



NordREG
Nordic Energy Regulators

Regulation of the Nordic TSOs

- with focus on Market Efficiency and Harmonisation

Report 7/2007

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NordREG
c/o Danish Energy Regulatory Authority
Nyropsgade 30
DK-1780 Copenhagen V
Denmark

Telephone: 45 72 26 80 70
Telefax: 45 33 18 14 27
E-mail: et@dera.dk.
Internet: <http://www.energitilsynet.dk/english/secretariat/>

Preface

The Nordic Energy Ministers at their meeting in Bodø September 2006, invited NordREG “to evaluate if and how a more harmonized regulatory set-up in relation to the TSOs can contribute to the efficient functioning of the market”.

The Ministers’ request is a follow-up to the NordREG report “A common definition of system operators’ core activities”, as submitted in March 2006. The report included a recommendation on a further study based on the core activities defined in the report.

NordREG’s working group on the efficient regulation of the TSOs in the Nordic countries (TSO Working Group) was invited to take on this task, and was requested to present their report by the end of April 2007.

NordREG has consulted with Nordel during the work.

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

Ms. Margareta Bergström, Swedish Energy Markets Inspectorate

Mr. Johan Björnarås 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 working group.

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Executive summary

In this report the regulation of TSOs in each Nordic country, including the economic regulation, and with a view to the latest EC requirements, has been mapped. Furthermore, a questionnaire has been conducted among the stakeholders in order to gain more knowledge on stakeholders' views on the TSOs and handling of their tasks.

The examination of the regulatory set-up for TSOs in each Nordic country shows that not only acts, but also further regulation seem very alike, although supervision of tariffs are conducted differently to some extent. Concerning the regulator's role and power, as well vis-à-vis the TSOs as in general, there is, however, a significant difference between the Nordic countries. Harmonisation of the regulators' way of supervising and the regulators' actions vis-a-vis the TSOs may lead to more efficient functioning of the Nordic market. It should be recalled that the implementation of the SOS Directive may require the Nordic Member States to establish a more concrete national legislation concerning what is today done largely by Nordel on voluntary basis and through Nordel recommendations.

The results of the questionnaires show a need for addressing issues concerning network planning, investment decisions and the financing thereof, construction authorisation and permission process, transparency of TSO actions and a wish to accelerate the ongoing work may be called for. These issues are already addressed by working groups under either NordREG or Nordel.

It should be noted that a harmonisation process may require some time, among others because the relation to the development in other EU Member States as well as possible coming EU Commission initiatives must be taken into account.

On this background NordREG makes the following proposals for further work among the Nordic ministries, regulators and TSOs:

System planning and investments:

- NordREG welcomes the TSOs enhancement of joint network planning on the Nordic level, where more attention should be paid to joint planning processes and resources
- Common, well-defined and transparent criteria for the investment decisions on the Nordic level should be developed by Nordel taking into account the impact on transmission pricing and charges; furthermore common criteria and goals for financing the investments should be developed including the criteria how congestion income is applied; these criteria should be transparently communicated to the market actors
- Timely investment decisions should be made taking into account the time lag required for building and construction authorisations and permissions; it should be studied by relevant national authorities if the building and construction authorisation and permission process could be streamlined to shorten the time lag between investment decision and commissioning

- It might be useful to launch a joint study in co-operation with ministries, TSOs and regulators on the effects of investments on transmission access charges and on economic regulation of TSOs

Congestion management and transmission capacity:

- TSOs shall publish a general scheme for the calculation of the interconnection capacity for different timeframes, based upon the electrical realities of the network; this is required by the Congestion Management Guidelines under Regulation 1228/2003 and should be implemented accordingly in Nordic countries
- There is a need for a common Nordic implementation of Congestion Management Guidelines; this work is already scheduled in NordREG Work Programme 2007
- Nordel should continue its work on the practical implementation of congestion management

Transparency

- Transparency shall be enhanced through the common Nordic implementation of the Congestion Management Guidelines; further harmonisation in transparency across the Nordic market shall be discussed also in the context of ERGEG Northern Regional Initiative.

1 Introduction

1.1 Background

The Nordic Energy Ministers at their meeting in Bodø September 2006, invited NordREG “to evaluate if and how a more harmonized regulatory set-up in relation to the TSOs can contribute to the efficient functioning of the market”.

The Ministers’ request is a follow-up to the NordREG report “A common definition of system operators’ core activities”, as submitted in March 2006. The report included a recommendation on a further study based on the core activities defined in the report.

NordREG has consulted with Nordel during the work. The NordREG TSO group has met twice with representatives of Nordel on September 29, 2006 and on March 21, 2007. The first meeting aimed at identifying possible TSO-related obstacles for a better market functioning. On this background the group decided to conduct the questionnaire examination amongst stakeholders. The second meeting between the NordREG TSO working group and representatives of Nordel aimed at discussing views as concerned the results of the questionnaire. During the discussion Nordel representatives did not find it necessary to propose further harmonised regulation of the points identified from the responses to the questionnaire examination. Most of the points identified were well-known issues, such as timely network expansion, bottlenecks, congestion management, price areas, balance settlement and regulation power market – most of which are already addressed by working groups under either NordREG or Nordel or fall outside the scope of this work. It was, however, acknowledged at this meeting with Nordel that:

- Although most market challenges are addressed at EU-level, and although the binding cooperation is to be found at EU-level there may be at least some challenges for the becoming years at Nordic level in order to make the Nordic market function more efficiently .
- Addressing these challenges should, however, take the European perspective into account.
- Presently the national implementation of the Security of Supply directive is of great importance.
- It should be considered to speed up the ongoing work on well known topics, such as congestion management, bottlenecks, balancing etc.
- And, further, it should be identified where progress has been made, just as it should be confirmed / the agenda should be amended/ the plan of work should be outlined according to the findings.
- It was acknowledged specifically as concerns balancing and “lengthy” building and construction authorisation and permission process for investments that these identified topics are of great importance, and are addressed at EU-level.
- The regulators’ role and power as well in general as vis-à-vis the TSOs are significantly different between the Nordic legislations.

1.2 Recent relevant EC-legislation

The Directive 2003/54/EC of 26 June 2003 concerning common rules for the internal electricity market and the Regulation 1228/2003 on cross border exchanges in electricity together form the EU legal starting point. Further within the framework of the Regulation 1228/2003 binding guidelines for Congestion Management have been set.

The Congestion Management Guidelines have been amended as concerns the management and allocation of interconnection capacity by the 1st of December 2006 in the EU Member States. They are based on the following principles arising from the Regulation:

- economic efficiency and promotion of competition,
- maximization of capacity available and use of interconnectors,
- transparency on a non-discriminatory basis,
- secure network operation, and
- revenue neutral mechanism.

The Congestion Management Guidelines define the basic requirements for coordinated congestion management. Coordination shall be applied regionally, where seven regions exist across EU. The Nordic countries belong to Northern Europe Region together with Germany and Poland. However, the congestions management methods shall be compatible in all regions with an ultimate goal to form a truly integrated Internal European Electricity Market.

Further the so-called SOS-directive, i.e. the directive 2005/89/EC of 18 January, 2006, concerning measures to safeguard security of electricity supply and infrastructure investment will be set into force in the Member states by 24 February, 2008. The Directive's main objectives are to establish measures to ensure: adequate level of generation capacity, adequate level between supply and demand and appropriate level of interconnection for the development of the internal market for electricity. In order to implement this directive Member States are expected to establish national legislation concerning the transmission system operators' obligation to set the minimum operational rules and obligations on network security, and to establish a regulatory framework that provides investment signals for both the transmission and distribution network.

Finally, it should be added that the Commission on 12 December 2006 has launched infringement procedures against 16 member states, including Sweden. According to the Commission the launching of these procedures is to ensure a comprehensive implementation completion of existing legislation. Also, the Commission states that it is necessary with further action to address the remaining issues concerning the internal energy market.

On 10 of January 2007 the Commission proposed a comprehensive package of measures to establish a new Energy Policy for Europe to combat climate change and boost the EU's energy security and competitiveness¹. The Commission's Communication and Energy Sector Inquiry (published in 2006) show that further action is required to deliver these aims through a clearer separation of energy production form energy distribution, Also, the Communication calls for stronger independent regulatory control, taking into account the European market, as well as

¹ see Communication COM (2007) 1 final, <http://eur-lex.europa.eu>

national measures to deliver on the European Union's target of 10% minimum interconnection levels, by identifying key bottlenecks and appointing coordinators.

