REPUBLIC OF ESTONIA
COMPETITION AUTHORITY

ELECTRICITY AND GAS MARKETS IN ESTONIA 2018

REPORT

TALLINN 2019

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Dear readers,

In the matter of developments in the European Union (EU) both the previous year and the first half of this year have been important. The new electricity market formation package has got approval and this gives us directions for the coming decade. The EU has set an ambitious goal to continue the electricity market liberalization and following the latest technological advancements to undertake a very clear direction towards carbon neutral energy. It is good to realise that already today we are one of the most liberalised and well integrated regions in the EU. From 2013, when the market was opened to all consumers, Estonia has been regulating only the monopolies – electricity networks, where free competition is impossible. Contrary, the price of electricity has formed completely in free market conditions and no price regulation has been applied. While some ten years ago we could talk about Eesti Energia as the electricity production monopoly, today it is just an active player in the market. Herewith, an essential indicator is the merger of Eesti Energia and the largest Estonian renewable energy enterprise 4Energia that took place in 2018. It created a lot of discussions and naturally, the Competition Authority, as the authority to give permission to the merger, had to thoroughly weigh whether such a merger is allowed or not. In defining the electricity market one cannot proceed merely from the Estonian geographic space. We are so strongly integrated with the neighbours that the market region has to be viewed significantly broader. A closer look at the merger decision and detailed figures can be taken on the Authority's website, but it can be shortly concluded that in the Finnish-Estonian market zone both undertakings had a 14% market share altogether. Looking at the region even broader, as the Nordic countries' – Baltic common market, their market share is very small – only 2,5%.

In the last 10 years Estonia together with other Baltic countries has achieved considerable success specifically in the development of market, due to the construction of cross-border connections, in the result of which the Baltic states are some of the best integrated electricity market regions in the EU. Further integration is also extremely important, first of all in the framework of the project of synchronization of the Baltic countries' and continental Europe electricity systems. It is a material challenge for the three Baltic states and today we have a clear task of being synchronized by 2025. Connecting to the continental Europe electricity system is an important step in further integration with the EU systems. In the framework of this project it is also important to strengthen the interconnections between the Baltic states. In the electricity trade between the Baltic states a bottle-neck is still the cross-border connections between Estonia and Latvia. Together with the strengthening of domestic systems this problem will also be solved, after reconstructing the following lines: the Balti-Tartu line in 2021-2023, the Tartu-Valmiera line in 2022-2024, the Viru-Tsirguliina line in 2019-2025 and the Tsirguliina-Valmiera line in 2023-2025.

As mentioned above, the movement towards carbon free economy is one of the most important ambitions of the EU and the energy sector plays an essential role in it. In several previous reports we have outlined shortcomings in the Estonian renewable energy support system. Until the end of 2018 the biggest problem of the system in use was an over-compensation of producers. The fixed rate of support in combination with increasing exchange prices gave a result in which the support given to producers did not correspond to the market conditions any more. As known, the support range fixed by law had not been changed from 2007. At the same time, during this period the renewable technologies have significantly developed further – the efficiency has improved considerably and the equipment price has fallen. Up-to-date technology enables better management of production and consumption, and in the Estonian conditions these very circumstances have contributed to the increase in the competitiveness of

wind energy. As the Competition Authority we consider market based mechanisms to support the development of renewable energy especially important ones. The clearest and most transparent one of these is the CO_2 price corresponding to emissions. In the previous report we outlined the transition to auction based renewable energy support scheme, as an important event. In this year´s report we shall point out the steep rise of CO_2 price. As regards the achievement of the share of renewable energy Estonia has hold out its promised targets, but the CO_2 price has a substantial influence on the future of our electricity generation and security of its supply. That is why we have prepared a separate thorough analysis on security of electricity supply also in this report.

In the analysis of security of electricity supply we have considered various scenarios and drawn it up from the point of view of both Estonia and the three Baltic states. The latter is especially important – we work synchronised with the Baltic countries and the synchronized operation will become even more important when connecting with the system of continental Europe takes place. In the nearest future substantial changes are going to take place in Estonia. In 2021 we will celebrate the 30-th anniversary of the regaining of independence and it should be realized that all the while we used to live in the situation where the supply of electricity is sufficient and even with a surplus, and electricity has constituted a considerable export article. A material change of the situation is under way. The price of CO_2 has adversely affected the competitiveness of our oil shale energy, but no one can resist the imminent passage of time. Essentially only one energy block, which uses modern fluidised bed technology, has remained from the once powerful Baltic Power Plant, but its turbine originates from the Soviet Union era. The lifespan of another large plant – Estonian Power Plant is inevitably getting closer to its finish as well. This plant has also one modern fluidised bed block, but the rest of its technology is already 50 years old. Thus, the age of this power plant is also coming to an end. Possible rise of CO_2 price may accelerate the process but once again, the main topic is the age of the power plants. While analysing the security of supply in a 10-year perspective it becomes clear that the era of those old power plants is over and Estonia in cooperation with other Baltic states has to find security of supply solutions in a five year or ten year perspective at the latest.

The natural gas sector in our region is slightly less important than the electricity sector. While in the Western and Central Europe gas is very important in ensuring the supply of heat, in our region district heating systems are the most spread ways of heat supply. It is the district heating that has largely contributed into increasing the share of renewable energy and this is first of all at the expense of reduction in natural gas consumption. However, the development of natural gas market is still important and similarly to the electricity market integration of markets is worth to mention in this regard. An important event is the commissioning of the Balticconnector gas connection between Estonia and Finland in the beginning of the next year. Thereby Estonia and Latvia together with Finland are going to establish a gas system without tariffs for transit. As a result the gas would flow freely between the states and in respect of trading it would be irrelevant whether the gas entry point is in Estonia, Latvia or Finland. Just this kind of free movement of goods – one of the EU principles – was our intention and it is an important initiative in the context of the entire EU. I am confident that sooner or later also Lithuania will join our common system.

With best wishes,

Märt Ots
Director General

1. Main developments in electricity and gas markets in 2018

1.1 Developments in electricity market

Wholesale and retail markets of electrical energy

The annual electricity production in the Estonian electricity system in 2018 was 10 583 GWh (net production quantity), while the physical import was 3 484 GWh (for comparison: trade imports were 2 857 GWh) and physical export was 5 350 GWh (for comparison: trade exports were 4 775 GWh). The Estonian domestic consumption was 7 980 GWh (without transmission network losses, transmitted by the transmission network for domestic consumption). The consumption behaviour of both businesses and people is well characterised by the relationship between the gross domestic product (GDP) and the consumption of electricity (Figure 1). If more goods and services are produced and bought then also the consumption of electricity is growing and contrary, together with the decrease in the purchase power it decreases as well.

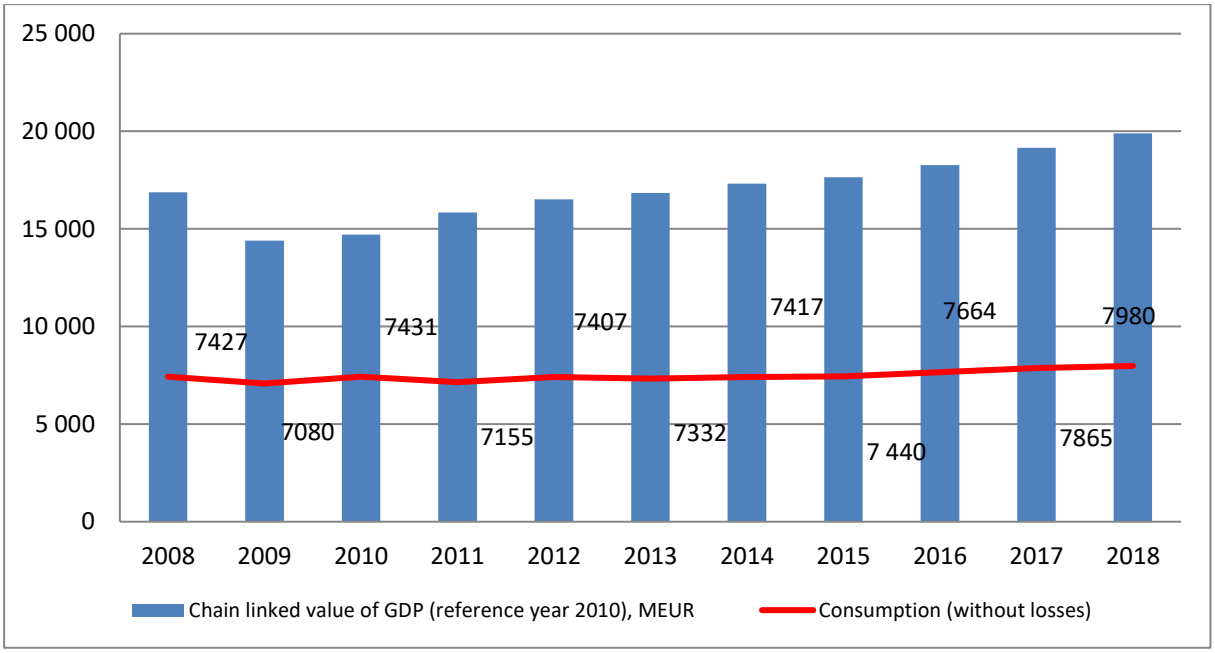

Figure 1. Relationship between electricity consumption and GDP. Source: Statistics Estonia and Elering AS[1]

Electricity price in the Estonian price area of Nord Pool (NP) in 2018 averaged out at 47,07 €/MWh, which is 29% higher than in 2017. An average 2018 household price including network charge, excise tax and renewable energy charge (without VAT) was 13, 9 €cent/kWh.

In greater detail the progress in the electricity market in 2018 is described in section 2.2 of this report.

[1] Statistics Estonia publishes the 2018 data in September 2019

Electricity networks

Estonia has the single transmission network service provider Elering AS, who is also the system operator (TSO). The number of distribution network service providing undertakings is 34. There are 5 202 km of transmission (110-330 kV) lines belonging to the TSO and in total almost 65 700 km of low and medium voltage lines belonging to the distribution operators. The distribution network undertaking with the biggest market share of 86,7% is Elektrilevi OÜ.

In 2018 the prices of bigger distribution network operators did not change. The Competition Authority approved new network service prices for Elektrilevi OÜ, but these entered into force on 1 January 2019. An annual average transmission tariff in 2018 was 1,05 €cent/kWh, while the distribution tariff was 5,28 €cent/kWh (both without VAT).

The issues of electricity networks' regulation are more closely dealt with in section 2.1.

Cross-border issues in electricity sector

The cross-border electricity trade and transmission capacity allocation rules are regulated by the Commission Regulation (EU) 2015/1222 introduced on 24 July 2015, which establishes a guideline for capacity allocation and congestion management guidelines (hereinafter CACM). Pursuant to Article 20(2) of Regulation 2015/1222 all TSOs in each capacity calculation region shall submit a proposal for a common coordinated capacity calculation methodology within the respective region no later than 10 months after the approval of the proposal for a capacity calculation region. By the decision of ACER, the Baltic capacity calculation region comprises Estonia, Latvia, Lithuania, Finland, Sweden and Poland.

The cross-border issues of electricity networks are summarised in point 2.1.4, which presents also an overview of the 2018 regional methodologies introduced on the bases of CACM regulation.

Security of electricity supply

In 2018 the Estonian energy balance was continuously positive, as the production exceeded the consumption. The peak load in winter 2018 in the Estonian electricity system was 1 544,1 MW (recorded on 28 February 2018). According to the data available to the Competition Authority the installed usable capacity in the Estonian electricity system was 1 098 MW. Thus, the installed generation capacity in Estonia exceeded the system's peak load. As in the next few years a close down of some bigger production capacities in Eesti Energia's Narva Power Plants is foreseeable, this year the Competition Authority analysed security of supply issues more thoroughly than usually.

In greater detail the security of supply analysis is presented in section 2.3.

1.2 Main changes in electricity related legislation

Amendments in Electricity Market Act

On 9 July 2018 the amendment of the Electricity Market Act (EMA) was enforced. Some of the amendments took effect on 1 January 2019
The more important amendments of the EMA were the following:

- the terms of closed distribution network and micro isolated network were defined;
- the part of notification and authorisation for undertakings that act as sellers of electricity was changed, accordingly, in order to act as a seller of electricity it is required to present to the Register of Economic Activity a notice of economic activity;
- the requirements for small producers were alleviated, in order to promote the production of electricity in smaller quantities with the generating installations with rated capacity of up to 200 kW. For example, in future they are not any more required to have the share capital of at least 31,950 euros, which facilitates the production of electricity with limited capacity generating installations, for instance, by apartment associations;
- the criteria for establishment of a direct line between a power station and the consumer were alleviated. The amendments create more flexible possibility to construct up to 6-kilometre-long direct line, which facilitates investments in energy-intensive productions. Also the requirement for authorisation for a possessor of a direct line is abandoned, if the capacity of the generation installation is up to 500 kW;
- the up to now bases for the methodology of the formation of network charges were detailed. So far there were no detailed criteria, for example, for the calculation of depreciation of fixed assets, and also, prohibition of the expense items not related to the provision of network services – like any fines or late charges, sponsorships, gifts and donations from the inclusion in the network service price. In the fulfilment of the general national energy efficiency objectives, hereafter it is facilitated to take into account the energy efficiency related activities carried out by the legal persons in which the state has the majority interest;
- the principles of the support scheme for electricity generated from renewable energy sources or in an efficient co-generation process were changed. The support paid to new renewable electricity producers up to now for each produced energy unit was abandoned and it was replaced with auction based support scheme. The objective is to make the support scheme less burdensome for consumers, by binding the payment of support with the national objective of generation of electricity from renewable energy sources committed to by the state and with the winning of the reverse auction. An exemption was added for small producers – auction based support is paid to the producer, whose electrical capacity is more than 50 kW and less than 1 MW, with the objective to increase the generation of electricity by producers using such generating installation by 5 GWh in years 2019 to 2021;
- an obligation to the TSO was stipulated to elaborate and submit to the Competition Authority for approval a unified method for the calculation of the price of balancing energy;

- the rights and obligations of the owner of a network and a network undertaking in handing over the network to the undertaking were detailed.

1.3 Developments in natural gas market

Wholesale and retail market of natural gas

In 2018 the annual consumed natural gas quantity stabilised, with a slight increase of 0,6% (in 2017 – 5219 GWh and in 2018 – 5243 GWh per annum respectively).

5 243 GWh of natural gas was delivered into the Estonian gas transmission network in 2018. 83% (4362 GWh) out of this was delivered from OAO Gazprom and 17% (879 GWh) through Lithuania (Klaipeda LNG terminal and UAB Get Baltic gas exchange). 1,09 GWh of gas entered to the transmission network through the Misso metering station. For comparison, in 2017 648 GWh of gas was brought from Lithuania, which constituted 12% of the gas taken to Estonia.

Regarding peak consumption in the last ten years the highest was February 2012 (59,8 GWh per day). The 2018 winter peak consumption was 48,6 GWh daily (27 February 2018). No gas supply disruptions were recorded.

From 1 January 2017 according to the Natural Gas Act import of gas is defined through the application, to gas, of the customs procedure release for free circulation.
Pursuant to Natural Gas Act each undertaking shall have operating licence for the import of gas. According to the Register of Economic Activities there are six enterprises registered in Estonia that have authorisation for import – UAB Lietuvos energijos tiekimas, Verum Plus AG, AS Alexela, Baltic Energy Partners OÜ, AS Nitrofert and AS Eesti Gaas.
In 2018 two undertakings imported gas to Estonia - Eesti Gaas AS with the market share of 94% and Baltic Energy Partners OÜ with the market share of 6%. The rest four undertakings having licence for import, in fact did not import gas in 2018 (UAB Lietuvos energijos tiekimas, Verum Plus AG, AS Alexela and AS Nitrofert) 2018.

Other wholesale traders that are active in the market (Latvijas Gaze JSC, 220 Energia OÜ, Eesti Energia AS, Elektrum Eesti OÜ, Scener OÜ and others) use in their sales activity gas bought from undertakings, which have the European Union authorisation.

The leader in the wholesale market of gas in 2018 was also Eesti Gaas AS (with the market share estimation of 72%), followed by Eesti Energia AS (11% market share) and Baltic Energy Partners OÜ, and AS Alexela (both with the market share of 5%).

In the retail market of gas an undertaking shall submit to the Register of Economic Activities a notice of economic activity. Currently, 42 undertakings have submitted its notice of economic activity (20 gas traders and 22 network undertakings). By estimation, in the retail market of gas there are 8 gas traders and 18 network undertakings.
In greater detail the wholesale and retail markets of gas are characterised in points 4.1 and 4.2.

Ownership unbundling of transmission network of natural gas

From 1 March 2016 the complete ownership unbundling of the Estonian system operator is finalised and the Estonian gas system operator is Elering AS (100% in the ownership of the Estonian state). Further information on the ownership unbundling of the transmission system operator can be found in the annual report for 2016.

Security of natural gas supply

In 2018 there were no developments in connection with the security of natural gas supply. The supply of gas volumes which satisfies the demand is fulfilled in Estonia also in the coming years. The key questions of the Estonian gas market development are infrastructure investments [regional liquefied natural gas (LNG) terminal and the construction of Estonia-Finland connection (*Balticconnector*)], attracting new suppliers into the market, activation of the wholesale market and suspension of the falling gas consumption trend.

In greater detail the natural gas security of supply issues are dealt with in section 4.3.

1.4. Main changes in natural gas related legislation

Amendments in Natural Gas Act

The more important amendments of the Natural Gas Act in 2018 were the following:

- the regulation of acquisition and expropriation of property in the public interest was changed
- the requirement that the sale price for gas may not include the price for network service was changed – according to the amendment the sale price for gas may include the entry price set up in Regulation (EU) No 2017/460
- the rate of punishment by a fine for violation of requirements established for the system operator or for the vertically integrated undertaking was changed and constitutes now up to 10 per cent of the turnover of the last audited financial year of the system operator or of the vertically integrated undertaking
- in connection with the merger the name “Consumer Protection Board” was replaced in the Act with the name “Consumer Protection and Technical Regulatory Authority”

2. Functioning and regulation of electricity market

2.1 Regulation of electricity networks

2.1.1 Ownership unbundling

(Articles 10, 11 and 26 of Directive 2009/72/EC and Article 3 of Regulation (EC) No 714/2009)

In the second half of 2013 the Competition Authority conducted the assessment of compliance of Elering AS as the transmission network undertaking upon its application or, the so-called certification process. In the assessment the Competition Authority followed in addition to the provisions of the Electricity Market Act also the requirements provided for in Regulation (EC) No 714/2009 of the European Parliament and of the Council (that treats of the network access conditions in the cross-border electricity trade). The Authority confirmed the compliance of the undertaking to the requirement by its decision made in December 2013.

A distribution network undertaking shall form a separate business entity if the number of customers exceeds 100 000 and shall not operate in other area of activity than the provision of network service. Respective requirement applies only to the distribution network Elektrilevi OÜ that belongs to the Eesti Energia AS group, while other distribution network undertakings have less than 100 000 customers.

Also, all distribution network operators, regardless of their size, shall keep their accounts on the same principles, as separate undertakings operating in the same area of activity should have been required to keep. Therefore, a distribution network operator that is not required to form a separate business entity is obliged to keep its accounts similarly to a business entity and shall submit in its accounts separately the balance sheet, profit and loss account, management report and other reports provided for in the Accounting Act both for network services, electricity sales and ancillary activities. Respective information shall be submitted in their annual report and made public. The auditor shall give its evaluation on the separation of the fields of activity.

Ensuring equal treatment

With the opening of the electricity market the issue of equal treatment of market participants has become very important as the electricity network and its regulation will remain in the status of monopoly. Thus, all customers of the network undertaking shall be able to use the electricity network in the same manner and the network operator shall ensure equal possibilities for selling electricity to all traders.

Pursuant to the Electricity Market Act all distribution network operators are obliged to prepare an action plan with the measures for equal treatment of other electricity undertakings and customers, including the duties of employees in the implementation of these measures. Separate provisions apply to the system operator (who is also the transmission network undertaking).

The system operator is obliged to follow the principles of equal treatment of the market participants in order to achieve best economic results for the whole system within the framework of existing technical and security of supply requirements and other legal requirements. The Act emphasises that, for example, in the preparation of the standard terms and conditions of balance contracts and in the formation of balancing energy price the system

operator shall be guided by the principles of equal treatment and transparency. In addition, all network undertakings shall observe the principles of equal treatment and transparency in establishing the technical conditions for connection to the network and the charge for changing of consumption and production conditions (the conditions of connection). The criteria for the establishing of network charges shall base on the principles of transparency and equal treatment.

Equal treatment in Elektrilevi OÜ

Elektrilevi OÜ supplements and updates its equal treatment report annually. The report can be examined on the network undertaking's web site https://www.elektrilevi.ee/vordse-kohtlemise-pohimotted

Elektrilevi OÜ is not allowed to produce and sell electricity, as the number of consumers connected to its network is higher than 100 000. That is why Elektrilevi OÜ shall designate a seller, which has authorisation for providing universal service (section 76^1 (2) of the Electricity Market Act). For the provision of universal service and in case of interruption of the open supply chain Elektrilevi OÜ has designated Eesti Energia AS, in the capacity of selling of electricity. Eesti Energia AS belongs to the same group and represents Elektrilevi OÜ also in the conclusion, amendment and termination of the network contracts. Elektrilevi OÜ uses Eesti Energia AS services in the performing of certain functions like the settlement of customer payments, debt management, call centre and others. However, Elektrilevi OÜ neither concludes electricity sales contracts nor resolves other electricity sale issues.

Equal access to the metering point data and to the measurement information is ensured by the means of the data exchange platform (DEP) which was created on the basis of section 42^1 of the Electricity Market Act. Elektrilevi OÜ transmits to the DEP the data stipulated by legal acts in order to ensure the acquisition of information by the market participants in time and on equal basis.

2.1.2 Technical functioning

The Estonian electricity system belongs to the large synchronously operating joint system BRELL, comprising the neighbouring countries Latvia and Russia, connected with Estonia through the alternating current lines. They, in turn, are connected to their neighbours Lithuania and Belarus. With Russia Estonia is connected through three 330 kV lines (two lines go from Narva to St. Petersburg and Kingissepp, and one line from Tartu to Pskov). With the Latvian electricity system Estonia is connected through two 330 kV lines (one between Tartu and Valmiera, the other one between Tsirguliina and Valmiera). With Finland Estonia is connected through two direct current cables (EstLink 1 and EstLink 2).

The total length of the transmission lines (110-330 kV) that belong to the transmission network undertaking is 5 403 km, while the length of the low and medium voltage distribution networks is in total 65 700 km. The map of the Estonian electricity system is presented in Figure 2.

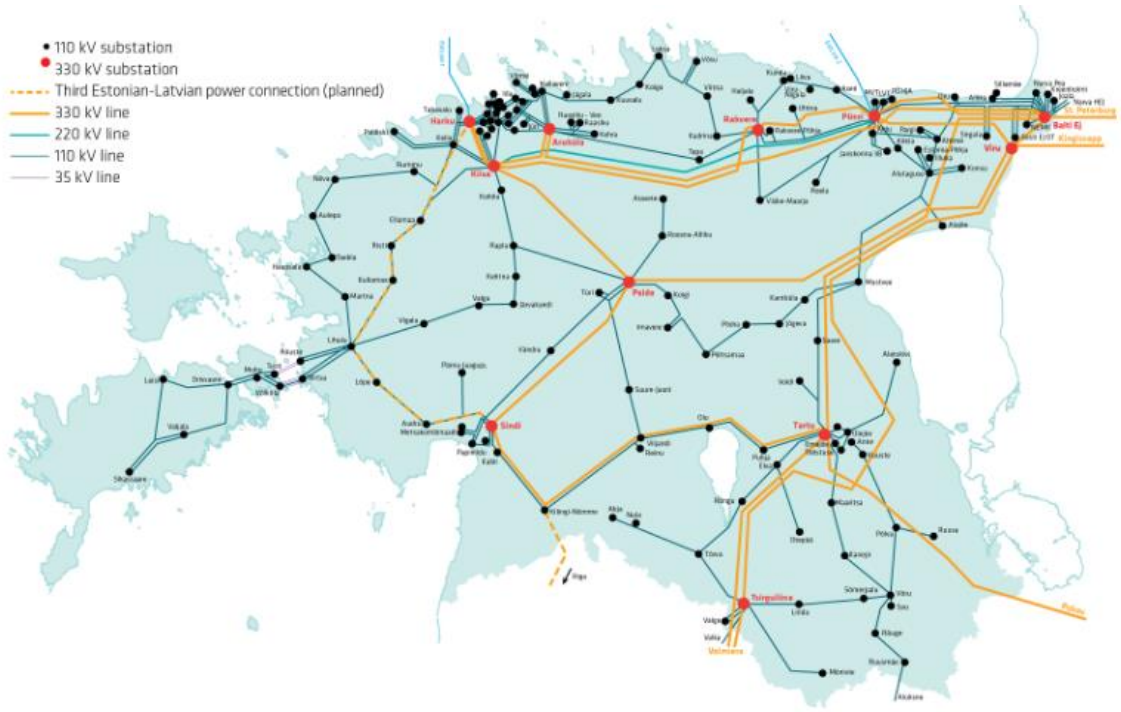

Figure 2. Map of Estonian electricity system. Source: Elering AS

As regards distribution networks the shares of undertakings are to a large extent the same from year to year. The largest distribution network undertaking is Elektrilevi OÜ, with the 2018 annual sale of 7 087 GWh and the market share on the basis of sale volume was 86,7%; followed by VKG Elektrivõrgud OÜ with the annual sale volume of 242,9 GWh and the market share of 2,97 %; and Imatra Elekter AS with 232,2 GWh sale volume and 2,84% market share. The annual sale of the rest 31 distribution undertakings was 614 GWh with the market share of 7,5%. The largest among those are AS Loo Elekter, Tallinna Sadam AS and Silpower AS. A specific of the Estonian price regulation is the large number of small distribution network undertakings. The market share of the distribution networks is reflected on Figure 3.

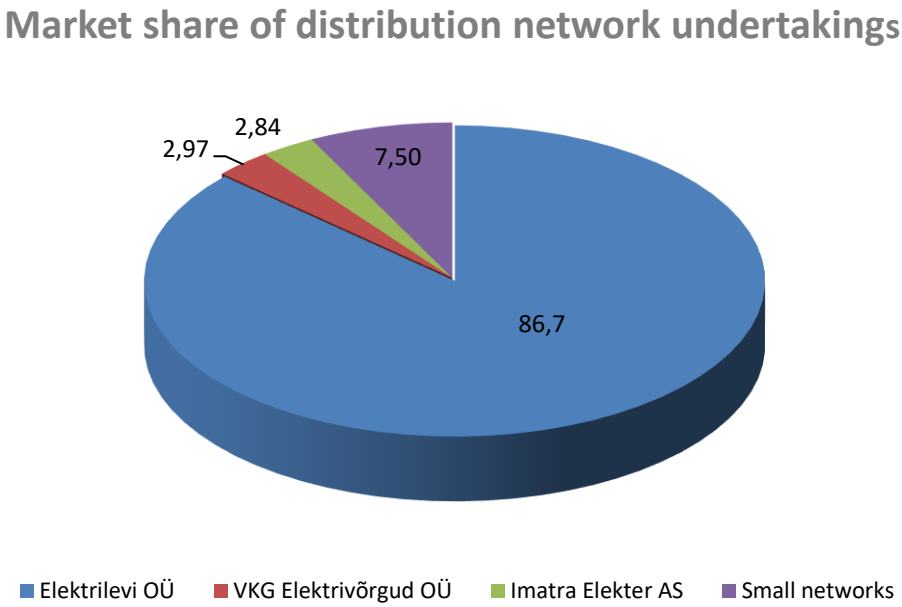

Figure 3. Percentage of market share of distribution networks in 2018.

Balance services
(Articles 37(6)(b) and 37(8) of Directive 2009/72/EC)

The Electricity Market Act and the Grid Code lay down the regulation of balance responsibility in detail. According to these Acts every market participant is responsible for its balance. The transmission network is responsible for the balance of the whole system and several balance providers may act in the market. In order to balance the system, the transmission network buys or sells balancing energy. The methodology for calculation of the price for balance energy and standard terms and conditions for balance contracts are to be approved by the Competition Authority *ex ante*. In the formation of the balance energy price the transmission network is obliged to buy or sell balance energy at the most favourable price possible.

From 1 January 2017 all consumption points are equipped with remote reading devices and the whole metering process is organised on the *on-line* principle. The measured supplies that are necessary for the determination of balance are collected from the metering points and forwarded to the Data Store by all network undertakings that operate in Estonia.

From 1 January 2018 in the electricity systems of Estonia, Latvia and Lithuania a coordinated balance management is applied. These three systems are viewed as a common balance area and one of the Baltic TSOs is responsible for the balancing of the summarised balance. The objective of the coordinated balance area is to improve cost efficiency of the electricity system management, particularly, to reduce the imbalance off the Baltic system.

According to the principles of electricity market functioning a market participant shall ensure that the amount of electricity supplied to the network and/or purchased by the market participant in each trading period is equal to the amount of electricity acquired from the network and/or sold by the market participant. For the balance of small consumers their distribution network operator is responsible for. The biggest balance service provider is Eesti Energia AS. Besides, seven other balance providers are active:

- Alexela Energia AS
- Axpo Nordic AS
- Eesti Energia AS
- Elektrum Eesti OÜ
- Fortum Eesti AS
- INTER RAO Eesti OÜ
- Nordic Power Management OÜ
- Scener OÜ

the following balance service related standard terms and conditions and methodologies were proceeded in 2018:

Standard terms and conditions of balance contracts

In 2018 Elering submitted to the Competition Agency for approval standard terms and conditions of balance contracts. The Agency approved the terms and conditions on 27 February 2019.

https://elering.ee/sites/default/files/attachments/Elering_elektrienergia%20bilansilepingu%20t%C3%BC%C3%BCptingimused_05.2019.pdf)

Standard terms and conditions of regulation contracts

In 2018 Elering submitted to the Competition Agency for approval standard terms and conditions of contracts for the provision of regulation services. The Agency approved the terms and conditions on 21 May 2019. The terms and conditions can be found on the Elering's web site:
https://elering.ee/sites/default/files/attachments/Elering%20elektrienergia%20reguleerimislepingu%20t%C3%BC%C3%BCptingimused.pdf

Methodology for calculating of the price of balancing energy
In the end of 2018 Elering submitted to the Competition Agency for approval also a new methodology for calculating of the price of balancing energy. Proceedings on the methodology are still ongoing.

Quality of electricity supply

(Articles 37(1)(h) and 37(1)(t) of Directive 2009/72/EC)

Quality of supply requirements arise from the Electricity Market Act. According to the Act the requirements are established by the Minister of Economic Affairs and Communications. Following of the requirements is obligatory and in case of violation penalties are stipulated (through misdemeanour proceedings). The quality of supply requirements contain requirements for customer service and acceptable duration of supply interruptions, separately for those caused by faults and those caused by planned activities. The Competition Authority monitors undertaking's performance in the fulfilment of the quality requirements, adequacy of keeping records on quality indicators and initiates misdemeanour proceedings in case of violation. Disclosure of relevant quality indicators on the web site is obligatory for all undertakings.

The customer service quality requirements determine the maximum acceptable time, during which certain operational procedures have to be accomplished. Undertakings have to submit to the Competition Authority information about the extent of compliance with the service quality requirements. Based on the submitted information it is possible to calculate the percentage of compliance with the service quality requirements. As well, it is possible to analyse the trend: whether it is improving or worsening.

As regards network service quality both supply interruptions caused by faults (not planned) and planned outages are regulated. Supply disruptions lasting less than 3 minutes are not considered interruptions. According to the quality requirements the time limits (maximum acceptable durations) are set out, during which customers shall be re-supplied. The time limits are distinguished for summer and winter period (Table 1).

Table 1. Network service quality requirements

	Summer period from April to September	Winter period from October to March
Transmission network		
Acceptable duration of an interruption caused by faults	2 hours */ 120 hours **	
Acceptable annual accumulated interruption duration	150 hours***	
Distribution network		
Acceptable duration of an interruption caused by faults	12 hours	16 hours
Acceptable duration of a planned interruption	10 hours	8 hours
Acceptable annual accumulated interruption duration by faults	70 hours	
Acceptable annual accumulated planned interruption duration	64 hours	

Notes: *Power is supplied through two or more 110 kV transformers or lines

** Power is supplied through a single 110 kV transformer or a line

If undertakings fail to comply with the acceptable time limits specified in Table 1 they are obliged to pay monetary compensation to customers.

The Competition Authority has elaborated the specific form for reporting. It is mandatory for undertakings to fill out and to disclose it. Therewith they are required to disclose how many times and in how many grid connection points they failed to comply with the established quality requirements. Undertakings shall also submit data on how many times they failed to fulfil the service quality requirements

Data on the network quality are published on the Competition Authority's web site http://www.konkurentsiamet.ee/. The Authority takes these into account in the process of price proceedings.

Time taken by transmission system operator to make new grid connections and repairs of cross-border network connections (Article 37(1)(m) of Directive 2009/72/EC)

Connection to the power network is regulated by the Grid Code established by Regulation No 184 of the Government of the Republic on the basis of section 42(2) of the Electricity Market Act. In order to connect to the transmission network a connectee shall submit to Elering AS a connection application. On the basis of the application an offer for a connection contract shall be issued within 90 days. If the customer wants to connect in an area where the network transfer capacity is not sufficient and the customer does not accept the connection offer together with the cost of construction and strengthening of the network, the network undertaking shall notify the customer and the Competition Authority in 30 days from the reception of the connection application from the customer, that a connection in the specific network area is impossible. If the data presented in a connection application are insufficient or do not comply with the requirements, then the network undertaking shall notify the customer about this in 10 business days from the reception of the application and the customer has 15 days to bring its application into compliance with the requirements. In order to connect a connectee's electrical appliance to the network or to amend the consumption or production conditions the network undertaking shall conclude a connection contract with the connectee.

For the functioning of electricity market, it is necessary that the market participants have timely information on the capacity of te power connections and possible connection disruptions. The transmission network undertaking is obliged to disclose the information on cross-border transmission capacity and limitations on the transmission capacity in connection with planned outages and repair works. Table 2 below presents the data submitted by Elering AS on the time spent for the creation of interconnections between networks and repairs in the years 2015-2018.

Table 2 Time of creating and repairing connections between networks by Elering AS.

Line	Interruption duration (hours) 2015	Interruption duration (hours) 2016	Interruption duration (hours) 2017	Interruption duration (hours) 2018
L301 Tartu - Valmiera	253,88	159,45	227,09	33,5
L354 Tsirguliina - Valmiera	856,27	49,91	106	447,38
L358 Tartu - Pskov	366,53	328,75	3312,18	388,32
L373 Eesti PP - Kingissepp	1260,48	732,25	86,08	284,62
L374 Balti PP - Leningradskaja	4629,65	1302,73	355,02	325,33
L677 Tsirguliina - Valka	309,12	226	1134,28	523,40
L683 Ruusmäe - Aluksne	959,47	575,85	203,02	237,80
LN3	0	0	7,01	0,00
Total	**8635,40**	**3374,95**	**5430,68**	**2240,35**
incl. ordered by neighbouring systems	7561,75	2862,22	5038,22	1697,6

It appears from Table 2, the interruptions in the network interconnections in 2015 took place during 8 635,40 hours, while in 2016 it was during 3 374,98 hours, in 2017 during 5 3430,68 hours and in 2018 during 2 240,35 hours. Interruptions in the grid are primarily caused by faults (old and worn out lines, occurred storms), as well as due to the repair and maintenance works.

The Competition Authority analysed the reliability of DC connections Estlink 1 and Estlink 2. Due to emergencies and repairs in 2018 Estlink 1 was out of operation in total 642 hours and 50 minutes, which 7,3% of the time. The biggest disruption was in November 2018 and resulted in the stoppage of the line for 21 days. Estlink 2 was out of operation in total 136 hours and 26 minutes, which is 1,56% of the time. The disruptions were caused mainly by the maintenance works.

2.1.3 Access to the network and network service price regulation
(Articles 37(1)(a, f), 37(6)(a), 37(8), 37(10), 37(3)(c, d) of Directive 2009/72/EC)

According to the Electricity Market Act uniform price regulation is applied to all network undertakings regardless of their size. In 2018 in Estonia there was one transmission network undertaking and the number of distribution undertakings was 33.

A network operator is obliged connect to the network at the connection point any electrical installation, which conforms to the requirements, of a consumer, producer, line possessor or any other network operator within its service area and amend of the consumption or generation conditions on the basis of a corresponding request. A network operator has the right to refuse to provide network services if:

- the electrical installations of the user of network services do not conform to the requirements of legislation or to the technical conditions established by the network operator for connection to the network;
- the provision of network services is not possible for any other reason due to the user of network services;
- the provision of network services is not possible for reasons independent of the network operator;
- the network of the network operator lacks the necessary transmission capacity for the provision of network services;
- the corresponding right of the network operator arises on any other grounds provided in the Electricity Market Act.

