



NordREG
Nordic Energy Regulators

NordREG's status report

- update

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Preface

The aim of this yearly status report is to present the work undertaken by the Nordic energy regulators (NordREG) during past 12 months in the areas of wholesale electricity markets, retail markets, network regulation and demand flexibility.

European cooperation and the drive towards a well functioning internal European energy has a great significance for NordREG. The third energy package including network codes and guidelines shall be implemented in the European and Nordic electricity market. The European energy regulators play a mayor role in this process. NordREG is an important regional plattform for the Nordic energy regulators and thereby NordREG's work related to wholesale market has focused on the specific questions of regional interest following from the implementation of network codes and guidelines.

Energy customers are indeed the central focus of a well functioning electricity market. NordREG has also continued the work relating to the establishment of a common Nordic retail market for electricity, which has been a priority for NordREG for several years. Accordingly, NordREG's main objective has been to minimize the regulatory and technical obstacles for suppliers that are willing to operate in all Nordic countries.

The role of the transmission and distribution system operators and the way networks are regulated are key areas for the energy regulators. NordREG's attention to network regulation in general and tariffs in particular has continued with sharing of regulatory experiences and dialog with the stakeholders.

The development towards an electricity supply increasingly based on renewables causes market challenges as well as tecnical challenges to the electricity system. NordREG has therefore explored the concept of demand flexibility during past years. Recently, demand flexibility has also attracted growing attention at the European arena, and has been singled out as one of the most promising tools to deal with the RES-challenges. Consequently NordREG has focused on exploring the potential of demand response, to strengthen a common understanding of the role that demand flexibility could play in the Nordic electricity market in the future between regulators and stakeholders.

Oslo, 30 June 2017,



Ove Flataker,

Chair of NordREG

Executive summary

In general NordREG's work is increasingly influenced by the development on the European arena. The European Union has placed significant weight on the establishment of a common harmonised European electricity market. The importance of the goal is underlined by the Energy Union Package from the European Commission in February 2015. Furthermore, as a step towards implementing the Energy Union strategy European Commission published in July 2015 a so-called Summer Package, which included proposals for a 'new deal' for energy consumers and redesign of electricity market. In 2017, NordREG has devoted a lot of time and resources in following the Winter-package – The European Commission's legislative proposal Clean Energy for All that will have major influence on the Nordic energy market.

NordREG's work is, and has been, highly influenced by the development of the framework guidelines and network codes that are underway with specific demands etc. for the market, the market participants and regulators among others. The development emphasizes the value of a cooperative approach in dealing with the general trends and challenges.

Retail market development

The Retail Market WG provides an important platform for information exchange and sharing of best practices on a Nordic level. The working group also offers an opportunity to present Nordic cases on the EU-arena. The Nordic countries have made substantial changes to the national electricity markets in order to have a truly common Nordic electricity market such as supplier centric market processes and the development of data-hubs.

During the last year, the focus of the working group has been on mapping the roles and responsibilities for the DSOs and TSOs regarding information exchange, demand response and energy services. The working group has also examined the conditions under which the suppliers and ESCOs act in the Nordic market. The findings were that the implementation of a supplier centric model and the creation of a national datahub would make it substantially easier to act as a competitive stakeholder in the Nordic electricity market.

The European Commission's legislative proposal Clean Energy for all published in November 2016 will affect the Retail Markets in the Nordic countries. The Retail Market WG follows the development closely in order to coordinate Nordic standpoints where it is beneficial.

Wholesale and transmission

The Wholesale and Transmission WG was established in 2015 in order to analyse how proposals from the EU fit into the Nordic market model, or to address special requirements or to make proposals to influence network codes and guidelines. The development in the Wholesale and Transmission WG thereby reflects the ever-increasing importance of the international – and especially the European – developments have for the Nordic region and wholesale market.

Apart from this recent role, the Wholesale and Transmission WG also acts as an umbrella for various specialised task forces, each dealing with important questions on the prioritised areas of NordREG's work in the wholesale and transmission field.

Network regulation

Focus this year is on incentives to reduce network losses and monitoring the impact of the economic regulation in the Nordic countries. A workshop on the incentives to reduce network losses in the Nordic countries took place in Stockholm 27 April 2017. The workshop's main goal was to share experiences on how to provide incentives for reducing losses, both in regards to current and future regulation. The workshop also included practical examples of how losses are reduced by the network companies. A workshop on monitoring the impact of the economic regulation in the Nordic countries will take place in Helsinki 9 November 2017. The purpose of the workshop is to exchange experiences across the Nordic countries about how the NRAs monitor the impact of their economic regulation. The Network Regulation WG will also investigate, if there are areas in the Winter package, where it is deemed beneficial or necessary to coordinate common Nordic positions.

Flexibility

Demand side flexibility has been given increasing attention at the European arena, and it has been a special focus area of NordREG. The working group on demand flexibility has continued to monitor ongoing discussions and initiatives regarding flexibility at the European arena and seek to coordinate common Nordic positions where beneficial.

