



norden

Nordic Council of Ministers

Electricity Market Group

Electricity Market Group

Status of harmonisation in the Nordic electricity market

2009

Contents

ABBREVIATIONS	2
INTRODUCTION	3
BACKGROUND	3
THE NORDIC ACTION PLAN FOR A BORDERLESS ELECTRICITY MARKET	4
NORDIC ACTION PLAN – EVALUATION OF RESPONSES AND NEXT STEPS	6
<i>CONGESTION MANAGEMENT AND GRID INVESTMENTS</i>	<i>6</i>
<i>BALANCE MANAGEMENT AND RETAIL MARKET INTEGRATION</i>	<i>9</i>
<i>NORDIC AND EUROPEAN COOPERATION</i>	<i>11</i>
OTHER ISSUES	13
<i>AMENDMENT OF NORD POOL SPOT PRICE SETTING MECHANISM</i>	<i>13</i>
<i>PEAK LOAD ARRANGEMENTS</i>	<i>13</i>
<i>CONSEQUENCES OF THE EU DIRECTIVE ON RENEWABLE ENERGY SOURCES (RES) IN THE NORDIC ELECTRICITY MARKET</i>	<i>14</i>
SUMMARY AND CONCLUSIONS	14
REFERENCES	17
APPENDIX 1 AMENDMENT OF NORD POOL SPOT PRICE SETTING MECHANISM	18
APPENDIX 2 REPORTS AND POSITION PAPERS	21

Abbreviations

ACER	Agency for the Cooperation of Energy Regulators
CFD	Contract for Difference
DSO	Distribution System Operator
EMG	Electricity Market Group
ENTSO-E	European Network of Transmission System Operators for Electricity
ERGEG	European Energy Regulators
NCM	Nordic Council of Ministers
Nordel	Organisation for the Nordic TSOs
Nordenergi	Nordic Energy Industries
NordREG	Nordic Energy Regulators
TSO	Transmission System Operator (grid- and system operation)

Introduction

The Nordic electricity market is the most harmonized cross border electricity market in the world. Through several important milestones, the market has grown from four national markets, to becoming one, common Nordic electricity market. Though there are still issues to be resolved, it should be acknowledged that the Nordic electricity market actually serves as an example for other regional actors such as the EU.

In their 2008 declaration from Umeå, The Nordic Council of Ministers for Energy underlined the importance of strengthening the Nordic perspective. This memo summarises the Electricity Market Groups follow-up efforts to that declaration.

Background

The Nordic Council of Ministers' (NCM) vision is "a free and open market with efficient trade with neighbouring markets" (Louisiana 1995), and further, for the Nordic electricity market to be "a strong and active force in forming energy policy in the Nordic region and in Europe" (Akureyri 2004).

Whereas there is a long tradition and strong political support for the Nordic energy co-operation, there has not been a legal basis for it; the cooperation is based on consensus and common understanding. There is now a legal obligation to cooperate and harmonise in the Region Northern Europe (as defined in the Congestion management guidelines by the Commission) according to Regulation 1228/2003. In 2008/2009 we have seen that the legal and regulatory efforts by the European Commission have influenced the work in the Nordic region to a larger extent than previously.

The Electricity Market Group (EMG) is responsible for following through resolutions from NCM, coordinating the work through the year and preparing background documents for the Ministers' annual meetings. The members of EMG are:

- Flemming G. Nielsen, Danish Energy Authority (Chairman)
- Peder S. Bjerring, Danish Energy Authority
- Markku Kinnunen, Ministry of Employment and the Economy, Finland (from 12.2008)
- Bettina Lemström Ministry of Employment and the Economy, Finland (from 11.2008)
- Petteri Kuuva, Ministry of Employment and the Economy, Finland (until 11.2008)
- Arto Rajala, Ministry of Employment and the Economy, Finland (until 12.2008)
- Kjell Grotmol, Ministry of Petroleum and Energy, Norway
- Cathrine Holtedahl, Ministry of Petroleum and Energy, Norway
- Christina Simon, Ministry of Enterprise, Energy and Communications, Sweden
- Magnus Blümer, Ministry of Enterprise, Energy and Communications, Sweden
- Amund Vik, Nordic Energy Research (Secretary from 01.01.08)

Milestones in the harmonisation process:

- 1993 Introduction of a common spot market between Norway and Sweden, removal of border tariffs
- 1995 Louisiana declaration by NCM – on a free and open market

- 1996 Nordpool is established as the first international power exchange (Norway – Sweden)
- 1998 Finland joins the Nordic spot market (Nordpool)
- 1999 West-Denmark joins the Nordic spot market (Nordpool)
- 1999 the first agreement on "Systemdriftavtalet" was signed between the (at that time) five TSOs within Nordel. (Updated continuously).
- 1999 Extended intra day market, Jylland
- 2000 East Denmark joins the Nordic spot market (Nordpool)
- 2000 Extended intra day market, Själland
- 2000 CfD trading launched in Nord Pool
- 2002 Common Nordic regulation power market
- 2004 Nordel agreement on the first package of five prioritised Nordic grid enforcements
- 2004 Akureyri declaration by NCM - deepened integration of the TSOs
- 2005 NordREG announces vision of one common retail market within 2010
- 2006 Bodø declaration by NCM - strengthening vision of the Nordic electricity market as one efficient liberalised market
- 2007 Nordel agreement on further common principles for Balance management.
- 2007 Helsinki declaration – focus on TSO services.
- 2008 Market Coupling DK/DE
- 2008 Nordel agreement on the second package of prioritised Nordic grid enforcements
- 2008 Nordic Action Plan for a borderless electricity market passed in Umeå