On 8-9 March 2007 the European Council² invited the Commission to come forward with relevant proposals on internal energy market issues, and of relevance to this report the following issues may be noted:

- Regulation of investments must be designed in way that provides a positive framework for much needed investment;
- An efficient separation of supply and production activities from network operation (unbundling), based on independently run and adequately regulated network operation systems which guarantee equal and open access to transport;
- Further harmonization of the powers and strengthening of the independence of the regulators;
- The establishment of an independent mechanism for national regulators to cooperate and take decisions on important cross-border issues;
- A more efficient and integrated system for cross-border electricity trade and grid operation, including elaboration of technical standards;
- Relevant investment signals contributing to the efficient and more secure operation of the transmission grid;
- Increased transparency in energy market operations.

1.3 The Nordic countries in a regional and European context

The Nordic electricity market must be seen in the context of the wider integration of the European electricity markets. The Directive 2003/54/EC of 26 June 2003 concerning common rules for the internal market in electricity together with the Regulation 1228/2003 on cross border exchanges in electricity sets the legal framework for the integrated European electricity markets.

In the equally binding Guidelines for Congestion Management, that came into force on December 1, 2006, regions for the interim step of regional integration of markets are defined. The Nordic countries belong to the Region Northern Europe, which in addition to the Nordic countries also contains Poland and Germany. When the NorNed Cable is commissioned, the Nordic countries will also have a direct link to the Region North West Europe. Through the Estlink the Nordic countries also have a link to the Baltic Region.

The Guidelines are basically concerned with coordinated methods for congestion management, but since congestion management is closely related to operational security of the power system, the Guidelines have an important impact on most aspects of system

² European Council 8-9 March 2007, Presidency conclusions, 7224/07, see: www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/93135.pdf

operation. While there has been a long tradition of, and a strong political support for cooperation in electricity markets between the Nordic countries, there has not been legal basis for this cooperation. On the other hand, there is a legal obligation to cooperate and harmonise in the Region Northern Europe and within the EU as a whole according to Regulation 1228/2003 and Congestion Management Guidelines under the Regulation.

This situation means new challenges for the Nordic cooperation. The position of the NordREG is that a truly integrated Nordic market that can be linked to other countries in the region would lead to a better result for the Nordic area. Furthermore, the obligation for the Northern European Member States (i.e. Denmark, Finland, Germany, Poland and Sweden) including Norway of further integration emphasises the need for a truly integrated Nordic market. The integration of the Nordic countries in the Region Northern Europe will in this context strengthen the motives for a well functioning Nordic integration. But the Nordic integration cannot be pursued without the regional context due to already existing European legislation on congestion management.

2 Regulation and monitoring of the Nordic TSOs

In this chapter the relevant legislation on the regulation of the TSOs in Norway, Sweden, Finland and Denmark is presented, i.e. the Acts, Decrees and Executive orders, and the regulator's supervision of the TSOs according to the presented legislation is described.

2.1 Introduction

The regulators are:

Norway:	Norwegian Water Resources and Energy Directorate (NVE)
Sweden:	Energy Markets Inspectorate (EMI)
Finland:	Energy Market Authority (EMV)
Denmark:	Danish Energy Regulatory Authority (DERA) and the Danish Energy Authority

The TSOs are:

Norway:	Statnett
Sweden:	Svenska Kraftnät (SVK)
Finland:	Fingrid
Denmark:	Energinet.dk (ENDK)

2.2 Legislation

The relevant legislation on the regulation of the Nordic TSOs is found in national laws, regulations and administrative provisions. For a list, please see Appendix 1 to this report.

In the four countries the framework for the electricity market is regulated in the Energy Act in Norway, in the Electricity Acts in Sweden and Denmark and in the Electricity Market Act in Finland.

In all four countries market conditions must be non-discriminatory and the tariffs are set by the TSOs to be at reasonable level; the tariffs shall be cost reflective and non-discriminatory.

However, according to the legislations the regulators' possible intervention and approach of intervention differs in the four Nordic countries.

Norway

In Norway the regulator is the "Norwegian Water Resources and Energy Directorate" (NVE) and the TSO is Statnett. The TSO is organised as a public enterprise, owned by the state. The more specific regulation of Statnett and Statnett's tasks is stipulated in a number of regulations and 3 licenses. Thus Statnett does not issue regulations or decide on market conditions

involving services from Statnett, but can, however, make individual decisions according to the Governments' regulations.

Sweden

In Sweden the regulator is the "Energy Markets Inspectorate" (EMI) and the TSO is Svenska Kraftnät (SVK). The TSO is organised as a Public Utility, and as such decides on its own on market conditions involving services from SVK, albeit in accordance with the annual instruction given by the Government. However, the transmission activities fall under the supervision of EMI.

Finland

In Finland the regulator is the "Energy Market Authority" (EMV) and the TSO is Fingrid. The TSO is a partly state owned (12%) and partly private owned (88%) public limited company. According to Electricity Energy Act Fingrid set its tariffs and terms and conditions of its services. Yet tariffs have to be within the limits of Energy Market Authority's ex ante decision on company's rate on return. The terms and conditions have to be approved by the Energy Market Authority prior their entry into force. Terms and conditions of the network services shall be published.

Denmark

In Denmark the regulator is the "Danish Energy Regulatory Authority" (DERA) and the "Danish Energy Authority" (EA) and the TSO is Energinet.dk (ENDK). The TSO is an independent public undertaking owned by the Danish state, and Energinet.dk issues all regulations on market conditions involving their services. ENDK's regulations on market conditions are notified to DERA, and the method for setting tariffs is approved by DERA ex ante, and notified ex post. In both cases DERA may intervene ex officio, just as DERA handles complaints.

2.3 The Regulator's supervision of the TSOs

The regulators' roles and powers vis-à-vis the TSOs are stipulated in connection with the various obligations that the TSOs have. Generally speaking the regulators in all 4 countries monitor the TSOs' tariffs/ economic activities and monitor the terms and conditions set by the TSOs' for using their services.

In all four countries the TSOs' are obliged to set the tariffs at reasonable levels. Tariffs must be cost-reflective, transparent and non-discriminatory. However, the regulator's supervision and the method of supervision of tariffs differ. These differences are presented in the following chapter.

Supervision of economic activities

The regulator supervises the TSOs' economic activities concerning the following issues and in the following way:

Issues to be supervised	Norway By who & how	Sweden By who & how	Finland By who & how	Denmark By who & how
Supervision of economic activities in general	Is carried out by the board and the national auditor.	The Board of SVK and the Director General.	Fingrid' s Board (owners) & the management.	Is carried out by the board and the national auditor.
Accounts and Annual report	Checked by a certified auditor according to general accounting rules and some special requirements set by NVE.	Checked by a certified auditor according to general accounting rules, and which is approved by the government, and a special economic report is submitted to EMI.	Checked by a certified auditor according to general accounting rules and some special requirements as regards unbundling of accounts given by EMV; accounts are submitted to EMV.	Checked by the national auditor & approved by the board.
Profit /loss	Yearly income cap decision, approval	The Board of SVK. This is ultimately decided by	EMV decides on yearly rate of return for	DERA may yearly order corrections

	whether the size of the annual income or revenue is more or less than the allowed income or revenue.	the Government and the Government decides how much the rate of return and the dividend shall be over a three year period.	four year regulatory period, within this limit Fingrid's Board and Management Board may act.	to the stated differences between reported net income and necessary costs and rate of return.
Unbundling of accounts	Checked by NVE in connection with supervision of tariffs.	Government's annual instruction.	Checked by EMV in connection with supervision of tariffs. Shall be made public.	Annual notification to DERA.
Investment plans	Statnett according to owner's principles; to be based on socio-economic considerations	The Board of SVK which is ultimately approved by the Government. Some areas of the investment plan are presented to the Parliament through the Budget.	Fingrid Board EMV supervises ex post according to the grid development obligation set in legislation. Licences for cross-border investments are granted by Ministry of Trade and Industry.	ENDK Board & annual notification to DEA on planning and on environmental report.
Tariffs	Yearly income cap decision and tariff structure regulations given by NVE. Tariffs	EMI has to supervise that the tariffs give reasonable rate of return in comparison	EMV decides the method of calculation of reasonable rate of return for four year	DERA gives ex ante approval of method & receives ex post

	must be cost reflective.	to the performance. EMI may open a case ex officio.	regulatory period; regulatory decision ex post whether revenues is more or less than allowed revenue.	notification of tariffs. DERA may open a case ex officio.
Efficient economic operation	Provided through income or revenue cap.	The Director General of SVK is in charge of this in the daily operation. The Board and the Government supervises also this. The Government is represented in the Board.	EMV supervises revenues, and efficiency shall be included in next regulatory period.	ENDK Board

As may be seen from the table above, that although the TSOs obligations may be very similar in all four countries, the regulators' supervision does not concern all the issues mentioned, and the regulators' supervision is rather differently carried out.