A network undertaking is obliged to provide the reasons for any refusal to provide network services. The reasons must state the legal basis for refusal and also the Competition Authority shall be notified. Aforesaid principles shall ensure connecting of all customers, who apply for, to the network. If necessary, the Competition Authority may verify the grounds for refusal.

In addition to aforesaid the Competition Authority approves separately the following network charges and methodologies:

- network charges (for transmission and for using of a network connection);
- ancillary services provided by network operator (e.g. replacement of main protective fuse or sealing of meters at the customer and some other services);
- the methodology for the calculation of a charge for connecting to the network;
- the methodology of the pricing of balancing energy.

The prices for balance energy and the charges for transits of electricity are not subjects to approval, but the Competition Authority is obliged to monitor the justification of the prices. That means *ex-post* regulation is applied to these charges.

Although Article 14(2) of Regulation (EC) No 714/2009 and the *Guidelines on Transmission Tarification* allow charging producers for the transmission, so far Estonia has not applied this possibility.

Electricity network charges

The Electricity Market Act sets out the following main principles of price regulation:

- A network operator shall establish network charges in its service area in accordance with the Electricity Market Act and the legislation enacted on its basis;
- The criteria adopted by a network operator as the basis for establishing network charges shall be transparent and in compliance with the principle of equal treatment;
- When setting the rate of the network charges, the network operator shall have regard to need to ensure the security of supply, to achieve efficiency and to integrate markets as well as to the results of the research conducted in the relevant field;
- The rate of network charges must make it possible for a network operator to perform the obligations arising from legislation and fulfil the conditions of the authorisation, and to ensure a justified return on invested capital;
- A network operator shall set the transmission charge such that it guarantees market participants who have paid a connection charge and a charge for use of the network connection the possibility of transmitting electricity throughout the entire system;

- Network charges may differ from one network operator to another.

Pursuant to section 72(4) of the Electricity Market Act the Competition Authority has prepared uniform methods for calculating of network charges based on the weighted average cost of capital. The methodologies are disclosed on the Authority's web site. The Competition Authority has elaborated and published on its web site specific tables together with the guidelines for input data collection to be filled out for the approval process. The tables are comprehensive, include technical data and detailed accounts: profit and loss statement, balance sheet, data on acquired fixed assets, planned investments and the expected sale volumes of network services. Due to the comprehensiveness of the tables it is required to fill them out only in the price approval process. On the basis of the data it is possible to verify whether cross-subsidising of different areas of activity is avoided. A regular filling out is not required, but according to need the Competition Authority has the right to ask information on economic performance of and technical indicators and as well to require filling out the tables presented on the web site. The obligation to provide data is prescribed by law and the Authority is entitled to require all the data necessary for both the approval of prices and to carry out supervisory proceedings. The Competition Authority has also the right to perform site inspection any time and require data and the copies of documents. The practice so far has shown that the undertakings do not refuse submission of data. In addition, the undertakings have to separate in their accounts the different areas of activity. An annual accounting report is a public document and all interested parties can examine it.

The approval of prices takes place upon application by the undertakings. The latter means that undertakings have permanent opportunity to submit an application for the approval of network charges. New network charges shall be approved in case if an undertaking finds that the operating cost, capital cost and the justified return that were used in the approval do not provide the price that meets the provisions of section 71 of the Electricity Market Act. According to necessity the Competition Authority has the right to verify whether the valid network service price is in compliance with the provisions of the Electricity Market Act. In order to give to the network undertaking a possibility to set long-term goals, to plan its work and to fulfil its legal obligations, the Competition Authority applies the revision of an undertaking's investments in the process of price approval.

The Competition Authority has prepared and published on its web site the "Standard Methodology for Calculating of Electricity Network Charges" and the "Guidelines for the determination of weighted average cost of capital (WACC)".

Pursuant to Regulation of the European Parliament and of the Council No 714/2009 the regulation of the network service prices of the transmission network undertaking has some differences. Similarly to other network operators the charges established by the transmission undertaking must be transparent, take into account the need of ensuring security of the network and reflect all actually incurred costs, provided that they comply with the efficiency criteria and with the cost of other network operators with comparable structure. The charges may not be discriminatory. As the transmission network undertakings incur additional costs and revenues as the result of hosting cross-border transit flows of electricity the Regulation provides for the establishment of a so-called compensation fund between the transmission network undertakings of the EU Member States (ITC fund). On 23 September 2010 the European Commission passed Regulation No 838/2010, which lays down the principles of compensation for transit. All transmission system operators contribute to the ITC fund and from the fund the costs of all transmission operators participating in the transit of electricity are compensated for. Amongst

other things Article 4(3) of the Regulation sets out that when setting the charges for the access to the network the payments to and receipts from the ITC fund shall be taken into account[2]. Since execution of the Regulation is mandatory to Estonia, in the approval of network charges the Authority takes into account the costs incurring from the ITC fund.

In the regulation of the network service prices of the transmission network undertaking the revenues resulting from the allocation of cross-border interconnection has also been taken into account. Pursuant to Article 16(6)(a) of Regulation (EC) No 714/2090 any revenues resulting from the allocation of the interconnection shall be used for the guaranteeing the actual availability of the allocated capacity (so-called counter-trade) and the rest may be taken into account in the calculation of network tariffs under the provisions of Article 16(6) of the Regulation. From 1 July 2014 the transmission undertaking started the collection of the congestion income for the maintaining or increasing interconnection capacities.

In 2018 the transmission and distribution charges of the largest distribution undertakings did not change. All approved network service prices are disclosed on the Competition Authority's web site.

Table 3. Transmission and distribution service average prices of electricity networks in 2018.

Provider of service	Number of undertakings	Transmission and distribution service average price, €cent/kWh
Transmission network	1	1,05
Distribution networks*	34	5,28

Notes: * Network service price of Elektrilevi OÜ as the undertaking with the biggest market share – transmission of electricity at low voltage in the connection point of up to 63 A and in the purchase of the distributed network service.

Network charges of Elektrilevi OÜ

On 1 October 2018 the Competition Authority approved the network charges of the undertaking that took effect on 1 January 2019.

Network charges of Imatra Elekter AS

On 29 September 2017 the Competition Authority approved the network charges of the undertaking that fell by 12,7% in average.

Network charges of VKG Elektrivõrgud OÜ

On 13 July 2017 the Competition Authority approved the network charges of the undertaking that fell by 10% in average.

Charges for connecting to network

Connection to the electricity network is regulated by the Grid Code established by Regulation No 184 of the Government of the Republic on the basis of section 42(2) of the Electricity

[2] *Inter-Transmission System Operator Compensation Mechanism*, often abbreviated as *ITC*.

Market Act. Chapter 5 of the Grid Code sets out the requirements for connecting of a customer's electrical appliance to the distribution network of a network undertaking. For connecting to the transmission network a connection application must be submitted to Elering AS and based on the application, during 90 days an offer for connection is issued. A distribution network undertaking shall issue a connection offer during 30 days from the reception of the application or from performing an action necessary for the transmission network undertaking.

The connection offer shall contain the location of the metering point of the customer's electrical appliance, the charge for connecting and the grounds of its calculation, the conditions for connecting to the network and the conditions for amending or cancelling of the connection contract. The charge for connecting to the transmission network is determined on the basis of the cost pursuant to the principles outlined in the Grid Code. In the calculation of the charge for connecting to the network the justified cost which incurs in making the connection is considered. The charge includes the necessary and justified cost for connecting the new consumption load or for the amending existing consumption conditions, including the cost of construction of new electrical installations or re-construction of existing ones. It shall be explained herewith that the charge for connecting to the distribution network is calculated according to the methodology approved by the Competition Authority. For the preparation of the methodology the Competition Authority has published the *Guidelines for preparation of methodologies for approval the charge for network connection and amendment of consumption or production conditions*. The Competition Authority approved the „Method for calculation of connection charges" of Elering AS on 26 June 2015 and the standard terms and conditions of connection contracts of Elektrilevi OÜ on 10 March 2015.
In 2019 the condition for connecting to the transmission network and to the Elektrilevi network were reviewed. On 5 July 2019 the Competition Authority approved new standard terms and conditions of connecting to the transmission network of Elering AS and on 3 June 2019 the connection charges and the methodologies for calculating the charge for changing of consumption or production conditions of Elering AS. On 19 July 2019 the Competition Authority approved new standard terms and conditions for the connection contracts of Elektrilevi OÜ.

Results of price regulation

In order to get an overview of the long term price regulation the Competition Authority analysed capital productivity, the dynamics of prices, the quality of the service sold to consumers and in the context of these results also the efficiency of the use of energy by the regulated undertakings.[3]
In the evaluation of actual productivity of capital of undertakings the indicators given in annual reports were used and the capital productivity indicators were calculated in the principle where profit is divided by the invested capital. The resulting data were compared with the weighted average cost of capital (WACC) allowed by the Competition Authority. The results are illustrated in the following diagram.

[3] The analysis of the Competition Authority can be found at: https://www.the Competition Authority.ee/index.php?id=29564

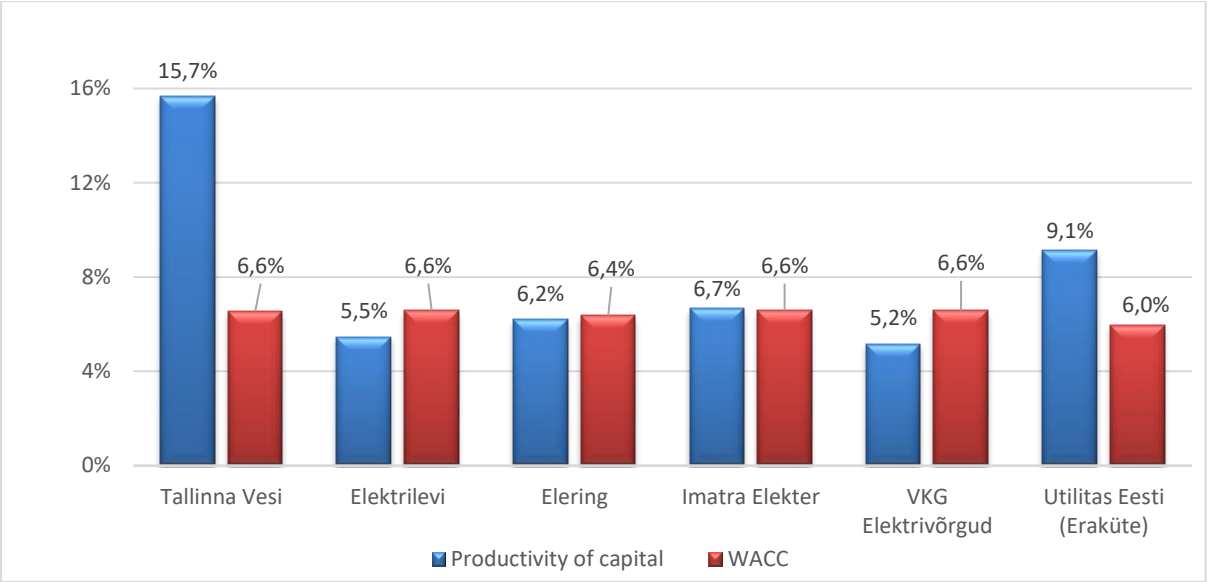

Figure. Capital productivity and arithmetic average indicators of WACC of undertakings in the period 2005-2017 (excl. Utilitas Eesti AS)

It appears from the indicators presented on the figure that in the 13-year period the average capital productivity indicator of electricity distribution undertakings (excl. Imatra Elekter AS) has remained lower than the indicators set out by the regulator. An average capital productivity indicator of the transmission system operator Elering AS is 6,2%, while the WACC allowed by the regulator has been 6,4%. An average capital productivity indicator of the largest distribution undertaking Elektrilevi OÜ is 5,5%, while the allowed WACC has been 6,6%. The same indicator has behaved similarly also of the distribution network undertaking VKG Elektrivõrgud OÜ. But the distribution network undertaking Imatra Elekter AS and the heat supply undertaking Utilitas Eesti AS have both managed to overrun their WACC respectively by 0,1 and 3,1 percent point.

The capital productivity indicator of AS Tallinna Vesi has clearly surpassed the same indicator of other monopolistic undertakings. Their 13-years period's average capital productivity of 15,7% substantially, by 9,1 percent point, exceeds the WACC allowed by the regulator as well as the indicators of other undertakings. An important indicator for consumers is the efficiency of energy use, as it has considerable influence on the formation of service prices. The lower the losses of energy the lower the price of service sold to consumers. The trend of the reduction of energy losses indicates also the efficiency of the work of the regulator as some of the important regulator tasks is to direct undertakings towards more efficient operation.

While 18 years ago the losses in electricity networks were approximately 20%, today they have come close to a technical minimum and further reduction would already require changing of the network configuration. The latter would be irrational both technically and economically. The dynamics of relative electricity losses of the distribution networks is shown on the following diagram.

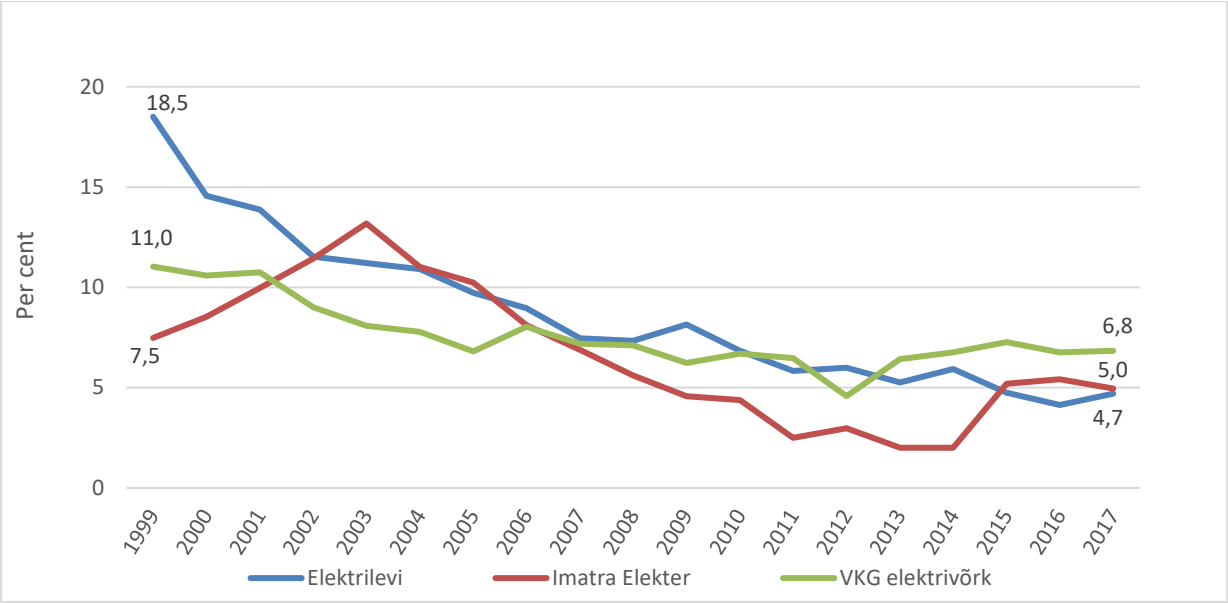

Figure. Relative electricity losses of distribution networks

In conclusion the price regulation can be evaluated as a successful one. One of the main tasks of regulation – ensuring stability of prices for consumers and avoiding the earning of excessive profits by monopolistic undertakings have generally been achieved. The biggest success has been achieved in the energy conservation. Both electricity losses and losses in the district heat networks have significantly fallen in the period under review.

2.1.4 Cross-border issues

With neighbouring countries Estonia has power connections with Russia, Latvia and Finland. The map of the Estonian electricity system is presented in Figure 4. The map of the power systems of the Baltic countries and north-western part of Russia is given in Figure 2 above. Yet, It should be clarified that Finland is part of the Nordic power system Nordel, which is not synchronised with the Russian and the Baltic countries' electricity systems' interconnection BRELL, where Estonia belongs to.

Figure 4. Map of electricity systems of Baltic countries and north-western part of Russia
Source: Elering AS

Estonia has three 330 kV overhead AC connections (500-650 MW) with Russia and two 330 kV overhead lines (500-900 MW) with Latvia and two DC connections with Finland (350 MW and 650 MW). Depending on network repair works and ambient air temperature variations the transfer capacity between Estonia and Latvia may decrease. The maximum power which can be imported and exported depends on the one hand from the technical transmission capacity of the lines and on the other hand from the stability margin determined in the operational regime calculations. The one which is lower determines the final limitation.

Rules of calculation and allocation of available capacity (Articles 37(1)(c), 37(6)(c), 37(8), 37(9), 37(3)(f) of Directive 2009/72/EC)

In the last years several changes have taken place in the rules of the cross-border transmission capacity allocation between the Baltic countries. The main goal of the changes is to follow the direction undertaken by the European Commission to use only market based solutions in the allocation of the transmission capacity and not to give certain advantages to individual market participants. Such approach enhances competition and improves transparency, which is needed for making new investment decisions, in order to sustain security of supply in the system.

Transmission capacity allocation in the Baltic states from 1 January 2016

On 11 September 2015 common rules on the transmission capacity allocation and calculation in the Baltic states and on the borders between them were agreed upon by the Baltic

transmission system operators. The electricity trade capacity in the Baltic states is allocated only by using the implicit auctions. Electricity trade between the Baltic states and third countries takes place using the method of capacity optimisation in the direction of Lithuania-Belarus and Lithuania-Russia. The minimum trading capacity limit is 200 MW, which is ensured by the Lithuanian system operator by keeping 100 MW secondary reserve in addition to the emergency reserve. The new rules take into account the changes in the functioning of the electricity system due to the new interconnections between Lithuania and Poland, and Lithuania and Sweden. On 8 October 2015 the Baltic regulators endorsed the new transmission capacity allocation and calculation rules worked out by the Baltic system operators. The Competition Authority approved the new rules on 14 October 2015. The new rules took effect from 1 January 2016.

On 10 July 2015 Elering AS submitted to the Competition Authority for approval the Harmonised Rules for Forward Capacity Allocation and its specific Annex for the Estonian-Latvian border, which provides allocation rules for the long term transmission capacity limited PTR [4] on the Estonian-Latvian border from 1 January 2016. The Estonian and Latvian system operators revised the PTR rules in respect of the European grid codes developments and decided to replace them with the EU HAR[5] and a Regional Annex. The Competition Authority approved the rules and the specific annex for the Estonian-Latvian border on 15 September 2015.

On 15 July 2016 Elering AS submitted to the Competition Authority for approval amendments aforesaid long term transmission capacity limited physical transmission rights (PTR) on the Estonian-Latvian border (EU HAR and Regional Annex). The amendments arose from the European Union Regulation no. 2016/1719, which establishes the rules for the forward market capacity allocation. Also, the developments to the automated web based application and their usage had its impact. The Competition Authority approved the amendments on 2 September 2016 and 13 October 2016. The new EU HAR and its Regional Annex entered into effect on 1 January 2017.

On 18 April 2017 Elering AS submitted to the Competition Authority for approval regional annex for the Estonia-Latvia border. On 17 October 2017 the Competition Authority approved Estonia-Latvia border Regional Annex, as there had been only minor changes in the numeration of pages and the structure of sentences, but no changes in essence, compared to the Regional Annex approved on13 October 2016.

On 24 July 2015 Commission Regulation (EU) 2015/1222 establishing a guideline on capacity allocation and congestion management was enforced. Pursuant to Article 20(2) of the Regulation no later than 10 months after the approval of the proposal for a capacity calculation region in accordance with Article 15(1), all TSOs in each capacity calculation region shall submit a proposal for a common coordinated capacity calculation methodology within the respective region. By the decision of ACER, the Baltic capacity calculation region comprises Estonia, Latvia, Lithuania, Finland, Sweden and Poland (hereinafter also the Baltic CCR).

In the following a review of the 2018 Baltic capacity calculation region methodologies, prepared and enacted on the basis of CACM regulation, is presented.

<u>1. Coordinated capacity calculation methodology –Baltic CCR CCM, CACM pursuant to Article 20(2):</u>

[4] *Physical Transmission Rights – the rights for physical transmission*
[5] *Allocation Rules for Forward Capacity Allocation*

On 19 September 2017 the regulatory authorities of the Baltic capacity calculation region received a proposal for a common coordinated capacity calculation methodology, which was returned on 12 March 2018 to the TSO's of the Baltic capacity calculation region for amending.
On 23 May 2018 all Baltic capacity calculation region's TSOs submitted to all Baltic capacity calculation region's regulators an amended proposal of the methodology.
On 12 July 2018 the regulatory authorities of the Baltic capacity calculation region agreed to request the Agency for the Cooperation of Energy Regulators (ACER) to extend the deadline for decision making until 23 October 2018.

On 5 October 2018 the TSO's of the Baltic capacity calculation region submitted to the regulators of the Baltic capacity calculation region their corrected CCM proposal.

On 17 October 2018 the regulatory authorities of the Baltic capacity calculation region endorsed the CCM proposal of their TSOs.
The methodology is published at:
https://elering.ee/sites/default/files/attachments/03.10.2018_Baltic%20CCR_CCM.pdf

2. Baltic CCR common methodology for coordinated redispatching and countertrading, CACM pursuant to Article 35(1):
On 20 March 2018 the regulatory authorities of the Baltic capacity calculation region received from the TSOs a redispatching and countertrading methodology (CRC methodology).
On 19 September 2018 the regulatory authorities of the Baltic capacity calculation region requested the TSOs to introduce amendments in the methodology.
On 7 November 2018 the regulators received from the TSOs an amended methodology.
On 14 January 2019 the regulators of the Baltic capacity calculation region endorsed the methodology.
The methodology is published at:
https://elering.ee/sites/default/files/attachments/Balti%20CCR%20koormuste%20koordineeritud%20%C3%BCmberjaotamise%20ja%20vahetuskauba%20tegemise%20metoodika.pdf

3. Fallback procedures of the Baltic capacity calculation region, CACM pursuant to Article 44:
On 25 May 2017 the last national regulatory authority of the Baltic capacity calculation region received a proposal from the TSOs for fallback procedures.
On 21 November 2017 regulatory authorities of the Baltic capacity calculation region decided to introduce amendments in the methodology.
On 29 January 2018 the Baltic TSOs forwarded to the regulators the amended methodology.
On 20 March 2018 the regulators of the Baltic capacity calculation region endorsed the methodology.
The methodology is published at:
https://elering.ee/sites/default/files/attachments/26012018_amended_Baltic%20CCR%20Fallback%20procedure_approved.pdf

4. Proposal for cross-zonal capacity allocation and other arrangements (MNA proposal), CACM pursuant to Articles 45 and 57.
On 30 November 2017 Elering submitted to the Competition Authority for approval a proposal for cross-zonal capacity allocation and other arrangements.

On 15 December 2017 the TSO's of the Baltic capacity calculation region submitted to the regulators for approval supplemented proposal for cross-zonal capacity allocation and other arrangements.
On 14 March 2018 the Baltic regulators requested to introduce amendments in the methodology.
On 23 March 2018 the Baltic TSOs forwarded for approval a corrected proposal for cross-zonal capacity allocation and other arrangements.
On 19 April 2018 the regulators of the Baltic capacity calculation region endorsed the methodology. The methodology provided for the implementation of the Multi NEMO principles (hereinafter the MNA project) in the region in January 2019.
On 23 November 2018 the TSO's forwarded to the regulators of the Baltic capacity calculation region a letter in which they asked to prolong the deadline for the MNA project from January 2019 to June 2019.
On 10 December 2018 the regulators of the Baltic capacity calculation region asked to submit respective amendment as a proposal to amend the methodology for cross-zonal capacity allocation and other arrangements.
On 21 December 2018 the TSO's of the Baltic capacity calculation region submitted respective proposal for the methodology amending.
regulators of the Baltic capacity calculation region affirmed the methodology amendment by which the planned finalisation of the MNA project was shifted to June 2019.
The methodology is published at:
https://elering.ee/sites/default/files/attachments/Balti%20MNA%20parandatud%20ettepanek%2020122018.pdf
On 12 June 2019 the Baltic TSO's submitted to the regulators again an amended MNA proposal by it was informed that EPEX SPOT SE is not planning to join the Baltic electricity market during 2019 and that is why it is not possible implement the MNA project by the earlier planned deadline.
On 4 June 2019 Elering submitted to the Competition Authority a supplement to the amended MNA in which it was clarified that the cooperation agreement to be signed between the TSOs and NEMOs will be published on the TSOs' web site and the agreement will fix the deadline for the MNA project.
On 8 July 2019 the Competition Authority approved the supplement to the amended MNA proposal.

5. Redispatching and countertrading cost sharing methodology of the Baltic capacity calculation region (CRC CS methodology), CACM pursuant to Article 74(1).
On 17 April 2018 the regulators of the Baltic capacity calculation region received a proposal for a common coordinated cost sharing methodology.
On 21 December 2018 a new CRC CS methodology proposal was sent to the regulators of the Baltic capacity calculation region by the TSOs.
On 6 March 2019 to the regulatory authorities of the Baltic capacity calculation region jointly sent to the Baltic TSOs a letter in which they requested an explanatory document in connection with the CRC CS methodology.
On 8 April 2019 the TSO's of the Baltic capacity calculation region sent to the Baltic regulatory authorities an explanation letter for the CRC CS methodology, which contained the requested information.
On 27 June 2019 the regulators of the Baltic capacity calculation affirmed the methodology.

The methodology is published at:
https://elering.ee/sites/default/files/attachments/13122018_MCRCCS__Article_74_re-draft_final.pdf

The data on the cross-border transfer capacity calculated by the system operators and limitations set to the system, their causes and impact to the system on weekly basis are located on the web site of NP, which are located on the Nord Pool web site, in the portal of quick market messages: https://umm.nordpoolgroup.com/#/messages?publicationDate=all&eventDate=all.

Pursuant to Article 15 of Regulation No 714/2009 "Provision of information" and Clause 5 of the Guidelines "Transparency" Elering AS has published on its web site (http://www.elering.ee) the rules for allocation of aforesaid available capacity and the agreements. The web site also presents information on available transmission capacity, utilised total capacity, demand and production, presenting both the actual data and either annual, monthly, weekly and/or daily estimates pursuant to the Guidelines. The web site includes a separate data disclosure application, where the information is visually observable and easily downloadable. The information is disclosed to the market participants simultaneously, transparently, in a user friendly manner and in an easily downloadable format.

Use of congestion income in the period from 1 July 2017 to 30 June 2018 (point 6.5 of Annex I of Regulation (EC) No 714/2009)

Pursuant to Article 16(6) of Regulation (EC) No 714/2009 the revenues resulting from the allocation of interconnection shall be used for the following purposes:
a) guaranteeing the actual availability of the allocated capacity; and/or
b) maintaining or increasing interconnection capacities through network investments, first of all through new network interconnectors; or
c) if the revenues cannot be efficiently used for the two aforesaid purposes, they may be used, subject to approval by the regulatory authorities, as income to be taken into account in the calculation of network charges.

In the period from 1 July 2018 to 30 June 2019 Elering AS earned congestion income in the total of 14 585 792 euro. Out of this 1 332 847 euro was used pursuant to Article 16(6)(a) of Regulation (EC) No 714/2009 for guaranteeing the actual availability of the allocated capacity (so-called counter-trade) and 63 610 euro was used to cover the cost of administrating the European central platform established to carry out long-term forward market (FTR) auctions. The rest of 13 190 335 euro is used pursuant to Article 16(6)(b) of the same Regulation for maintaining or increasing interconnection capacities through network investments, first of all through interconnectors between the networks.

2.1.5 Electricity market related obligations of Competition Authority

(Articles 37(1)(b,d,q), 37(3)(a,b), 37(3)(a,b,e), 37(4)(d), 37(5), and 39 of Directive 2009/72/EC)

In order to ensure cooperation with the Agency for the Cooperation of Energy Regulators (hereinafter ACER) and other regulatory authorities the Electricity Market Act sets out the following rights and obligations to the Competition Authority:

- Cooperate with the ACER and other regulatory authorities of the Member States;

- Engage in cooperation with the transmission network operator and, should this be needed, with other relevant authorities in order to perform its functions, and without prejudice to its independence and special authority. An approval issued by the Competition Authority pursuant to the Energy Market Act may not in any way limit the subsequent exercise of its powers;
- Engage in cooperation with counterpart authorities of other Member States in order to harmonise the data exchange platforms of the electricity market of the region;
- If necessary, the Competition Authority shall involve independent experts and cooperate with other Estonian and foreign supervisory authorities in order to exercise supervision.

The Competition Authority's obligations are set out in Chapter 9 of the Energy Market Act „State Supervision ". Amongst others obligations the Authority shall:

- verify compliance with the requirements set out in Regulation (EC) No 714/2009 of the European Parliament and the Council;
- monitor of investments in production capacity and, having regard to considerations of security of supply, where necessary, requiring the system operator to hold the invitation to tender referred to under subsection 4^1 of section 4 of the Energy Market Act;
- monitor and verify of the conduct of the invitation to tender provided for under subsection 4^1 of section 4 of the Energy Market Act;
- resolve disputes between market participants following the procedure provided in the Electricity Market Act;
- disseminate through its website the network operators' network charges that it has approved in accordance with the Electricity Market Act;
- issue decisions of approval in accordance with the Electricity Market Act;
- verify whether the distribution network operator complies with the requirements set out under section 18 of the Electricity Market Act;
- scrutinise the justifications for the expenditure incurred by the transmission network operator for the purpose of administering the support provided for in subsection 4 of section 59^2 of the Electricity Market Act;
- verify whether the price of the electricity sold in the framework of the open supply referred to in $44(4^2)$ of the Energy Market Act is justified;
- verify the information that is provided by the seller to the consumer under section 75^1 of the Electricity Market Act;
- verify whether the price of electricity sold by way of provision of universal service complies with section 76^3 of the Electricity Market Act;
- verify the issue, transfers and validity of the guarantees of origin described in section 58^1 of the Electricity Market Act;
- verify the prices of balancing electricity set by the system operator;
- verify whether the transmission charges applied by the network operator for the transit of electricity, as well as the operator's connection charges and charges for the amendment of conditions are in conformity with sections 71-73 of the Electricity Market Act;
- in its annual report, stating its opinion regarding the report drawn up by the system operator in accordance with section 39(7) of the Energy Market Act, taking into account whether the report of the system operator is in conformity with the Community-wide network development plan referred to in Article 8(3)(b) of Regulation No 714/2009 of the European Parliament and of the Council, and issuing recommendations concerning the amendment of the system operator's investment plan, if needed;
- monitor technical cooperation between the transmission network operators of the member states of the European Union and of third countries;

- engage in cooperation with counterpart authorities of other member states in order to link up the information exchange platforms of the electricity market of the region;
- monitor the situation concerning market opening and competition, including the prices on the power exchange and the prices set for household customers, and publish, at least once a year, recommendations concerning the setting of the prices of electricity sold to household customers;
- monitor the time that it takes network operators to build connections and to perform repairs;
- monitor the level of transparency of the electricity market, including the transparency of wholesale prices in the electricity market;
- ensure that no cross-subsidisation occurs between the activities of transmission, distribution and sale;
- ensure that no anti-competitive contractual practices are engaged in, including the prohibition to purchase the fixed supply from several sellers at the same time;
- ensure that consumers are granted speedy access to their consumption data without charge;
- in order to perform its functions, and without prejudice to its independence and specific competence, engaging in cooperation with the transmission network operator and, should this be needed, with other relevant authorities. No approval issued by the Competition Authority in accordance with this Act in any way limits the Authority in the subsequent exercise of its powers;
- submit to the European Commission a report on market dominance among electricity undertakings and on predatory and other anti-competitive behaviour, changes in ownership, measures taken to enhance competition, and the potential effects on domestic and international competition of the measures taken to comply with the obligation of providing universal service;
- notify the European Commission of the decision to issue the authorisation to the transmission network operator, and publishing that decision in the Official Journal of the European Union;
- annually draw up, publish on its website and transmit to the European Commission, to the energy regulators of member states and to the Cooperation Agency a report on the measures implemented to perform the functions of the Competition Authority and on the results that those measures have attained;
- in accordance with Article 3 of Regulation No. 256/2014 (EU) of the European Parliament and of the Council, transmit to the European Commission the information described under section 19(5) of the Electricity Market Act;
- disseminate through its website information concerning the rights of consumers, the relevant legislation and the possibilities of dispute resolution;
- prepare and publish on its website by 31 July each year an overview concerning the previous calendar year which reflects the following:
  - the rules of allocation of capacity of intersystem connections;
  - the rules for resolving congestions in the system;
  - the time spent on construction and repair of cross-border interconnectors;

- the information published by network operators concerning cross-border interconnectors and distribution of the capacity of the network, taking into account the need to maintain business secrets;
- the unbundling of activities referred to in section 16 of the Energy Market Act;
- the connection conditions established for new producers;
- the performance of obligations by the system operator and network operators;
- the competition situation in the electricity market.

In addition, the Competition Authority may establish temporary network charges or a temporary methodology of calculating network charges in situations where the network charge is not justified or the network charge has not been set and the network operator does not comply with the enforcement order issued by the Competition Authority. The network charges established by the Competition Authority remain in force until such time as the network operator obtains, in accordance with section 73 of the Energy Market Act, the approval of the Competition Authority for the new network charge. The surplus profits which the network operator earned while applying the unjustified network charge are, taking into account the network operator's sustainability, deducted from its justified sales revenue on the next occasion or, if necessary, also subsequent occasions of approving network charges.

The Competition Authority is obliged to verify compliance of the transmission and distribution network undertaking to the requirements outlined in law. The Authority monitors whether the transmission network undertaking complies with the legal requirements and initiates an assessment of compliance of the transmission undertaking in cases prescribed in law (including, if the European Commission has submitted a reasoned request). In doing so the Competition Authority shall immediately inform the European Commission of circumstances which permit a person from a third country to acquire control over the transmission system operator.

When exercising the state supervision provided for in the Electricity Market Act, the Competition Authority may apply the special measures of state supervision provided in sections 30, 50 and 51 of the Law Enforcement Act on the grounds and following the procedure provided in that Act. In the event of failure to perform an obligation imposed by an enforcement order, a penalty payment may be imposed pursuant to the procedure provided by law. The upper limit for a penalty payment is 1 300 euros. In the event of failure to comply with the requirements established in the Act, the upper limit for a penalty payment to be applied in respect of the transmission network operator is nine million euros, and the total amount of penalty payments which may be imposed in order to achieve the goal prescribed in the enforcement order may not exceed nine million euros. Both an enforcement order and a decision are administrative legislation acts that may be challenged with an administrative court. The latter may invalidate the decision or the enforcement order.

The Competition Authority is independent in exercising the functions entrusted to it by virtue of law. The Authority's rights and obligations in the monitoring of the market are prescribed in both the Electricity Market Act and the Competition Act. In case an abuse of market dominant position or other competition related violation cannot be resolved pursuant to the special law, it can be proceeded on the basis of the Competition Act. Independence of the Competition Authority is ensured also pursuant to section 93(6)(1) of the Government of the Republic Act, pursuant to which the prescribed procedure for supervisory control does not extend to the state supervision activities nor to the decisions made in the application of enforcement powers of state. Thus, in application of enforcement by state the agencies in the area of government of the

ministries are independent. All parties to proceedings, both companies and consumers have the right to challenge the Competition Authority's decisions with and administrative court, which makes a decision on the exercising of state supervision and the application of enforcement powers of the state. In addition, the Competition Authority is independent in utilising of its annual budget authorised by Riigikogu (the parliament).

According to the Public Service Act the Director General of the Competition Authority is appointed to office for five years and the same person may not be appointed for more than two successive terms. The first term begun with the enforcement of the Act. The obligations of a public servant, including limitations on activity are prescribed in Chapter 5 of the Public Service Act, in chapters 1 and 2 of the Anti-Corruption Act and in the internal procedure rules of the Authority. The employees of the Competition Authority and the persons responsible for its management act independently from the market interests and in the exercising of their regulatory tasks do not ask and do not receive direct guidelines form any state agency nor other public or private person.

2.1.6 Projects of common interest

Projects of common interest belong to the sphere of the European public interest, which have cross-border impact and which contribute to the development of the joint European energy system, boost competition and help to improve energy security in Europe. The administration and permit granting procedures are carried out on the basis of Regulation (EU) No 347/2013 via consultations and involving all interest groups concerned. Projects can compete to be listed as the projects of common interest every year under certain categories. The projects approved and adopted in the list later have the right to apply for funding from the European *Connecting Europe Facility (CEF).*
Projects of common interest are divided by sectors: electricity, gas, liquid fuel and smart grids. At the moment Estonia has five projects in the list of projects of common interest. Three of them in the electricity sector, while rest two belong to gas sector.
In the electricity infrastructure list the following projects have been approved/adopted:

1. Estonia-Latvia third interconnection;
2. Hydro-pumped electricity storage power plant,
3. Integration and synchronisation of the Baltic States' electricity system with the networks of continental Europe.

In the gas infrastructure list the following projects have been adopted:

1. Interconnection Estonia — Finland currently known as 'Balticconnector';
2. Cluster infrastructure upgrade in the gas networks of the Baltic States.

In the following a more detailed overview of the project of synchronising of Baltic States' electricity systems with the network of continental Europe is given. The project has gained the biggest attention and belongs to strategic objectives of the European Union's energy policy.

