

NATIONAL REPORT
DENMARK
STATUS FOR 2017

2018



Danish
Utility Regulator

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1. Foreword

The present National Report for Denmark gives an overview and account of the main developments in the gas and electricity markets (retail and wholesale) and in the structure and regulation of the gas and electricity networks (transmission and distribution) in Denmark for 2017.

The report follows the common reporting structure developed by the Council of European Energy Regulators (CEER). Data and content refer to the period January 2017 to December 2017 unless otherwise stated.

The National Report 2018 constitutes the last national report reflecting the work of the Danish Energy Regulatory Authority (DERA). As of July 1st 2018 DERA was replaced by a new regulatory authority – the Danish Utility Regulator (DUR) – and a new director-general was appointed to lead the new organization.

The tasks and work of DUR are stipulated in a new act on the Danish Utility Regulator. The main task for DUR is to establish a strong regulatory authority which contributes to securing the consumers interests in the utility sectors, electricity, natural gas and central heating with emphasis on high efficiency in the regulated sectors, lowest possible consumer prices and a stable, secure supply. All tasks and duties carried out by the former regulatory authority (DERA) as stipulated in the supply acts for electricity, natural gas and central heating has been transferred to DUR.

The energy world is changing fast creating new opportunities and challenges that is also reflected in the regulatory work. The initiatives in the “Clean Energy Package” are being negotiated and finalized and will set the scene for the development in coming years and frame much of the regulatory focus and work. DUR will actively participate in this nationally and in the European cooperation.

Carsten Smidt
Director-General
Danish Utility Regulator

2. Main developments in the electricity and gas market

2.1 The electricity market

2.1.1 Wholesale

Electricity wholesale prices primarily depend on the electricity prices on Nord Pool. The Danish spot prices (West Denmark (DK1) and East Denmark (DK2)) are usually higher than the so-called Nordic system price¹, but lower than the Continental European prices, reflecting Denmark's geography between the Nordic hydro-based system and the thermal based continental production.

In 2017, the spot prices in Denmark have generally followed the development of the system price of Nord Pool. The prices in DK1 and DK2 often differs (the average wholesale prices are respectively 30.1 and 32.0 EUR/MWh) and most of the time the prices in DK1 are lower because of high wind production and import of hydro electricity from Norway. Because of the geographic location, the average wholesale price in Denmark for the year 2017 is 31.0 EUR/MWh, while the average prices from DE and Nord Pool's system price respectively are 34.2 and 29.4 EUR/MWh.

Total traded volume (i.e. intraday and day-ahead volume) for both of the Danish bidding areas has increased by 2.6 percent from 61.2 to 62.8 TWh from 2016 to 2017. The day-ahead volume has increased with 0.8 percent (from 59.1 TWh in 2016 to 59.6 TWh in 2017), while the intraday volume has increased with 52.4 percent (from 2.1 TWh in 2016 to 3.2 TWh in 2017).

The net production in Denmark was 29,453 GWh in 2017, which was larger than previous year. In 2017, Denmark's wind turbines have increased with 6.0 percentage point to a share of 50.2 pct. of the total net production compared to 2016. Denmark's net import from Norway and Sweden was in 2017 respectively 3.045 and 2.900 GWh, while Denmark's net export to Germany was 1.382 GWh. In total Denmark was a net importer of electricity in 2017 with 4.563 GWh.

2.1.2 Retail

The average price of electricity for the consumer (nominal values) has decreased from 30.8 cEUR/kWh in 2016, to 30.21 cEUR/kWh in 2017, which is the lowest since 2013. The average electricity price for consumers has increased by about 11.5 % in the 10-year period 2008 – 2017, mainly due to rising PSO payments. The energy cost of electricity has fallen about 40 % in the same period.

The electricity price is composed of several elements: The energy price, taxes incl. VAT and public service obligations (PSO), and transmission and distribution costs. The pure energy price amounts to about 14 pct. of the total energy price, while taxes, PSO and VAT constitute about 68 pct. The remaining 18 pct. is from the grid (transmission and distribution) payment.

The current PSO payment will gradually be reduced from 2017 and is abolished in 2022 for all electricity consumers. The costs of PSO will instead come out of the annual budget, i.e. the Finance Act. When the adjustment is fully implemented, the average retail prices of electricity will be reduced by the total PSO payment.

¹ The system price is the common wholesale price there would be in the Nordic area, if there were no congestions in this area.

DUR is obliged to operate a national online portal (*Elpris.dk*) for electricity prices, which was launched on 1 April 2016. All prices/products offered at the electricity market for consumers with an annual consumption below 100,000 kWh have to be reported to the new price comparison tool (PCT). *Elpris.dk* covers the national market and enhances the consumers' insight of electricity prices and contract conditions, thus making the market more transparent for consumers.

2.1.3 Transmission and distribution

Transmission

Allocation of all day-ahead cross-border capacity follows the implementation of the Single Day-Ahead Coupling (SDAC) pursuant to terms and conditions or methodologies developed in accordance with Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (CACM GL). Flows and prices in 2017 were determined through implicit auctions. Residual capacity that was not used in the day-ahead market was given to the intraday market.

On both Danish bidding-zone borders to Germany (DK1-DE and DK2-DE) as well as the internal border (DK1-DK2) physical transmission rights (PTRs) were issued through monthly and in regards to the German border also yearly auctions. The capacity was used entirely financially through the Use-It-Or-Sell-It (UIOSI) option, so capacity was given back to the (day-ahead) market.

In 2017, the Danish Ministry of Energy, Utilities and Climate agreed on a joint declaration with the German Federal Ministry for Economic Affairs and Energy, as well as the German regulatory authority (Bundesnetzagentur) and the Danish regulatory authority that a minimum level of capacity is required on the electricity transmission link between Jutland and Germany, DK1-DE, for trading of power for the day-ahead market. The agreement has been implemented as of 1 December 2017. From 2018, the minimum available capacity is 700 MW, 900 MW in the first three months of 2019, 1000 MW from 1 April 2019 and 1100 MW from 2020. The agreement will run until the end of 2020.

There are also capacity restrictions on the DK2/SE border, where capacity from Denmark to Sweden has been limited periodically. The restrictions are due to net constraints in the West coast corridor in Southern Sweden causing the need to limit the capacity in the interconnector between Denmark and Sweden. According to an agreement between Sweden and the European commission from 2010, Sweden should solve the problems in the West coast corridor before 2020 and is allowed to limit the capacity in the interconnector until then.

DERA approved on 1 June 2018 a proposal from the Danish TSO, Energinet, regarding arrangements to ensure cross-zonal risk hedging opportunities other than long-term transmission rights in accordance with article 30 of Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a *Guideline on Forward Capacity Allocation* ("FCA GL") FCA GL. The proposal submitted by Energinet has been developed in cooperation with the Swedish TSO, Svenska Kraftnät. Thus, DERA's decision to approve the proposal has been coordinated with the Swedish regulatory authority, Energimarknadsinspektionen.

On March 21st 2018, DERA in cooperation with the relevant regulatory authorities of CCR Hansa approved that financial transmission rights will be introduced on the German-Danish borders from the first yearly auction following the decision to approve.

DUR approved on the 14 September 2018 a proposal from the Danish TSO, Energinet, regarding the All TSOs' proposal for the determination of LFC blocks for the Synchronous Area Continental Europe pursuant to article 141, stk. 2 of COMMISSION REGULATION (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation ("SOGL"). The proposal submitted by Energinet has been developed in cooperation with all TSOs of the Synchronous area of Continental Europa. DURs approval of the proposal has been coordinated with the NRAs of Continental Europa.

Distribution

There has been no new regulation on tariffs for access or connection fees in 2017 nor has the methodology for the DSOs setting tariffs or connection fees been changed in 2017.

To prevent cross-subsidization between distribution and supply activities, the companies must comply with the rules regarding entity unbundling, accounting unbundling and management unbundling.

DUR approves the companies' tariff methodology and the methodology of connection fees based, as the main rule, on an industry wide tariff model developed by the Danish Energy Association on behalf of the DSOs. The methodologies must, according to the electricity ACT, ensure that tariffs and other payments are set in a fair, objective and non-discriminatory manner and that they are based on necessary costs where every group of costumers pay the costs that they give rise to.

A new regulation was passed in 2017 with effect from 2018. It is based on five years regulation periods with a revenue cap, built on a cost cap with efficiency regulation, a cap for returns on historical investment and on a return on future investment set as a market based WACC and finally on a reduction of the revenue cap in case of inadequate quality of supply. The new regulation includes as well yearly general efficiency requirements as individual requirements. The DSOs' cost data are checked annually in connection with the determination of the revenue caps (necessary costs). The revenue caps are based on the DSOs' annual accounts as audited by a certified accountant and subsequently submitted to DUR.

In 2018, DUR will develop a new benchmark model different from the previous benchmark model.

2.2 The gas market

2.2.1 Wholesale

The Danish gas market has two virtual trading facilities: Gas Transfer Facility (GTF), which facilitates delivery of bilateral trades, and Exchange Transfer Facility (ETF), which is used as the delivery point for trades carried out on the Danish gas exchange Gaspoint Nordic (GPN). Gaspoint Nordic has become increasingly important during the last five years. The share of traded volume delivered on ETF has increased significantly since 2012.

The spot price on Gaspoint Nordic (ETF) is highly correlated with the spot prices on the two German gas hubs, NCG and Gaspool, and the Dutch gas hub, TTF. Generally, the gas prices on the four gas hubs were relatively high in 2017 compared to 2016. The average spot price of Gaspoint Nordic was 16.50 EUR/MWh in 2017, which is 16% higher than in 2016. On average, the spot price on

Gaspoint Nordic was 0.80-1.00 EUR/MWh lower than the spot price on the other North European gas hubs in 2017.

In 2017, the Danish production of natural gas was 4,585 million Nm³, which is an increase of 7% compared to 2016. Danish gas exports amounted to 2,119 million Nm³ in 2017. The export to the Netherlands made up 50% which is a considerable increase compared to 2014-2016. The remaining export went to Sweden (34%) and Germany (16%). In 2017, Denmark imported 490 million Nm³ which is a 25% reduction compared to 2016. 80% was imported from Norway and 20% was imported from Germany.

2.2.2 Retail

DUR publishes quarterly statistics for retail gas prices for Danish households. The statistics include prices for a representative Danish household (with a yearly consumption of 20 MWh equivalent to 1.700 m³). The statistics are composed of private consumer prices, where the weights corresponding to the suppliers' market shares are applied. The quarterly average is a consumption volume-weighted average. Consumer prices increased during 2017. The quarterly retail prices for 2017 ranged from 78.07 to 80.11 EUR/MWh.

DUR has appointed the consumer homepage www.gasprisguiden.dk to be where information on products and prices are available and comparable – and to which all suppliers are obliged to report prices and terms. DUR has the regulatory oversight of the price comparison tool, which is operated by Energinet. When monitoring prices and the transparency of contractual obligations, DUR makes use of the price comparison tool. All gas suppliers are represented at the price comparison tool www.gasprisguiden.dk.

As of 2017, the majority approximately 94 % of Danish gas customers are supplied at unregulated prices not supervised by DUR. The remaining 6 pct. are supplied at supply obligation products and basic products. Two gas suppliers currently supply the supply obligation products and the basic products, and DUR is continuously supervising the prices of these products.

2.2.3 Transmission and distribution

In 2017, the DERA and the Swedish regulatory authority (Ei) performed a joint self-evaluation of the Danish-Swedish wholesale markets for gas, which has been submitted to ACER in July 2017.

In 2017, DERA has also cooperated intensively with the Polish regulator, URE, on various regulatory aspects of the *Baltic Pipe Project*. The Baltic Pipe Project is a strategic gas infrastructure project with the goal of creating a new gas supply corridor in the European market, which will allow transport of gas from Norway to the Danish and Polish markets, as well as to end-users in neighboring countries. At the same time, the Baltic Pipe Project will enable the supply of gas from Poland to the Danish and Swedish markets.

The project is being developed in collaboration between the Danish gas and electricity transmission system operator Energinet and the Polish gas transmission system operator GAZ-SYSTEM.

EU has included Baltic Pipe on its list of key infrastructure projects that are of common interest to Europe – also known as “PCI projects”. This is due to the essential role Baltic Pipe could play in contributing to the development of Europe's internal market for gas, and the strengthening of EU's security of supply.

The final investment decision on Baltic Pipe was taken in November 2018 in both Denmark and Poland, and it should be possible to transport gas through the Baltic Pipe route from October 2022. DERA (and the Polish regulator, URE) have made a number of formal decisions related to the Baltic pipe project: Approval of capacity allocation rules, Economic Test – approval of parameters and setting of f-factor and Approval of the cost allocation between Poland and Denmark for the Baltic Pipe Project.

The approval of the cost allocation does not constitute the final approval of the Baltic Pipe Project. The final investment decision (FID) for the Baltic Pipe Project has to be taken by the end of 2018 at the latest by the project promoters and their respective owners.

2.2.4 Distribution

There has been no new regulation on tariffs for access or connection fees in 2017 nor has the methodology for the DSOs' setting tariffs or connection fees been changed in 2017.

DERA approves the companies' tariff methodology and the methodology of connection fees. The methodologies must, according to the Natural Gas Supply ACT, ensure that tariffs and other payments are set in a fair, objective and non-discriminatory manner and that they are based on necessary costs where every group of costumers pays the costs that they give rise to.

According to the approved methodology, the distribution tariffs are set as volume charges and independent of distance. The methodology ensures that all customers pay a high tariff for the first cubic meters delivered and a lower tariff for volumes that exceed certain intervals.

The applied benchmarking model used by DUR has been unchanged since the introduction of revenue cap regulation in 2005. The benchmarking model calculates sector specific marginal cost (OPEX) for predefined output. The model then compares realized OPEX for each regulated company with a calculated OPEX for the same company, using the sector specific marginal costs.

The model has been applied for setting efficiency requirements for the current regulatory period 2018-2021. Because of the ongoing consolidation of the gas distribution sector in Denmark, DUR expects that a new model for setting efficiency requirements will be used in the following regulatory period.

3. Network regulation in the electricity and gas markets

3.1 Unbundling

Denmark has only one TSO – Energinet – that is TSO for both electricity and gas. Energinet is an independent public enterprise owned by the minister for Energy-, Utilities and Climate. Energinet has during 2017 and early 2018 been divided into subsidiaries, including TO EL, SO EL, TSO GAS, Datahub, Gas Storage Denmark and Danish Gas Distribution.

The new organization of the company has not impacted the certification of the company.

3.1.1 Certification of electricity Transmission System Operator (TSO)

Table 1 | Transmission system operator (electricity), 2018

| Number of TSOs | Length of transmission grid |
|----------------|-----------------------------|
| 1 | 6,956 km |

By October 2011, DERA² adopted its draft decision on the certification of the Danish system operator Energinet for electricity and natural gas following the rules for ownership unbundling. Energinet is the sole TSO in Denmark.

DERA received the Commission’s opinion on the draft decision in January 2012. The Commission expressed agreement with the draft decision and did not express any disagreements with the assessments and conclusions in DERA’s draft decision. On that basis, DERA adopted its final decision on the certification of Energinet in February 2012.

3.1.2 Unbundling of electricity Distribution System Operator (DSO)

Table 2 | Distribution System Operator (electricity), 2018

| Number of DSOs | Length of distribution grid | Number of customers |
|----------------|-----------------------------|---------------------|
| 44 | 159,000 km | 3,300,000* |

* At a voltage level under 60kV

Article 26 in the Directive together with executive order No. 114/2018 are the legal acts, which define a number of obligations the DSOs have to fulfil to ensure that they act unaffected by commercial interests of other vertically integrated associated companies.

Amongst the above-mentioned obligations are DSO management requirements. The management must be free of incentives to discriminate between associated and independent compa-

² By July 1st 2018, the Danish regulatory authority changed name from Danish Energy Regulatory Authority (DERA) to *Danish Utility Regulator (DUR)*

nies. To ensure that interests of other companies within the group do not affect the management of the DSO, no directors, board members, nor other influential employees with significant decision power can participate in the management of the group's electricity production or trading companies.

In accordance with the Electricity Directive, member states can decide not to apply the obligations in Article 26, provided that the DSO has less than 100.000 connected customers, c.f. Article 26(4). A number of the provisions in Article 26(4) are applied in Denmark.

New rules on vertically integrated DSOs communication and branding aiming to ensure that the branding of the DSOs supports their independent identity as separated from the vertically integrated company and to prevent associated companies to benefit from the branding entered into force on June 2017 with a implementation deadline for the DSO companies if necessary to rebrand on July 1st 2018. These DSOs shall select a name and logo, which must be clearly distinct from the group of companies, with which the DSO is vertically integrated. DSO shall ensure an identity also when vertically integrated service companies carry out work on behalf of the DSO. DERA has reviewed DSO names and logos and advised the DSOs in the implementation process. Many DSO companies have rebranded in accordance with the implementation deadline.

DSO companies are allowed to conclude service agreements with affiliated companies. It is a requirement that the DSO can demonstrate that agreements have been concluded on market terms - meaning that the same terms of agreement would be concluded between independent parties.

DUR focuses at present on DSO companies' intra-company agreements. Cases are currently being investigated both concerning agreements regarding the energy saving scheme and intra-company agreements in general.

