Nordic Council of Ministers
Electricity Market Group

Status of harmonisation in the Nordic Electricity market 2011

Status and developments following the Nordic Council of Ministers' Action Plan for a borderless electricity market

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Abbrevations

DSO	Distributed system operators[1]
EMG	Electricity Market Group
EMV	Energy Market Authority, Finland
ENTSO-E	European Network of Transmission System Operators for Electricity
HFO	Heavy Fuel Oil
NCM	Nordic Council of Ministers
Nordenergi	Nordic Energy Industries
NordREG	Nordic Energy Regulators[2]
NPS	Nord Pool Spot
NVE	Water Resources and Energy Directorate, Norway
TSO	Transmission System Operators[3]
TYNDP	Ten-Year-Network-Development-Plan, in ENTSO-E

[1] Owners of regional and local grids.
[2] Danish Energy Regulatory Authority (DERA), Finnish Energy Market Authority (EMV), Norwegian Water Resources and Energy Directorate (NVE), Swedish Energy Markets Inspectorate (EI) and National Energy Authority of Iceland.
[3] Energinet.dk, Swedish National Grid, Fingrid and Statnett.

1. Sammendrag

El-markedsgruppens (EMG) rapport om utviklingen i det nordiske el-markedet

Innledning

Dette notatet er et sammendragsnotat av det engelskspråklige notatet fra EMG til det nordiske energiministermøtet i Helsingfors 14. oktober 2011. Notatet oppsumerer implementeringen av vedtatte action plan for utviklingen mot et felles nordiske el-marked, som er en videre oppfølging av handlingsplanen fra Umeå 2008, ministermøtene i Stockholm i 2009 og i København i 2010. EMG består av embedsmenn fra Danmark, Finland, Norge og Sverige.
Det nordiske el-markedet har kommet langt i harmoniseringsprosessen. Markedet er det mest harmoniserte mellomstatlige el-markedet i verden. Dette skyldes en kontinuerlig sterk politisk støtte til harmoniseringsprosessen, samt et godt samarbeidsklima mellom aktørene i markedet.

Fra 1995 og frem til i dag har det nordiske el-markedet utviklet seg fra å være fire nasjonale markeder til ett nordisk marked. Verdiene og tankene fra Louisiana-erklæringen i 1995 om et fritt og åpent marked med effektiv handel med nabolandene, står fortsatt som grunnpilarene i harmoniseringsarbeidet.

Selv om det fortsatt er behov for ytterligere harmoniseringstiltak, kan det nordiske el-markedet tjene som eksempel for andre aktører i og utenfor EU. Denne posisjonen ivaretas gjennom å forholde seg aktivt til de prosesser som foregår i EU innen el-markedsområdet.

I deklarasjonene fra både energiministermøtet i Stockholm i 2009 og i København i 2010 ble betydningen av handlingsplanen fra Umeå i 2008 understreket og ytterligere supplert. Ministrene la vekt på betydningen av et velfungerende nordisk el-marked som en viktig forutsetning for næringsutvikling i regionen, og som et viktig instrument for å sikre effektivitet og forsyningssikkerhet.

EMG har i 2010/2011 arbeidet med følgende saker:

A) Nordiske nettinvesteringer og planer
B) Integrasjon av fornybar energi i det nordiske el-markedet
C) Utvikling av et felles nordisk sluttbrukermarked
D) Styrking av det nordiske el-markedet basert på erfaringene fra vinteren 2009/2010
E) Hvordan det nordiske el-markedet fungerer – henvendelse fra Maud Olofsson til de andre nordiske energiministrene

1A) Nordiske nettinvesteringer og planer

Status
På ministermøtet i 2010 i København besluttet de nordiske nærings- og energiministrene at de så snart som mulig ville ta de nødvendige skritt for å sikre at de respektive TSOene og regulatorene legger til grunn et nordisk perspektiv når de planlegger og godkjenner fremtidige nettinvesteringer. Videre besluttet de at nettinvesteringer som er av samfunnsøkonomisk nytte for hele det nordiske området skal gjennomføres ved at TSOene forhandler om fordeling av inntekter og utgifter.

Som oppfølging av ministermøtet i København i 2010, videreformidlet ministrene sin beslutning til de nasjonale TSOene og regulatorene. Ministrene besluttet også at de nordiske TSOene skal levere en nordisk nettutviklingsplan annethvert år. Planen skal bygge på analyser av nordisk nytte. I forkant av møtet i Helsingfors i 2011 har ministrene bedt om en statusrapport for planen.

De nordiske TSOene avleverte statusrapporten *"Nordic Grid plans"* til EMG 16. mai 2011. I følge statusrapporten er felles nordiske nettplaner oppnådd gjennom European Network of Transmission System Operators for Electricity (ENTSO-E) sin regionale gruppe for Østersjøen. Den nordiske planen er en del av *Baltic Sea Regional Investment Plans,* som igjen er en el av ENTSO-E *Ten-Year-Network-Development-Plan.*

Konklusjoner og anbefalinger
EMG tar TSOenes preliminære rapport om utviklingen av en nordisk nettinvesteringsplan, som vil styrke og utvikle det nordiske elmarkedet, til orientering. EMG ser frem til å få en grundig nordisk nett- og investeringsplan, som legger til grunn et nordisk perspektiv, i god tid det neste ministermøtet i 2012. Planen skal også inkludere koblinger til andre europeiske land.

EMG anbefaler at de nordiske TSOene blir invitert til å presentere deres nordiske planer til de nordiske energiministrene på det neste ministermøtet i 2012.

1B) Integrasjon av mer fornybar energi i det nordiske kraftsystemet

Status
I august 2010 ble rapporten *"Impact of increased amounts of renewable energy on Nordic power system operations"* utgitt *av* ENTSO-E*.* I denne listes en rekke tiltak som de nordiske TSOene mener vil bidra til at det nordiske systemet vil kunne integrere mer fornybar energiproduksjon uten at det påvirker eller forstyrrer systemets funksjonsstabilitet og pålitelighet.