Synchronisation of the Baltic States' electricity system with the networks of continental Europe (CEN)

Currently the electricity network of the Baltic states operates synchronously with the electricity system of Russia and Belarus. Desynchronization of the electricity network of the Baltic states from these systems and the synchronisation of it with the networks of continental Europe is a

strategic objective of the EU's energy policy. Synchronisation with the European energy system ensures better long term reliability and security of supply for Estonia and minimises our dependence from the third countries.
Synchronisation of the Lithuanian, Latvian and Estonian electricity systems with CEN is directed to the development of the infrastructure, in order to intensify integration of markets. The synchronization project consists of many investment objects, which include internal strengthening of the transmission system and necessary renovations of the control system. Considering the complexity of the synchronization project and the dependence of the project on the conditions of the Member States of continental Europe and of the third countries the investments required for the synchronization project are divided into three phases:

Phase 1 – strengthening of the internal transmission networks of the Baltic states, which is necessary irrelevant of the selected synchronisation scenario.
Phase 2 – investment units prepared by the Baltic and Polish transmission system operators, which are tied to the dynamics and frequency stability studies and investment units, which are derived from the preferential political decision on the synchronisation scenario expected to be taken in middle of 2018.
Phase 3 – the investment objects to be determined in the later phases of the process.

There are four main investment objects in Estonia that are necessary for the synchronization project – all of them are involved in the first phase of the synchronisation project – the reconstruction of 330 kV lines from Estonia to Latvia and investments in the renovation of the control system, as well as the installation of necessary voltage control and compensation equipment. Tsirguliina-Valmiera connection on the Estonian territory is already reconstructed and now it shall be reconstructed on the Latvian territory to achieve the required transmission capacity. Depending on the final decision on the synchronisation alternative additional investments may be needed and these investments shall be implemented in the second phase of the project.

Regulation (EU) No 347/2013 of the European Parliament and of the Council (Regulation No 347/2013) added from spring 2013 to the Competition Authority an obligation to provide an assessment of the investment projects of common interest and allocate the cost in cooperation with the regulatory authorities of neighbouring countries.
Article 12 of Regulation No 347/2013 provides that as soon as a project of common interest has reached sufficient maturity, the project promoters, after having consulted the TSOs from the Member States to which the project provides a significant net positive impact, shall submit an investment request. That investment request shall include a request for a cross-border cost allocation and shall be submitted to all the national regulatory authorities concerned, accompanied by the following:

a) a **project-specific cost-benefit analysis** consistent with the methodology drawn up pursuant to Article 11 and taking into account benefits beyond the borders of the Member State concerned;
b) **a business plan** evaluating the financial viability of the project, including the chosen financing solution, and, for a project of common interest falling under the category referred to in Annex II.2 (gas), the **results of market testing**; and
c) if the project promoters agree, a **substantiated proposal for a cross-border cost allocation**.

On 31 May 2018 Elering AS together with the Latvian and Lithuanian transmission network operators AS Augstsprieguma Tikls and Litgrid AB submitted to the Competition Authority a

cross-border cost allocation investment request for the project of common interest of integration and synchronisation of the Baltic states' electricity system with the European networks, which included four sub-projects: strengthening of the Tartu (EE) - Valmiera (LV) 330 kV overhead line (LV), strengthening of the Balti (EE) - Tartu (EE) 330 kV overhead line (L300), strengthening of the Viru (EE) - Tsirguliina (EE) 330 kV overhead line (L353) and other aspects related to the synchronisation of the Baltic states' electricity system with the European networks.
In Estonia the majority the majority of the investment volume includes the 330 kV transmission lines that begin in Narva region and directed to Latvia via Valga. The tentative cost of the first phase of investments is 187,79 million euro (in total 432,56 million euro). The project is planned to be finalised by the end of 2025.

In compliance with Article 12(3) of Regulation 347/2013 the transmission network undertakings submitted to the regulatory authorities the proposal for cross-border cost allocation. The TSOs showed that the project-specific cost-benefit analysis is positive and all Baltic states will gain positive net income. Thus, an allocation of cross-border cost is not reasonable. Accordingly, the Baltic TSOs made the proposal that the investment cost of the Estonian part of the project shall be borne by the Estonian TSO Elering AS and the Latvian and Lithuanian part by their respective TSO.

On 6 September the Competition Authority and the Latvian and Lithuanian regulators signed "Cross-border cost allocation agreement". In the agreement the regulatory authorities confirmed that the cost allocation proposed in the investment request is justified and accepted the cross-border cost allocation agreed upon by the Estonian, Latvian and Lithuanian transmission network undertakings. It was also agreed upon that the TSOs shall apply for the European Union's co-financing in the framework of CEF, in order to reduce the impact of the project on the transmission tariffs.

On 10 September 2018 the Competition Authority made its decision, which is published on the Authority's website: www.konkurentsiamet.ee

2.2 Enhancement of competition in electricity market

2.2.1 Wholesale market of electricity
(Articles 37(1)(i,j,k,l,u) and 40(3) of Directive 2009/72/EC)

In April 2010 the Nordic countries' power exchange NP started operations in Estonia. In 2010 the market was opened by 28,4%. On 1 January 2013 the market opened for all, meaning that all electricity consumers which have a valid network contract may choose suitable electricity supplier and a price packet for themselves.

In order to adequately evaluate the activity of electricity producers and wholesale traders it is appropriate to consider their market share in the regional wholesale market together with other Baltic electricity market regulators. Due to the *EstLink 1* and the *EstLink 2* interconnections between Estonia and Finland, as well as the *NordBalt inter*connection between Lithuania and Sweden the electricity system of the Baltic countries is integrated with Finland and Sweden. Through these the Estonian and the whole Baltic electricity system is integrated with the Nordic countries power exchange NP.

In 2018 10 583 GWh of electricity was produced (net production) in Estonia. Compared to 2017 the production decreased 5,8%. Theelectricity import to Estonia in 2018 was 3 484 GWh, compared to 2017 the import increased 465%. The domestic consumption in 2018 increased by 1,5% compared to 2017 with the total of 7 980 GWh. The export of electricity from Estonia in 2018 was 5 350 GWh, which is 12% more than in 2017. The network losses in the Estonian electricity system in 2018 were 737 GWh, which is 3,4 % more than in 2017. e. Table 5 presents the changes in the Estonian energy balance in 2017 and 2018.

Table 5. Electrical energy balance in GWh. Source: Elering AS

Electricity balance in GWh	2017	2018	Change, %
Net generation	11 234	10 583	-5,8
Import	2 109	3 484	65,2
Consumption	7 865	7 980	1,5
Losses	713	737	3,4
Export	4 765	5 350	12,3

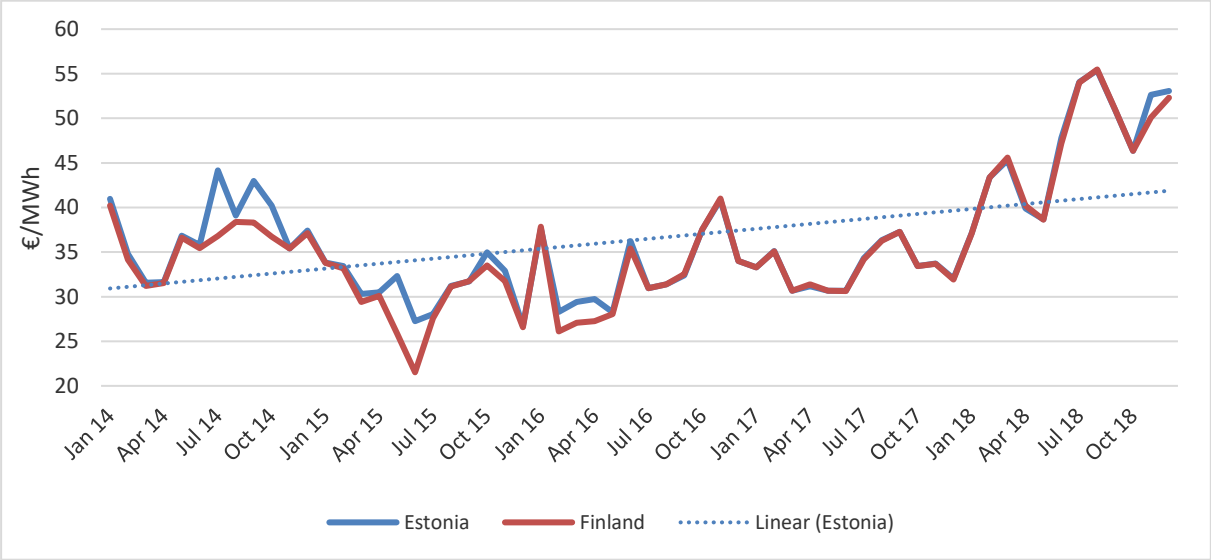

Figure 5. Comparison of NP Estonia and NP Finland price area average price (€/MWh) since January 2014 Source: Nord Pool

It appears from Figure 5 that the Estonian and Finnish electricity prices are quite similar after the commissioning of EstLink 2 in December 2013. The differences in the Estonian and Finnish electricity prices in most cases are caused by the interruptions in EstLink 1 and EstLink 2, when the transmission capacity between Estonia has decreased. In 2018 Estlink 1 was out of operation due to emergencies and repairs 7,3% of the time. The biggest disruption took place in November 2018, which caused outage of the line for 21 days. EstLink 2 was out of operation 1,56% of the time, mainly due to maintenance works (Source: Nord Pool).

Figure 5 shows an increasing trend of electricity price. The trend is visible in the day-ahead (Elspot) market prices within the whole Nord Pool electricity market, which is well illustrated by Table 6. In the Estonian price area the market price in 2018 has been 29,5% higher than in 2017, being also 0,57% higher than in the Finnish price area, but 6,01% lower than in the Latvian price area.

The increase of prices has been influenced by the hot and dry summer, which has caused a reduction of hydro energy reserves in the Nordic countries. In addition, the CO_2 quota prices have increased and this brings along the appreciation of electricity produced from fossil fuels.

Table 6. Comparison of prices in day-ahead market (Source: Nord Pool)

Price area	Average price 2017, €/MWh	Average price 2018, €/MWh	Change, %	Maximum price 2018, €/MWh	Minimum price 2018, €/MWh
NP System	29,41	43,99	**33,1**	198,29	2,17
NP Finland	33,19	46,80	**29,1**	255,02	1,59
NP Estonia	33,20	47,07	**29,5**	255,02	1,59
NP Latvia	34,68	49,90	**30,5**	255,03	1,59
NP Lithuania	35,13	50,00	**29,7**	255,03	1,59

For comparison Figure 6 presents NP Estonia price area electricity prices in 2015-2018.

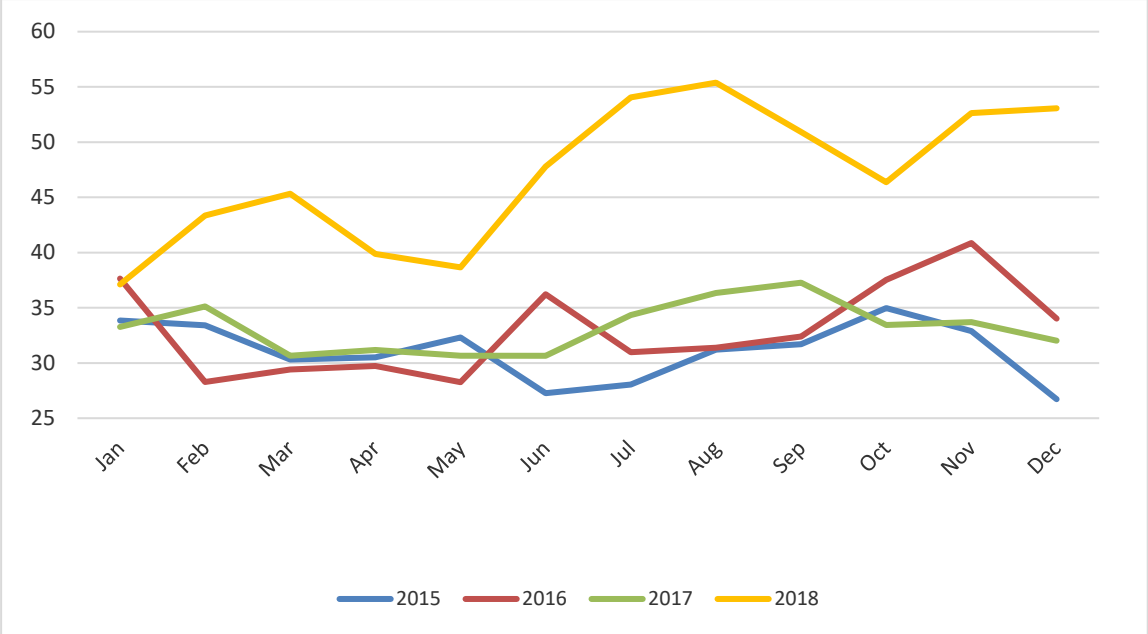

Figure 6. Average electricity prices of NP Estonia price area (€/MWh) in 2015-2018. Source: Nord Pool

In the NP Estonia price area in these years the prices have been volatile. The highest monthly price was in August 2018, 55,38 €/MWh while the lowest price was in December 2015, being 26,72 €/MWh.

Table 7. Traded quantities in NP Estonia price area in day-ahead (Elspot) market.
Source: Nord Pool

Traded quantities in NP Estonia price area	Unit	2017	2018	Change, %
Day-ahead (Elspot) sold electricity quantity in NPS Estonia price area	TWh	10,15	9,55	-5,9
Day-ahead (Elspot) bought electricity quantity in NPS Estonia price area	TWh	7,38	7,58	2,6

It appears from Table 7 that in the day-ahead (Elspot) market sold electricity quantities in 2018 were in total 9,55 TWh, which is close to 6% less compared to the 2017 sold quantity and the bought electricity quantities totalled 7,58 TWh, which is 2,6% more than bought in 2017.

Table 8. Traded quantities in NP Estonia price area in intraday (Elbas) market.
Source: Nord Pool

Traded quantities in NP Estonia price area	Unit	2017	2018	Change, %
Intraday (Elbas) sold electricity quantity in NPS Estonia price area	GWh	90	106	17,8
Intraday (Elbas) bought electricity quantity in NPS Estonia price area	GWh	204	161	-21,1

It appears from Table 8 that in the intraday (Elbas) market sold electricity quantities in 28 were in total 106 GWh, which is 17,8% more than the 2016 quantity and the bought electricity quantities totalled 161 GWh, which is 21,1% less than in 2017.

Table 9 illustrates the total traded quantities in the NP Estonian price area. As the quantities traded in the Elbas market are multiple times smaller than that in the Elspot market then, conclusively, the quantity sold in the market declined due to the lower domestic production and the quantity bought from the market increased slightly due to the risen consumption quantities.

Table 9. Total traded quantities in NP Estonian price area. Sources: Nord Pool

Total traded quantities in NP Estonia price area	Unit	2017	2018	Change, %
Total sold electricity quantity in NP Estonia price area	TWh	10,24	9,65	-5,9
Total bought electricity quantity in NP Estonia price area	TWh	7,59	7,74	2,6

For better functioning of electricity market in the end of 2013 the high voltage direct current electricity connection EstLink 2 between Estonia and Finland was commissioned. In addition, in 2016 the connection between Lithuania and Sweden NordBalt and LitPol Link between Lithuania and Poland were commissioned. Stronger interconnections with Nordic countries ensure tighter competition between producers, more transparent prices for consumers and preconditions for a functioning electricity market. It is important to emphasize that functioning, transparency strong competition is ensured by the uniform organisation of the Baltic countries' electricity market.

In the following the Competition Authority gives overview of the trading on the Estonian border crossing transmission.
The main import to the Estonian price area came from the Finnish direction interconnections, the market flow in this direction took place in 64% of the time and the basic export went to the Latvian direction, where the market flow in this direction comprised 86% of the time. The Elspot market flow directions are illustrated in Table 10.

Table 10. Cross-border day-ahead market flow distributions in 2018. Source: Nord Pool

Direction	Day-ahead market flow in the direction, h	Day-ahead market flow in the direction, %
EE->FI	2380	27,2%
FI->EE	5589	63,8%
EE->LV	7552	86,2%
LV->EE	848	9,7%

So-called bottle-necks, where there is a shortage of transmission capacity in a given direction, occurred most often in the Estonia-Latvia direction – in 30% of the time. In this interconnection 55,4% of the capacity given for trading to the whole day-ahead market was utilised. To a lesser extent bottle-necks occurred also in other trading directions. Table 11 illustrates the extent of bottle-necks occurrence hours and the utilisation of capacity given to the market throughout the year 2018. For comparison purpose Table 12 presents the same data for 2017.It can be seen that the share of bottle-neck hours in 2018 compared to 2017 has increased in all trading directions. An average trading flow and utilisation of the capacity given to the market have increased as well.

Table 11. Utilisation of capacity given to market and shortage in 2018. Source: Nord Pool

2018				
Direction	Bottle-neck hours after intraday trading	Share of bottle-neck hours %	Average trading flow in Elspot market, MWh	Utilisation of capacity given to Elspot market
EE->FI	117	1,3%	93,3	9,60%
FI->EE	353	4,0%	270,1	27,60%
EE->LV	2624	30,0%	424,6	55,40%
LV->EE	41	0,5%	22,7	3,20%

Table 12. Utilisation of capacity given to market and shortage in 2017. Source: Nord Pool

2017				
Direction	Bottle-neck hours after intraday trading	Share of bottle-neck hours %	Average trading flow in Elspot market, MWh	Utilisation of capacity given to Elspot market
EE->FI	45	0,5%	90,6	9,00%
FI->EE	62	0,7%	182,2	18,10%
EE->LV	1645	18,8%	421,6	53,00%
LV->EE	19	0,2%	14,2	2,20%

Tables 13 and 14 illustrate the transmission capacity limitations in 2018 and 2017 given to the Elspot market. In 2018 the transmission capacity has been limited slightly more than in 2017 in most directions. An exception is the Estonia-Latvia direction, where 8,7% more capacity was given to the market, at the same time this direction is least utilised in terms of trading. Most of all in 2018 limitations occurred in the Estonia-Latvia trading corridor, where the volume of transmission capacity has been limited in average slightly over 23%.

Table 13. Limitations of capacity given to market in 2018

2018				2018 vs 2017
Direction	**Average capacity given Elspot market (NTC D-1), MW**	**Maximum installed capacity based on Nord Pool data*, MW**	**Average extent of transmission capacity limitations for day-ahead market (Elspot)**	**Change of capacity given to market in average in 2018 compared to 2017**
EE->FI	977	1016	3,8%	-3,0%
FI->EE	981	1016	3,4%	-2,8%
EE->LV	766	1000	23,4%	-3,8%
LV->EE	711	879	19,1%	8,7%

*The maximum installed capacity figure has been used, which does not take into account limitations due to air temperatures.

Table 14. Limitations of capacity given to market in 2017.

2017			
Direction	**Average capacity given Elspot market (NTC D-1), MW**	**Maximum installed capacity based on Nord Pool data *, MW**	**Average extent of transmission capacity limitations for day-ahead market (Elspot)**
EE->FI	1006	1016	1,0%
FI->EE	1008	1016	0,8%
EE->LV	795	1000	20,5%
LV->EE	649	879	26,2%

The Nord Pool power exchange administrator and the system operator Elering AS have disclosed on their web sites the information on generation installations and transmission capacities (incl. interruptions) and data on all price areas in the Nord Pool system. The data are easily findable and downloadable. Transparency of the market is ensured particularly with the organisation of the market uniformly with the neighbouring countries.

On the evaluation of the Competition Authority comprehensive changes have taken place in the Estonian electricity market in connection with the opening of markets and the commencement of power exchange operations in the Baltic countries. This is well illustrated with the active import and export between the neighbouring countries. The Estonian wholesale market is transparent, in 2018 93% of the produced electricity was traded on the power exchange (in 2017

the same value was 92,5%) and out of the consumption 91,8% was traded via the power exchange (in 2017 the same value was 91,3%).

As of the end of 2018 there were 8 balance providers in Estonia, in addition also Elering AS has registered as a balance provider to buy Network losses and to sell electricity from the testings of the emergency reserve power plant. Competition between balance providers is characterised on Figures 7 and 8, which illustrate the distribution of market shares between balance providers by the consumption and production portfolios. Eesti Energia AS has the biggest market share of 60,8% by the consumption portfolios. By the production portfolios Eesti Energia AS also possesses the biggest share of 86,2%.

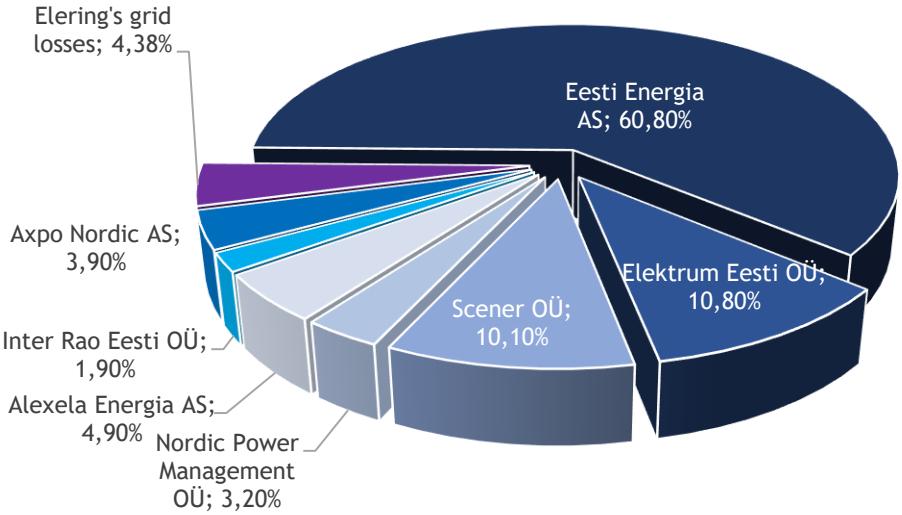

Figure 7. Consumption based distribution of market shares between balance providers

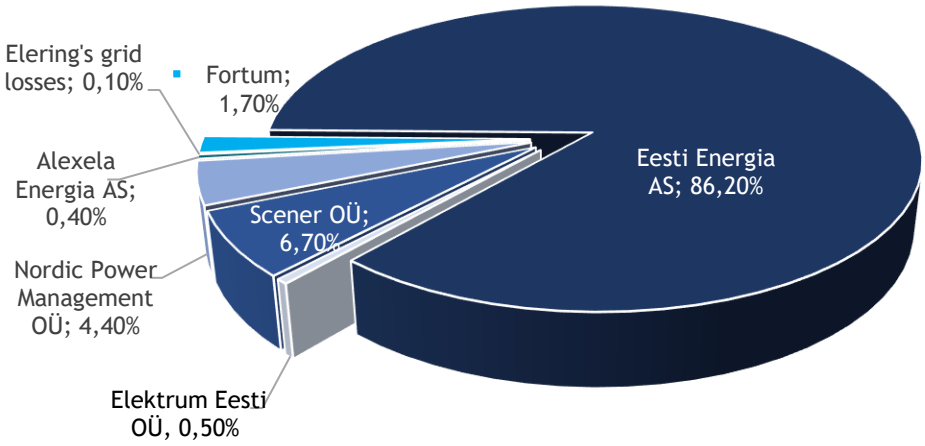

Figure 8. Production based distribution of market shares between balance providers

The Competition Authority is in a position that competition in the Estonian wholesale market is generally good, the market shares are distributed both throughout production and consumption between several balance providers. The Estonian electricity system is not overloaded. During most of the time prices in Estonia and in Finland have been the same, although an overload has increased compared to 2017, however, remained in a low level, mainly caused by a longer period outage of Estlink 1 interconnection in November. There are more overload situations between Estonia and Latvia, but a new cross-border additional line here is under construction and this should resolve the overload problem in this cross section in the future. Generally, it is a very well-functioning and integrated electricity market region with active cross-border electricity trading.

2.2.2 Retail market of electricity
(Articles 37(1)(i, j, k, l, u) and 40(3) of Directive 2009/72/EC)

In 2013 the electricity market in Estonia was completely opened. This means that all consumers, which have a valid network contract, can choose a suitable electricity trader. The undertaking with the biggest share in the retail market is Eesti Energia AS. The retail market related information is presented in below Table 9.

Table 9. General data on retail market

Year	Total consumption (without losses) GWh	No of undertakings with more than 5% market share	No of independent electricity traders*
2010	7431	1	4
2011	6845	1	5
2012	7407	1	5
2013	7332	2	15
2014	7 417	2	16
2015	7 440	5	16
2016	7 664	4	17
2017	7 865	5	16
2018	7 980	4	16

*Note: Does not include network undertakings

It appears from Table 9 that in 2019 there were 16 independent electricity traders in Estonia, 10 of them are active players in the market. In 2018 2% of the household customers and 9% of the business customers changed their electricity trader. 80% of the consumers have electricity contracts and 20% of them use universal service. The latter are the consumers that have no valid electricity contract. A change of electricity trader in Estonia is simple and takes 1-2 months depending on the date of a new contract, as the change of trader can take place together with the change of calendar month.

Data on the final consumer price formation (network services + electricity) are presented in Table 10.

Table 10. Household consumer prices of electricity in 2018 (based on main tariff)**.**

Price components	Unit	Consumer
Network service (main tariff)	€cent/kWh	5,28
Price of electricity without network service	€cent/kWh	4,97
Excise tax on electricity	€cent/kWh	0,447
Charge for support of renewable energy	€cent/kWh	0,89
End consumer price without VAT	€cent/kWh	11,59
Value added tax (VAT) 20%	€cent/kWh	2,32
Final consumer price incl. VAT	**€cent/kWh**	**13,9**

Notes: The basis for the electricity price is the Nord Pool Estonian price area average price in 2018 + the average marginal of 0,270 €cent/kWh.
The network service price is based on the price package of Elektrilevi OÜ named „Võrk 1"

Competition Authority´s overall assessment on retail market after market opening

Pursuant to section 93(4)(18) of the Electricity Market Act the Competition Authority monitors the level of market opening and competition, among others the power exchange and households designated prices and at least once a year delivers recommendations on the formation of prices for the electricity sold to household consumers.

On 1 January 2013 the electricity market in Estonia opened for all consumers in Estonia. For consumers the market opening means a possibility to select most suitable electricity seller/trader irrespective of the network operator with whom a consumer has contracted for the provision of network services. On the other hand, undertakings are in the situation in which they have to apply more efforts in order to attract more customers. The price for electricity in open market is formed in equal competition conditions. By the end of 2012 all earlier electricity contacts were invalidated. A consumer which did not choose to contract with any trader, is supplied with electricity by the network operator (as universal service) that provides services in the area where the consumption point is located. The basis for the price of universal service is the previous month's weighted average power exchange price with the addition of justified costs of the undertaking and a reasonable profit margin.

Beginning from the opening of the market in 2013 the number of electricity traders have increased considerably. While in 2012 there were 4 independent electricity traders, in 2018
The number of them has increased up to 16. Arising from the opening of the market new electricity traders have come to the market enhancing thereby competition in the electricity market and giving more options to consumers to choose between.
In 2018 the Competition Authority conducted a more detailed analysis of the retail market dealing with the electricity traders in Estonia, their share in the retail market and the activity of consumers. The analysis is available on the Competition Authority's website (www.konkurentsiamet.ee). The biggest trader on the retail market is Eesti Energia AS who has a market share of 56,7% as of the end of 2018. Their share of 77% in the sale of universal service is also highest in the market. HHI index in the Estonian market is 3573, showing that the market is very concentrated. However, as the change of electricity trader is simple, it can still be said that the market is functioning. For the largest market player Eesti Energia AS their share has decreased by 28% since the opening of the market. The change of trader has been quite stable, remaining between 3 to 5%. During the course of the analysis from the opinion poll among the electricity market subjects it came out that a dominant part (90%) of the Estonian

citizens involved in the topic of electricity is aware of openness of the market. The residents have changed their electricity trader primarily because of price (54% of the residents, who have chosen/changed the electricity trader, mentioned this as at least one of the reasons). 82% of the residents involved in the choosing/changing of their electricity provider characterise the process of changing positively. The most often mentioned reasons, for those residents who opted not to change the trader was that existing service is comfortable and good (42%). The consumers are mostly missing information that would help them to understand the pricing issues in general and to compare the prices of the traders. More precisely, information is mentioned to be insufficient in relation to the final price for electricity and the formation of price.
The price packages offered by the electricity traders are mostly divided into three categories – packages based on the exchange price, packages fixed for a time period and combined packages. From the analysis of the fixed and the power exchange electricity price based packages available in the comparison portal it appeared that for the packaged with a fixed monthly charge the daily and nightly price is lower than for other packages, but in spite of that the monthly average price of these packages is not lower than for other packages. The clients of the exchange price based packages can benefit from the periods of favourable price on the power exchange, but at the same time they have to be prepared also for higher price periods. In these package the price for electricity fully depends on the power exchange price that varies constantly. From the size of the marginal of the exchange price of traders it can be concluded that these are rather low, which shows that the market is functional and the consumers have possibility to choose from. According to the historic electricity market prices the exchange price based packages tend to be more favourable than the fixed price packages.
In the majority of the European Union countries there are reliable comparison portals. In several large countries there are more than three comparison portals. In most countries there are 1-3 comparison portals. The portals are administered either the regulators, consumer protection agencies or privately owned undertakings. The retail market for household customers is very concentrated both in Estonia and in many other countries, whereas the values of the HHI index falls in-between 3000 an 8000. In the period 2011-2016 the number of active electricity traders in the European electricity market has increased. From this it can be concluded that the developments in the EU (market liberalisation, obstacles to enter the market, price related changes) have been favourable to the sellers/traders of electricity.

Conclusively it can be said that the competition situation in the Estonian retail market is good. Although the biggest electricity trader Eesti Energia AS possesses over 50% of the market (56,7% as of the end of 2018), but extremely important is the smooth process of changing the trader. Changing of the trader can be done electronically within few minutes. In addition, the sale of electricity in Estonia is free, no separate authorisation is required. Starting a business in the field of electricity trading in such a simple manner also helps to develop competition.

2.2.3 Enhancement of effective competition
(Articles 37(1)(o) and 37(4)(b) of Directive 2009/72/EC)

In order to enhance competition, the presence of various producers and traders is necessary. It is also important to create an environment where the information between traders and consumers is moving. The amendments passed to the Electricity Market Act in 2007 established a support scheme in Estonia for supporting renewable energy production. In the result many new electricity producers, first of all wind electricity producers, but also heat and power co-generators have come to the market. During a couple of last years the producers of electricity from solar energy are actively coming to the market.

In order to share information Elering AS has worked out the information exchange platform IEP or, in other words, a data store, intended for market participants. The general function of the store is to ensure data exchange processes in full opening of the market considering the principles of efficiency and equal treatment of market participants. The functioning of the store is an important precondition for consumers in order to choose and switch electricity suppliers beginning from 2013 and that the information on the whole quantity consumed by customers reaches the electricity seller. Thus, customer awareness is an essential input in enhancement of competition.

In 2016 Elering AS launched an IT solution, by which all electricity traders can submit to customers a joint bill (invoice) both for the sold electricity and for the network service. The possibility to submit a joint bill equalizes the conditions of competition, as now also those electricity traders, which are not related to any provider of network services can submit a joint bill. In the beginning electricity traders could submit a joint bill in case the network service to a customer has been provided by the biggest Estonian distribution network operator Elektrilevi OÜ.

Since with the application of a joint bill electricity traders will be dealing with possible indebtedness of final electricity consumers, Elering AS created a data exchange platform that allows exchange of information on the applications for disconnection and resupply of the network connections. This means that an electricity trader can deliver the application for disconnection or resumption of electricity supply to the network operator in the platform of Estfeed.

In addition to the mediation of the network bills Elering AS has developed for the Estfeed platform a service for the exchange of information between the electricity sellers and network operators. This means a standardised exchange of information between the network operators and sellers on the metering data or the mediation of customer requests.

In the estimation of the Competition Authority the general environment in the retail market is good, although no new electricity traders emerged in the market in 2018. However, the process of changing the trader in the electricity market is smooth and it can be done electronically within a few minutes. In addition, the sale of electricity in Estonia is free, no separate authorisation is required. Starting a business in the field of electricity trading in such a simple manner also helps to develop competition in the retail market.
At the same time, in a broader context, there is a problem with the sufficiency of electricity production capacities in Estonia. Few new production capacities with a small volume come to the market. Production capacity sufficiency issues are presented in more detail in point 2.3 below, which deals with the security of electricity supply.

Frome the point of view of the competitiveness of economy generally the most preferable approach is when the construction of new production capacities takes place in free market conditions and with lowest possible interference by the state. At the same time the European markets are encumbered by various market obstacles, which have brought to the situation where in order to ensure security of supply in several Member States the construction of new production capacities on the basis of market principles has been placed in doubt.

As a basic market obstacle in Estonia larger producers have pointed out the so-called “Russian electricity” (electricity imported from Russia, Belarus and Kaliningrad) entering the market

without import tariffs. In the production of Russian electricity CO_2 quota charges are not paid and this puts local EU producers into unfavourable situation and creates unfair competition. In 2018 the import of Russian electricity in the Baltic-Nordic countries region compared to locally produced electricity constituted 3% - does not seem really much, but it is important to realise herewith that the impact on electricity price in not linear. It depends which offers on the market bidding curve were so-to-say abandoned due to the given quantity. In addition, in the market of our region there are also bottle-necks that create smaller price impact areas and in such cases the impact of Russian electricity is already significantly bigger. For example, from the electricity imported to the Baltics the Russian electricity constituted over 56% in 2018, the same value applied to the Baltic-Finnish region is 45%. Thus, in the situations where in the price areas between Finland and Sweden, and between Lithuania and Sweden price differences take place or, even more narrowly, between Baltics and Finland, the impact is certainly feelable for the electricity producers. On the basis of 2018 it can be pointed out that during 18% of the time the both between the Finnish and Swedish price areas and between the Lithuanian and Swedish price areas there was difference in the prices. This means that the Baltic-Finnish area was the Russian electricity impact area. In the Baltic-Finnish area the Russian imported electricity compared to the total electricity sold in the area constituted 18%. More narrowly, during 5% of the hours there was a price difference between Estonia and Finland, meaning that the area of Baltics was the area of the impact of Russian electricity. From the total electricity sold in the Baltics the Russian electricity constituted 22%. Table 11 illustrates the share of Russian electricity in the Baltic area and in the Baltic-Finnish area.

Table 11. Share of Russian electricity in Baltic area and in Baltic-Finnish area on the basis of 2018 data

Baltic region viewed separately	Electricity imported to Baltics from Nordic countries	4,3 TWh	% of Russian electricity from the total import of Baltics	Share of Russian electricity from the total electricity sold in Baltics
	"Russian electricity" imported to Baltics without tariff	5,5 TWh	56%	22%

Baltic and Finnish region viewed together	Electricity imported to Baltic-Finnish region from the rest of Nordic countries	16,5 TWh	% of Russian electricity from the total import	Share of Russian electricity from the total electricity sold in Baltic-Finnish region
	"Russian electricity" imported to Baltic-Finnish region	13,3 TWh	45%	18%

It is impossible to forecast what would be the market price in the cases if a separate price area were formed from the Baltic and Baltic-Finnish area without the Russian electricity. However, the probability that in the described cases, as examples, without existence of the Russian imported electricity Narva Power Plants production could have accessed the market in larger volumes, in quite high.

Herewith, in the rest of the time, when these bottle-necks do not exist, for the fossil fuel fired power plants the market prices are quite low and their access to the market is difficult. The

Nordic countries' hydro energy, as well as the nuclear energy influence prices more than the Russian electricity. In longer perspective we have to understand that the oil-shale electricity will not be competitive in the European electricity market. The increase in CO_2 price is continuing, this is the EU climate policy. Eliminating of the impact of the Russian electricity would give relatively little and short term advantage to the Narva Power Plants, although may increase their access to the market in a few hours, during peak prices.

From 2025, when synchronisation of the Baltic electricity systems with the electricity network of the continental Europe takes place, according to existing synchronisation plan, there is no electrical connections with Russia and Belarus. This would mean also the end of any electricity trade between the Baltics and Russia. Russian electricity can still enter the European market also in the future, but this is via Finland where a network use charge is established for the Russian electricity.

Irrelevant from the size of impact of the Russian electricity on the market price it is clear that the electricity entering with the import causes to the transmission network additional costs. Thus, it **would be reasonable to establish a network use charge similarly with that in Finland to the electricity imported from the third countries until 2025, when the synchronisation takes place.**

Hardly because of the Russian electricity entering without a tariff to the market or because of excessively optimistic forecasts of the producers, which did not foresee the rise of CO_2 price adequately to the real circumstances we are in a situation where in the near future Estonia may possibly face slump close down large production capacities and in the result the security of supply in Estonia and in the whole of Baltics will remain wanting. The sharp rise in the CO_2 price influences the Narva Power Plants production capacity in a larger extent just in the coming 10 years. From 2030 onwards a close down of large production capacities due to ever strengthening environmental requirement and exhaustion of the technical life of the blocks is planned anyway.

