



Energinet's Purchase of Electricity Reserves

- Regulation, Market Functioning, Perspectives and Competition

ENGLISH SUMMARY OF REPORT BY DANISH UTILITY REGULATOR
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Danish Utility Regulator has analyzed the competition and described the roles and competences of the various stakeholders in the development of the market for electricity reserves in a report published in December 2018.

Danish Utility Regulator has translated the introduction, the summary and the follow up and recommendations in the report into English.

Introduction

Energinet is responsible for monitoring and maintaining the level of security of electricity supply set by the Danish Minister for Energy, Utilities and Climate. Energinet is thus responsible for planning the operation of the electricity system, so that the most critical faults can be handled without consumers losing power. Energinet buys reserves, which include reserve capacity and reserve energy (activation), so that the system can be quickly brought back into stable operation following a major fault.

This report focuses on Energinet's role in the market for reserve capacity.

The Danish Utility Regulator has drafted this report as part of performing its duties in relation to the market for reserve capacity in the electricity system.

The Danish Utility Regulator has an obligation to monitor the internal market for reserves, including competition at wholesale level, which the market for reserve capacity is part of. The Danish Utility Regulator is also the competent authority for approving the conditions and methods for how the reserve market functions. These methods are developed by the transmission system operators – in Denmark, this is Energinet. The Danish Utility Regulator is also responsible for the financial regulation of Energinet. It monitors whether Energinet only bears the necessary costs of purchasing reserves in the electricity system etc. The Danish Utility Regulator is also the competent authority in Denmark regarding the application of the EU Regulation on wholesale energy market integrity and transparency (REMIT).

Energinet has spent about DKK 500-800 million on reserve capacity and reserve energy since 2013. The annual costs of reserve capacity represent at least 80 per cent of this sum. The amount can be put into perspective by comparing it with Energinet's total revenue for the parts of the group involved in electricity transmission system operator tasks (i.e. both transmission system operator and system operator), which was DKK 3.4 billion in 2017¹. The cost of purchasing reserve capacity is therefore a significant cost for Energinet.

Energinet is not only developing the methods that apply to the market's behaviour nationally, but also increasingly at the regional and EU level, in cooperation with other transmission system operators.

A consultant's report from 2013 ordered by the European Commission as part of the preparation by the EU Agency for the Cooperation of Energy Regulators (ACER) of a common set of rules on electricity balancing, estimated potential annual savings on European operating costs of approx. EUR 3 billion by exchanging and sharing reserves, and a reduction in the need for reserve capacity of up to 40 per cent².

In a report from October 2018, ACER estimates that the economic benefits of integrating the balancing markets would be approx. EUR 1.2 billion annually, most of which has not yet been realised³.

¹ See p. 131 of the annual report for Energinet for 2017 (<https://energinet.dk/Om-nyheder/Nyheder/2018/03/15/aarsrapport-2017-Nye-veje-til-fremtidens-energi>)

² https://ec.europa.eu/energy/sites/ener/files/documents/20130610_eu_balancing_master.pdf

³ https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/MMR%202017%20-%20SUMMARY.pdf

The Danish Utility Regulator drafted the report in consideration of the tasks it performs with the aim of contributing to efficient integrated markets for supply in accordance with national legislation and EU regulations.

The Danish Utility Regulator hopes that this report will offer insights into a relatively complex market, and contribute to greater clarity on the roles the various stakeholders play – and have the opportunity to play – within it.

The Danish Utility Regulator involved Energinet and the Danish Competition and Consumer Authority in the preparation of this report.

Summary

Danish Utility Regulator's duties

The Danish Utility Regulator is responsible for strong and effective monitoring of the supply sectors, and in particular for protecting the interests of consumers in the supply sectors by promoting high efficiency, the lowest possible consumer prices in the short and long term, a safe and stable supply and cost-efficient technology development and a cost-efficient green transition. The Danish Utility Regulator must plan its operations and the performance of its duties with a view to creating efficient, integrated markets for supply, in accordance with national legislation and EU regulations.

All EU member states must appoint an independent regulator, which must ensure the development of competitive regional markets and appropriate conditions for the efficient and reliable operation of the electricity grids. In Denmark, this independent regulator is the Danish Utility Regulator.

The Danish Utility Regulator is responsible for approving the methods Energinet uses to perform its function as transmission system operator. The Danish Utility Regulator must also approve the other methods Energinet submits, at the national, regional or EU level. The Danish Utility Regulator must approve a method before Energinet can use it.