In May 2017, NordREG published a paper presenting the Demand Flexibility working group's views on the European Commission's proposals on aggregation services and demand response, as seen in the legislative package "Clean Energy for All Europeans". By this, NordREG aims at assisting Member States and EU institutions in improving the proposals for a revised Electricity Directive, to better reach the important objectives of efficient demand response for all Europeans.

Table of content

1	Introduction	8
2	Retail Market.....	9
2.1	Work done.....	10
2.1.1	Conditions for cross-border investigations	10
2.1.2	Status report Retail Markets 2016	10
2.1.3	Coordination and information exchange	10
2.1.4	Status of implementation of datahubs	10
3	Wholesale and Transmission.....	16
3.1	Work done.....	17
3.1.1	Energy Regulators regional Forum.....	17
3.1.2	Work related to the implementation of the CACM guideline.....	17
3.1.3	Work related to the FCA guideline.....	18
3.1.4	Work regarding analysis of the transmission capacity between the Nordic region and Germany 19	
3.1.5	Work on Nordic Balance Settlement.....	20
3.1.6	Work related to the TSOs challenge and solutions reports	20
3.1.7	Work related to the Electricity Balance GL	20
3.1.8	Work on System operation guideline and Emergency and Restoration network code 20	
3.1.9	Work on connection codes.....	20
3.1.10	Work on EU-developments and the Clean Energy package.....	20
4	Network regulation	22
4.1	Work done last year	22
4.1.1	Workshop on regulatory methods in the Nordics countries.....	22
4.1.2	Follow-up on the seminar “Load tariffs in the Nordic countries”	23
4.2	Work to be done this year.....	23
4.2.1	Workshop on incentives to reduce network losses in the Nordic countries	23
4.2.2	Workshop on monitoring the impact of the economic regulation in the Nordic countries 24	
4.2.3	General exchange of experiences regarding regulation and tariffs.....	24
4.2.4	Discussions of the Winter package (the European Commission’s proposal on Clean Energy) 24	
5	Demand Flexibility.....	25

5.1	Work done.....	25
5.1.1	Status report on regulatory aspects of demand side flexibility	25
5.1.2	Workshop between Nordic regulators and TSOs on demand flexibility.....	25
5.1.3	Position paper on aggregation services and demand response	25

1 Introduction

NordREG, the regional cooperation between Nordic energy regulators, has for several years been devoted to the work of developing the different regulatory frameworks and fostering cooperation between stakeholders in the Nordic electricity market to make it one of the most well functioning electricity markets in the world. Looking at the developments that have taken place for the last ten years, NordREG's work has indeed created a momentum of change in all Nordic countries. The work is not only in line with but is also influencing and supporting the developments at the European level, in particular as a good example of a fruitful regional initiative in order to identify and remove barriers towards a harmonized electricity market.

The work towards a single Nordic electricity market is based on NordREG's vision that all Nordic electricity customers should have the possibility to choose suppliers and benefit from efficient and competitive prices and reliable supply through the Nordic and European electricity market.

All activities undertaken by NordREG can be found in the Working Program of 2016 and 2017 respectively. During 2016/2017 NordREG has four active working groups:

- Retail Market Working Group
- Wholesale- and transmission Working Group
- Network regulation Working Group
- Ad hoc Flexibility Working Group



The following chapters will describe the work done within the four groups in the time period from July 2016 to June 2017.

2 Retail Market

This chapter will describe the work NordREG has done within the Retail Market WG and the current state of affairs nationally looking specifically at the development of data hubs. This area has been identified by the working group as a crucial base for a well-functioning electricity retail market.

The Retail Market WG provides an important platform for information exchange and sharing of best practices between the regulators. The working group has also had several opportunities to present Nordic cases to other European regulators, European institutions and other stakeholders on the EU-arena. Presenting best practice and knowledge of the Nordic specificities have been considered a priority since new energy legislation has been proposed by the European Commission.

In the light of NordREG's earlier recommendations, the Nordic countries have lately made substantial changes to the national electricity markets in order to have a truly common Nordic electricity market such as supplier centric market processes and the development of models for information exchange (data-hubs).

The main objective for the integration of retail markets in the Nordic region is to minimize the regulatory and technical obstacles for suppliers that are willing to operate in all Nordic countries. The market integration would thus provide a harmonized framework for the suppliers and energy service companies (ESCO) who wants to do business in the whole Nordic region and in such, all retail customers would be eligible to take part in the Nordic electricity market. Also the framework of customer empowerment should be adequately secured so that the customer can buy electricity from any supplier and/or ESCO with confidence.

NordREG has recommended that the Nordic retail market should be based on a supplier centric model that makes it easier to be a customer in the electricity market since the supplier is the main point of contact for the customer. The model also aims to facilitate electricity suppliers to be active in several countries and thus promote competition overall.

NordREG has identified two areas of central importance for the future work that allows for a competitive electricity markets for the benefit of the customer. The areas are information exchange and the need to highlight good Nordic examples in international forums where applicable.