The near future difficulty of a shortage of production capacity could be an indicator to producers to make new investments and create production facilities in the Baltics. So far the market prices have stayed in a level that is not attractive to bring new production investments into the region. In respect of the Baltics the problem may be hidden also in quite low liquidity and the balance market with low prices, and absence of quick reserve markets, which does not provide to the suppliers of production and consumption capacities sufficient added value to earn extra income. Arising from that and if the present situation continues, the deficit in the Baltics and in Estonia in the near future will be strong and the security of supply to a large extent will depend on the transmission capacity and the production capacities of neighbouring countries behind that.

In addition to the impact of the electricity of the third countries, in order to minimise possible market setbacks, it is necessary to analyse in greater detail in the Baltics also the balance market situation, especially from the point of view liquidity and price formation, the start of creating the market of quick reserves in the near future and better involvement of demand (consumption) side management into different market levels. A more thorough analysis of respective markets is planned in 2020.

As the Competition Authority's analysis has revealed some in the security of supply risk points, especially in relation to regional security of supply, it is recommendable in the near

future to analyse market setbacks and in case of necessity, to develop an action plan for the resolution of the setbacks.

2.2 Security of electricity supply

Ensuring security of supply

In the present analysis under ensuring of security of supply a situation is considered in which the needs of the system are covered. This means that the system's load demand and a requirement for reserves are covered with the production of the system and the importing ability. A situation in which the security of supply is not covered does not automatically mean full blackout state of the system, but a limitation of the system's consumption in necessary volume. Blackout state of the system may occur in a case of big security of supply deficit in the system and in a coincidence of bad circumstances. Pursuant to Regulation (EU) 2017/1485 a loss of more than 50% of demand in the system is also considered as a system blackout state.

2.3.1 Monitoring of balance between demand and supply (Article 4 of Directive 2009/72/EC)

The security of supply in Estonia is ensured with external interconnections until 2033. The main interconnections are the DC links to the Nordic countries. The Estonia system operator (Elering) sees little probability in their interruption or limitations. However, it is very difficult to assess the probability. The Competition Authority evaluates that, in addition to a crisis situation, there is a probability that these neighbouring countries themselves may experience serious problems with ensuring security of supply.

Herewith Estonia is not able to ensure domestic generation capacities to cover peak demand since 2024. If necessary, the
lifespan of the old units with desulphurisation in Eesti Energia's Narva PP can be prolonged until the end of 2019, but then environmental requirements will toughen and also the technical lifespan will be exhausted. It must be borne in mind that this equipment is over 50 years old.

2.3.2. Security of supply of Estonia

Major part of electricity in Estonia has historically been produced from oil shale in Eesti Energia's Narva Power Plants (PP). Keeping in mind that unit 1 of Balti PP was commissioned in 1959 and Eesti PP achieved its designed capacity in 1973, the Narva PP have already over 45 years been some of the basic energy producers in the Baltic region. Estonia got used to the situation where we have more generation capacities than the consumption demand. Since the close down of Ignalina nuclear PP in 2009 Estonia have been the main supplier of energy in the Baltic region and the electricity exporting energy system. It is important to understand that such a situation is going to change drastically in the years immediate ahead. The production of electricity from oil shale is environmentally harmful and CO_2 intensive. In the last years the price for CO_2 has increased and in the light of toughening environmental requirements and we have come to an expected situation where our oil shale units are not competitive any more. In the coming years closing down of large generation capacities in Narva PP is expected. **The**

Estonian electricity system is rapidly going to change from an exporting system to the most deficient system in the Baltics.

Situation with Narva Power Plants

Existence of capacities at Narva Power Plants depend on several components, both environmental requirements and economic ability, and also on possible production ability envisioned by the state.

Economic ability basically depends on the market price of electricity (herewith both day-ahead, intraday and balance market price), which determines how much the plant earns in money terms for its production/generation. Secondly, on the price of oil shale that in the Estonian context has been quite low. The third and very important component is the price for CO_2 emission, the price for which has abruptly increased in the last years and further increase can be foreseen also in the future. Some impact on the economic ability is added also by possible repairs and equipment improvements, which may be quite expensive in such an old power plants.

Deriving from the environmental requirements on the basis of the Industrial Emission Directive (hereinafter IED) close down of the units 1,2,7 of Eesti PP and unit 12 of Balti PP is anticipated from the end of 2019 as the derogation from IED of 17 500 operation hours provided for them is close to end up. The capacity to close down is 619 MW.

From 25 October 2021 the environmental requirements for oil shale fuelled power plants will be controlled by the BAT conclusions document on using oil shale for energy purpose. Existing production equipment (excluding the production equipment operating with limited operation time on the basis of the IED derogation) of Eesti PP, Auvere PP and Balti PP correspond to the requirements of these legal acts. The requirements fixed in the BAT document will presumably be in force approximately until 2030. Herewith it is unknown what will be the onward developments. Looking at the general European environmental and climate policy it is highly probable that the requirements will toughen.

Since for the units that stay in operation besides environmental requirements also economic ability has to be taken into account, which depends on the price of electricity in the regional market and on the price for CO_2, the anticipated time for close down of Eesti PP pulverized combustion units equipped with desulphurization (units 3, 4, 5 and 6) may occur significantly earlier than both technical and environmental considerations would require. It is very probable that Eesti Energia will close down the units which are not profitable to operate in the market, first of all these are the units with desulphurization (3, 4, 5 and 6) with the total capacity of 658 MW.

In respect of all these circumstances the Competition Authority has compiled a Baseline Scenario, which considers that Auvere PP with a capacity of 274 MW and renovated Narva PP units 8 and 11 will stay in operation also from 2024 until the end of 2033. Closing down the units with desulphurisation is expected in the end of 2023.

Herewith Eesti Energia AS has let to know that regarding Balti PP unit 11 some economic and technical limitations are foreseeable. The technical limitation comes from the circumstance that some of the components of the PP unit 11 turbine are getting close to the end of their life by the middle of 2020s. Replacing them requires substantial investment and an economic viability of

it is yet to be cleared. The economic limitation proceeds from the close down of the Balti PP older units, which makes the fixed cost of Balti PP unit 11 high and in case of increasing CO_2 price may exit the unit from the market even before the middle of 2020s. Thus it is possible the closing down of the given Narva PP production capacities will take place even faster than it is foreseen in the Baseline Scenario of the analysis.

That is why the Competition Authority prepared also a Conservative Scenario, which, in addition to close down of the units having desulphurisation by the end of 2030, foresees also a simultaneous close down of the Balti PP unit 11. Furthermore, considering the unclarity regarding environmental requirements, the Conservative Scenario presumes the abandoning of the oil shale based electricity production in the end of 2030 – i.e. closing down of Auvere and Balti PP unit 8.

Analysis of security of supply of Estonia

Basic scenarios

The security of supply of Estonia is analysed though two basic scenarios – a Baseline Scenario and a Conservative Scenario.

Baseline Scenario:

- Narva PP IED will be closed in the end of 2019.
- Narva units with desulphurisation will be closed due to economic reasons in the end of 2023.
- Due to the random nature of the generation capacity and based on the Grid Code principles of calculating of the security of supply the wind and solar energy generation capacities are not taken into account.

Conservative Scenario:

- Narva PP IED units will be closed in the end of 2019.
- Narva PP units with desulphurisation will be closed due to economic reasons in the end of 2020. In 2020 the units are operating at a half the capacity as a maximum.
- Balti PP unit 11 will be closed due to economic reasons in the end of 2023.
- Auvere PP and Eesti PP unit 8 will be closed due toughening of environmental requirements in 20030.
- Due to the random nature of the generation capacity and based on the Grid Code principles of calculating of the security of supply the wind and solar energy generation capacities are not taken into account.

Both scenarios are analysed as follows:

- Peak consumption is viewed in two situations – normal peak load and the one according to the principle given in paragraph 14 of the Grid Code of functioning of the Estonian electricity system – peal load with 10% reserve to ensure electricity supply also in load variations and longer time unplanned generation disruptions.
- Security of supply is analysed for normal situation in the network, considering smaller production capacity limitations (repairs, smaller scale emergencies and others).
- Security of supply is analysed for disruption situation in the network, looking at the transmission capacities in an N-2 condition.

Figure 9 presents generation sufficiency in Estonia in Baseline Scenario conditions where all installed controllable production capacities are shown, including Kiisa Emergency Reserve Power Plant (ERPP), which does not participate in the market. Figure 10 presents generation sufficiency in Estonia in Conservative Scenario conditions.

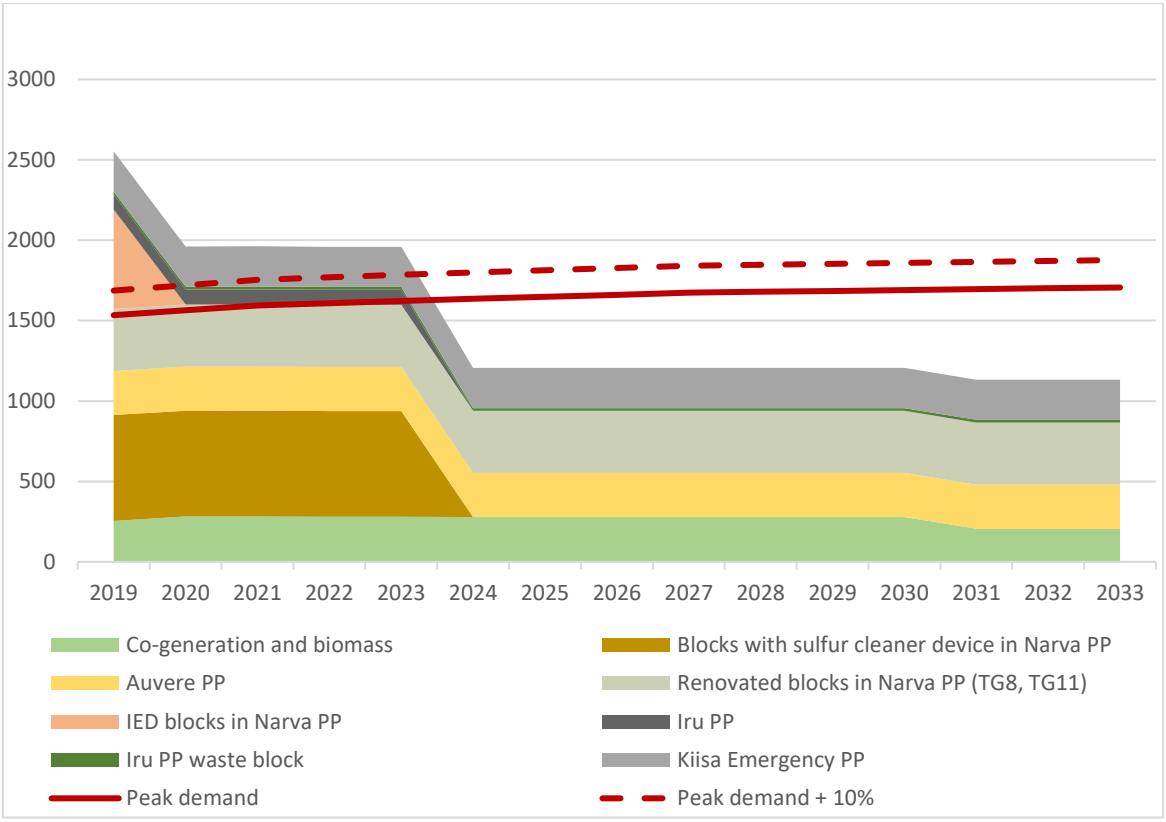

Figure 9. Installed production capacities in comparison with peak consumption: Baseline Scenario

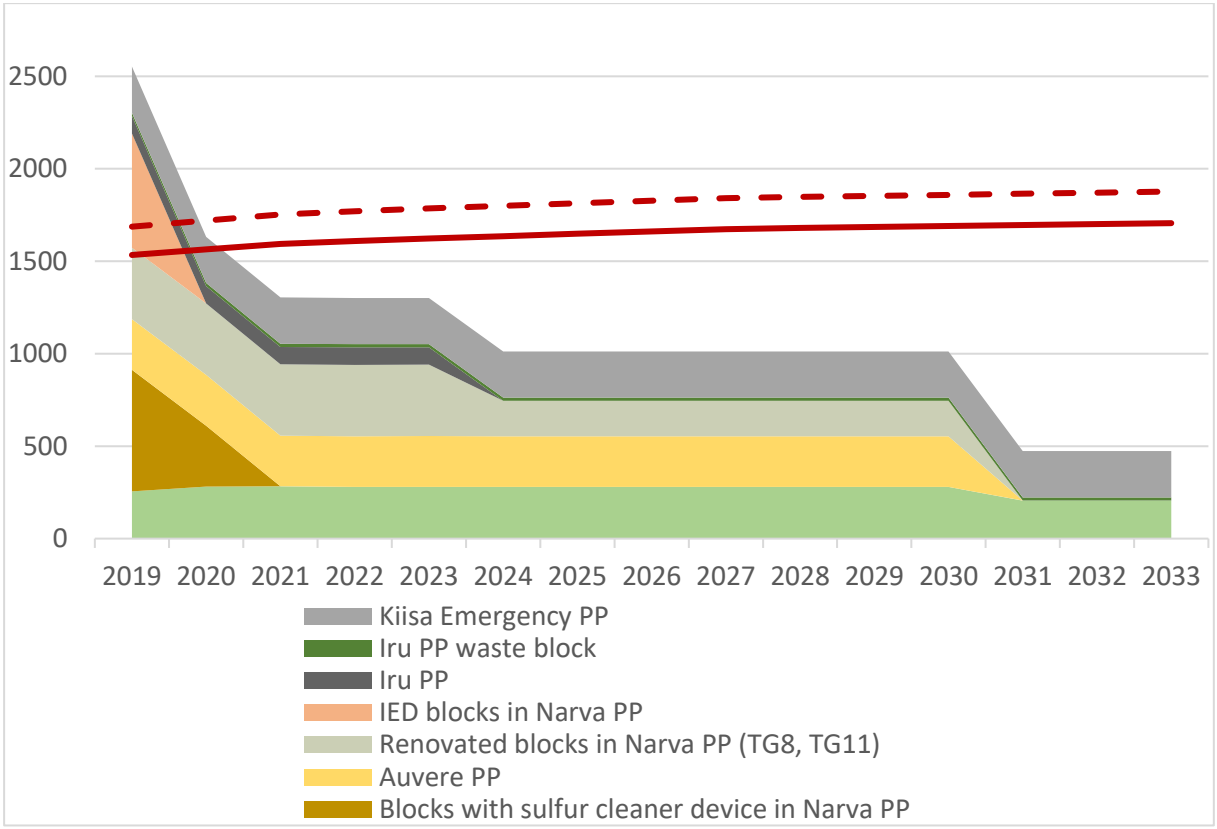

Figure 10. Installed production capacities in comparison with forecasted peak consumption: Conservative Scenario

From 2014 when the units with desulphurisation will be closed down, in case of a Baseline Scenario a 400 MW deficit in the coverage of peak consumption with domestic generation capacity is foreseeable. By the year 2033 this will increase to 533 MW, as shown by Figure 9. In case of a conservative scenario domestic generation cannot cover the consumption already since 2020. The deficit shall be about 300 MW, which will increase up to 1200 MW by 2033 (Figure 10). As the need of keeping reserves, possible repairs and probable emergencies are not taken into account here, it is clear that the real deficit will be even bigger.

Figures 11 and give an overview of internal security of supply, where the need to keep reserves is considered and the assessment given by the producers to the capacity that is not available and probabilistic number of production equipment has been taken into account. In the evaluation of an N-1 situation instead of probable emergencies an emergency of the biggest generation capacity has been used – in the Estonia electricity system it is Auvere PP.

The Competition Authority is in a position that the situation where domestic generation cannot cover the system demand, which is peak consumption together with necessary amount of system's reserves, is a likely scenario already since 2021, as camos out from Table 13, and in a very extreme situation already since 2020. In case of emergency of the biggest generation capacity (N-1) or when it is not available a deficit occurs in since 2020.

Synchronisation with network of continental Europe in the end of 2015 will significantly raise the need of Baltics reserves. So far Estonia has been obliged to keep emergency reserve of

100 MW because of belonging to the unified Russian energy system (hereinafter BRELL)[6]. Additionally, a 150 MW reserve is kept, in order to be able to cover emergency of the biggest element of the electricity system, which in Case of Estonia is the 650 MW Estlink 2. Covering of the capacity of the biggest element in a state of emergency takes place in cooperation with other Member States of the BRELL system, with due account that each state (Latvia, Lithuania, Russia and Belarus) contributes 100 MW and Estonia itself covers 250 MW.

From 2025 necessity to will take place to hold frequency containment reserve – FCR and automatic frequency restoration reserve - aFRR, in addition it is planned to hold also replacement reserves – RR. In total it is foreseeable that the Estonian part of keeping reserves will increase from the earlier 250 MW to 660 MW, which enables to cover also the capacity of own biggest element without considering the fast frequency reserve.

The Kiisa Emergency Reserve PP, which at the moment offer emergency reserve, from the technical point of view can offer in the future FRR or RR type reserve. The rest of reserves should be procured from respective balancing markets. Table 12 gives an overview of necessary reserve volumes, which Estonia shall keep when synchronised with the BRELL network (period until the end of 2025) and what shall be kept after synchronisation with the network of continental Europe (from 2016).

Table 12. Overview of reserves in the Estonian electricity system

Type of reserve	**2019-2025 (MW)**	**From 2026 (MW)**
Emergency reserve	100	0
Additional emergency reserve to cover biggest element	150	0
Frequency containment reserve (FCR)	0	10
Frequency restauration reserve (aFRR and mFRR)	0	325
Replacement reserve (RR)	0	325
Sum of ensured reserves	**250**	**660**

From 2026, when the requirement to hold reserves will rise, the deficit of domestic generation capacity compared to the peak consumption will overpass the 1000 MW margin and by 2033 it will reach up to 1500 MW, depending on the peak consumption scenario. At the same time, the reserves would be kept first of all at the capacity level of the biggest element, which is the DC interconnection Estlink 2 with the capacity of 650 MW. Thus, it shall be reasonable to consider respective reserve requirement together with the transmission capacity. This is illusdtrated by Table14 and Figures 13-16.

[6] BRELL – synchronously functioning electricity system where Estonia, Latvia, Lithuania, Russia and Belarus belong to. Frequency in the system in controlled by the Russian system operator.

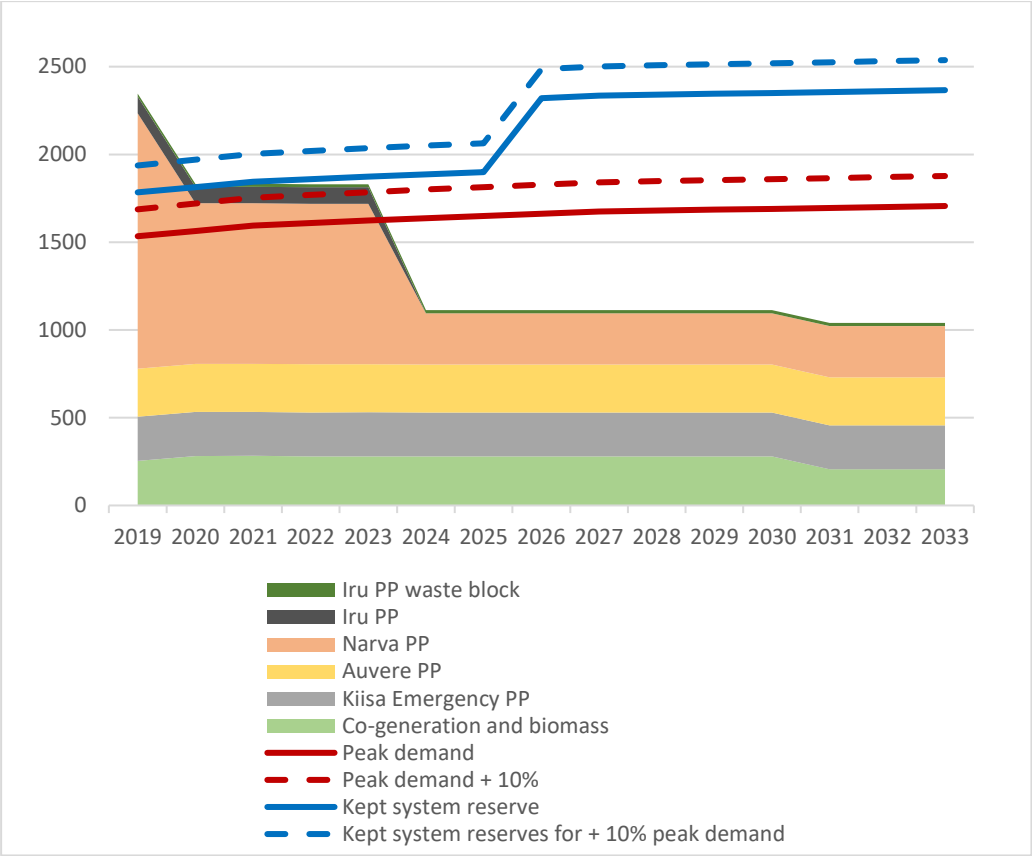

Figure 11. Security of electricity supply in Estonia without import: Baseline Scenario

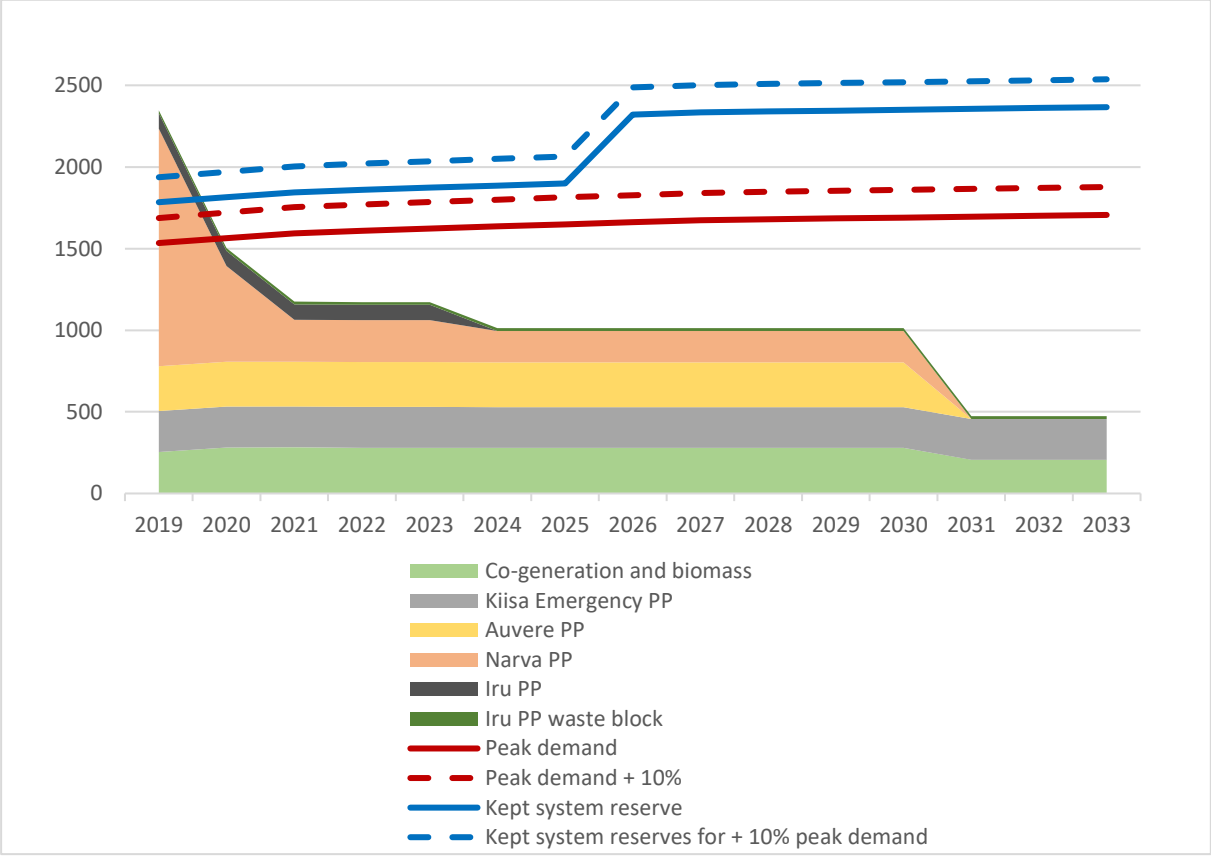

Figure 12. Security of electricity supply in Estonia without import: Conservative Scenario

Table 13. Estonian domestic security of supply (wihout imports)

	Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Baseline scenario	Balance	2457	2134	2134	1866	1852	1121	1108	1177	1164	1158	1153	1148	1070	1064	1059
	Balance with consumption reserve	2304	1978	1975	1705	1690	957	943	1011	997	990	984	979	900	894	888
	N-2 balance (reserves activated)	1777	1155	1426	1408	1394	628	615	603	590	584	579	574	496	490	485
	N-2 balance with consumption reserve (reserves activated)	1624	999	1267	1247	1232	464	450	437	423	416	410	405	326	320	314
	Preserve	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Conservative scenario	Balance	2285	1901	1894	1626	1609	922	904	973	960	954	949	1000	460	454	449
	Balance with consumption reserve	2132	1745	1735	1465	1447	758	739	807	793	786	780	831	290	284	278
	N-2 balance (reserves activated)	1605	922	1186	1168	1151	335	317	305	292	286	281	332	-208	-214	-219
	N-2 balance with consumption reserve (reserves activated)	1452	766	1027	1007	989	171	152	139	125	118	112	163	-378	-384	-390
	Preserve	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1

Table 14. Estonian security of electricity supply with import capacities

	Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Baseline scenario	Balance	2457	2134	2134	1866	1852	1121	1108	1177	1164	1158	1153	1148	1070	1064	1059
	Balance with consumption reserve	2304	1978	1975	1705	1690	957	943	1011	997	990	984	979	900	894	888
	N-2 balance (reserves activated)	1777	1155	1426	1408	1394	628	615	603	590	584	579	574	496	490	485
	N-2 balance with consumption reserve (reserves activated)	1624	999	1267	1247	1232	464	450	437	423	416	410	405	326	320	314
	Preserve	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Conservative scenario	Balance	2285	1901	1894	1626	1609	922	904	973	960	954	949	1000	460	454	449
	Balance with consumption reserve	2132	1745	1735	1465	1447	758	739	807	793	786	780	831	290	284	278
	N-2 balance (reserves activated)	1605	922	1186	1168	1151	335	317	305	292	286	281	332	-208	-214	-219
	N-2 balance with consumption reserve (reserves activated)	1452	766	1027	1007	989	171	152	139	125	118	112	163	-378	-384	-390
	Preserve	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1

Table 14 illustrates the security of supply together with the transmission capacities. Also, an N-2 situation has been analysed, where the two biggest interconnections, Estlink 2 and one of the lines between Estonia and Latvia is out of operation and existing reserves are activated.

In conventional scenario, considering import via transmission capacities, no deficit occurs and the security of supply is ensured. Also the sufficiency reserve (Sreserve), calculated according to paragraph 14 of the network code on the functioning of the electricity system.

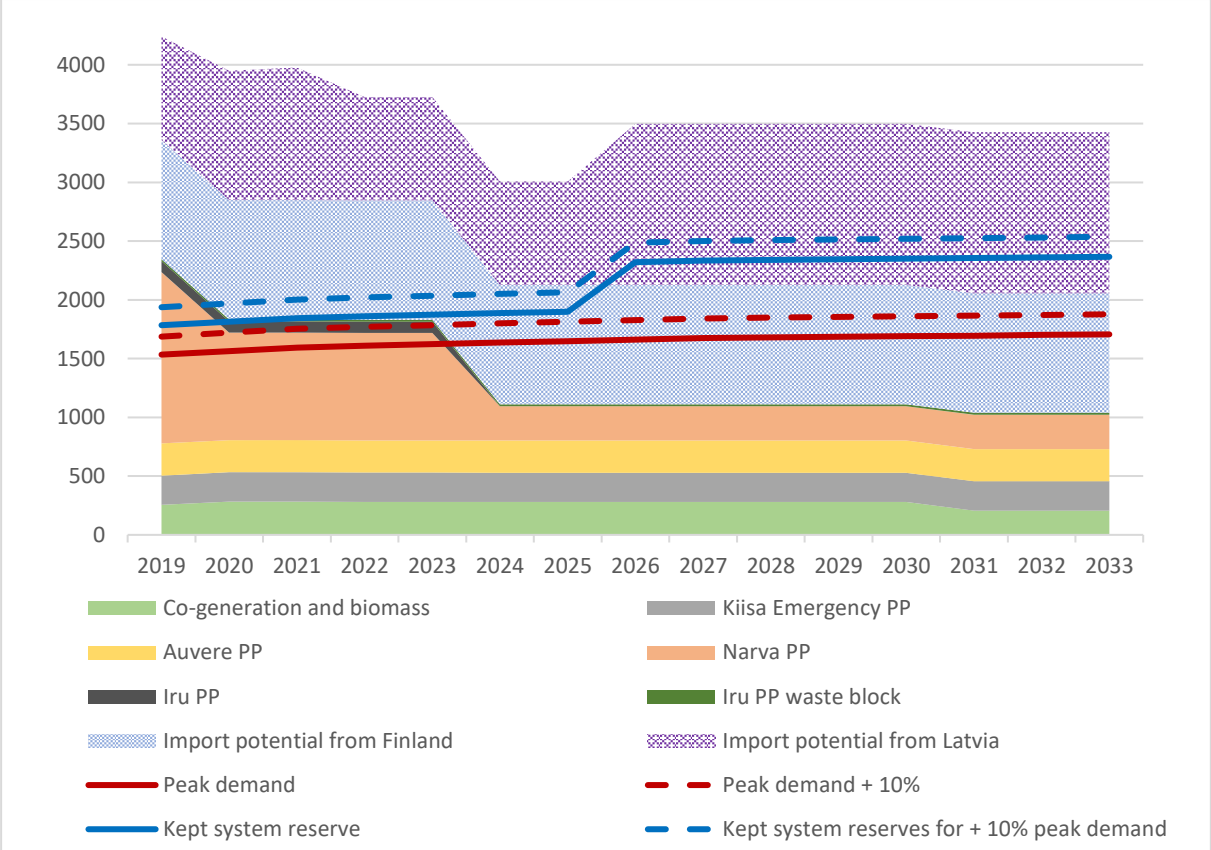

Figure 13. Security of electricity supply in Estonia together with import capacities: Baseline Scenario

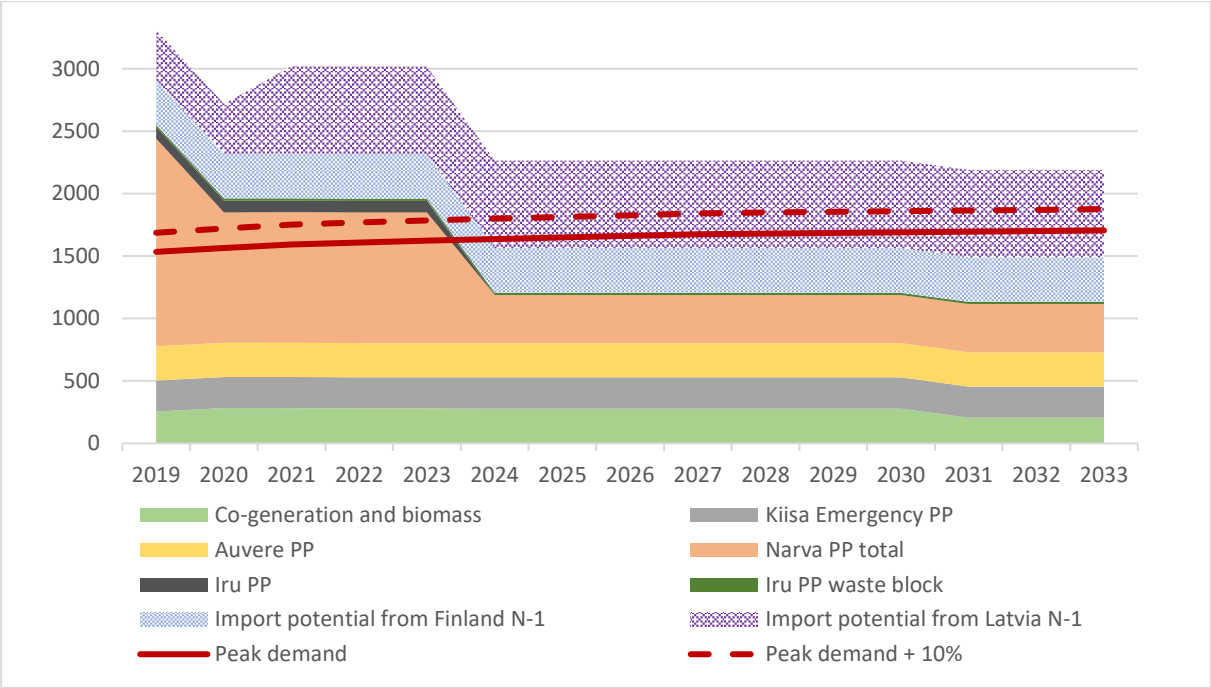

Figure 14. Security of electricity supply in Estonia together with import capacities in N-1-1 [7] condition: Baseline Scenario

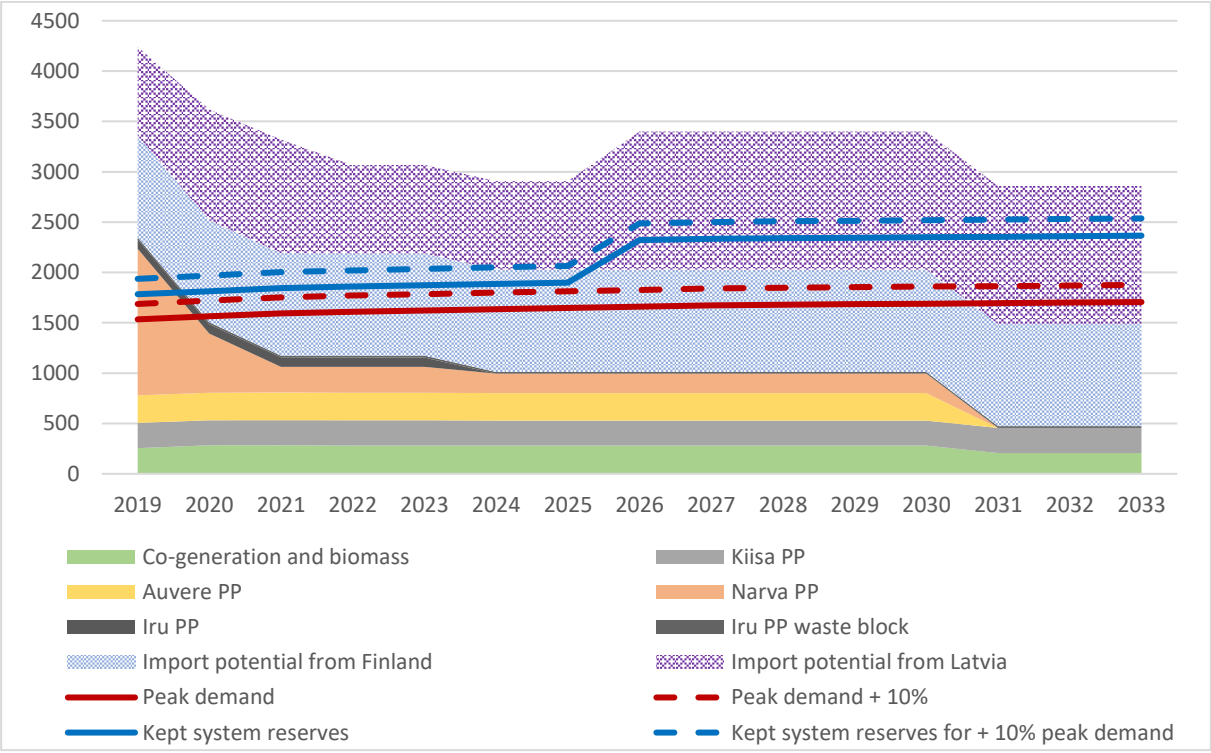

Figure 15. Security of electricity supply in Estonia together with import capacities: Conservative Scenario

[7] Under N-1-1 or N-2 the situation is considered where two network elements are simultaneously out of operation due to emergency. In the context of the present report under N-1-1 or N-2 situations disruption of the biggest elements is considered.