De nordiske TSOene avga en statusrapport til EMG på denne handlingsplanen 13. mai 2011. I denne fremgår det at TSOene er i rute når det gjelder arbeidet med å forberede for mer variabel kraftproduksjon.

Konklusjoner og anbefalinger
EMG tar statusrapporten for integrasjon av fornybar energi til orientering. EMG understreker viktigheten av arbeidet med å integrere fornybar energi i det nordiske kraftsystemet.

EMG er fornøyd med å se at et nordisk perspektiv blir anvendt både i planleggingen og i implementeringen av handlingsplanen. Planen bør bli implementert så snart som mulig, og EMG ber derfor om en rapport vedrørende implementeringsarbeidet i god tid før neste ministermøte i 2012.

Vellykket integrasjon av fornybar energi i det nordiske kraftsystemet krever nordiske nettplaner og investeringer. Fornybarperspektivet må derfor tas i betraktning i utviklingen av det nordiske nettet. Det er avgjørende å anerkjenne sammenhengen og avhengigheten mellom nordiske nettinvesteringer og planer og integrasjon av fornybar energi i det nordiske kraftsystemet.

1C) Utvikling av et felles nordisk sluttbrukermarked

Status
I NordREGs rapport *"Implementation plan for a Common Nordic Retail Market"* av juni 2010, trekkes konturen for strategien og nøkkelelementene i etableringen av et felles nordisk sluttbrukermarked. Et felles nordisk sluttbrukermarked er definert som *"Markedsmodellen for et felles sluttbrukermarked som skal forsyne løsninger som tillater at alle brukere tar del i fellesmarkedet".*

Rapporten *"NordREG status report to EMG on the project Nordic end user market",* ble avgitt fra NordREG til EMG 13. mai 2011.

I løpet av vinteren/våren 2010/2011 har Sluttbrukermarkedsprosjektet gått inn i en intens driftsfase. Sammen med andre relevante aktører har NordREG arbeidet med å finne den optimale modell for et fremtidig nordisk sluttbrukermarked. Flere enn 100 aktører er aktivt involvert i prosjektet. Organiseringen av prosjektet, som var forespeilet i rapporten *"Organisation of further work"* (NordREG report 9/2010), har blitt etablert. Prosjektet består av fem arbeidsgrupper, som er henholdsvis:

I) Market Rule
II) Customer Empowerment
III) Business Processes
IV) Structures of Network Tariffs (gruppen er kansellert)
V) Metering

Fire av de fem gruppene har på nåværende tidspunkt startet arbeidet.

Det har hittil blitt utarbeidet to rapporter i prosjektet: en om faktureringssystem (én eller to regninger) og en om rettigheter og plikter til DSOene. Begge rapportene har vært på offentlig høring, og mer enn 100 høringsuttalelser ble mottatt. Det skal utarbeides en ytterligere kostnad-nytteanalyse knyttet til faktureringssystem. Det skal også igangsettes andre utredninger høsten 2011.

Konklusjoner og anbefalinger
EMG tar NordREGs statusrapport til orientering og er tilfreds med prosessen rundt utviklingen av et felles nordisk sluttbrukermarked. EMG støtter opp om NordREGs anbefaling om "supplier centric model" og det videre arbeid med utviklingen av et nordisk sluttbrukermarked og den ambisiøse tidsplanen for implementering.

EMG anbefaler at nasjonale regulatorer har en tett dialog med sine respektive myndigheter for å sikre en effektiv fremgang i utviklingen av et felles nordisk sluttbrukermarked, blant annet om problemstillinger knyttet til fakturering og kontrakter.

EMG ber om at NordREG rapporterer om fremdriften i arbeidet med sluttbrukermarkedet i god tid før det neste energiministermøtet i 2012.

1D) Styrking av det nordiske el-markedet basert på erfaringene fra vinteren 2009/2010

Status
I januar 2011 publiserte NordREG en endelig rapport vedrørende pristoppene i det nordiske kraftmarkedet vinteren 2009/2010 og kom med forslag til handlingsplan bestående av tiltak på kort-, mellomlang- og lang sikt. 19. mai 2011 oversendte NordReg EMG en statusrapport om implementeringen av tiltakene i handlingsplanen. Statusrapporten inkluderer følgende tiltak for å styrke håndteringen av pristopper:

1. Økt gjennomsiktighet i markedet
2. Gjennomgang av kapasitetsberegningene og tildelingsmetodene for transmisjonslinjene
3. Gransking og forslag til tiltak for å øke etterspørselsfleksibilitet
4. Gjennomgang av topplastmekanismen

NordReg foreslo også opprettelsen av et nytt organ for å sikre videreutvikling av det nordisk el-markedet og grenseoverskridende samarbeid. Nord Pool Spot Regulatory Council ble derfor opprettet med representanter fra regulatorene, og hadde sitt første møte 8. april 2011. Nord Pool Spot hilste det nye organet velkommen.

Konklusjoner og anbefalinger
EMG tar NordREGs status rapport til orientering og støtter NordREGs arbeid med å forbedre håndteringen av pristopper i det nordiske engrosmarkedet.

EMG ber om at NordREG rapporterer om fremgangen i handlingsplanen i god tid før det neste energiministermøtet finner sted i 2012.

1E) Hvordan det nordiske el-markedet fungerer – henvendelse fra Maud Olofsson til de andre nordiske energiministrene

Status
De siste vintrene har vært preget av enkelte perioder med meget høye strømpriser. Markedet har fungert slik at det har oppstått høye priser når det har vært stor etterspørsel og redusert tilbud av elektrisitet. Blant forbrukerne har det vært en del misnøye med de høye strømprisene, og temaet har derfor blitt diskutert blant de nordiske energiministrene flere ganger.