The following key actors are involved in the harmonisation process:

- The Nordic TSOs
- NordREG, the cooperation body of the Nordic energy market regulators
- Nordenergi, the cooperation body of the Nordic energy industry associations
- Nord Pool, the Nordic power exchange
- The Electricity Market Group (EMG) as coordinators of the harmonisation process on behalf of the Nordic Council of Ministers

The objective of the Nordic energy co-operation is to create the best possible framework for the development of the Nordic electricity market, and therefore to serve as a model for the rest of Europe (Action Plan for Nordic Energy Co-operation 2006-2009). The annual meetings of the Nordic energy ministers set the course of the cooperation.

This note is EMG's input to the Nordic Council of Ministers meeting in Reykjavik in June 2009, summarising key elements in the harmonisation process for the Nordic electricity market.

The Nordic Action Plan for a borderless electricity market

In their meeting in Umeå, the energy ministers passed what has been labelled the Nordic Action Plan for a borderless electricity market. In the declaration most focus was placed on congestion management and grid investment.

The declaration also put emphasis on the common end user market, and the development in the European electricity sector.

- *National processes for grid investments shall be compared. Necessary changes in laws, regulations, assessment criteria and governmental mandates shall be identified. The goal is to provide Nordic governments, regulators and TSOs a Nordic perspective and mandate, thereby improving and intensifying the process of developing the Nordic electricity system. The possibilities shall be explored for fairer cost-sharing for measures taken in one country that provide spill-over benefits in another.*
- *The work of the national TSOs with grid planning shall be strengthened. The ministers encourage Nordic TSOs to propose investments that are socio-economically beneficial for the entire Nordic region. Already settled investments for increased transmission capacity must be realised as soon as possible.*
- *National TSOs are asked to begin the process of dividing the Nordic market into additional potential bidding and/or price areas towards 2010.*
- *Work to further harmonise national rules for balance-responsible companies and to improve the conditions for barrier-free trade and a common retail market shall continue towards next year's ministerial meeting.*

National regulators and TSOs have a specific role in implementing the action plan, and in increasing cooperation regardless of the organisational form it may take in the future.

The Committee of Senior Officials for Energy shall deliver a progress report before the ministerial meeting in 2009. The report should also include a review of how Nordic cooperation should be best organised in light of the development of the European electricity market and its institutions.

Following up the Umeå declaration, the EMG has in cooperation with Nordel, NordREG and Nordenergi, sought to develop recommendations and analysis to the ministers on the following tasks:

- Congestion management and grid investment
- Balance management and retail market integration
- Nordic and European cooperation

Other issues

- Amendment of Nord Pool Spot price setting mechanism
- Peak load arrangements
- Consequences of the EU directive on renewable energy sources (RES) in the Nordic electricity market

This is the EMGs analysis and assessment of the current status of harmonisation in the Nordic electricity market.

Nordic action plan – Evaluation of responses and next steps

The Action plan proposes a series of steps to improve the “Nordicness” of our common electricity market. The overall goal of the Nordic electricity market is a fair, efficient market that benefits all the residents of the region. With the comprehensive view the Ministers took towards the electricity market in Umeå 2008, the Nordic region took a step closer to realising that goal.

Taking a comprehensive view on the market development in the Nordic region means that the tasks identified in this package needs to be seen together as a whole. The overall ambition is to improve the functioning of the Nordic electricity market, with a view to the European electricity market developments.

Congestion management and grid investments

From the Umeå declaration:

- *National TSOs are asked to begin the process of dividing the Nordic market into additional potential bidding and/or price areas towards 2010.*
- *National processes for grid investments shall be compared. Necessary changes in laws, regulations, assessment criteria and governmental mandates shall be identified. The goal is to provide Nordic governments, regulators and TSOs a Nordic perspective and mandate, thereby improving and intensifying the process of developing the Nordic electricity system. The possibilities shall be explored for fairer cost-sharing for measures taken in one country that provide spill-over benefits in another.*
- *The work of the national TSOs with grid planning shall be strengthened. The ministers encourage Nordic TSOs to propose investments that are socio-economically beneficial for the entire Nordic region. Already settled investments for increased transmission capacity must be realised as soon as possible.*

Congestion management

The EMG recognised in 2008 in the groups annual memo to the Committee of Senior Officials for Energy (EK-E) that the Nordic Council of Ministers needed to take steps to increase the harmonisation of the Nordic electricity market. The EMG then proposed a series of steps in a Nordic Action Plan for the electricity market. One of the steps was that the Nordic TSOs were given the task of beginning the process of splitting the Nordic electricity market up into additional potential bidding and/or price areas. The purpose of splitting up the market is to handle congestions in the grid in an efficient way. This change in market structure does not in any way remove the TSOs obligation to build and reinforce the grid. The strong Nordic regulators shall pay close attention to the congestions and the need for new grid investments.