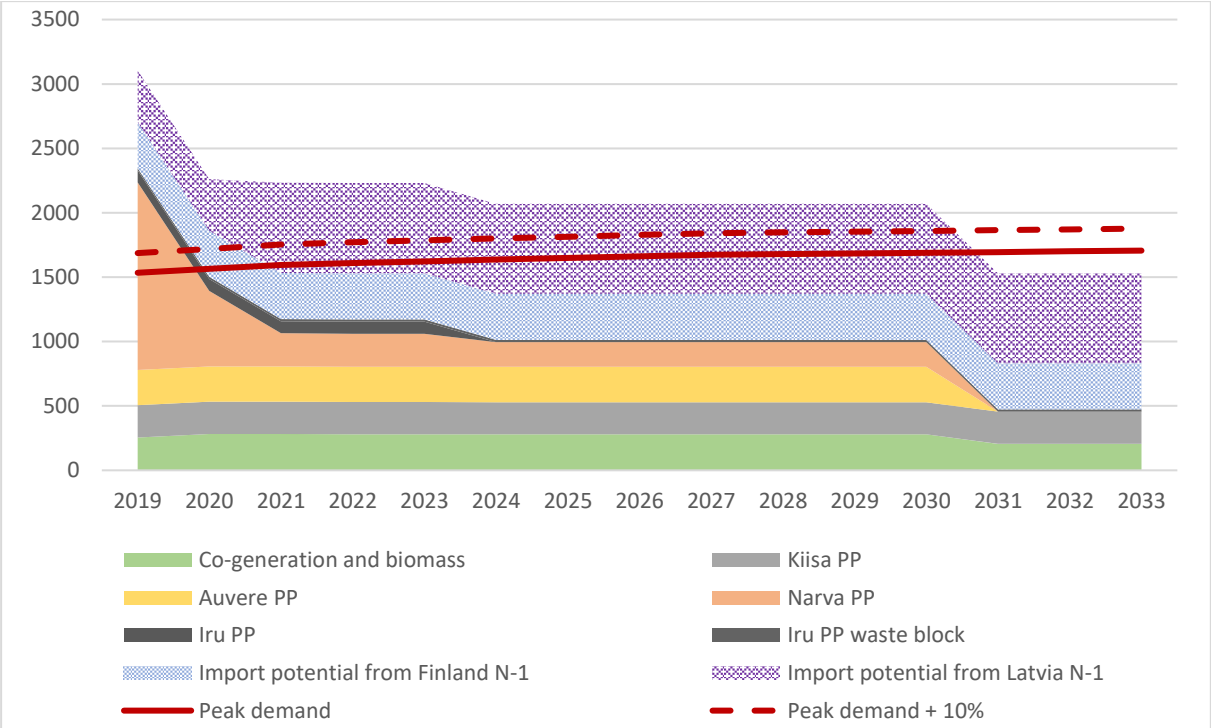

Figure 16. Security of electricity supply in Estonia together with import capacities in N-1-1 condition: Conservative Scenario

Security of supply in summer time

Since in our climatic zone the peak of consumption is in winter, the security of supply analysis primarily concentrates just in winter period. In summer the peaks of consumption are significantly lower, being in the range of 1200 MW. On the other hand, in summer period the repairs and mothballing of many generation capacities are planned and due to this there are also considerably less generation capacities than during winter peak load time. That is why in the present chapter also the summer time security of supply issues are analysed.

An overview of the security of supply in summer time is presented on Figure 17, which is prepared on the basis of summer time generation adequacy data the 2019 Security of supply analysis of Elering and proceeds from the Competition Authority's Baseline Scenario. Analysis of the summer time security of supply shows a deficit of generation capacities compared to peak load for the whole period 2019-2029 in the extent of approx. 230-640 MW at an ordinary peak. Together with transmission capacities the security of supply for summer period is ensured, also in an N-2 situation, where outage of two largest elements are considered at the transmission capacities. This is illustrated by Figure 18.

Table 15 shows the balance of electricity sytem without transmission capacities in the conditions at an ordinary load and higher peak load, and the balance with an ordinary peak load together with maximum import.

Table 15. Balance of electricity system in summer

	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Balance	-234	-258	-287	-301	-354	-588	-602	-613	-626	-630	-637
Balance with 10% consumption reserve	-348	-374	-405	-420	-477	-712	-727	-738	-753	-757	-764
N-2 balance with transmission capacities	410	384	653	638	581	346	331	320	305	301	294

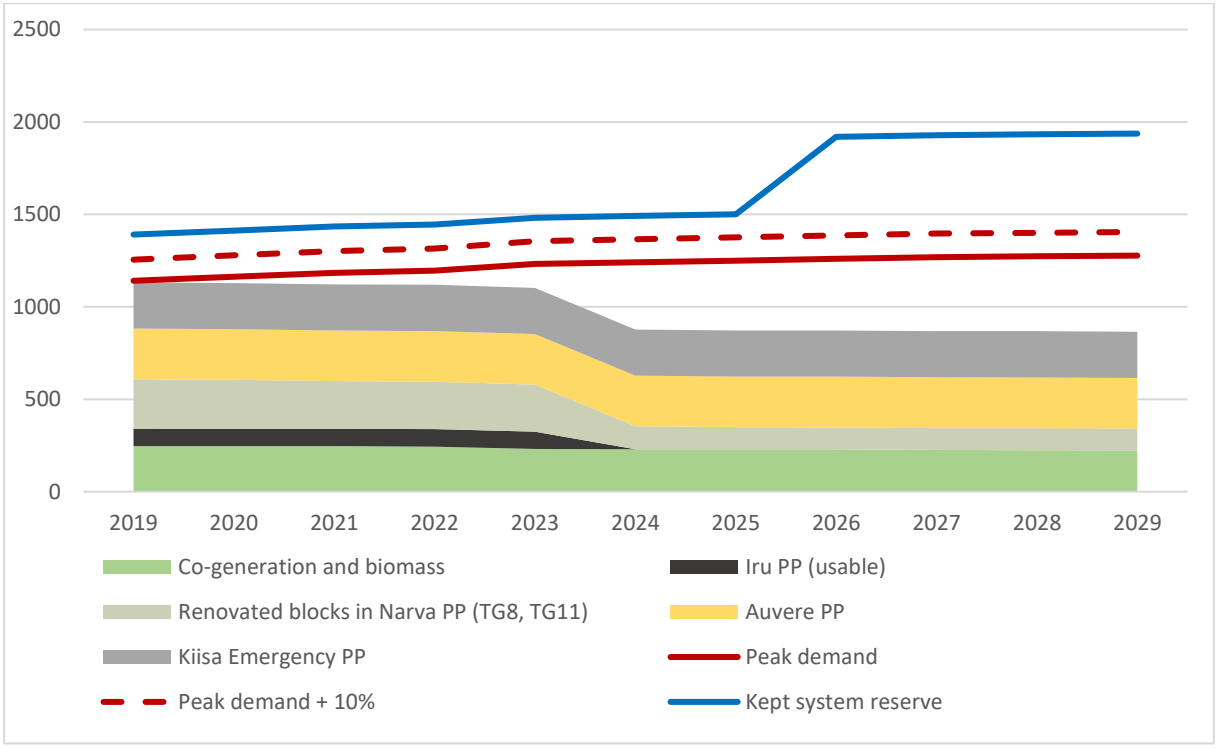

Figure 17. Summer time security of supply without transmission capacities

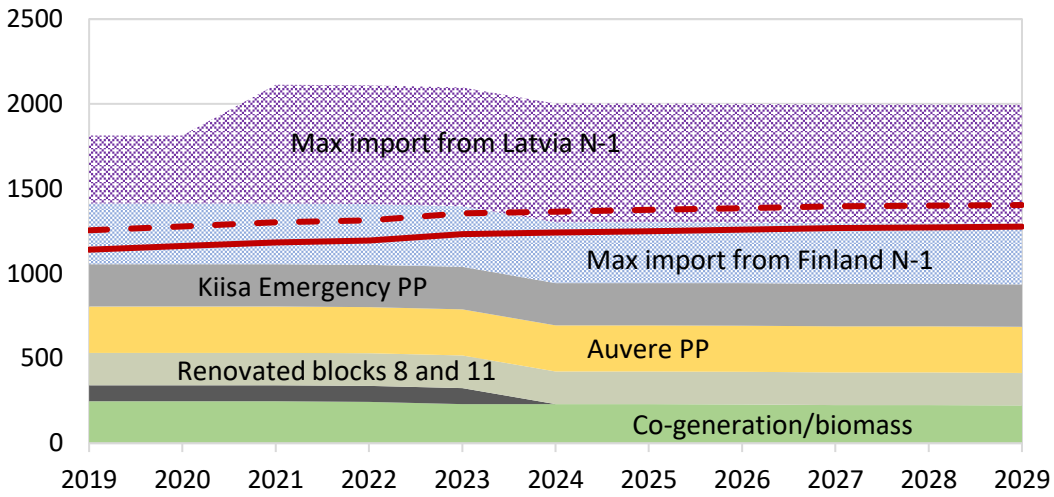

Figure 18. Security of electricity supply in Estonia together with transmission capacities in N-2 situation

Summary of Estonian analysis

- **Considering maximum import at the transmission capacities the Estonian security of supply is ensured both in normal situation in the network and in an N-2 situation until the end of the period in question, i.e. until 2033.**

- The Estonian electricity system, after closing down the units with desulphurisation, will heavily depend on import, both in summer and winter period.

- To cover the electricity network needs (consumption and reserves) with domestic generation capacities may be difficult already in 2021 (in the Conservative Scenario already in 2020). Herewith the renewable energy generation ability with random nature is not taken into account – it can improve the situation, but relatively marginally. The deficit of domestic generation capacity, which occurs in 2024, is so big that the peak load could not be covered even at maximum capacity operation of wind and solar energy generation installations.

- From 2024 the deficit of peak load adequacy is close to 50% of generation capacities or even higher. This means that at peak consumption periods Estonia will be fully dependent on import.

- The deficit of generation capacity can be reduced technically, by keeping in operation the Narva PP units with desulphurisation in the period of 2024-2030 (after 2030 it will not be possible any more due to technical and environmental limitations). Such a solution would provide additional 658 MW of capacity and ensures the coverage of peak load with domestic generation capacities. However, even then the need for reserves in the system will not be covered.

- Deficit of generation capacities will occur also in the periods of lower loads – in summer and already from 2019, due to lesser availability of production equipment compared to winter period – due to seasonal reservations and repairs. At the same time, the security of supply is still ensured considering the transmission capacities, even in N-2 situations.

2.3.3. Dependence of security of supply of Estonia on pan-European security of supply

The Estonian security of supply analysis revealed that, although Estonia cannot cover in full the needs of its own electricity system from 2021 and from 2014 the Estonian electricity system becomes fully dependent from import, considering the external interconnections the security of supply is still ensured. The true thing is that Estonia has well-functioning cross-border interconnections with Finland and Latvia, and within the framework of the European common electricity market the capacity behind the interconnections should be available for us. However, it shall be taken into account that geographically we locate in a region, where surrounding countries have also acknowledged a deficit of generation capacity already or its occurrence in

the nearest future. Thus, the **security of supply, relying on the transmission capacities, should require additional regional analysis.**

In respect of the states that belong to the same region with Estonia (Latvia, Lithuania, Finland, Sweden, Norway, Poland) it is known that in Finland and in Lithuania there is a deficit of generation capacities already now, as well as in Sweden and in Poland. In Latvia there in no deficit at the moment yet, but it is foreseeable in the nearest future. The only country in the region with energy surplus in Norway plans to construct high capacity electricity interconnections with Germany (with the capacity of 1400 MW, planned commissioning in 2020) and United Kingdom (capacity of 1400 MW, commissioning in 2021). This mean that if already know a large part of the Norwegian electricity flows towards Central Europe, the growth of this volume can be expected in the coming years even more, as Central Europe suffers from the deficit of capacities and the prices for electricity in average are there higher than in in the Nordic and Baltic countries. In case of adequacy of generation capacities this means equalization of prices in Central Europe and Nordic/Baltics, probably some increase of prices in the Nordic/Baltic region. Herewith also a question rises – where Norway will be able to maintain its neighbours with the capacity deficit. The deficit of generation capacities in Central Europe will have increasingly higher impact also our deficit and while considering the transmission capacities for import purposes a question rises – where should respective capacity come from.to our region, is there a real generation capacity behind the transmission capacity and whether we can rely on it.

According to the principles of the European common electricity market and solidarity a free flow of electricity between the states should be ensured, provided that there are sufficient transmission capacities. The Member States shall not limit the transmission capacities other than only in case of emergency/repairs of network elements. However, there have been events when in a suspected security of supply risk national security of supply had been set a priority before the common electricity market principles. A marginal example is 24 January 2018, when the Swedish transmission network suspended trading in the direction of Denmark and Lithuania in the intraday market because of the occurrence of a local deficit[8].

As it was clarified later that the security of supply in Sweden was still not really endangered, it was found that such a behaviour had been erroneous. Herewith it shall be realized that at occurrence of a risk (also at suspicion of) the transmission system operators first of all take care of the interest of their national electricity network and behave respectively. The simplest behaviour of the system operator in such situation is just to limit export on the DC links or complete disconnecting of the links. Electro technically the DC links can be viewed as the consumers/producers, thus the limitation of these connections is significantly simpler than to do it with the synchronous AC lines.

Article 14 of Regulation (EU) 2017/2196 of the European Commission (hereinafter ER NC) [9], establishing a network code on electricity emergency and restoration, provides for that each TSO may disconnect any transmission system element having a significant cross-border impact, including an interconnector, without coordination, in exceptional circumstances implying a violation of the operational security limits, to prevent endangering personnel safety or damaging equipment. Is a matter of interpretation to which extent the security of supply shall

[8] https://umm.nordpoolgroup.com/#/messages/64295e64-b142-43f4-9b00-968f54958199/3
[9] https://eur-lex.europa.eu/legal-content/ET/TXT/PDF/?uri=CELEX:32017R2196&from=EN

be at danger in order to comply with this clause? The Article also provides for that each TSO shall provide through interconnectors any possible assistance to the requesting TSO, provided this does not cause its transmission system or the interconnected transmission systems to enter into emergency or blackout state. Thus, each transmission network shall first of all secure stability and security of supply in its own system and only afterwards it can take care of the neighbouring systems. Estonia shall consider these principles with special attention, as our future security of supply almost fully depends on the export of electricity from neighbouring countries towards us and this shall happen in the situation where production capacity adequacy and security of supply issues are troublesome in the entire region.

Current situation with security of supply of Europe

The security of supply situation in Europe for the time being is best overviewed in the report being prepared by the European Network of Transmission System Operators (ENTSO-E) on semi-annual basis *Winter Outlook 2018-2019*, which presents their assessment of the electricity system's adequacy of the countries under normal conditions (Figure 19) and under severe conditions (Figure 20). Under severe conditions forecasted consumption with bigger reserve or higher forecasts for repairs part at the generation capacities are considered.

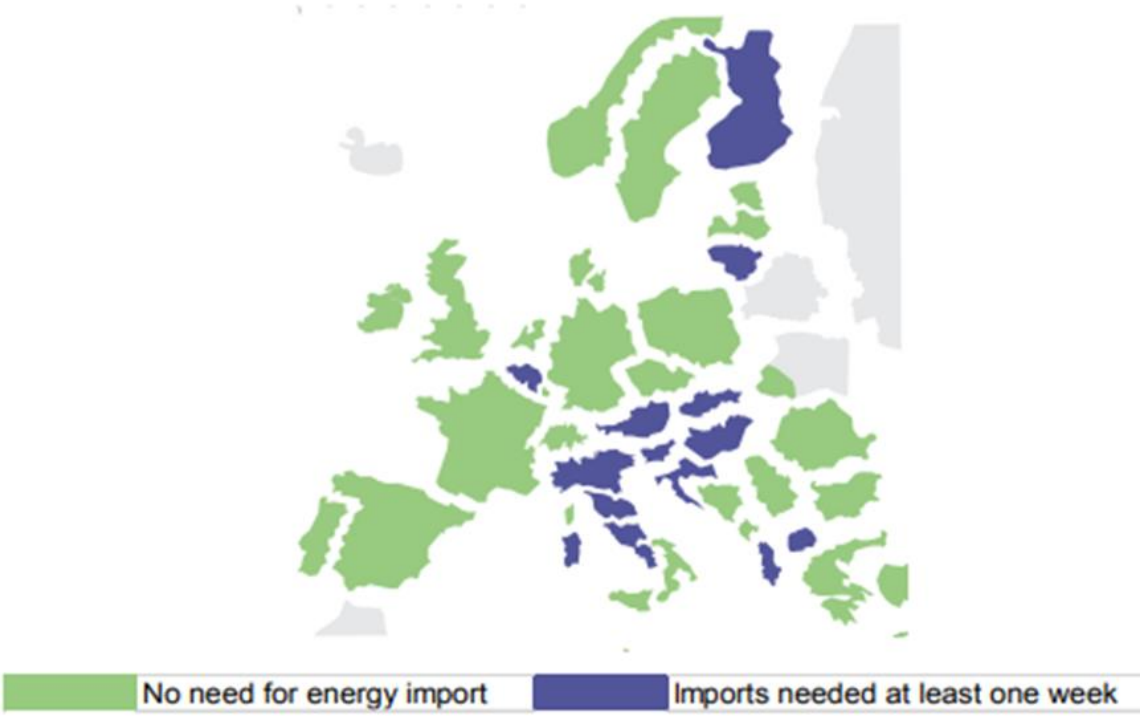

Figure 19. Security of supply of Europe under normal conditions in winter 2018-2019

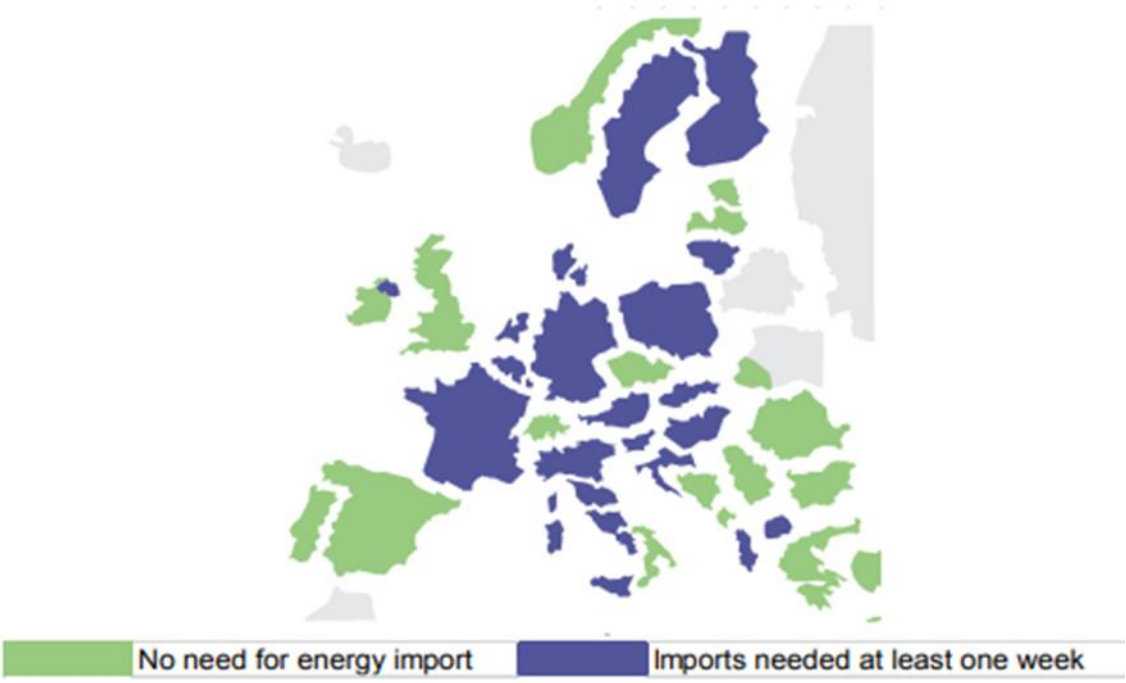

Figure 20. Security of supply of Europe under severe conditions in winter 2018-2019

Future security of supply of Europe (with view until 2025)

The European generation adequacy forecasts and security of supply of the whole region in the future is analysed in the ENTSO-E generation adequacy analysis *MAF (Medium Adequacy Forecast*), which concentrates on forecasting of medium time horizon and where generation adequacy is evaluated on the basis of the probabilistic Monte-Carlo methodology. The analysis extends until 2025, afteryears are not analysed. Thus, it is unknown how pan-European generation adequacy will shape from 2025 onwards. However, in 2020 a new *MAF* analysis will be conducted that will look at the situation until 2030.

The *MAF* analysis brings out the Expected Energy Not Served (EENS) and possible number of disruption hours (LOLE). The analysis deals with a baseline scenario and a conservative scenario. In the framework of the security of supply analysis sets out the Conservative Scenario the results of which also reflect a low carbon scenario. Based on the outcomes of the Elering 2018 security of supply analysis a special advantage of the low carbon scenario compared to the Baseline Scenario is exit of the fossil fuel based conventional generation capacity from the market thank to more aggressive European climate policy. In setting up prerequisites for close down of the fossil fuel based power plants the plants are considered, which are at risk of close down due to tougher environmental limitations (for example, hard coal power plants) and the plants that are at risk of becoming not profitable due to changing market conditions and hence being closed down before the end of their technical service life due to economic reasons. According to the conservative scenario in the studied system in 2025 there are will less conventional generation capacities in total by 23 GWh, compared to the baseline scenario. Therewith, **the Competition Authority's opinion is that, considering the continuing intense increase in CO_2 price and also decrease of oil shale fired generation capacities, the Conservative Scenario of the MAF analysis is quite likely, at least under the Estonian circumstances.**

Figure 6.4 in the security of supply analysis of Elering in respect of the Conservative Scenario of the MAF analysis (Figure 21) illustrates the risk of occurrence of little volume downtime hours. **In case of Estonia this corresponds to energy that is not supplied in two hours, in the extent of 500 MWh per annum**. Based on the internationally recognised security of supply standards our security of supply corresponds to norms also in such case, although, for the time being there is no officially established security of supply standards in Estonia. Such an activity is provided for due to the Clean Energy packet in the near future in cooperation of the Competition Authority, responsible ministries and the system operator.

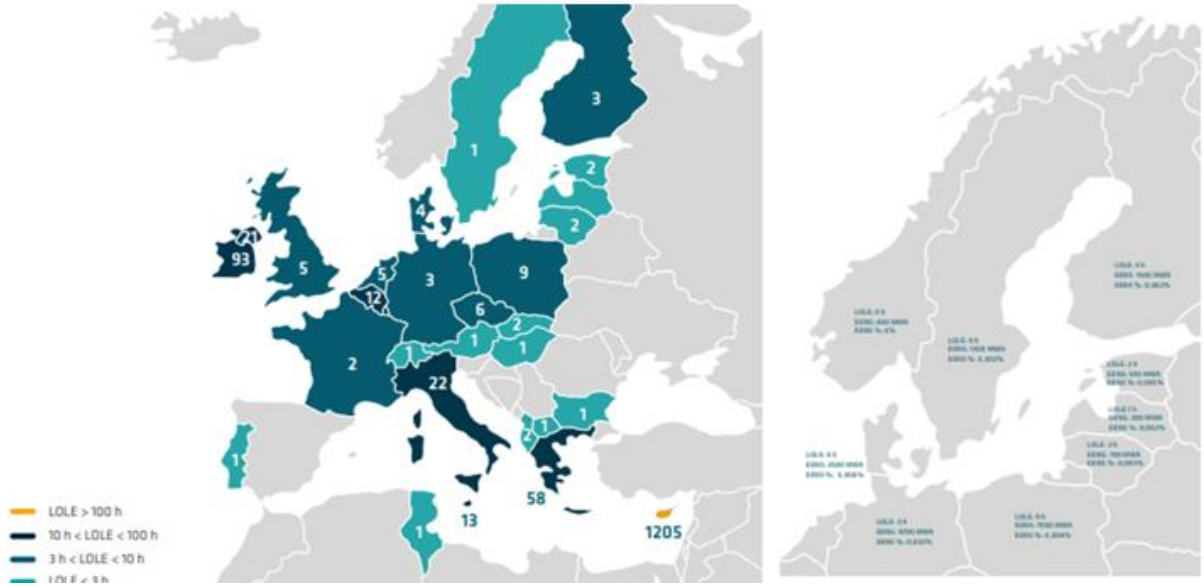

Figure 21. Conservative Scenario of MAF analysis for 2025

As there is no officially established security of supply standards in Estonia, still the principle stipulated in legal acts is valid that the system operator is obliged to ensure security of supply in a conventional situation and in an N-1 situation. Limitation of consumption due to lack of production/generation adequacy in the given situations is not provided for. In an N-1-1 situation limitation of consumption capacity may be applied, but such disturbances shall not cause blackout of the electricity system.

The MAF analysis revealed that the biggest dependence of security of supply on the transmission capacities takes place in Poland, Finland and Estonia. Lithuania in this list in the fifth place (Figure 22). The result indicates that the Baltic region overall, considering also neighbouring countries, is in very big dependence on the transmission capacities and is unable to ensure its own security of supply. For Estonia it is pointed out that the limitedness of the transmission capacities means security of supply problems during 69 hours per annum and the need to limit consumption in these hours in the extent of 232 MW in average. Herewith it is important to realise that this is an average value, in extreme situation hours the limitations have to be censurably bigger.

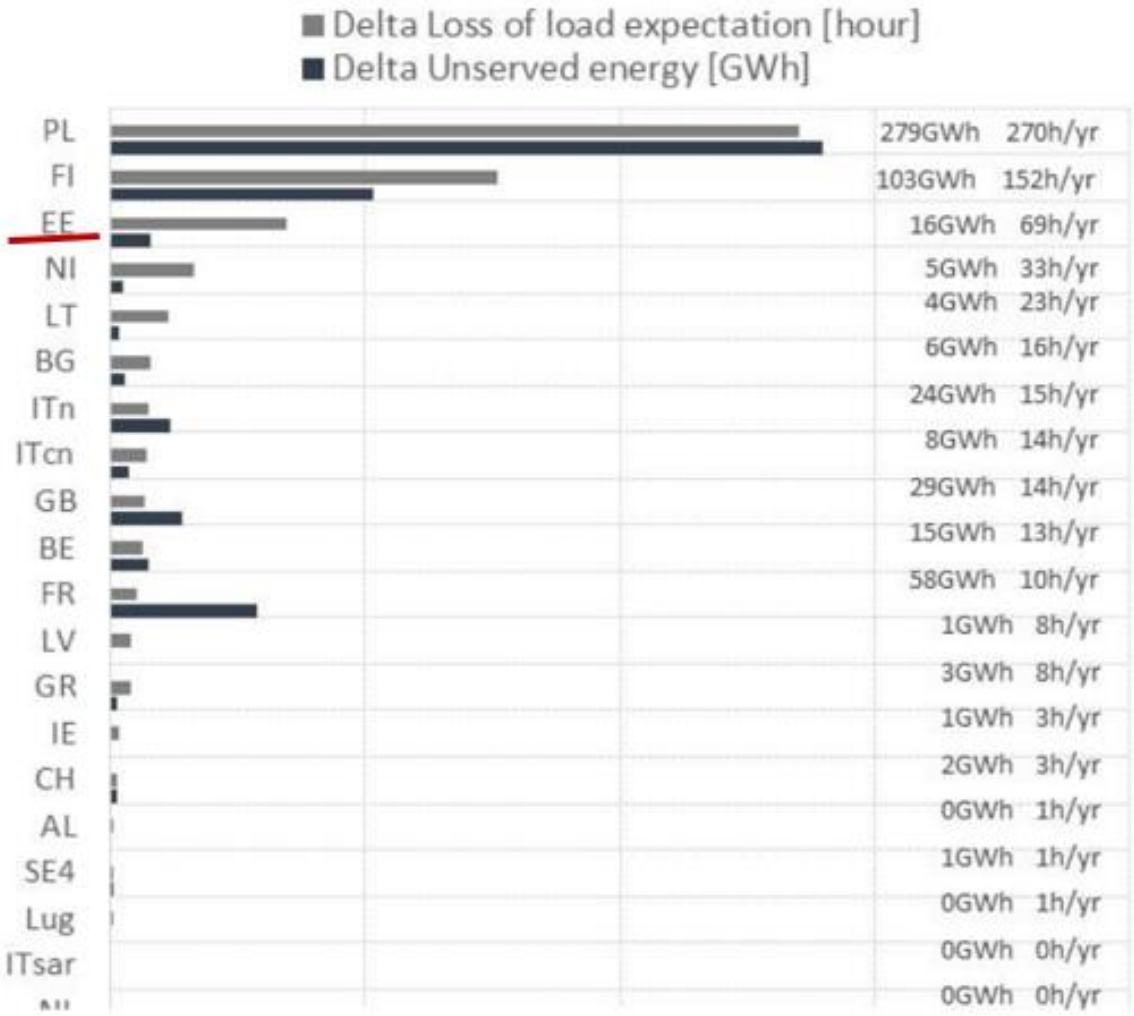

Figure 22. MAF analysis on dependence of security of supply of countries on transmission capacity

Conclusion – dependence of the Estonian security of supply from Europe

- **The maximum quantity of generation capacity may be absent behind the transmission capacities, as in most European countries deficit of the generation capacity is present and for the time being a regional European security of supply analysis for the period after 2025 is missing.**
- **The Conservative Scenario of the MAF analysis revealed 500 MWh deficit in two hours for 2025.**
- In occurrence of a deficit that endangers the security of supply the state first of all has to deal with ensuring security of supply. This may mean that the transmission capacities for neighboring countries are not ensured if this endangers the balance in own electricity system (pursuant to Article 14 (1) and (4) of ER NC).
- A security of supply standard shall be established for Estonia, which enables understanding how large quantity of the expected energy not served due to deficit of the generation capacities is acceptable at the state level. Existing regulation does not

provide for respective value and thus, on the basis of existing principle no deficit is allowable.

2.3.4. Security of supply of Baltic region

As the Baltic countries are interconnected between each other with AC (alternative current) lines and synchronously dependent both at the moment in the Russian BRELL electricity system and also in the future after unified synchronisation with the electricity system of continental Europe in the end of 2025 the security of supply of the Baltics is a common issue. In a country faces a problem wiht ensuring security of supply then it is likely that a problem occurs also in the neighbouring countries. Due this the Competition Authority studied regional security of supply just in conjunction of the three Baltic states.

The analysis was continuously done in two basic scenarios: Baseline and Conservative Scenario. In case of Estonia these are the same as the ones in the only Estonia-based analysis (described under point 1.2.1). In relation to other countries baseline and conservative scenarios are not differentiated.

Ordinary scenarios

1. **Security of supply in the Baseline Scenario:**

Table 16 and Figure 23 illustrate the security of supply of the Baltic region in an ordinary situation, Figure 24 in an N-1-1 situation when outages of two biggest elements are taken into account: these are the NordBalt interconnection and until 2025 the Estlink 2, and further on the Harmony link. In the Estonian electricity system a bigger deficit will occur in 2026. In Lithuania there is a deficit already now. It is important to realise that while so far Estonia has been an exporting country in the Baltic system and other Baltic countries have relied on the Estonian generation capacities, then from **2024** the Estonian deficit of generation capacities will be the highest in terms of comparison of peak consumption. This means that **Estonian is becoming the country with the highest deficit in the Baltic region.**

The Baltic electricity system will be additively in a generation capacity deficit from the year 2020. In the end of 2025 synchronisation with the continental Europe frequency area will significantly increase the kept reserves and this will increase the deficit of generation capacity of the Baltics in relation to the electricity system demand in 2026 even more, exceeding the 2000 MW threshold. By the year 2033 the deficit will presumably exceed 2500 MW and at a high peak load conditions even over 3100 MW.

The import calculated at the transmission capacity can more or less cover the deficit until the year 2025. With 10% consumption reserve at peak load conditions some reserve capacity deficit will occur from 2026 and at an ordinary peak conditions from 2032. In N-2 conditions at exceptionally high peak load conditions a deficit of generation capacity in the system may occur also in the years 2024-2025. **Thus, the security of supply in the Baltics in the Baseline**

Scenario is not ensured from 2032, but some problems may occur already in the period 2024-2032, which would presume the limitation of consumption.

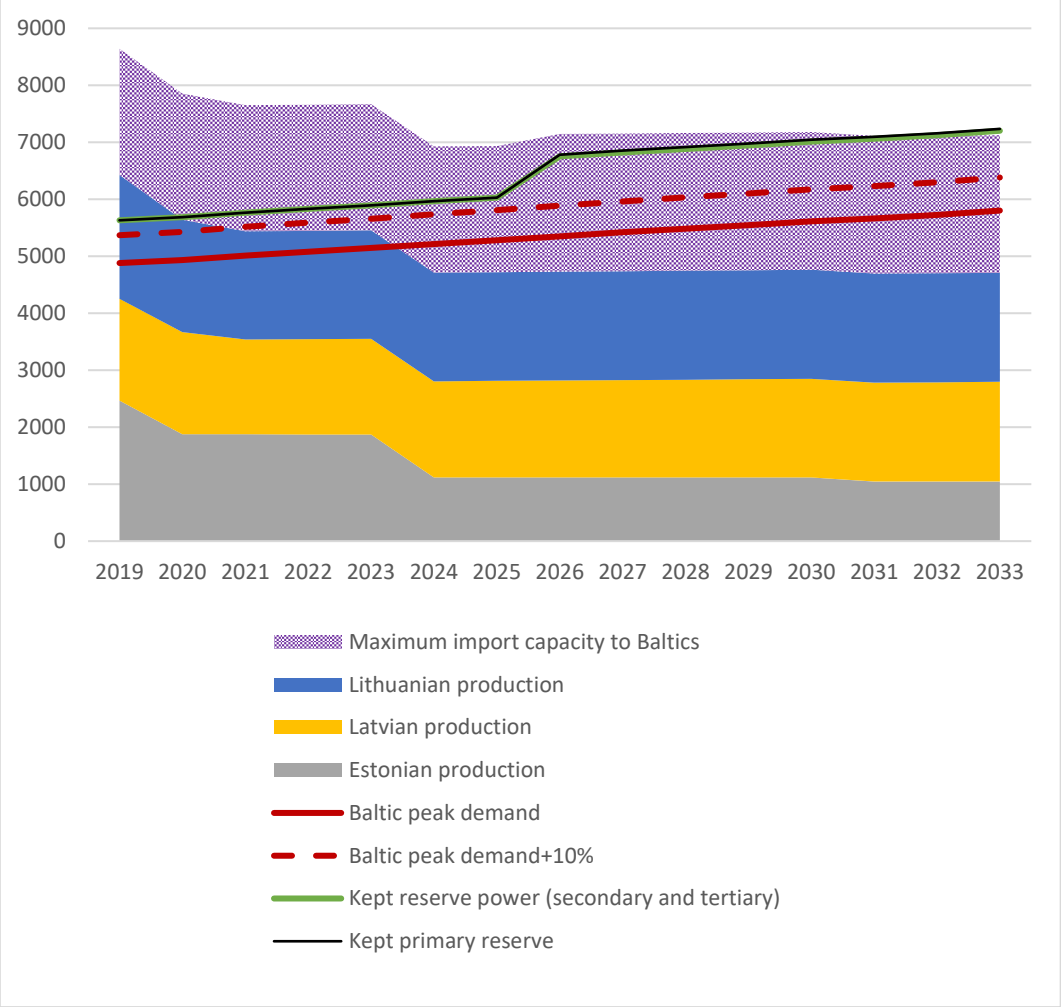

Figure 23. Baltic security of supply in normal condition of network in Baseline Scenario

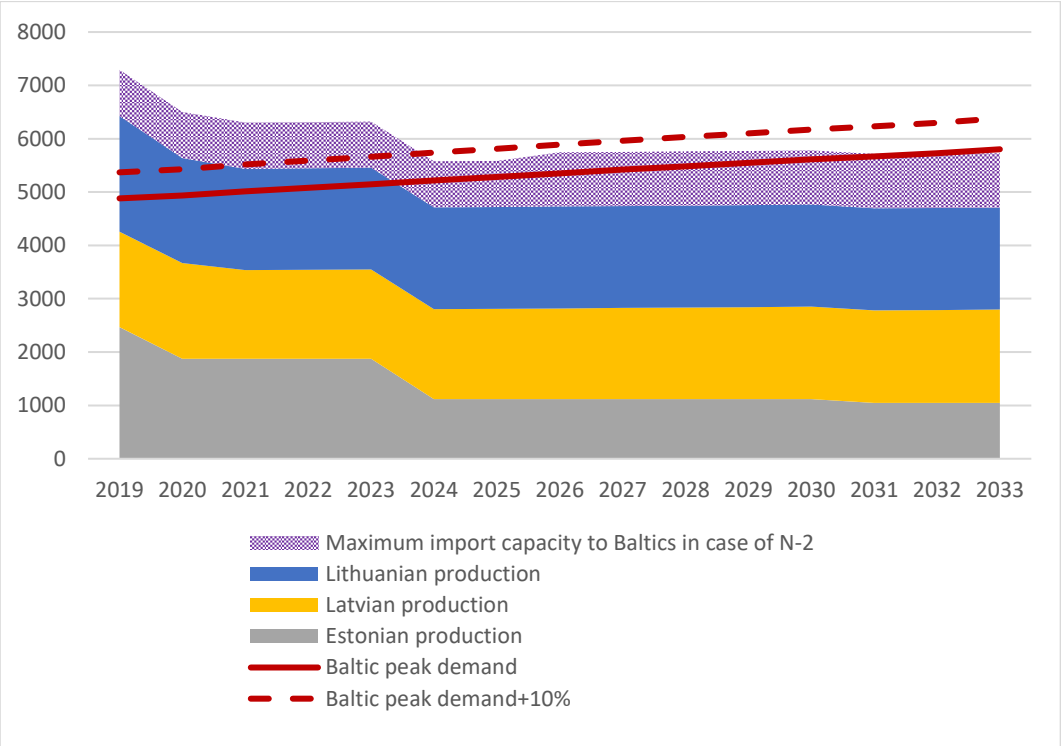

Figure 24. Baltic security of supply in N-1-1 condition in Baseline Scenario

Table 16. Security of supply of Baltic electricity system in Baseline Scenario

Year		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
National balances without imports	Estonia	657	61	32	14	0	-766	-779	-1201	-1214	-1220	-1225	-1230	-1308	-1314	-1319
	Latvia	308	287	126	104	83	56	33	-302	-326	-352	-378	-401	-420	-443	-467
	Lithuania	-170	-394	-486	-505	-524	-544	-567	-552	-575	-600	-625	-649	-673	-697	-739
Baltic balance without imports	Baltic balance without imports at +10% consumption	795	-46	-328	-387	-441	-1254	-1313	-2055	-2115	-2172	-2228	-2279	-2401	-2454	-2525
	Baltic balance without imports	307	-540	-829	-895	-956	-1776	-1841	-2591	-2657	-2720	-2783	-2841	-2968	-3027	-3105
Baltic balance with imports: security of supply of Baltics	Baltic balance with + 10% consumption reserve	3011	2170	1888	1829	1775	962	903	361	301	244	188	137	15	-38	-109
	Baltic balance	2523	1676	1387	1321	1260	440	375	-175	-241	-304	-367	-425	-552	-611	-689
N-1-1 balance considering imports	Baltics at conventional peak load	2411	1570	1288	1229	1175	362	303	361	301	244	188	137	15	-38	-109
	Baltics with 10% consumption reserve	1923	1076	787	721	660	-160	-225	-175	-241	-304	-367	-425	-552	-611	-689
% of consumption to be disconnected in absence of imports	In conventional situation	0%	5%	11%	12%	12%	28%	29%	29%	30%	30%	31%	32%	34%	34%	35%
	Situation with 10% consumtion reserve	0%	14%	19%	20%	20%	34%	35%	36%	36%	37%	37%	38%	40%	40%	41%

2. Security of supply in the Conservative Scenario

In case of the Conservative Scenario its specifics are applied only to the Estonian production capacities already earlier in the Estonian analysis, in Chapter 2.3.2. In this scenario a deficit occurs in the ordinary network situation, where even together with import the system cannot fulfil the need for peak consumption and keeping reserves since 2026 in the extent of 400 MW. In an N-2 network situation at the peak consumption a situation occurs where security of supply is not ensured also after 2029, in higher consumption situation already since 2021 (vs 2024 in the Baseline Scenario).