The DSOs are obliged to turn in a compliance program annually as well as a report describing the measures carried out to ensure their fulfilment of the unbundling requirements. DUR receives both the compliance program and the annual report and monitors the DSO's fulfilment of the Article 26 requirements.

The license to distribute electricity provides certain limitations for the DSOs regarding activities, which the company can engage in when having a DSO license. The DSOs are restricted to act within an independent company and to participate exclusively in license related activities.

The supplier centric model

Since the supplier centric model (*Engrosmodellen*) entered into force on 1 April 2016 in Denmark, the allocation of responsibilities has changed, thus the electricity suppliers have become the main point of contact in the electricity retail markets. The supplier centric model means that the electricity suppliers are obliged to fulfil the tasks of invoicing of rates and many other obligations related to the final costumers of electricity.

Communication concerning a specific consumer between the DSOs and the electricity suppliers are normally to be dealt with through the Datahub according to regulations set by Energinet. The Datahub is a common data platform containing necessary information on the final electricity customers, the consumption of electricity and the tariffs to pay.

Before the adoption of the supplier centric model, DUR received a number of inquiries from customers and independent suppliers concerning abuse of commercially sensitive information and commercially advantageous information. Since 1 April 2016, the number of inquiries has decreased.

3.1.3 Certification of GAS Transmission System Operator (TSO)

In October 2011, DERA adopted its draft decision on the certification of the Danish system operator, Energinet, for electricity and for natural gas according to the rules for ownership unbundling.

DUR adopted its final decision on the certification of Energinet in February 2012.

The legal status of the Danish TSO has not changed in 2016 or since the original certification, and it continues to be ownership unbundled.

In 2015, it was decided in a political agreement that Energinet should purchase the gas distribution grid and upstream pipelines of Ørsted A/S (formerly DONG Energy A/S), the major Danish gas company of which the Danish State is a majority shareholder. In May 2016, Energinet purchased ØRSTED's distribution grid for DKK 2.3 billion. Energinet is also to buy ØRSTED's upstream pipeline business, but the sales negotiations have been postponed but are, however, still expected to be completed at a later date. In spring 2018, Energinet bought a second DSO, NGF Nature Energy Distribution A/S.

The new activities of Energinet are not expected to rise to any concerns in respect of the certification of Energinet as a TSO.

Energinet is the sole TSO in Denmark, and the gas transmission grid has a length of 924 km, c.f. table 3.

Table 3 | Transmission system operator (Gas), 2018

| Number of TSOs | Length of transmission grid |
|----------------|-----------------------------|
| 1 | 924 km |

3.1.4 Unbundling of GAS DSO

As of spring 2018 there are 2 DSOs in the Danish gas system – Dansk Gas Distribution A/S (owned by the Danish TSO Energinet) and HMN Gasnet (owned by 57 municipalities), i.e. Energinet's purchase of Ørsted's and NGF's distribution grids, c.f. section 3.1.3. In 2018, the length of the distribution grid was approx. 18.000 km. In 2018, the distribution grid covered approx. 408.000 consumers, c.f. table 4.

Table 4 | Distribution system operator (Gas), 2018

| Number of DSOs | Length of grid | Total number of consumer metering points |
|----------------|----------------|------------------------------------------|
| 2 | 18.224 km | 408.000 |

The Danish Parliament has implemented a number of obligations in the Danish Natural Gas Supply Act para. 11 a. Together with the executive order No. 979 of 2011, these legal acts define a number of obligations the DSOs have to fulfil to ensure that they act without being affected by commercial interests of other vertically integrated associated companies.

Amongst these obligations are requirements to the management of the DSO. The management must be free of incentives to discriminate between associated and independent companies. To ensure that the management of the DSO is not affected by the interest of other companies within the group, it is decided that the directors, the board members, nor other influential employees with significant decision power can participate in the management of the group's gas production or trading companies.

Regarding the communication and branding of the DSOs, DUR monitors the communication interface toward the customers in accordance with the Natural Gas Supply Act para. 11 b and executive order No. 979 of 2011. The monitoring is executed to ensure that the branding of the DSO supports their own independent identity separated from the consolidated company and prevents that any associated company can benefit from the branding of the DSO (which otherwise would discriminate any independent competing company).

Furthermore, the DSOs are obliged to submit their compliance program annually as well as a report describing the measures carried out to ensure their fulfilment of the compliance program. DUR receives both the DSO's compliance program and the annual report and monitors the DSO's fulfilment of the requirements set out in art. 26.

The abovementioned obligations apply to all DSOs with more than 100,000 connected customers, c.f. art. 26(4). In Denmark, both DSOs meet the requirements of art. 26.

The license to distribute gas provides some limitations for the DSOs regarding activities, which the company can engage in when having a DSO license. The DSOs are restricted to act only within an independent company and exclusively to participate in license related activities. These requirements also contribute to ensure that the resources within the DSO companies are kept in the regulated company. Further, the DSOs' surpluses are regulated to prevent abuse of the DSOs' monopoly.

3.2 Technical functioning of the markets

3.2.1 Electricity

Balancing services

The basic principles of recovery of balancing costs and the principles for settlement of imbalances used by the Danish TSO were approved by DERA in 2012.

The Electricity Balancing Guideline (EBGL) entered into force 18 December 2017. The main platforms for exchange of balancing energy are MARI, PICASSO and Imbalance netting, which are to be developed by the TSOs within one year after entry into force of the EBGL and approved by all NRAs after six months.

The Nordic TSOs are simultaneously planning to develop a Nordic balancing market for exchange of balancing capacity and energy and for imbalance netting within 2021. When the European plat-

forms for exchange of balancing energy are implemented, the Nordic balancing market for energy will merge with the European platforms.

Electricity producers hold balance responsibility for the electricity produced at their own plants and are required to assign the balance responsibility to a *Balance Responsible Party* (BRP) if they wish for another party to hold this responsibility.

Balancing costs are basically recovered by the market participant, causing the cost/imbalance according to whether the market participant is *consumption balance responsible* or *production balance responsible*. Consumption balance settlement applies a one-price settlement, and the production balance settlement applies a two-price principle, reflecting whether the production imbalance supports the system or not. The pricing principles incentivise the balance responsible to be in balance.

This method is the same in the four Nordic countries participating in the common Nordic balancing market "*The Nordic regulation Power Market*".

Being a state owned non-profit company, the primary aim of the Danish TSO (*Energinet*) is to maximise social welfare when deciding on market design etc.

Security and reliability standards and quality of service and supply

Energinet provide information on Energinet activities relating to:

- Performance of scheduled maintenance works
- Revision of maintenance systems or procedures
- Report of incidents on the transmission network due to third party interference
- Provision of data to ENTSO-E for preparation of e.g. ENTSO-E Winter and Summer Outlook Reports
- Monthly reports for operations and projects
- Provision of plant maintenance reports created in SAP, the ERP system used by Energinet
- Asset Management system at Energinet in accordance with the PAS55 standard

Monitoring time taken to connect and repair

DUR has quarterly meetings with Energinet on regulatory issues, including monitoring tasks. DUR also requests annual written reports from Energinet on connect and repair.

DUR monitors the time taken by the DSOs' to make connections and repairs based on annual reports from the Danish Energy Association. The annual benchmarking of DSOs includes the duration and frequency of interruptions.

Monitoring safeguard measures

In Denmark, all Danish authorities - municipalities, regions and central authorities - are required to plan for maintaining their most critical functions in event of major accidents and crises. This principle of sector responsibility is outlined in the Danish Emergency Management Act.

Energinet is, as a transmission system operator, responsible for emergency preparedness in the Danish electricity and gas sectors and for coordinating the emergency preparedness of the sectors before, during and after a crisis. Energinet is not an authority; however, the Danish Energy Agency has granted Energinet the authority to supervise and ensure emergency preparedness in the electricity and gas sectors.

All the companies in Denmark providing electricity production, transmission, and distribution pursuant to the Danish Electricity Supply Act, together with Energinet, have therefore prepared the necessary planning and taken the necessary steps to safeguard the electricity supply during crises and other extraordinary situations.

This involves:

- Vulnerability analyses, general contingency plans, detailed contingency plans and security plans
- Training, exercises, reporting of relevant incidents, statistics, etc.
- Operational matters during a crisis.
- Inspection of the companies' work regarding contingency planning and crisis management.

In case of a crisis the power sector plan states that Energinet decides how to minimize market disturbance based on an evaluation of the specific crisis and the rules laid down in the Market Regulations prepared by Energinet.

Nordic Crisis Management

Energinet and the Danish Energy Agency are members of NordBER (*Nordic contingency Planning and Crisis Management Forum*) together with the other Nordic TSOs and the Nordic energy authorities.

NordBER's mission is to strengthen the Nordic TSOs' emergency preparedness and facilitate mutual assistance in case of crisis.

Renewable Energy Sources (RES) regulatory framework

Connection, access and dispatching regimes

New installations that produce electricity from renewable sources have the right to be connected to the grid. Energinet and the network companies cooperate to ensure this network access.

Electricity generation from decentralized co-generation plants and electricity generation installations that produce electricity from renewable energy or use waste products as fuel, have priority access to the grid. Energinet can only reduce or alleviate prioritized electricity generation if the reduction of electricity generation from other installations is not sufficient to maintain the technical quality and balance within the combined electricity supply system.

Prioritized access also applies to electricity from tendered offshore wind farms in accordance with the Danish RE Act as they can only be curtailed under special circumstances and against compensation for operational loss.

Energinet establishes the criteria for reducing prioritized electricity generation and these criteria are approved by the Danish Utility Regulator.

Balance responsibility for RES-E:

Electricity producers hold balance responsibility for the electricity produced at their own plants and are required to assign the balance responsibility to a Balance Responsible Party (BRP) if they do not want to hold the responsibility themselves.

RES-E is traded under the same conditions as other electricity generation.

Until July 1st 2015, Energinet handled the balance responsibility for wind turbines and small-scale RE installations under the purchase obligation. Energinet is still responsible, but from July 1st 2015 to December 31st 2018. Following a tender process, two Danish BRPs are handling this balance responsibility. For the period from 1st January 2019 to 31st December 2021 a new tender process has been carried out.

Onshore wind turbines > 25 kW on market terms (meaning no longer eligible to receive a premium tariff) are required to assign the balance responsibility to a BRP. These wind turbines then receive a balancing subsidy for a maximum of 20 years of 1.8 øre (approx. € 0.0024) per kWh because of the balancing costs they face. Off shore, wind farms also hold balancing responsibility, but do not receive the balancing subsidy. In these cases, the developers instead include this cost in the tender amount.

3.2.2 Gas

Balancing services

The European network code on balancing (NC BAL) required national implementation by 1 November 2015.

The code was implemented in Denmark by 1 October 2014 (early implementation) introducing market based balancing. The Danish gas exchange, Gaspoint Nordic, serves as trading platform for the trading of the within-day product (title product) for daily balancing.

The Danish balancing model has full end-of-day cash-out and incentive-based balancing based on a helper/causer model.

In 2016, the gas exchange announced that it has managed to sign a market maker agreement with a major Danish gas company to support short-term trading at the exchange. The company was committed to place within-day orders of 30 MW with a maximum spread of 0.25 EUR/MW.

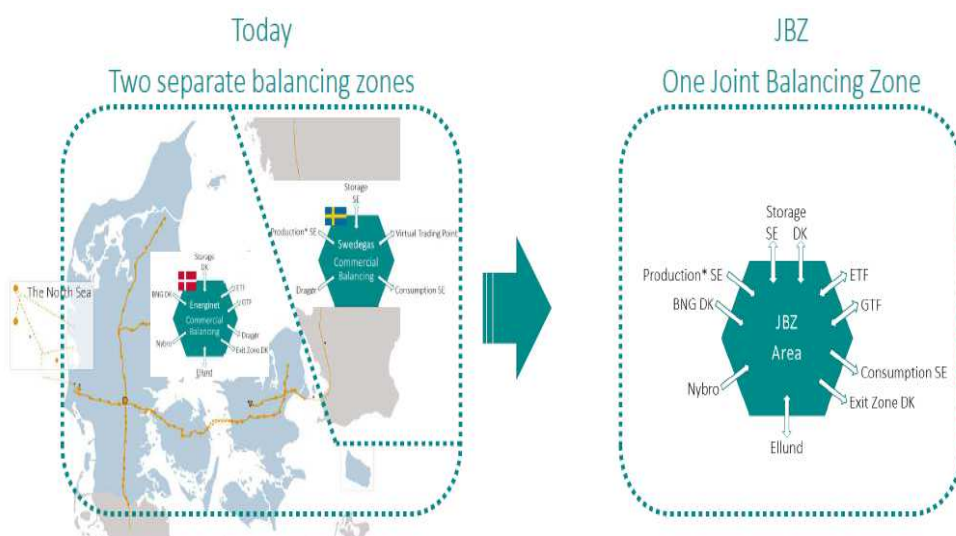
Throughout 2017, there has thus been a market maker for the within-in product (title product) for all days of the year at Gaspoint Nordic. However, it was recently announced by the Danish gas exchange that the present market-maker agreement will terminate for weekdays in 1Q 2018.

In September 2017, the Danish TSO (Energinet) and the Swedish TSO (Swedegas) announced that the two TSOs would launch a joint project aiming at creating one common Danish-Swedish balancing zone.

The main purpose of a Joint Balancing Zone is to enhance the efficiency of cross-border trade between the Swedish and Danish markets and harmonize balancing procedures. Establishing a borderless Danish-Swedish balancing zone is expected to improve competition in the region as a whole.

As a result of the proposed Joint Balancing Zone, the current gas deliveries and offtakes in Sweden and Denmark will take place in one merged Balancing Zone. This means that Shippers and BAs only need to balance their deliveries and offtakes for the Gas Day in one Joint Balancing Zone compared to the two different Balancing models of today, c.f. figure 1 below.

Figure 1 | the merger of two balancing zones



Source: Energinet

The creation of one joint balancing zone for Sweden and Denmark is expected to simplify balancing, increase security of supply and possibly attract more gas traders to the joint market.

The JBZ project does not include harmonization of network tariffs.

It is expected that the JBZ project will be submitted for regulatory approval in Denmark and Sweden in the second half of 2018 and, if approved, the joint balancing zone will become operational from 1 April 2019.

At the moment, Sweden (Swedegas) is exempted from the European network code on balancing, and the exemption expires on 1 April 2019.

Monitoring time taken to connect and repair

DUR monitors the time taken by the Danish TSO, Energinet, to make connections and repairs. Energinet prepares an annual report for DUR regarding this topic.

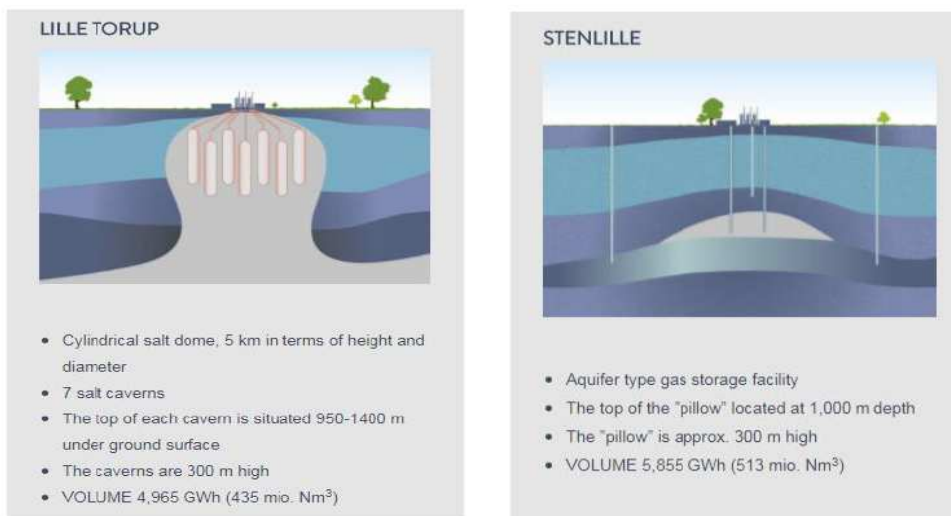
DUR does not monitor the time for the DSOs to make connections and repairs.

Monitoring access to storage, linepack and other ancillary services

According to the Danish Natural Gas Act, there is negotiated access to storage and linepack in Denmark. There is no price regulation under the Danish Natural Gas Act, but DUR still has a legal obligation to ensure that third party access to storage is provided in a manner that is transparent, non-discriminatory and objective – including the way in which tariffs are set.

The Danish storage company, Gas Storage Denmark, is a wholly owned subsidiary of the Energinet Group and operates the two Danish physical storage facilities with a combined storage capacity of approx. 950 million m³, c.f. figure 2 below.

Figure 2 | The two Danish storage facilities



Source: Energinet

Note: Total volume capacity: 10,820 TWh; Total injection capacity: 4, 2 GW; total withdrawal capacity: 8, 1 GW

The two storages are operated as one virtual commercial storage point, and Gas Storage Denmark sells its storage capacities on a first-come-first-served basis and via auctioning.

In 2017, the storage market continued to be very difficult to operate in for the storage operator due to the very narrow summer/winter spreads in the European gas market. This is in line with the general picture in Europe.