Norway:

In Norway the economic regulation is based on an incentive model, i.e. income /revenue caps to be decided by NVE. The tariffs are set by Statnett within their income cap and within the tariff structure given through regulations, and NVE may handle disputes. In short tariffs must be cost reflective. NVE approves yearly whether the size of the annual income or revenue is more or less than the cap on income or revenue. The yearly accounts are audited according to general accounting rules and some special requirements set by NVE.

Sweden:

In Sweden the economic regulation is based on that the tariffs give reasonable rate of return in comparison to the performance given. The yearly accounts are audited and approved by a certified accountant appointed by SVK and submitted to the Government and a special economic report must be submitted to EMI. EMI may open a case ex officio.

Finland:

In Finland the economic regulation is based on the principle that the pricing must be reasonable and the economic model applied is the “Rate on return model”. EMV plans to include efficiency goals for Fingrid during the next regulatory period (2008-2011). Fingrid sets the tariffs within the tarification methodology. Within this methodology EMV shall by decision confirm the methods to determine Fingrid’s rate of return on transmission system services and the fees charged during the regulatory period. If the revenues exceed the allowed revenues during the four year regulatory period, EMV orders Fingrid to reduce its revenue on the next regulatory period respectively. The ex post decision regulatory decision is based on Fingrid’s audited financial statements.

The yearly accounts are audited by Fingrid’s auditor according to general accounting rules and unbundled accounts according to the EMV’s instructions are submitted to EMV.

Denmark:

In Denmark economic regulation is based on the cost plus principle including book values of regulated assets. ENDK sets the tariff according to a method approved by DERA ex ante. Further, the tariffs are notified ex post, and DERA may ex officio open a case. The yearly accounts are audited by the national auditor, approved by the board, and the yearly account is submitted to DERA, who may order ENDK to change the settlement of demonstrated differences.

Supervision of other activities (TSOs’ market conditions)

The regulator supervises the TSOs’ other activities concerning the following issues with impact on market conditions as follows:

Issues to be supervised	Norway By who & how	Sweden By who & how	Finland By who & how	Denmark By who & how
1. CONNECTION:				
Conditions for connection of producers and consumers	Statnett shall provide market access for all on non-discriminatory and objective conditions. NVE continuously	SVK’s regulation on technical operation safety of production plants & EMI have to handle complaints on connections	The conditions are set by Fingrid, & EMV approves the conditions as well as pricing method ex ante.	ENDK issues regulations. They are notified to DERA. DEA handles complaints in general & DERA

	supervises Statnett & handles complaints.	fee's within two months.		concerning prices and conditions.
Conditions for use of grid (Technical)	As above, but system critical decisions by TSO cannot be complained.	SVK issues a Standard Agreement.	The terms & conditions are set by Fingrid. EMV approves the conditions.	ENDK issues regulation.
2. SYSTEM AND TRANSMISSION SERVICES				
The TSO's obligations.	Statnett continuously supervises frequency and momentary balance. Complaints are handled by NVE.	SVK continuously supervises frequency and momentary balance.	Fingrid continuously supervises frequency and momentary balance. Complaints are handled by EMV.	ENDK is responsible for frequency and momentary balance – there is no supervision, but complaints may be handled by DERA.
Market players obligations	Are fixed in license. System critical decisions by Statnett cannot be complained to NVE.	SVK issues guidelines on market operator's obligations. Complaints are handled by EMI.	Fingrid sets terms and conditions and they have to be approved by EMV. Complaints are handled by EMV.	ENDK issues regulations on market players' obligations, & they must be notified to DERA who handles complaints.
3. TSO ISSUED REGULATIONS OR DECISIONS IN GENERAL	Statnett does not issue regulations, but can make individual decisions. Regulations are	SVK issues regulations and makes decision.	Fingrid does not issue regulations nor make administrative decisions. Fingrid has	ENDK issues a regulations, which are notified to DERA who may ex officio order changes

	<p>issued by the Ministry and NVE.</p> <p>Market operators' obligations are fixed in the license & in regulations.</p>		<p>many standard terms and conditions for its services which affect market participants' position. They have to be approved by EMV.</p>	<p>and ENDK makes decisions on which DERA may handle a complaint.</p>
4. MARKET CONDITIONS				
Use of grid	<p>Everyone connected to the grid must sign a standard connection agreement. Statnett can make individual decisions.</p> <p>Regulations issued by NVE.</p>	<p>SVK's Standard Agreement (only concerning the method) is approved ex ante by EMI.</p>	<p>Fingrid issues standard terms & conditions for its services and they are approved ex ante by EMV.</p>	<p>As ENDK regulations above & ENDK has a standard agreement which is notified ex ante to DERA & DERA may handle complaint.</p>
Metering necessary for settling & system operation	<p>The regulation is issued by the Ministry & NVE. NVE continuously supervise Statnett & handles complaints.</p>	<p>Conditions are set in the Electricity Act.</p> <p>EMI supervises and handles complaints.</p>	<p>General regulations set in legislation for settlement; standard terms and conditions set for settlement and some system operation metering by Fingrid approved by EMV.</p>	<p>As ENDK regulations above.</p>
5. PRINCIPLE OF NON-DISCRIMINATION	<p>In all decisions and agreements with market-</p>	<p>In all decisions and agreements with market-</p>	<p>In all decisions and agreements with market-</p>	<p>In all decisions and agreements with market</p>

	players Statnett must act non-discriminatorily.	players SVK must act non-discriminatorily.	players Fingrid must act non-discriminatorily.	players ENDK must act non-discriminatorily, & ENDK must notify a compliance programme to DERA who ex officio may order changes.

As may be seen from the table above, that although the TSOs obligations may be very similar in all four countries, the regulators’ supervision does not concern all the issues mentioned, and is rather differently carried out.

Norway:

In Norway the NVE issues the further regulation on conditions for connection, system and transmission services and on market conditions. Market operators must comply with their license as issued by NVE. Statnett may make individual decisions.

NVE handles all disputes / complaints concerning the regulation, including the regulated income and the tariffs. NVE is independent in its decision process. A legal decision made by NVE can be complained to the Ministry of Petroleum and Energy within three weeks after NVEs decision. The decisions of the Ministry are final and not open to complaints, but can ultimately be taken to court.

Some decisions made by Statnett cannot be appealed, i.e. decisions made by Statnett while exercising responsibility for the system (“time critical”).

Sweden:

In Sweden the TSO is a public utility, and the grid is under the supervision of EMI. SVK issues some technical regulations on connection and on system and transmission services, and as concerns market conditions SVK stipulates standard agreements for balancing, which are approved ex ante by EMI (however only the method). Metering is regulated in the Electricity Act. EMI supervises and handles complaints.

In general EMI may settle disputes and issue decisions involving SVK on own initiative or on the basis of a notification or on the basis of a complaint.

Complaints over SVK’s connection fees and tariffs and conditions may be brought forward, and EMI decides the case with a decision. A decision can be appealed to the Administrative Court. A judgement from the Administrative Court may, if granted, appeal to the Administrative Appeal Court. A judgement from the Administrative Appeal Court may, if granted, be appealed to the Supreme Administrative Court.

Finland:

In Finland the terms and conditions for connection, system and transmission services and balancing are set by Fingrid and approved ex ante by EMV.

In general EMV may settle disputes involving Fingrid and issue decisions on own initiative or on the basis of notification or on the basis of a complaint.

Complaints over Fingrid's prices and tariffs and conditions may be brought forward, and EMV decides the case with a decision. Yet the principle of legal certainty restricts EMV's possibilities to re-examine same issues ex-post, if EMV has already approved terms and conditions or tariff methodology with ex ante decision. In some cases EMV can issue a decision with an injunction and conditional fine. The ultimate tool is to revoke the grid licence and compulsory redemption of the grid.