28 October 2008 the EMG sent a letter to the four national TSOs, giving the TSOs the task of beginning the process of splitting the Nordic electricity market up into additional potential bidding and/or price areas.

The national TSOs report to the members of the Electricity Market Group. The current status is that the TSOs are in the progress of preparing this change in the market. Preliminary, all the TSOs have chosen to go for the price area model

without the initial bidding areas proposed by EA, COWI and Hagman in 2008 (Ea Energy Analyses, Hagman Energy and COWI 2008).

Statnett, the Norwegian TSO, already uses the price area model, and has the mandate to create new price areas when needed. The Danish market is already split into two price areas, and will, according to Energinet.dk, remain so after the commissioning of the interconnector between Eastern and Western Denmark. Svenska Kraftnät (SvK) the Swedish TSO has in a preliminary report to the Ministry of Enterprise given a status report on how the price area model could be implemented. The final report from SvK will be submitted by the end of 2009. The Finnish TSO, Fingrid, sees a division of Finland into two price areas as more feasible than bidding areas. The final report from Fingrid will be submitted in October 2009. All the background reports to this work will be publicly available.

Finland and Sweden underlines that the goal of 2010 is unrealistic for the implementation of additional price areas.

EMGs view and recommendation

- The EMG is satisfied with the TSOs progress in this area, and awaits the TSOs continued implementation the change in market structure.
- The goal of dividing the Nordic market into additional potential bidding and/or price areas by 2010 is not realistic. Finland and Sweden are asked to deliver a time schedule, before the NMR annual meeting in 2010, so that the politically expected decisions about dividing the Nordic market into additional potential bidding and/or price areas can be implemented as soon as possible after a possible decision about splitting recent price areas has been made.
- The EMG recommends that Nord Pool Spot be consulted in the TSOs further work on this issue.
- The TSOs are asked inform the EMG and their respective ministry/national authorities about their progress in this issue.

Grid investments

Comparison of the national processes for grid investments

On 20 November the EMG sent a letter to NordREG asking the organisation to map and analyse the differences in investment decision procedures in the Nordic countries. The letter from the EMG stated the following:

NordREG is asked to perform two tasks:

1. Mapping
 - a. Mapping of the national authorities procedures and assessment criteria for approving of grid investment. Focus is to be placed issues especially relevant for investments that yield benefits in more than one Nordic country.
 - b. Mapping of the national TSOs procedures and assessment criteria, as well as laws, rules and mandates relevant for their possibility to partake in projects concerning grid investments in other Nordic countries.
 - c. Mapping of the TSOs opportunity to enter agreements on co-financing of investments in the other Nordic countries.
 - d. Mapping of the grid ownership rules: is joint ownership of grids possible in the various countries?
 - e. Mapping of how the EU's current rules influence transnational Nordic grid investments, limited to the issues especially relevant for grid investments with benefits on several Nordic countries. In

addition to evaluating the effect of the EUs emerging rules (3rd package) may affect these areas.

2. Analysis

- a. Analysis of prospective differences in laws, rules, criteria and mandates in the Nordic countries that may hinder grid investments that show a benefit in more than one Nordic country, including the expected effect of the EU rules and regulations.
- b. Possibility for Nordic financing.

NordREG has established a task force under the Transmission and Wholesale WG to undertake the task. As the Danish regulator DERA do not explicit competence with regard to investment decisions, the Danish Energy Agency has represented Denmark in the work.

The task given to NordREG was twofold. Firstly NordREG was to map the current grid investment procedures in the Nordic countries. Second, NordREG was to analyse the results from the mapping. When NordREG has delivered the mapping and analysis, the EMG will continue working with the material, with the aim of identifying areas where the Nordic perspectives can be strengthened, or the rules and procedures harmonised.

The EMG continues working on this issue towards the next meeting in the Nordic Council of Ministers.

Strengthening the Nordic grid planning

Nordel has previously (2004 and 2008) delivered reports outlining prioritised grid enforcements from a Nordic perspective. The first five prioritised grid enforcements were:

- Between Central and Southern Sweden (The South (West) Link)
- Between Funen and Zealand in Denmark (Great Belt connection)
- Between Finland and Sweden (a second Fenno-Skan connection)
- Between Norway and Sweden (new connection Nea-Järpströmmen)
- Between Norway and Denmark (Jutland) (new Skagerrak connection)

These four lines (except the Great Belt connection) are enforcements of areas where transmission lines already exist.

The Fenno-Skan 2, Nea-Järpströmmen and the Great Belt connection have all received investment decisions and construction have started. According to Nordel investment decision on the South Link and Skagerak IV will be made in 2011/2012 (Nordel 2008b).