Den svenske nærings- og energiministeren, Maud Olofsson, sendte 26. mai 2011 brev til sine kollegaer i Danmark, Finland og Norge og foreslo at de sammen skulle ta initiativ til å styrke konsumentenes stilling på det nordiske markedet og å kartlegge hvordan markedet ytterligere kan forbedres slik at man som konsument ser fordelene ved et felles nordisk el-marked. Den danske klima- og energiministeren, Lykke Friis, svarte 9. juni og den norske olje- og energiministeren, Ola Borten Moe, sendte svarbrev 29. juni. Lykke Friis mener det er viktig at det nordiske el-markedet oppleves som et gode av nordiske forbrukere og synes det er et glimrende forslag å drøfte hvordan det kan skapes et overblikk over hvordan markedet egentlig fungerer. Ola Borten Moe legger i sitt svarbrev vekt på betydningen av investeringer i overføringsnettet, å realisere et felles nordisk sluttbrukermarked og at det kan være nyttig å gjøre en overordnet gjennomgang av hvordan det felles nordiske el-markedet fungerer med spesielt vekt på hvordan de nordiske reglene og institusjonene i markedet fungerer.

Konklusjoner og anbefalinger
EMG anbefaler at det utarbeides en rapport i regi av en ekstern konsulent som gjør en overordnet gjennomgang av hvordan det nordiske el-markedet fungerer. Rapporten skal identifisere felles problemstillinger og tiltak som kan forbedre samarbeidet. Et sentralt utgangspunkt for arbeidet er betydningen av en trygg el-forsyning og et vel fungerende marked som ikke minst er viktig med tanke på et konsumentperspektiv. Rapporten bør konsentrere seg om hvordan nordiske regler og institusjoner i markedet fungerer.

2. Introduction

The Nordic electricity market is the most harmonised cross-border electricity market in the world. It has, over time and through several important policy milestones, consolidated and merged four distinct national markets into one single and common market. Though there are still issues to be resolved, it should be acknowledged that the Nordic electricity market nonetheless serves as an example for other actors such as the EU.

In their 2008 declaration from Umeå, The Nordic Council of Ministers for Energy emphasised the importance of strengthening the Nordic perspective. This was underlined and supplemented at the Nordic Council of Ministers for Energy meeting in Stockholm in 2009 and in Copenhagen in 2010.

This memo summarises the Electricity Market Group's (hereinafter the EMG) follow up efforts with respect to the Copenhagen 2010 declaration.

The Nordic Council of Ministers' (hereinafter the NCM) vision is "*a free and open market with efficient trade with neighbouring markets"* (Louisiana 1995), and furthermore, 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).

The EMG is responsible for following up on resolutions from the NCM, coordinating policy work throughout the year and preparing background documents for the Ministers' annual meetings. The members of the EMG are:

- Flemming G. Nielsen, Danish Energy Agency (Chairman)
- Peder Bjerring, Danish Energy Agency
- Markku Kinnunen, Ministry of Employment and the Economy, Finland
- Bettina Lemström Ministry of Employment and the Economy, Finland
- Kjell Grotmol, Ministry of Petroleum and Energy, Norway
- Manus Pandey, Ministry of Petroleum and Energy, Norway
- Magnus Blümer, Ministry of Enterprise, Energy and Communications, Sweden
- Joakim Ceije, Ministry of Enterprise, Energy and Communications, Sweden
- Lars Andersson, Ministry of Enterprise, Energy and Communications, Sweden
- Benedicte Staalesen, Nordic Energy Research (secretary, until July 2011)
- Lise Jørstad, Nordic Energy Research, (secretary July-October 2011)

The following key actors are involved in the harmonisation process:

- The Nordic transmission system operators (hereinafter the TSOs)
- Nordic Energy Regulators (hereinafter NordREG)
- Nordenergi, the cooperation body of the Nordic energy industry associations
- Nord Pool Spot (NPS), the Nordic power exchange

The objective of Nordic energy co-operation is to create the best possible conditions for the development of the Nordic electricity market, and to thereby serve as a model for the rest of Europe. The annual meetings of the Nordic Energy ministers set the course for transnational cooperation.

This note is EMG's input to the Nordic Council of Ministers meeting in Helsinki in October 2011, summarising the implementation of the Nordic Council of Ministers Action Plan for a

Borderless electricity market as decided on by the Ministers at their meeting in Umeå in 2008, and supplemented in Stockholm in 2009 and Copenhagen in 2010.

The Nordic Action Plan for a borderless electricity market

In their meeting in Copenhagen in 2010 the Nordic Energy ministers supplemented and underlined the Umeå action plan from 2008 and the Stockholm declaration form 2009. They emphasised the importance of a well-functioning Nordic electricity market as a decisive prerequisite for business development in the region, and as an effective tool to ensure the efficiency and security of supply.