An injunction can be appealed to the Market Court. A decision of the Market Court can be appealed to the Supreme Administrative Court.

Denmark:

In Denmark ENDK issues the further regulation on the conditions for connection, system and transmission services and market access conditions, incl. balancing. These regulations are notified to DERA who ex officio may investigate further and issue orders, just as DERA may handle complaints.

DERA may at any time ex officio start investigations and may order ENDK to give all necessary information.

Complaints on tariffs or on ENDK conditions/regulations are handled by DERA and DERA's decisions may be appealed to the Energy Board of Appeal, and finally be brought to Court.

2.4 SOS-directive (2005/89/EC)

The implementation of the SOS-directive, which Member States shall bring into force by 24 February 2008, may lead to or at least give an opportunity to further harmonise Nordic legislation on TSOs.

The Security of Supply Directive main objectives are to establish measures to ensure:

- adequate level of generation capacity,
- adequate level between supply and demand,
- appropriate level of interconnection for the development of the internal market for electricity.

Moreover the Directive also includes objectives concerning:

- transparency
- stability
- non-discrimination policies
- compatibility with the requirements of competitive internal market for electricity

According to Article 3 of the Directive Member States shall ensure a high level of security of electricity supply by taking the necessary measures to facilitate a stable investment climate and by defining the roles and responsibilities of competent authorities, including regulatory authorities where relevant, and all relevant market actors and publishing information thereon. The relevant market actors include, inter alia, transmission and distribution system operators, electricity generators, suppliers and final customers

In addition Member States shall, in implementing the above mentioned objectives, take account of among others continuity, a transparent and stable regulatory framework, encouraging the establishment of liquid wholesale markets.

In Article 4 of the Directive it is stated that Member States or the competent authorities shall ensure that transmission system operators set the minimum operational rules and obligations on network security. Before setting such rules and obligations, they shall consult with the relevant actors in the countries with which interconnection exists.

This means that Member States should make sure that a minimum set of operational rules exists and that TSOs and DSOs comply with them. The rules should primarily be created by the TSOs and they should cover a minimum level of network security rules for TSOs. The main task for the authorities (regulators or other competent authorities) is to verify that rules exist that TSOs comply with the rules and that they are transparent and implemented and non-discriminatory. At the same time Member States shall require TSOs to maintain an appropriate level of operational network security. To that effect, TSOs shall maintain an appropriate level of technical transmission reserve capacity for operational network security and cooperate with the TSOs concerned to which they are interconnected. The level of foreseeable circumstances in which security shall be maintained is defined in the operational network security rules. This is achieved through exchange of information relating to the operation of networks in a timely and effective fashion in line with the minimum operational requirements. The same requirements shall, where appropriate, apply to TSOs and DSOs that are interconnected with system operators outside the Community.

Member States or the competent authorities shall ensure that TSOs and, where appropriate, DSOs set and meet quality of supply and network security performance objectives. These objectives shall be subject to approval by the Member States or competent authorities and their implementation shall be monitored by them. They shall be objective, transparent and non-discriminatory and shall be published.

No discrimination between cross-border contracts and national contracts may occur when measures referred to in Article 24 of Directive 2003/54/EC and in Article 6 of Regulation (EC) No 1228/2003 are applied. When electricity supply is curtailed in emergency situations it has to be done in accordance with predefined criteria and be taken in close consultation among TSOs.

Furthermore, Member States shall ensure that curtailment of supply in emergency situations shall be based on predefined criteria relating to the management of imbalances by transmission system operators. Any safeguard measures shall be taken in close consultation with other relevant transmission system operators, respecting relevant bilateral agreements, including agreements on the exchange of information.

In Article 5 of the Directive it is stated that Member States shall take appropriate measures to maintain a balance between the demand for electricity and the availability of generation capacity.

In Article 6 of the Directive it is stated that Member States shall establish a regulatory framework that provides investment signals for both the transmission and distribution system network operators to develop their networks in order to meet foreseeable demand from the market and facilitates maintenance and, where necessary, renewal of their networks.

2.5 Conclusions

As stated in NordREG's first report on the TSOs³ the core activities of the TSOs as stipulated in legislation are very alike in the 4 Nordic countries. However, the way they are conducted by the TSOs is different, just as the regulator's role vis-à-vis the TSOs is not the same.

As concerns the further regulation some differences have been identified.

The regulators in the four countries do not all supervise all the TSO activities, as listed in chapter 2.3, and their supervision is differently carried out, just as the appeal possibilities are different.

The auditing and action as concerns the annual accounts vary from country to country, and the role as concerns tariffs varies, the regulators' actions being as follows:

- orders on the level given through a regulation, or
- by a method stipulated by the regulator, or
- ex ante approval of a TSO decided method, or
- general supervision and ex officio action by the regulator.

In Norway conditions are stipulated through regulation, whereas the regulation in Denmark is issued by the TSO, and notified to the regulator who may act ex officio. In Finland and Sweden conditions are also stipulated by the TSO, although not through regulations, but mainly through standard agreements or published standard terms and conditions. Besides in Finland these terms and conditions shall be approved ex-ante by the regulator.

In all cases the regulator has different tasks varying from general supervision combined with ex officio action to actual approval, and if there is a complaint the rules and ways of handling these are different from country to country. Moreover there is no special coordinated procedure between the regulators as concerns cross-border disputes, which might influence on different levels of an efficient market functioning.

In this context the electricity directives provisions may be recalled. The electricity directive stipulates that the regulator in an efficient and expeditious manner shall settle disputes on terms and conditions, tariffs, rules, mechanisms and methodologies concerning connection, access to the system and provisions of balancing, cfr. Article 23, paragraphs 4-7:

³ Report4/2006: A common definition of the system operators' core activities

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 1-3 and to ensure that they are proportionate and applied in a non-discriminatory manner.

5. Any part 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 further be 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 2-4 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 the 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 1-5 in an efficient and expeditious manner.

Further the directive in Article 23 stipulates that regulators should cooperate, and that disputes on cross-border issues shall be handled by the regulator which has jurisdiction in respect of the system operator in question.

In order to increase the market efficiency through Nordic harmonisation and taking the electricity directive (Article 23) into account it may be considered to strengthen the Nordic regulators' cooperation further, and to propose harmonisation at the most efficient level of the regulator's way of supervising and the regulators' actions to be enforced vis-a-vis the TSOs.

Further the implementation of the SOS-Directive requires the Member States in the Nordic area to establish a more concrete national legislation concerning a lot of what today largely is done by Nordel on voluntary basis and through Nordel recommendations. In Denmark and Sweden the responsibilities by law has been delegated to the TSOs, who comply according to agreements within Nordel. These agreements are voluntary and thus are mostly only recommendations, but in case of Denmark through ENDK's regulations becomes binding. In Norway the regulator stipulates the rules and must ensure that the TSOs comply. In Finland TSO proposes the terms and conditions according to electricity directive Article 23, which have to be approved by the regulator ex ante.

3 Questionnaire to stakeholders

In December 2006 a questionnaire investigation was conducted in order to gain more knowledge on how stakeholders in the market see the TSOs' handling of their tasks.

3.1 Respondents

Respondents to the questionnaire presented traders, producers, distribution system operators, large consumers, balance providers and power exchange Nord Pool. Respondents having trading activities traded through Nord Pool, but they had also some bilateral trade with end-users, suppliers and other traders. One respondent had a special contract of demand response directly with a TSO. The questionnaire was also sent for the TSOs to reply. A summary of the replies is included in Appendix 2.

Besides, some interviews were carried out to complement the questionnaire.

3.2 Questions to stakeholders

Based on the identified core activities in the NordREG report "A common definition of system operators' core activities" the stakeholders were asked to answer the following questions:

Does the TSO handle the following transmission tasks satisfactorily:

1. New investments to secure an adequate transmission in the long run
2. Secure network to operate, as concerns:
 - 2.1. New investments
 - 2.2. Renewal and maintenance of existing network component
3. Information exchange on timely network expansion between:
 - 3.1. Nordic TSOs
 - 3.2 TSO and distribution network operators
 - 3.3 TSO and regional network operators
 - 3.4 TSO and large consumers
 - 3.5 TSO and large producers
 - 3.6 TSO and distribution / regional grid
4. Technical compatibility across the borders on connection requirements

Does the TSO handle the following system operation tasks satisfactorily:

1. Common technical requirements for a secure system operation as concerns common planning, operation, connection and data exchange procedures
2. Operational security - planning timeframe as concerns:
 - 2.1. Calculation of available transmission capacity
 - 2.2. Coordination of maintenance operation across the borders

3. Operational security - day-ahead as concerns:

3.1. Consistent and coordinated transmission capacity calculation procedures

3.2. Common procedures for congestion management

Does the TSO in the handling of tasks pursue the enhancement of an efficient electricity market?

