinated development and interoperability of the interconnected system;
- (e) ensuring non-discrimination as between system users or classes of system users, particularly in favour of its related undertakings;

- (f) providing system users with the information they need for efficient access to the system.

setting out the measures taken, shall be submitted by the person or body responsible for monitoring the compliance programme to the regulatory authority referred to in Article 23(1) and shall be published.

#### Article 10

### Unbundling of Transmission System Operators

1. Where the transmission system operator is part of a vertically integrated undertaking, it shall be independent at least in terms of its legal form, organisation and decision making from other activities not relating to transmission. These rules shall not create an obligation to separate the ownership of assets of the transmission system from the vertically integrated undertaking.

2. In order to ensure the independence of the transmission system operator referred to in paragraph 1, the following minimum criteria shall apply:

- (a) those persons responsible for the management of the transmission system operator may not participate in company structures of the integrated electricity undertaking responsible, directly or indirectly, for the day-to-day operation of the generation, distribution and supply of electricity;
- (b) appropriate measures must be taken to ensure that the professional interests of the persons responsible for the management of the transmission system operator are taken into account in a manner that ensures that they are capable of acting independently;
- (c) the transmission system operator shall have effective decision-making rights, independent from the integrated electricity undertaking, with respect to assets necessary to operate, maintain or develop the network. This should not prevent the existence of appropriate coordination mechanisms to ensure that the economic and management supervision rights of the parent company in respect of return on assets, regulated indirectly in accordance with Article 23(2), in a subsidiary are protected. In particular, this shall enable the parent company to approve the annual financial plan, or any equivalent instrument, of the transmission system operator and to set global limits on the levels of indebtedness of its subsidiary. It shall not permit the parent company to give instructions regarding day-to-day operations, nor with respect to individual decisions concerning the construction or upgrading of transmission lines, that do not exceed the terms of the approved financial plan, or any equivalent instrument;
- (d) the transmission system operator shall establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded, and ensure that observance of it is adequately monitored. The programme shall set out the specific obligations of employees to meet this objective. An annual report,

#### Article 11

### Dispatching and balancing

1. Without prejudice to the supply of electricity on the basis of contractual obligations, including those which derive from the tendering specifications, the transmission system operator shall, where it has this function, be responsible for dispatching the generating installations in its area and for determining the use of interconnectors with other systems.

2. The dispatching of generating installations and the use of interconnectors shall be determined on the basis of criteria which may be approved by the Member State and which must be objective, published and applied in a non discriminatory manner which ensures the proper functioning of the internal market in electricity. They shall take into account the economic precedence of electricity from available generating installations or interconnector transfers and the technical constraints on the system.

3. A Member State may require the system operator, when dispatching generating installations, to give priority to generating installations using renewable energy sources or waste or producing combined heat and power.

4. A Member State may, for reasons of security of supply, direct that priority be given to the dispatch of generating installations using indigenous primary energy fuel sources, to an extent not exceeding in any calendar year 15 % of the overall primary energy necessary to produce the electricity consumed in the Member State concerned.

5. Member States may require transmission system operators to comply with minimum standards for the maintenance and development of the transmission system, including interconnection capacity.

6. Transmission system operators shall procure the energy they use to cover energy losses and reserve capacity in their system according to transparent, non-discriminatory and market-based procedures, whenever they have this function.

7. Rules adopted by transmission system operators for balancing the electricity system shall be objective, transparent and non-discriminatory, including rules for the charging of system users of their networks for energy imbalance. Terms and conditions, including rules and tariffs, for the provision of such services by transmission system operators shall be

established pursuant to a methodology compatible with Article 23(2) in a non-discriminatory and cost-reflective way and shall be published.

#### Article 12

### Confidentiality for Transmission System Operators

Without prejudice to Article 18 or any other legal duty to disclose information, the transmission system operator shall preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its business. Information disclosed regarding its own activities, which may be commercially advantageous, shall be made available in a non-discriminatory manner.

#### CHAPTER V

### DISTRIBUTION SYSTEM OPERATION

#### Article 13

### Designation of Distribution System Operators

Member States shall designate or shall require undertakings that own or are responsible for distribution systems to designate, for a period of time to be determined by Member States having regard to considerations of efficiency and economic balance, one or more distribution system operators. Member States shall ensure that distribution system operators act in accordance with Articles 14 to 16.

#### Article 14

### Tasks of Distribution System Operators

1. The distribution system operator shall maintain a secure, reliable and efficient electricity distribution system in its area with due regard for the environment.
2. In any event, it must not discriminate between system users or classes of system users, particularly in favour of its related undertakings.
3. The distribution system operator shall provide system users with the information they need for efficient access to the system.
4. A Member State may require the distribution system operator, when dispatching generating installations, to give priority to generating installations using renewable energy sources or waste or producing combined heat and power.
5. Distribution system operators shall procure the energy they use to cover energy losses and reserve capacity in their system according to transparent, non-discriminatory and market based procedures, whenever they have this function.

This requirement shall be without prejudice to using electricity acquired under contracts concluded before 1 January 2002.

6. Where distribution system operators are responsible for balancing the electricity distribution system, rules adopted by them for that purpose shall be objective, transparent and non discriminatory, including rules for the charging of system users of their networks for energy imbalance. Terms and conditions, including rules and tariffs, for the provision of such services by distribution system operators shall be established in accordance with Article 23(2) in a non discriminatory and cost-reflective way and shall be published.

7. When planning the development of the distribution network, energy efficiency/demand-side management measures and/or distributed generation that might supplant the need to upgrade or replace electricity capacity shall be considered by the distribution system operator.

#### Article 15

### Unbundling of Distribution System Operators

1. Where the distribution system operator is part of a vertically integrated undertaking, it shall be independent at least in terms of its legal form, organisation and decision making from other activities not relating to distribution. These rules shall not create an obligation to separate the ownership of assets of the distribution system operator from the vertically integrated undertaking.

2. In addition to the requirements of paragraph 1, where the distribution system operator is part of a vertically integrated undertaking, it shall be independent in terms of its organisation and decision making from the other activities not related to distribution. In order to achieve this, the following minimum criteria shall apply:

- (a) those persons responsible for the management of the distribution system operator may not participate in company structures of the integrated electricity undertaking responsible, directly or indirectly, for the day-to-day operation of the generation, transmission or supply of electricity;
- (b) appropriate measures must be taken to ensure that the professional interests of the persons responsible for the management of the distribution system operator are taken into account in a manner that ensures that they are capable of acting independently;
- (c) the distribution system operator shall have effective decision-making rights, independent from the integrated electricity undertaking, with respect to assets necessary to operate, maintain or develop the network. This should not prevent the existence of appropriate coordination mechanisms to ensure that the economic and management supervision rights of the parent company in respect of

return on assets, regulated indirectly in accordance with Article 23(2), in a subsidiary are protected. In particular, this shall enable the parent company to approve the annual financial plan, or any equivalent instrument, of the distribution system operator and to set global limits on the levels of indebtedness of its subsidiary. It shall not permit the parent company to give instructions regarding day-to-day operations, nor with respect to individual decisions concerning the construction or upgrading of distribution lines, that do not exceed the terms of the approved financial plan, or any equivalent instrument.

- (d) the distribution system operator shall establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded, and ensure that observance of it is adequately monitored. The programme shall set out the specific obligations of employees to meet this objective. An annual report, setting out the measures taken, shall be submitted by the person or body responsible for monitoring the compliance programme to the regulatory authority referred to in Article 23(1) and published.

Member States may decide not to apply paragraphs 1 and 2 to integrated electricity undertakings serving less than 100 000 connected customers, or serving small isolated systems.

#### Article 16

### Confidentiality for Distribution System Operators

Without prejudice to Article 18 or any other legal duty to disclose information, the distribution system operator must preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its business, and shall prevent information about its own activities which may be commercially advantageous being disclosed in a discriminatory manner.