> *The Nordic Energy ministers shall as soon as possible make the necessary steps to ensure that Nordic benefit is emphasised in national decisions regarding grid investments. Grid investments that are of socio-economic benefit for the whole Nordic region shall be carried out.*
>
> *There are no concrete legal barriers to Nordic investments. To maintain the high level of Nordic investments, the Nordic TSOs are asked to develop a Nordic grid development plan every second year, applying a Nordic perspective and Nordic added value. The first plan should be ready by the Ministerial meeting in 2012. The Ministers ask that the TSOs deliver a status report on this plan before the next Energy ministers' meeting in Helsinki in 2011. The TSOs are also asked to include integration of renewable energy in these plans. The suggested actions should be implemented as soon as possible by the TSOs in order to improve and better the integration of renewables into the system. Smarts Grids shall be considered to be included in grid- and system development plans*
>
> *NordREGs plan for the development of a common Nordic end user market is approved. NordREG are asked to deliver a status report on a common market project before the next Energy ministers' meeting in Helsinki in 2011.*
>
> *NordREG should as soon as possible implement actions in order to avoid that the situation of winter 2009/2010 with extreme price peaks will reoccur in the coming winters.*

Following up on the Umeå action plan and the Stockholm and Copenhagen declarations, the EMG has, in cooperation with the TSOs and NordREG, sought to develop recommendations and analyses for the Ministers that correspond to the following tasks:

A) Nordic grid planning and investments
B) Integration of renewable energy in the Nordic power system
C) Development of a common Nordic end user market
D) Strengthening of the Nordic electricity market based on the price peaks experiences during the winter 2009/2010
E) Functioning of the electricity market - communication from Maud Olofsson to the other Energy ministers

This is the EMG's analysis and assessment of the current status of harmonisation of the Nordic electricity market:

2A) Nordic grid investment and planning

From the Copenhagen Declaration:

- *Nordic grid investments are vital in the development of a borderless Nordic electricity market that will benefit the Nordic countries. On behalf of the EMG the Nordic regulators have analysed prospective differences in laws, rules, criteria and mandates in the Nordic countries that may hinder grid investments. The analyses show that there are no legal or regulatory barriers for Nordic grid investments. However, the importance and priority of a Nordic perspective must be stressed. The Nordic Ministers will as soon as possible make the necessary steps to bring this to the attention of the TSOs and regulators. A prerequisite for good Nordic grid connections are Nordic grid planning. Hence, the minsters emphasise the importance of carrying out investments which are of Nordic value.*
- *The Nordic Energy ministers ask the TSOs to develop plans that will strengthen and develop the Nordic Electricity market, including connections to other European countries. The Nordic TSOs shall deliver Nordic grid plans every second year. These plans should be based on the benefits of a Nordic perspective. The TSOs are asked to deliver a status report on this work to the EMG before the next Ministerial meeting in Helsinki in 2011.*

At the Ministerial meeting in Copenhagen in 2010 the Nordic Ministers passed the following resolutions regarding Nordic grid investment and planning:

- *The Nordic Energy ministers shall as soon as possible make the necessary steps to make sure that the respective TSOs and regulators apply a Nordic perspective, when planning and approving future net investments.*
- *Net investments that are of socio-economic benefit for the whole of the Nordic region, shall be carried through.*

As a follow up to the Ministerial meeting in Copenhagen, the Ministers informed and communicated to the national TSOs and regulators that the application of a Nordic perspective in grid planning and investments is vital. It was further communicated that differentiated cost bearing between the countries in projects that have a common Nordic benefit could be subjected to negotiations between the TSOs. The priority and importance of a Nordic perspective should thus be recognised by all respective actors involved.

The status report on '*Nordic Grid plans'* was submitted to the EMG by the Nordic TSOs on 16th May 2011.

According to the status report, common Nordic Grid planning is achieved through the European Network of Transmission System Operators for Electricity (hereinafter the ENTSO-E) regional group Baltic Sea. The Nordic grid plans are part of the *Baltic Sea Regional Investment Plans* that are being prepared as a part of the *ENTSO-E Ten-Year-Network-Development-Plan* (hereinafter the TYNDP) process. The Regional investment plan for the Baltic Sea is expected to be published together with the other regional reports and TYNPD 2012 in the beginning of 2012. A status report on the *Baltic Sea Regional Projects* was published 1st March 2011. In this report, the status for Nordic projects are enumerated. They are:

- **Fenno-Skan 2**
  - Subsea cable manufacturing started autumn 2009
  - Convert station project expected to be completed Q4 2011
  - Commissioning is expected late 2011

- **South-West Link**
  - Investment decision taken by Board of Svenska Karftnät in 2005
  - Technical solution agreed to in 2008
  - Permit from authorities expected 2012 (northern and southern part) and 2014 (western part)
  - Commissioning expected to start 2014 (northern and southern part) and 2016 (western part)

- **Skagerrak IV**
  - All major approvals from authorities granted by end of 2010
  - Construction work expected to start in Denmark in the beginning of 2011 and in Norway late 2011
  - Commissioning end of 2014

- **Ørskog-Fardal**
  - First concession applied in 2007
  - Expected final concession in 2011
  - Commissioning at the earliest in 2015

- **EstLink 2**
  - Currently at the beginning of construction/manufacturing phase
  - Commissioning beginning of 2014.

- **The Arctic Region**
  - Application for concession sent in 2009 and 2010
  - Start of constructing in 2012/2013
  - Commissioning 2014/2015 (Ofoten-Balsfjord) and 2016 (Balsfjord-Hammerfest)

- **NordBalt**
  - Commissioning expected 2015-2016.

The plan will be based on common ENTSO-E scenarios with regional sensitivity cases. The methodology follows the TYNDP process. This process, which was described in a workshop that took place in Brussels in early 2011, put at the core the three pillars of the EU Energy Policy: namely the security of supply, sustainability and competitiveness.

During 2011 further analyses will be performed, applying both market model and network analyses tools. In late autumn/early winter 2011 there might be a possible consultation workshop for stakeholders.

Conclusions and recommendations

The EMG welcomes the TSOs preliminary report on the progress of developing a Nordic grid investment plan that will strengthen and develop the Nordic Electricity market. The EMG is looking forward to receiving a thorough Nordic grid and investment plan that emphasises the Nordic perspective, in due time before the next Ministerial meeting in 2012. The plan should also include connections to other European countries.

The EMG recommends that the Nordic TSOs are invited to present their Nordic investment plan to the Nordic Ministers at their next Ministerial meeting in 2012.