Respondents were asked also to give their comments on more/future co-operation among Nordic TSOs and needs for more harmonised legislation on TSOs to contribute the efficient functioning of the Nordic electricity market. Respondents were asked to state the benefits and disadvantages of the present regulation and to map the obstacles for more/new cooperation.

3.3 Requirements for further developments according to the questionnaire

According to responses the following issues should be further developed to enhance the Nordic market and cooperation among TSOs:

- Joint network planning should be enhanced, investments should be made in due time and more information as regards to investments should be delivered to the market; more emphasis should be given to joint network planning process and resources
- Methods and procedures to calculate available transmission capacity should be more transparent and more coordination in calculation of available transmission capacity should be realised
- Common rules and regulations should be introduced e.g. in congestion management, this is the most urgent issue to be solved in Nordic market
- It should be ensured that Nordic perspective should be taken into account when TSOs execute their tasks e.g. infrastructure investments and congestion management; national thinking, interest and policies may not overrule the Nordic market perspective

The summary of responses covering both market participants and TSOs is included in Appendix 2.

4 Conclusions and recommendations

4.1 Conclusions

The Nordic Energy Ministers have requested NordREG to evaluate if and how a more harmonized regulatory set-up in relation to the TSOs can contribute to the efficient functioning of the market. The request is a follow up to the NordREG report “A common definition of system operators’ core activities”.

The examination of the regulatory set-up for TSOs in each Nordic country shows that not only acts⁴, but also further regulation seem very alike, although supervision of tariffs are conducted differently to some extent. Concerning the regulator’s role and power, as well vis-à-vis the TSOs as in general, there is, however, a significant difference between the Nordic legislations. The regulators in the four countries do not all supervise all TSO activities, and their supervision is differently carried out, just as the appeal possibilities and processes are different. In order to increase the market efficiency and Nordic harmonisation it may on this background be considered to strengthen the Nordic regulators’ cooperation, and to propose harmonisation of the regulator’s way of supervising and the regulators’ actions to be enforced vis-a-vis the TSOs at the most efficient level.

Furthermore, the implementation of the SOS Directive may require the Member States in the Nordic area to establish a more concrete national legislation concerning what largely is done today by Nordel on voluntary basis and through Nordel recommendations.

As regards harmonizing the regulation it should also be noted that the congestion management guidelines, which are already in force, obliges TSOs to coordinate their actions. According to the guidelines TSOs are also obliged to publish much information as regards to for example capacity calculation and allocation. This information shall be subject to review by the Regulatory Authorities of the Member States concerned. This logically emphasises the importance of cooperation between the regulators.

The results of the questionnaires further show a need for addressing issues concerning network planning, investment decisions and the financing thereof, construction authorisation and permission process, transparency of TSO actions and a wish to accelerate the ongoing work. Stakeholders have required more investments in the networks to minimise the effects of price areas to the markets. They have also required that in investments more Nordic perspective has to be taken into account. However, it should be emphasised that it is inefficient to abolish all congestions by investments in all market situations, because investments have to be financed by higher charges paid by TSO customers.

Furthermore stakeholders have required common rules and regulations on congestion management and network access charges. Transparency of TSO actions e.g. capacity calculation, tendering ancillary reserves, network investments and congestion management is also required. However, it should be noted that largely these topics are already addressed by working groups under either NordREG or Nordel.

⁴ As concluded in the first report identifying the TSOs’ core activities

Stakeholders have also requested common balance management and settlement rules. Nordel has agreed on common principles of balancing in February 2007 and the work for implementation of these common principles is presently performed within Nordel and NordREG working groups. The target of the work is a common balance management from the beginning of year 2009.

It should be noted that a possible harmonisation process probably will take some time, among others because the relation to the development in other EU Member States as well as possible coming Commission initiatives must be taken into account.

4.2 Recommendations

NordREG makes the following proposals for further work among the Nordic ministries, regulators and TSOs:

System planning and investments:

- NorREG welcomes the TSOs enhancement of joint network planning on the Nordic level, where more attention should be paid to joint planning processes and resources
- Common, well-defined and transparent criteria for the investment decisions on the Nordic level should be developed by Nordel taking into account the impact on transmission pricing and charges; furthermore common criteria and goals for financing the investments should be developed including the criteria how congestion income is applied; these criteria should be transparently communicated to the market actors
- Timely investments decisions should be made taking into account the time lag required for building and construction authorisations and permissions; it should be studied by relevant national authorities if the building and construction authorisation and permission process could be streamlined to shorten the time lag between investment decision and commissioning
- It might be useful to launch a joint study in co-operation with TSOs and regulators on the effects of investments on transmission access charges and on economic regulation of TSOs

Congestion management and transmission capacity:

- TSOs shall publish a general scheme for the calculation of the interconnection capacity for different timeframes, based upon the electrical realities of the network; this is required by the Congestion Management Guidelines under Regulation 1228/2003 and should be implemented accordingly in Nordic countries
- There is a need for a common Nordic implementation of Congestion Management Guidelines; this work is already scheduled in NordREG Work Programme 2007
- Nordel should continue its work on the practical implementation of congestion management

Transparency

- Transparency will be enhanced through the common Nordic implementation of the Congestion Management Guidelines; further harmonisation in transparency across the Nordic market will be discussed also in the context of ERGEG Northern Regional Initiative.

5. Comments from the public consultation

5.1. General comments

The Finnish Energy Industries, Fortum, Nordel, Dansih Energy Association, Swedenergy, Norenergi and Vattenfall have presented their comments to the report. These stakeholders all welcome NordREG' s work to avoid barriers to the efficient functioning of the Nordic electricity market and the evaluation on – if necessary –how and by which means further harmonization of the regulation of the TSOs can be achieved.

Several stakeholders call for a further analysis of various issues, Many of these do, however, fall outside of the working group's scope, such as a call for how to set up and regulate Transnational System Responsible or a Regional System Responsible or a call for deeper cooperation between the Nordic TSO's. Others welcome the report, also, because it serves as pressure on other areas of work to strengthen the market.

Norenergi did not manage to give comments, as the consultation period was too short for them.

5.2. Specific comments

In the report it is initially pointed out that harmonisation of the regulators' way of supervising and the regulators' actions vis-à-vis the TSOs may lead to more efficient functioning of the Nordic market. In general the stakeholders welcome this. Nordel, however, finds this to be on a very general level and that it lacks analysis on what exact market problems harmonisation could solve and what concrete should be done and in which countries.

As concerns the proposals for further work among the Nordic ministries, Regulators and TSOs on "System planning and investments", "Congestion management and transmission capacity" and on "Transparency" the following comments are given:

System planning and investments

Vattenfall welcomes these proposals in general.

Strong regulatory guidance is called for by Vattenfall as concerns joint network planning and development of criteria for investment decisions, and the Finnish Energy Industry finds that the pressure for swift progress on joint network planning and development is well in order. The Danish Energy Association finds criteria for investment decisions to be one of the most important questions to solve. Swedenergy finds investment in transmission capacity to be inadequate.

Nordel, however, finds it difficult to fully understand the call on Nordel for well-defined and transparent criteria for the investment decisions on the Nordic level.

Concerning a study on the possibility for streamlining building and construction permissions, Nordel warmly welcomes this.

Nordel states that the objective of a joint study on effects of investments on transmission access charges and on economic regulation is not clear, and calls for a more detailed mandate.

Congestion management and transmission capacity

Vattenfall states that the implementation has been fruitless for a long time, and calls for strong regulatory guidance. Further it should be discussed that TSOs some-times move internal problems to the border.

The Finnish energy industry points out that pressure for swift progress on this area is well in order.

Nordel's vision according to Nordel is Nordic principles for the transitional and long term, but there seems to be different political interests in the countries.

Nordel has published "Principles for determining transfer capacity" on N.P.'s website, cfr. EU regulation 1228/2003.