Additionally, Gas Storage Denmark had to devalue the recorded storage volumes of the company by approx. 120 million Nm³ due to disappointing withdrawal tests for Stenlille and due to a cavern at Lille Torup being partly filled with water after planned maintenance. Thus, the Danish Environmental Complaints Board has suspended a prior permission to let the salty water from the cavern maintenance flow into the Danish bay, Limfjorden.

In response to the difficult market situation in the past few years, Gas Storage Denmark seeks to develop more tailor-made products and solutions for the gas market. This trend continued in 2017.

Monitoring correct application of criteria that determine model of access to storage

Gas Storage Denmark is a monopolist in the Danish storage market, c.f. above. However, the negotiated access regime to storage has so far been maintained as there is no indication that the monopoly situation in the Danish storage market can be abused in a very competitive flexibility market with flexible import pipeline capacity from Germany and increased short-term trading opportunities for market participants.

Under the Thyra platform rebuild (November 2019 – July 2022), where the volumes from the North Sea will be reduced severely thus making Denmark totally dependent on imports from Germany, the storages will have a critical role in supporting the Danish gas market, c.f. 4.1.2.

DUR monitors the criteria supporting the choice of negotiated access. If competition, access conditions or product choices/prices should develop in a way that do not reflect expected market behavior but rather seem to reflect the monopoly situation in the Danish storage market, DUR will approach the legislator to discuss if the access regime should continue to be negotiated or whether it should be changed to a regulated access regime.

3.3 Network tariffs for connection and access

3.3.1 Transmission

Electricity

There has been no new regulation on tariffs for access or connection fees in 2017 nor has the methodology for the TSOs setting tariffs or connection fees been changed in 2017.

To prevent cross subsidization between transmission and supply activities, the companies must comply with the rules regarding entity unbundling, accounting unbundling and management unbundling.

DUR approves the Energinet's (TSO) tariff methodology and the methodology for setting connection fees. The methodologies must, according to the Electricity Supply Act, ensure that tariffs and other payments are set in a fair, objective and non-discriminatory manner and that they are based on necessary costs, where every group of costumers pay the costs that they give rise to.

Energinet (TSO) is a completely state owned company, which is not allowed to build up equity or pay dividends to its owner, the Danish Ministry of Energy, Utilities and Climate. Energinet is regulated under a strict cost plus regime, which means that the company only can recover "necessary costs" by efficient operations and a "necessary return on capital". The TSO has to transfer any over-recovery back to the consumers through reduced tariffs – in principle in the calendar year following the calendar year, which gave rise to over recovery. In extraordinary cases, the payback time may be longer in order to secure a stable price development. The same principle applies if Energinet has an under-recovery with the opposite effect for the consumers.

According to the Danish Electricity Supply Act, DUR has to approve the annual report of Energinet. The decision on over over-recovery/under-recovery is part of this approval process. The regulatory scrutiny of the annual report also includes a review of the TSO's cost and asset base.

Presently, a new economic regulation of Energinet is being prepared. The new regulation will be based on a revenue cap model with efficiency requirements and is expected to take effect from 2021.

DUR approves Energinet's tariff methodology and the methodology of connection fees. The methodologies must, according to the Electricity Supply Act, ensure that tariffs and other payments are set in a fair, objective and non-discriminatory manner and that they are based on necessary costs where every group of customers pays the costs that they give rise to.

Energinet charges tariffs for operation and transport of electricity (network and system services) in transmission networks following a "cost-of-service" principle.

DERA has evaluated Energinet's efficiency in connection with the Annual Report 2017, and supplementary material, which in itself does not give rise to questions about Energinet's overall efficiency.

DUR participates in the implementation of a new benchmark of the electricity and gas transmission network under the auspices of CEER, which includes energy and gas transmission. Benchmark surveys are expected to be published in 2019.

Gas

Denmark has no LNG (Liquefied Natural Gas) terminals and consequently, the following applies only to gas transmission.

There has been no new regulation on tariffs for access or connection fees in 2017 nor has the methodology for the TSOs setting tariffs or connection fees been changed in 2017.

DUR approves the Energinet's (TSO) tariff methodology and the methodology of connection fees. The methodologies must, according to the Danish Gas Supply Act, ensure that tariffs and other payments are set in a fair, objective and non-discriminatory manner and that they are based on necessary costs where every group of customers pays the costs that they give rise to.

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DERA has evaluated Energinet's Annual Report 2017, and supplementary material, which in itself does not give rise to questions about Energinet's overall efficiency.

DUR participates in the implementation of a new benchmark of the electricity and gas transmission network under the auspices of CEER. As mentioned, the benchmark reports on gas and electricity transmission are expected to be published in 2019.

3.3.2 Distribution

Electricity

There has been no new regulation on tariffs for access or connection fees in 2017 nor has the methodology for the DSOs setting tariffs or connection fees been changed in 2017.

To prevent cross-subsidization between distribution and supply activities, the companies must comply with the rules regarding entity unbundling, accounting unbundling and management unbundling, c.f. 3.1.2.

DUR approves the companies' tariff methodology and the methodology of connection fees based, as the main rule, on an industry wide tariff model developed by the Danish Energy Association on behalf of the DSOs. The methodologies must, according to the electricity ACT, ensure that tariffs and other payments are set in a fair, objective and non-discriminatory manner and that they are based on necessary costs where every group of costumers pay the costs that they give rise to.

The DSOs' cost data are checked annually in connection with the determination of the revenue caps (necessary costs). The revenue caps are based on the DSOs' annual accounts as audited by a certified accountant and subsequently submitted to DUR.

The industry wide tariff model allocates the allowed revenue to the cost drivers ensuring that a consumer at a low voltage level, e.g. 0.4 kV, pays for the use of the entire grid, whereas a consumer on a higher voltage level, e.g. 50 kV, does not pay for maintenance of the 10 kV and 0.4 kV grids. The allocation of income to cost drivers creates consistency between revenue caps and actual costs of running the grid. If consumers on 0.4 kV level drive 50 pct. of the costs, the group pays 50 per-cent of the revenue according to the model. The model allocates individual costs to consumers (e.g. metering) based on the average costs for that group of consumers.

A new regulation was passed in 2017 with effect from 2018. It is based five years regulation periods with a revenue cap, built on a cost cap with efficiency regulation, a cap for returns on historical investment and on a return on future investment set as a market based WACC and finally on a reduction of the revenue cap in case of inadequate quality of supply.

The new regulation includes as well yearly general efficiency requirements as individual requirements. DUR will develop a new benchmark model different from the previous benchmark model.

Gas

There has been no new regulation on tariffs for access or connection fees in 2017 nor has the methodology for the DSOs' setting tariffs or connection fees been changed in 2017.

To prevent cross-subsidization between distribution and supply activities, the companies must comply with the rules regarding entity unbundling, accounting unbundling and management unbundling.

DUR approves the companies' tariff methodology and the methodology of connection fees. The methodologies must, according to the Natural Gas Supply ACT, ensure that tariffs and other payments are set in a fair, objective and non-discriminatory manner and that they are based on necessary costs where every group of costumers pays the costs that they give rise to.

According to the approved methodology, the distribution tariffs are set as volume charges and independent of distance. The methodology ensures that all customers pay a high tariff for the first cubic meters delivered and a lower tariff for volumes that exceed certain intervals.

The methodology was approved in 2005 and has developed on a continuous basis, sometimes independently for each DSO. For example, an adjustment to the methodology was approved in 2013, and new customers with large expected consumption can pay a lower unit price for distribution if they pay the full cost of the grid connection up front.

The DSOs' cost data are checked annually in connection with the determination of the revenue caps (necessary costs). The revenue caps are based on the DSOs' annual accounts as audited by a certified accountant and subsequently submitted to DUR.

The applied benchmarking model used by DUR has been unchanged since the introduction of revenue cap regulation in 2005. The benchmarking model calculates sector specific marginal cost (OPEX) for predefined output. The model then compares realized OPEX for each regulated company with a calculated OPEX for the same company, using the sector specific marginal costs.

The model has been applied for setting efficiency requirements for the current regulatory period 2018-2021. As a consequence of the ongoing consolidation of the gas distribution sector in Denmark, DUR expects that a new model for setting efficiency requirements will be used in the following regulatory period.

3.4 Cross-border issues

3.4.1 Electricity

Allocation of capacity and congestion management

Denmark is a member of the two capacity calculation regions (CCR) Nordic and Hansa.

Nordic CCR comprises the electricity transmission lines between

- Jutland/Funen (DK1) and Sealand (DK2)
- Jutland/Funen (DK1) and Sweden (SE3)
- Sealand (DK2) and Sweden (SE4)
- Internal swedish bitting zones

- Finland and Sweden

Hansa CCR comprises the electricity transmission lines between

- Denmark (DK1) and Germany (DE)
- Denmark (DK2) and Germany (DE)
- Sweden (SE4) and Poland

Allocation of all day-ahead cross-border capacity follows the implementation of the Single Day-Ahead Coupling (SDAC) pursuant to terms and conditions or methodologies developed in accordance with Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (CACM GL). Flows and prices in 2017 were determined through implicit auctions. Residual capacity that was not used in the day-ahead market was given to the intraday market.

On both Danish bidding-zone borders to Germany (DK1-DE and DK2-DE) as well as the internal border (DK1-DK2) physical transmission rights (PTRs) were issued through monthly and in regards to the German border also yearly auctions. The capacity was used entirely financially through the Use-It-Or-Sell-It (UIOSI) option, so capacity was given back to the (day-ahead) market.

In 2017, the Danish Ministry of Energy, Utilities and Climate agreed on a joint declaration with the German Federal Ministry for Economic Affairs and Energy, as well as the German regulatory authority (Bundesnetzagentur) and the Danish regulatory authority that a minimum level of capacity is required on the electricity transmission link between Jutland and Germany, DK1-DE, for trading of power for the day-ahead market.

The aim of the agreement is to make the full capacity of the DK1-DE interconnector available for electricity trade gradually, as soon as the relevant infrastructure development is completed. For this, minimum available hourly capacities have been agreed. These will increase over time. 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 agreement has been implemented as of 1 December 2017, and was commenced with a pilot phase as of July 2017. From 2018, the minimum available capacity is 700 MW, 900 MW in the first three months of 2019, 1000 MW from 1 April 2019 and 1100 MW from 2020. The agreement will run until the end of 2020.

The Danish TSO, Energinet, is receiving downward regulating requests from one of the German TSOs, TenneT, and the requests are activated through the Danish special regulation market.³

Market participants can only participate in downward special regulation if they are already producing through either the spot- or the intraday market or if they have some technology that can deliver downward regulation directly such as an industrial electric kettle for heat production. The special

³ The Danish special regulation market is a market, where the usual price order not necessarily is followed and where the activation will not be price setting for the balancing price. The market is used to ensure, that interventions due to technical conditions in the net does not influence the market for regulating power and thus the imbalance price.

regulation volume has increased with 0.8 TWh, while the intraday volume has increased with 1.1 TWh.

The relevant TSOs, TenneT and Energinet, submitted a monitoring report assessing the pilot phase in December 2017. The monitoring report was subject to an opinion by the national regulatory authorities, Bundesnetzagentur and DERA. As a general remark, the two regulatory authorities note that the minimum available capacity during the pilot phase has met the agreed levels for the pilot phase.

Capacity restrictions have also manifested themselves on the DK2/SE border, where capacity from Denmark to Sweden has been limited periodically. The restrictions are due to net constraints in the West coast corridor in Southern Sweden causing the need to limit the capacity in the interconnector between Denmark and Sweden. According to an agreement between Sweden and the European commission from 2010, Sweden should solve the problems in the West coast corridor before 2020 and is allowed to limit the capacity in the interconnector until then.

Actions under CACM GL

Nord Pool A/S was designated *Nominated Electricity Market Operator* (NEMO) for both day-ahead and intraday coupling in the two Danish bidding zones on 27 October 2015.

Pursuant to Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a *Guideline on Capacity Allocation and Congestion Management* ("CACM GL"), and, in particular, Article 4(5) thereof, EPEX Spot SE notified DERA on 18 January 2016 that EPEX Spot SE proposes to perform single day-ahead and intraday coupling in the two Danish bidding zone areas, DK1 and DK2. DERA has allowed EPEX Spot SE to offer trading services in the two Danish bidding zones. EPEX Spot SE has not yet (November 2018) commenced operation in the Danish bidding zones.

In accordance with CACM GL Article 9(1), TSOs and NEMOs shall develop the terms and conditions or methodologies required by the CACM GL and submit them for approval to the competent regulatory authorities within the respective deadlines set in the CACM GL. DERA takes active part in the work under ACER CACM Task Force and meets the deadlines for approving the proposals as set out in CACM GL.

Actions under FCA GL

Pursuant to Commission Regulation (EU) 2016/1719 of 26 September 2016, establishing a *Guideline on Forward Capacity Allocation* ("FCA GL") DERA approved on 1 June 2018 a proposal from the Danish TSO, Energinet, regarding arrangements to ensure cross-zonal risk hedging opportunities other than long-term transmission rights in accordance with article 30 of FCA GL. The proposal submitted by Energinet has been developed in cooperation with the Swedish TSO, Svenska Kraftnät. Thus, DERA's decision to approve the proposal has been coordinated with the Swedish regulatory authority, Energimarknadsinspektionen.

On 21 March 2018, DERA approved in cooperation with the relevant regulatory authorities of CCR Hansa that financial transmission rights will be introduced on the German-Danish borders from the first yearly auction following the decision to approve.

Actions under SO GL

Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation entered into force on September 14th 2017.

DERA received on 14 January 2018 a proposal from the Danish TSO, Energinet, regarding the All TSOs' proposal for the determination of LFC blocks for the Synchronous Area Continental Europe pursuant to article 141, stk. 2 of COMMISSION REGULATION (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation ("SOGL"). DUR approved the proposal on the 14 September 2018. The proposal submitted by Energinet has been developed in cooperation with all TSOs of the Synchronous area of Continental Europa. DURs approval of the proposal has been coordinated with the NRAs of Continental Europa.

Main decisions regarding approval of methods of network companies

In 2017, among the main decisions regarding approval of methodologies and economic regulation were:

- Efficiency requirements for the network distribution companies for 2018
- Approval of Energinet's changed minimum threshold for participation in the market for regulating power
- Compensation to off-shore wind mills for commanded down-regulation
- Evaluation of Energinet's reservation in SK4 (interconnector)
- Approval of Energinet's yearly report
- Repeal of Energinets reservation on the interconnector Skagerrak 4 (from DK1-NO2) for the exchange of aFRR.

The decisions can be found on DURs webpage [here](#).

Monitoring technical cooperation between Community and third-country TSOs

DUR monitors the technical cooperation between Community and third country TSOs through the cooperation within ACER and CEER and the monitoring reports published by these entities. In addition, DUR is also a member of NordREG, i.e. the cooperation of Nordic NRAs, including Iceland.

On a European level, Energinet co-operates with Community TSOs and third-country TSOs (e.g. Statnett from Norway) within the TSO organization ENTSO-E (43 TSOs from 36 countries).

On a regional level, Energinet cooperates with Community TSOs and third-country TSOs (Statnett from Norway) as part of two Coordinated Capacity Calculation Regions (CCRs⁴) - CCR Nordic and CCR Hansa.

Energinet also co-operates bilaterally with relevant Community TSOs (e.g. the other Nordic TSOs, the Dutch TSO and the German TSOs) and third-country TSOs (e.g. the Norwegian TSO)

Energinet provides the Danish Utility Regulator with information and reports from all relevant common projects relating to technical cooperation between Community and third-country TSOs.

⁴ Requirement of the CACM regulation

Monitoring TSO investment plans in view of TYNDP and PCI

The regulatory authority regarding the Danish TSO's (Energinet) investments is divided between the Danish Energy Agency (DEA) and DUR, where DEA is responsible for the approval of Energinet's investment plans etc. as well as approval of actual investments.

DUR is responsible for the monitoring of Energinet's investment plans in the context of compliance with the communitywide TYNDP which comprises projects of common interest (PCI projects) as well as other cross border investment projects by Energinet. The monitoring process has revealed no discrepancies between Energinet's plans and the community wide TYNDP.

Energinet is responsible for preparing investment plans (transmission) and to submit the plans to the Danish Ministry of Energy, Utilities and Climate (owner of Energinet) for approval and to DUR for monitoring compliance and compatibility with the European TYNDP.

Energinet is responsible for assessing the need for new infrastructure and for planning possible (transmission) network expansions according to executive order No. 1034 of 11 November 2011.

In February 2017, Energinet published a 10-year plan covering the company's planned reinvestments, extensions, strengthening and redevelopment of the grid. The RUS plan shows an overall status of Energinet's projects in the construction, planning, and screening phases. The plan can be found [here](#).

Among the major electricity projects are:

COBRA cable

COBRA cable (COpenhagen-BRussels-Amsterdam cable) is an interconnector between the Netherlands and Denmark. COBRA cable is a Project of Common Interest (PCI) under the European Commission. The cable is under construction and is expected to be operational in the 3rd quarter of 2019.