2B) Integration of more renewable energy in the Nordic power system

From the Copenhagen Declaration:

- *All Nordic countries have ambitious plans for the development of new renewable energy production. The integration of large amounts of fluctuating energy sources, such as wind power, yields new challenges for the Nordic power system. The Nordic electricity market shall be developed into a smart grid in order to handle this challenge. The Nordic TSOs have delivered a plan for system operations presupposing large amounts of renewable energy. The Nordic Ministers support this plan and ask that the TSOs as soon as possible implement the suggested actions. The Ministers ask the TSOs to deliver a status report on the implementation of this plan before the Ministerial meeting in Helsinki in 2011.*

On 31st August 2010 the ENTSOE-E published the report '*Impact of increased amounts of renewable energy on Nordic power system operations'.* This report describes a plan for handling the increasing amount of renewable energy in the Nordic power grid. With these planned actions, the Nordic TSOs are convinced that the Nordic system can be developed to integrate more renewable production without disturbing the system reliability. The TSOs will:

- Implement actions to mitigate the current weakening trend of the Nordic frequency quality.
- Develop harmonised Nordic technical requirements for the installation of renewable production units including requirements for the ability to deliver ancillary services.
- Contribute to the development of more physical flexibility in production and consumption which can react to price variations in the market.
- Contribute to the development of more flexible bids in all market segments including the balancing market and delivery of ancillary services.
- Develop a suitable and harmonised market design for balancing especially close to the operating hour.
- Develop an effective exchange of resources between different synchronous systems.
- Develop harmonised Nordic methods to ensure sufficient flexibility to handle the fluctuations in renewable production.
- Contribute to the development of improved forecasting procedures and tools for fluctuating production.
- Implement requirements for real time measurement of physical production.'

The status report *'Nordic Status Report on Integration of Renewable Energy in the Nordic Power System Operation'* gives a status on the action plan described above. This was submitted by the Nordic TSOs to the EMG 13th May 2011.

According to the status report, actions such as the creation of more detailed production plans, better control over the flow on HVDC cables and improved tools for consumption prognoses will be implemented. The need for short term balancing arrangements will depend on the level of wind power penetration in each country and the physical possibilities of the existing systems e.g. generation types and their ability to produce flexibly. Therefore balancing arrangements will not necessarily be harmonised.

The action point on developing harmonised Nordic technical requirements for the installation of renewable production units is under way. There is an ongoing process of developing a pilot networks code for Requirements for Grid Connection Application to all Generators by ENTSO-E. This code will become legally binding to all market participants after having gone through the Comitology process. In this work the Nordic TSOs will strive to have common positions. ENTSO-E network code will be defining certain technical issues to be regulated on national level and Nordic harmonisation of the different national technical requirements is a future task for Nordic TSOs.

The TSOs are working on methods to ensure sufficient flexibility (flexible bids and more bids in general) to handle the fluctuations in renewable production by including load in different ways into the balancing and reserve markets. This activity is partly on an informational and encouragement basis.

Development of an effective exchange of resources between different synchronous systems is currently being discussed among the Nordic TSOs with focus on sharing reserves and operational procedures. Cross-border balancing is also on the agenda of the European level electricity market development. The ongoing process to couple the Nordic and Continental intraday trade regions will create better possibilities for wind power producers to be balanced before the operating hour.

All TSOs are in the process of developing and improving forecasting procedures and tools for fluctuating production.

More online measurements of physical production are on the TSOs agenda. These measurements are important in updating the estimates for system load, and essential in forecasting. The load unpredictability is, in some areas, a bigger contribution to system imbalance than wind power. Online measurements of wind turbines and production in general have been a natural part of operational planning and strategy in Denmark since year 2000.

The TSOs are on schedule in the work to prepare for more fluctuating power production. In addition to operational issues, it is important that the development of the Nordic grid proceeds according to plan.

EMG conclusions and recommendation

The EMG welcomes the status report for the integration of renewable energy. The EMG underlines the importance of the work of integrating renewable energy into the Nordic power system.

The EMG is pleased to see a Nordic perspective being applied in both the planning and implementation of the action plan. The plan should be implemented as soon as possible, and the EMG asks for a report on the implementation in due time before the next Ministerial meeting in 2012.

Successful integration of renewables into the Nordic power system will require Nordic grid investments and planning. The renewable perspective must therefore be taken into consideration the development of the Nordic grid. It is crucial to recognise the connection and dependency between Nordic Grid investment and planning, and integration of renewable energy.

2C) Development of a common Nordic end user market

From the Copenhagen Declaration:

- *The development of a common Nordic end user market is a natural prolongation of the harmonisation of the Nordic en gross market for electricity. The Ministers have received an implementation plan from the Nordic regulators (NordREG) which describes this process. The Ministers are positive to this development and to the regulators' ambitious timeline of a common Nordic end user market by 2015. The Minsters emphasise the importance of seeing the implementation of a common Nordic end user market in connection with the development in the EU. The Ministers will await a status report on the implementation plan from NordREG before the next Ministerial meeting in Helsinki in 2011.*

In the plan *'Implementation plan for a Common Nordic Retail Market' (*June 2010), NordREG outlines their strategy and key elements in order to establish a common Nordic end user market. A common Nordic end user market is defined as *'The market model for the common end user market that shall provide solutions to allow all users to take part in the common market'*.

The report *'NordREG status report to EMG on the project Nordic end user market'* was submitted by NordREG to the EMG 13th May 2011.

During the winter and spring of 2010/2011 NordREG entered into an intense management phase for the development of a Nordic end user market. One person has been employed on a 3 year contract to work full time on the end user market. His work is financed by the Nordic Council of Ministers and he is located at Nordic Energy Research's office in Oslo. Together with stakeholders NorREG have worked to find the best way to design the target market model for a future Nordic end user market. As of now, more than 100 stakeholders are actively participating in the project. The organisation of the project that was envisaged in the report 'Organisation of further work' (NordREG report 9/2010) has been set up. The project consists of five task forces, namely:

I) *Market Rule*
II) *Customer Empowerment*
III) *Business Processes*
IV) *Structures of Network Tariffs*
V) *Metering*

Four out of the five task forces have started their work. NordREG have decided not to establish Task force IV after all.