The legislation does not clearly define what constitutes a method. When assessing whether something is a method, the Danish Utility Regulator gives critical weighting to the effect of the 'method' on the market. If a certain impact on the market is expected, the Danish Utility Regulator will see it as a method. The method concept contained in the Danish Electricity Supply Act (*Elforsyningsloven*) covers balance services, i.e. services which Energinet acquires in order to maintain a balance between consumption and production and thereby system security.

The Danish Utility Regulator believes that Energinet's long-term contracts regarding the use of reserve capacity might contain methods that are subject to approval. This is because by entering into such contracts, which typically have a certain contract sum and duration, Energinet determines the design of the part of the market covered by the contract. The Danish Utility Regulator therefore requires that Energinet inform it of such agreements and evaluate whether the agreements contain methods the regulator needs to approve, pursuant to the Danish Electricity Supply Act, before Energinet invites tenders prior to entering into a long-term contract of this nature.

The Danish Utility Regulator must approve that the submitted method is in accordance with the Danish Electricity Supply Act or any other relevant legislation stipulating requirements that apply to the method. The authority, responsibility and funding to develop and report methods lie with Energinet and not with the regulator.

The Danish Utility Regulator expects a method submitted by Energinet to contain an explanation of why the method is being submitted and the methods' necessity, and Energinet's assessment of the consequences the method is expected to have. This should be both financially and in terms of access for stakeholders to participate in the markets.

As part of its processing of submitted methods, the Danish Utility Regulator considers whether any parties other than Energinet have such a substantial and individual interest in the case that they are parties to the case under administrative law. Energinet is party to the case in that Energinet submits the method and thus initiates the processing.

Energinet's and the Danish Utility Regulator's consultations with the parties to the case and other players can be said to 'drive' the Danish Utility Regulator's case handling in method cases. This is because the players typically possess specific knowledge about the consequences of the methods which the Danish Utility Regulator draws on in

its case information and general case processing, irrespective of whether or not the Danish Utility Regulator considers the given player to be a party under administrative law in the specific case. Many of the consultations therefore take place on the Danish Utility Regulator's website.

The Danish Utility Regulator is the competent authority in regard to enforcement of the EU Regulation on wholesale energy market integrity and transparency (REMIT). The Danish Utility Regulator must ensure compliance with the prohibitions in REMIT against insider trading and market manipulation and the obligation to publicly disclose inside information. As part of this work, the Danish Utility Regulator has referred two energy companies to the Danish State Prosecutor for Serious Economic and International Crime (SØIK), under suspicion of violating the prohibition against market manipulation in the intraday wholesale electricity market. In both of the case the companies have agreed to pay a fine..

REMIT also applies to the reserve markets and has a close relationship with competition law.

A large number of trades in the wholesale energy markets are arranged by people who conduct transactions with wholesale energy products as part of their business activities. Under REMIT, these are referred to as 'PPATs' (persons professionally arranging transactions).

PPATs must establish and maintain effective schemes and procedures for identifying breaches of the prohibitions in REMIT against insider trading or market manipulation, and must monitor trading activity on their markets. PPATs must sometimes obtain information from a market participant as part of these activities. If a PPAT has grounds to suspect that a transaction contravenes the above prohibitions, pursuant to REMIT, the PPAT must inform the relevant national regulatory authority, which must in turn investigate possible breaches of REMIT.

The Danish Utility Regulator deems Energinet to be a PPAT in the electricity markets for reserve capacity.

The Danish electricity system and security of supply

As of 1 July 2018, the Danish Electricity Supply Act contains a provision whereby the level of security of electricity supply is determined by the Danish Minister for Energy, Utilities and Climate, based on a report from Energinet, which is responsible for monitoring and maintaining the level of security of electricity supply. Energinet must use market-based methods to purchase energy and other services to maintain the set level of security of electricity supply.

Denmark has had a very high level of security of electricity supply in recent years (99.995 per cent in 2017, corresponding to less than 25 minutes of interruption to the electricity supply for the average consumer).

Denmark has a large and rising percentage of renewable energy, and is closely linked to its neighbouring countries via transmission interconnectors, which will be expanded considerably in the years ahead, improving security of electricity supply.

Western and Eastern Denmark (DK1 and DK2, respectively) are part of two different synchronous electricity systems. DK2 is part of the Nordic system, while DK1 is part of the continental system in Europe. There are different technical requirements for the operation of the two electricity systems, and the generation adequacy is under more pressure in DK2.