Viking Link

The authorities in Great Britain and Denmark have approved the Viking Link cable project and National Grid and Energinet have made the decisions to invest. Viking will run between Bicker Fen in Great Britain and Revsing in Denmark. The project awaits a planning permission in Great Britain while all Danish planning permissions have been granted. Viking Link is expected to be operational in 2023.

Kriegers Flak

Kriegers Flak is an offshore wind farm located in the Danish part of the reef Kriegers Flak in the Baltic Sea. The Kriegers Flak combined grid solution between Germany and Denmark is currently under construction and will be used to connect a Danish and German offshore wind farm to the grids in Denmark and Germany respectively, and as an interconnector between the two countries. Kriegers Flak is planned to be operational early 2019.

Cooperation

DUR cooperates with ACER and other NRAs on cross-border issues as obliged to by Article 37(1)(c) of the Electricity Directive. Furthermore, DUR cooperates with the other Nordic regulators within NordREG.

In 2016, the Copenhagen-based Nordic Regional Security Coordinator (RSC) was established. The Nordic RSC is the joint office for the four electricity TSOs in the Nordic Region (Fingrid, Statnett, Svenska Kraftnät and Energinet). It supports the national TSOs in maintaining the security of the power systems across the four countries (Finland, Norway, Sweden and Denmark).

3.4.2 Gas

Cooperation

DUR has a continuous cross-border co-operation with Sweden as Sweden has no indigenous gas production and no gas storage or LNG facilities. Sweden therefore depends entirely on Danish gas supplies for its national market with an annual consumption of approx. 1 billion m³ per year. Security of supply is therefore a subject that requires continuous cooperation between the Danish and Swedish authorities and system operators.

In 2017, the DERA and the Swedish regulatory authority (Ei) have performed a joint self-evaluation of the Danish-Swedish wholesale markets for gas, which has been submitted to ACER in July 2017, c.f. section 4.1.2.1.

In 2017, DERA has also cooperated intensively with the Polish regulator, URE, on various regulatory aspects of the Baltic Pipe Project. This cross-border project and the results of the co-operation are described in more detail.

Access to cross-border infrastructure, including allocation and congestion management

On 1 October 2013, a new 94 km gas pipeline in southern Jutland, from Ellund to Egtved, and a new compressor station in Egtved started operation. Together with the compressor station in Egtved, the new pipeline significantly increased the capacity of the gas transmission network allowing Denmark to import sufficient natural gas quantities from Germany to cover both the Danish and Swedish consumption in the future – when gas production in the Danish part of the North Sea starts to decline.

The German TSO, Gasunie Deutschland, has also expanded the capacity on the German side of the Ellund interconnection point, and by the start of 2017, the amount of firm capacity for Ellund (D > DK) was approx. 450,000 Nm³/hours.

Germany has implemented a short-term use-it-or-lose-it mechanism (capacity management procedure (CMP) measure) that creates additional firm capacity on a day-to-day basis at Ellund (exit Gasunie – entry Energinet). However, it does not solve the challenge that (new) shippers may still face when trying to secure medium and long-term transport capacity into Denmark.

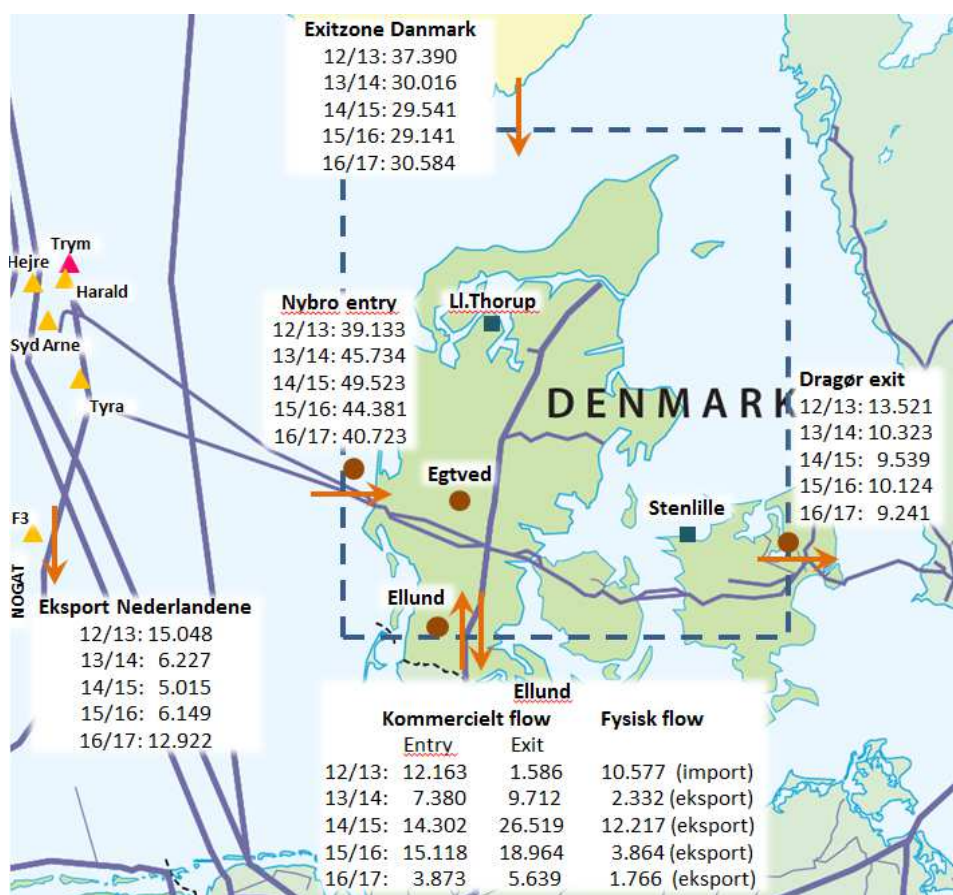
The expansion of the Danish (and German) gas transmission network has improved security of supply for Denmark and Sweden and facilitated (increased) competition in the gas market to the benefit of the consumers. Additionally, the Danish grid expansion has paved the way for a better market integration between the Danish and German wholesale markets. It is clear that the infrastructure

expansion (from 2013) has contributed significantly to reducing the price spread between the Danish gas exchange and the German hubs.

The Danish gas system consists of an exit-zone and two cross-border connection points Ellund (towards Germany) and Dragør (towards Sweden). Dragør is one-directional with no gas flow from Sweden to Denmark, c.f. figure 3 for an illustration of the Danish entry/exits points – with flow figures for the gas years 12/13 up to and including 15/16.

Until 1 October 2013, it was only possible to import 2,303 MWh/h on an interruptible basis. However, today it is possible to import 7,700 MWh/h on a non-interruptible basis. The reserved capacity is much lower than the technical capacity for the import from Germany. Thus, shippers have not been taken full advantage of the new capacity level so far.

Figure 3 | Entry-exit points and gas flows in the Danish transmission system (Gwh), 2012-2017



Kilde: DUR based on flow data from Energinet

In general, there is no congestion in the Danish transmission system, and the Danish CMP instruments have not been used. In view of the expected future fall in the Danish, gas consumption and the improved capacity situation it is very unlikely that congestion will occur in the future.

The Baltic Pipe Project

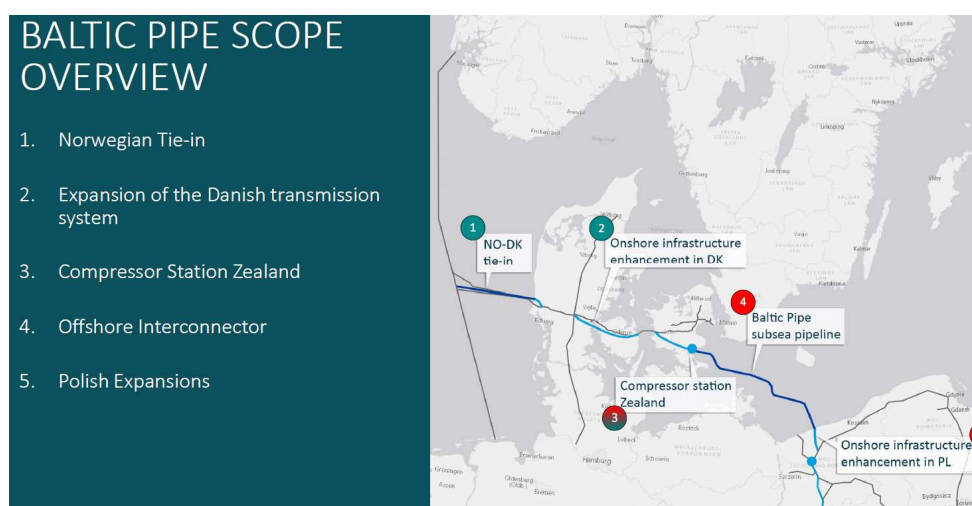
The Baltic Pipe Project is a strategic gas infrastructure project with the goal of creating a new gas supply corridor in the European market.

The Baltic Pipe Project will allow transport of gas from Norway to the Danish and Polish markets, as well as to end-users in neighboring countries. At the same time, the Baltic Pipe Project will enable the supply of gas from Poland to the Danish and Swedish markets.

The project is being developed in collaboration between the Danish gas and electricity transmission system operator Energinet and the Polish gas transmission system operator GAZ-SYSTEM.

Figure 4 shows the scope of the Baltic Pipe Project and its five components.

Figure 4 | Scope of the baltic pipe project



Source: Energinet

Note: Green: Danish (Energinet); Red: Polish (Gaz-System).

A feasibility study from 2016 showed that the Baltic Pipe Project can bring significant socio-economic benefits to both Poland and Denmark - and potentially to the Baltic region as well.

The total capital costs of the Baltic Pipe Project are estimated to be approx. 1.6 billion euros. The costs are split equally between Energinet and GAZ-SYSTEM.

EU has included Baltic Pipe on its list of key infrastructure projects that are of common interest to Europe – also known as “PCI projects”. This is due to the essential role Baltic Pipe could play in contributing to the development of Europe’s internal market for gas, and the strengthening of EU’s security of supply.

The final investment decision on Baltic Pipe is expected to be taken by 2018 in both Denmark and Poland, and it should be possible to transport gas through the Baltic Pipe route from October 2022.

As a precondition for greenlighting the Baltic Pipe Project, Energinet and GAZ-SYSTEM S.A. launched an “Open Season” process in the second half of 2017, which invited market players to submit binding bids for capacity in the Baltic Pipe Project.

Open season 2017

An Open Season process makes it possible for project promoters to collect long-term investment signals for a given infrastructure project before making an investment decision.

In mid-2017, Energinet and GAZ-SYSTEM launched the “Open Season 2017” procedure and invited market participants to submit binding bids for the available Baltic Pipe capacity offered under the procedure. The Open Season 2017 process was designed to be transparent and non-discriminatory in accordance with current EU regulation.

Phase I of the Open Season 2017 was a non-binding phase where submitted bids constituted a so-called “order to Proceed”. Thus, if a sufficient level of Open Season 2017 capacity was requested in Phase 1, the project promoters were obliged to pursue a fast-track process to reach the commencement date of 1 October 2022. Bids could be submitted for a maximum of 15 years (October 2022 – September 2037). Phase 1 ended on 25 July 2017.

Phase II of the Open Season 2017 was the final and binding phase where the project promoters received final and binding bids for transport capacity of approx. 8 billion m³ per year for a period of 15 years – from 2022 to 2037. Phase II ended on 31 October 2017.

The level of user commitment in phase II was above the threshold (set at 7.5 billion m³ per year for 15 years) and thus allowed Energinet and Gaz-System to enter into binding contracts and go on to prepare for the final investment decisions (FID) to be taken before the end of 2018 in both Denmark and Poland.

DERA was involved and consulted in the preparation of the Open Season process.

Decisions from DERA in respect of the Baltic Pipe Project

In connection with the Baltic Pipe Project DERA (and the Polish regulator, URE) have made a number of formal decisions.

Approval of capacity allocation rules

In July 2017, DERA decided that 10 % of the total capacity of the Baltic Pipe Project should be reserved for short term contracts in line with the European network code on capacity allocation, NC CAM, Article 8, that requires a minimum of 10 % of incremental capacity be set aside for short-term products

In the same decision, DERA approved the allocation method for capacity in the Baltic Pipe Project (a pro-rata model) and ascertained that the Baltic Pipe capacity contracts with a maximum duration of 15 years were in line with NC CAM.

The decision was coordinated with URE who made a similar decision.

Economic Test – approval of parameters and setting of f-factor

In November 2017, DERA approved the parameters and the determination of an f-factor for the “economic test” for the Baltic Pipe Project. The principles for the economic test are set out in the Commission Regulation (EU) 2017/459 of 16 March 2017 (NC CAM).

The economic test determines the economic viability of the project, i.e. a sufficiently large share of the project costs, and the network users demanding the capacity of the project should cover the associated allowed increase in Energinet’s revenue.

According to NC CAM, an incremental capacity project is economically viable if the revenue from network users’ *binding commitments* is equal to or larger than the *allowed increase in revenue* adjusted with an *f-factor*.

Energinet has estimated the present value of the allowed increase in revenue to be 693 million euros, and DERA set the f-factor at 0.6. This implies that 60% of the allowed increase in revenue caused by the Baltic Pipe project should be covered by binding commitments for the economic test to provide a positive result. The f-factor for Poland was equally set at 0.6.

Based on the decisions of DERA and URE, Energinet and Gaz-System performed the economic tests, which yielded a positive result. The positive outcome of the economic tests for each TSO (together with the fulfillment of the other conditions set forth in the Open Season 2017 Rules) allowed entering into the capacity agreements with the participants who had been allocated capacity.

Approval of the cost allocation between Poland and Denmark for the Baltic Pipe Project

On 27 October 2017, Energinet and Gaz-System submitted a joint “investment request” in accordance with the European infrastructure regulation (Regulation 347/2013) in order to get regulatory approval of a joint proposal for a cost sharing of total capital costs, operational costs and costs for abandonment for the PCI project.

In February 2018, DERA approved the cost allocation between the Danish TSO, Energinet, and the Polish TSO, Gaz-System, for the Danish part of the Baltic Pipe Project. The total costs of the project are estimated at approx. 12 billion Danish kroner (approx. 1.6 billion euros) and approx. half of the costs are Danish.

As part of its approval, DERA approved that the Polish TSO pays a compensation amount to the Danish TSO for the additional value the Baltic Pipe Project is estimated to have for Poland compared to the value for Denmark. The compensation amount is calculated to be 89.6 million euros (78.4 million euros in 2017 figures) and the amount is part of the “substantiated proposal” for a cost sharing that the two project promoters (Energinet and Gaz-System) submitted jointly for approval to the Danish regulatory authority, DERA, and the Polish regulatory authority, URE.

The substantiated proposal was included in the joint “investment request” that the two project promoters jointly submitted to DERA and URE on 27 October 2017 based on the European infrastructure regulation that sets rules for the regulatory treatment of PCI projects. PCI stands for Projects of Common Interest, and the Baltic Pipe Project is a PCI project.

In its reasoning for approving the proposed cost allocation DERA highlights that the Baltic Pipe Project will give Denmark substantial transit income that can help maintain the Danish transmission

tariffs at a low level also in the future, that the proposed cost sharing seems to be well balanced and in line with the underlying cost-benefit analyses, that the socio-economic risks associated with possible low transport volumes in the long term appear to be manageable and reasonable compared to the expected benefits, that the proposed cost allocation is also the result of negotiations between Denmark (Energinet) and Poland (Gaz-System).

DERA and URE made two separate but coordinated national decisions in line with the coordination requirement of regulation 347/2013 meaning that the two national decisions are materially the same and based on the joint investment request from the two TSOs.

DERA and URE coordinated its two national CBCA decisions by means of a Memorandum of Understanding (MoU) which confirmed mutual agreement on the key cost elements and the key socio-economic benefits from the Baltic Pipe Project. Based on these agreed figures and benefits, DERA and URE agreed that the proposed cost sharing with a payment from Gaz-System to Energinet could be approved.

The approval of the cost allocation does not constitute the final approval of the Baltic Pipe Project. The final investment decision (FID) for the Baltic Pipe Project has to be taken by the end of 2018 at the latest by the project promoters and their respective owners.

Monitoring investment plans and assessment of consistency with Community-wide network development plan

The regulatory authority regarding the Danish TSO's (Energinet) investments is divided between DEA and DUR, where DEA is responsible for the approval of Energinet's investment plans etc. as well as approval of the actual investments.

DUR is responsible for the monitoring of Energinet's investment plans and actual construction/building plans in the context of compliance with the communitywide TYNDP comprises projects of common interest as well as other cross border investment projects by Energinet. The monitoring process has revealed no discrepancies between Energinet's plans and the community wide TYNDP.

Energinet is responsible for preparing investment plans (transmission) and submits the plans to the Danish Ministry of Energy, Utilities and Climate (owner of Energinet) for approval and to DUR for monitoring compliance and compatibility with the European TYNDP.

Energinet is responsible for assessing the need for new infrastructure and for planning possible (transmission) network expansions according to executive order No. 1034 of 11 November 2011.

Energinet published the present network development plan in 2013 covering the long-term (2032) structure of the transmission network as well as the network structure on short- (2017) and middle-term (2022). Regulatory scrutiny of the network development plan did not reveal discrepancies between the national plan and projects and the community wide projects of common European interest and DERA made no recommendations for changes in the network development plan or individual investment projects.