The TSOs have started to build all the prioritised investments except for Skagerak 4 that are still missing Regarding Skagerak 4, Statnett sent a pre notification to the Norwegian Water Resources and Energy Directorate (NVE, the Norwegian regulator) in December 2008. A public hearing was organised, with a deadline the 3rd of March 2009. The Environmental Impact Assessment (EIA)-programme is expected to be settled in mid May 2009, and Statnett is planning to send a licence application to the NVE this autumn (2009).

In 2008 Nordel published their Nordic Grid Master Plan; in this report Nordel identified three additional necessary grid reinforcements in the Nordic region. In the analysis they also included proposals for grid investments out of the Nordic region. (Nordel 2008a).

These were:

- Sweden - Norway (south) - SouthWest Link
- Sweden – Norway (North – South axis) - Ørskog - Fardal
- The arctic region - Ofoten – Balsfjord - Hammerfest

Grid planning in the Nordic region is important to improve the functioning of the market, reduce congestions and to facilitate a more flexible flow of power. As more new generation is planned in the Nordic electricity system, the grid needs to be continuously updated. With the planned increase of renewable energy in the system, this will become even more important (see below).

EMG conclusions and recommendations:

- NordReg is asked to continue their work on analysing the national processes for grid investments.
- The Nordic TSOs work with grid planning should be strengthened. The Nordic TSOs are therefore asked to continually deliver updated Nordic grid plans, proposing investments that are socio-economically beneficial for the entire Nordic region.
- The EMG notes that the grid investments in the first and second packages from Nordel are not yet finalised. The EMG underlines the importance of finalising the planned investments.

Balance management and retail market integration

From the Umeå declaration

- *Work to further harmonise national rules for balance-responsible companies and to improve the conditions for barrier-free trade and a common market shall continue towards next year's ministerial meeting.*

From the EMG Memo 2008

- *The EMG welcomes the actions taken by the TSOs and regulators, to be implemented before next years meeting of the Nordic Council of Ministers.*
- *NordREG should continually evaluate the effects of the new balance settlement, and take new actions towards a common Nordic balance management*
- *NordREG is invited to further develop their proposed political roadmap in connection with the results from the cost-benefit analysis and propose a detailed implementation plan to the EMG 01.03.09.*

Balance management

In 2008 NordREG published the report "Harmonised Nordic Balancing services" (NordREG 2008). The report was a first attempt to create a common Nordic interpretation of the 2003/54/EC Directive criteria. NordREG recommends that the Nordic regulatory authorities when approving the terms should use Nordel's vision of a common Nordic balance settlement and conditions for balancing.

NordREG concluded that the Nordel proposal has potential to enhance the functioning of the Nordic market and also strengthen the Nordic market in a regional and European context. The implementation of the agreement was completed in Denmark, Finland and Sweden during 2008, and in Norway early 2009. The intraday trading platform, Elbas, which was part of the Nordic agreement, and already in place in Denmark, Finland and Sweden, is now introduced in Norway.

Retail market integration

It is the vision of NordREG that "All Nordic electricity customers will enjoy a free choice of supplier, efficient and competitive prices and reliable supply through the internal Nordic and European electricity market."

In 2005 the EMG stated that a common Nordic end-user market should be implemented in a profitable way. The competent authorities were asked to analyse the pre-conditions for how this could be carried out. In 2006, NordREG delivered a comprehensive report and the Electricity Market Group supported NordREGs vision of one common platform for a common end user market. NordREG was asked to proceed with activities towards the vision of a common end-user market. It should be considered whether the activities are beneficial in a Nordic, socio-economic perspective, the EMG stated.

The EMG has asked NordREG in 2008, 2007 and 2006 to produce information about the possible costs and benefits of harmonising the Nordic retail markets.

In 2007 NordREG published the report "A harmonised model for supplier switching", in which they outlined a strategy for a common end user market (NordREG 2008). In response to the report the EMG asked NordREG to continue working on the subject, and to present information on the possible costs and benefits of establishing a common end user market. In 2008 on behalf of NordREG VTT produced a cost-benefit analysis on implementing a harmonised Nordic retail market (Pykälä 2008). The report was however inconclusive.

Through the globalisation portfolio of the Nordic Council of Ministers the EMG helped NordREG finance a consultancy project to look closer at the costs and benefits of a harmonised Nordic retail market. This analysis was performed by ECON Pöyry, and served as a background document for the NordREG Market Design Report.

In March 2009 the EMG received the report "Market design" from NordREG (NordREG 2009). In their report, NordREG outlines the following guiding principles for a harmonised end user market:

NordREG concludes that in order to have a harmonized Nordic end-user market more or less changes in regulation in each country is needed. For the market participants Nordic end-user market integration would mainly require changes in IT systems and business processes thus incurring costs that vary depending on the market participant. Therefore is important for the market participants that the decisions on the harmonized regulatory framework exist before they have to prepare changes in their IT systems. This would also reduce the costs of implementation.