The possibility of incorporating new technologies in the reserve markets, at both the distribution and transmission level – such as electric vehicles, batteries, emergency power systems, electric boilers and general consumption – offers new opportunities (e.g. for ensuring a higher generation adequacy) in relation to both upward and downward regulation. The incorporation of new technologies will largely be driven by the balance responsible parties (BRPs) (which bid in the markets on behalf of their customers, and which are also financially responsible for their customers' imbalances), including 'aggregators', i.e. BRPs which do not own their entire portfolio.

Markets for reserves

Energinet plays a central role in the market for reserves (reserve capacity and reserve energy) due to its role as a developer of the market for reserves. Energinet works in increasingly close cooperation with the other transmission system operators (TSOs) in the Nordics and the rest of the EU in relation to a market for reserve capacity and reserve energy.

There is a close connection between the various markets for reserve capacity and reserve energy, as there is often wide overlap between the systems that can deliver the various reserves. The fast reserves (reserve capacity and reserve energy) (FCR) and the automatic reserves (aFRR) are subject to stricter technical requirements than the manual (mFRR) and replacement reserves (RR). This is typically reflected in the price.

To ensure the efficient operation of the general electricity infrastructure, Energinet must ensure the right balance between the reliable operation of the electricity system and the costs of purchasing reserves (reserve capacity and reserve energy), taking into account the cooperation Energinet has with the transmission system operators in neighbouring countries. The quantity of reserve capacity purchased must thus cover the given need. Energinet must therefore continuously assess the need to purchase reserve capacity, and how this can be most effectively done via the market.

Operations planning is done proactively in Denmark and the other Nordic countries, with the transmission system operators addressing imbalances by activating manual reserve capacity. A proactive approach is possible because the plans of the various players are sufficiently reliable. Under proactive operations planning, the transmission system operator can predict imbalances well enough to permit the slower and generally cheaper reserves to account for a large proportion of the reserves.

There are big differences between the market value (for reserve capacity and reserve energy) and the implementation of development plans for various markets, including as part of the ever-increasing international cooperation. Energinet and the other Nordic transmission system operators have jointly formulated concrete internationalisation plans using the 'Nordic Balancing Model', which covers all reserve capacity markets up until 2021, except the market for manual frequency restoration reserve (mFRR) in DK1 and the reserve capacity markets in DK2 for frequency containment reserve for normal operation (FCR-N) and frequency containment reserve for disturbances (FCR-D).

Costs of reserves (reserve capacity and reserve energy) and properties required to maintain electricity system stability

The costs of reserves (reserve capacity and reserve energy), i.e. excluding the costs of properties required to maintain electricity system stability, have been about DKK 500-800 million since 2013. The annual costs of reserve capacity represent at least 80 per cent of this sum. The reserve capacity costs in Western Denmark (DK1) for the same period were DKK 140-200 million, while the costs in Eastern Denmark (DK2) were 275-500 million. The single largest cost items are the long-term reserve capacity contracts for aFRR in DK1 and mFRR in DK2 (approx. DKK 200 million).

According to data from the Agency for the Cooperation of Energy Regulators (ACER), the balancing costs in the Nordic countries are among the lowest in the EU. The Netherlands and Germany have lower overall costs, but higher energy costs. ACER notes that the price differences between the various EU countries are due to lack of progress in integrating balancing markets, and that the different price levels reflect the underlying costs for flexibility resources and how developed the national markets are.

Analysis of competition in the market for capacity reserves

The Danish Utility Regulator has analysed the competition in the market for primary reserves (FCR) and manual reserves (mFRR) in Western Denmark and primary reserves (FCR-N and FCR-D) and ad hoc manual reserves (mFRR) in Eastern Denmark for 2017. The analysis describes and assesses the competition in 2017 based on the daily purchases of reserve capacity.

In some markets, capacity reserves are purchased in long-term contracts – automatic reserves (aFRR) and primary reserves (FCR) in DK1 and manual reserves in DK2 (mFRR). For primary reserves (FCR) in DK1 and manual reserves in DK2 (mFRR), the competition is described and assessed solely for the daily purchases of capacity reserves Energinet undertakes in addition to the capacity reserves already purchased in long-term contracts. For manual reserves (mFRR) in DK2, it will specifically cover the ad hoc market for manual reserves (mFRR) in DK2, where Energinet purchases manual reserves (mFRR), when one of the players in the five-year contracts for manual reserves (mFRR) in DK2 is unable to deliver due to a planned audit or other outage time.