Upstream

In November 2016, DERA decided on the tariff for transporting natural gas in ØRSTED's pipeline from the Tyra production field in the North Sea to the gas processing plant in Nybro on the west coast of Denmark, the so-called upstream system. DERA ordered the tariff to be set to DKK 0.0575/m³ in transport agreements concluded by ØRSTED with Maersk Energy Marketing A/S in the period from November 2012 to March 2014. Maersk Marketing A/S subsequently filed a complaint with DERA. The case is currently pending a decision by the Western Division of the Danish High Court on preceding cases.

By April 24th 2018, DERA has received a complaint on the tariff from Total Energy Marketing A/S from August 2017 onwards and by June 15th 2018 DERA received a complaint on the tariff from February 2018 onwards from Nordsøfonden.

Main decision regarding GAS in 2017

In 2017, the main decisions regarding approval of methodologies and economic regulation were:

- Approval of the parameters for the economic test for the Baltic Pipe Project (Interconnector)
- Revenue caps for the gas distribution companies for the period 2018 – 2021
- Revenue cap for Danish Gas Distribution A/S for 2014 – 2017

The decisions can be found at DURs webpage [here](#).

4. Promoting competition in the Energy Markets

4.1 Wholesale markets

4.1.1 Electricity

Denmark is part of the Nordic electricity market and interconnectors to neighboring countries is an important part of the Danish electricity system, especially for ensuring cost-effective integration of increasing wind power in the system. So far, Denmark has interconnectors to Sweden, Norway and Germany and new interconnectors to U.K. and the Netherlands as well as extension of existing interconnectors are being investigated and planned or are under construction.

Table 5 | Danish electricity production, 2013 – 2017

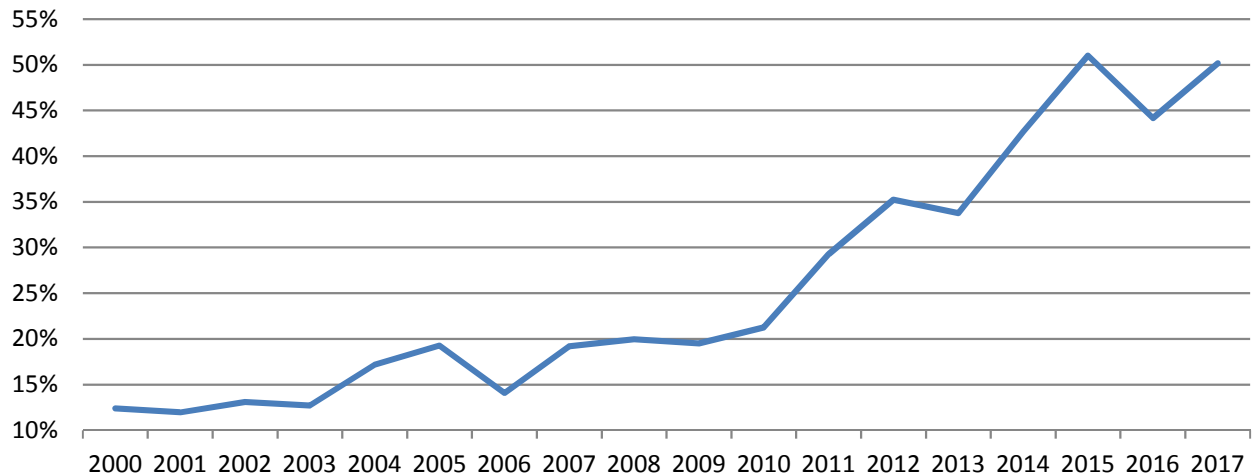
| Year | Net production, GWh | Net export, GWh | | | |
|------|---------------------|-----------------|--------|--------|--------|
| | | Germany | Norway | Sweden | Total |
| 2013 | 32.956 | -2.369 | 287 | 1.001 | -1.081 |
| 2014 | 30.615 | 823 | -2.667 | -1.011 | -2.855 |
| 2015 | 27.704 | 2.691 | -4.954 | -3.649 | -5.912 |
| 2016 | 28.930 | -2.153 | -5.058 | 2.154 | -5.057 |
| 2017 | 29.453 | 1.382 | -3.045 | -2.900 | -4.563 |

Source: The DUR Secretariat based on data from DEA.

Note: Net production is gross production minus use of electricity in electricity generation. Negative value means import of electricity.

The net production in Denmark was 29,453 GWh in 2017, which was larger than the previous year, c.f. table 5. According to DEA numbers, in 2017 Denmark's wind turbines have increased with 6.0 percentage point to a share of 50.2 pct. of the total net production compared to 2016, c.f. figure 5. The wind turbines' share of the net production has increased in 2017. The last years have also experienced an overall increase in the share – and the share is expected to increase even more during the coming years.

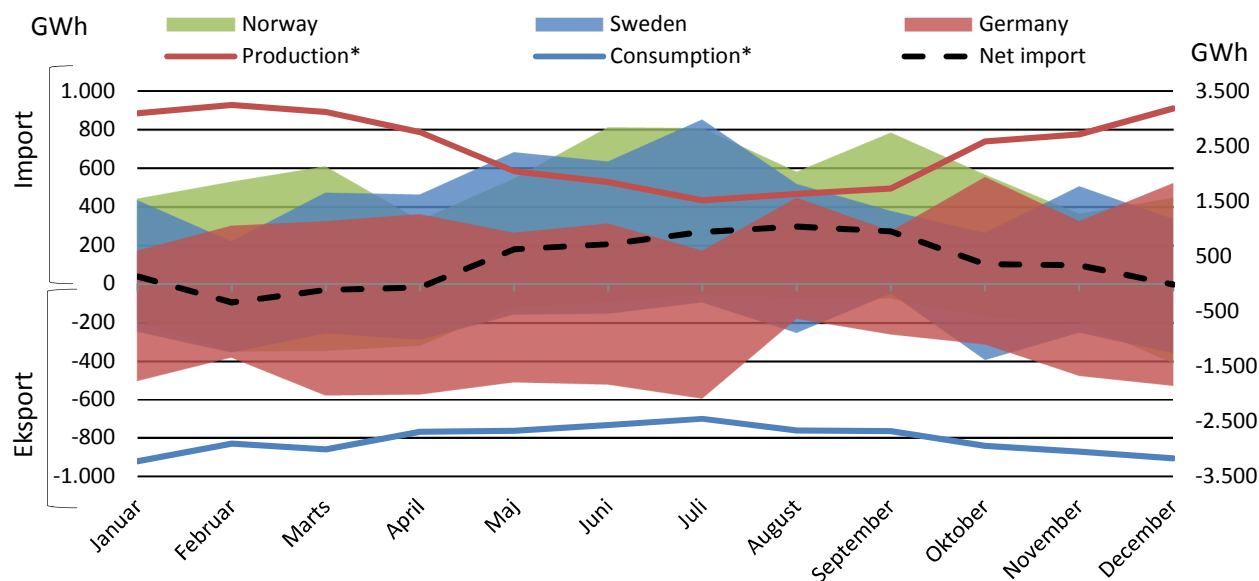
Figure 5 | Wind turbines' percentage share of total net production, 2000-2017



Source: DEA

Denmark also functions as a transit between Germany and the two neighboring Nordic countries Norway and Sweden. Denmark's net import from Norway and Sweden was in 2017 respectively 3.045 and 2.900 GWh, while Denmark's net export to Germany was 1.382 GWh. In total Denmark was a net importer of electricity in 2017 with 4.563 GWh, c.f. table 5 and figure 6.

Figure 6 | Danish electricity consumption, production and net export, 2017



Source: Energinet and DEA.

Note: *Must be read on the secondary vertical axis.

Production and import are positive numbers while consumption and export are negative numbers. The net export is positive when the export is greater than the import and vice versa. Consumption is gross which means that it includes transmission loss.

4.1.1.1 Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

In the Danish wholesale market most of the trading takes place at the common Nordic power exchange, Nord Pool, which is owned by the Nordic and Baltic TSOs. DUR has also allowed EPEX Spot SE to offer trading services in the two Danish bidding zones. EPEX Spot SE has not yet (November 2018) commenced operation in the Danish bidding zones.

In 2016, around 90.4⁵ percent of the total consumption of power in the Nordic market is traded at Nord Pool, and the exchange has one of Europe's most liquid day-ahead power markets. The prices for both day-ahead trading and intraday trading are available at the homepage of Nord Pool⁶.

Market opening is generally high, as most of the interconnection capacity in 2017 is given to the market, c.f. table 6.

⁵ This calculation does not take into account Lithuania's consumption and trading – data: Nord Pool.

⁶ <http://nordpoolgroup.com/>

Table 6 | Nominal transmission capacity for the Danish interconnectors, 2017

| Connection | Direction | Nominal cap. | NTC/Nominal cap. |
|-----------------------------------------------------------------------|------------------|---------------------|-------------------------|
| The Electrical Great Belt connection (West Denmark – East Denmark) | DK1 → DK2 | 590 MW | 98 % |
| | DK2 → DK1 | 600 MW | 98 % |
| Skagerrak-connection (West Denmark – Norway) | DK1 → NO2 | 1.632 MW | 75 % |
| | NO2 → DK1 | 1.632 MW | 75 % |
| Kontiskan-connection (West Denmark - Sweden) | DK1 → SE3 | 740 MW | 71 % |
| | SE3 → DK1 | 680 MW | 93 % |
| Oresund-connection (East Denmark – Sweden) | DK2 → SE4 | 1.700 MW | 71 % |
| | SE4 → DK2 | 1.300 MW | 91 % |
| West Denmark – Germany | DK1 → DE | 1.780 MW | 30 % |
| | DE → DK1 | 1.500 MW | 93 % |
| Kontek-connection (East Denmark – Germany) | DK2 → DE | 585 MW | 84 % |
| | DE → DK2 | 600 MW | 84 % |

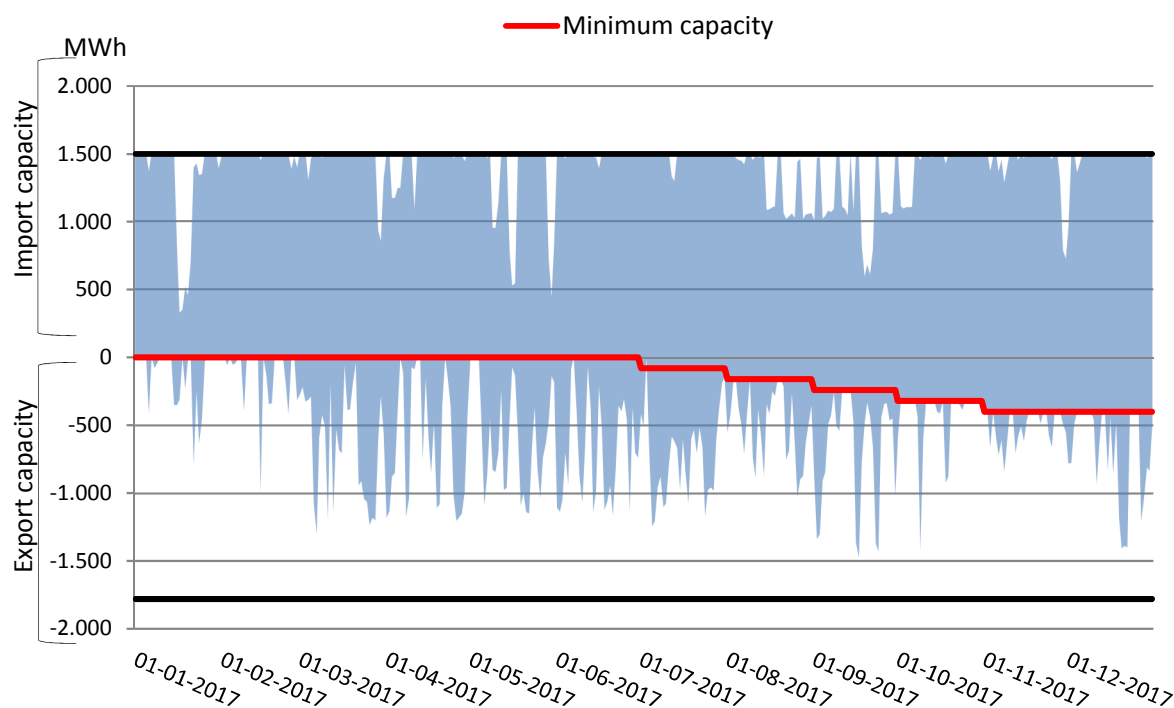
Source: Nord Pool and Energinet.

Note: The nominal transmission capacity is the maximal capacity that can be ex-changed.

On the DK1-DE border, however, the Danish import capacity has been low in recent years. Load-flows conditions and wind infeed in the north of Germany has led to decreased NTC levels. The situation is expected to improve significantly when planned and necessary grid infrastructure investments are realized within Germany. The Danish Ministry of Energy, Utility and Climate (EFKM) and Bundesministerium für Wirtschaft und Energie (BMWi) has made an agreement between EFKM/BMWi and respectively the national NRAs, DERA and BNetzA, about a minimum NTC capacity for years 2018 – 2020, c.f. section 3.4.1.

93% of the nominal maximum transmission capacity was in 2017 available to the market in the import direction and 30 percent in the export direction from Denmark's perspective. A development of the NTC for the Western Danish - German border can be seen in figure 7.

Figure 7 | NTC level for the interconnector between West Denmark and Germany, and the agreed minimum NTC capacity 2017



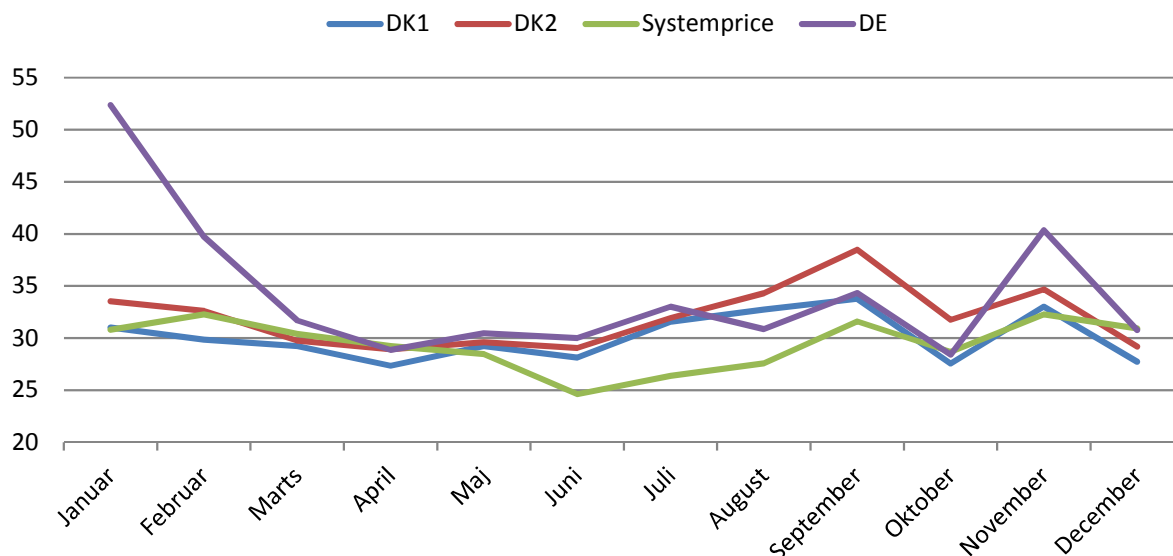
Source: Energinet.

Note: Average monthly development in the NTC between West Denmark and Germany. The horizontal black lines represent the nominal maximum and minimum transmission capacity for the interconnector. The transfer capacity for import and export – from Denmark's perspective – are given as positive and negative numbers respectively.

Capacity restrictions have also manifested themselves on the DK2/SE border, where capacity from Denmark to Sweden has been limited periodically. The restrictions are due to net constraints in the West coast corridor in Southern Sweden causing the need to limit the capacity in the interconnector between Denmark and Sweden. According to an agreement between Sweden and the European commission from 2010, Sweden should solve the problems in the West coast corridor before 2020 and is allowed to limit the capacity in the interconnector until then.

The Nordic market is divided into bidding areas, with Denmark being divided into two areas separated by the Great Belt. Figure 8 shows day-ahead prices in the two Danish bidding areas, Western (DK1) and Eastern Denmark (DK2), as well as the system price of Nord Pool and the DE day-ahead price for Germany. The system price of Nord Pool denotes an unconstrained market-clearing price, since the trading capacities between the bidding areas have not been taken into account in the calculation of this price. The system price is used as a reference price in Denmark.

Figure 8 | Day-ahead spot prices, 2017



Source: Energinet.

Whenever there are grid congestions, the Nordic area is divided into several price areas. The Danish spot prices are frequently higher than the Nordic system price, but lower than the Continental European prices, reflecting Denmark's geography between the Nordic hydro based system and the thermal based continental production, c.f. figure 9.

Electricity wholesale prices primarily depend on the electricity prices on Nord Pool, which are influenced by precipitation in the Nordic countries, fuel prices for the thermal power plants, customer demand and outages in the transmission grid.