Vattenfall would like to see more discussions of the underlying assumptions driving different forecasts, and the Danish Energy Association points out that transparent calculation of the interconnection capacity is one of the most important questions to solve, and further states that the mechanism must give the correct signals.

5.3. Transparency

In the report it is proposed that transparency should enhance through the Nordic implementation of Congestion Management Guidelines and discussions in the regional initiative.

As concerns the regional initiative according Nordel states to have concrete plans to make the requested data available. Nordel further points to the revised information agreement between Nordic TSOs and Nord Pool Spot, which they find fulfils the Congestion Management Guidelines. In the light of this it is not clear to Nordel how additional harmonisation of regulation could enhance transparency?

The Danish Energy Association, however, finds transparent criteria on investments and congestion management is most important.

5.4. The further proces

The comments received in the public consultation will be taken into consideration in NordREGs further work regarding the efficient functioning of the market.

Finally, Vattenfall found that the questionnaire should be added to the report. The responds and thus the content of the questionnaire is presented in chapter 3, just as the categories of stakeholders included in the questionnaire investigation is presented in

chapter 3. Never the less, in the revised version of the report the questionnaire – in a clean version - has been added as appendix 3, just as a list with all the names of the respondents, and who they represent, has been added to chapter 3.

Appendix 1

Relevant legislation on the regulation of the Nordic TSOs is found in the following national laws regulations and administrative provisions:

Norway:

- The Energy Act lov 29. juni 1990 nr. 50. (EA)
- Regulations to the Energy Act (REA)
- Regulations of the System Operator (RSO)
- Regulations concerning Energy Planning (EP)
- Regulations concerning Metering and Settlement (RMS)
- Regulations concerning Economic Regulation and Tariffs (RET)
- Regulations concerning Energy Rationing (RER)
- Regulations concerning Contingency Planning (RCP)
- Regulations concerning Power Quality (RPQ)
- License for System Operation
- License for International Connections
- License for Balancing Responsibility

License for Trade of Electricity

Sweden:

- The Electricity Act (EA), the Act, SFS 1997:857 of November 20, 1997, as amended by SFS 2006:926,
- Instruction from the Government (SvK-I), Regulation (1991:2013),
- Annual instruction from the Government,
- Regulation on system responsibility (SAF) (1994:1806), and
- Act on Power Reserve (EfRL) (valid until 29 February 2008).

Finland:

- The Electricity Market Act (EMA), 17.3.1995/386, as amended by 21.12.2004/1172,

- The Government Decree on Electricity Market, 7.4.1995/518, as amended by 21.12.2004/1174,
- The Decree of the Ministry of Trade and Industry on Unbundling of Electricity Businesses, 4.12.2005
- The Energy Market Authority's Regulation on Publication of the Key Figures of Network Operations, 2.12.2005
- Act on Securing Usability of Power Reserves, 8.12.2006/1082, valid until 28 February 2011,
- The Act on Verification and Notification of Origin of Electricity, 19.12.2003/1129,
- The Government Decree on Notification of Origin of Electricity, 30.12.2003/1357,
- Licence for network operation (including system responsibility)

Denmark:

- The Electricity Act (EA), the Act, lovbk. 1115 November 8, 2006
- The act on Energinet.dk (ENDKA), L 1384 of December 20, 2004
- The executive order on system responsibility (OSR), Bkg. 1463 of December 19, 2005, and
- The executive order on economic regulation of Energinet.dk (OER), Bkg. 965 of September 21, 2006
- The executive order on compliance programmes, among others Energinet.dk (OCP), Bkg. 965 of September 21, 2006

SUMMARY OF QUESTIONNAIRE

1 Respondents

Respondents presented market participants i.e. traders, producers, distribution system operators, large consumers, balance providers and power exchange (Nord Pool). Respondents having trading activities traded through Nord Pool but they had also some bilateral trade with end-users, suppliers and other traders. One respondent had a special contract of demand response directly with a TSO. Questionnaire was sent also for TSOs for reply.

Besides, some interviews were carried out to complement the questionnaire.

2 Market participants

2.1 Handling of transmission service tasks, system operation service tasks and enhancement of an efficient market

2.1.1 Transmission tasks

Mainly respondents see that TSOs invest satisfactorily to secure adequate transmission grid in the long run. However, it has been commented that the execution of already identified investments is lacking behind especially on the Nordic level. It has been also stated that the focus of TSOs has been during the last decade to increase the utilisation of the existing network. New investments have been postponed and there is now need for timely line investments instead of other presently applied mitigating actions. Renewal and maintenance of existing network components is considered to be sufficient but respondents see that there are some problems on the Nordic level e.g. provisions for maintenance should be enhanced.

The information exchange on the timely network expansion between TSO and other market actors seems to work. Some respondents noted that the information exchange between Nordic TSOs might be sufficient but actions based on this information exchange on timely network expansions should be more efficient and investments should also be executed in due time. Generally respondents see that the technical compatibility across the borders on connection requirements is satisfactorily handled by TSOs. One respondent was commenting that there might be too much focus on the grid and too little on new production.

2.1.2 System operation tasks

Mainly respondents see that common technical requirements for the secure system operation as regards to common operational planning, system operation, connection and data exchange procedures are handled satisfactorily by TSOs. However, more harmonised requirements in Nordic Grid Code e.g. in case of connection and system planning, need improvement among Nordic TSOs.

Respondents are to the large extent content with the calculation of the available transmission capacity and the coordination of the maintenance operation across the borders in the operational planning time frame. However, it has been stated that more transparency in the calculation of the available transmission capacity would increase confidence in the market. Transmission capacity should be updated more frequently i.e. for intra-day purposes, to guarantee the availability of maximum transmission capacity and to give also more firm capacity to the market.

As regards to the operational security for a day-ahead time frame, TSOs have consistent and coordinated transmission capacity calculation procedures according to the respondents. However, it was stated also here that more transparency would increase confidence in the market. Common procedures for the congestion management were seen sufficient among TSOs; some respondents require, however, that there is a need for common and more harmonised principles and solutions.

2.1.3 Enhancement of an efficient electricity market

Generally respondents see that TSOs enhances an efficient electricity market when executing their tasks, but some respondents have doubts. According to these respondents greater emphasis should be given to developing an efficient Nordic and European electricity markets. This implies that it is necessary to develop common rules and regulations for congestion management, resolve the issues related to transits i.e. inter-TSO compensations, create common markets for exchange of ancillary services, develop common tariff principles and allocation for generation, harmonise rules and systems for power and transmission capacity reserves and balance handling.

However, some issues may arise where, there may exist a conflict between the market efficiency and the security of supply. One respondent refers especially to the establishment of regulated solutions for the peak load reserves, which might be harmful for new production investments.

2.2 *Needs for development in tasks of grid* development, operation and enhancement of efficient market

2.2.1 Do the TSOs (both separately and together within Nordel) do not perform the tasks of grid development, operation and enhancement of efficient market in a way that contributes to the efficient functioning of the market, what should be developed in this respect?

Generally respondents have stated in their replies that TSOs should agree on common principles and act as one Nordic TSO.

Some respondents were of the opinion that there should be a stronger connection to low price areas like Russia and not only to the Continental Europe where prices are normally higher than in Nord Pool.

It was stated the SvK does not seem to be fully capable of providing a market place for market participants, because much too often Nordic actors face a bottleneck inside Sweden. This causes price fluctuations also in other Nordic price areas.. Respondents also see that SvK has not credited from fast information of internal bottlenecks. Splitting of Sweden into several price areas has been proposed to solve the internal congestion problems. On the other hand Swedish actors especially supported the policy to keep Sweden as one price area.

According to respondents possible improvements are mainly related to handling of “internal bottlenecks” linked to establishment of cross-border (i.e. between Elspot bidding areas) capacities. It would be beneficial for the market if available exceptions related to network security (according to relevant national and EU-laws/regulations) to the general rule of not shifting internal limitations to the border could be identified and agreed among Nordel TSOs and relevant regulators. With that accomplished, those reasons and examples of their application could then transparently be communicated to the market and be upheld consistently in daily operations when NTC cross-border capacities are set.

Generally the bottlenecks between the countries are seen as a problem. It was even stated that “as we boldly speak of a unified market in Nordic countries, the truth too often is shattered by different price areas”.