The competition analysis is based on bid data from six different balancing responsible parties. The analysis thus ignores the fact that the balancing responsible parties represent many individual competing customers, each of which have their own generation facilities. In other words, the analysis is based on the assumption that the balancing responsible parties each act as a single market participant, even when they represent many individual competing

customers. This is a simplified analytical approach, and it will have a tendency to overestimate the competitive challenges in the market for capacity reserves.

Under the assumption that the balancing responsible parties each act as a single market participant, the analysis shows that the supply side is generally characterised by high concentrations of bids submitted and few participating players. The results of the market clearing are influenced by one player, which accounts for more than 40 per cent of the supply in the respective reserve capacity markets (except for upward regulation of primary reserves (FCR)). The analysis also shows that the national reserve capacity markets (except for manual reserves (mFRR) in DK1) are characterised by a high degree of 'large' excess purchases (i.e. exceeding 20 per cent of the need). However, the results do not give immediate cause for concern in relation to competition in the market for reserve capacity.

The analysis shows that the reserve capacity markets for upward regulation of primary reserves (FCR) in DK1 and for ad hoc manual reserves (mFRR) in DK2 (the latter are purchased on a daily basis, when one of the five players in the five-year contracts for manual reserves (mFRR) in DK2 is unable to deliver) are of relatively great value, with fairly high prices compared to other relevant markets. In both markets, there has also been a relatively high number of hours with a maximum of three market participants, a high concentration and often large excess purchases. In 2017, Energinet purchased upward regulation of primary reserves (FCR) in DK1 for DKK 22 million and ad hoc manual reserves (mFRR) in DK2 for DKK 42 million.

The market for reserve capacity has a number of characteristics. Among other things, the supply and demand conditions are relatively stable, there are few market participants, there are only relatively few products to compete between, and it is possible to intervene in case of coordination deviations, such as via fierce price competition or increasing production significantly. This increases the likelihood of coordination in the market. The Danish Utility Regulator therefore finds that there may be reason to be particularly aware of developments in competition on the individual reserve markets.

The Danish Utility Regulator notes that Energinet has specific regional development plans for most of the reserve markets, which are thus expected to become more efficient towards 2021.

The approach used in the competition analysis makes it difficult to determine how well competition in the markets is functioning, as it largely depends on an assessment of the balancing responsible parties' behaviour in the market. Specifically, an assessment of the competition will largely depend on whether the aggregators, i.e. the balancing responsible parties that do not own their entire portfolio, exert control over their customers' bids beyond what contributes to a more efficient market. In other words, whether it is reasonable to see a balancing responsible party as a single bidder, or simply as a forwarder of bids.

Information from Energinet shows that six balancing responsible parties participated in the reserve market in 2017. Four were aggregators, while two bid exclusively using their own systems.

Aggregators offer their customers services which help increase market participation and thus volume on the supply side in the various reserve markets. This includes offering to combine different customers' bids in relation to size and direction of regulation, so customers can get access to the reserve markets. The balancing responsible parties also prepare price forecasts (e.g. for spot, intraday, reserve and the regulating power market) for their customers, in order to increase participation in the pay-as-bid reserve markets.

The Danish Utility Regulator's analysis shows that there were three balancing responsible parties (two aggregators and one solely representing themselves) that submitted 'few large, expensive bids' in the market for reserve capacity for FCR downward regulation in DK1, and a balancing responsible party (an aggregator) in the market for ad hoc mFRR in DK2. It therefore cannot be ruled out that the aggregators exercise control over their customers' bids, which does not ensure more efficient markets in all cases. However, the analysis also shows that the analysis is fairly sensitive to how relatively 'few large, expensive bids' is defined. Various bidding strategies can also be attributed to the composition of production technologies at the individual balancing responsible parties.

The Danish Utility Regulator finds that there is a need for a better understanding of the role played by the balancing responsible parties in relation to competition on the market for capacity reserves. The balancing responsible parties will gain an even greater role in the energy system in the future, in part in order to pool production and consumption from new technologies in the distribution grid also. It is therefore important to ensure that the balancing responsible parties, and particularly the aggregators, contribute to more efficient markets, and that there is sufficient clarity about the challenges a mixed ownership portfolio can entail and so forth.

The Danish Utility Regulator finds that there is a potential for further developing the existing market design in relation to ensuring a more efficient market for mFRR. The focus is on lowering the minimum limit for mFRR reserve capacity and reserve energy, allowing for smaller excess purchases of mFRR by giving Energinet a better opportunity to pass over bids, and introducing asymmetrical bids while maintaining the possibility of symmetrical bids for FCR in DK2.