NordREG finds that the key processes¹ have been harmonized at Nordic level and awaits implementation nationally. Nordic co-operation and exchange of information in this implementation process is of great importance especially regarding the information exchange systems – datahubs.

During the last year, between August 2016 to June 2017 the working group has produced two reports, which are presented in short below. One of the reports, *Status Report Retail Markets*, has been published. The other report, *Conditions for cross-border investigations*, is a good mapping exercise of our legal systems that will be of great internal value in our future work. The working group has coordinated Nordic standpoints regarding the European Commission's legislative proposal *Clean Energy for All*.

¹Switching, moving and billing

2.1 Work done

2.1.1 Conditions for cross-border investigations

The reports focused on the opportunities and needs arising from a regulatory perspective, with regards to investigating cases involving cross-border suppliers in a harmonized Nordic retail market. As a first step, this report has gathered information about the respective regulators' roles and responsibilities with regards to regulating the competitive side of the electricity market. The focus of the report is on the competitive part of the electricity market, as this is the main area of harmonization for the Nordic retail market now. The objective of Nordic harmonization has been to lower entry barriers for competitive suppliers, enabling them to act in all Nordic markets. The report was not published but is a good mapping exercise that will be used internally.

2.1.2 Status report Retail Markets 2016

The report gives an overview over the current situation for the electricity customers. We look at the processes that the customers meet the market through (switching, contracts, billing and pricing). We describe NordREG's standpoints on each process, describe the national processes and show national data. We highlight PCT's and show national statistics on complaints and queries and data from the ECs Consumer market Scoreboard that was published in September 2016. The report was published in March 2017.

2.1.3 Coordination and information exchange

When new legislation on EU-level is developed there is a need for cooperation and information exchange between the members of NordREG, due to the fact that this can have implications for the Nordic retail markets. The working group has focused on coordination of Nordic standpoints in the development of CEER white papers about the European Commission's legislative proposal *Clean Energy for all*. The WG has exchanged information and in many issues been able to present coordinated standpoints in CEER. This work has been successful and will continue when the whitepapers are approved and the negotiations regarding the legislative proposal goes into a new face.

2.1.4 Status of implementation of datahubs

Current status

Today, all Nordic countries are moving towards the implementation of data hubs for electricity meter data and market processes. Governments and regulators in the Nordic countries have given the transmission system operators (TSOs) in Denmark, Norway, Finland and Sweden the responsibility of introducing a data hub for each of the electricity retail markets. As shown in the table below, Denmark has recently implemented a second version of its data hub. Norway is underway in development of Elhub. Finland will roll out its data hub in 2019. Sweden estimates that the data hub could be operational in Q4 2020.

	Norway	Denmark	Finland	Sweden
Status of datahub implementation	Elhub go-live is postponed to 2018. Statnett will provide a new Go-live date in June 2017.	There is a datahub. It has been in function since 2013. A version 2.0 was launched the 1 st of April 2016.	In use on 1st August 2019.	Estimated to be operational in Q4 2020.

Governance of Elhub projects

Norway

NVE is in charge of the Elhub project at the superior level while Statnett is responsible for the operational implementation. NVE makes all binding decisions regarding Elhub for Statnett, DSOs, suppliers and third party service providers. Statnett provides non-binding guidelines. By requirement from NVE, Statnett has established a stakeholder council for the project. The council consists of Representatives from DSOs and suppliers and NVE participates as an observer. The council has been used to provide the industry with updates on the progress of the project from Statnett and NVE and invite to discussions of issues raised by any of the parties. NVE has also required that Statnett apply an external quality assurance. Since the beginning of 2014 there has been made three QA revisions of the project that has delivered recommendations for improvement of the project regarding project management, risk management, cost control, security, migration, architecture, contract, change request handling, stakeholder interaction, resources/competence, progress, goals/mandate of the project and realisation of benefits.

Denmark

The Danish TSO, Energinet.dk, owns and operates the data hub. Energinet.dk has a close corporation with stakeholders and authorities, DERA amongst them. DERA approves methods within Energinet.dk's market regulations. With companies and stakeholders a key area of corporation is the assurance of the quality of data. The datahub ensures a level playing field for all electricity suppliers through:

- Standardized processes for registration and distribution of market data.
- Low entry barriers for new market participants.
- One point of entry for change of supplier.
- Clear definition of DSO and electricity supplier, and separation of roles.

The datahub protects data by providing a secure environment and a secure and traceable access process to data. Data in the datahub concern e.g. meter readings and master data. Further, the datahub features services such as market support, reporting, monitoring and statistics. The datahub registers e.g. change of supplier and a consumer's change of address.

Finland

Fingrid Oyj (TSO) is responsible for developing the Datahub and is in charge of the project. The Ministry of Employment and the Economy prepares necessary legislation. Preparation is just about to start and also Energy Authority will participate the work as one party of a background group.

Fingrid has established 4 different working groups for industry cooperation. An implementation working group is working with issues related to implementation of the datahub. The council monitors the progress of the project, contributes to the achievement of the project objectives, increases stakeholders' knowledge of the project and gives views in matters relating to industry and stakeholders. There are also sub working groups concentrating on DSO processes, supplier processes and technical issues.