The project has thus far contracted only one external consultant, namely for the task of the future billing regime. It is, however, anticipated that commencing in the end of 2011/beginning of 2012, the different studies will become more detailed, and the need for expert assistance in the form of external consultants will increase.

In accordance with the status report, NordREG published two reports for public consultation late May 2011. These are *'Consideration of alternative billing regimes for the Common Nordic End-user Market'* and *'Rights and obligations of distributed system operators (hereinafter DSOs) and suppliers in the*

customer interface'. NordREG received more than 100 answers to both these public consultations, which shows a high stakeholder commitment. However, in both consultations, only one stakeholder represents consumer interests, which is not considered appropriate as the end user market deals with consumer issues.

Concerning the future billing regime, NordREG has commissioned an cost benefit analysis in order to evaluate costs and benefits of changes in billing regimes. The cost benefit analysis will be completed in December 2011. NordREG realizes that it is difficult to define exact monetary benefits of different billing alternatives, but at least qualitative benefits will be evaluated.

Together these reports make up the basis for the future harmonised end user market within the Nordic region.

Based on the report on rights and obligations for suppliers and DSOs, NordREG recommends a so called supplier centric model. This implies that most of the consumer contact with the market should take place via the supplier, not the DSO. The customers should be able to contact their DSO in DSO related issues. The idea is that the suppliers are active in the market, and hence have incentives to be proactive in customer relations.

NordREG will also review the need to regulate minimum content of the electricity bill. When a common Nordic market is introduced, there will be an increased need for coordinated information exchange and also increased need for transparency and information for consumers. This work will start when NordREG has published recommendations for the future model for information exchange and the future biling regime has been decided.

Risk management with combined billing is an important issues in the future Nordic market. The issues on how billing and debt collection for DSOs and suppliers are handled will be of great importance for the competition. Therefore NordREG will launch a study to look into what appropriate measures that could be taken to ensure that credit risk is allocated appropriately between suppliers and DSOs. The goal of the study is to find a way to introduce combined billing without increasing entry barriers for suppliers.

NordREG do not recommend any harmonisation of network tariff types or levels, but recognise a need to look into how to organise the collection of taxes in a harmonised way.

Concerning information exchange and data hubs, NordREG recognise the need to decide on how to handle the information exchange in the common Nordic retail market, but will await the report currently being produced by the Business Process Task Force before making any recommendation s on these issues.

Regarding whether customers should have one or two contracts, NordREG will await the report that currently is being produced by the Customer Empowerment Task Force before making recommendations on the question whether there should be a single contract between the consumer and the supplier that also contains the DSOs responsibilities, or if there should be two separate contracts.

Possible harmonisation of parts of the standard agreements is currently being analysed in the Customer Empowerment Task Force. NordREG will await the report from this Task Force before making any recommendations regarding this issue.

Concerning Energinet.dk's decision to adopt an observational role in the work with the Nordic balance settlement project (NBS), the Nordic TSOs have in a letter to NordREG of 20.07.2011 explained that there will be close contact between Energinet.dk's datahub project and the NBS project to ensure the best possible coordination of market design and associated technical and organisational solutions, and that it is not unlikely that Energinet.dk will join the NBS project later. The TSOs emphasise that all four Nordic TSOs are committed to facilitate a harmonised Nordic balance settlement.

The EMG welcomes NordREG's status report and is pleased with the process of developing a common Nordic end user market. The EMG supports NordREG's supplier centric model, and the ambitious time schedule of implementation.

The EMG recommends that national regulators stay in close dialogue with national authorities in order to secure an efficient progress in the development of a common Nordic end user market, inter alia the billing and contractual issues.

The EMG asks NordREG for a status report on the progress of the work towards a common end user market in due time before the next meeting of the Nordic Council of Ministers for Energy in 2012.

2D) Strengthening of the Nordic electricity market based on the price peaks experiences during winter 2009/2010

From the Copenhagen Declaration:

- *During the winter of 2009/2010 the Nordic power market experienced high prices due to especially cold and dry winter weather and Swedish nuclear power plants being out of operation. The Energy ministers met to discuss the situation in Sevilla in the beginning of 2010, and again at the Ministerial meeting in Copenhagen. It was concluded that the market did function and responded as it should in the winter of 2009/2010 by increasing prices as a result of a high demand and low supply. The Ministers, however, call attention to the need for the Nordic countries to act in order to avoid a similar situation recurring in the coming winters. The Nordic regulators have analysed the situation of winter 2009/2010 and have made several suggestions on how a similar situation can be prevented in the future. The Energy minsters support the action plan the regulators have submitted and ask that these actions are implemented as soon as possible. NordREG are asked to provide a status report on this plan to the EMG before the next Ministerial meeting in Helsinki 2011.*

In January 2011 NordREG published a final report on the price peaks in the Nordic wholesale market during winter 2009/2010. This report states:

'It is in NordREG's view that the Nordic electricity market is a liquid and transparent market. An indicator is the fact that about 70 % of power consumed in the Nordic countries is traded over Nord Pool Spot. Even in extreme situations during the winter 2009/2010 there was always a market clearing price. However, as illustrated by Gaia's (Consultant) analyses of the price peaks during the winter, there are situations where the present incentive structure on the market may not be comprehensive enough to ensure that all resources are bid into the market, especially in situations when there is a scarcity of supply in relation to demand. On the basis of the Gaia Consulting study, a stakeholder workshop 12th October 2010 and feedback from the EMG, NordREG have decided to prepare an action plan. The actions proposed consist of short, medium and long term actions. EMG has supported the preliminary recommendations and has asked NordREG to follow up and implement the proposed measures as soon as possible to avoid similar incidents in the future.'