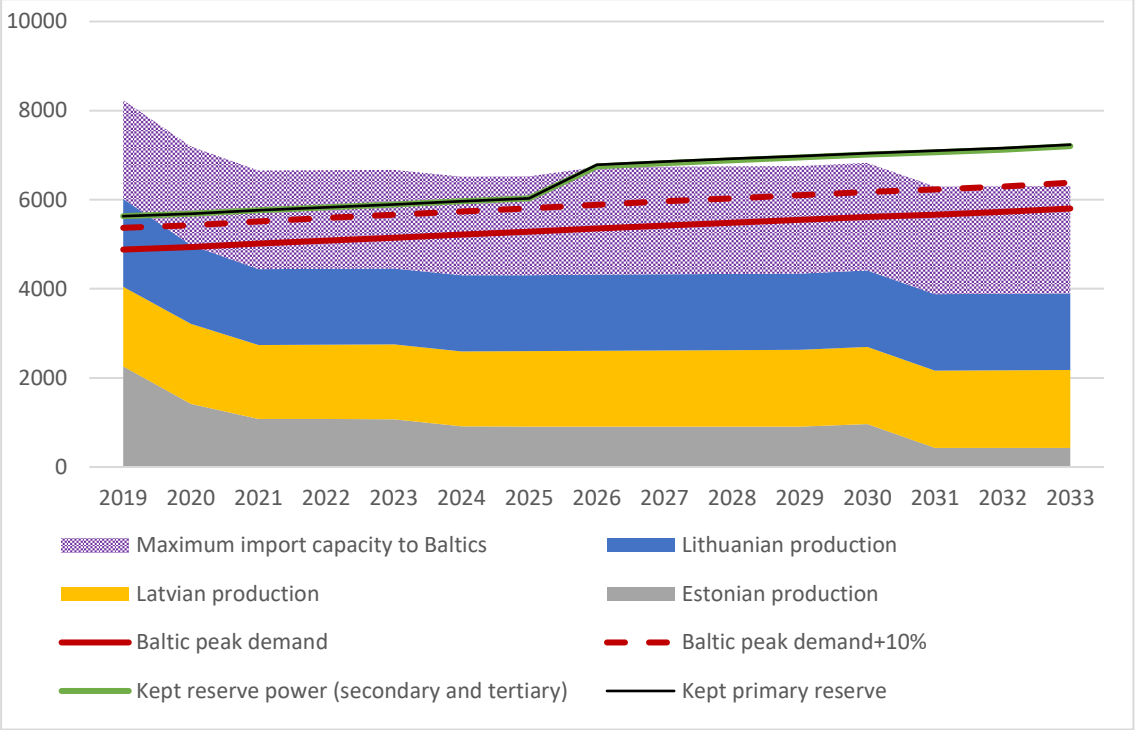

Figure 25. Baltic security of supply in normal condition of network in Conservative Scenario

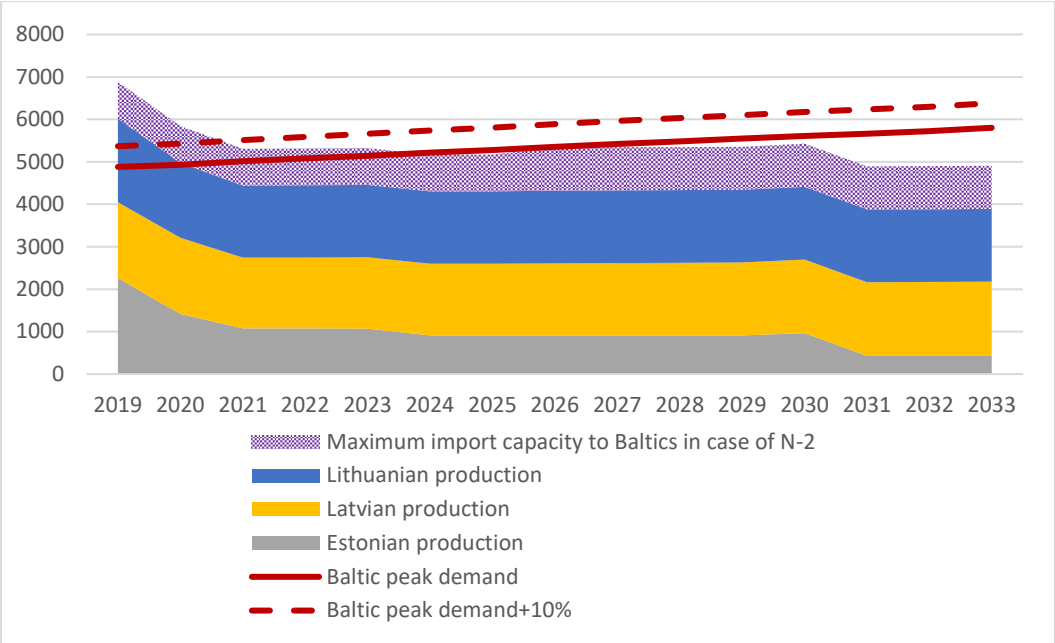

Figure 26. Baltic security of supply in N-1-1 situation in Conservative Scenario

In both scenarios deficit of the Baltic electricity system was analysed in the situation where import from the transmission lines would be unavailable. Occurrence of such situation is very unlikely, it could rather happen in a crisis situation. However, in such a situation the consumption should be limited substantially – in the Baseline Scenario in 2026 respectively 29-36% and in 2033 35-41% (Table 16). In the Conservative Scenario the limited consumption would exceed 50% threshold by the year 2031, as illustrated in Table 17. Pursuant to the EU Commission Regulation 2017/1485, establishing a guideline on electricity transmission system operation and providing for a parameter of the condition a system that is already in the state of blackout. It is clear that without import capacity the Baltic system could not function problem-free.

Herewith there the probability that the Baltic electricity system shall manage without any import capacity very small and may rather take place only in a serious crisis condition.

Table 17. Security of supply of Baltic electricity system in Conservative Scenario l

Year		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
National balances without imports	Estonia	450	-400	-765	-783	-800	-973	-991	-1413	-1426	-1432	-1437	-1386	-1926	-1932	-1937
	Latvia	308	287	126	104	83	56	33	-302	-326	-352	-378	-401	-420	-443	-467
	Lithuania	-170	-394	-486	-505	-524	-544	-567	-552	-575	-600	-625	-649	-673	-697	-739
Baltic balance without imports	Baltic balance without imports at +10% consumption	589	-507	-1125	-1184	-1241	-1461	-1525	-2267	-2327	-2384	-2440	-2435	-3020	-3073	-3143
	Baltic balance without imports	100	-1001	-1626	-1692	-1756	-1983	-2053	-2803	-2869	-2932	-2995	-2997	-3586	-3645	-3723
Baltic balance with imports: security of supply of Baltics	Baltikumi bilanss + 10% tarbimisvaruga	2805	1709	1091	1032	975	755	691	149	89	32	-24	-19	-604	-657	-727
	Baltic balance	2316	1215	590	524	460	233	163	-387	-453	-516	-579	-581	-1170	-1229	-1307
N-1-1 balance considering imports	Baltics at conventional peak load	2205	1109	491	432	375	155	91	149	89	32	-24	-19	-604	-657	-727
	Baltics with 10% consumption reserve	1716	615	-10	-76	-140	-367	-437	-387	-453	-516	-579	-581	-1170	-1229	-1307
% of consumption to be disconnected in absence of imports	In conventional situation	0%	10%	22%	23%	24%	28%	29%	42%	43%	43%	44%	43%	53%	54%	54%
	Situation with 10% consumtion reserve	0%	18%	29%	30%	31%	35%	35%	48%	48%	49%	49%	49%	58%	58%	58%

Islanded Operation Scenario of the Baltic synchronous area

For the time being the Baltics is part of the unified Russian controlled synchronised area BRELL. In the end of 22025 it is planned to connect to the Baltics to the continental Europe frequency area. Desynchronising from BRELL and synchronising with the continental Europe's system is a long process and system developments for that are already ongoing. A requirement that the Baltic system has to fulfil is the independent islanded operation ability. While currently the Baltics are connected with Belarus and Russia with 9 AC lines between, in the for the connection with the continental Europe there will be only on one two-circuit line between Poland and the Baltics. In addition, the Baltics have also DC connections with neighboring countries – two existing interconnections between Estonia and Finland and one connection between Lithuania and Sweden. By 2025 one DC interconnection between the Baltics and Poland will be constructed. It is important to understand that the frequency holding ability of DC connections is significantly lower than that of the DC lines where electricity flows freely.

Thus, although the Baltics is not planning to stay in a situation where it is supposed to work in a separate Island Mode, from the security of supply point of view it is still important to analyse such a scenario. In its 2019 security of supply analysis Elering AS has assessed 10% probability for such a scenario to occur.

The Competition Authority analysed the islanded operation of the Baltic synchronous area through the Baseline and the Conservative scenario as well. **On the grounds of the Baseline Scenario the security of supply is not ensured from 2026** when at an ordinary peak load the import together with domestic generation cannot cover the consumption peak load along with reserve requirements. In case of a higher peak load the security of supply problems may occur already in 2024. Herewith it is important that in this scenario the demand for system reserves is assessed to be lower than in an ordinary scenario and replacement reserves are not kept. In addition, the maximum import value of the transmission lines is limited up to 400 MW. This is just the circumstance which enables to keep the system reserve requirement in a little lower level. However, abandoningreplacement reserves in this scenario means lower security of supply than in an ordinary scenario.

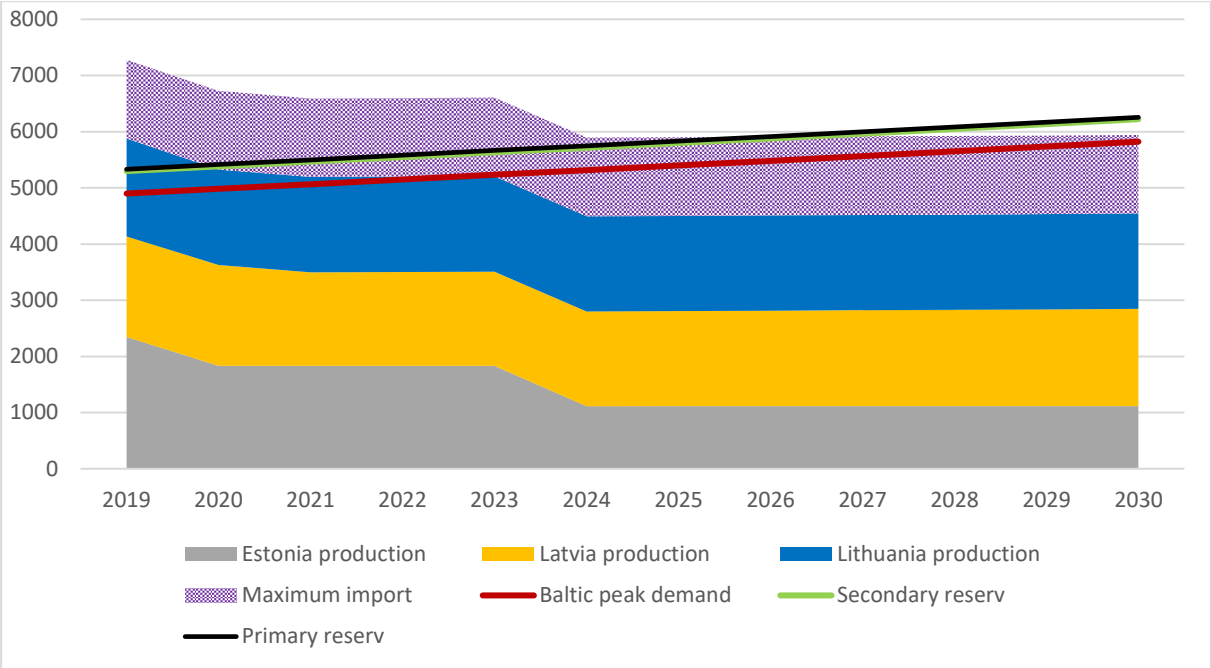

Figure 27. Baseline Scenario of islanded operation of the Baltic synchronous area

Table 18. Baseline Scenario balance of electricity system in islanded operation of the Baltic synchronous area

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Balance	1947	1307	1094	1015	940	147	71	-5	-82	-158	-235	-313
Balance with 10% consumption reserve	1457	809	588	500	417	-385	-468	-553	-638	-722	-809	-895

In the Conservative Scenario the security of supply is not ensured from the year 2015. In case of higher peak load and in islanded operation the security of supply problems may arise already in 2021. The Conservative Scenario is illustrated in Figure 28. Supplementary in Table 19 the **Conservative Scenario** electricity system balance data are given, which illustrates the occurrence of deficit at an ordinary peak consumption conditions from 2025 and with the consumption reserve already from 2021.

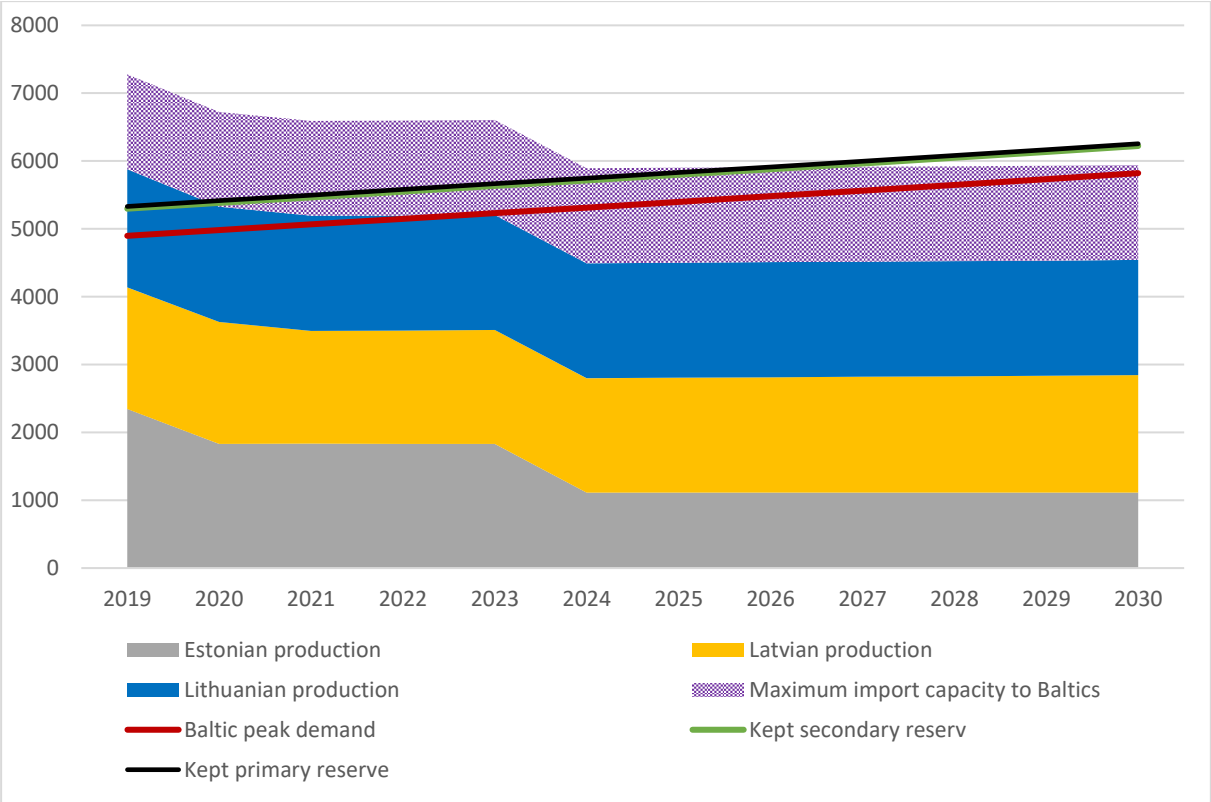

Figure 28. Conservative Scenario of islanded operation of the Baltic synchronous area

Table 19. Conservative Scenario balance of electricity system in islanded operation of the Baltic synchronous area

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Balance	1947	978	436	357	282	46	-29	-105	-182	-258	-335	-413
Balance with 10% consumption reserve	1457	480	-70	-158	-241	-485	-568	-653	-738	-822	-909	-996

Baltic-Finnish region **security of supply** analysis by Elering AS

The 2019 security of supply analysis of Elering studied regional security of supply in the Baltic and Finnish region. In the Baseline Scenario studied by Elering no security of supply problems were identified until 2033, but the region, as expected, depends on import during the whole period studied (2019-2033). The results the Elering's security of supply study in the Baseline Scenario are presented in Figure 29, where it appears that together with the Finnish region no security of supply problems were revealed, but the dependence of import is, as previously, very big and for ensuring security of supply import is required and it shall be relatively close to the maximum rate.

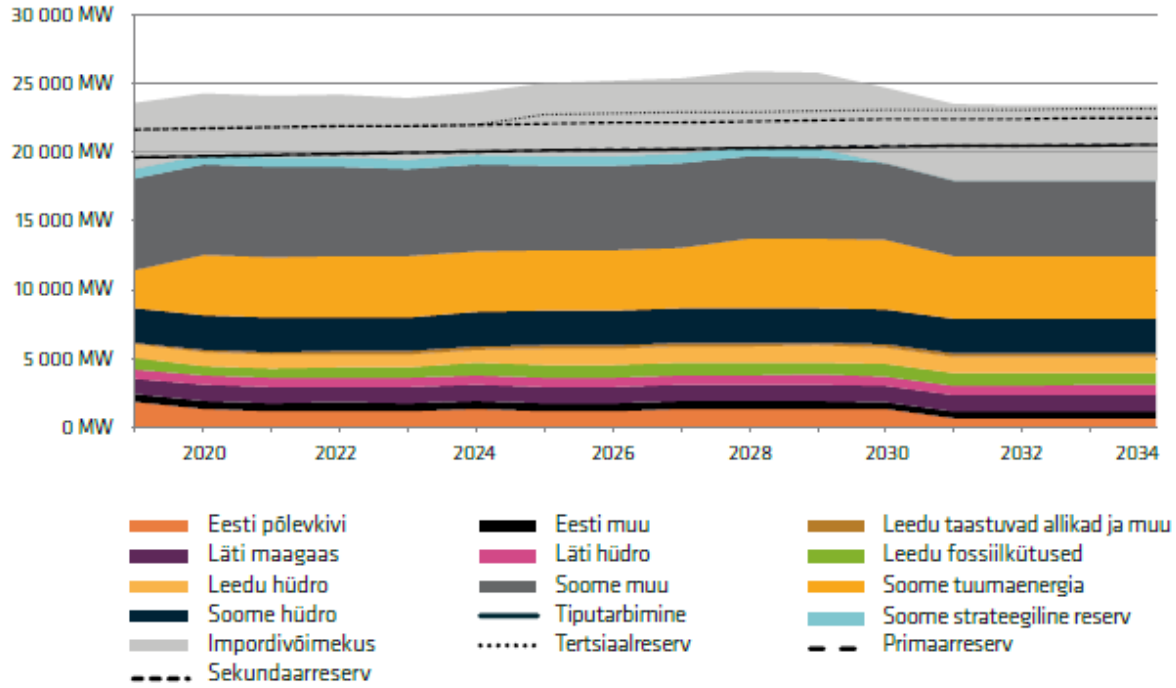

Figure 29. Figure 6.6 of 2019 security of supply analysis of Elering. Security of supply of the Baltic and Finnish area in Baseline Scenario

Elering analysed the security of supply in the Baltic and Finnish region also in their Conservative Scenario [10] and in this case it was revealed that the security of supply in the region is not ensured from the year 2031, when the generation capacities together with maximum import capacity are not able to cover the region's consumption demand and the necessity of reserves, as illustrated in Figure 30.

[10] This is the Conservative Scenario of Elering. It is not the same withe Conservative Scenario of the Competition Authority that was used for a detailed analysis of Estonia and the Baltics.

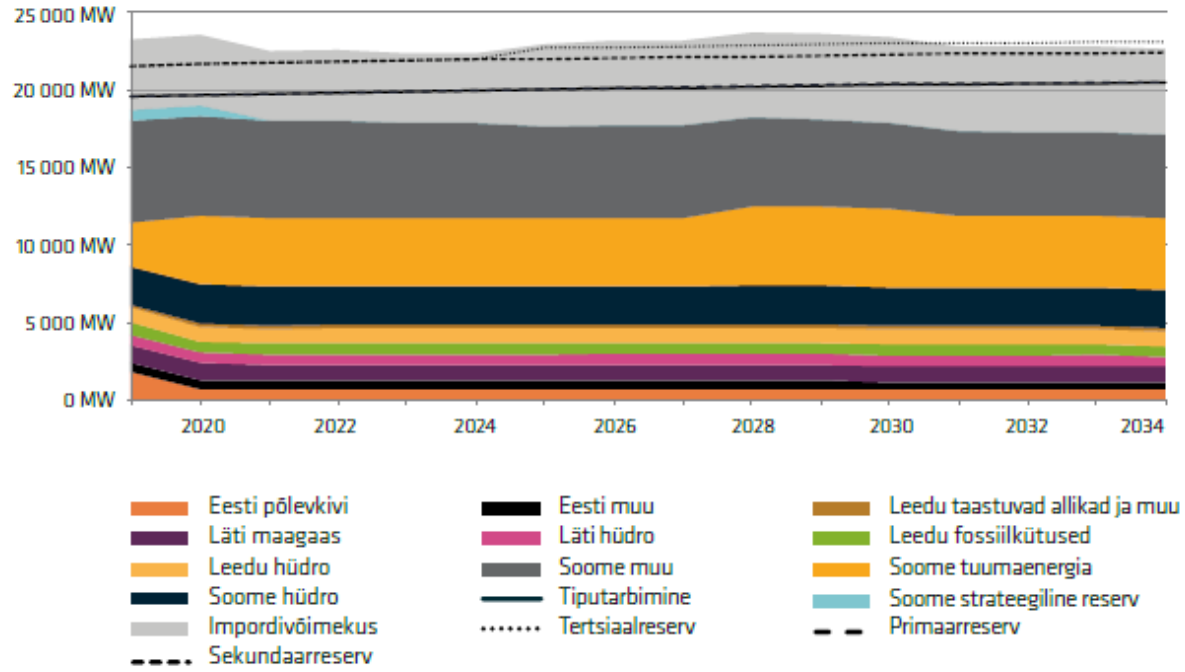

Figure 30. Figure 6.8 of 2019 security of supply analysis of Elering. Security of supply of the Baltic and Finnish area in Conservative Scenario

Summary of analysis of regional security of supply

- **The Competition Authority's Baseline Scenario shows that the security of supply is not ensured in absolute terms from the year 2032.** The deficit occurs in the need to keep reserves, while peak load is covered. In case of higher consumption security of supply problems may occur already in 2026 and in an N-2 condition in 2024.
- The probability of coincidence of such events where simultaneously in the system there is no energy generated by capacities of random nature, the system is at peak load condition and in the transmission system is an N-2 condition, is relatively low. **Thus, in the Baseline Scenario there a danger to security of supply, but it is little.**
- **In the Conservative Scenario** in normal condition of the network also peak consumption is covered until 2033, but from 2029 a situation may occur where the need for reserves may not be ensured all the time. Thus, the **security of supply in absolute terms is not ensured from the year 2029**. In case of higher consumption security of supply problems may occur already in 2026 and in the N-2 condition from 2021.
- **In the Islanded Operation Scenario of the Baltic synchronous area**, the probability of which to occur is little below 10% as per the 2019 security of supply analysis of Elering AS, the **security of supply is not ensured from the year 2026**. In case of higher consumption security of supply problems may occur in 2024.
- The dependence of the Baltic electricity system on import is high. Without the import coming from the transmission capacities consumption in the Baltics should be limited – in the Baseline Scenario this would mean limitation of consumption of 30% in average in the 2024-2033 period and in the Conservative Scenario 40-50%

- Herewith, the probability of the condition when the Baltics have not a single external interconnection available is extremely low. In the 2019 security of supply analysis of Elering AS the probability of respective scenario is estimated below 1%. Such a situation would supposedly mean already a serious crisis situation and in such case Elering provides for consumption limitations for industries.

2.3.5. Conclusions on security of supply

Beginning from the year 2024 onwards the Estonian generation capacities do not any more ensure the coverage of domestic consumption. This constitutes a dramatically changed situation in the Estonian energy sector, where during 30 years since the regaining of independence there has been considerable excess of generation capacities. Furthermore, if to consider also the Soviet Union era, then we had 50 years' period to get used to the fact that Estonia has sufficient generation capacities. The availability of the Narva PP resource is rapidly exhausting. Even if to prolong the useful life of the Narva PP units equipped with desulphurization behind 2042 this will not be a sustainable solution, as these are 50 years old installations and their technical service life will depreciate inevitably. In addition, after 2029 these units could not continue operation due to environmental requirements.

However, Estonia has strong transmission network and sufficient external interconnections with neighbouring countries. The transmission capacities are able to cover the deficit of generation capacity and thus, considering the importing ability of the Estonian electricity system the security of supply is still ensured until the year 2033 both in the Baseline Scenario and in the Conservative Scenario. Slight deficit in the Conservative Scenario may occur in higher consumption load from 2031, but the probability of coincidence of these circumstances is extremely low.

Necessary generation reserve to satisfy consumption demand in Estonia together with import capacities provides for in the network code on electricity system functioning is ensured in the required volume until the end of the analyse period in 2033. Herewith, heavily relying in the security of supply on import there in no certainty that the import from neighboring countries in respective volumes is possible at each point of time due to possible security of supply problems of the region itself.

In the Baltic region in the near future a deficit is foreseeable in all countries. From 2024 the deficit of domestic generation capacity of the Baltic countries versus peak consumption in the Baseline Scenario disregarding wind and solar energy is over 1200 MW. In Lithuania deficit has occurred already now, while in Estonia more serious deficit will occur from the year 2024 and in Latvia from 2026.

To understand the security of supply problems of the Baltic countries it is necessary to analyse the Baltic region as a whole, as we operate synchronously together – currently as part the bigger synchronous area BRELL and moving together into the synchronous area of continental Europe in 2025. Interruption of the DC lines between the Baltic countries has extremely low probability

as it would presume an extraordinary crisis situation. Electro technically the probability of a disconnection of the DC interconnections between the Baltic countries is very low. Herewith, if switching off the DC connections is not electro technically complicated and in a situation where our neighbouring system which is not synchronously connected with us experiences a security of supply problem, limiting or disconnecting of the DC connections on the Baltics side, in case the Baltic system also suffers from the deficit of generation capacities at the same time, is possible. During the winter time peak load a relatively simultaneous occurrence of load peaks in the Baltic and in the Nordic countries is also real, as the cold waves may have overall regional reach.

The regional analysis of the Baltics show that the probability of occurrence of security of supply problems in higher on the regional level, compared to the national level analysis where only the Estonian condition was looked at, the occurrence of problems is shifting into earlier time. Closer overview is presented in the Security of Supply Matrix on Figure 4.1.

Additionally analysed Islanded Operation Scenario of the Baltic synchronous area recognises security of supply problems already in the middle of 2020s.

The security of supply of Estonia is largely based on the external interconnections and similar situation applies the whole of the Baltics. Elering AS in its 2019 security of supply report does not see a big risk and concludes that the security of supply for Estonia is ensured until the year of 2030. However, the following shall be taken into account:

a. The Estonian Energy Sector Development Plan (hereinafter ENMAK) provides for energy independence for Estonia until the year 2030.
b. So-called crisis scenarios analysed in the Elering AS report provide for limiting of consumption. It shall be considered that in 30 years the Estonian society has got used to that electricity is always ensured and the envisage of electricity supply limitations, even in extreme conditions, would be a principal change for the society.
c. The limitation of consumption may take place not only doe to a crisis situation or a technical malfunction. The circumstance may also be economic where, for example, a neighbouring country interconnected with Estonia not synchronously (via DC lines) may experience a deep deficit that causes limitations or disconnecting the DC interconnections. This is just lack of electricity and there is just nothing to sell to the EU neighbours.

Taking into account the last year´sevents – increase in the price for CO_2, falling competitiveness of the Narva Power Plants – achieving the target of energy independence and lowering the imported electricity share to 0% in 2030 (vs 0% in 2012) set up by ENMAK 2030 is questionable. A prerequisite to achieving it would assume substantial interference state in existing conditions.

In the Competition Authority's assessment Estonia is heavily dependent on imports in the near future. For the time being there is no power plants under planning, which would not base on the random nature wind and solar energy and would be able to offer controllable power. As the construction of a new power plant is a long process, up to 5 years as a minimum but rather up to 10 years, then

the condition of deficit apparent from the present analysis will be continuing in this time frame.

An overview of the scenarios analysed by the Competition Authority and Elering AS and security of supply conditions in the Baltic region and Estonia is illustrated in Figure 31.

	Scenario	Competiton Authority Baseline scenario				Competiton Authority Conservative scenario			
Competition Authority's conventional scenarios		Conventional peak load		10% higher peak load		Conventional peak load		10% higher peak load	
		Normal network condition	N-2	Normal network condition	N-2	Normal network condition	N-2	Normal network condition	N-2
	Estonia	√	√	√	√	√	√	2031	2031
	Estonia summer time	√	√	√	√	-			
	Baltic regional	2032	2032	2026	2024	2029	2029	2026	2021
	Baltic synchronous area Island operation scenario, 10% probability	2026	2026	2024	2024	2025	2025	2021	2021
Elering's scenarios		Eleringi Baasstsenaarium				Eleringi Konservatiivne stsenaarium			
		Conventional peak load		10% higher peak load		Conventional peak load		10% higher peak load	
		Normal network condition	N-2	Normal network condition	N-2	Normal network condition	N-2	Normal network condition	N-2
	Estonia	-				√	√	√	√
	Baltic-Finnish regional	√	√	-	-	2031	2023-2024 ja 2031	-	
	Baltic synchronous area Island operation scenario, 10% probability	2029	2029						
	Baltic emergency condition operational continuity, 1% probability	2020	-						
MAF		MAF Baseline scenario				MAF Conservative scenario			
	Pan-European	√ (known until 2025)				x 2025 (2 h and 500 MWh deficit)			

** The red year numbers in the table indicate in which year a problem with ensuring security of supply occurs.*

*** The table does not include the scenario of operational continuity of vital service in Estonia, which was also studied by Elering, as this scenario provides for only 200 MW coverage of the consumption. It can be said that vital service in respective volume is covered with domestic generation until the end of the period in question in 2030.*

Figure 31. Security of supply matrix

2.3.6. Distribution of Estonian generation portfolio by kind of fuel

Although the share of oil shale is continuously the highest in the general electrical energy portfolio, the electricity generation from renewable energy sources has also been steadily increasing.

Figure 32 presents the share of fuels and energy sources used for the generation of electricity in 2016 in greater detail (the 2017 and 2018 data have not been disclosed yet by Statistics Estonia).

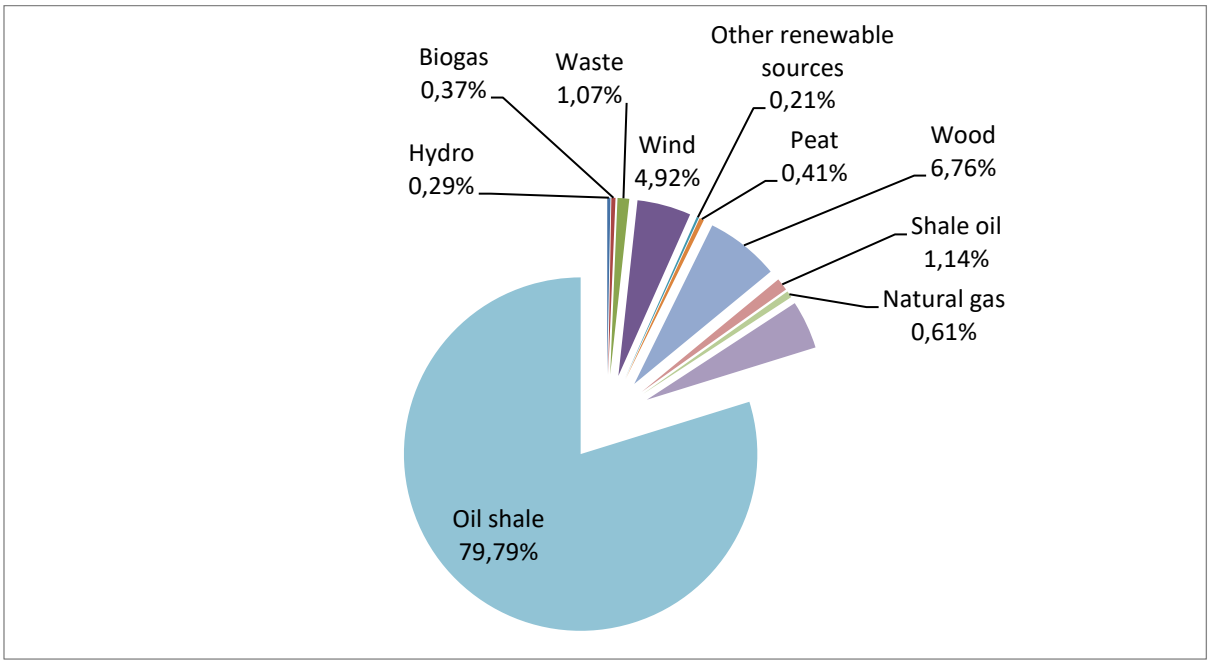

Figure 32. Energy sources used for electricity production in 2016. Source: Statistics Estonia

Figures 33 and 34 show that more and more electricity is generated from renewable energy sources. In 2007 the rates of renewable energy support were raised by the amendments to the Electricity Market Act, which resulted in the construction of new power plants that base on renewable energy sources (wind mills, heat and power cogeneration plants). In 2016 the quantity of the produced wind energy decreased compared to 2015. The share of electrical energy produced from biomass and hydro energy remained in the same level.