The process is still in a procurement phase and the industry is making the required preparations.

Sweden

Svenska Kraftnät (SvK) the Swedish TSO is responsible for building, implementing and running the data hub. They will also probably be responsible for working out details in the user-contract, compiling a handbook and other such detailed requirements. Ei is responsible for producing the overall regulatory framework that is required for giving the data hub a place in the electricity market. The legislative changes that Ei recommends must be approved by the government and the parliament before they can be introduced. Ei will be responsible for issuing any secondary regulation needed. During the current process in which Ei and SvK analyse what legislative changes that are needed and specify the data hub processes etc. SvK is working closely with stakeholders in different working groups in order to ensure stakeholder involvement. Ei and SvK have also set up a joint high-level stakeholder reference group (including DSOs, suppliers, ESCOs, other agencies, Swedenergy and customer organisations) to allow the stakeholders to view and discuss Ei's and SvK's parallel projects at the same time. Ei has also set up three stakeholder reference groups to cover the regulatory changes needed for implementing a supplier centric market model parallel with the data hub implementation. There is a close cooperation between SvK and Ei during this process.

Functionalities in Nordic hubs

	Norway	Denmark	Finland	Sweden
Meter point management	Yes. DSO provides the data.	Yes	Yes. DSO provides the data.	Yes. DSO provides the data.
Customer data management	Yes. The supplier is responsible for updating the customer information.	Yes	Yes. Supplier is responsible for updating the customer information.	Yes. The supplier will be responsible for updating the customer information.
Customer moving and switching	Yes	Yes	Yes. When providing the data on a new supply contract, it doesn't need to be informed whether it's due to moving or switching, datahub validates it automatically.	Yes, these processes will be part of the hub.
Contract management	Includes contract data for start and end of supply, but no data on supply prices. Elhub does not notify suppliers of fees for cancellation of fixed price contracts.	The datahub saves the data of communication between the supplier and the DSO. The datahub has no legal authority to store data concerning the contract between the supplier and the customer.	Supplier provides information on new supply contracts as well as updates them. Datahub automatically terminates the previous rolling contract once a new contract is registered into Datahub and communicates it to the previous contract party. Datahub includes ending dates for fixed time contracts, but not possible contractual penalties for a breach of contract. In Datahub a valid fixed time contract prevents making a new supply contract in cases where the same customers are in question. DSO confirms new network contracts and updates them.	Suppliers should register information on customers supply contract (end date and if there is a fee for ending the contract early). The datahub will not contain any physical contracts these will be handled outside.
Forwarding service requests from supplier to DSO	No	Yes	Yes, and vice versa.	Yes
Meter value management	Yes. DSOs are responsible for data quality.	Yes	Yes. DSO or a service provider is responsible for providing meter values. DSO is responsible for meter equipment and data quality. Meter values will be stored for 6 years.	Yes

	Norway	Denmark	Finland	Sweden
Third party access to metering data	Yes	Yes	Yes	Yes
Provides settlement data to NBS	Yes	No	Yes	Yes
Market monitoring	Yes	Yes, to a limited extent.	Yes	Yes
Correction settlement	Yes	Yes	Yes	Yes
Compiling statistics	Yes	Yes	Yes, that has been planned (no details yet).	Compiling information for Statistics Sweden etc.
Billing	Combined billing has not yet been decided in Norway, so this functionality has not been included in the first version of Elhub. It will be possible to include the functionality at a later stage (probably closer to 2019).	In accordance with supplier centric model the bill from the DSO and the bill from the supplier have merge into one bill. The supplier sends the bill to the consumer.	Mandatory combined billing has not been implemented in Finland. Datahub includes information on separate/combined billing as well as on billing channels (paper bill, E-billing, email etc.). DSOs and suppliers can submit more detailed billing data into the Datahub.	Ei will suggest to the Government that mandatory combined billing should be introduced.
Other functionalities	<ul style="list-style-type: none"> 1. Reversal of business processes (e.g. in case of faulty switches) 2. Security management system 3. Privacy management for customers incl. giving data access to other persons or companies 4. Security management system 	It sets up possibilities for third party access to the datahub. A consumer controls third party access to the datahub. The datahub handles data from prosumers.	<ul style="list-style-type: none"> 1. Disconnection and reconnection processes 2. Handling of customers' power of attorney 3. Cancellation (due to distance selling regulation) and contract 	<ul style="list-style-type: none"> 1. Central registration and/or handling of customers power of attorney 2. Supplier of last resort functionality for customers who's unable to get delivery.

Conclusions

Implementation of data hubs is clearly beneficial for the development of electricity retail markets. The current progress of data hub projects is therefore fully supported by NordREG. Through cooperation between TSOs, more steps may be taken towards harmonisation of business processes and use of common communication standards. NordREG will in the future focus its efforts on monitoring and encouraging this cooperation.