The Spot prices in Denmark for the year 2017 have in general followed the development of the system price of Nord Pool. DK2 have in general been higher than the system price, while DK1 have been lower except from May to September. The prices in DK1 and DK2 are often different (the average wholesale prices are respectively 30.1 and 32.0 EUR/MWh) and most of the time the prices in DK1 are lower because of high wind production and import of hydro electricity from Norway.

Because of the geographic location, the average wholesale price in Denmark for the year 2017 is 31.0 EUR/MWh, while the average prices from DE and Nord Pool's system price respectively are 34.2 and 29.4 EUR/MWh.

DUR monitors the wholesale market in Denmark. A market monitoring report is published twice a year, which focuses on price development, competition, market development, structural problems etc. In 2017, no exceptional challenges to the wholesale prices in Denmark have been observed for the two Danish bidding areas; i.e. the wholesale prices have been far from the defined price caps (minimum -500 EUR/MWh and maximum 3.000 EUR/MWh).

Total traded volume (i.e. intraday and day-ahead volume) for both of the Danish bidding areas has increased by 2.6 percent from 61.2 to 62.8 TWh from 2016 to 2017, c.f. table 7. The day-ahead vol-

ume has increased with 0.8 percent (from 59.1 TWh in 2016 to 59.6 TWh in 2017), while the intraday volume has increased with 52.4 percent (from 2.1 TWh in 2016 to 3.2 TWh in 2017).

Table 7 | Yearly traded volume for both of the Danish bidding areas, 2016-2017

| Market | 2016 | 2017 | Percentage change |
|---------------------|----------|----------|-------------------|
| Day-ahead volume | 59,1 TWh | 59,6 TWh | 0,8 % |
| Intraday volume | 2,1 TWh | 3,2 TWh | 52,4 % |
| Total traded volume | 61,2 TWh | 62,8 TWh | 2,6 % |

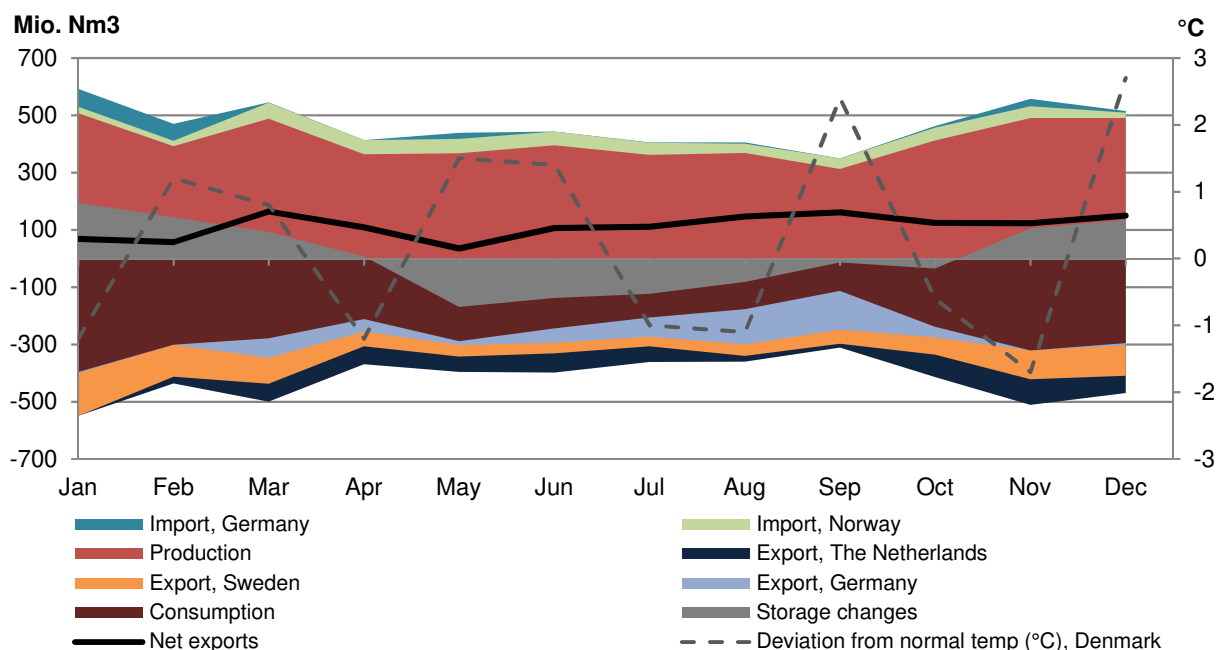
Source: Nord Pool

4.1.2 Wholesale gas markets

The Danish natural gas fields are located in the North Sea, and production from the gas fields is transmitted to Denmark through the upstream system to Nybro or exported directly to the Netherlands. Furthermore, Denmark exports natural gas to Sweden via Dragør and to Germany via Ellund. Denmark imports natural gas from Germany via Ellund and from Norway (from the gas field Trym, which is connected to the Danish upstream system) via Nybro. The Danish gas production has been decreasing since 2006 with the exception of the last couple of years. However, Denmark continues to be a net exporter, c.f. figure 9.

In 2017, the Danish production of natural gas was 4,585 million Nm³, which is an increase of 7% compared to 2016. Danish gas exports amounted to 2,119 million Nm³ in 2017. The export to the Netherlands made up 50% which is a considerable increase compared to 2014-2016. The remaining export went to Sweden (34%) and Germany (16%). In 2017, Denmark imported 490 million Nm³ which is a 25% reduction compared to 2016. 80% was imported from Norway and 20% was imported from Germany.

Figure 9 | Danish gas consumption, export, import, production and storage, 2017



Source: The Danish Utility Regulator based on data from the Danish Energy Agency

In March 2017, the Danish government reached an agreement with the Danish Underground Consortium (DUC), which is expected to facilitate future oil and gas investments in the Danish North Sea. The agreement supports a two-figure billion DKK to be invested in oil and gas extraction in the North Sea by rebuilding the major Danish production platform for gas, the Tyra facilities. This allows the possibility to generate up to 26 billion DKK for Denmark when looking to 2042. A full redevelopment will restore the current infrastructure, including the gas-processing hub and five surrounding satellites. During the shutdown period of the Tyra platform (from November 2019 and until July 2022), all gas for the Danish (and Swedish) market will have to be imported from Germany via the Ellund border point.

In 2017, ØRSTED Energy and Maersk agreed to divest the companies' oil and gas divisions. The British petrochemical company Ineos acquired ØRSTED Energy's oil and gas division and the transaction was completed in September 2017. The French energy company Total acquired Maersk's oil and gas division and the transaction was completed in March 2018. Total takes over Maersk's obligations and plans to rebuild the Tyra platform.

4.1.2.1. Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

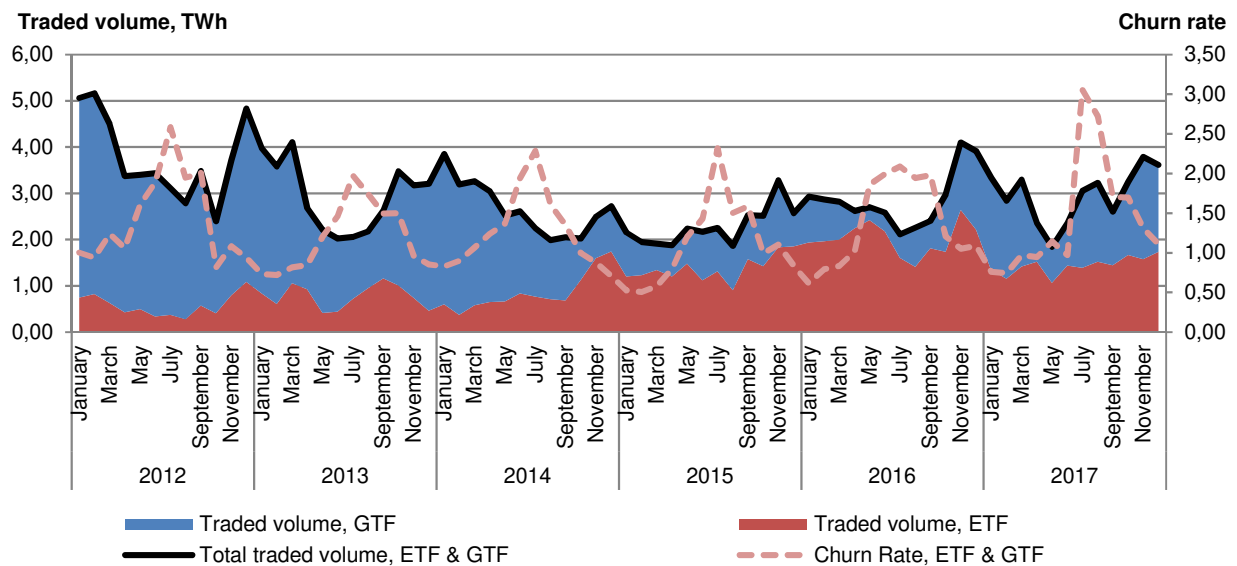
DUR monitors the wholesale market for natural gas in Denmark through semi-annual market monitoring reports and through ad hoc analyses.

The Danish gas market has two virtual trading facilities: Gas Transfer Facility (GTF), which facilitates delivery of bilateral trades, and Exchange Transfer Facility (ETF), which is used as the deliv-

ery point for trades carried out on the Danish gas exchange Gaspoint Nordic (GPN). The Danish TSO, Energinet, owns GTF. Gaspoint Nordic has been fully owned by Powernext (part of the European Energy Exchange (EEX) group) since and the products have been traded on the European trading platform PEGAS from 2016.

Gaspoint Nordic has become increasingly important during the last five years. The share of traded volume delivered on ETF has increased significantly since 2012, c.f. figure 10. The volume on the ETF exceeded the volume on GTF for most of 2015 and 2016. This trend changed in 2017 where the annual volume on ETF reached 17.4 TWh, equivalent to 48% of the total delivered volume, and the volume on GTF was 18.3 TWh. However, for five of the months in 2017 ETF volumes exceed GTF volumes. Overall, the volume on ETF has decreased in 2017 compared to 2016, which was a record year for Gaspoint Nordic with 24.1 TWh, while the volume on GTF has increased.

Figure 10 | Volumes and churn rate on ETF and GTF, 2012-2017

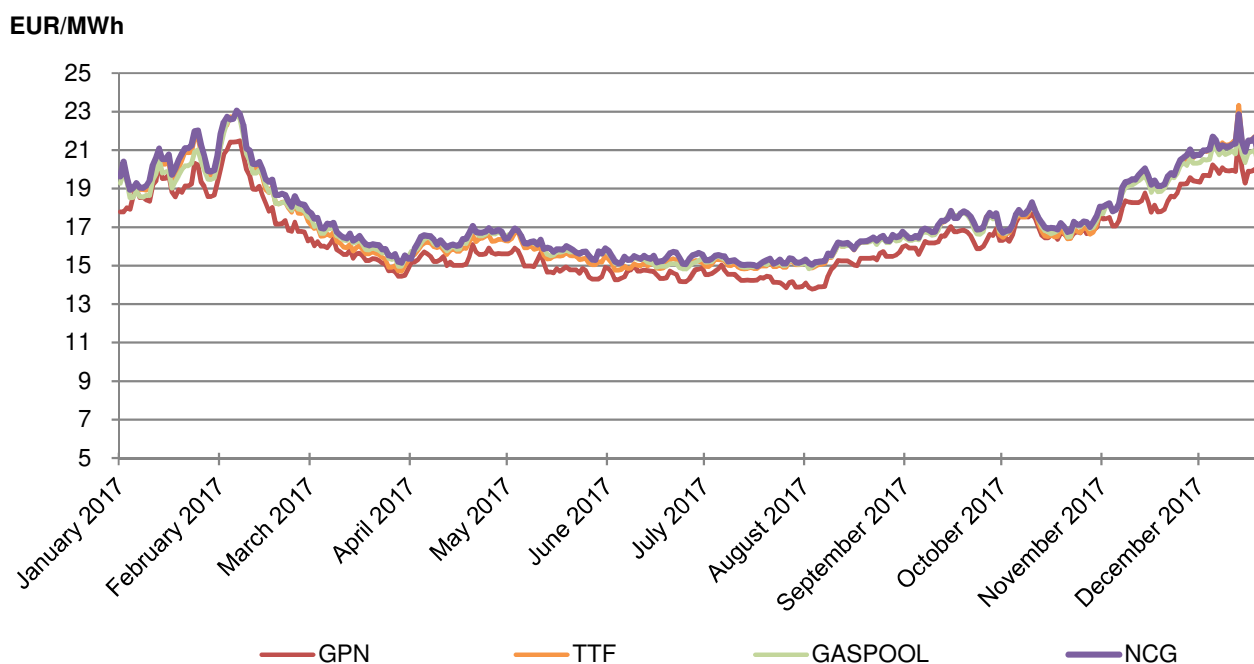


Source: The Danish Utility Regulator based on data from Gaspoint Nordic and Energinet.

Note: Exchange Transfer Facility (ETF) is the delivery point (a virtual trading point) of all contracts at the Danish gas exchange Gaspoint Nordic. Gas Transfer Facility (GTF) is the delivery point (a virtual trading point) of all OTC- contracts.

The spot price on Gaspoint Nordic (ETF) is highly correlated with the spot prices on the two German gas hubs, NCG and Gaspool, and the Dutch gas hub, TTF, c.f. figure 11. Generally, the gas prices on the four gas hubs were relatively high in 2017 compared to 2016. The average spot price of Gaspoint Nordic was 16.50 EUR/MWh in 2017, which is 16% higher than in 2016. On average, the spot price on Gaspoint Nordic was 0.80-1.00 EUR/MWh lower than the spot price on the other North European gas hubs in 2017.

Figure 11 | Spot prices on the North European gas hubs, 2017



Source: The Danish Utility Regulator based on data from Gaspoint Nordic and EEX.

Self-evaluation of the Danish gas market (ACER’s Gas Target Model)

The DERA and Energimarknadsinspektionen (Ei), the Swedish energy regulatory authority, performed a joint Gas Target Model self-evaluation of the Danish-Swedish wholesale markets for gas, which has been submitted to ACER (Agency for the Cooperation of Energy Regulators), in July 2017. The Gas Target Model is part of ACER’s vision for the European gas market and focuses on gas wholesale market functioning, security of supply and the future role of gas.

The self-evaluation is performed in accordance with the model (metrics) proposed by the Agency for the Cooperation of Energy Regulators (ACER) in its European vision paper for the European gas market – The Gas Target Model. The assessment of the current state of the wholesale market functioning is based on a number of metrics. The metrics are divided between “market participants’ needs” (liquid markets) and “market health” (low market concentration):

The Gas Target Model recommends that Member States take steps to evaluate possible national market reforms to connect the national market to neighboring markets in order to become well-functioning if the self-evaluation shows that the national gas market will not become well-functioning in the short term.

The results of the Danish-Swedish self-evaluation show that the Danish-Swedish gas market does not meet all the criteria (metrics) for a well-functioning market as set out by the Gas Target Model.

Especially, the results suggest that the market could be improved by focusing on market participants’ needs, i.e. access to trading in liquid markets/products, c.f. table 8 below that show the overall results of the self-evaluation of the Danish-Swedish market. However, in the next few years there are a number of projects in the pipeline, which may support the positive development of the

Danish-Swedish gas market, e.g. the Baltic Pipe Project, a LNG terminal in Gothenburg, a joint Danish-Swedish balancing zone, etc.

DERA and Ei therefore suggest that a more extensive analysis of possible market reforms of the Danish-Swedish market should await the next self-evaluation, which is expected to be performed in 2020.

Also, it should be mentioned that the Danish-Swedish gas market is well connected to the North-west European gas market, which means that traders are able to manage their risks by trading forward contracts on e.g. the German and Dutch gas markets. In addition, traders have access to a fairly well-functioning short term market at Gaspoint Nordic where prices are today highly correlated with gas prices at the more liquid German and Dutch gas hubs.

Table 8 | GAS TARGET MODEL RESULTS FOR DENMARK AND SWEDEN

| Market participants' need metrics | Day Ahead | Month Ahead | Forward |
|-------------------------------------------|-------------|-------------|---------|
| Order book volume (bid-side) | 450-750 MW | 0-150 MW | NA |
| Order book volume (offer-side) | 450-750MW | 0-150 MW | NA |
| Bid-offer spread | 1-1.25 pct. | 2-2.5 pct. | NA |
| Order book price sensitivity (bid-side) | - | - | NA |
| Order book price sensitivity (offer-side) | - | - | NA |
| Number of trades | 0-50 | 0-50 | NA |

| Market health metrics | Denmark-Sweden |
|----------------------------------------------|----------------|
| Herfindahl-Hirschmann Index | 1,720 |
| Number of supply sources | 3 |
| Residual Supply Index | 179 pct. |
| Market concentration for bid activities | - |
| Market concentration for offer activities | - |
| Market concentration for sales activities | < 40 pct. |
| Market concentration for purchase activities | > 40 pct. |

Source: Self-evaluation Report, June 2017

Note: Forward products are not available (NA) on Gaspoint Nordic. Order book price sensitivity and market concentration for bid/offer activities are not calculated.