Changes in the reserve markets in the EU

The establishment of the single energy market in the EU is currently underway. In the electricity sector, this involves determining conditions and methods based on the network codes regarding the forward, day-ahead, intraday and balancing market, and system operation.

In a report from October 2018, ACER estimates that the economic benefits of integrating the balancing markets would be approx. EUR 1.2 billion annually, most of which has not yet been realised⁴.

As part of the efforts to establish a common market for reserve energy in the EU, comprehensive and complex work is being done in various fora and at various levels towards the implementation of the regulation on an Electricity Balancing Guideline (EBGL) and the regulation on a System Operation Guideline (SOGL).

SOGL determines the need for ancillary services and EBGL sets the framework for the purchase of reserve energy via the platforms, while the frameworks for the purchase of reserve capacity are national and purchases are on a voluntary basis between neighbouring countries.

There is a close connection between EBGL and SOGL. Both EBGL and SOGL are being implemented through methods submitted by the TSOs, subject to the regulators' approval. Depending on the impacts of the methods, this approval must be at the national, regional or European level. The work can continue up until 2025.

As more and more methods are submitted under EBGL and SOGL – both of which are EU regulations that are directly applicable in Denmark and take precedence over national law – fewer methods are expected to be reported and approved under the Danish Electricity Supply Act.

At the same time, negotiations have just been concluded between the European Council and the European Parliament on the last elements of the EU Commission's proposal for a fourth energy liberalisation package – the 'Clean Energy Package'.

Under EBGL, common European platforms must be established for the exchange of balancing energy. The platform for the exchange of aFRR and mFRR energy will have the greatest economic impact in a Danish context. This platform is also deemed to be the most relevant in light of the proactive balancing approach in the Nordic region. Energinet currently intends not to make use of the replacement reserve (RR), as Denmark is not connected to the markets in continental Europe where this reserve is used. RR is the slowest of the reserves, which is reflected in the price. However, the reserve could become relevant, as it can be used to manage wind imbalances and counter trading, as the need is often known well ahead of the operating hour, allowing time to maintain balance by bringing a slower reserve online.

Under EBGL, methods must also be determined for reserving capacity on transmission connections between EU countries. These methods will be important in a Danish context, as the Danish electricity system is closely and increasingly connected to foreign systems via transmission interconnectors. For methods submitted under EBGL, the Danish Utility Regulator will have to assess whether they can be approved under the rules in EBGL.

SOGL contains provisions regarding ancillary services, requirements for dimensioning reserves and prequalification and technical admission requirements for reserves, and on the conditions for sharing and exchanging reserves between TSOs. The implementation of SOGL will set the framework for the expansion of the market for reserves which takes place with the implementation of EBGL.

There are different approaches, traditions and practices for balancing electricity systems, and the electricity generation mix also varies in the different electricity systems. These factors may give rise to discussions in connection with the implementation of SOGL and EBGL.

⁴ https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/MMR%202017%20-%20SUMMARY.pdf

The Danish Utility Regulator emphasises that the elements from the Nordic cooperation in the market for reserves can serve as inspiration for the integration of the European balancing markets.

The Danish Utility Regulator will give particular weight to greater and early market integration through the development and approval of conditions and methods for the national, Nordic and European markets for reserves.

Follow up and recommendations

The market for reserves is highly complex, with frequent changes in methods – nationally, regionally and at the EU level – and also different processes for method preparation and approval. The market participants play an important role in evaluating the impacts of the methods. The market participants have also noted that it can be challenging to keep up with these rapid development processes and contribute to the consultations being held as part of the processes.

- Through information activities (public consultations and presentations), the Danish Utility Regulator will seek to continue to support market participants in being able to actively contribute to the preparation of methods, whether under the Danish Electricity Supply Act or the European network guidelines.

Implementation of the regulation on the Electricity Balancing Guideline (EBGL) could potentially extend up until 2025, which would mean that the benefits of greater European market integration can only be reaped after a relatively long time. At the same time, implementation could be characterised by lengthy discussions of great complexity, based on the different approaches to balancing the electricity system etc.

- In its approach to the approval of the reported conditions and methods pursuant to EBGL, the Danish Utility Regulator will generally support greater market integration as soon as possible. The Danish Utility Regulator's focus is thus more on rapid harmonisation than on the development of optimised balancing products.