There are many similarities and comprehensive potential for Nordic harmonisation within common business processes, data formats and user interfaces in the data hubs. The cooperation between Nordic TSOs have contributed to harmonisation between the countries. The more similar the hub processes are, the easier it will be for suppliers to enter into and operate in several Nordic markets. The use of similar data formats and communication standards will enable suppliers to use similar IT-systems across the Nordic markets, and thereby reduces entry and operating costs across the markets. NordREG therefore encourages the further technical cooperation between Nordic TSOs.

There will be some differences between the data hub solutions, as is clear from the current progress in Norway and Denmark. These main differences arise from the market design and regulations for the energy sector in each country. However, as all Nordic countries have not implemented a new market design and regulations, it is too early to call the extent of these differences. The process of implementing data hubs will involve comprehensive changes to the market design through technical implementation and changes in the legal framework.

All Nordic countries do, however, have a significant support in the national processes from NordREG recommendations and take careful regard of Nordic harmonisation when implementing data hubs. The aim is to create solutions that are as similar as possible, promoting long-term harmonisation of the Nordic retail market. Regulators will continue to monitor the implementation of data hubs and encourage technical cooperation among TSOs towards this aim.

3 Wholesale and Transmission

This chapter describes the work done by NordREG within the Wholesale and Transmission WG and the current state of affairs.

The wholesale market is increasingly European, but joint Nordic efforts and approach are advantageous for all Nordic countries – not least when it comes to proactively influencing the European development and enhancing the Nordic market perspective.

The Wholesale and Transmission WG is the umbrella for NordREGs' work in the wholesale and transmission field – whether it takes place within the working group itself or in the various specialized task forces set up to deal with important questions on the prioritized areas in the wholesale and transmission field.

The main priorities governing the work in the wholesale & transmission area are:

The Wholesale and Transmission Working Group (W&T WG) has played an important role in analyzing many aspects of the wholesale markets functioning and development, discussion forum etc. The European market integration has grown in importance and is developing at a high pace, which underlines the need for a forum where topics of immediate importance can be discussed and decided. The work in the W&T WG reflects this development – both in priorities of the work to be done and in the way the working group operates.

The operating work structure in Wholesale and Transmission is illustrated below.



The main tasks for wholesale and transmission are:

- Establish an Energy Regulator Regional Forum (ERRF) where regional decisions on proposals can be coordinated in order to reach an agreement according to the energy network codes and guidelines.
- Continue the Nordic coordination related to the implementation of the of the CACM GL
Continue the coordination related to the implementation of the FCA GL on methodology for the assessment of the financial electricity market, measures to support the forward market in the case of insufficient hedging possibilities and decisions related to cross-zonal risk hedging opportunities.

- Monitor and capture important EU developments in order to propose appropriate NordREG initiatives /responses.
- Coordinate the implementation of the System Operation Guideline (SO), the Electricity Balancing (EB) GL and the Connection Codes. Follow/finish the work on the Nordic balance settlement project. The Board foresees regular focus on progress within each market to ensure a successful and timely introduction of NBS.

3.1 Work done

3.1.1 Energy Regulators regional Forum

The NordREG Board agreed to establish Energy Regulators Regional Forum on 8 March 2017, in order to facilitate common and consistent national decisions in the Nordic region.

According to Third Package Network Codes and Binding Guidelines, TSOs and NEMOs in the Nordic region shall develop terms and conditions or methodologies regarding a number of specific issues. These proposals are subject to approval by each national regulatory authority in the Nordic region but the Nordic energy regulators are obliged to consult, closely cooperate and coordinate with each other to reach an agreement on the content of the subsequent national approvals. To this end, Nordic energy regulators have agreed to organize such coordination within the framework of NordREG.

The ERRF is intended to facilitate common and consistent national decisions to be made subsequently by each Nordic energy regulator according to Network Codes and Binding Guidelines. It gives practical effect to EU provisions requiring cooperation among regulators for the abovementioned purposes, by serving as a tool to reach unified solutions among the Nordic energy regulators.

3.1.2 Work related to the implementation of the CACM guideline

The Capacity Calculation and Congestion Management guideline (CACM GL) entered into force in August 2015.

The first step in the implementation of CACM GL was the establishment of Capacity Calculation Regions (CCRs). As soon as the CCR's (according to CACM GL) were decided (November 2016), a number of regional decisions are to be handled. During 2017, NordREG will prepare for making the following regional decisions:

- Shipping arrangements
- Establishment of fallback procedures (May 2017)
- Methodology for coordinated capacity calculation within each region (September 2017)
- Redispatching and countertrading cost sharing methodology (probably later than 2017)

Each Nordic NRA has approved Arrangements concerning more than one NEMO in one bidding zone submitted by the Nordic TSOs. However, the issue concerning shipping arrangement under article

68(6) of the CACM regulation still needs to be resolved. The Nordic NRAs intend to coordinate their national decisions regarding shipping arrangements and the CACM Market TF has therefore started drafting a common proposal which is at the moment being consulted. Consultation ends 9th of June. National decisions are expected end of June.