#### Article 17

### Combined operator

The rules in Articles 10(1) and 15(1) do not prevent the operation of a combined transmission and distribution system operator, which is independent in terms of its legal form, organisation and decision making from other activities not relating to transmission or distribution system operation and which meets the requirements set out in points (a) to (d). These rules shall not create an obligation to separate the ownership of assets of the combined system from the vertically integrated undertaking:

- (a) those persons responsible for the management of the combined system operator may not participate in company structures of the integrated electricity

undertaking responsible, directly or indirectly, for the day-to-day operation of the generation, or supply of electricity;

- (b) appropriate measures must be taken to ensure that the professional interests of the persons responsible for the management of the combined system operator are taken into account in a manner that ensures that they are capable of acting independently;

- (c) the combined system operator shall have effective decision-making rights, independent from the integrated electricity undertaking, with respect to assets necessary to operate, maintain and develop the network. This should not prevent the existence of appropriate coordination mechanisms to ensure that the economic and management supervision rights of the parent company in respect of return on assets, regulated indirectly in accordance with Article 23(2), in a subsidiary are protected. In particular, this shall enable the parent company to approve the annual financial plan, or any equivalent instrument, of the combined system operator and to set global limits on the levels of indebtedness of its subsidiary. It shall not permit the parent company to give instructions regarding day-to-day operations, nor with respect to individual decisions concerning the construction or upgrading of transmission and distribution lines, that do not exceed the terms of the approved financial plan, or any equivalent instrument;

- (d) the combined system operator shall establish a compliance programme which sets out measures taken to ensure that discriminatory conduct is excluded, and ensure that observance of it is adequately monitored. The programme shall set out the specific obligations of employees to meet this objective. An annual report, setting out the measures taken, shall be submitted by the person or body responsible for monitoring the compliance programme to the regulatory authority referred to in Article 23(1) and published.

#### CHAPTER VI

### UNBUNDLING AND TRANSPARENCY OF ACCOUNTS

#### Article 18

### Right of access to accounts

1. Member States or any competent authority they designate, including the regulatory authorities referred to in Article 23, shall, insofar as necessary to carry out their functions, have right of access to the accounts of electricity undertakings as set out in Article 19.

2. Member States and any designated competent authority, including the regulatory authorities referred to in Article 23, shall preserve the confidentiality of commercially sensitive information. Member States may provide for the disclosure of such information where this is necessary in order for the competent authorities to carry out their functions.

#### Article 19

### Unbundling of accounts

1. Member States shall take the necessary steps to ensure that the accounts of electricity undertakings are kept in accordance with paragraphs 2 to 3.

2. Electricity undertakings, whatever their system of ownership or legal form, shall draw up, submit to audit and publish their annual accounts in accordance with the rules of national law concerning the annual accounts of limited liability companies adopted pursuant to the Fourth Council Directive 78/660/EC of 25 July 1978 based on Article 44(2)(g) (\*) of the Treaty on the annual accounts of certain types of companies (1).

Undertakings which are not legally obliged to publish their annual accounts shall keep a copy of these at the disposal of the public in their head office.

3. Electricity undertakings shall, in their internal accounting, keep separate accounts for each of their transmission and distribution activities as they would be required to do if the activities in question were carried out by separate undertakings, with a view to avoiding discrimination, cross subsidisation and distortion of competition. They shall also keep accounts, which may be consolidated, for other electricity activities not relating to transmission or distribution. Until 1 July 2007, they shall keep separate accounts for supply activities for eligible customers and supply activities for non-eligible customers. Revenue from ownership of the transmission/distribution system shall be specified in the accounts. Where appropriate, they shall keep consolidated accounts for other, non-electricity activities. The internal accounts shall include a balance sheet and a profit and loss account for each activity.

4. The audit referred to in paragraph 2 shall, in particular, verify that the obligation to avoid discrimination and cross-subsidies referred to in paragraph 3, is respected.

(\*) The title of Directive 78/660/EEC has been adjusted to take account of the renumbering of the Articles of the Treaty establishing the European Community in accordance with Article 12 of the Treaty of Amsterdam; the original reference was to Article 54(3)(g).

(1) OJ L 222, 14.8.1978, p. 11. Directive as last amended by Directive 2001/65/EC of the European Parliament and of the Council (OJ L 283, 27.10.2001, p. 28).

#### CHAPTER VII

### ORGANISATION OF ACCESS TO THE SYSTEM

#### Article 20

### Third party access

1. Member States shall ensure the implementation of a system of third party access to the transmission and distribution systems based on published tariffs, applicable to all eligible customers and applied objectively and without discrimination between system users. Member States shall ensure that these tariffs, or the methodologies underlying their calculation, are approved prior to their entry into force in accordance with Article 23 and that these tariffs, and the methodologies — where only methodologies are approved — are published prior to their entry into force.

2. The operator of a transmission or distribution system may refuse access where it lacks the necessary capacity. Duly substantiated reasons must be given for such refusal, in particular having regard to Article 3. Member States shall ensure, where appropriate and when refusal of access takes place, that the transmission or distribution system operator provides relevant information on measures that would be necessary to reinforce the network. The party requesting such information may be charged a reasonable fee reflecting the cost of providing such information.

#### Article 21

### Market opening and reciprocity

1. Member States shall ensure that the eligible customers are:

- (a) until 1 July 2004, the eligible customers as specified in Article 19(1) to (3) of Directive 96/92/EC. Member States shall publish by 31 January each year the criteria for the definition of these eligible customers;
- (b) from 1 July 2004, at the latest, all non-household customers;
- (c) from 1 July 2007, all customers.

2. To avoid imbalance in the opening of electricity markets:

- (a) contracts for the supply of electricity with an eligible customer in the system of another Member State shall not be prohibited if the customer is considered as eligible in both systems involved;

(b) in cases where transactions as described in point (a) are refused because of the customer being eligible only in one of the two systems, the Commission may oblige, taking into account the situation in the market and the common interest, the refusing party to execute the requested supply at the request of the Member State where the eligible customer is located.

#### Article 22

##### Direct lines

1. Member States shall take the measures necessary to enable:

- (a) all electricity producers and electricity supply undertakings established within their territory to supply their own premises, subsidiaries and eligible customers through a direct line;
- (b) any eligible customer within their territory to be supplied through a direct line by a producer and supply undertakings.

2. Member States shall lay down the criteria for the grant of authorisations for the construction of direct lines in their territory. These criteria must be objective and non discriminatory.

3. The possibility of supplying electricity through a direct line as referred to in paragraph 1 shall not affect the possibility of contracting electricity in accordance with Article 20.

4. Member States may make authorisation to construct a direct line subject either to the refusal of system access on the basis, as appropriate, of Article 20 or to the opening of a dispute settlement procedure under Article 23.

5. Member States may refuse to authorise a direct line if the granting of such an authorisation would obstruct the provisions of Article 3. Duly substantiated reasons must be given for such refusal.

#### Article 23

##### Regulatory authorities

1. Member States shall designate one or more competent bodies with the function of regulatory authorities. These authorities shall be wholly independent from the interests of the electricity industry. They shall, through the application of this Article, at least be responsible for ensuring non-discrimination, effective competition and the efficient functioning of the market, monitoring in particular:

- (a) the rules on the management and allocation of interconnection capacity, in conjunction with the regulatory authority or authorities of those Member States with which interconnection exists;
- (b) any mechanisms to deal with congested capacity within the national electricity system;
- (c) the time taken by transmission and distribution undertakings to make connections and repairs;
- (d) the publication of appropriate information by transmission and distribution system operators concerning interconnectors, grid usage and capacity allocation to interested parties, taking into account the need to treat non-aggregated information as commercially confidential;
- (e) the effective unbundling of accounts, as referred to in Article 19, to ensure that there are no cross subsidies between generation, transmission, distribution and supply activities;
- (f) the terms, conditions and tariffs for connecting new producers of electricity to guarantee that these are objective, transparent and non-discriminatory, in particular taking full account of the costs and benefits of the various renewable energy sources technologies, distributed generation and combined heat and power;
- (g) the extent to which transmission and distribution system operators fulfil their tasks in accordance with Articles 9 and 14;
- (h) the level of transparency and competition.