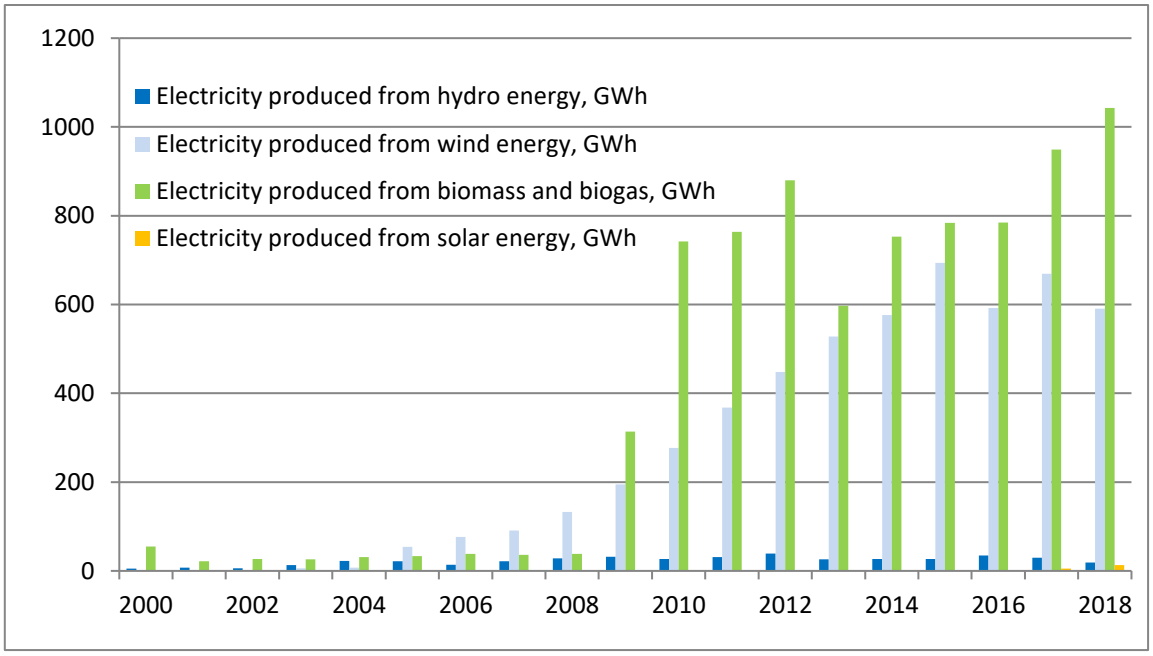

Figure 33. Renewable energy sources based production of electricity in 2000 – 2018. Source: Elering AS

The biggest share of the renewable electricity production in Estonia comes from the biomass and municipal waste using CHP plants. In 2018 the annual production from these sources was 1043 GWh. Lesser portion of electricity is produced from wind energy with the total production in 2018 of 591 GWh, that is 13% less than in 2017. As of the end of 2018 the total installed capacity of windmill parks was 384 MW, compared to 2017 no new capacities have been added. The smallest share of renewable energy generation capacity belongs to the solar power plants, however, a remarkable growth has taken place here. In 2018 13 GWh of solar energy was produced, for comparison, in 2017 the same value was 5 GWh.

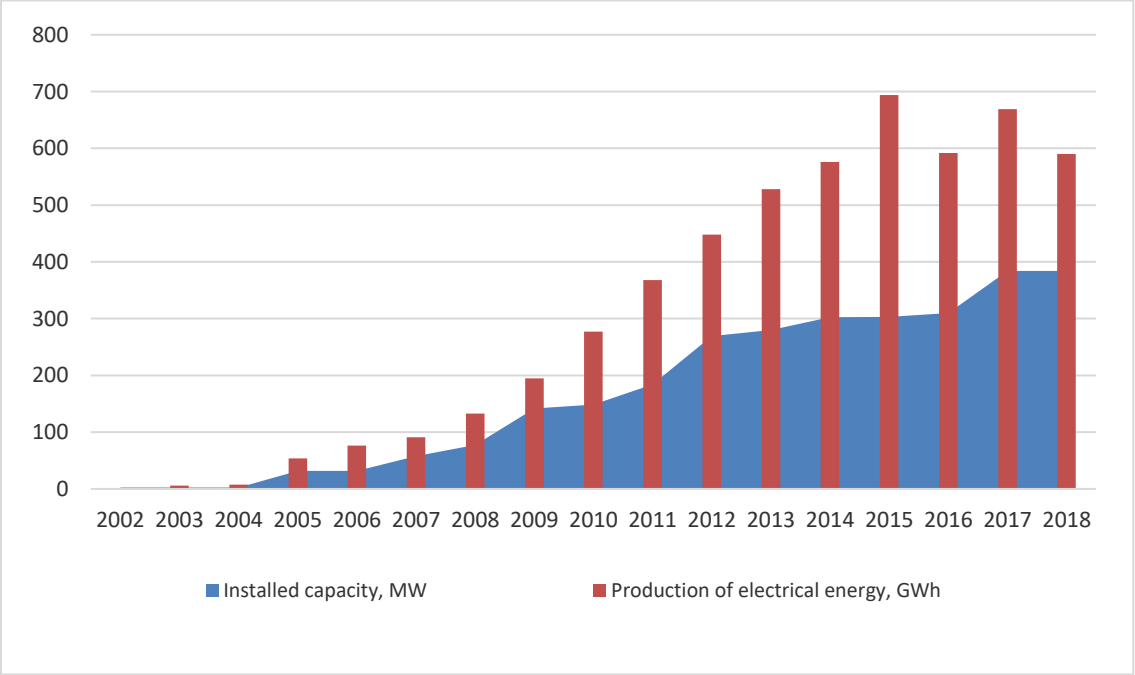

Figure 34. Installed wind energy net capacity and production of electricity in 2002 – 2018. Source: Elering AS, Estonian Wind Energy Association

In March 2007 the European Council adopted the European Union's (hereinafter the EU) energy policy action plan for 2007-2009 (hereinafter the EU Energy Policy) aiming at:

- improving security of energy supply;
- ensure competitive and affordable energy for Europe; favour environmental sustainability and fighting against climate change.

The most important measures of the package, the co-called climate package, worked out for the implementation of the EU Energy Policy, which was submitted on 23 January 2008 (comprises four directives and a decision), are the target values for energy efficiency, usage of renewable energy sources and biofuels, including environmental friendly carbon dioxide collection and disposal by the year 2020:

- reduce the emissions of greenhouse gases by at least by 20% compared to the base year of 1990 (by 2005 the reduction was 6%);
- increase the share of renewable energy to 20% from the final consumption of primary energy (in 2005 an average EU share was 8,5%);
- achieve higher efficiency in primary use of energy in the final consumption by 20%;
- increase the share of biofuels in the transport fuels to 10%, assuming that it will be succeeded to develop out the second generation biofuels.

Estonia undertook the commitment to achieve 25% share of renewable energy of the total final consumption of primary energy by 2020. In December 2018 the new renewable energy directive was enforced, which sets the renewable energy share goal for the Member States to 32%. An Estonian individual goal is not yet set for the moment being. Below Figure 35 shows the share of renewable energy in the final consumption of energy.

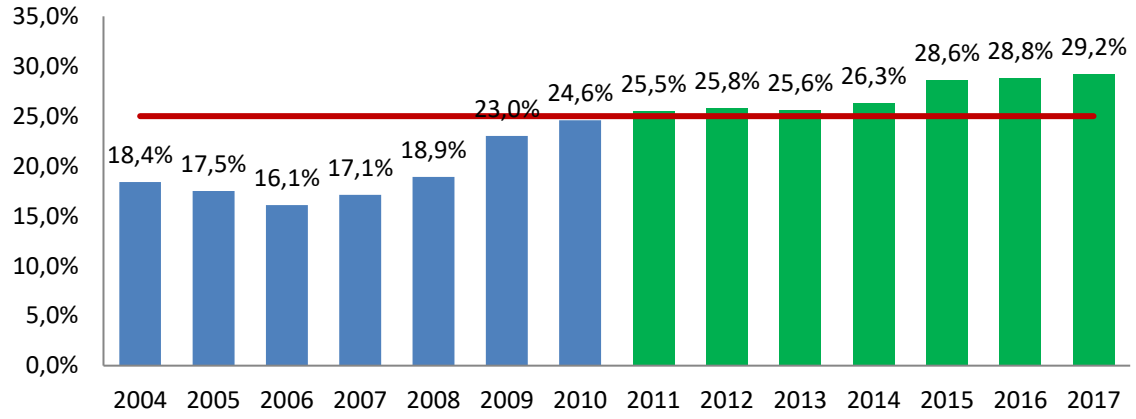

Figure 35. Sector specific (electricity, heating, cooling and transport sector) share of renewable energy in final consumption of energy. Source: Eurostat

It appears from Figure 35 that according to the Eurostat data the renewable sources in 2011 constituted 25,5%, in 2012 25,8%, in 2013 25,6%, in 2014 26,3% and in 2015 28,6% of the final consumption of primary energy. Estonia achieved the renewable goal set by 2020 already in 2011.

Amendment of renewable energy support scheme

On 9 July 2018 an amendment of the Electricity Market Act in relation to support system was enforced. According to the amended support scheme support is paid in order to attain the objective of generating electricity from a renewable source and in order to attain, by 31 December 2020, the quantity of electricity generated by an efficient co-generation process that constitutes up to 10% of the final consumption of electricity. If, according to the estimate, the renewable energy objectives will not be attained, the Government of the Republic authorizes the minister responsible for the area to arrange a public reverse auction in order to find the most advantageous producer to generate the quantity of electricity required to attain the objective. The reverse auction is open only to tenders of electricity generated by a generating installation that will begin to generate electricity for the first time after determination of the winner of the auction. At the proposal of the minister responsible for the area, the Government of the Republic decides, by directive, the producer who will generate the additional quantity of electricity, and who will, for up to 12 years starting from commencement of generation, be paid support on the basis of the results of the reverse auction. For existing producers the old support scheme is valid, where it is possible to get support at fixed price for maximum period of 12 years per generating installation.

In the opinion of the Competition Authority it is a positive development. Analysis of the development of technologies in last years shows significant decrease in the prices of electricity produced from renewable energy sources. The auction system avoids overcompensation of producers ensures the construction of renewable energy installations which are suitable in our area and climatic conditions. Through implementation of the scheme a decrease in consumer load can be expected in the future.

2.3.7 Security of supply related investments in production capacity and networks
(Article 37(1)(r) of Directive 2009/72/EC)

Security of supply report prepared by Elering

The system operator (TSO) and the transmission network undertaking Elering AS has prepared *Report on the Estonian Electricity System Security of Supply* which deals with the security of supply in Estonia and the Baltic region until 2033, existing supply possibilities, quality of the networks and the level of their maintenance, measures for satisfying the maximum estimated (peak) demand and the measures undertaken in an event of capacity deficit, operational reliability of the networks, major investments in the Estonian transmission network, anticipated security of supply situation in the period of 5-15 years. The report is submitted to the European Commission, to the Ministry of Economic Affairs and Communications and to the Competition Authority.

Thus, one of the objectives of the report prepared Elering AS is to provide estimates of the needed investments in generation capacity. Based on the analysis prepared by Elering AS the Competition Authority has the right to oblige the TSO to arrange competitive tendering for the procurement of new generation capacities. Table 20 presents the production equipment connected to the Estonian electricity system as of March 2019.

Table 20. Production equipment connected to Estonian electricity system. Source: Elering AS

Power plant	Installed net capacity, MW	Production capacity available during peak load, MW
Estonian Power Plant	1 355	1 021
Balti Power Plant	322	224
Iru CHP Plant	111	111
Auvere Power Plant *	274	252
Northern CHP Plant	78	78
Southern CHP Plant	0	0
Sillamäe CHP Plant	16	8
Tallinn CHP Plant	39	39
Tartu CHP Plant	22	22
Pärnu CHP Plant	21	21
Enefit	10	9
Industrial and small CPH plants	83	60
Hydro power plants	7,6	4
Wind mills	312	0
Solar power plants	37,9	0
Micro-producers	7,6	0
Kiisa Emergency Reserve Power Plants	250	250
Total	**2946**	**2098**

Note: In Auvere Power Plant in an average of 22 MW is continuously under repairs/maintenance both in winter and summer period.

From 1 March 2018 the following generating installations have been connected or are scheduled to be connected to the transmission network during 2019:

- 2018 Tuuleenergia OÜ, Lõpe Windmill Park, 1 MW was added, total 17 MW (wind mills);
- Aidu Windmill Park, 6,8 MW;
- Varja Windmill Park, 10 MW (Püssi AJ);
- Iru PV-jaam, 0,7 MW (Iru AJ);
- Raadi PV-park, 50 MW (Ülejõe AJ);
- Elektrilevi OÜ, Leisi AJ; 6MW;
- Elektrilevi OÜ, Viljandi AJ 5,94 MW;
- Elektrilevi OÜ, Rakvere AJ, 4,34 MW.
- Eesti Energia, Tootsi Windmill Park 138 MW (Sopi AJ);

From 1 March 2018 the following generation equipment have been connected or are scheduled to be connected to the distribution network during 2019:

- 2019 Silpower AS 7,1 MW generator will be connected to the Sillamäe distribution network;
- 2018 ELV end customer 4E, Kunda AJ, 6,9 MW wind mills;

- 2019 Mustamäe KTJ 10 MW, Kadaka AJ.
- VKG Soojus AS Ahtme PEJ 8MW (Ahtme AJ);
- Elektrilevi OÜ, Videviku PV 1,2 MW (Anne AJ);
- Elektrilevi OÜ, Tallinna landfill gas OÜ, 1,053 MW, Kallavere AJ;
- Elektrilevi OÜ, Pärnu Solar Park 4 MW, Metsakombinaadi AJ;

By the time being Elering AS has been informed about the following additional new capacities:

- 2019 Fortum Tartu Raadi PV-park, 50 MW;
- 2019 Tootsi Windmill Park, 138 MW

Total: 188 MW

The intended electricity production facilities that the system operator has been informed on, but which cannot be taken into account as assured projects, are other new plants for the years 2018-2028 (predominantly wind mill parks) of up to 910,7 MW.
Based on the fact that in the previous years the peak load has not exceeded 1600 MW and Elering AS do not foresee it also in the immediate years, as of today the peak load is covered with domestic capacities. Projections for the future are presented in section 2.3.2.

Investments in transmission networks

In the coming years Elering AS pays attention to the investments concentrated on synchronisation with the frequency area of continental Europe or Nordic countries. In 2016 two synchronisation related studies were finalised.

On 28 June 2018 the heads of state of Estonia, Latvia, Lithuania and Poland signed together with the president of the European Commission a political road map for synchronisation of the electricity system of the Baltic countries with the frequency area of continental Europe. A technical solution for the synchronisation was also agreed upon. The synchronisation is planned to do via existing LitPol two circuit AC line and additional DC sea cable between Lithuania and Poland.

On 28 September 2018 the Polish system operator PSE has forwarded to the continental Europe regional working group of the European electricity system operators network ENTSO-E the application of the Baltic TSOs an application to join the synchronous area of continental Europe. Based on this elaboration of conditions for connecting and requirements necessary for the synchronisation has been initiated.

For the Baltic countries internal network strengthenings necessary for synchronisation or, for the I phase investments of the synchronisation project the Competition Authority made the decision on 10 September 2018 on the approval of the investment applications. After cost allocation decision the Competition Authority has also submitted to the European Unity Fundation an application to support the investments. In the beginning of 2019 also a decision was made according to which the investments necessary for synchronising the Baltic countries are financed from the European Union's CEF Fund in the extent of 75%, which is the highest co-financing among the Electricity infrastructure investments.

Elering AS and AST have agreed upon the plan of reconstruction of existing old lines connecting Estonia and Latvia and Elering has commenced preliminary activities in the

implementation of the investments. From the existing lines firstly the L300 Balti –Tartu line, then L301 Tartu-Valmiera line and finally the L353 and L354 Viru-Tsirguliina-Valmiera 330 kV overhead lines will be reconstructed.

National transmission network

Elering AS continues to contribute into the development of national network.
In the Tallinn area Elering AS concentrates in the renovation and transformation of the electricity network, first of all on the replacement of the aging urban infrastructure and the transformation of electricity network in the surroundings of the city. In Tallinn Elering AS continues replacement of the urban overhead lines with underground ones.

Interconnections with neighbouring countries

Today Estonia has altogether six essential electricity network direct connections with three neighbouring countries: Russia, Finland and Latvia. With Russia the Estonian electricity network is connected through the three 330 kV overhead lines, with Latvia through two AC 330 kV lines, and with Finland Estonia is connected through two submarine DC cables with the capacities of 350 and 650 MW. Table 13 presents the cross-border interconnections' transfer capacity of the transmission network.
Along with the operation of EstLink 2 the overload between Estonia and Finland has significantly decreased. With the start of NordBalt between Lithuania and Sweden electricity export to Latvia has decreased and hence the limitation on the Estonia-Latvia-Pskov cross section.

Currently the construction of the third line between Estonia and Latvia is ongoing. In October 2014 the third Estonia-Latvia interconnection received support from the European Union's funds in the extent of 65% and the interconnection shall be ready by 2010.

3. Functioning and regulation of natural gas market

3.1 Regulation of natural gas network

3.1.1 Ownership unbundling
(Articles 10, 11 and 26 of Directive 2009/73/EC and Regulation (EC) No 715/2009)

From 1 March 2016 the complete ownership unbundling of the Estonian system operator is finalised and the Estonian gas system operator is Elering AS (100% in the ownership of the Estonian state).

From the beginning of 2016 Elering AS consolidated the electricity and gas transmission networks into one company and continuous its activity as the operator of the joint system.

In the second half of 2016, upon the application submitted by Elering AS, the Competition Authority conducted the evaluation of the latter as the natural gas system operator's compliance to the requirements or, the so-called process of certification. Besides the bases of the Natural Gas Act in the evaluation the Competition Authority adhered also to the provisions of Regulation no. 715/2009 of the European Parliament and of the Council (treats of the network access conditions). In December 2016 the European Commission informed that it agrees with the draft resolution prepared by the Competition Authority upon the application of Elering AS and the Authority confirmed the undertaking's compliance to the requirements by its decision made in December 2016.

3.1.2 Technical functioning

The system operator Elering AS owns the Estonian gas transmission network of 885 km (contains 43 km of transit pipes, 36 gas distribution stations (GDS), and 3 gas metering stations (GMS), see Figure 36).

The Estonian gas transmission system has been rolled out from the gas network of the former Soviet Union and thus, is connected with the Russian and Latvian gas systems. A specific circumstance of the Estonian gas system is that it has no own compressor stations. All necessary pressure level for the functioning of the system is maintained by the Russian transmission system's compressor stations or by the output pressure of the Inčukalns underground Gas Storage (also in the Latvian gas system there is no compressor stations).

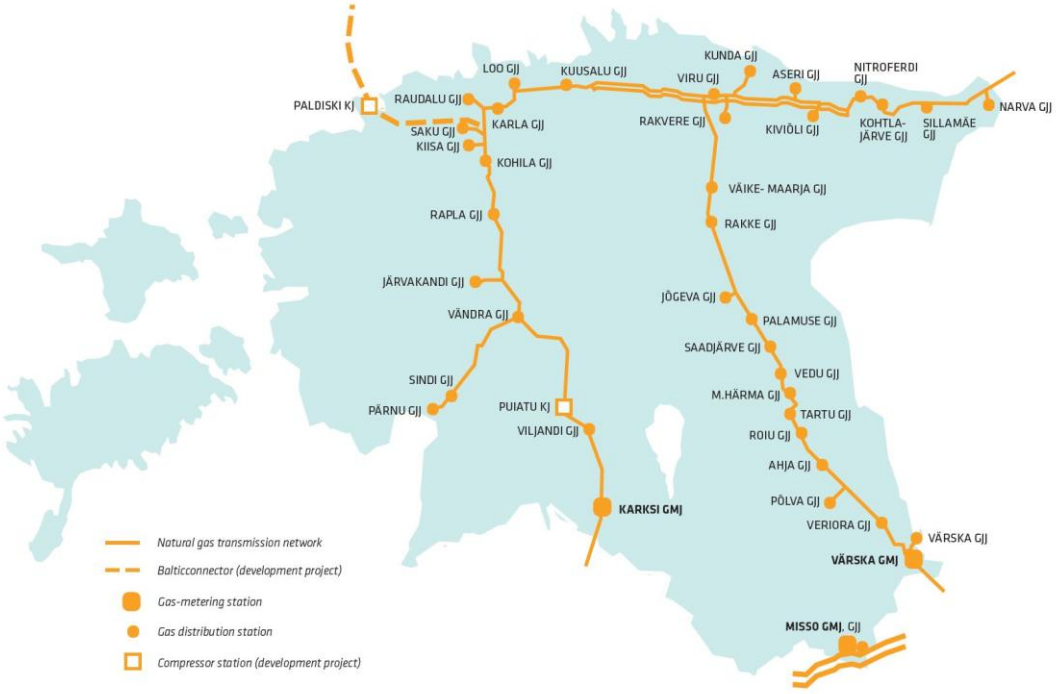

Figure 36. Transmission network of Estonian gas system. Source: Elering AS

An overview of the transmission system pipelines is given in Table 21.

Table 21. Data of transmission system pipelines. Source: Elering AS

No	Gas pipeline	Year of construction	Length	DN	Operation pressure (MOP)	Age
			km	mm	bar	years
1	Vireši – Tallinn	1991/92	202,4	700	55	26
2	Vändra – Pärnu	2005/06	50,2	250	55	12
3	Tallinn - Kohtla-Järve I	1951/53	97,5	200	30	65
4	Tallinn - Kohtla-Järve II	1962/68	149,1	500	30	50
5	Kohtla-Järve - Narva	1955	45,1	350/400	30	58
6	Tartu – Rakvere	1979	133,2	500	55	39
7	Izborsk – Tartu	1975	85,7	500	55	43
8	Pskov – Riia	1972	21,3	700	55	46
9	Izborsk – Inčukalns	1984	21,3	700	55	34
10	Branch pipeline	1951/2013	79,2	-	28/55	-
Total:			885			

The volumes of gas are metered and its properties (quality) are determined in the gas metering stations - GMS *(in Estonian abbreviated as GMJ*) in Värska, Karksi, Misso and Ivangorod (Russia).

The Estonian gas transmission network, which is in the ownership of Elering AS, has the following connections:

- With the Latvian transmission network:

Vireši - Tallinn (DN 700, MOP 55 bar)[11] transmission pipeline and via the Karksi GMS/GMJ (max capacity 73,5 GWh/24h), which ensures continuous unidirectional gas flow transmission possibility from Latvia to Estonia (the transmission of gas from Estonia to Latvia is technically possible without metering).

In 2018 21% of gas entered via Karksi GMS. An overview of the monthly gas quantities entered via Karksi in 2018 in given in Figure 37.

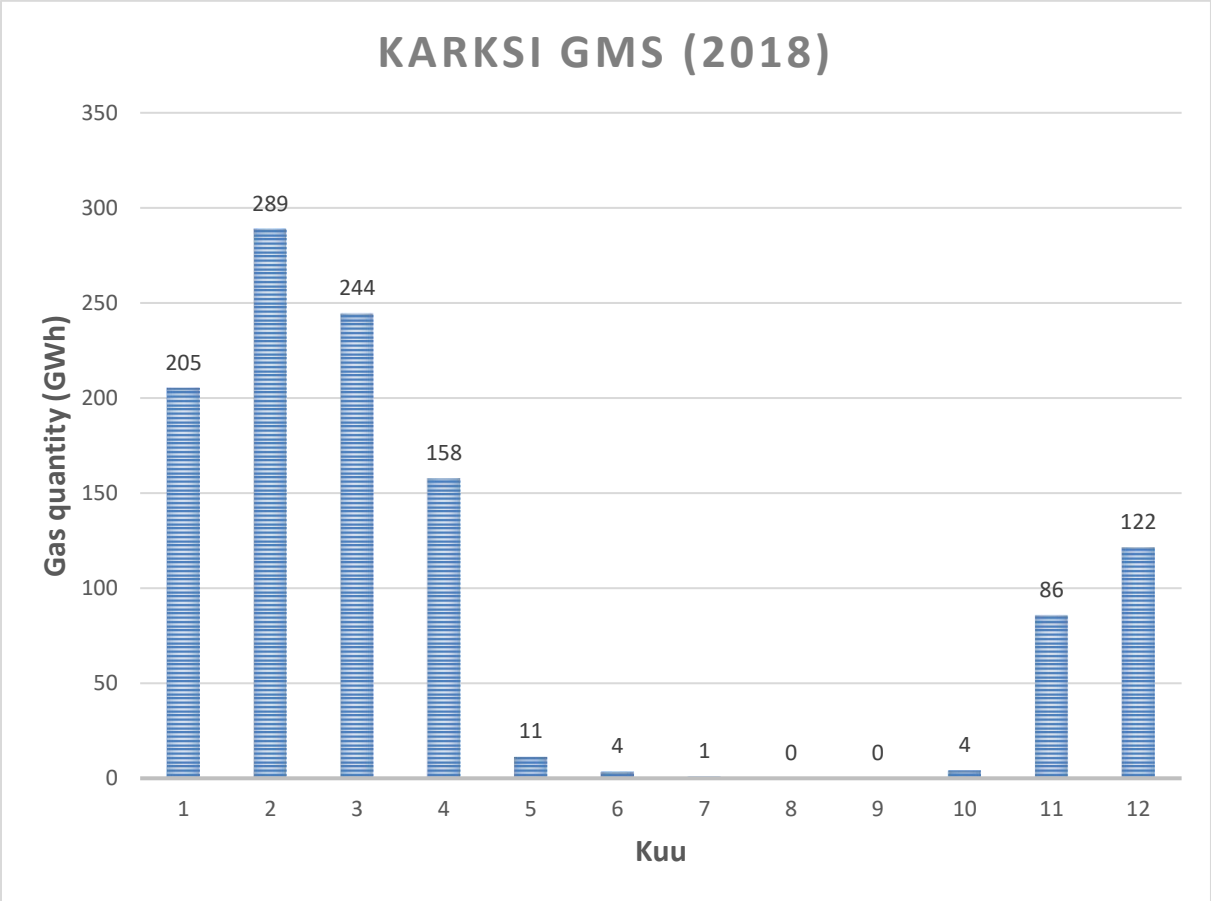

Figure 37. Gas flows via Karksi GMS in 2018. Source: Elering AS

- With the Russian transmission network:

1) Izborsk - Tartu - Rakvere (DN 500, MOP 55 bar) transmission pipeline and via the Värska GMS (max capacity 42 GWh/24h);

In 2018 72% of gas entered via Värska GMS. An overview of the monthly gas quantities entered via Värska in 2018 in given in Figure 38.

[11] DN – nominal diameter of gas pipe in mm;
MOP – max operating pressure.

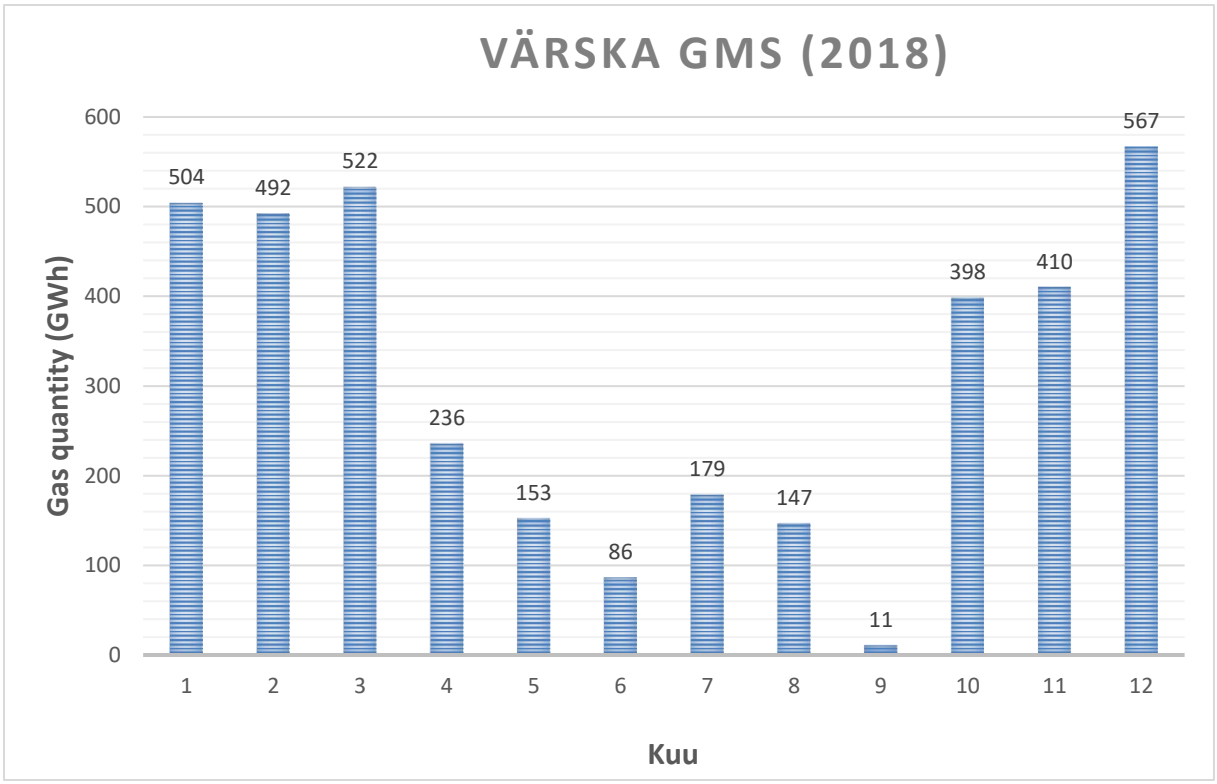

Figure 38. Gas flows via Värska GMS in 20187. Source: Elering AS

2) Narva border crossing: Kohtla-Järve-Narva double pipe (DN 400, MOP 30 bar, max capacity 31,5 GWh/24h) transmission pipeline and via the Ivangorod GMS.

In 2018 6% of gas entered via the Narva border crossing. An overview of the monthly gas quantities entered via Narva in 2018 in given in Figure 39.

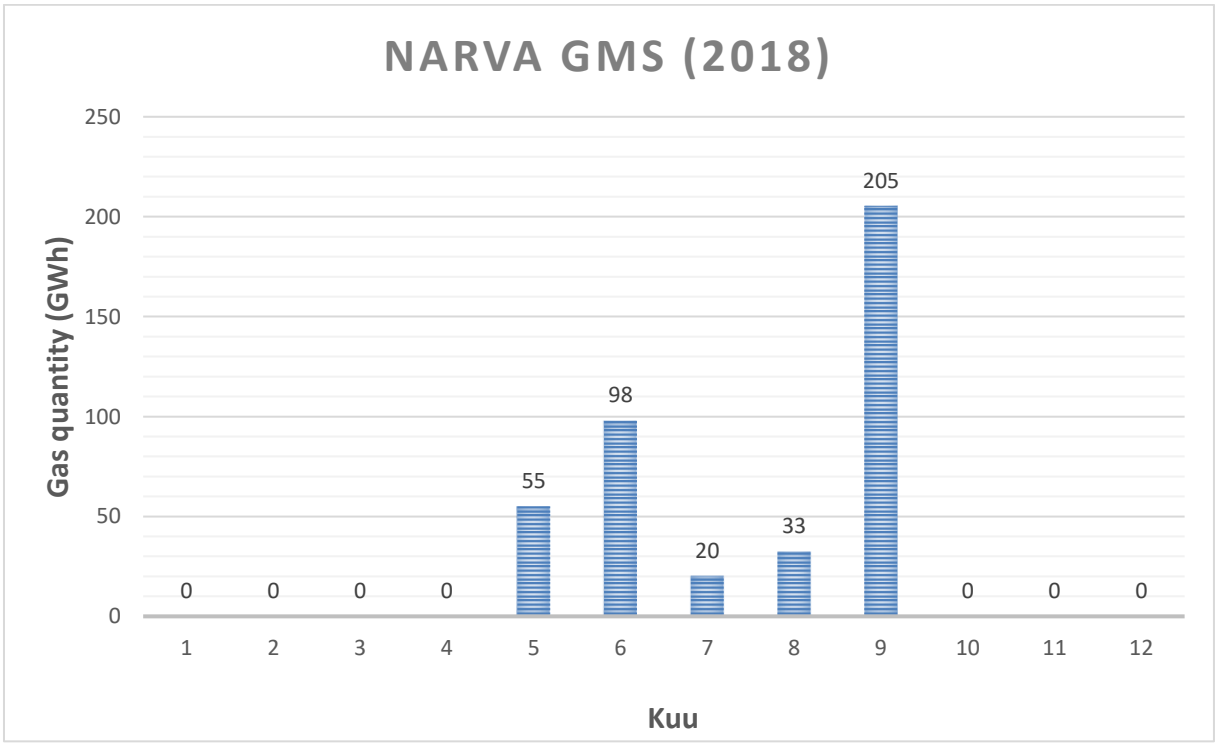

Figure 39. Gas flows via Narva border crossing in 2018. Source: Elering AS

Two other transit pipelines go through the southern part of Estonia (Izborsk-Inčukalns (DN 700, MOP 55 bar) and Valdai-Pskov-Riga (DN 700, MOP 55 bar), through which gas is transported from Russia to Latvia in the summer months and vice versa. This input has no connection with the Estonian transmission network. From this pipeline also the Misso area is supplied with gas (metering in the Misso GMS and distribution from the Misso GDS, 110 clients, distribution network of 3,7 km, max capacity of 0,25 GWh/24h, consumption in 2018 was 1,09 GWh or, 0,02% of the gas entering Estonia).

AS Gaasivõrk (a daughter company of Eesti Gaas AS) is the largest undertaking providing distribution service. It possesses the 1 486 km long distribution network. Besides AS Gaasivõrk there are other 20 natural gas distribution network companies, which possess 648 km of distribution networks.

Balance services
(Article 41(6)(b) and (8) of Directive 2009/73/EC)

Pursuant to the regulation of the balance responsibility laid down by the Natural Gas Act every market participant is responsible for its balance. In order to maintain the balance a market participant may enter into respective contract with a supplier or a balance provider. The balance provider of a household consumer is the seller. The system operator (Elering AS) is responsible for the balance of the whole system and there may be many balance providers which act on the market. The calculation methodology for the price of balance gas and standard conditions for balance agreements are subject to approval with the Competition Authority.

In 2014 Regulation No. 312/2014 of EU Commission was enforced, which establishes a network code on gas balancing of transmission networks. In major part the Regulation took effect on 10 October 2015.
Article 2(2) of the Regulation 312/2014 provides that the Regulation shall not apply to balancing zones in Member States that hold a derogation on the basis of Article 49 of Directive 2009/73/EC.
Article 49 explains that Directive 2009/73/EC shall not apply to Estonia, Latvia and/or Finland until any of those Member States is directly connected to the interconnected system of any Member State other than Estonia, Latvia, Lithuania and Finland.

The Ministry of Economic and Communications took up the position that as of today the derogation from Article 49 of Directive 2009/73/EC is not applicable to Estonia. In cooperation with the European Commission the Estonian state has committed to harmonize the national law with the directly applicable regulations of the European Commission. The European Commission has accepted the Estonian wish to apply directly applicable regulations at the latest by the end of 2020. Thus, in 2018 the activity was still pursuant to the Natural Gas Act.

Elering AS, as the system operator, is responsible for ensuring balance in the Estonian gas system and for the determination of balances of the balance providers. Currently, there are 10 balance providers in Estonia:

- Alexela Energia AS;
- Baltic Energy Partners OÜ;
- Scener OÜ;

- Eesti Gaas AS;
- Eesti Energia AS;
- Elektrum Eesti OÜ;
- Trafigura Trading (Europe) Sàrl;
- JSC Latvijas Gaze;
- Verum Plus AG
- Lietuvos Energijos tiekimas UAB.

On 15 January 2016 the Competition Authority approved by its decision the new standard terms and conditions for the balance contracts of Elering AS. The system operator started to apply them from 1 April 2016. The changes ensure better organisation of the data exchange necessary for the balance administration.

The Competition Authority approved the price determination methodology for balance gas of Elering AS in 2008. The balance gas prices are disclosed on the system operator's web site (https://elering.ee/bilansiteenus-0).

According to the data of the system operator Elering AS an average 2018 balance gas price in buying was 20,54 €/MWh and in sales 23,68 €/MWh.

Time spent for establishing new network connection and quality of gas supply (Article 41(1)(h,m) of Directive 2009/73/EC)

Pursuant to the Natural Gas Act a network operator is required, within the technical limits of the network, to provide a network connection for all persons located within its network area who submit respective application. The Act does not limit the time for establishing a new connection but if a network operator cannot establish the connection, it shall provide reasons for refusal of an application from a connectee in writing within 30 days as of the receipt of the application. The Competition Authority is unaware of any case of refusal by the network operators to establish a new connection.

The gas security of supply minimum requirements were established by amending of the Natural Gas Act in the beginning of 2007. Pursuant to the amendments a fault caused sequential duration of a disruption of gas supply may not last longer than 72 hours and an annual total duration of disruptions may not be longer than 130 hours. The records on the duration of disruptions shall be kept by network operators.
In 2018 no security of supply minimum requirements' violations related complaints were recorded.

If the system operator has reliable information that an event may take place which could to a significant extent adversely affect the supply situation or that a supply disruption has already taken place, it shall notify the Ministry of Economic Affairs and Communications and the Competition Authority of the event or the disruption and of the market measures applied by the system operator.