On 19th May 2011 NordREG submitted to the EMG a status report on the implementation of the action plan: *'Measures undertaken by NordREG to improve handling of price peaks in the Nordic wholesale electricity market – status report to EMG'.*

The NordREG action plan includes the following action points to improve handling of price peaks in the Nordic wholesale market:

I) Increased transparency in the market
II) Review of the capacity calculation and allocation methods of the transmission lines
III) Examine and propose measures to activate demand flexibility
IV) Review of the functioning and implications of the peak load mechanism

NordREG have also suggested to Nord Pool Spot (hereinafter the NPS) that one establishes a new body which oversees and consults the NPS on issues related to market expansions and the regulatory framework. Further, the Swedish regulator has proposed special arrangements relating to the co-ownership of the nuclear plants, including a special independent observer in the boards of these companies, in order to avoid any form of collusion. Similarly establishment of ethical codes for the industry in general could promote trust among the general public on the ethical behaviour of the industry.

I) Increased transparency in the market

Under this action point it shall be assessed whether the area bidding curves at NPS could be publicised in order to enhance transparency in the market and to enable all the market participants to have access to trading data. Transparency in the bid data may enhance confidence in market developments. It should, however, be taken into consideration whether such publication will have any implications for the competitiveness of the market. This issue was on the agenda of the first meeting of the Regulatory Council. NordREG inquired to the NPS about their view regarding transparency in general and the publication of area bidding curves in particular. The NPS underlined that there is a continuous internal discussion on the balance between providing extending transparency without revealing information about individual actors' trading strategies and marginal costs. Too high transparency could move the market towards bilateral trading. Any publication of information should also be in line with competition laws.

Last autumn, NPS finalised an evaluation of the level of transparency leading to the decision to publish bidding curves related to the system price. The Customer Advisory Board approved this decision. At the moment, the board finds that they have struck a reasonable balance between the general need for transparency on the one hand, and the need for actors to conceal information on trading strategies and marginal costs on the other. The National regulatory authority will be able to access information provided by NPS to the Customer Advisory Board. The possibility of providing detailed trading data for research purposes was also discussed. NPS is not able to provide this information without breaking the non-disclosure terms of the membership.

In order to further develop the Nordic electricity market and secure cross-border cooperation while continuing the integration of the electricity market within the NPS area, NordREG in December 2010 proposed the establishment of *Nord Pool Spot Regulatory Council* made up of high level representatives from all relevant regulators to the area. The first meeting in the Council took place on 8th April 2011. The initiative was welcomed by NPS.

II) Review of the capacity calculation and allocation methods of the transmission lines

A draft note on the capacity calculation and allocation methodology for the day-ahead timeframe, increased transparency regarding countertrade and use of reserves as well as the delimitation of bidding areas and maintenance planning of the transmission network infrastructure was made in summer 2011. The draft takes into account the Capacity Allocation and Congestion Management Framework Guidelines which is under preparation by Agency for the Cooperation of Energy Regulators (ACER), as well as the restrictions posed by the market coupling between the Nordic and the continental markets.

III) Examine and proposed measures to activate demand flexibility

It has been decided to undertake a consultancy study on this issue. In the invitation to tender the scope of the study is presented as the following:

- Analyse and propose possible improvements in the way flexible demand can be offered into the Elspot market.
- Identify the necessary incentives, arrangements and date needed by suppliers on behalf of their customers, including large customers trading on their own behalf. This in order to promote flexible bids on the exchange. Quantify the obtainable impact using the described means to activate demand flexibility.
- Include a detailed description on how the proposed actions would impact different market players' position.
- Describe the possible impacts of the defined actions on the competitive situation in the Nordic market.

Gaia Consultancy has been chosen to carry out the consultancy study. As a part of it, the consultant will implement a survey sent to Nord Pool participants and other parties whose input is deemed essential for the study. A steering group for the project is set up with representatives from the regulators. The first meeting in the group took place in June 2011. A final report on demand flexibility was finished 15th September 2011. Based on the outcome of the Gaia study, NordREG will compose a list of proposed tangible actions in order to promote demand flexibility.

IV) Review of the functioning and implications of the peak load mechanism

Swedish and Finnish peak load reserves are activated if market balance is not achieved with commercial bids on the Elspot market. In other words, when there are not enough bids to meet the demand. Finnish legislation defines how the process of Finnish peak load reserves operates. In Sweden the legislation is more like a framework. The intention is to phase out the reserves by 2020. During that time there will be a shift toward increasing the proportion of demand reserves and a decreasing proportion if production reserves.

In 2007 Nordel published Guidelines for Transitional Peak Load Arrangements. The EMG then asked NordREG to comment on the guidelines. NordREG delivered an initial report in spring 2009 and a second report in March 2010. As the regulator of NPS, the Water Resources and Energy Directorate (hereinafter the NVE) in December 2008 approved a proposal from NPS on how reserves in Finland and Sweden could be bid into the Elspot market. The proposal was based on an agreement between Svensk Kraftnät and Fingrid, implying that peak load reserves should be bid into the market at a price marginally above the highest commercial bid.

NVE's approval refers to a letter from NPS market surveillance saying that the proposed arrangement could give both larger and smaller market players the possibility to manipulate the Elspot price in strained situations. Market surveillance however, stated that the threat of sanctions would decrease the risk of this happening. In its approval, NVE stated that it could follow implications on the market, and asked NPS to report when the reserves were used, together with an evaluation from the NPS Market surveillance on any possible implications for the market price. NVE stated that the effects of the handling of the peak load reserve should be reconsidered if the arrangements had a significant effect or negative influence on the price formation.