The authorities established pursuant to this Article shall publish an annual report on the outcome of their monitoring activities referred to in points (a) to (h).

2. The regulatory authorities shall be responsible for fixing or approving, prior to their entry into force, at least the methodologies used to calculate or establish the terms and conditions for:

- (a) connection and access to national networks, including transmission and distribution tariffs. These tariffs, or methodologies, shall allow the necessary investments in the networks to be carried out in a manner allowing these investments to ensure the viability of the networks;
- (b) the provision of balancing services.

3. Notwithstanding paragraph 2, Member States may provide that the regulatory authorities shall submit, for formal decision, to the relevant body in the Member State the tariffs or at least the methodologies referred to in that paragraph as

well as the modifications in paragraph 4. The relevant body shall, in such a case, have the power to either approve or reject a draft decision submitted by the regulatory authority. These tariffs or the methodologies or modifications thereto shall be published together with the decision on formal adoption. Any formal rejection of a draft decision shall also be published, including its justification.

4. Regulatory authorities shall have the authority to require transmission and distribution system operators, if necessary, to modify the terms and conditions, tariffs, rules, mechanisms and methodologies referred to in paragraphs 1, 2 and 3, to ensure that they are proportionate and applied in a non-discriminatory manner.

5. Any party having a complaint against a transmission or distribution system operator with respect to the issues mentioned in paragraphs 1, 2 and 4 may refer the complaint to the regulatory authority which, acting as dispute settlement authority, shall issue a decision within two months after receipt of the complaint. This period may be extended by two months where additional information is sought by the regulatory authority. This period may be further extended with the agreement of the complainant. Such a decision shall have binding effect unless and until overruled on appeal.

Where a complaint concerns connection tariffs for major new generation facilities, the two-month period may be extended by the regulatory authority.

6. Any party who is affected and has a right to complain concerning a decision on methodologies taken pursuant to paragraphs 2, 3 or 4 or, where the regulatory authority has a duty to consult, concerning the proposed methodologies, may, at the latest within two months, or a shorter time period as provided by Member States, following publication of the decision or proposal for a decision, submit a complaint for review. Such a complaint shall not have suspensive effect.

7. Member States shall take measures to ensure that regulatory authorities are able to carry out their duties referred to in paragraphs 1 to 5 in an efficient and expeditious manner.

8. Member States shall create appropriate and efficient mechanisms for regulation, control and transparency so as to avoid any abuse of a dominant position, in particular to the detriment of consumers, and any predatory behaviour. These mechanisms shall take account of the provisions of the Treaty, and in particular Article 82 thereof.

Until 2010, the relevant authorities of the Member States shall provide, by 31 July of each year, in conformity with competition law, the Commission with a report on market dominance, predatory and anti competitive behaviour. This

report shall, in addition, review the changing ownership patterns and any practical measures taken at national level to ensure a sufficient variety of market actors or practical measures taken to enhance interconnection and competition. From 2010 onwards, the relevant authorities shall provide such a report every two years.

9. Member States shall ensure that the appropriate measures are taken, including administrative action or criminal proceedings in conformity with their national law, against the natural or legal persons responsible where confidentiality rules imposed by this Directive have not been respected.

10. In the event of cross border disputes, the deciding regulatory authority shall be the regulatory authority which has jurisdiction in respect of the system operator which refuses use of, or access to, the system.

11. Complaints referred to in paragraphs 5 and 6 shall be without prejudice to the exercise of rights of appeal under Community and national law.

12. National regulatory authorities shall contribute to the development of the internal market and of a level playing field by cooperating with each other and with the Commission in a transparent manner.

## CHAPTER VIII

### FINAL PROVISIONS

#### *Article 24*

#### **Safeguard measures**

In the event of a sudden crisis in the energy market and where the physical safety or security of persons, apparatus or installations or system integrity is threatened, a Member State may temporarily take the necessary safeguard measures.

Such measures must cause the least possible disturbance in the functioning of the internal market and must not be wider in scope than is strictly necessary to remedy the sudden difficulties which have arisen.

The Member State concerned shall without delay notify these measures to the other Member States, and to the Commission, which may decide that the Member State concerned must amend or abolish such measures, insofar as they distort competition and adversely affect trade in a manner which is at variance with the common interest.

## Article 25

**Monitoring of imports of electricity**

Member States shall inform the Commission every three months of imports of electricity, in terms of physical flows, that have taken place during the previous three months from third countries.

## Article 26

**Derogations**

1. Member States which can demonstrate, after the Directive has been brought into force, that there are substantial problems for the operation of their small isolated systems, may apply for derogations from the relevant provisions of Chapters IV, V, VI, VII, as well as Chapter III, in the case of micro isolated systems, as far as refurbishing, upgrading and expansion of existing capacity are concerned, which may be granted to them by the Commission. The latter shall inform the Member States of those applications prior to taking a decision, taking into account respect for confidentiality. This decision shall be published in the *Official Journal of the European Union*. This Article shall also be applicable to Luxembourg.

2. A Member State which, after the Directive has been brought into force, for reasons of a technical nature has substantial problems in opening its market for certain limited groups of the non-household customers referred to in Article 21(1)(b) may apply for derogation from this provision, which may be granted to it by the Commission for a period not exceeding 18 months after the date referred to in Article 30(1). In any case, such derogation shall end on the date referred to in Article 21(1)(c).

## Article 27

**Review Procedure**

In the event that the report referred to in Article 28(3) reaches the conclusion whereby, given the effective manner in which network access has been carried out in a Member State — which gives rise to fully effective, non-discriminatory and unhindered network access — the Commission concludes that certain obligations imposed by this Directive on undertakings (including those with respect to legal unbundling for distribution system operators) are not proportionate to the objective pursued, the Member State in question may submit a request to the Commission for exemption from the requirement in question.

The request shall be notified, without delay, by the Member State to the Commission, together with all the relevant information necessary to demonstrate that the conclusion reached in the report on effective network access being ensured will be maintained.

Within three months of its receipt of a notification, the Commission shall adopt an opinion with respect to the request by the Member State concerned, and where appropriate, submit proposals to the European Parliament and to the Council to amend the relevant provisions of the Directive. The

Commission may propose, in the proposals to amend the Directive, to exempt the Member State concerned from specific requirements, subject to that Member State implementing equally effective measures as appropriate.

## Article 28

**Reporting**

1. The Commission shall monitor and review the application of this Directive and submit an overall progress report to the European Parliament and the Council before the end of the first year following the entry into force of this Directive, and thereafter on an annual basis. The report shall cover at least:

- (a) the experience gained and progress made in creating a complete and fully operational internal market in electricity and the obstacles that remain in this respect, including aspects of market dominance, concentration in the market, predatory or anti-competitive behaviour and the effect of this in terms of market distortion;
- (b) the extent to which the unbundling and tariffication requirements contained in this Directive have been successful in ensuring fair and non-discriminatory access to the Community's electricity system and equivalent levels of competition, as well as the economic, environmental and social consequences of the opening of the electricity market for customers;
- (c) an examination of issues relating to system capacity levels and security of supply of electricity in the Community, and in particular the existing and projected balance between demand and supply, taking into account the physical capacity for exchanges between areas;
- (d) special attention will be given to measures taken in Member States to cover peak demand and to deal with shortfalls of one or more suppliers;
- (e) the implementation of the derogation provided under Article 15(2) with a view to a possible revision of the threshold;
- (f) a general assessment of the progress achieved with regard to bilateral relations with third countries which produce and export or transport electricity, including progress in market integration, the social and environmental consequences of the trade in electricity and access to the networks of such third countries;
- (g) the need for possible harmonisation requirements that are not linked to the provisions of this Directive;

(h) the manner in which Member States have implemented in practice the requirements regarding energy labelling contained in Article 3(6), and the manner in which any Commission Recommendations on this issue have been taken into account.