The Nordic NRAs have received CCR Nordic TSOs' proposal concerning fallback procedures. The CACM Market TF has launched a consultation on the proposal.

Regarding Coordinated Capacity Calculation Methodology, the Nordic TSOs has informed NordREG that they will propose the flow based capacity calculation approach, which is the default method according to CACM GL. The Nordic TSOs has presented a report consisting of simulations of flow based versus NTC.

3.1.3 Work related to the FCA guideline

The FCA guideline was published in the Official Journal 26 September 2016 and entered into force 17 October 2016. According to the FCA GL, the competent NRAs of each bidding zone border shall adopt coordinated decisions on the introduction of long-term transmission rights (LTTRs), or exemptions from LTTRs, no later than six months after the entry into force. The FCA GL contains certain requirements related to the decision process and how the regulators shall assess the existing forward market.

The NordREG FCA TF will be having a Nordic approach related to the implementation of the FCA GL. Since there is a functioning common Nordic forward market, the NordREG FCA TF sees it as beneficial to cooperate on how to perform the assessments of the forward markets and the decisions on cross-zonal risk hedging opportunities in the Nordic region.

In order to prepare for national implementation of the FCA GL, NordREG FCA TF has worked on:

- Coordinated methodology related to the assessment of the functioning of the financial electricity market.
- The need for measures to support the forward market in case the assessment shows insufficient hedging possibilities in certain bidding zones.
- Coordinated approach related to the decisions on cross-zonal risk hedging opportunities to be made on the bidding zone borders.

NordREG FCA TF has during 2016 commissioned an external study "*Study on methodology for evaluation of the functioning of the Nordic financial electricity market*" and organized a workshop with market participants about the proposed methodology. The task force published a common paper called "*NordREG Methodology for assessment of the Nordic forward market*" in the end of the year 2017.

Following the regional process of coordinated evaluation methodology, the regulators carried out national assessments on whether the electricity forward market provides sufficient hedging opportunities in the concerned bidding zones (in each country). The assessment gave the foundation for coordinated national decisions between the regulators on the bidding zone borders

on whether or not to introduce long-term transmission rights (LTTRs) on the bidding zone borders, ref FCA GL art 30. The regulators in NordREG cooperated before the decisions were made, and gave each other information about the intended decisions.

The decisions made by the regulators in the Nordic region were as following:

- Coordinated decisions not to issue LTTRs on all the bidding zone borders.
- The hedging opportunities were identified as sufficient in all bidding zones, except DK1 and DK2.
- DERA and EI asked the TSOs, Svenska Kraftnät and Energinet.dk to start a process to *"make sure that other long-term cross-zonal hedging products are made available to support the functioning of wholesale electricity markets"*, ref FCA GL art 30 para 5b).

The bidding zone borders to Norway is not yet relevant for decisions following FCA GL, as the Guideline is not yet included in the EEA Agreement.

3.1.4 Work regarding analysis of the transmission capacity between the Nordic region and Germany

From 2012 onwards there have been considerable limitations in transmission capacity between the Nordic market and Germany, especially the lines DK1-DE and SE4-DE. The interconnector between Denmark and Germany, DK1-DE, covers about 40 % of capacity between the Nordic region and the central European countries. Data shows that use in direction DK1-DE in 2015 was only 250 MW on average. In 60 % of the time there was zero capacity. Over the course of 2016 the available capacity further declined and was only 195 MW on average.

NordREG decided at the Board meeting in December 2015 to establish an ad-hoc working group to address and assess the experienced reductions and deliver possible NordREG recommendations on next steps. The group was named NordREG Working Group for Capacity Reductions on the Nordic-German Interconnectors under Wholesale and Transmission.

At the end of 2016, it was concluded that the work on this topic within the NordREG structure should be terminated, as it became clear that it was not possible to find a common Nordic position.

The Danish and German ministries of Energy announced 14 June 2017 that they had made a joint declaration which introduces a minimum capacity on the DK1-DE border while ensuring system security. The aim of the joint declaration is to gradually make the full capacity of the DK1-DE interconnector available for electricity trade taking into account the development of relevant infrastructure. This means that the minimum capacity will increase gradually to 400 MW in 2017, 700 MW in 2018, 1.000 MW in 2019 and 1.100 MW from 2020. In case the agreed minimum capacity cannot be physically transported due to grid constraints, countertrading will be used to avoid congestions in the grid while ensuring the agreed minimum level of trade in every hour. The joint declaration provides certainty and transparency to Nordic market participants about the available capacity.

3.1.5 Work on Nordic Balance Settlement

The NBS was successfully launched in Sweden, Finland and Norway 1 May 2017. The company eSett Oy has the operational responsibility, and will handle all the balance settlement in Finland, Sweden and Norway in the future. This is a major step for our common Nordic electricity market, and a large step to facilitate a harmonized end-user power market. In addition, eSett Oy in cooperation with the TSOs represents and provides the first cross-border balance settlement in Europe.