The energy market is characterised by rapid changes, where new technologies can contribute to greater flexibility and liquidity in the market, provided that there are no unnecessary entry barriers for new technologies in the market. This is useful for ensuring high system security while also having a high proportion of renewable energy. A systematised overview of new technology is also important in the development of European reserve markets. In order to evaluate developments in relation to the climate and energy, there is a need for knowledge of data for a number of technologies. This data is collected in technology catalogues, which are regularly publicised by the Danish Energy Agency and Energinet.

- The Danish Utility Regulator will ask Energinet to continue to support the development of new technologies in relation to advancing market design, and to provide a better overview of the potential offered by new technologies. The Danish Utility Regulator recommends in this context that Energinet identify and work to remove unnecessary entry barriers and challenges in relation to using new technologies in the market for reserve capacity and energy activation. The Danish Utility Regulator recommends that Energinet draw on market participants and international experience to help draft and publish a report on the potential of new technologies, based on the technology catalogue, before the end of 2019.

The ad hoc mFRR market (market for manual frequency restoration reserves) in Eastern Denmark (DK2) (daily purchases when a player covered by the five-year mFRR contracts in DK2 is unable to deliver) is characterised by a high market concentration, large excess purchases 55 per cent of the time, and a relatively high average price of DKK 90 per MWh compared to the mFRR price in Western Denmark (DK1) of DKK 3 per MWh. The ad hoc market for mFRR in DK2 was the most cost-intensive daily market for reserves in 2017 at DKK 42 million. High prices were also observed in the autumn of 2016 and 2018 – DKK 7,348 per MWh and DKK 10,500 per MWh, respectively.

- The Danish Utility Regulator will ask Energinet for a development plan for the market for mFRR in DK2 by Q1 2019, and will particularly focus on how mFRR in DK2 should be purchased and priced, until such time as an expected Nordic reserve capacity market for mFRR is established. The development plan must include specific proposals for how the market for ad hoc mFRR purchases can be improved, in order to improve the supply of mFRR and the efficient functioning of the market in autumn 2019.

The ongoing regional integration of the reserve capacity markets is expected to structurally lead to more efficient markets, including through the integration of Western Denmark (DK1) in the regionalisation of the markets currently taking place in the Nordic region.



- The Danish Utility Regulator will encourage Energinet to continue to work actively towards the integration of the markets for reserves in the Nordic countries and the EU, and will ask Energinet to submit a plan to the regulator by Q1 2019 for the conditions under which and the timing for when the cooperation can also encompass DK1.

The balancing responsible parties will gain an even greater role in the energy system in the future, in part in order to pool production and consumption from new technologies in the distribution grid also. It is therefore important to ensure that the balancing responsible parties, and especially the aggregators (the balancing responsible parties that do not own their entire portfolio), contribute to more efficient markets. Based on the competition analysis, the Danish Utility Regulator cannot rule out that the aggregators exercise control over their customers' bids which does not ensure more efficient markets in all cases. The Danish Utility Regulator deems that there is a need for Energinet and the regulator to have a better understanding of how balancing responsible parties can contribute to more efficient markets, and thereby contribute to an assessment of whether there is a need for adjustment to the conditions for balancing responsible parties.

- The Danish Utility Regulator will initiate dialogue with Energinet to clarify whether, and if so, how Energinet can gain better insights into BRP bidding in order to report to the regulator and possibly fine-tune the conditions for balancing responsible parties before the end of 2019. This work must take into account the fact that an analysis of balancing responsible party bidding could create uncertainty about their earnings base and activity in the ancillary services market.

The competition analysis shows that there is a potential gain in reducing the minimum bid limits for mFRR, in part to lower the entry barriers for this market. The analysis also shows that almost all bids lie between the minimum limit and the level where Energinet has to pass over bids in order to avoid excess purchasing. Large bids make it harder for Energinet to avoid excess purchasing. The analysis also shows that asymmetric purchasing can help reduce the price, which may be relevant to consider as a supplement in cases where Energinet continues to purchase symmetrically and as part of the process of establishing the Nordic markets for reserves (capacity and energy).

- The Danish Utility Regulator will ask Energinet to publish a report by Q1 2019 on the potential for being able to use both asymmetrical and symmetrical bids, in order to minimise excess purchases and reduce the minimum bid limits in connection with negotiating the intensified Nordic cooperation on reserves and for the cooperation on a market for automatic frequency controlled reserves (FCR) with the participating countries (Austria, Belgium, France, Germany, the Netherlands and Switzerland).