It has been commented that many existing problems are due to a conflict of national interests and Nordic interests. Also differences in the business culture and the history of operations have an impact to the behaviour of TSOs and their communications. It is required that main principles and operational tasks should be harmonised between the TSOs, like handling of cross-border capacity, handling of internal bottlenecks and building new transmission capacity. However, it has been commented by a respondent that some of these improvements, such as improving the ability to build new transmission lines in Sweden, would need a change in the legislation.

Respondents call for more information as regards to new investments. They state that generally TSOs are investing only as “maintaining investments” and not as “developing investments”. As regards to enhancing the efficient functioning of the market one respondent points out that TSOs are quite invisible and do not give their clear opinion about the electricity markets. In general it was requested more transparency in the joint Nordic investment planning especially as regards to planning methods and criteria.

On the other hand, new grid investments mean in the end higher transmission costs. The benefit of new transmission lines needs to be compared to the increase in transmission costs. Swedish industrial customers see low transmission tariffs as being very important.

2.2.2 Name the most important one of the tasks where the TSOs have to succeed to contribute for the efficient functioning of the market?

It was commented that the work has to be started with the basic task of the monopoly TSO, especially by making an operating market place in Sweden and also in Norway.

The management of congestions between different price areas influences the functioning of the market, and should be addressed in a uniform and co-ordinated manner between TSO's. Limitations on the capacity should only be imposed in order to protect the security of supply and never out of concerns about the level of the price in one area. The market should be able to set the price.

Secure transmission network to operate e.g. new investments, renewal and maintenance of existing network, calculation of available transmission capacity and harmonising the main principles, uniform rules and procedures for congestion management was named as important tasks for TSO. TSOs should in a predictable way guarantee the highest possible transmission capacity available for commercial trade on bidding area borders.

It was especially referred to realisation of needed grid investments especially between countries in order to abolish major transmission capacity bottlenecks and in order to create larger than national price areas and having similar rules for tariffs and allocation signals for generation, ancillary services, power reserves, balance management, information exchange. TSOs should also secure the quality of the data for the market actors and enhance the market transparency.

Also sanctions for the TSO common rules should be considered.

For the future development of the market, the transmission grid should be designed in a way that supports the large wind investments that are envisaged in Norway and Sweden.

Another view is that the TSOs need to listen more to large end users. Often, consultation is done with producers and balance responsible parties. Even large end users seldom take balance responsibility themselves and thus lack the possibilities to give a hand with the development of the market from a TSO point of view. The introduction of one-price balance settlement is regarded an important improvement over two-price settlement for consumption from a customer point of view and would make it more interesting for large customers to take balance responsibility.

2.3 *Need for new / more co-operation among TSOs*

Here the respondents were divided in their opinions. Some respondents felt that there is no need for a new or more cooperation among the Nordic TSOs to achieve

an efficient functioning of the market. However, in general the answers state that there is a need for more or new co-operation among the Nordic TSOs to achieve an efficient functioning of the market. It was stated that it seems as if the existing co-operation has come to cross-roads and to some extent a dead-lock. A new approach seems therefore necessary to further develop the Nordic co-operation. Respondents requested more cooperation e.g. in form of

- Optimisation of the Nordic system should be preferred instead of four national systems
- Common rules and common pricing should be implemented
- Harmonisation should focus on features that makes it easier for an actor to compete in different countries
- Harmonisation of balance management and settlement rules
- Common congestion management rules, increased counter trade and no internal bottlenecks transferred to price area borders
- System planning and carrying out new transmission capacity investments
- Enlargement of Elbas market to whole Nordic area
- Common maximum price level in the regulating power market in case of peak load situation
- Ancillary services – common market and principles
- Handling peak load reserves in a joint Nordic way, e.g. reserves (or part of) via bids in the day-ahead Elspot market

It was also requested joint supervisory body of TSOs and governments to realise harmonisation. Common legislative actions should be undertaken to remove legislative obstacles. Co-operation between Nordic regulators should be increased and regulatory rules and regulations harmonised. Common organisational solutions should be sought i.e. a common Nordic independent system operator. As a temporary solution a common Nordic TSO secretariat could be established. It was stated that also in this context the TSOs should be kept as national organisations.

In any case Nordic grid investment and system planning should be a common responsibility and this needs a formal structure for decision making on investments, cost and income sharing among the TSOs.

Different national legislation and regulation, different organisational structures (ownership), different task definition for TSOs, splitting the cost/return, different national cultures and national thinking/interests/policies were stated by respondents as obstacles for the new and more co-operation between TSOs. It was requested more Nordic perspective especially in investment planning, congestion management and balancing management. One disadvantage of the present regulation is that it is not possible to achieve improvements unless all TSOs agree.

The energy policies of the Nordic countries are uncoordinated, and policy priorities are promoted without considering the wider consequences on the other Nordic countries. The goal of ensuring a high level of security of supply at low

cost at the national level does not necessary lead to the most optimal situation on the Nordic level.

The question about the benefits and disadvantages of the present regulation introduced a variety of replies. Secure and stable grid operation was considered beneficial. Respondents stated that the lack of the TSO independency e.g. larger investments to be approved by the parliament, were named as a disadvantage of the present regulation. Furthermore, it was also commented that only some fine-tuning of currently established framework is required.

It was also stated that present regulation functions on paper but not in practise. Again the existence of price areas was raised as an example where TSOs should reconsider the task allocated to them. It was stated also that the use of counter trading at internal structural bottlenecks and the restriction of the capacity on the intra-Nordic interconnectors in order to minimise price spikes within one price area can result in unpredictable price spikes in neighbouring price areas and does hamper the functioning of the market both in the short and the long run. The market should be designed so that price signals from the market clearly identifies where investments should be made. A transparent market can only function if the price signals are not blurred or “corrected” by the TSOs.

It was also stated that one of the important tasks the upcoming years is to create a common Nordic retail market. In order to achieve this there needs to be developed common standards for communication and data exchange. This should facilitate new cooperation between TSO’s. The obvious way forward is expanding the use of AMR to all costumers in the Nordic area. According to respondents TSO together with the relevant market actors and authorities should cooperate to facilitate AMR.

2.4 Need for more harmonised legislation

Responses were divided in this question. Some respondents did not see any need for more harmonised legislation, whereas majority of respondents require more harmonisation because an integrated market needs common rules in order to minimise barriers and enhance transparency. The harmonisation is needed in core roles and tasks for TSOs; harmonised legislation should be a uniform Nordic regulation of TSOs under the same principles and aiming at the same overall goals.

It was stated that in the case of a joint Nordic TSO also regulation needs to be coherent and the Nordic TSO would require legislation which is valid in several countries. It was even requested to make an exercise with a joint Nordic TSO to see how the national legislation has to be changed for that purpose to see the need for legislative amendments to achieve more harmonised Nordic legislation.

Besides this, common Nordic regulation is requested on principles of assessing the socio-economic consequences of grid investments, information exchange (common communication and data standards), sanctions on procedures, TSO co-operation, regulator co-operation, congestion management, ancillary services,

power reserves, balance management, tariffs and allocation signals for generation, licensing procedures and requirements, technical requirements for grid connections, quality of supply demands, rules and principles for monitoring of the TSOs markets.

According to respondents it is imperative that the TSOs are obliged to work in a Nordic perspective instead of a national perspective. Infrastructure investments and congestion management should for example be viewed from a strictly Nordic socio-economic perspective and not from a national perspective. The overall objective of the system should be the most efficient use of the resources in a Nordic perspective.

The Nordic regulation was preferred in the context of the European regulation, where the creation of the European regulation to follow the Directive implementation on regional level (e.g. Nordic level) should be considered. One way to arrange the Nordic regulation could be to establish a stronger Nordic regulatory co-operation by establishing a more formal common regulatory co-operation with a given mandate from the national authorities, or by creation of a common Nordic regulatory entity. Here adding new layers of regulation i.e. national, regional, European, should be avoided. Nordic regulation could also be solved by harmonisation of the legislation and principles.

The distinction of the roles of regulators and TSO's are not always clear. Both have an important role to play in order to create a more well-functioning market. The concept of an independent regional system operator should be investigated as a possible solution that could bring closer and more efficient cooperation on the Nordic area.

The regional cooperation on the North European level should also be strengthened as the integration into the German Market is equally important.