Where appropriate, this report may include recommendations especially as regards the scope and modalities of labelling provisions including e.g. the way in which reference is made to existing reference sources and the content of these sources, and notably on the manner in which the information on the environmental impact in terms of at least emissions of CO<sub>2</sub> and the radioactive waste resulting from the electricity production from different energy sources could be made available in a transparent, easily accessible and comparable manner throughout the European Union and on the manner in which the measures taken by the Member States to control the accuracy of the information provided by suppliers could be streamlined, and measures to counteract negative effects of market dominance and market concentration.

2. Every two years, the report referred to in paragraph 1 shall also cover an analysis of the different measures taken in the Member States to meet public service obligations, together with an examination of the effectiveness of those measures and, in particular, their effects on competition in the electricity market. Where appropriate, this report may include recommendations as to the measures to be taken at national level to achieve high public service standards, or measures intended to prevent market foreclosure.

3. The Commission shall, no later than 1 January 2006, forward to the European Parliament and Council, a detailed report outlining progress in creating the internal electricity market. The report shall, in particular, consider:

- the existence of non-discriminatory network access;
- effective regulation;
- the development of interconnection infrastructure and the security of supply situation in the Community;
- the extent to which the full benefits of the opening of markets are accruing to small enterprises and households, notably with respect to public service and universal service standards;
- the extent to which markets are in practice open to effective competition, including aspects of market dominance, market concentration and predatory or anti-competitive behaviour;
- the extent to which customers are actually switching suppliers and renegotiating tariffs;

- price developments, including supply prices, in relation to the degree of the opening of markets;
- the experience gained in the application of the Directive as far as the effective independence of system operators in vertically integrated undertakings is concerned and whether other measures in addition to functional independence and separation of accounts have been developed which have effects equivalent to legal unbundling.

Where appropriate, the Commission shall submit proposals to the European Parliament and the Council, in particular to guarantee high public service standards.

Where appropriate, the Commission shall submit proposals to the European Parliament and the Council, in particular to ensure full and effective independence of distribution system operators before 1 July 2007. When necessary, these proposals shall, in conformity with competition law, also concern measures to address issues of market dominance, market concentration and predatory or anti-competitive behaviour.

#### *Article 29*

#### **Repeals**

Directive 90/547/EEC shall be repealed with effect from 1 July 2004.

Directive 96/92/EC shall be repealed from 1 July 2004 without prejudice to the obligations of Member States concerning the deadlines for transposition and application of the said Directive. References made to the repealed Directive shall be construed as being made to this Directive and should be read in accordance with the correlation table in Annex B.

#### *Article 30*

#### **Implementation**

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive not later than 1 July 2004. They shall forthwith inform the Commission thereof.

2. Member States may postpone the implementation of Article 15(1) until 1 July 2007. This shall be without prejudice to the requirements contained in Article 15(2).

3. When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

*Article 31*

**Entry into force**

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

*Article 32*

**Addressees**

This Directive is addressed to the Member States.

Done at Brussels, 26 June 2003.

*For the European Parliament*

*The President*

P. COX

*For the Council*

*The President*

A. TSOCHATZOPOULOS

## ANNEX A

**Measures on consumer protection**

Without prejudice to Community rules on consumer protection, in particular Directives 97/7/EC of the European Parliament and of the Council <sup>(1)</sup> and Council Directive 93/13/EC <sup>(2)</sup>, the measures referred to in Article 3 are to ensure that customers:

- (a) have a right to a contract with their electricity service provider that specifies:
- the identity and address of the supplier;
  - the services provided, the service quality levels offered, as well as the time for the initial connection;
  - if offered, the types of maintenance service offered;
  - the means by which up-to-date information on all applicable tariffs and maintenance charges may be obtained;
  - the duration of the contract, the conditions for renewal and termination of services and of the contract, the existence of any right of withdrawal;
  - any compensation and the refund arrangements which apply if contracted service quality levels are not met; and
  - the method of initiating procedures for settlement of disputes in accordance with point (f).

Conditions shall be fair and well known in advance. In any case, this information should be provided prior to the conclusion or confirmation of the contract. Where contracts are concluded through intermediaries, the above information shall also be provided prior to the conclusion of the contract;

- (b) are given adequate notice of any intention to modify contractual conditions and are informed about their right of withdrawal when the notice is given. Service providers shall notify their subscribers directly of any increase in charges, at an appropriate time no later than one normal billing period after the increase comes into effect. Member States shall ensure that customers are free to withdraw from contracts if they do not accept the new conditions notified to them by their electricity service provider;
- (c) receive transparent information on applicable prices and tariffs and on standard terms and conditions, in respect of access to and use of electricity services;
- (d) are offered a wide choice of payment methods. Any difference in terms and conditions shall reflect the costs to the supplier of the different payment systems. General terms and conditions shall be fair and transparent. They shall be given in clear and comprehensible language. Customers shall be protected against unfair or misleading selling methods;
- (e) shall not be charged for changing supplier;
- (f) benefit from transparent, simple and inexpensive procedures for dealing with their complaints. Such procedures shall enable disputes to be settled fairly and promptly with provision, where warranted, for a system of reimbursement and/or compensation. They should follow, wherever possible, the principles set out in Commission Recommendation 98/257/EC <sup>(3)</sup>;
- (g) when having access to universal service under the provisions adopted by Member States pursuant to Article 3(3), are informed about their rights regarding universal service.

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<sup>(1)</sup> OJ L 144, 4.6.1997, p. 19.

<sup>(2)</sup> OJ L 95, 21.4.1993, p. 29.

<sup>(3)</sup> OJ L 115, 17.4.1998, p. 31.

## ANNEX B

**Correlation table**

Directive 96/92/EC	This Directive	
Article 1	Article 1	Scope
Article 2	Article 2	Definitions
Article 3 and 10(1)	Article 3	PSOs and Customer protection
—	Article 4	Monitoring of security of supply
Article 7(2)	Article 5	Technical rules
Article 4 and 5	Article 6	Authorisation procedure for new capacity
Article 4 and 6	Article 7	Tendering for new capacity
Article 7(1)	Article 8	Designation of TSOs
Article 7(3)-(5)	Article 9	Tasks of TSOs
Article 7(6)	Article 10	Unbundling of TSOs
Article 8	Article 11	Dispatching and balancing
Article 9	Article 12	Confidentiality for TSOs
Article 10(2) and (3)	Article 13	Designation of DSOs
Article 11	Article 14	Tasks of DSOs
—	Article 15	Unbundling of DSOs
Article 12	Article 16	Confidentiality for DSOs
—	Article 17	Combined operator
Article 13	Article 18	Right of access to accounts
Article 14	Article 19	Unbundling of accounts
Article 15-18	Article 20	Third Party Access
Article 19	Article 21	Market opening and reciprocity
Article 21	Article 22	Direct lines
Article 20(3)-(4) and 22	Article 23	Regulatory authorities
Article 23	Article 24	Safeguard measures
—	Article 25	Monitoring of imports of electricity
Article 24	Article 26	Derogations
—	Article 27	Review procedure
Article 25 and 26	Article 28	Reporting
—	Article 29	Repeals
Article 27	Article 30	Implementation
Article 28	Article 31	Entry into force
Article 29	Article 32	Addressees
	Annex A	Measures on consumer protection

# **Appendix 2**

**The electricity directive, 2003/54/EC &**

**The Council Regulation on CBT, 1228/2003**

## I

(Acts whose publication is obligatory)

**REGULATION (EC) No 1228/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**  
**of 26 June 2003**  
**on conditions for access to the network for cross-border exchanges in electricity**  
**(Text with EEA relevance)**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 95 thereof,

Having regard to the proposal from the Commission <sup>(1)</sup>,

Having regard to the Opinion of the European Economic and Social Committee <sup>(2)</sup>,

Having consulted the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the Treaty <sup>(3)</sup>,

Whereas:

- (1) Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity <sup>(4)</sup> constituted an important step towards the completion of the internal market in electricity.
- (2) At its meeting in Lisbon on 23 and 24 March 2000, the European Council called for rapid work to be undertaken to complete the internal market in both the electricity and gas sectors and to speed up liberalisation in these sectors with a view to achieving a fully operational internal market in these areas.
- (3) The creation of a real internal electricity market should be promoted through an intensification of trade in electricity, which is currently underdeveloped compared with other sectors of the economy.

