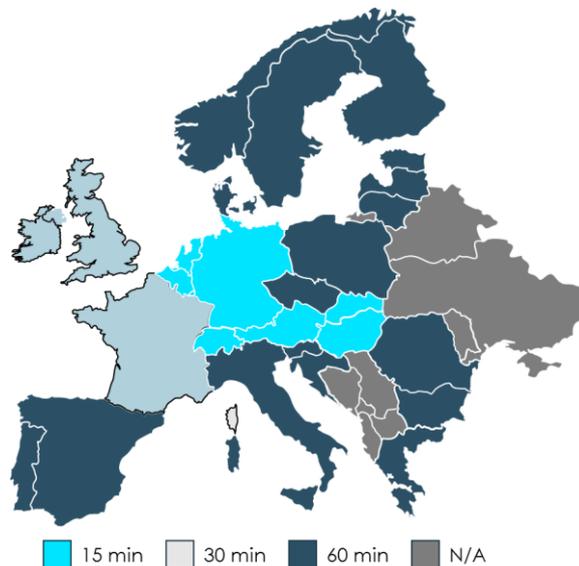


HIGHER TIME RESOLUTION: INFORMATION TO STAKEHOLDERS



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1. Introduction

In 2015, the Nordic TSOs initiated a project to assess the implementation of higher time resolution in the Nordics. Higher time resolution relates to the resolution of the imbalance settlement period (ISP) and thereby the minimum resolution of products on the wholesale market. The first phase of the project assessed different concepts of implementation and did a cost benefit analysis (CBA). The main findings in this CBA is presented below. As the project proceeded, it became clear that it was not a question of if the ISP should change to 15 minutes, but when. Thus, the CBA looked mainly at the timing of the change.

One notable development during the first phase of the Nordic higher time resolution project was the finalization of the Electricity Balancing Guideline (EB GL) with a requirement to introduce higher time resolution in the ISP from 1 January 2021. However, given the uncertainty when the EB GL would enter into force, the Nordic TSOs had to set a preferred implementation date this summer. Hence, as we now enter the planning and implementation phases of the Nordic higher time resolution project, our ambition is to change to 15 min ISP by the end of Q2 2020. The final deadline will be a result on both the detailed planning of this phase and decisions by national regulators.

Each of the four Nordic TSOs have now started up individual national projects to implement higher time resolution. The Nordic project will both be coordinating these national projects and take on the tasks that have to be solved at a Nordic level. The implementation of higher time resolution will affect all actors in the Nordic power market, from the smallest grid company to the largest power producers. Multiple regulatory changes are required and projects involving stakeholders in several countries, like the implementation of 15 min ISP in eSett¹, will be conducted. This requires close cooperation with multiple stakeholders in all countries. The input from stakeholders was key in developing both the implementation concept and the CBA in the first phase of this

¹ Settlement company in Finland, Norway, and Sweden

project. A close dialogue with all stakeholders is a critical success factor as we now enter the implementation phase of higher time resolution in the Nordics.

2. Cost Benefit Analysis

Due to the difference between planned production and consumption committed in the power markets, and actual production and consumption, all market participants cause imbalances. Imbalances are settled over a certain period, the ISP. The length varies across Europe, from 15 minutes in Germany to 60 minutes in the Nordics. Within each 60 minutes ISP period in the Nordics a market participant's imbalances will often be both positive and negative, and thus "netted out". Still, these instantaneous imbalances cause stress for the overall system. Three changes enhance the scale of these imbalances: more intermittent energy production, closing down of large-scale dispatchable generation units and increased transmission capacity between the Nordics and Continental Europe. To lower the system risk, market participants need to face stronger incentives to decrease their imbalances. In addition, the lack of harmonization in Europe reduces, or directly inhibits, market participants' ability to trade across borders in the intraday market.

The first main conclusion of the CBA was that going to 15 minutes imbalance settlement period is a step in the right direction. This change would bring immediate benefits to the Nordic region through better use of existing interconnectors, increased possibilities for trading flexibility with neighbouring countries, and improved frequency quality through in particular reductions in the current large jumps in imbalances that occur around the hour shift.

The CBA also looked at costs and benefits of early and late implementation, and a second main conclusion was that a very early implementation (2018) and a late implementation (2025) have the lowest net benefits, and therefore not preferred. The CBA recommends implementing 15 min ISP simultaneously in all Nordic countries. The TSOs later set the ambition to complete this by the end of Q2 2020.

3. Regulatory framework

The future regulation of the balancing markets and settlement is set in the EB GL. Article 53(1) states that:

By three years after the entry into force of this Regulation, all TSOs shall apply the imbalance settlement period of 15 minutes in all scheduling areas while ensuring that all boundaries of market time unit shall coincide with boundaries of the imbalance settlement period.

As the EB GL is expected to enter into force in December this year, the deadline will in practice be 1 January 2021. The TSOs of a synchronous area may jointly request an exception from the requirement to the relevant regulators. However, given the benefits for the Nordics of 15 min ISP, the Nordic TSOs will not proceed with such a request unless there are no other options.

The implementation of 15 minutes ISP in all Nordic countries also imply regulatory changes in multiple regulations within all countries. The Nordic TSOs will therefore cooperate closely with national regulators.