4.2 Retail Market

4.2.1 Electricity

The Danish retail electricity market was fully liberalized in 2003. This implies that Danish electricity consumers can freely choose between approximately 49 suppliers. However, some barriers for obtaining an effective competition in the retail market for electricity still exist. The parliament has taken important steps towards eliminating these barriers, e.g. by the introduction of the so-called wholesale model on 1 April 2016. This model is also recognized as the supplier centric model (SCM). One important effect of the SCM is the introduction of mandatory combined billing for consumers.

The barriers for effective competition still existing in the retail market are related to a rather low mobility of consumers when looking at the national switching rate.

In June 2014, the Danish Parliament, following up on the initial recommendations of the Electricity Regulation Committee from May 2013, passed an amendment of the electricity regulation. According to the amendment, the supply obligation system including the specific supply obligation product had to be abolished from 1 April 2016. At the same time, a new obligation of delivery was introduced to secure the supply of electricity for consumers.

According to the same amendment, all inactive consumers were moved to a product without any price regulations.

Nine license holders (with supply obligation licenses covering 2 pct. of consumers) did still operate under the previous regulatory regime, i.e. with prices regulated by DUR, until their licenses expired in May 2017. Afterwards, all Danish consumers receive market-based products.

Since the launch of a new electricity market design with the SCM on 1 April 2016, the obligation of delivery commits all electricity suppliers on the Danish electricity market to provide electricity for consumers when paid by them, i.e. any electricity supplier has to supply any consumer who may request it. However, the delivery requirement applies only for household consumers. Business customers are not guaranteed the same legal right.

Finally, it is important to notice that all Danish DSOs are obligated to install smart meters for all end-users no later than the end of 2020. From December 1st 2017 hourly, settlement became available for consumers with an annual consumption up to 100,000 kWh and with smart meters installed. Some suppliers are beginning to offer electricity products with hourly settlement to consumers with an annual consumption up to 100,000 kWh. The new products have to be visible for the consumers on the online price comparison tool, *Elpris.dk*, as well as the websites of the suppliers.

4.2.1.1 Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

Prices

The average price of electricity for the consumer (nominal values) has decreased from 30.8 cEUR/kWh in 2016, to 30.21 cEUR/kWh in 2017, which is the lowest since 2013, c.f. table 9. The average electricity price for consumers has increased by about 11.5 % in the 10-year period 2008 – 2017, mainly due to rising PSO payments. The energy cost of electricity has fallen about 40 % in the same period.

Table 9 | Average retail electricity prices, euro cent per KWh, 2009-2017 (nominal values)

| Euros cent/KWh | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Energy | 7,33 | 5,42 | 5,71 | 6,63 | 5,54 | 5,03 | 4,76 | 4,11 | 3,9 | 4,44 |
| Grid payment | 4,60 | 4,95 | 4,95 | 5,22 | 5,39 | 5,39 | 5,47 | 5,54 | 5,8 | 5,47 |
| Taxes and PSO | 9,74 | 10,61 | 10,81 | 11,66 | 12,89 | 13,32 | 14,06 | 14,78 | 15 | 14,26 |
| VAT | 5,42 | 5,24 | 5,37 | 5,88 | 5,95 | 5,93 | 6,07 | 6,11 | 6,2 | 6,04 |
| Total price | 27,09 | 26,21 | 26,85 | 29,39 | 29,77 | 29,67 | 30,37 | 30,55 | 30,8 | 30,21 |

Source: DUR

Note: Exchange rate differences will make numbers differ slightly from Danish publications.

PSO (Public Service Obligations) are taxes to finance subsidies for renewable energy and energy research.

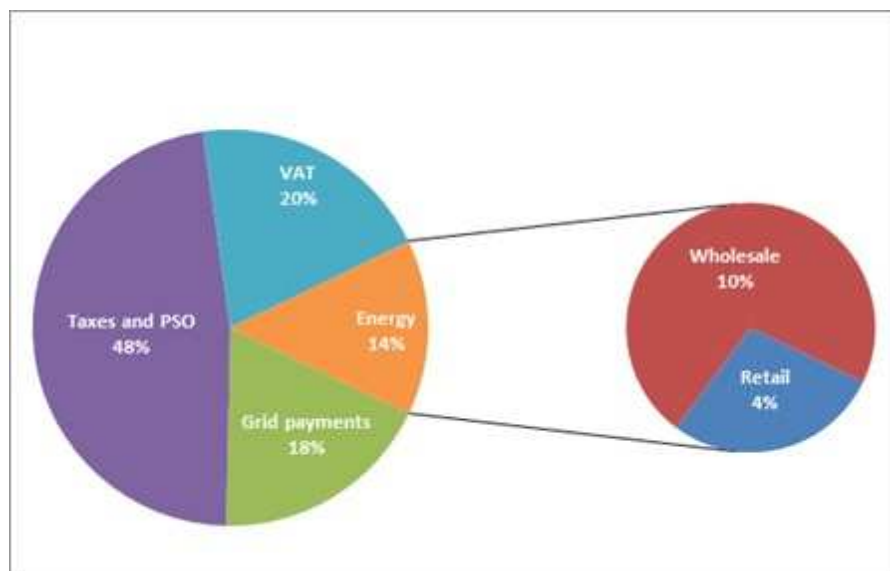
Subscription fees are included in the energy and grid components respectively.

An annual consumption of 4,000 kWh is the base for the above numbers.

The electricity price is composed of several elements, c.f. figure 12. The energy price (which again can be divided into retail and wholesale energy prices), is the price of electricity, but except the payments connected to taxes, public service obligations (PSO), and transmission and distribution costs.

The pure energy price amounts to about 14 pct. of the total energy price, while taxes, PSO and VAT constitute about 68 pct. The remaining 18 pct. is from the grid (transmission and distribution) payment, c.f. figure 12.

Figure 12 | Composition of the price of electricity, 2017



Source: DUR

Note: PSO (Public Service Obligations) are taxes to finance subsidies for renewable energy and energy research. The PSO will expire in 2022 (see the next paragraph).

PSO payment will expire

In November 2016, the Danish parliament passed new legislation concerning the PSO (public service obligations) payment, appearing today on the consumers' invoice. The PSO covers subsidies for renewable energy and energy research. According to new regulation, the current PSO payment will be reduced gradually from 2017 and abolished in 2022 for all electricity consumers. The costs of PSO will instead come out of the annual budget, i.e. the Finance Act.

When the adjustment is fully implemented, the average retail prices of electricity will be reduced by the total PSO payment.

Transparency – price comparison tool

Legislation from June 2015 has obliged DUR to operate a new national online portal for electricity prices, which was launched on April 1st 2016. According to executive order No. 1279 of 25 October 2016, all prices/products offered at the electricity market for consumers with an annual consumption below 100,000 kWh have to be reported to the new price comparison tool (PCT).

The name of the PCT is *Elpris.dk*. Pursuant to the Danish Electricity Supply Act, it is DUR's responsibility to operate the website. The main purpose of *Elpris.dk* is to make it easier for consumers to compare the various offers on the Danish electricity market. *Elpris.dk* covers the national market and this homepage will enhance the consumers' insight of electricity prices and contract conditions, thus making the market more transparent for consumers.

The electricity consumers have a wide diversity of electricity products to choose from. The products can generally be divided into fixed prices and variable/spot price contracts – in both cases from renewable sources if preferred by the consumers. In addition, some electricity suppliers' offer combined products, where the supply of electricity is pooled with the delivery of a supplementary product (e.g. nature gas or other products).

The number of users of the PCT comparing the various offers at the Danish retail electricity market amount to around 171,000 from January to December 2017. This is on average about 470 users per day. In 2017, the number of products available to the consumers at *Elpris.dk* varies between 210-230 products.

To handle ongoing suggestions for changes and improvements of the PCT, a working group was established in November 2016. The group convenes biannually and consists of representatives from the relevant consumers and business organisations related to the supply and consumption of electricity for household and business consumers using less than 100,000 kWh per year. Also, different regulatory bodies are represented in the group.

Statistical surveys

DUR publishes different types of price statistics. The first survey is an *annual* report, which depicts the retail prices of consumers with different consumption levels (1,800; 4,900; 15,000 and 50,000 kWh/year). It analyses the development of the retail prices and in particular the potential savings for consumers, making it easier for them to navigate, understand and if appropriate switch electricity supplier on the Danish electricity market. The report shows that an average private consumer living in an apartment (consumption 1.800 kWh/year) could save between 120 to 320 DKK/year by actively choosing the cheapest product available to them in the market. An average active consumer living in a house (consumption 4.500 kWh/year) could save between 160 and 410 DKK/year while

an average private consumer living in house with electric heating (consumption 15.000 kWh/year) could save between 240 and 1.430 DKK/year).

In addition, DUR publishes a *quarterly* statistical survey. It depicts prices of various products for household consumers and small business customers with an annual consumption of 4,000 kWh.

On a yearly basis, DUR also monitors the price development of products that the consumers receive, when they have not actively chosen a product in the market. For 2015, 2016 and 2017, these products were not priced significantly different from the rest of the market. In 2017, 65 pct. of the consumption for consumers with a yearly consumption of maximum 100,000 kWh was based on these types of products compared to 66 pct. in 2016.

Effectiveness of competition

One of the main persistent barriers for effective competition in the retail electricity market is the rather low mobility of consumers. As indicated, the number of switch of suppliers is lower (5%) in 2017 compared to earlier years (where the rate amounts to between 6-7 %).

The supplier-switching rate is about 5-7 pct., c.f. table 10.

Table 10 | Switching rates 2014-2017

| Year | Per cent |
|------|----------|
| 2014 | 6,3 % |
| 2015 | 7,2 % |
| 2016 | 6,4 % |
| 2017 | 5,0 % |

Source: Energinet

Note: The number of switches of supplier is in proportion to the number of metering points (consumption).

4.2.1.2 Measures to promote effective competition

The Danish retail electricity market is today fully liberalized and accordingly any electricity consumer in Denmark has access to the competitive market – without any price regulation. As of May 2017, all Danish consumers receive competitive products without price regulation.

Mandatory combined billing (Single Billing)

The supplier centric model (SCM) was launched to enhance competition supported by greater transparency through the PCT and an updated DataHub (see below for more information on the DataHub) in order to make it easier for consumers to become more active in the electricity market. The consumers' awareness of the electricity market is fundamental to increase competition.

With regard to the involvement of consumers in the retail electricity market, a legal order of billing has been implemented with the aim to strengthen the overall competition. Besides the introduction of SCM, the bills of energy and transport were merged into one single bill (known as mandatory combined billing) sent from the supplier. The supplier is now responsible for the consumer's payment of taxes and levies. The supplier allocates the payment of taxes and levies to the DSO. This means, the supplier is responsible for all initial contact to the customers. Earlier, this responsibility was split with the DSO.

DataHub – easy access to data for third parties and consumers

The Danish TSO, Energinet, launched an updated version⁷ of the DataHub in April 2016 with the introduction of SCM on the Danish electricity market.

All actors in the electricity market need to enter the DataHub to get access to specific data on metering (meter readings) and master data (addresses etc.). The consumers can also get access to their own personal data by contacting their supplier and thereby get access to their own metering data from the DataHub. The electricity suppliers are free to choose how to visualise consumption data to their consumers.

The standardization of third party access has also been improved. Energy advisors, service providers and other third parties are now able to access the data of a specific consumer in a controlled and secure way. When a third party applies for access to consumer data, the consumer will verify the third party's identity by using a so-called NemID⁸. The consumer will then decide and control:

- Who can receive the data,
- how much data can be received and
- how long can data be accessed.

Measures to promote effective competition

In 2015 and 2016, there have been major investigations and measures to promote competition and to prepare for the introduction of the new supplier centric model (SCM) launched on 1 April 2016. Approximately 50 grid companies, the national TSO (which is in charge of the Danish DataHub), 41 electricity suppliers, various IT companies, DUR, the Danish Ministry of Energy, Utilities and Climate, consumer and business organizations and others parties have invested huge resources in order to finish the complicated technical and regulatory transition to the new SCM model.

An overall estimate of the total spending of the introduction of SCM and the Danish DataHub indicates costs of approximately 1.2 billion DKK.⁹

Advertisement campaigns

In September 2016, DERA organized an online advertisement campaign to get the attention of more consumers on the new PCT, elpris.dk. The effect of this commercial initiative was quite significant and the numbers of consumers using the Danish PCT, elpris.dk, increased significantly.

The campaign was repeated in February-March 2018. The effect of this campaign was slightly better than the first campaign.

Smart meters and hourly settlement for household consumers

Pursuant to executive order no. 1358 of 2013 on smart meters and metering of end-consumption of electricity, DSOs are obligated to install smart meters for all consumers in Denmark no later than

⁷ The DataHub (version 1) started its operation 1 March 2013.

⁸ NemID is common Danish secure log-in on the Internet, when doing online banking, finding out information from the public authorities or engaging with businesses that use NemID.

⁹ C.f. answer 101-104 at the 19th of February 2016 from the Danish minister of energy, utilities and climate to the Committee of energy, utilities and climate of the Danish Parliament.

the end of 2020. Many of the grid companies have already installed smart meters and more than three-quarters of Denmark's household already have a smart meter.

The legal requirements of smart meter functionalities are i.e. registration of metering data every 15 minutes, data storage and transmission of the data to the DSO. The DSO will send the metering data to the Danish DataHub for billing purposes.

Smart meters are a prerequisite for hourly settlement of consumed electricity.

Smart metering and hourly settlement is expected to activate consumers in the retail market in terms of adjustment of consumption, supplier switching etc. Thus, the consumers will be able to follow their consumption more accurately and potentially save money by reducing their consumption at peak load and to access new services from third parties.

The grid companies can also benefit with a more rapid response time to problems and the opportunity to improve investment planning with a better understanding of load pattern.

As a result of these changes, since 1st of December 2017 hourly settlement became available also for household consumers with smart meters installed. Several suppliers in Denmark, according to the online price comparison tool Elpris.dk, offer electricity products with hourly settlement to consumers.

Main decision regarding the electricity market in 2017

In 2017, among the main decisions regarding the electricity market were:

- Approval of the administrative basis for the monitoring of net companies separate identities

The decision can be found on DURs webpage [here](#).

4.2.2 GAS

The Danish gas market was fully liberalised by January 1st 2004 resulting in Danish gas consumers being able to choose freely between gas suppliers. Furthermore, there are no barriers for suppliers to enter the retail market for natural gas as no permits or registrations are required to enter the market.

Currently, there are 17 suppliers offering natural gas products to Danish end consumers. Two of the suppliers are obliged to supply gas to consumers, who do not have an agreement with a gas supplier.

4.2.2.1 Monitoring the levels of prices, transparency and effectiveness of market opening and competition

In October 2011, the Danish Ministry of Energy, Utilities and Climate implemented new rules on monitoring of the electricity and natural gas markets.

The Natural Gas Supply Act assigns the task of promoting transparency in the retail market of natural gas to DUR. DUR has appointed the consumer homepage www.gasprisguiden.dk to Energinet where information on products and prices are available and comparable – and to which all suppliers

are obliged to report prices and terms. DUR has the regulatory oversight of the price comparison tool, which is operated by Energinet. When monitoring prices and the transparency of contractual obligations, DUR makes use of the price comparison tool. All gas suppliers are represented at the price comparison tool www.gasprisguiden.dk.

DUR publishes quarterly statistics for retail gas prices for Danish households. The statistics include prices for a representative Danish household (with a yearly consumption of 20 MWh equivalent to 1.700 m³). The statistics are composed of private consumer prices, where the weights corresponding to the suppliers' market shares are applied. The quarterly average is a consumption volume-weighted average. Consumer prices increased during 2017, c.f. table 11. The quarterly retail prices for 2017 ranged from 78.07 to 80.11 EUR/MWh.

Table 11 | Gas retail prices for households in Denmark, in euros, 2017

| EUR/m ³ | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 |
|-----------------------------------|--------------|--------------|--------------|--------------|
| Gas price | 0.26 | 0.26 | 0.26 | 0.28 |
| Distribution | 0.15 | 0.14 | 0.14 | 0.15 |
| Taxes | 0.35 | 0.35 | 0.35 | 0.35 |
| VAT | 0.19 | 0.19 | 0.19 | 0.19 |
| Total price (EUR/m ³) | 0.95 | 0.94 | 0.94 | 0.97 |
| Total price (EUR/MWh) | 78.07 | 77.64 | 77.34 | 80.11 |

Source: DUR

Supervision of prices

The amendment of the Natural Gas Supply Act in 2011 changed DUR's supervision of the regulated default prices for gas customers, who do not actively choose a gas supplier. Since May 2013, DUR has supervised the price of the regulated default products (also known as *supply obligation products*). The price of the supply obligation products are decided through tenders of supply obligation licenses. The amendment of the Natural Gas Supply Act also introduced a *basic product*, which acts as gradual phase-out of regulated gas products. At the end of the supply obligation license period, customers who have received a supply obligation product and who have not actively chosen a new supplier are automatically transferred to a basic product. The price and conditions of the basic product must correspond to those of the previously delivered supply obligation product. Furthermore, the basic product must be available to the customers during the following period of supply obligation licenses, however, not more than three years. DUR oversees prices and conditions of the basic product. In general, both suppliers supply of obligation products and basic products comply with the rules.