(4) Fair, cost-reflective, transparent and directly applicable rules, taking account of a comparison between efficient network operators from structurally comparable areas and supplementing the provisions of Directive 96/92/EC, should be introduced with regard to cross-border tariffication and the allocation of available interconnection capacities, in order to ensure effective access to transmission systems for the purpose of cross-border transactions.

(5) In its Conclusions, the Energy Council of 30 May 2000 invited the Commission, Member States and national regulatory authorities and administrations to ensure timely implementation of congestion management measures and, in liaison with the European Transmission System Operators (ETSO), rapid introduction of a robust tariffication system for the longer term which provides the appropriate cost allocation signals to market participants.

(6) The European Parliament, in its Resolution of 6 July 2000 on the Commission's second report on the state of liberalisation of energy markets, called for conditions for using networks in Member States that do not hamper cross-border trade in electricity and called on the Commission to submit specific proposals geared to overcoming all the existing barriers to intra-Community trade.

(7) It is important that third countries that form part of the European electricity system comply with the rules contained in this Regulation and the guidelines adopted under this Regulation in order to increase the effective functioning of the internal market.

<sup>(1)</sup> OJ C 240 E, 28.8.2001, p. 72, and OJ C 227 E, 24.9.2002, p. 440.

<sup>(2)</sup> OJ C 36, 8.2.2002, p. 10.

<sup>(3)</sup> Opinion of the European Parliament of 13 March 2002 (OJ C 47 E, 27.2.2003, p. 379), Council Common position of 3 February 2003 (OJ C 50 E, 4.3.2003, p. 1) and Decision of the European Parliament of 4 June 2003 (not yet published in the Official Journal).

<sup>(4)</sup> OJ L 27, 30.1.1997, p. 20.

(8) This Regulation should lay down basic principles with regard to tariffication and capacity allocation, whilst providing for the adoption of guidelines detailing further relevant principles and methodologies, in order to allow rapid adaptation to changed circumstances.

- (9) In an open, competitive market, transmission system operators should be compensated for costs incurred as a result of hosting cross-border flows of electricity on their networks by the operators of the transmission systems from which cross-border flows originate and the systems where those flows end.
- (10) Payments and receipts resulting from compensation between transmission system operators should be taken into account when setting national network tariffs.
- (11) The actual amount payable for cross-border access to the system can vary considerably, depending on the transmission system operators involved and as a result of differences in the structure of the tariffication systems applied in Member States. A certain degree of harmonisation is therefore necessary in order to avoid distortions of trade.
- (12) A proper system of long term locational signals would be necessary, based on the principle that the level of the network access charges should reflect the balance between generation and consumption of the region concerned, on the basis of a differentiation of the network access charges on producers and/or consumers.
- (13) It would not be appropriate to apply distance-related tariffs, or, provided appropriate locational signals are in place, a specific tariff to be paid only by exporters or importers in addition to the general charge for access to the national network.
- (14) The precondition for effective competition in the internal market is non-discriminatory and transparent charges for network use including interconnecting lines in the transmission system. The available capacities of these lines should be set at the maximum levels consistent with the safety standards of secure network operation.
- (15) It is important to avoid distortion of competition resulting from different safety, operational and planning standards used by transmission system operators in Member States. Moreover, there should be transparency for market participants concerning available transfer capacities and the security, planning and operational standards that affect the available transfer capacities.
- (16) There should be rules on the use of revenues flowing from congestion-management procedures, unless the specific nature of the interconnector concerned justifies an exemption from these rules.
- (17) It should be possible to deal with congestion problems in various ways as long as the methods used provide correct economic signals to transmission system operators and market participants and are based on market mechanisms.
- (18) To ensure the smooth functioning of the internal market, provision should be made for procedures which allow the adoption of decisions and guidelines with regard to amongst other things tariffication and capacity allocation by the Commission whilst ensuring the involvement of Member States' regulatory authorities in this process where appropriate through their European association. Regulatory authorities, together with other relevant authorities in the Member States, have an important role to play in contributing to the proper functioning of the internal electricity market.
- (19) The Member States and the competent national authorities should be required to provide relevant information to the Commission. Such information should be treated confidentially by the Commission. Where necessary, the Commission should have an opportunity to request relevant information directly from undertakings concerned, provided that the competent national authorities are informed.
- (20) National regulatory authorities should ensure compliance with the rules contained in this Regulation and the guidelines adopted on the basis of this Regulation.
- (21) Member States should lay down rules on penalties applicable to infringements of the provisions of this Regulation and ensure that they are implemented. Those penalties must be effective, proportionate and dissuasive.
- (22) Since the objective of the proposed action, namely the provision of a harmonised framework for cross-border exchanges of electricity, cannot be achieved by the Member States and can therefore, by reason of the scale and effect of the action, be better achieved at Community level, the Community may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Regulation does not go beyond what is necessary in order to achieve this objective.
- (23) The measures necessary for the implementation of this Regulation should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission <sup>(1)</sup>,

(<sup>1</sup>) OJ L 184, 17.7.1999, p. 23.

HAS ADOPTED THIS REGULATION:

*Article 1*

**Subject-matter and scope**

This Regulation aims at setting fair rules for cross-border exchanges in electricity, thus enhancing competition within the internal electricity market, taking into account the specificities of national and regional markets. This will involve the establishment of a compensation mechanism for cross border flows of electricity and the setting of harmonised principles on cross-border transmission charges and the allocation of available capacities of interconnections between national transmission systems.

*Article 2*

**Definitions**

1. For the purpose of this Regulation, the definitions contained in Article 2 of Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC<sup>(1)</sup> shall apply with the exception of the definition of 'interconnector' which shall be replaced by the following:

'interconnector' means a transmission line which crosses or spans a border between Member States and which connects the national transmission systems of the Member States;

2. The following definitions shall also apply:

- (a) 'regulatory authorities' means the regulatory authorities referred to in Article 23(1) of Directive 2003/54/EC;
- (b) 'cross-border flow' means a physical flow of electricity on a transmission network of a Member State that results from the impact of the activity of producers and/or consumers outside of that Member State on its transmission network. If transmission networks of two or more Member States form part, entirely or partly, of a single control block, for the purpose of the inter-transmission system operator (TSO) compensation mechanism referred to in Article 3 only, the control block as a whole shall be considered as forming part of the transmission network of one of the Member States concerned, in order to avoid flows within control blocks being considered as cross-border flows and giving rise to compensation payments under Article 3. The regulatory authorities of the Member States concerned may decide which of the Member States concerned shall be the one of which the control block as a whole shall be considered to form part of;
- (c) 'congestion' means a situation in which an interconnection linking national transmission networks, cannot accommodate all physical flows resulting from

international trade requested by market participants, because of a lack of capacity of the interconnectors and/or the national transmission systems concerned;

- (d) 'declared export' of electricity means the dispatch of electricity in one Member State on the basis of an underlying contractual arrangement to the effect that the simultaneous corresponding take-up ('declared import') of electricity will take place in another Member State or a third country;
- (e) 'declared transit' of electricity means a circumstance where a 'declared export' of electricity occurs and where the nominated path for the transaction involves a country in which neither the dispatch nor the simultaneous corresponding take-up of the electricity will take place;
- (f) 'declared import' of electricity means the take-up of electricity in a Member State or a third country simultaneously with the dispatch of electricity ('declared export') in another Member State;
- (g) 'new interconnector' means an interconnector not completed by the date of entry into force of this Regulation.