During the winter of 2009/2010 the peak load reserves (PLR) were activated several times. In its report to EMG march 2010, NordREG stated, among other things, that:

- When peak load arrangements are introduced they should be designed to minimise distorting effects on price formation in the Nordic electricity market.
- Activation of PLR should be monitored by Nord Pool Market Surveillance as well as by relevant regulators and transparency reported.

In October 2010 the NPS sent a letter to NVE. The letter concluded with the following statements and proposals:

'The handling of peak load reserves today has several weaknesses. Firstly, it creates incentives for both consumers and producers to change their behaviour in order to influence the price that the peak load reserves are offered at. Secondly, it may draw significant volumes from the market thereby increasing the risk of supply will not meet demand. Further, the peak load reserves are offered at a price that is difficult to predict for market participants, and the price does not reflect the cost of making the resources available to the market.

These are severe weaknesses, and it is therefore of highest importance that the handling of the peak load reserves is amended as soon as possible. It is desirable that the peak load reserves are made available to the market also in the future in order to ensure efficient use of the resources and reduce the risk of curtailment.

It is recommended that consumption reduction is offered to the market at all times through a process set by the owners of the capacity. Production units should be offered to the market only in order to avoid curtailment, at prices set by total production costs.'

The status on handling of peak load reserves was discussed at the meeting in the NPS regulatory Council. In the discussion it was reported from the NPS that given national law, Svenska Kraftnät and Fingrid have difficulties with parts of the NPS proposal. NPS is in dialogue with Svenska Kraftnät and Fingrid regarding the matter. NVE underlined in the meeting that NPS is obliged to evaluate the use of peak load reserves and that there might be a need for a change of rules. NordREG must also conduct an evaluation of the current arrangements. NordREG initiated a meeting with the NPS and interested TSOs in June 2011 to identify the different views.

a) New Finnish and Swedish peak load regulations

It can be noted that in Finland the new act on peak load reserves for securing the balance between generation and load came into effect 1st March 2011. The act states that peak load reserves capacity should be offered to the market with a price which may not be below the cost of condensing power using heavy fuel oils including the costs of emissions rights. On the other hand, in the preamble of the bill it is mentioned that the influence of the Finnish peak load reserves on market prices should be limited as much as possible. Furthermore, the Finnish legislation requires that the peak load reserves could be used for security of supply reasons, but not to reduce market prices. In line with this, Energy Market Authority in Finland has approved the rules for operating peak load reserves, based on Fingrid's proposal on 7th April 2001. The rules will be applied until 30th June 2013. The rules state that when the owner of the peak load reserves capacity makes a bid of the peak load reserves capacity to the NPS, the bid may contain only the amount of offered capacity but not any price information.

It can also be noted that the Swedish law on peak load reserves was prolonged and changed in 2010. The purpose of this is to incentivise the market players to make the reserves unnecessary. The reserves shall, according to the law, be phased out by 2020. Furthermore, the proportion of consumption reduction shall increase and production reserves decrease. As a consequence of these

legal changes, as well as the proposal by Nord Pool Spot, Svenska Kraftnät has decided to change its rules for the use of consumption reduction included in the Swedish peak load reserves. Beginning this coming winter (2011/2012), consumption reduction bids included in the reserve will be bid into the spot market whenever the owner finds it appropriate. If not activated, they will be available to the regulation power market. Alternatively, there are no changes in the activation of production resources.

EMG conclusions and recommendation

The EMG welcomes NordREG's status report, and supports NordREG'S work on improving handling of price peaks in the Nordic wholesale market.

EMG asks that NordREG report to the EMG on the progress of the action plan in due time before the next meeting of the Nordic Council of Ministers for Energy in 2012.

2E) Functioning of the electricity market - communication from Maud Olofsson to the other Energy ministers

During the last couple of winters, the Nordic electricity market has experiences high prices due to especially cold and dry winter weather and Swedish nuclear power plants being out of operation. The market did however respond as it was supposed to do, with increasing prices due to increased demand and reduced supply.

Some consumers have expressed discontent with the high prices, and this has been subjected to discussion between the Nordic Energy minsters several times.

Consumer discontent is also the subject of the Swedish Minister for Enterprise and Energy, Maud Olofssons', communication to her Nordic colleagues dated 26th May 2011.

In her letter of 26.05.2011, Olofsson says that although much of the market functions well, there are still areas that could be improved. Elements such as efficient use of production resources, the handling of bottlenecks and the need for grid investments, have been the subject of many previous discussions. It is, however, time to bring up and discuss the consumers' position in the market. Based on the public debate in Sweden, Olofsson notes that many consumers express scepticism and distrust in the market. It is therefore important that the consumers have a clear and evident comprehension of the benefit of a common Nordic electricity market.

Olofsson finishes the letter by suggesting a common initiative and action between the Nordic Energy minsters that will strengthen the position of the consumers in the Nordic electricity market. The Danish Energy and climateminister, Lykke Friis, responded to this letter 9 June and the Norwegian Minister of Petroleum and Energy, Ola Borten Moe, answered on the 29th of June. Lykke Friis emphasises the importance of consumers regarding the common Nordic electricity market as beneficial, and strongly supports the suggestion to commission a report that can show consumers how the market functions. Ola Borten Moe stresses the importance of investments in transmission lines, the realisation of the common Nordic end user market and agrees that it can be important to assign a report that shows how the Nordic market functions with special emphasis on Nordic rules and institutions, common issues and measures that can further improve the cooperation.

EMG conclusions and recommendations

The EMG recommends commissioning a report providing a general overview of how the Nordic electricity market functions. The report will identify common issues and measures that can further improve cooperation. A key starting point for such a report will be important issues such as a secure electricity supply and a well functioning electricity market, which are especially relevant from a consumer perspective. The report should concentrate on how the Nordic rules and institutions in the market function.