4. Implementation in the Nordics

The common Nordic concept has been detailed based on the recommendation to implement simultaneously in all four countries. The concept entails mandatory 15 minutes ISP for all balance responsible parties, both production and consumption. The implementation of mandatory 15 minutes ISP affects both the trading options provided to balance responsible parties, the existing settlement process and metering requirements. Each of these factors are described separately below.

4.1 Trading options

With 15 minutes imbalance settlement periods balance-responsible parties must have the opportunity to trade 15 minutes products on at least one market place. The trading option provided to BRPs will be 15 minutes products on the intraday market. The products will be traded through the XBID platform, currently being developed as part of the implementation of the European Guidelines. XBID will be able to provide 15 minutes products at the first go-live in 2018 with a rolling gate closure.

The Nordic TSOs are in dialogue with neighbouring TSOs on the implementation of an intraday auction similar to the German intraday auction. This initiative runs independently of the introduction of 15 minutes imbalance settlement period, but can provide a more efficient trading tool, especially for small balance-responsible parties.

4.2 Settlement process

The regulating power market will change from 60 minutes bids to 15 minutes bids (European standard balancing products) at the same time as 15 minutes ISP is implemented. Changing the resolution on the regulating power market is not only affected by the change of imbalance settlement period but also by the implementation of standard balancing products and a common European mFRR platform. The standard products are designed to fit in a 15 minutes scenario and the common platform is planned to be in operation at the latest four years after GL EB enters into force, i.e. one year after implementation of 15 minutes imbalance settlement period.

For the balance responsible parties the change to 15 minutes ISP will mean that they will face structural imbalances every quarter from the day-ahead market unless they adjust their position in the intraday market, which will have a 15 minutes time resolution simultaneously with the introduction of 15 min ISP. The settlement systems of eSett and Energinet will have to be modified to handle the shorter ISP. In addition, EB GL leads to other changes in the settlement systems as well. The revisions of the settlement systems have to be well planned to secure a smooth transition.

4.3 Metering requirements and datahubs

Not all meters must be changed or reconfigured to 15 minutes resolution to ensure correct settlement. Smaller consumption units and retail customers can be profiled based on the measured hourly values. Meters with 15 minutes resolution is a necessity for production, large consumption and exchange metering points (between meter grid areas (MGAs) and country borders).

Where operative, the national datahubs will be responsible for profiling of smaller consumption units and retail customers and submit data to the settlement systems and other relevant parties. Otherwise, DSOs will continue this task in an interim period.

5. Dialogue with stakeholders

In the first phase of the Nordic higher time resolution project, the input from stakeholders was influential both when deciding the implementation concept and when estimating costs and benefits. With such a wide range of participants in the power market affected by this change, the dialogue with stakeholders will be even more important going forward.

Most of the contact with stakeholders will take place at a national level, and all four TSOs have their own communication plan. Communication activities are coordinated at a Nordic level, though. This information letter is one example. The project managers of the four national projects as well as the project manager of the Nordic project are all available for input, questions, requests to present the topic etc. You will find their contact details below.

Going forward more information will be available on the webpages of the TSOs and meetings with stakeholders will be arranged.

6. Time table and way forward

With the Nordic ambition of implementation by the end of Q2 2020, time is short. The change from 60 to 15 minutes ISP affects a wide range of stakeholders, other Nordic projects and systems like eSett and the datahubs as well as the power exchanges. The Nordic and national projects are now working on the detailed description of the implementation concept, the individual tasks ahead of us and an implementation plan. At this stage, it is too early to give a detailed description of the steps ahead of us, but the high-level steps below is an indication of how the project will be organized.

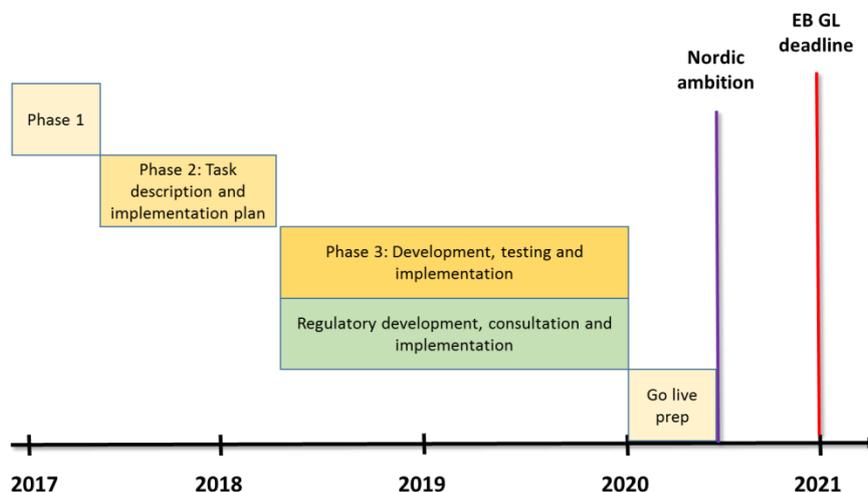


Figure 2: High-level plan until go live by the end of Q2 2020.

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