Before having a common Nordic end-user market certain actions should be taken. These necessary actions could be divided into following ones:

- A political commitment to the process
- Preparation of more detailed harmonized solutions
- Preparation of necessary changes in regulation
- Implementation of changes in IT systems and business processes

In their report, NordREG outlines a vision of a common Nordic end user market by 2015.

Through several minister declarations, the vision of a common Nordic retail market has been established. In the Umeå Action plan the Nordic Council of Ministers again strengthened the focus on the Nordic end user market.

With the recent implementation of the harmonised balance settlement, the Nordic market took a step in the direction of a more harmonised retail market. Even though substantial progress has been made in this respect, the process forward is to gather more information before the EMG can commit to the next steps. There is still a lack of information as regards costs and benefits of a common retail market.

The actual form the common retail market should take has been unclear, and information on what kind of decisions is needed has been scarce. There is conceivably several ways of reaching the target of a common retail market, and there would also be various levels integration that should be discussed.

While the EMG remain committed the vision of a harmonised Nordic retail market, the following information is needed before the next step can be taken:

- Information on the various levels of harmonisation available
- Information on the legal, technical and political changes needed to bring about said harmonisation
- Information about the costs and benefits of said harmonisation

The EMG aim to address these issues before the next meeting of the Nordic Council of Ministers.

EMG conclusions and recommendations

- The EMG concludes that the sufficient factual basis for decision making in this area is lacking. Information about the possible costs and benefits of different levels of further retail market integration in the Nordic region is not fully mapped today.
- The EMG will address the above mentioned issues, with the aim to reach the goal of a common Nordic retail market.

Nordic and European cooperation

From the Umeå declaration:

- *The report should also include a review of how Nordic cooperation should be best organised in light of the development of the European electricity market and its institutions.*

The European efforts on electricity market legislation began with the first electricity market directive, finally adopted on 19 December 1996. This directive called for the deregulation of the electricity markets in the EU, and modestly called for the unbundling of regulators and TSOs.

The Nordic countries (excl. Iceland) began the process of liberalising their electricity markets in the mid 1990ies. In 2001 all four countries had fully liberalised electricity markets, and wholesale trade in the four countries took place at Nord Pool Spot. In 2000/2001 the European Commission launched the second electricity directive – as the provisions in the first one were not really being implemented in the member states, other than the Nordic Countries who at that point were far ahead of the other European states in terms of both liberalisation and harmonisation.

In the second electricity directive, the regulator organisation ERGEG was formed for the regulators in electricity and gas in Europe. This organisation had an advisory role towards the European Commission, and was tasked with increasing the cooperation between the European regulators. In many ways ERGEG was similar to the Nordic regulator organisation NordREG. As Norway is not a member of the EU, the Norwegian regulator, The Norwegian Water Resources and Energy Directorate (NVE) has had a right to attend the meetings and make proposals.

In 2005 the commission undertook a series of mapping efforts to find out if the provisions in the first and second electricity directives had any effect. The results from the market surveys commissioned by the European Commission identified a series of shortcomings in the European market – the market for electricity in Europe was far from as harmonised, deregulated and liberalised as it should be (Delvaux, Michael and Talus 2008).

As a result of these findings, the European Commission launched the third market package for electricity. The contents of the third market package for electricity are geared towards achieving the following five targets:

- The effective separation of supply and production activities from network operation
- The further harmonisation of the power and enhanced independence of the national energy regulators
- The establishment of an independent mechanism for cooperation among national regulators
- The creation of a mechanism for transmission system operators to improve the coordination of networks operation and grid security
- Greater transparency in energy market operations (European Commission 2007).

When the European Commission launched the third internal market package for electricity in 2007, the emphasis in the political discussions was rapidly placed on the concept of unbundling. In the Nordic region all the TSOs are fully unbundled except for Fingrid, the Finnish TSO.

In 2008 42 European TSOs signed a letter of intent to form a European TSO organisation for electricity TSOs ENTSO-E. The four Nordic TSOs were among the signatories of this letter, and in a press release sent out 19 December 2008 they announced the formal discontinuation of the Nordic TSO organisation Nordel from 31.12.08.

The EMG has discussed with the Nordic TSOs the concerns about the consequences for the Nordic cooperation from the discontinuation of Nordel. In the

discussions the TSOs have underlined the importance of continuing the valuable Nordic cooperation. Furthermore it appears that the Nordic TSOs in a sub committee under ENTSO-E now will deal with the Nordic planning functions previously allocated to Nordel. The transition to ENTSO-E may not be as easy for the private sector stakeholders in the market. In discussions with Nordenergi in March 2009 the organisation voiced concerns about increasing uncertainty about Nordic grid planning as a consequence of the change.

Other factors influencing the future development of the Nordic electricity market are the RES directive (see below), the TEN-E programme and the EU recovery plan as well as the EU 2nd Strategic Energy Review. These factors need to be taken into account in Nordic grid planning, as described above.

EMG conclusions and recommendations

- EMG recommends that the Nordic TSOs and regulators continue building on, and strengthening the Nordic cooperation under the new organisational structures.