*Article 3*

**Inter transmission system operator compensation mechanism**

1. Transmission system operators shall receive compensation for costs incurred as a result of hosting cross-border flows of electricity on their networks.
2. The compensation referred to in paragraph 1 shall be paid by the operators of national transmission systems from which cross-border flows originate and the systems where those flows end.
3. Compensation payments shall be made on a regular basis with regard to a given period of time in the past. Ex-post adjustments of compensation paid shall be made where necessary to reflect costs actually incurred.

The first period of time for which compensation payments shall be made shall be determined in the guidelines referred to in Article 8.

4. Acting in accordance with the procedure referred to in Article 13(2), the Commission shall decide on the amounts of compensation payments payable.

5. The magnitude of cross-border flows hosted and the magnitude of cross-border flows designated as originating and/or ending in national transmission systems shall be determined on the basis of the physical flows of electricity actually measured in a given period of time.

<sup>(1)</sup> See p. 37 of this Official Journal.

6. The costs incurred as a result of hosting cross-border flows shall be established on the basis of the forward looking long-run average incremental costs, taking into account losses, investment in new infrastructure, and an appropriate proportion of the cost of existing infrastructure, as far as infrastructure is used for the transmission of cross-border flows, in particular taking into account the need to guarantee security of supply. When establishing the costs incurred, recognised standard-costing methodologies shall be used. Benefits that a network incurs as a result of hosting cross-border flows shall be taken into account to reduce the compensation received.

#### Article 4

### Charges for access to networks

1. Charges applied by network-operators for access to networks shall be transparent, take into account the need for network security and reflect actual costs incurred insofar as they correspond to those of an efficient and structurally comparable network operator and applied in a non-discriminatory manner. Those charges shall not be distance-related.

2. Producers and consumers ('load') may be charged for access to networks. The proportion of the total amount of the network charges borne by producers shall, subject to the need to provide appropriate and efficient locational signals, be lower than the proportion borne by consumers. Where appropriate, the level of the tariffs applied to producers and/or consumers shall provide locational signals at European level, and take into account the amount of network losses and congestion caused, and investment costs for infrastructure. This shall not prevent Member States from providing locational signals within their territory or from applying mechanisms to ensure that network access charges borne by consumers ('load') are uniform throughout their territory.

3. When setting the charges for network access the following shall be taken into account:

- payments and receipts resulting from the inter-transmission system operator compensation mechanism;
- actual payments made and received as well as payments expected for future periods of time, estimated on the basis of past periods.

4. Providing that appropriate and efficient locational signals are in place, in accordance with paragraph 2, charges for

access to networks applied to producers and consumers shall be applied regardless of the countries of destination and, origin, respectively, of the electricity, as specified in the underlying commercial arrangement. This shall be without prejudice to charges on declared exports and declared imports resulting from congestion management referred to in Article 6.

5. There shall be no specific network charge on individual transactions for declared transits of electricity.

#### Article 5

### Provision of information on interconnection capacities

1. Transmission system operators shall put in place coordination and information exchange mechanisms to ensure the security of the networks in the context of congestion management.

2. The safety, operational and planning standards used by transmission system operators shall be made public. The information published shall include a general scheme for the calculation of the total transfer capacity and the transmission reliability margin based upon the electrical and physical features of the network. Such schemes shall be subject to the approval of the regulatory authorities.

3. Transmission system operators shall publish estimates of available transfer capacity for each day, indicating any available transfer capacity already reserved. These publications shall be made at specified intervals before the day of transport and shall include, in any case, week-ahead and month-ahead estimates, as well as a quantitative indication of the expected reliability of the available capacity.

#### Article 6

### General principles of congestion management

1. Network congestion problems shall be addressed with non-discriminatory market based solutions which give efficient economic signals to the market participants and transmission system operators involved. Network congestion problems shall preferentially be solved with non transaction based methods, i.e. methods that do not involve a selection between the contracts of individual market participants.

2. Transaction curtailment procedures shall only be used in emergency situations where the transmission system operator must act in an expeditious manner and redispatching or countertrading is not possible. Any such procedure shall be applied in a non-discriminatory manner.

Except in cases of 'force-majeure', market participants who have been allocated capacity shall be compensated for any curtailment.

3. The maximum capacity of the interconnections and/or the transmission networks affecting cross-border flows shall be made available to market participants, complying with safety standards of secure network operation.

4. Market participants shall inform the transmission system operators concerned a reasonable time ahead of the relevant operational period whether they intend to use allocated capacity. Any allocated capacity that will not be used shall be reattributed to the market, in an open, transparent and non-discriminatory manner.

5. Transmission system operators shall, as far as technically possible, net the capacity requirements of any power flows in opposite direction over the congested interconnection line in order to use this line to its maximum capacity. Having full regard to network security, transactions that relieve the congestion shall never be denied.

6. Any revenues resulting from the allocation of interconnection shall be used for one or more of the following purposes:

- (a) guaranteeing the actual availability of the allocated capacity;
- (b) network investments maintaining or increasing interconnection capacities;
- (c) as an income to be taken into account by regulatory authorities when approving the methodology for calculating network tariffs, and/or in assessing whether tariffs should be modified.

#### Article 7

##### **New interconnectors**

1. New direct current interconnectors may, upon request, be exempted from the provisions of Article 6(6) of this Regulation and Articles 20 and 23(2), (3) and (4) of Directive 2003/54/EC under the following conditions:

- (a) the investment must enhance competition in electricity supply;
- (b) the level of risk attached to the investment is such that the investment would not take place unless an exemption is granted;
- (c) the interconnector must be owned by a natural or legal person which is separate at least in terms of its legal form from the system operators in whose systems that interconnector will be built;
- (d) charges are levied on users of that interconnector;

(e) since the partial market opening referred to in Article 19 of Directive 96/92/EC, no part of the capital or operating costs of the interconnector has been recovered from any component of charges made for the use of transmission or distribution systems linked by the interconnector;

(f) the exemption is not to the detriment of competition or the effective functioning of the internal electricity market, or the efficient functioning of the regulated system to which the interconnector is linked.

2. Paragraph 1 shall apply also, in exceptional cases, to alternating current interconnectors provided that the costs and risks of the investment in question are particularly high when compared with the costs and risks normally incurred when connecting two neighbouring national transmission systems by an alternating current interconnector.

3. Paragraph 1 shall apply also to significant increases of capacity in existing interconnectors.

4. (a) The regulatory authority may, on a case by case basis, decide on the exemption referred to in paragraphs 1 and 2. However, Member States may provide that the regulatory authorities shall submit, for formal decision, to the relevant body in the Member State its opinion on the request for an exemption. This opinion shall be published together with the decision.

(b) (i) The exemption may cover all or part of the capacity of the new interconnector, or of the existing interconnector with significantly increased capacity.

(ii) In deciding to grant an exemption, consideration shall be given, on a case by case basis, to the need to impose conditions regarding the duration of the exemption and non discriminatory access to the interconnector.

(iii) When deciding on the conditions in (i) and (ii) account shall, in particular, be taken of the additional capacity to be built, the expected time horizon of the project and national circumstances.

(c) When granting an exemption the relevant authority may approve or fix the rules and/or mechanisms on the management and allocation of capacity.

(d) The exemption decision, including any conditions referred to in (b), shall be duly reasoned and published.

(e) Any exemption decision shall be taken after consultation with other Member States or regulatory authorities concerned.

5. The exemption decision shall be notified, without delay, by the competent authority to the Commission, together with all the information relevant to the decision. This information may be submitted to the Commission in aggregate form, enabling the Commission to reach a well-founded decision.