Licenses for the right to supply a *supply obligation product* are granted by the DEA. Until now, two auctions of licenses have been completed; one commenced in 2013 and one 2016. As a license applies for 3 year, licenses granted in 2016 expire in 2019.

17 companies are registered as gas suppliers.

The data exchange in the natural gas market takes place at non-discriminating terms, and all suppliers have access to relevant data. At the moment, there is no process of implementing smart meters on the natural gas market.

Complaints by household consumers due to inquiries resulting in a formal case are monitored and handled in cooperation with the Energy Supplies Complaint Board.

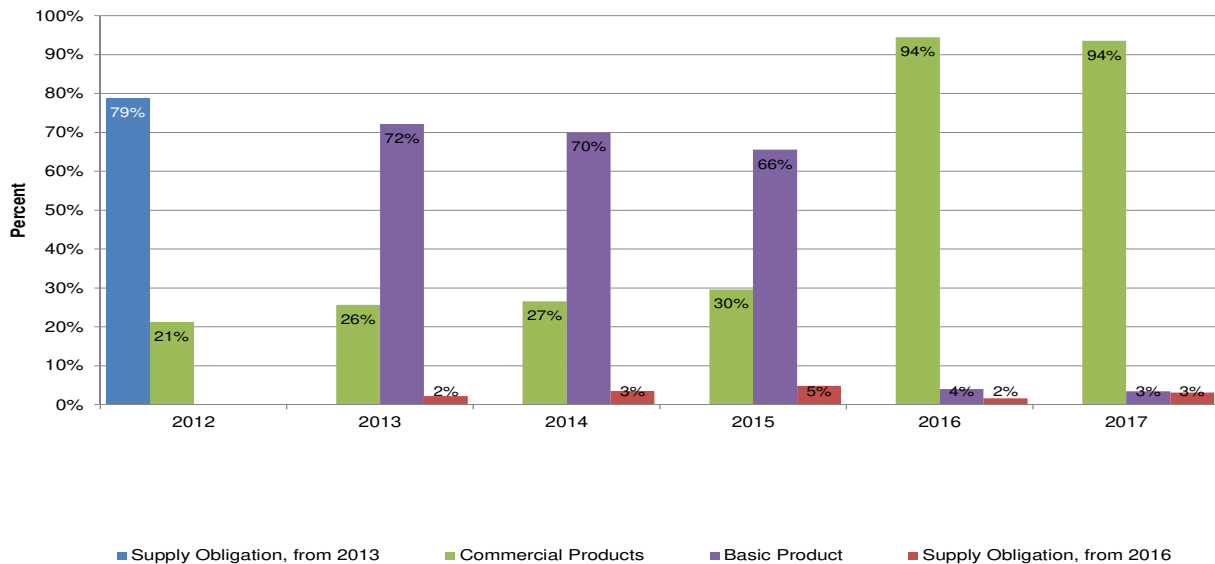
4.2.3 Recommendations on supply prices, investigations and measures to promote effective competition

Recommendations on supply prices

The Danish gas retail market is fully liberalised. Accordingly, all gas customers in Denmark have access to a competitive gas market. However, the customer must actively choose a commercial supplier and accept a supply contract to enter this market.

As of 2017, the majority (around 94 pct.) of Danish gas customers are supplied at unregulated prices, which are not supervised by DUR. The remaining 6% are supplied at supply obligation products and basic products, c.f. figure 13. Two gas suppliers currently supply the supply obligation products and the basic products, and DUR is continuously supervising the prices of these products.

Figure 13 | Distribution of consumers on various types of products



Source: DUR numbers based on data from gas suppliers

Main decision regarding the Gas market

In 2017, among the main decisions regarding the gas market was:

- Danish Gas Distribution A/S changing of billing cycle on combined invoicing

5. Security of supply

Electricity

The Danish Energy Agency (DEA) is responsible for regulatory tasks relating to security of supply, including monitoring, planning and approving new grids of more than 100 kV. For further information, see Energinet's "Systemplan 2016" which is part of DEA's annual reporting.¹⁰

In general, Denmark has a high degree of security of supply in the electricity sector. In 2017, the average consumer had 25 minutes of interruptions, which is an increase of 6 min. from 2016. The table 12 below shows the average number of interruptions (minutes) over the last 5, 10, 15 and 20 years.

Table 12 | Average interruptions (minutes) over de last 5, 10, 15 and 20 years

| (min./Year) | 5 year | 10 year | 15 year | 20 year |
|--------------|-----------|-----------|-----------|-----------|
| 1 – 24 kV | 16 | 18 | 25 | 31 |
| 25 – 99 kV | 4 | 5 | 11 | 10 |
| > 100 kV | 1 | - | - | - |
| Total | 32 | 23 | 36 | 41 |

Energinet has the overall responsibility for the security of supply while the Danish Energy Agency (DEA) is responsible for regulatory tasks relating to security of supply, including monitoring, planning and approving new grids of more than 100 kV. For further information, see Energinet's "Systemplan 2016" which is part of DEA's annual reporting.

GAS

The Danish Energy Agency (DEA) is the competent authority for security of supply, including the monitoring of national network, planning and approval of major infrastructure investments etc.

In 2016, there have been no disruptions in the physical supply of natural gas to the Danish (and Swedish) gas market and therefore no national declarations of early warning, alert or emergency.

The Tyra platform, c.f. 4.1.2, will have to close down for maintenance, and during the shutdown period (November 2019 until March 2021), all gas for the Danish (and Swedish) market will have to be imported from Germany via the IP Ellund. Under normal conditions, the capacity at Ellund

¹⁰ To this date only in Danish: <https://www.energinet.dk/Om-publikationer/Publikationsliste/Systemplan-2016>

will be sufficient to cover the combined Danish and Swedish consumption, and the import capacity together with the total Danish storage capacity (withdrawal rate of approx. 16 million m³/day and total capacity of approx. 1 bcm) will be sufficient to cover also shorter periods of extremely high demand or extreme temperatures. So only in case of prolonged cold winter spells should the Danish and Swedish supply situation be endangered by the platform shutdown.

6. Consumer protection and dispute settlement in electricity and gas

6.1 Consumer protection

The supply obligation and supplier centric model

Prior to the implementation of the supplier centric model (SCM), electricity suppliers could be licensed as the default supplier of a certain network area. The universal service obligation obliged default suppliers to supply electricity to all consumers (within their licensed area) who did not exercise the right to choose a supplier actively. The licensed default supplier provided the inactive consumers with electricity at regulated prices approved by DUR.

Following the implementation of the SCM, the licensed default supplier mechanism is no longer in force, and the universal service obligation substituted by a supply obligation.

The main rule is now, that consumers must actively choose their supplier. Correspondingly, all suppliers are obligated to provide electricity to consumers – within the network area where the supplier operates - upon request and payment by the consumer.

There are only limited exceptions to the main rule that consumers must actively choose their supplier. In case of e.g. a supplier's bankruptcy, a certain mechanism regulated in detail in the Danish Electricity Supply Act ensures the continued supply of electricity to consumers affected by the bankruptcy of a supplier.

The supply obligation of electricity companies applies only to household consumers and therefore not companies or public authorities.

Access to information: Consumer data

The DataHub handles all data communication between market participants in the Danish electricity market.

The detailed requirements, rights and obligations of the relevant market participants in terms of the DataHub are set in regulations issued by Energinet within the framework of the Danish Electricity Supply Act. DUR's approval of the methods contained in Energinet's DataHub regulations is a prerequisite for their commencement and application.

The DataHub register all consumer data and consumers have the right to access their data in the DataHub, e.g. meter readings, free of charge.

Consumers can access their data in the DataHub, either by using the login function on the supplier's website or on the public website *Eloverblik.dk*, operated by Energinet.

Gas consumers' data is not collected in the DataHub. Gas consumers can typically access their data by using the login function on the gas supplier's website. By using the log-in solution "NemID" (Denmark's common log-in solution) data protection is ensured.

Contract information

Executive order no. 1233 of 2015 on electricity supply and executive order no. 1354 of 2014 on gas supply implements the requirements regarding information in a supply contract. Both explicitly reference information requirements set in the Danish Consumer Contracts Act no. 1457 of 2013.¹¹

The minimum requirements regarding information that must be provided in an electricity or gas supply contract are:

- The identity, address and contact information of the supplier.
- The arrangements for payment, delivery, performance and the time by which the supplier undertakes to deliver the services.
- The duration of the contract, where applicable, or, if the contract is of indeterminate duration or is to be extended automatically, the conditions for terminating the contract.
- Where information about up-to-date applicable prices and fees can be obtained.
- If the consumer can continue the contractual relationship with the supplier at a different delivery address, and the terms for this.
- The supplier's deadline for final settlement.
- Information about where compensation and other remedies for defective performance can be claimed, if the contractual terms are not met, including inaccurate and delayed billing.
- Information on complaint handling and how to complain.

The terms of the supply contract must be fair, transparent, and easily understandable and provided to the consumer before conclusion of the contract.

DUR monitor suppliers' compliance with the legal requirements concerning contract information.

Billing information

Executive order no. 1400 of 2015 on electricity billing and executive order no. 937 of 2006 on gas billing implements the requirements regarding billing information. Furthermore, executive order no. 1395 of 2016 on energy companies' duty of disclosure to end-consumers etc. also applies to electricity and gas billing.

Following the implementation of the supplier centric model, electrical suppliers are responsible for all communication with the consumers, including billing. Now consumers receive only one electricity bill per billing period, and only from the supplier. The bill is simplified, free of charge and based upon data collected in the DataHub.

The minimum legal requirements regarding information in the electricity bill are i.a:

- The total payment and consumption (kWh) in the billing period.

¹¹ The Danish Consumer Contracts Act No. 1457 of 2013 is non-energy specific legislation, where i.a. the minimum requirements regarding a trader's duty to disclose information before conclusion of a contract with a consumer are regulated. Pursuant to executive orders no. 1233 of 2015 on electricity supply and no. 1354 of 2014 on gas supply, these requirements also apply to information that must be provided to a consumer in an electricity or gas supply contract.

- Type of price (e.g. fixed or variable price).
- Subscription fee to the supplier and the DSO.
- The total price in øre¹²/kWh covering payment for electricity, grid- and system services, PSO, taxes incl. VAT, provided in the billing period.
- The consumer's right to receive a specified bill free of charge.

The simplified bill is intended to increase consumer awareness, without overloading consumers with information, by giving an overview of the most significant price information, and thereby facilitating consumers to be active on the energy market.

Suppliers are required to provide a specified bill free of charge to the consumer, upon the consumer's request.

DUR monitor suppliers' compliance with the legal requirements concerning billing information.

Comparison tools

On the public website, *Elpris.dk*, consumers have access, free of charge, to a tool comparing the prices on electricity products offered by suppliers. Pursuant to the Danish Electricity Supply Act, it is DUR's responsibility to operate the website.

The price and other relevant information regarding products offered to consumers with an annual consumption up to 100,000 kWh must be on the supplier's own website and reported to *Elpris.dk*. The information must be accurate and up-to-date. DUR continually monitors suppliers' compliance with this requirement pursuant to the Danish Electricity Supply Act.

Similarly, on the public website, *Gasprisguiden.dk*, consumers have access, free of charge, to a tool comparing the prices on gas products offered by suppliers. The Danish TSO, Energinet, operates the website.

Smart meters and hourly settlement

Pursuant to executive order no. 1358 of 2013 on smart meters and metering of end-consumption of electricity, DSOs are obligated to install smart meters in the homes etc. of all consumers in Denmark no later than the end of 2020.

The legal requirements of smart meter functionalities are i.a. registration of metering data every 15 minutes, data storage and transmission of the data to the DSO. The DSO will send the metering data to the DataHub for billing purposes.

Smart meters are a prerequisite for hourly settlement of consumed electricity.

Smart metering and hourly settlement is expected to activate consumers in the retail market in terms of adjustment of consumption, supplier switching etc.

From the 1st of December 2017, hourly settlement became available for consumers with an annual consumption up to 100,000 kWh¹³ and with smart meters installed. Some suppliers are beginning to

¹² One øre is DKK 0.01.

¹³ Prior to the 1st of December 2017 only consumers with an annual consumption over 100,000 kWh have been hourly settled.

offer electricity products with hourly settlement to consumers with an annual consumption up to 100,000 kWh.

6.2 Dispute settlement

Complaint handling

The Energy Supplies Complaint Board handles all complaints from household consumers relating to energy. This includes consumer complaints regarding trade and delivery of electricity, heating and gas.

The Board has a mandate to handle disputes arising from the contractual relationship between an energy consumer and an electricity supplier, a natural gas supplier or a district heating supplier.

The Energy Supplies Complaint Board is an official alternative dispute resolution body pursuant to Directive 2013/11/EU of the European Parliament and of the Council of 21 May 2013 on alternative dispute resolution for consumer disputes and amending Regulation (EC) No 2006/2004 and Directive 2009/22/EC (Directive on consumer ADR).

There are no thresholds as regards the value of the dispute. The Board does not handle disputes settled by court judgment. On the other hand, a case, which has been brought before a court of law, must be postponed and transferred to the Board.

Before submitting the complaint, the consumer must have attempted to contact the supplier and tried to resolve the dispute bilaterally. Otherwise, it constitutes a ground for refusal for the Board to take the case.

The Energy Supplies Complaint Board is established in cooperation between the Consumer Council and the Danish Energy Association, the Danish Energy Gas Association, the Danish District Heating Association, HMN Natural Gas, NGF Nature Energy and Ørsted.

The Board is composed of a neutral chairperson and four members. The chairperson is a city court judge. The Consumer Council appoints two members and two members are appointed to represent the respective energy trade areas.

When submitting a complaint to the Board, the consumer must pay a fee of DKK 160 (approximately EUR 22). The fee is refunded if the Board upholds the consumer's contention. The energy company has to pay a fee of DKK 8.500 (approximately EUR 1.140) if the case ends in favour of the consumer. However, if the case ends in a settlement facilitated by the Secretariat of the Energy Supplies Complaint Board (the Secretariat), the company shall pay DKK 3.800 (approximately EUR 510).

All case proceedings are conducted in writing. The Secretariat has to ensure that all relevant information is presented and that the defendant is given the opportunity to comment on the case. The Secretariat has to take a neutral attitude. It may take an initiative to an amicable solution or present an opinion based on previous decisions made by the Energy Supplies Complaint Board.

In cases brought before the Board, the Secretariat presents a summary with an adequate overview of the case and the comments of the parties. The Board states its reasons for the decision and whether

the decision is unanimous. If the decision is split, it is indicated which representative(s) dissented and the reason for the dissent.

The average complaint processing time is approximately two months. When the Board has reached a decision, it will be possible for either party to bring the matter to court. Decisions of the Board are not binding or enforceable. Nevertheless, there is a high compliance percentage in cases decided by the Board.

In 2017, energy companies complied with the decisions of the Board in 94 pct. of the cases according to the 2017 Annual Report from the Energy Supplies Complaint Board.

If the Board's decision is not complied with, the Secretariat has an opportunity to send the case to the Consumer Rights Division of the Danish Competition and Consumer Authority. The Division will then bring the matter to the court, at the request and on behalf of the consumer.

If the consumer has not initiated court proceedings, the Board will publish the decision on its web site with name and address of the energy company.

Investigation and information

DUR has the authority to request any kind of information from both DSOs, TSOs, electricity production companies, electricity suppliers and their associated companies along with consumers and other buyers of electricity or natural gas. The authority to request information is provided when addressing an issue, monitoring the market, in connection with a case initiated by DUR or based on an enquiry by an enterprise or a consumer.

Furthermore, DUR's authority to request information provides the users of the collective grid the information necessary for a secure and effective use of the grid. If necessary, DUR also has the authority to issue injunctions and fines and perform dawn-raids, as part of an investigation or a monitoring exercise.

Strengthened cooperation

Although the Consumer Ombudsman¹⁴, the Energy Supplies Complaint Board and DUR have different roles and purposes, consumer protection is a shared common ground.

Since the implementation of the supplier centric model, the cooperation between the Consumer Ombudsman, the Energy Supplies Complaint Board and DUR has been further strengthened. This is in part due to DUR's new tasks regarding the retail market, following the implementation of the SCM.

DUR is e.g. obligated to conduct an analysis on electricity suppliers' compliance with the supply obligation. On this basis, the Energy Supplies Complaint Board has been asked to provide information to DUR on the type and number of consumer complaints received by the Board concerning electricity disconnections.

¹⁴ The Consumer Ombudsman institution is an independent public authority, and its field of responsibility is regulated in the Danish Marketing Practices Act No. 426 of 2017. The Consumer Ombudsman supervises compliance with the Danish Marketing Practices Act within i.e. the energy market.

The cooperation between the Consumer Ombudsman, the Energy Supplies Complaint Board and DUR is a case-by-case collaboration, just as knowledge and experience sharing in general within the field of consumer protection. DUR will seek to continue strengthening the cooperation.

Chapter summary

- The supplier centric model (SCM) has been in force since 1st of April 2016.
- Following the implementation of the SCM a consumer receives only one electricity bill per billing period, and only from the supplier.
- From December 2017, hourly settlement of consumed electricity has been made available for consumers with smart meters installed.
- DUR monitor suppliers' compliance with i.e. the legal requirements concerning contract and billing information.