Other issues

Amendment of Nord Pool Spot price setting mechanism

At the Nordic Council of Ministers for Energy meeting in Umeå, Sweden, 30 September 2008, the Finnish minister raised a proposal about the Nord Pool price setting mechanism. The ministers did not conclude on the issue, and the Committee of Senior Officials for Energy was tasked with discussing the proposal. The Committee of Senior Officials for Energy then forwarded the task to EMG. The Federation of Finnish Technology Industries proposes to change the price setting mechanism in the electricity market.

Economic efficiency requires that the price should be set on the basis of long term marginal costs, including environmental costs (CO2 quota costs). On this basis, the EMG recommends that the proposal is not implemented (see appendix 1).

Peak load arrangements

In 2007 Nordel published their Guidelines for Transitional Peak Load Arrangements. The EMG then asked NordREG to comment on the guidelines on how Peak Load arrangements may affect the market. The EMG thus financed a small consultancy study for NordREG in the issue. In 2008 the EMG asked NordREG and Nordel to look at this in concert.

In March/April 2009 the EMG has received two reports on the issue of peak load arrangements – one from NordREG and one from the Nordic TSOs. The two reports differ somewhat in substance and opinion. NordREG has not been given the opportunity to comment on the report from the Nordic TSOs.

EMG conclusions and recommendations

- The EMG asks NordREG to review the Nordic TSOs updated guidelines for Transitional Peak Load Arrangements.

Consequences of the EU directive on renewable energy sources (RES) in the Nordic electricity market

In December 2008 the European Parliament approved the proposal for a directive on the Promotion of the use of Energy for Renewable Sources (COM (2008)0019 – 2008/0016(COD)).

This directive calls for the implementation of 20 percent renewable electricity in the European energy system by the year 2020. Today the share of renewable energy in the EU area is around 8 percent.

The Norwegian government has signalled that it regards this directive as EEA relevant, and will hence receive similar targets as the other Nordic countries. While it is not clarified how much renewable energy Norway will have to introduce as a consequence of this directive, the other three Nordic countries (Iceland not included) will have to meet the following targets:

- Denmark: 30 percent
- Finland: 38 percent
- Sweden 49 percent

A significant share of the increased energy from RES will be fed into the power system. This will have consequences for the development of the grid and for system operation. Renewable energy sources, such as wind, are fluctuating and create an increased need for regulating power. Furthermore, with the increase of energy in the Nordic market the surplus power will increase, leading to a need for increased interconnector capacity. The consequences for the Nordic electricity market of large scale introduction of fluctuating power should be investigated further. The Nordic TSOs should include these issues in their updated Nordic grid plans.

EMG conclusions and recommendations

- The EMG asks the Nordic TSOs to create a joint plan for handling the increased amounts of fluctuating renewable power in the grid. Emphasis should be put on system operation.
- Regarding the need for new grid investments, this should be captured in the TSOs updated Nordic grid plan.
- The EMG will participate in a conference with the Working Group for Renewable Energy to discuss these issues with stakeholders in the Nordic region.

Summary and conclusions

Within the energy policy cooperation, the Nordic Council of Ministers' (NCM) vision is for "a free and open market with efficient trade with neighbouring markets" (Louisiana 1995). The objective of the Nordic energy co-operation is to create the best possible framework for the development of the Nordic electricity market, and therefore to serve as a model for the rest of Europe (Action Plan for Nordic Energy Co-operation 2006-2009).

The Umeå Action plan from 2008 sets the tone for a renewed spirit of cooperation in the Nordic electricity market. During 2008 steps have been taken to implement the action plan of the Nordic Council of Ministers for Energy – and the work continues. The Nordic TSOs are in the process of splitting the market into more

price areas, the regulators are continuing their work to compare and analyse the differences in national procedures for grid investments. The changes in balance settlement have been implemented with the overall goal to achieve a common Nordic retail market.

Large scale implementation of renewable energy in the Nordic electricity market poses a challenge for the stakeholders – especially for the TSOs. For the coming year, the EMG wishes to place emphasis of the new challenges in this area – seen in context with the overall goals of the Nordic electricity market.

The Nordic TSOs shall continue to plan from a Nordic perspective, also after the current changes in organisation from Nordel to ENTSO-E.

Attaining the goals of the Umeå Action plan requires increased efforts from the TSOs, NordREG and the EMG in the coming years.

Recommendations:

Congestion management and grid investments

- The EMG is satisfied with the TSOs progress in this area, and awaits the TSOs continued implementation the change in market structure.
- The goal of dividing the Nordic market into additional potential bidding and/or price areas by 2010 is not realistic. Finland and Sweden are asked to deliver a time schedule so that the politically expected decisions about dividing the Nordic market into additional potential bidding and/or price areas can be implemented as soon as possible
- The EMG recommends that Nord Pool Spot be consulted in the TSOs further work on this issue.
- The TSOs are asked inform the EMG and their respective ministry/national authorities about their progress in this issue.
- NordReg is asked to continue their work on analysing the national processes for grid investments.
- The Nordic TSOs work with grid planning should be strengthened. The Nordic TSOs are therefore asked to continually deliver updated Nordic grid plans, proposing investments that are socio-economically beneficial for the entire Nordic region.
- The EMG notes that the grid investments in the first and second packages from Nordel are not yet finalised. The EMG underlines the importance of finalising the planned investments.