3.1.6 Work related to the TSOs challenge and solutions reports

The Wholesale and Transmission WG have followed the TSOs work on the challenges and solutions reports through several meetings with the TSOs during 2016 and 2017, but have not been involved in the analysis or drafting.

Wholesale and Transmission WG will prepare and coordinate NordREG's comments to the two reports once the finalized solutions report has been received from the TSOs

3.1.7 Work related to the Electricity Balance GL

NordREG has started the work on the national and regional deliverables coming from the electricity balancing guideline, in order to supervise and facilitate the implementation and amendment of the guideline.

The guideline is expected to enter into force at the earliest late 2017.

3.1.8 Work on System operation guideline and Emergency and Restoration network code

NordREG has started to prepare the work on the coming guideline on system operation and the network code on Emergency and Restoration. The aim is to facilitate a common understanding and implementation in the guideline and network code in the Nordic synchronous area.

3.1.9 Work on connection codes

NordREG has started work to coordinate the implementation of the Commission grid connection regulations (EU) 2016/63, 2016/1388 and 2016/1447 in the Nordic synchronous area. The aim is to ensure the decisions stated in the regulation concerning the Nordic synchronous area are coordinated and the decisions are made in common understanding between the countries.

3.1.10 Work on EU-developments and the Clean Energy package

The Wholesale and Transmission work group follows the EU-developments and initiatives on the wholesale area in order to identify possible areas of special interest for a common Nordic approach and to facilitate a Nordic discussion of matters of mutual interest and significance.

In particular, the working group plans to follow the initiatives from the Clean Energy package (published by the Commission 30 November 2016).

4 Network regulation

This chapter describes the work done last year and the work to be done in 2016 within the Network Regulation WG.

The main focus of last year was exchange of information on current and new regulatory methods in the Nordic countries and a follow up seminar on “Load tariffs in the Nordic countries”. The focus this year is on network losses and monitoring the impact of the economic regulation in the Nordic countries. There is also a new assignment due to the European Commission’s proposals on Clean Energy (the Winter package), where the Network Regulation WG is asked to investigate, if there are areas in the Winter package regarding the role of the DSO and ownership of storage, where it is deemed beneficial or necessary to coordinate common Nordic positions and possibly compose a position paper on the relevant areas.

4.1 Work done last year

4.1.1 Workshop on regulatory methods in the Nordics countries

On 27 April 2016, the NordREG workgroup on Network Regulation held a one-day workshop on the regulatory methods for electricity distribution networks at The Norwegian Water Resources and Energy Directorate (NVE) in Oslo. The day was devoted to information exchange on current and new regulatory methods between the Nordic energy regulators.

The workshop was considered a success with a great turnout of 35 participants, mostly from the Nordic countries, but also from the German energy regulator and the Portuguese energy regulator.

The day started off with a welcome from the NVE. Afterwards there was a presentation of the country specific regulation from the Nordic regulators. Here it became clear that even though the Nordic countries are considered fairly similar, the approach to the regulation of the electricity distribution networks is currently very different.

The day continued with presentations on some of the Nordic regulators’ benchmark models and a research and development project on better benchmarking methods carried out in cooperation between NVE, academics and DSOs. During the day’s next presentations on WACC-methods both in use and based on new recommendations of experts, there was a lot of discussion on the balance between stability and actuality, when deciding on the WACC-method. The next set of presentations provided an understanding of the quality regulation of the different Nordic countries and issued a view on how to evaluate interruptions and how to secure supply. The day was concluded with an insight from The Swedish Energy Markets Inspectorate (Ei) on the legal processes and especially the challenges experienced through the legal framework. After the legal insight from Ei, there was an open discussion between the regulators on whether or not it would be more helpful for the regulator to have a more detail description of the regulation in the law.

4.1.2 Follow-up on the seminar “Load tariffs in the Nordic countries”

The Network Regulation WG held an open follow-up seminar on “Load tariffs in the Nordic countries” in Copenhagen 3 November 2016, which was a follow-up seminar to the seminar held 5 November 2015. The follow-up seminar focused on the NRAs’ perspective, as the former seminar focused on the industry’s perspective.

The follow-up seminar had more than 50 participants representing among others distribution system operators, industrial associations and national regulatory authorities. Presentations from each of the national regulatory authorities on country specific issues related to DSO tariffs showed that the Nordic countries in varying degree consider tariff changes. One of the main topics regarding changes is related to a transition from energy based tariffs (kWh) to more capacity based tariffs (kW). Capacity based tariffs are already implemented in Denmark and Norway, but in Norway only for customers with a high demand for electricity. For the time being, both Sweden and Norway are discussing ways to implement such changes for all customers.

In addition, there was a presentation of CEERs work on distribution tariffs providing a European perspective, as well as a presentation of how demand response influenced different customer segments in Sweden. Results from a Norwegian study indicated that prosumers, customers with their own electricity generation, in varying degree were affected by different tariff models. NordREG’s work with the supplier centric model across the Nordic countries illustrated the current state and the ongoing development of a Nordic retail market.