In particular, the information shall contain:

- the detailed reasons on the basis of which the regulatory authority, or Member State, granted the exemption, including the financial information justifying the need for the exemption;
- the analysis undertaken of the effect on competition and the effective functioning of the internal electricity market resulting from the grant of the exemption;
- the reasons for the time period and the share of the total capacity of the interconnector in question for which the exemption is granted;
- the result of the consultation with the Member States or regulatory authorities concerned;

Within two months after receiving a notification, the Commission may request that the regulatory authority or the Member State concerned amend or withdraw the decision to grant an exemption. The two months period may be extended by one additional month where additional information is sought by the Commission.

If the regulatory authority or Member State concerned does not comply with the request within a period of four weeks, a final decision shall be taken in accordance with the procedure referred to in Article 13(3).

The Commission shall preserve the confidentiality of commercially sensitive information.

#### Article 8

#### Guidelines

1. Where appropriate, the Commission shall, acting in accordance with the procedure referred to in Article 13(2), adopt and amend guidelines on the issues listed under paragraph 2 and 3 and relating to the inter-transmission system operator compensation mechanism, in accordance with the principles set out in Articles 3 and 4. When adopting these guidelines for the first time the Commission shall ensure that they cover in a single draft measure at least the issues referred to in paragraph 2(a) and (d), and paragraph 3.

2. The guidelines shall specify:

- (a) details of the procedure for determining which transmission system operators are liable to pay

compensation for cross-border flows including as regards the split between the operators of national transmission systems from which cross-border flows originate and the systems where those flows end, in accordance with Article 3(2);

- (b) details of the payment procedure to be followed, including the determination of the first period of time for which compensation is to be paid, in accordance with the second subparagraph of Article 3(3);
- (c) details of methodologies for determining the cross-border flows hosted for which compensation is to be paid under Article 3, in terms of both quantity and type of flows, and the designation of the magnitudes of such flows as originating and/or ending in transmission systems of individual Member States, in accordance with Article 3(5);
- (d) details of the methodology for determining the costs and benefits incurred as a result of hosting cross-border flows, in accordance with Article 3(6);
- (e) details of the treatment in the context of the inter-TSO compensation mechanism of electricity flows originating or ending in countries outside the European Economic Area;
- (f) the participation of national systems which are interconnected through direct current lines, in accordance with Article 3.

3. The guidelines shall also determine appropriate rules leading to a progressive harmonisation of the underlying principles for the setting of charges applied to producers and consumers (load) under national tariff systems, including the reflection of the inter-TSO compensation mechanism in national network charges and the provision of appropriate and efficient locational signals, in accordance with the principles set out in Article 4.

The guidelines shall make provision for appropriate and efficient harmonised locational signals at European level.

Any harmonisation in this respect shall not prevent Member States from applying mechanisms to ensure that network access charges borne by consumers (load) are comparable throughout their territory.

4. Where appropriate, the Commission shall, acting in accordance with the procedure referred to in Article 13(2),

amend the guidelines on the management and allocation of available transfer capacity of interconnections between national systems set out in the Annex, in accordance with the principles set out in Articles 5 and 6, in particular so as to include detailed guidelines on all capacity allocation methodologies applied in practice and to ensure that congestion management mechanisms evolve in a manner compatible with the objectives of the internal market. Where appropriate, in the course of such amendments common rules on minimum safety and operational standards for the use and operation of the network, as referred to in Article 5(2) shall be set.

When adopting or amending guidelines, the Commission shall ensure that they provide the minimum degree of harmonisation required to achieve the aims of this Regulation and do not go beyond what is necessary for that purpose.

When adopting or amending guidelines, the Commission shall indicate what actions it has taken with respect to the conformity of rules in third countries, which form part of the European electricity system, with the guidelines in question.

#### *Article 9*

##### **Regulatory authorities**

The regulatory authorities, when carrying out their responsibilities, shall ensure compliance with this Regulation and the guidelines adopted pursuant to Article 8. Where appropriate to fulfil the aims of this Regulation they shall cooperate with each other and with the Commission.

#### *Article 10*

##### **Provision of information and confidentiality**

1. Member States and the regulatory authorities shall, on request, provide to the Commission all information necessary for the purposes of Articles 3(4) and 8.

In particular, for the purposes of Article 3(4) and 3(6), regulatory authorities shall provide on a regular basis information on costs actually incurred by national transmission system operators, as well as data and all relevant information relating to the physical flows in transmission system operators' networks and the cost of the network.

The Commission shall fix a reasonable time limit within which the information is to be provided, taking into account the complexity of the information required and the urgency with which the information is needed.

2. If the Member State or the regulatory authority concerned does not provide this information within the given time-limit pursuant to paragraph 1, the Commission may request all information necessary for the purpose of Article 3(4) and 8 directly from the undertakings concerned.

When sending a request for information to an undertaking, the Commission shall at the same time forward a copy of the request to the regulatory authorities of the Member State in whose territory the seat of the undertaking is situated.

3. In its request for information, the Commission shall state the legal basis of the request, the time limit within which the information is to be provided, the purpose of the request, and also the penalties provided for in Article 12(2) for supplying incorrect, incomplete or misleading information. The Commission shall fix a reasonable time limit taking into account the complexity of the information required and the urgency with which the information is needed.

4. The owners of the undertakings or their representatives and, in the case of legal persons, the persons authorised to represent them by law or by their instrument of incorporation, shall supply the information requested. Lawyers duly authorised to act may supply the information on behalf of their clients, in which case the client shall remain fully responsible if the information supplied is incomplete, incorrect or misleading.

5. Where an undertaking does not provide the information requested within the time-limit fixed by the Commission or supplies incomplete information, the Commission may by decision require the information to be provided. The decision shall specify what information is required and fix an appropriate time-limit within which it is to be supplied. It shall indicate the penalties provided for in Article 12(2). It shall also indicate the right to have the decision reviewed by the Court of Justice of the European Communities.

The Commission shall at the same time send a copy of its decision to the regulatory authorities of the Member State within the territory of which the residence of the person or the seat of the undertaking is situated.

6. Information collected pursuant to this Regulation shall be used only for the purposes of Articles 3(4) and 8.

The Commission shall not disclose information acquired pursuant to this Regulation of the kind covered by the obligation of professional secrecy.

#### *Article 11*

##### **Right of Member States to provide for more detailed measures**

This Regulation shall be without prejudice to the rights of Member States to maintain or introduce measures that contain more detailed provisions than those set out in this Regulation and the guidelines referred to in Article 8.

*Article 12***Penalties**

1. Without prejudice to paragraph 2, the Member States shall lay down the rules on penalties applicable to infringements of the provisions of this Regulation and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive. The Member States shall notify those provisions to the Commission by 1 July 2004 at the latest and shall notify it without delay of any subsequent amendment affecting them.

2. The Commission may by decision impose on undertakings fines not exceeding 1 % of the total turnover in the preceding business year where, intentionally or negligently, they supply incorrect, incomplete or misleading information in response to a request made pursuant to Article 10(3) or fail to supply information within the time-limit fixed by a decision adopted pursuant to the first subparagraph of Article 10(5).

In setting the amount of a fine, regard shall be had to the gravity of the failure to comply with the requirements of the first subparagraph.

3. Penalties provided for pursuant to paragraph 1 and decisions taken pursuant to paragraph 2 shall not be of a criminal law nature.

*Article 13***Committee**

1. The Commission shall be assisted by a Committee.

2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. Where reference is made to this paragraph, Articles 3 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

4. The Committee shall adopt its own rules of procedures.

*Article 14***Commission Report**

The Commission shall monitor the implementation of this Regulation. It shall submit to the European Parliament and the Council no more than three years after the entry into force of this Regulation a report on the experience gained in its application. In particular the report shall examine to what extent the Regulation has been successful in ensuring non-discriminatory and cost-reflective network access conditions for cross border exchanges of electricity in order to contribute to customer choice in a well functioning internal market and to long-term security of supply, as well as to what extent effective locational signals are in place. If necessary, the report shall be accompanied by appropriate proposals and/or recommendations.