2.5 Other comments

The key question is not if the present regulation is adequate or if regulation in general should be increased. The Nordic cooperation over all, not only in electricity, is based on a certain common sense and a sense of responsibility. Here more responsibility is requested instead of regulation by the respondents. Regulation as well as the TSO activities should be focused to the main tasks, e.g. functionality of the market, competition surveillance, economical control and network development.

According to the replies putting the national TSOs together and building a one multinational TSO is not the answer, either. Here "Things have to be shaped up in two steps in this order: First, the national TSOs should be obliged to eliminate internal bottlenecks. That's why they are monopolies and that's why they are entitled to collect money. Second, the TSOs should build the cross-border connections necessary in order to abolish price area differences. All this is especially true when talking about SvK due to Sweden's central geographical

location in the Nordic power system.” Besides this, it was proposed to investigate the creation of Nordic Independent System Operator (ISO).

- Respondents considered the following power exchange related issues of an importance
- The role of the power exchange Nord Pool Spot AS
- The ownership of physical power exchange (NP Spot AS) should be separated from financial market Nord Pool ASA

3 Transmission system operators (TSOs)

TSOs have responded only to questions they have considered relevant, e.g. questions of future developments. This chapter deals with the responses given by TSOs.

3.1 Needs for development in tasks of grid development, operation and enhancement of efficient market

3.1.1 Name the most important one of these tasks where the TSOs have to succeed to contribute for the efficient functioning of the market?

The question was considered in TSOs' replies, who consider the following tasks included e.g.

Operational security

Congestion management

Common Nordic transmission investments

Common Nordic position on transit

Common Nordic balancing agreements/ regulation power market

Same principles for balancing settlement

Same rules and principles for monitoring of the TSOs markets

Automatic and manually activated reserves

3.2 Need for new / more co-operation among TSOs

More cooperation was requested and form of this co-operation may include e.g. permanent Nordel secretariat. This co-operation should include also more resources for joint network planning. The process for joint system planning should be more clearly defined.

As an obstacle for this co-operation were described different views among the TSOs and authorities of how important harmonisation is for a well functioning Nordic market. It was seen also that it is important to have a common Nordic view towards Europe.

It was also seen problems in the Swedish way of handling internal congestions instead of applying price areas when congestions emerge.

Co-operation among Nordic TSOs should include e.g. common or harmonised rules for system operation and market rules (balance, system access, etc.) This work is already going on both regionally in Nordel area and in ETSO on the European level.

Following obstacles were stated:

Whereas it may be natural in a market economy for commercial companies to look to their own interests, supposedly neutral parties such as TSOs, regulators and other

authorities should attempt to be really neutral in the international sense. This is not the case in many countries where nationalism prevails.

Also there is a general lack of understanding– among market players and even sadly within some TSOs – of the complexity of power-system operation. This is unfortunate but what is worse is the lack of trust and suspicion that operational actions necessary to ensure the security of supply are taken from commercial or economic considerations.

The benefits of present regulation are that some harmonisation in Europe has been achieved. The disadvantages are that the wording of such international regulation is always a compromise and there is a risk of parts of it not making sense. This results in, as in Europe, a need for guidelines. Even these are compromises and suffer from similar faults. Less cooperation among TSOs may be introduced by the mandatory switch from light-handed (ex-post) regulation to more heavy-handed (ex-ante) regulation.

One way connection tariffs should not be collected when international connections at a low voltage level meet national connections at a higher level. This would seem to be collection of a kind of border tariff and may well be contradictory to EU-law.

3.3 More harmonised legislation

Harmonisation is required. It is important to find good solutions first, thereafter should the legislations be harmonised. Topics to be harmonised:

Same rules and principles for monitoring of the TSOs markets

Harmonisation of balancing agreements/ regulation power market

Same principles for balancing settlement

Nordic regulation of TSOs was requested in the congestion management. Nordic regulation should be arranged by harmonisation of the legislation and principles.

It was seen that there exists need for close cooperation among Nordic TSOs and also need for close cooperation among Nordic regulators, but for now Nordic regulation of TSOs is not relevant. Furthermore, it is important currently to focus on harmonisation to the rest of Europe.

It was also commented that there is no need for more harmonised legislation, because legislation in such matters is always difficult to interpret and open to discussion. TSOs should strive to solve problems themselves by cooperation and consultation rather than by appealing to lawyers who understandably do not understand the complexities of the issues.

Appendix 3

Nordic Energy Regulators

NordREG

11.12.06

Questionnaire

To regulate and monitor the Nordic TSOs with focus on market efficiency

Name of company/organisation:.....

Contactperson:....., telephone no:.....

Trader: Trader:..... or Producer:..... Distributor:..... TSO:.....

Questions	Yes	No
1. Are you a user of services from a) Ståttnet, b) Svenska Kraftnät, c) Fingrid and/or d) Energinet.dk		

<p>2. Do you trade via Nord Pool</p>		
<p>3. Do you trade bilaterally with:</p> <ul style="list-style-type: none"> a) end-user b) suppliers c) trader d) TSO 		
<p>4. Does the TSO handle the following transmission tasks satisfactory:</p> <p>4.1. New investments to secure adequate transmission in the long run</p> <p>4.2. Secure network to operate, as concerns:</p> <ul style="list-style-type: none"> 4.2.1. New investments 4.2.2. Renewal and maintenance of existing network components <p>4.3. Information exchange on timely network expansion between:</p> <ul style="list-style-type: none"> 4.3.1. Nordic TSOs 4.3.2. TSO and distribution network operators 		

<p>4.3.3. TSO and regional network operators</p> <p>4.3.4. TSO and large consumers</p> <p>4.3.5. TSO and large producers</p> <p>4.3.6. TSO and distribution / regional grid</p> <p>4.4. Technical compatibility across the borders on connection requirements</p>		
<p>5. Does the TSO handle the following system operation tasks satisfactory:</p> <p>5.1. Common technical requirements for secure system operation as concerns common planning, operation, connection and data exchange procedures</p> <p>5.2. Operational security - operational planning timeframe as concerns:</p> <p>5.2.1. Calculation of available transmission capacity</p> <p>5.2.2. Coordination of maintenance operation across the borders</p> <p>5.3. Operational security - for day-ahead as concerns:</p> <p>5.3.1. Consistent and coordinated transmission capacity calculation procedures</p> <p>5.3.2. Common procedures for congestion management</p>		
<p>6. Does the TSO in the handling of tasks pursue the enhancement of an efficient</p>		

electricity market?		

Please answer the following questions with your own words:

1. If the TSOs (both separately and together within Nordel) do not perform the *tasks* as referred to in 5,6 & 7 in a way that contributes to the efficient functioning of the market, what should be developed in this respect?
 - 1.2. Name the most important one of these tasks where the TSO has to succeed to contribute for the efficient functioning of the market?
2. Is there need for more/new *co-operation* among the Nordic TSOs to achieve a efficient functioning of the market?
 - 2.2. Form of more/new co-operation (areas of co-operation)?
 - 2.3. Are there obstacles to more/new co-operation?
 - 2.3. If yes, describe obstacles.
 - 2.4. What are the benefits and disadvantages of the present regulation (both technical and economical regulation)?
3. Is there need for more *harmonised legislation*?
 - 3.1. If yes, in which topics is harmonisation needed?
 - 3.2. Is there need for Nordic regulation of TSOs?
 - 3.3. If yes, in which topics the regulation is needed?
 - 3.4. And, How should Nordic regulation be arranged?
4. Any other comments?

Appendix 4

	Trader	Producer	Distributer	TSO	Large consumer	Balance provider
Finland						
Korpelan Voima kuntayhtymä	x		x			
Pohjois-Karjalan Sähkö Oy	x	x				
PKS Sähkösiirto Oy			x			
Fingrid Oyj				x		
Pori Energia Oy	x					
Outokumpu Oyj					x	
Fortum	x	x	x			
MVM Energiatieto Oy	x					x
Finnish Energy Industries						
Nord Pool Spot						
Denmark						
Energinet.dk				x		
Dansk energi	x	x	x			x
Norway						
Statnett SF				x		
Statkraft		x				
Energibedriftenes Landsforening						
Sweden						
Svenska Kraftnät				x		
Stora Enso					x	
Markedskraft	x					x



c/o Energitilsynet
Nyropsgade 30
1780 København V
Denmark

Telephone: +45 7226 8070
Telefax: +45 3318 1427
E-mail: et@dera.dk
Internet: www.nordicenergyregulators.org