Retail market integration

- The EMG concludes that the sufficient factual basis for decision making in this area is lacking. Information about the possible costs and benefits of different levels of further retail market integration in the Nordic region is not fully mapped today.
- The EMG will address the above mentioned issues, with the aim to reach the goal of a common Nordic retail market.

European and Nordic cooperation

- EMG recommends that the Nordic TSOs and regulators continue building on, and strengthening the Nordic cooperation under the new organisational structures.

Amendment of Nord Pool Spot price setting mechanism

- Economic efficiency requires that the price should be set on the basis of long term marginal costs, including environmental costs (CO2 quota costs). On this basis, the EMG recommends that the proposal is not implemented (see appendix 1).

Peak load arrangements

- The EMG asks NordREG to review the Nordic TSOs updated guidelines for Transitional Peak Load Arrangements.

Consequences of the EU directive on renewable energy sources (RES) in the Nordic electricity market

- The EMG asks the Nordic TSOs to create a joint plan for handling the increased amounts of fluctuating renewable power in the grid. Emphasis should be put on system operation.
- Regarding the need for new grid investments, this should be captured in the TSOs updated Nordic grid plan.
- The EMG will participate in a conference with the Working Group for Renewable Energy to discuss these issues with stakeholders in the Nordic region.

References

- Delvaux, Bram, Hunt Michael, og Kim Talus, red. 2008. *EU Energy and Law Issues*. 1. utg. Brussel: Euroconfidentiel.
- Ea Energy Analyses, Hagman Energy and COWI. 2008. *Congestion Management in the Nordic Market - evaluation of different market models*. Ea Energy Analyses, Hagman Energy and COWI.
- European Commission. 2007. "EXPLANATORY MEMORANDUM - Third Market Package - COM(2007) DRAFT."
- Nordel. 2008a. *Nordic Grid Master Plan 2008*. Oslo: Nordel.
- Nordel. 2008b. *Prioritised cross-sections Reinforcement measures within the Nordic countries - Status June 2008*. Nordel. Available at: <http://195.18.187.215/Common/GetFile.asp?PortalSource=1909&DocID=5847&mfd=off&pdoc=1>
- NordREG. 2008. *Harmonized supplier switching model*. NordREG.
- NordREG. 2009. *Market Design Common Nordic end-user market*. Helsinki: NordREG.
- NordREG. 2008. *Towards harmonised Nordic balancing services - Common principles for cost allocation and settlement*. Helsinki: NordREG.
- Pykälä, Marja-Leena. 2008. *Study on cost-benefit analysis of Nordic retail market integration*. Helsinki: VTT.

Appendix 1 Amendment of Nord Pool Spot price setting mechanism

At the Nordic Council of Ministers for Energy meeting in Umeå, Sweden, 30 September 2008, the Finnish minister raised a proposal about the Nordic electricity trade at Nordpool. The ministers did not conclude on the issue, and the Committee of Senior Officials for Energy was tasked with discussing the proposal. Committee of Senior Officials for Energy then forwarded the task to EMG.

Background

Emission trading and the rising cost of carbon dioxide emission allowances have increased the price level in the Nordic electricity market. This is a problem for energy intensive industries, especially for steel, copper and zinc production.

The Federation of Finnish Technology Industries, together with the Association of Finnish Steel and Metal Producers started an investigation into how the trading rules should be amended in order to alleviate the impact of the cost of emission allowances on the market price. The investigation report was contracted to ECON Pöyry and the resulting model was ready for presentation to the Finnish Ministry of Employment and Economy in June 2008.

The proposal was then raised in the Nordic Council of Ministers for Energy in Umeå, September 2008.

The proposed amendment

The Finnish Technology Industries wish to change the trading rules in the electricity market. In the presentation given by the Finnish minister for Economic Affairs in Umeå, the minister outlined two key points in favour of the amendment:

1. It would reduce the price of electricity
2. It would reduce the windfall profits to owners of older low-carbon energy production installations such as nuclear and hydro power plants.

In the Nordic electricity market, the electricity price is determined on the basis of the balance between bids and offers from all market participants on Nord Pool Spot. Hence, the system price reflects the generating and consumption conditions in the region. The clearing price in the Nordic power market is usually set by coal and gas power production.

Recently, the price of electricity produced from coal has risen as a consequence of the EU Emission Trading Scheme (EUETS) and other policies aimed to encourage renewable energy and discourage carbon-intensive sources, such as coal. The additional cost of emission allowances for carbon-intensive sources is transferred to the market price for all electricity, as coal production normally is clearing the market. This means that power producers without emissions can sell electricity at allowance-adjusted prices, without having to pay for emission allowances – a phenomenon known as windfall profits.