*Article 15***Entry into force**

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 1 July 2004.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 26 June 2003.

*For the European Parliament*

*The President*

P. COX

*For the Council*

*The President*

A. TSOCHATZOPOULOS

## ANNEX

**Guidelines on the management and allocation of available transfer capacity of interconnections between national systems**

## General

1. Congestion management method(s) implemented by Member States shall deal with short-run congestion in a market-based, economically efficient manner whilst simultaneously providing signals or incentives for efficient network and generation investment in the right locations.
2. The TSOs, or, where appropriate, Member States, shall provide non-discriminatory and transparent standards, which describe which congestion management methods they will apply under which circumstances. These standards, together with the security standards, shall be described in publicly available documents.
3. Different treatment of the different types of cross-border transactions, whether they are physical bilateral contracts or bids into foreign organised markets, shall be kept to a minimum when designing the rules of specific methods for congestion management. The method for allocating scarce transmission capacity must be transparent. Any differences in how transactions are treated must be shown not to distort or hinder the development of competition.
4. Price signals that result from congestion management systems shall be directional.
5. TSOs shall offer to the market transmission capacity that is as 'firm' as possible. A reasonable fraction of the capacity may be offered to the market under the condition of decreased firmness, but at all times the exact conditions for transport over cross border lines shall be made known to market participants.
6. Considering the fact that the European continental network is a highly meshed network and that the use of interconnection lines has an effect on the power flows on at least two sides of a national border, national Regulators shall ensure that no congestion management procedure with significant effects on power flows in other networks, is devised unilaterally.

## Position of long-term contracts

1. Priority access rights to an interconnection capacity shall not be assigned to those contracts which breach Articles 81 and 82 of the EC Treaty.
2. Existing long-term contracts shall have no pre-emption rights when they come up for renewal.

## Provision of information

1. TSOs shall implement appropriate coordination and information-exchange mechanisms to guarantee security of the network.
2. TSOs shall publish all relevant data concerning the cross-border total transfer capacities. In addition to the winter and summer ATC values, estimates of transfer capacity for each day shall be published by the TSOs at several time intervals before the day of transport. At least accurate week-ahead estimates shall be made available to the market and the TSOs should also endeavour to provide month-ahead information. A description of the firmness of the data shall be included.

3. The TSOs shall publish a general scheme for calculation of the total transfer capacity and the transmission reliability margin based upon the electrical and physical realities of the network. Such a scheme shall be subject to approval by the regulators of the Member States concerned. The safety standards and the operational and planning standards shall form an integral part of the information that TSOs shall publish in publicly available documents.

#### Principles governing methods for congestion management

1. Network congestion problems shall preferentially be solved with non-transaction based methods, i.e. methods that do not involve a selection between the contracts of individual market participants.
2. Cross-border coordinated redispatching or counter trading may be used jointly by the TSOs concerned. The costs that TSOs incur in counter-trading and redispatching must, however, be at an efficient level.
3. The possible merits of a combination of market splitting, or other market based mechanisms, for solving 'permanent' congestion and counter-trading for solving temporary congestion shall be immediately explored as a more enduring approach to congestion management.

#### Guidelines for explicit auctions

1. The auction system must be designed in such a way that all available capacity is being offered to the market. This may be done by organising a composite auction in which capacities are auctioned for differing durations and with different characteristics (e.g. with respect to the expected reliability of the available capacity in question).
  2. Total interconnection capacity shall be offered in a series of auctions, which, for instance, might be held on a yearly, monthly, weekly, daily or intra-daily basis, according to the needs of the markets involved. Each of these auctions shall allocate a prescribed fraction of the available transfer capacity plus any remaining capacity that was not allocated in previous auctions.
  3. The explicit auction procedures shall be prepared in close collaboration between the national regulatory authority and the TSO concerned and designed in such a way as to allow bidders to participate also in the daily sessions of any organised market (i.e. power exchange) in the countries involved.
  4. The power flows in both directions over congested tie lines shall in principle be netted in order to maximise the transport capacity in the direction of the congestion. However, the procedure for netting of flows shall comply with safe operation of the power system.
  5. In order to offer as much capacity to the market as possible, the financial risks related to the netting of flows, shall be attributed to those parties causing those risks to materialise.
  6. Any auction procedure adopted shall be capable of sending directional price signals to market participants. Transport in a direction against the dominant power flow relieves the congestion thus resulting in additional transport capacity over the congested tie line.
  7. In order not to risk creating or aggravating problems related to any dominant position of market participant(s), capping of the amount of capacity that can be bought/possessed/used by any single market participant in an auction shall be seriously considered by the competent regulatory authorities in the design of any auction mechanisms.
  8. To promote the creation of liquid electricity markets, capacity bought at an auction shall be freely tradeable until the TSO is notified that the capacity bought will be used.
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# Appendix 3

## Short legal assessment: Nordic Grid Code

The Nordic Grid Code comprises Nordic agreements on rules and recommendations for:

- Operation
- Connection
- Planning
- Data exchange

and includes general provisions for cooperation.

According to Nordel the Grid Code:

*“is a step towards harmonisation of the rules that govern the various national grid companies. The purpose of the Grid Code is to achieve coherent and coordinated Nordic operation and planning between the companies responsible for operating the transmission systems, in order to establish the best possible conditions for development of a functioning and effectively integrated Nordic power market. A further objective is to develop a shared basis for satisfactory operational reliability and quality for delivery in the coherent Nordic electric power system.*

*The Operation Code and Data Exchange Code are binding agreements with specific dispute solutions. The Planning Code and the Connection Code are rules that should be observed. They correspond to Nordel’s recommendations in these areas.”*

The dispute resolution under the Grid Code’s system operation agreement is handled under Swedish law and is conclusively settled by arbitration in accordance with the rules of the Stockholm Arbitration Institute. Disputes should however, first be attempted to be solved bilaterally. No authorities are thus involved, and disputes are therefore not publicly known and are furthermore not object for the quick dispute resolution that system operation may call for.

The dispute resolution in the data exchange agreement is not object for dispute resolution. The other parties may oblige a party in breach to cease using data, and the agreement is thereafter terminated as regards the party in breach. Although this may be seen as a rather efficient handling of a party in breach, it may on the other hand be seen not to fulfil fundamental law and order standards. Given the fact that the data in question may be seen as a fundamental prerequisite for the cooperation and thus the function of the Nordic system this way of handling disputes may be seen as risky.

Further more it is stated *“that ideally the planning, expansion and operating of the subsystems would be governed by identical rules”*. Thus it is acknowledged the national ruling as mentioned is divergent.

In the Grid Code's part on general principles it is stated that where bilateral agreements or similar arrangements are agreed, the rules and principles in the code must be followed to the greatest possible extent. Thus bilateral agreements differing from the Codes are possible.

Also there is a chapter concerning "*dispute resolution in case of unclear provisions*". Thus, not only may deviations from rules and provisions be the case, also the rules and provisions to be found in the Grid Code at times are seen to be unclear.

Concerning the Grid Code's regulation partly through of bilateral agreements it may be added that some conflicts between two areas may be caused by one of the party's conflicts with other areas. Dispute resolution between two parties where a third party is involved is not very clearly regulated.

Finally, concerning the Grid Code's regulation partly through bilateral agreements, it may be added that some conflict points may be correlated with regulation of parts in the Grid Code, for instance the Planning Code. It is not clear how such disputes with both elements should be handled.

## **Conclusion**

Concluding in short it may be pointed out that the Nordic Grid Code, although a very valuable instrument for cooperation, from a strict legal point of view is rather weak when it comes to handling disputes. Further more disputes, given the at times unclear definitions and the system of regulation partly through bilateral agreements, are most likely. Finally, given the organisation of dispute settlement, transparency in the result of the dispute resolutions is lacking, just as there is no certainty for quick dispute resolution.