Finally, there were short comments from stakeholders like industrial associations and a Swedish customer organization. The active participants at the seminar raised several interesting questions, and the seminar provided a good opportunity to discuss DSO tariffs from a Nordic perspective.

4.2 Work to be done this year

4.2.1 Workshop on incentives to reduce network losses in the Nordic countries

One challenge all the Nordic countries face is how to provide incentives to reduce electric power losses in the network through regulation. In April the working group therefore held a workshop on incentives to reduce network losses in the Nordic countries for all interested parties in Stockholm.

The workshop was held in Stockholm 27 April and was considered a success. There were 29 participants from the Nordic countries. The presenters at the workshop were from the Nordic NRA’s, from the industry (the Danish Energy Association and a Norwegian DSO) and from a European perspective (a representative from a CEER working group on network losses).

The workshop’s main goal was to share experiences on how to provide incentives for reducing losses, both in regards to current and future regulation. The workshop also included practical examples of how losses are reduced by the network companies.

4.2.2 Workshop on monitoring the impact of the economic regulation in the Nordic countries

There has been an increased focus the last few years on the NRAs' task to monitor the impact of the economic regulation, including how the green transition is driven or hindered by the regulation in place. The working group therefore invites regulators to join a workshop on NRAs different experience with monitoring the impact of the economic regulation.

The purpose of the workshop is to exchange experiences across the Nordic countries about how the NRAs monitor the impact of their economic regulation. The workshop is taking place 9 November in Helsinki.

4.2.3 General exchange of experiences regarding regulation and tariffs

The Network Regulation WG monitors international studies on topics in the realm of regulation and tariffs and identifies areas/questions of particular Nordic interests. These studies and identification of areas of interest are discussed internally at the meetings within the working group. The workshop and seminar also facilitate these types of discussions.

4.2.4 Discussions of the Winter package (the European Commission's proposal on Clean Energy)

The Network Regulation WG will during the year discuss if there are areas in the Winter package regarding the role of the DSO, where it is deemed beneficial or necessary to coordinate common Nordic positions.

5 Demand Flexibility

5.1 Work done

The WG on demand flexibility was established as an ad hoc working group in January 2015 as a response to a request from EMG to evaluate the report “Demand response in the Nordic electricity market” by Thema Consulting, and consider potential needs for Nordic initiatives that require coordinated actions at ministry level. The Ad Hoc WG was changed to Demand Flexibility WG in March 2017, as the NordREG Board found it should be a permanent task.

5.1.1 Status report on regulatory aspects of demand side flexibility

As a response to the increased attention in the topic of demand side flexibility, the NordREG working group on Demand Flexibility has written a status report on regulatory aspects of demand side flexibility. NordREG published the report in December 2016.

The report aims to give a brief overview on some of the potential regulatory changes both at EU- and national level, accompanied with an overview of some relevant pilot project which may affect the potential development of demand response in the Nordics.

The intention with the report is to provide stakeholders and decision makers with an overview of expected regulatory development that may affect the demand response potential.

5.1.2 Workshop between Nordic regulators and TSOs on demand flexibility

On 8 November 2016, the NordREG working group on Demand Flexibility organised a one-day workshop between Nordic regulators and TSOs at Arlanda in Stockholm. The day was devoted to ensure that relevant information on ongoing initiatives on the subject of demand flexibility was shared between TSOs and regulators across the Nordic region.

5.1.3 Position paper on aggregation services and demand response

In May 2017, NordREG published a paper presenting the Demand Flexibility working group’s views on the European Commission’s proposals on aggregation services and demand response, as seen in the legislative package “Clean Energy for All Europeans”. By this, NordREG aims at assisting Member States and EU institutions in improving the proposals for a revised Electricity Directive, to better reach the important objectives of efficient demand response for all Europeans.

NordREG has several concerns with the European Commission’s “one-size-fits all” approach to aggregation, as proposed in the revised Electricity Directive, and fears it could lead to system-wide inefficiencies. NordREG therefore recommends discretion to decide if, and in which situations, a regulated framework for independent aggregation may be efficient to implement. Further, NordREG recommends flexibility to define the details, if models for independent aggregation are chosen in specific parts of the market. Work planned this year

In 2017 the WG on demand flexibility will continue to monitor ongoing discussions and initiatives

regarding flexibility at the European arena and, if deemed beneficial or necessary, seek to coordinate common Nordic positions.

The Demand Flexibility WG have also planned a new workshop between the Nordic regulators and TSOs to share information regarding the topic of demand side flexibility. The intention is to ensure that relevant information on ongoing initiatives on the subject of demand flexibility are shared between TSOs and regulators across the Nordic region. The workshop is planned in Q3 2017.

In cooperation with NordREG, Nordic Energy Research is commissioning two separate studies related to the topic of demand side flexibility. The Demand Flexibility working group is acting as steering group for the two studies. The first study focus on flexibility from the DSO perspective, while the second study concentrate on summarizing existing knowledge and recommending possible regulatory improvements. The studies are intended to improve the understanding of possibilities and challenges of demand side flexibility at a Nordic level, and will be finalized in September 2017.