The Finnish Technology Industries proposes to separate the electricity market and the emission allowance market. They argue that the market price for electricity should be determined by the market clearing price *without the cost of emissions*. According to the suggestion, producers of electricity produced from carbon-

intensive sources should declare the number of emission rights required for its production. Subsequently, a refund office would calculate the compensation and pay the producer. The total cost for the emission allowances would be divided between all purchased electricity and invoiced for by e.g. the grid companies. In this way the actual allowance cost is added to the price separately. This reduces electricity prices – and therefore reduces the windfall profits to producers without CO₂ emissions.

The implementation of this proposal would essentially mean splitting the markets for emission allowances and electricity.

Analysis

The proposal would indeed reduce the price of electricity in the Nordic region and thereby benefit the power consumers. In the presentation from The Federation of Finnish Technology Industries, the price reduction is estimated at 20 percent.

However, overall market economic efficiency is crucial in the design of electricity markets, and the price of electricity should always reflect the long term marginal cost.

From a climate policy standpoint, the increase in prices as a consequence of carbon-intensive sources in the power mix is a desired development. Emission trading and related policies aim not only to make it more expensive to produce electricity from carbon-intensive sources, but also to create incentives for producing energy with less emission. This proposal would reduce the incentives created through the EUETS.

Power plant investments are long term investments. An introduction of a market system as the one proposed would affect negatively, or even ruin, the profitability of power plant investments outside the emission trading scheme but made and planned since the EUETS was adopted. The investors cannot be expected to have foreseen a change in the market system this shortly. The financial consequences would be serious for a number of power plants, not least for wind power which is barely profitable with today's power price level.

Persistent market conditions are vital in order to ensure sufficient power plant capacity in the Nordic countries for the years to come. The EMG is concerned about the effect an introduction of the proposed market system would have on power plant investments and consequently on the power adequacy in the Nordic power system.

One of the ideas behind emission trading schemes is "to get the prices right", and thus to internalise the marginal cost of emissions. This is in line with the "polluter pays- principle". With the current price determination in the electricity market, the producers of carbon- intensive electricity in principle have to pay more for their production than the non-polluting energy producers, with the internalised cost of emissions.

If the proposal from the Finnish Technology Industries would be implemented, the polluter pays-principle would be violated, as all power consumers would pay the cost of purchasing emission rights irrespective of being supplied by a carbon-intensive producer or not.. Likewise non-polluting producers outside the emission trading scheme would benefit very little, if anything, compared to producers within

the EUETS as the latter would automatically receive compensation for their emission allowance costs. As EMG sees it, the proposal from the Federation of Finnish Technology Industries would not be a step in the right direction.

It is doubtful that the EU would allow the implementation of the proposed system. Centralised refund of emission costs to power producers is comparable to support subsidy. The EMG sees it unlikely that support subsidy for fossil fuels would be accepted and implemented in the EU.

With the proposed market system fossil power plants would actually benefit unjust compared to non-fossil power in the period 2009 – 2012. Fossil power plants have received their carbon dioxide emission allowances more or less free of charge and would in the proposed system credit this sum in its entirety while non-fossil power would benefit nothing. Further, the steering effect with the EUETS would be reduced.

The participants in the forward markets have contracts reaching several years into the future; it is unclear what effect this proposal would have on long-term price formation.

The price formation would in the Finnish proposal deviate from long term marginal costs, and the economic efficiency would decrease.

The ongoing development towards one integrated European power market requires market principles and methods to be harmonised. The EMG finds that the proposed market system does not represent an acceptable solution. Neither is this solution in line with the development in the EU.

The EMG wishes to bring out that there are also other ways to cut windfall profits. One possible route is the Norwegian "grunnrente" method, where the expected profit is estimated, and any profits above that level are taxed heavily. In Sweden tax shall be paid on the thermal effect of a nuclear power reactor. Thermal effect refers to the nuclear power reactor's capacity to produce heat. Furthermore, the owner of a wind or hydro power plant shall pay an additional real estate tax.

The EU Commission now have proposed that the Member States *may adopt financial measures* in favour of sectors determined to be exposed to a significant risk of carbon leakage due to costs relating to greenhouse gas emissions passed on in electricity prices, in order to compensate for those costs.¹ The EMG appreciates the proposal made by the EU Commission on this issue, as this is an important measure for the affected industries in the Nordic region.

Conclusion

In light of the issues raised in the analysis above, the EMG recommends that the proposal is not implemented.

¹ Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2003/87/EC, art. 10 a, paragraph 6.

Appendix 2 Reports and position papers

As a part of the follow up work, the EMG has received a number of reports.

From NordREG, the EMG has received the following reports:

- Market Design Common Nordic end-user market
- Peak Load Arrangements Assessment of Nordel Guidelines

From Nordel, the EMG has received the following reports:

- Guidelines for implementation of transitional peak load arrangements

The EMG has received letters from the national TSOs summing up the work on implementing the Nordic Council of Ministers declaration on congestion management.

In addition to the received reports, the EMG has received position papers from the Finnish Energy Industries concerning congestion management and from Nordenergi.