The Ministry of Economic Affairs and Communications together with the Competition Authority shall analyse the information received and the market measures implemented by the system operator. If the analysis reveals that for the purpose of ensuring security of supply it is

necessary to implement any of the measures of compulsory reduction of gas demand prescribed in the Natural Gas Act, the Ministry of Economic Affairs and Communications shall communicate this to the crisis committee of the Government of the Republic and then make a proposal to the Government of the Republic to allow the implementation of the measures of compulsory reduction of gas demand named in the plan of measures required to eliminate the supply disruption or to alleviate the effects of such disruption.

In the aforesaid situation the following measures, amongst others, can be implemented:

1) reduction of the supply of gas to persons who use gas for purposes other than producing of heat;

2) authorisation of reduction of the supply of gas to undertakings producing heat;

3) authorisation of a reduction in the temperature of the water released for the heating of residential buildings;

4) obligating the undertakings producing heat to use back-up (reserve) fuel.

In 2018 there were no supply disruptions.

3.1.3 Access to network and network service price regulation
(Articles 41(1)(a, f), (6)(a), (8), (10) and (12) of Directive 2009/73/EC)

Pursuant to law the price regulation is uniformly applied to all network operators regardless of their size. In 2018 there were 23 authorised distribution network undertakings in Estonia and a single transmission network undertaking (operator of the transmission network).

For the purpose of the Natural Gas Act a connection to the network is connecting to the network of a consumer installation, a gas production facility, a network, belonging to another network operator or a LNG terminal. Within the technical limits of the network, a network operator is required to provide a network connection for all persons located within its network area who have submitted respective application for connecting unless this endangers the security of supply for earlier connectees. A network operator must provide reasons to any refusal of an application from a connectee in writing within 30 days as of the receipt of the application. On the basis of an application from a connectee, the network operator shall issue the conditions for connection to the network, which shall be:

- transparent and unambiguous;
- comply with the principle of equal treatment of similar connectees;
- take into consideration the technical and economic conditions of each particular connection;
- take into consideration the interests of network development and stability;
- take into consideration the technical capacity of the network.

A connection fee shall not be collected upon replacement of a consumer installation connected to a network or in the event of a change of ownership of the consumer installation provided that the following conditions are met concurrently:

- connection to the existing consumer installation occurs such that the supply point remains unchanged;
- no application is made for a change in the combined usage capacity or consumption regime set out in the contract entered into by the former customer;

- technical conditions for connecting the connectee's consumer installation continue to exist.

Pursuant to law the Competition Authority shall approve the following network service price and methodologies separately for:

- the prices for transmission service;
- the prices for gas transit service;
- the prices for distribution service;
- the methods for calculating connection fees;
- the methods for determining the price for balancing gas.

Natural gas network charges

The Natural Gas Act prescribes the principles of price regulation. The main principles are:

- The calculation of the price of a network service shall be based on the average (arithmetic mean) amount of sales during the last three calendar years. If necessary, further analysis shall be conducted in order to determine the amount of sales.
- The calculation of the price shall not include the following expense items:
  - expenses related to monetary claims unlikely to be collected;
  - sponsorship, gifts and donations;
  - expenses unrelated to principal activities;
  - fines and late interest charged on the basis of legislation;
  - financial expenses;
  - expenses related to income tax charged on dividend payments;
  - other expenses not required for the performance of duties imposed on the undertaking by law.
- The expenses included in the price calculation must be justified, and must be based on cost efficiency and allow the undertaking to carry out the tasks prescribed by law.
- The following principles shall be observed in assessing justified operational expenses:
  - observation of the dynamic of expenses in time and its comparison with the dynamics of the consumer price index;
  - detailed analysis (including expert assessments) of the justifiability of different expense components;
  - comparison of the undertaking's expenses and of the statistical parameters calculated on their basis with the expenses of other similar undertakings.
- In the calculation of justified return and depreciation of fixed assets, as components of the price, only the assets which are necessary for the provision of network service are taken into account. The calculation of justified profitability and depreciation of fixed assets included in the price calculation shall be based on the fixed assets required for the provision of network service. The fixed assets shall not include:
  - - long term financial investments;
  - - intangible assets, except for software licences;
  - - fixed assets acquired with grant aid (including targeted funding);
  - - fixed assets acquired with funds obtained from connection fees;
  - - fixed assets which the undertaking does not use for the purpose of providing network service.
- The value of fixed assets shall be accounted on a continuing basis and shall continue to be accounted also when the ownership of the undertaking or of the assets changes

- The calculation of justified profitability shall be based on the principle according to which the value of the fixed assets required for the provision of network service, plus the amount of working capital, is multiplied by the weighted average cost of capital.
- The amount of the working capital referred to under subsection 7 of this section shall be five per cent of the average (arithmetic mean) turnover of the last three calendar years. If necessary, a further analysis shall be conducted in order to determine the amount of the working capital.
- The calculation of the depreciation charge for fixed assets shall be based on the value of the fixed assets required for the provision of network service and the rate of depreciation which corresponds to the technical useful life of the fixed assets.

Pursuant to section 23(4^1) of the Natural Gas Act the Competition Authority developed uniform method for calculating the prices of network services, which specifies the application of the principles laid down in the Act and serves as the basis for the formation of transmission and distribution service prices and their approval.

In 2018 the Competition Authority developed and established unified methodology for calculating gas network service price for the distribution undertakings.
In 2018 the Competition Authority started the development of unified methodology for calculating gas network service price for the gas transmission network. The biggest difference from existing methodology is the introduction of the entry and exit prices. Such approach corresponds to Commission Regulation (EU) 2017/460 establishing a network code on harmonised transmission tariff structures for gas.
In 2018 public consultations were carried out on the document. The methodology for gas transmission system price was established by the Competition Authority in 2019. The methodologies are published on the Competition Authority's website www.konkurentsiamet.ee.
For the collection of input data, the Authority has also elaborated and published on its web site respective tables together with the guidelines of filling out. For the approval of the network charges the tables have to be filled out. The tables are comprehensive and include technical data and detailed accounts: profit and loss statement, and data on acquired fixed assets. The undertakings also submit their investment plan and the previous years' and expected sale volumes of network services.
Based on the data it is possible to verify whether cross-subsidising between various areas of activity is avoided, as pursuant to the Natural Gas Act undertakings are obliged to separate in their accounts the cost, income, liabilities and assets related to network service, sale of gas and other activities.

In March and July 2018 the approval of new transmission service prices took place, which brought along the approval of the change of almost all distribution networks' prices.
In 2018 the Competition Authority made 35 decisions on the approval of gas distribution network prices. All valid network service prices are published on the Authority's website www.konkurentsiamet.ee.

The prices for network services shall be disclosed at least 90 days prior to their entry into force. In addition to the web site the prices shall be disclosed at least in one national daily newspaper. If a gas undertaking sells both network services and gas, it is obliged to separate in customer bills the data on the network service and the sale of gas. Besides network service prices an undertaking has to disclose on its own web site also the method for connection charge calculation and standard terms and conditions for the contracts.

The Natural Gas Act prescribes that the quantity of sold gas shall be given both in cubic metres and in parallel also in kilowatt-hours. The quantities of gas shall be converted into the kilowatt-hour energy units according to the Grid Code for the functioning of gas network (issued by regulation of the Minister of Economic Affairs and Communications, enforced on 1 August 2017).

Charges or connecting to network

A network operator has the right to collect justified connection fees from connectees. The basis for calculating the connection fee is ensuring of the coverage of justified expenses for the connection, including:

- investments, including the construction of metering system;
- compliance with environmental requirements;
- compliance with quality and safety requirement.

The connection fee shall be calculated by the network operator based on the method for connection fees' calculation, which the undertaking shall approve with the Competition Authority.

The network operator may charge a justified fee for a modification of the technical conditions of gas consumption or production if the modification is initiated by the consumer or producer or another gas undertaking. If the modification is initiated by the network operator, the operator shall bear the costs.

3.1.4 Cross-border issues
(Articles 41(1)(g), (6)(c), (8), (9), (10) and (12) of Directive 2009/73/EC)

The Estonian national gas system has been configured in the way that in normal situation the gas streams of other Member States do not flow through the pipelines used for national gas supplies and the transit streams (between Russia and Latvia) are guided through separate transit pipelines from which in Estonia only Misso settlements is locally supplied (see also Figure 10 *Transmission network of the Estonian gas system*).

Infrastructure cross-border projects

The Natural Gas Act obliges the system operator to comply with the requirements laid down for the transmission network operator by Regulation (EC) No 715/2009 of the European Parliament and of the Council, including the principles of capacity allocation, the rules of congestion management, balancing rules, trading with capacity, transparency requirements and storage of data, as well as the obligation to ensure third party access to the transmission network. In addition, the Natural Gas Act obliges the system operator to cooperate within the European framework of natural gas transmission system operator's network in the regional and the European Union level for effective functioning of the gas market.

In 2016 the system operator Elering AS established the method for natural gas capacity allocation, congestion management and the conditions for access to the cross-border infrastructure. Prior to establishment he method was endorsed by the company's management board and agreed upon with the Competition Authority.

On 1 March 2018 Elering AS submitted to the Competition Authority its ten years' development plan 2018-2026. Pursuant to the Natural Gas Act the Competition Authority monitors and evaluates the investments for the implementation of the development plan from the point on view of their compliance with the pan-European network plan and presents in its annual report an assessment of the system operator's developments plan. The assessment may contain recommendations to changes in the investment plan.

According to the plan the construction of bi-directional gas metering station in Karksi and Puiatu gas compression station to be commissioning by the end of 2019 are scheduled. These measures would enable bi-directional gas flows between Estonia and Latvia.
On 22 April 2016 the Competition Authority and Energiavirasto (the Finnish energy market regulator) entered into agreement on the allocation of cross-border cost for the Estonia-Finland connection pipe (Balticconnector) to be constructed and on the Estonia–Latvia border crossing reconstruction.
On 15 July 2016 the European Union decided to co-finance the Balticconnector project in the extent of 75% and the reconstruction of the Estonia-Latvia gas connection (construction of Karksi bi-directional gas metering station and Puiatu compressor station) in the extent of 50%. According to the conditions of financing the construction of Balticconnector commenced in May 2017 and ends in June 2020. The Estonian and Finnish system operators are operating on the basis of a time schedule, according to whish Balticconnector shall start commercial operation on 1 January 2010.
The construction of Estonia-Latvia connection commenced in July 2016 and ends in December 2019.

3.1.5 Fulfilment of relevant legally binding decisions by regulator and market participants

(Articles 41(1)(b, d, r), (3), (4)(d), (5), and Article 43 of Directive 2009/73/EC)

Pursuant to the Natural Gas Act the task of the Competition Authority is to fulfil and apply all relevant legally binding decisions of the ACER and the European Commission. The same is provided for by Article 41(1)(d) of Directive 2009/73/EC.

In 2018 the ACER did not take Estonia-related decisions.

Pursuant to the Natural Ga s Act and legislation enacted on its basis the Competition Authority executes state supervision over the activities of market participants, including the functioning of the natural gas market in a manner prescribed in the Act and other legislation.

Obligations of the Competition Authority are prescribed in Chapter 5 „State Supervision" of the Natural Gas Act. Amongst others the Authority has the following obligations:

- Scrutinise the price of the gas to be sold to household customers and the compensation of household customers for price differences;
- Scrutinise the terms and conditions of balance agreements and the prices for providing the balance responsibility service;
- Approve the methods for calculating connection fees;
- Approve the prices for network service;

- Issue and revoke authorisation (activity licences), establish and amend the conditions of activity licences, and monitor compliance with those conditions;
- Proceed applications for obtaining the temporary derogation from third party access, make the corresponding decisions and forward these to the European Commission;
- Prepare, publish and submit reports on security of supply to the European Commission by 31 July of the given year;
- Monitor compliance of the use and management of cross-border connections with the requirements of competition and effective functioning of the market;
- Scrutinise that market participants comply with the conditions set out in this Act and the legislation enacted on its basis, and perform the relevant obligations (separate accounts, independence of the network operator, publication of information, etc.);
- Prepare and publish annual reports on the results of supervision with regard to the obligations of the Competition Agency;
- Exercise supervision over compliance with the requirements established in respect of system operators and LNG terminal operators in Regulation (EC) No 715/2009 of the European Parliament and of the Council and with the guidelines established in Article 23 of the same regulation;
- Perform other functions imposed on the Competition Authority by Regulation (EC) No 715/2009 of the European Parliament and of the Council;
- Make sure that no cross-subsidisation occurs in the case of transmission, distribution and supply activities and the handling of LNG;
- Assess and monitor the investments made in order to implement the network development plan and provide recommendations for modifying the development plan if necessary;
- Transmit to the European Commission the information described in Article 3 of Council Regulation (EU, Euratom) No 617/2010.

The Competition Authority is independent in exercising the functions entrusted to it by virtue of law. In an event of abuse of market dominant position or other competition related violation cannot be resolved pursuant to special law, it can be proceeded on the basis of the Competition Act.
Pursuant to law the Competition Authority has the obligation and right to make decisions and issue mandatory enforcement orders within its competence, to put an end to the violation of the Natural Gas Act or other legislation enacted on its basis. In the event of failure to perform an obligation imposed by an enforcement order, a penalty payment may be imposed pursuant to the procedure provided in the Substitutive Enforcement and Penalty Payments Act. Both an enforcement order and a decision are administrative legislation acts that may be challenged with an administrative court. The latter may invalidate the decision or the enforcement order.

3.2 Enhancement of competition in natural gas market

3.2.1 Wholesale market of natural gas
(Article 41(1)(i,j,k,l,u) and Article 47(3) of Directive 2009/73/EC)

The developments in the natural gas market in Estonia during the last 10 years are illustrated in Table 22. The table reflects only natural gas indicators as biomethane was not guided into the gas network in 2018.

Table 22. Import of gas to Estonia

Period	Import of gas			
	Eesti Gaas AS	Nitrofert AS	Other importers	Total
	GWh	GWh	GWh	GWh
2008	7 875	2 258	0	10 133
2009	6 626	252	0	6 878
2010	7 371	0	0	7 371
2011	6 647	0	0	6 647
2012	6 941	221	0	7 161
2013	5 943	1 302	0	7 245
2014	5 636	0	4	5 640
2015	3 997	0	1 019	5 016
2016	5 020	0	462	5 482
2017	4 589	0	644	5 233
2018	4 812	0	428	5 240

In 2018 the gas quantity that entered the Estonian transmission network was in total 5240 GWh and from Misso entered 1,09 GWh. To consumers was sold 5243 GWh while the difference -2 GWh was the change of in the volume of reserve in the system.

The entry of gas into the transmission network in the border crossing points in 2018 is characterised by Figure 40.

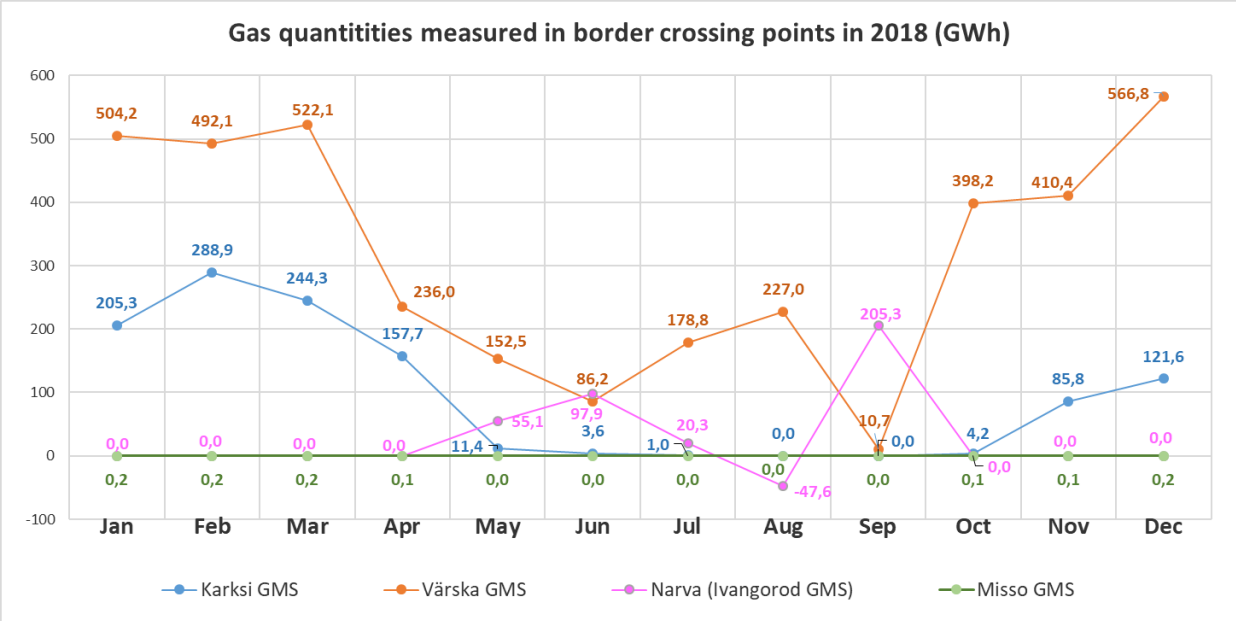

Figure 40. Entry of gas to Estonian gas system in border crossing points in 2018.
Source: Elering AS

It is seen from the Figure that the main gas entry border crossing point in 2018 was Värska, with a share of 72% of the total import. The share of Karksi border crossing point was 21% and the share of Narva 6%.

Wholesale prices of natural gas

Pursuant to the Natural Gas Act the wholesale prices and the prices of sale to non-household customers are not subject to regulation and the importers-wholesalers sell gas at negotiated price both to non-household customers connected to the network and for re-sale to other network undertakings.

In the beginning of March 2016 OAO Gazprom and Eesti Gaas AS concluded three-years gas supply contract for the years 2016-2018. The details of the contract are confidential.
By estimates, in 2018 the Russian gas price for Estonia increased 20 per cent. An average import price from Russia in 2018 was in Estonia 21,40 €/MWh.

The import contracts of other gas wholesalers are short term ones (with duration of a year or less). A precondition for the activity of such wholesalers is that generally they shall be able to offer better price than that of Eesti Gaas AS.

The Competition Authority monitors the situation in the wholesale market and if necessary, applies measures to bring the activities of market participants into compliance with law. Eesti Gaas AS has the biggest share in the wholesale market at the moment in Estonia, being 72% in 2018.
Pursuant to Section 9^1 of the Natural Gas Act the gas undertaking in market dominant position must, at the request of the Competition Authority, provide evidence regarding compliance of the selling price with the coverage of the necessary operating expenses, ensure that the necessary investments can be made and a justified return earned. If the selling price does not comply with the necessary operating expenses, necessary investments and a justified return conditions, then the Competition Authority has the right of require bringing into compliance.
Pursuant to section 16 of the Competition Act any direct or indirect abuse by an undertaking or several undertakings of the dominant position in the goods market is prohibited.

The Competition Authority analysed the compliance of the Eesti Gaas AS purchase price (data obtained during the sales marginal verification proceedings) compliance with an average natural gas purchase price in the European Union (source of data: the World Bank). In 2018 an average European natural gas price was 7,68 USD/MMBTU or 22,19 €/MWh
Thus, in 2018 an average wholesale price in Estonia was by 3,6% more favourable than the EU average price.

Transparency of natural gas wholesale prices

The largest importer of gas to the Estonian market is Eesti Gaas AS (with market share of 94%). They sell natural gas to larger consumers and to other natural gas network undertakings on the basis of a price formula or at price fixed in the contract.

The Competition Authority cannot influence the import and/or supply price, which is formed in the contractual basis, but can verify whether the gas seller fulfils legal requirements and sells gas at equal conditions to all customers, and does not abuse its position on the goods market.

Effective competition in wholesale market

In 2015 the paradigm of the Estonian wholesale market of gas changed when besides the monopolistic provider of gas (OAO Gazprom) new market participants started to supply and offer gas.

In 2018 the share of the gas brought from Lithuania by other importers grow up to 17% of the total gas entering the transmission network. The reason was the increase of competitiveness of the price (gas together with transmission charges) of gas delivered from Lithuania.

Figure 41 presents the 2018 total monthly quantities of gas that entered the transmission network and the quantity supplied from Lithuania. The gas quantities delivered from Lithuania have been bought from the gas exchange GET Baltic, which by their origin are from the Klaipeda LNG terminal and also the rest of the Gazprom gas delivered to Lithuania.

The Klaipeda LNG terminal plays an important role in the formation of the maximum price of the Baltic countries. The use of the gas originating from the Klaipeda LNG terminal in Estonia is limited due to the addition of the Latvian and Lithuanian transmission charges to the gas delivered to the Estonian border.

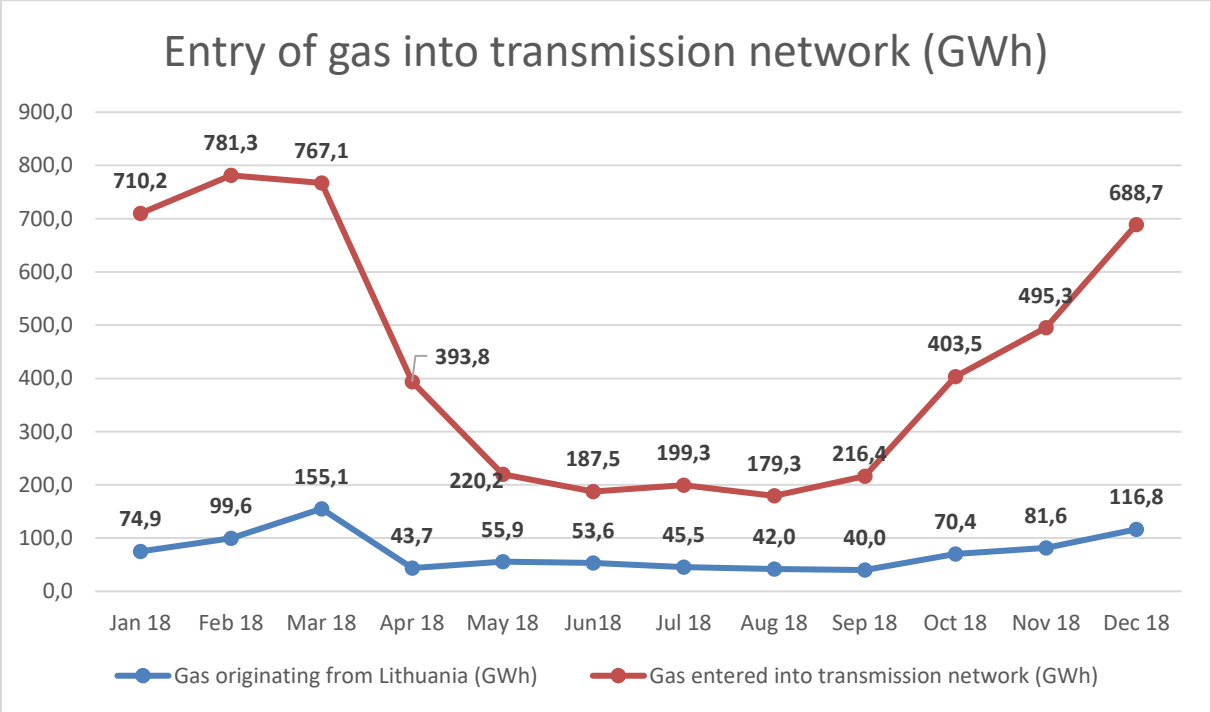

Figure 41. Monthly entry of gas into transmission network and Lithuania originating gas in 2018

The smallness of the market and the declining consumption trend may hamper a long term success of gas sellers (importers). In order to fix the functioning wholesale market new projects in the framework of TEN-E (projects of common interest) have been initiated for the creation of new import possibilities (regional LNG terminal and interconnection of the Baltic countries' gas networks with the European gas networks (GIPL)).

In spite of the smallness of the market there are 10 registered balance providers in Estonia, 4-5 of them are operating actively. Figures 42 and 43, and table 23 give an overview of sharing of

the retail market between balance providers on the basis of consumption volumes. The biggest is the Eesti Gaas AS consumption portfolio, which comprised 79,5% as of the end of 2018 and during 2018 they have managed to grow their portfolio by 2,5%, compared to the end of 2017.

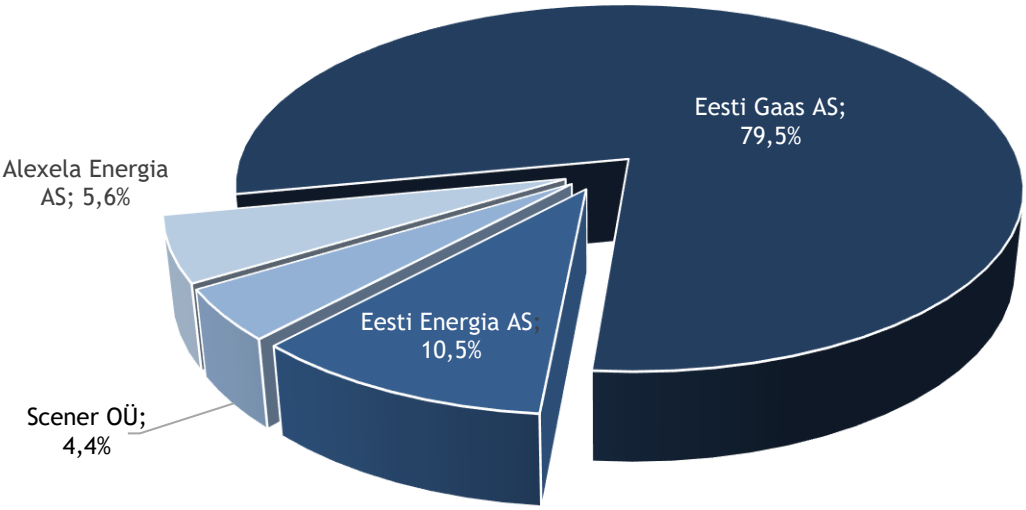

Figure 42. Portfolios of gas balance providers on the basis of consumption volumes as of December 2018 (Source: Elering AS)

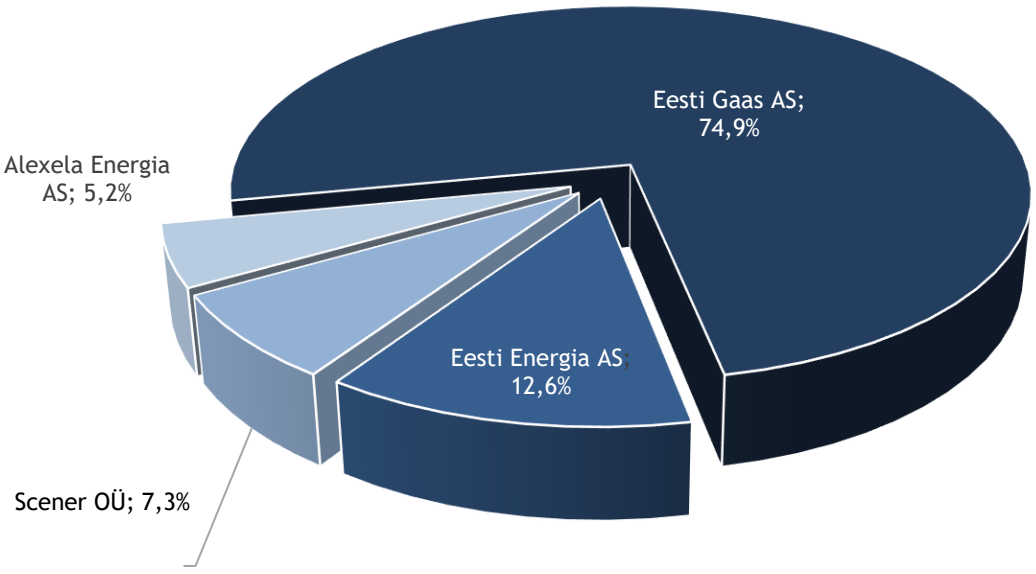

Figure 43. Average market shares of balance providers on the basis of 2018 consumption volumes (Source: Elering AS)

Table 23. Market shares of balance providers on the volume of consumption (Source: Elering AS)
Does not sell gas to final consumers

Share of consumption, %	December 2018	December 2017	2018 average market share
Alexela Energia AS	5,6	2,3	5,2
Baltic Energy Partners OÜ*	0	0	0
Eesti Energia AS	10,5	14,9	12,6
Eesti Gaas AS	79,5	77,0	74,9
Elektrum Eesti OÜ	0	0	0
Scener OÜ	4,4	5,8	7,3
Trafigura Trading (Europe) SARL*	0	0	0
Verum Plus AG*	0	0	0
JSC Latvijas Gāze	0	0	0
Lietuvos Energijos Tiekimas UAB	0	0	0

3.2.2 Retail market of natural gas

In 2018 the estimated share of Eesti Gaas AS in the retail market was 68% (in 2017 their share was 55%), followed by Eesti Energia AS with a 14% market share. AS Alexela, Scener OÜ and he distribution network undertakings have equal shares of about 6%.

The retail market is shared between the natural gas using activities according to Figure 44 (on the basis of 2017 data, as Statistic Estonia has not yet published the 2018 data).

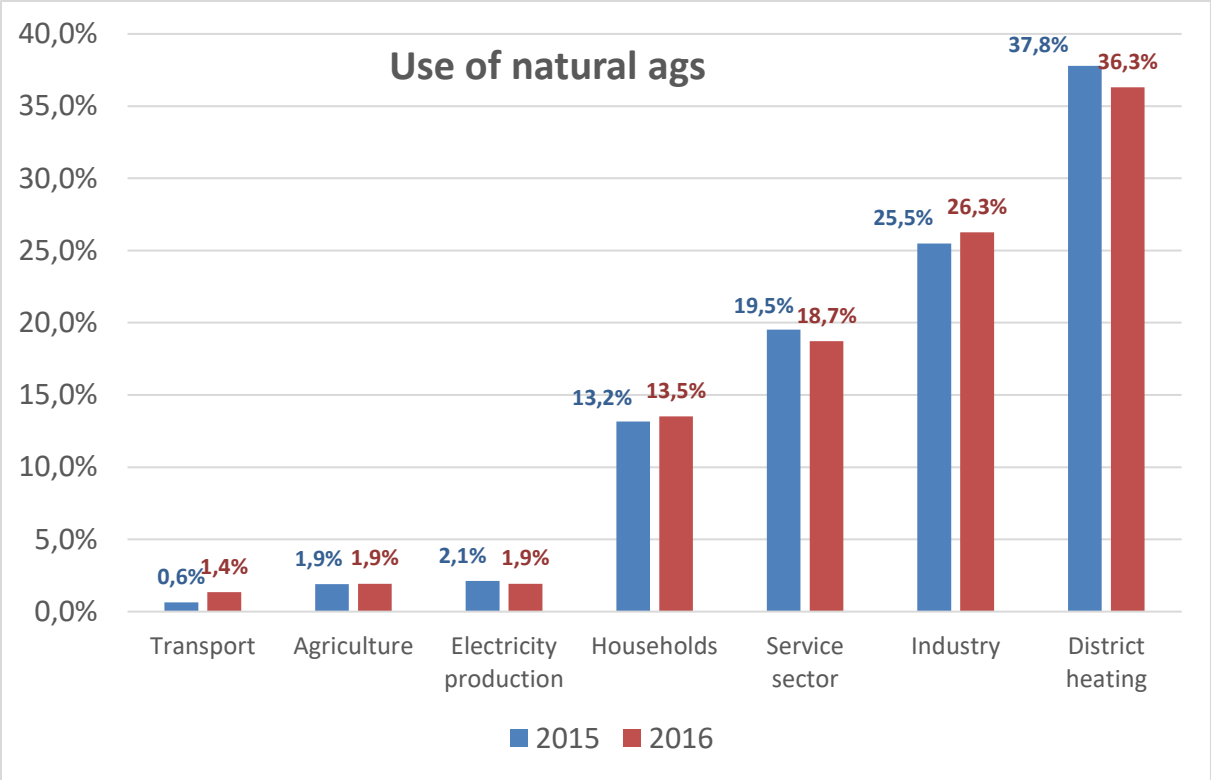

Figure 44. Use of natural gas in 2015-2016. Source: Statistics Estonia KE061

Retail prices of natural gas

Eesti Gaas AS is obliged to approve the sales margin included in the price of the gas sold to household consumers with the Competition Authority. The undertaking adds the approved sales margin to the import price of gas. The Competition Authority verifies annually the weighted average price of sold gas in a calendar year does not exceed the weighted average purchase price in the same period. Otherwise the gas undertaking in the market dominant position settles the balance with consumers.

Data on an average price of gas sold to final consumers in 2018 in comparison with the 2017 price are presented in below Table 24. Besides gas the price includes also the network service and excise duty) on gas, but does not include VAT.

Table 24. Final consumer average prices of gas. Source: Statistics Estonia, KE31 and KE32

Customer group	2017 price, €/MWh	2018 price, €/MWh	Change %
Household consumer, annual consumption < 20 GJ	42,03	40,15	-4,5
Household consumer, annual consumption 20 - 200 GJ	34,38	34,41	0,1
Household consumer, annual consumption > 200 GJ	29,60	32,98	11,4
Eligible consumer, annual consumption < 1000 GJ	29,61	33,46	13,0
Eligible consumer, annual consumption 1000 - 10000 GJ	28,65	32,02	11,8
Eligible consumer, annual consumption 10 - 100 TJ	27,70	31,55	13,9
Eligible consumer, annual consumption 100 - 1000 TJ	25,79	31,55	22,3
Eligible consumer, annual consumption 1000 - 4000 TJ	26,74	30,59	14,4

Consumer expenses for buying natural gas are also influenced by the increase in the excise duty, which is presented in Figure 45.

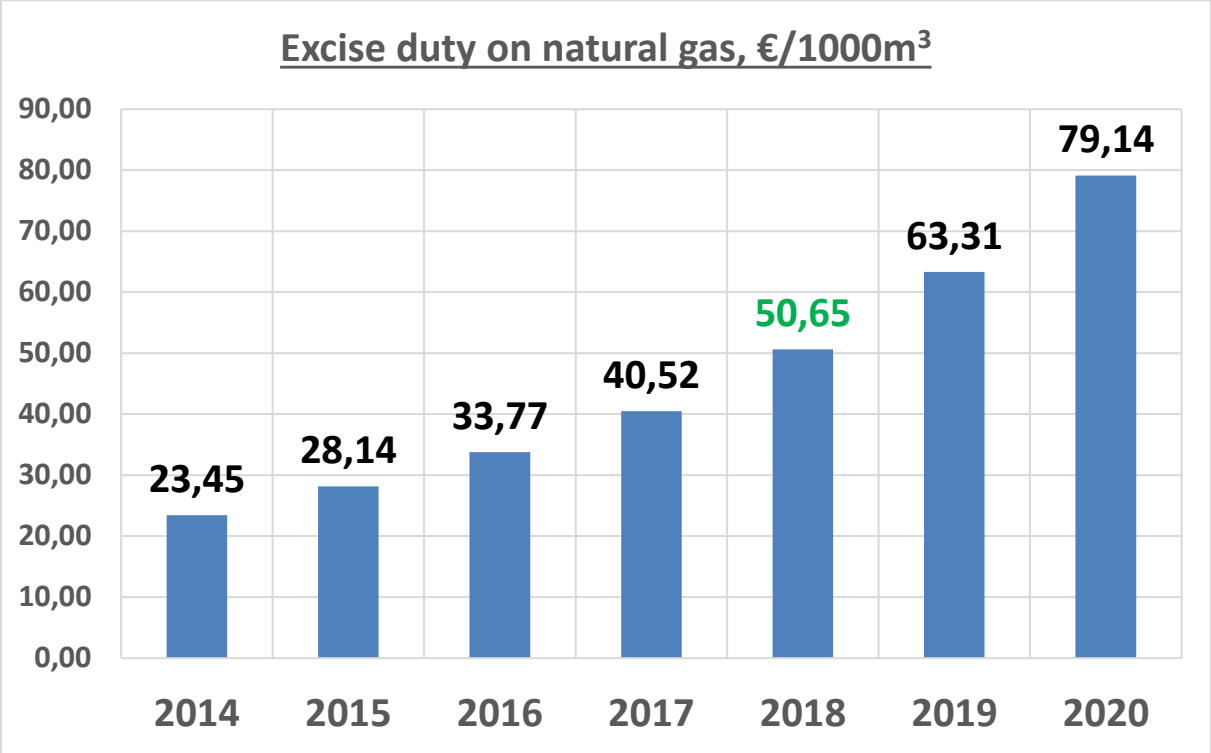

Figure 45. Increase in excise duty on natural gas provided by law

In December 2018 the Alcohol, Tobacco, Fuel and Electricity Excise Duty Act was amended (enforced on 1 January 2019) by which an undertaking with intensive gas consumption was defined, to which a preferential excise duty rate (11,30 €/1000m3) is imposed

Transparency of natural gas prices

In the retail market an undertaking (the seller of gas) itself forms the sale price of gas according to the purchase price from the importer and/or supplier and its sale margin. The formation of the gas sale price in general is not subject to regulation, except the sales margin of an undertaking in the market dominant position.

Pursuant to the Natural Gas Act household consumers have to be notified about changes in the price 30 days in advance. The retail sale prices of the gas sold to final consumers are disclosed on the web sites of the gas undertakings. Based on the published market prices consumers can decide whether they wish to switch the seller of gas.

The price of natural gas in the household consumer price in 2018 constituted 66% of the sum of bill (see figure 46). In 2017 respective indicator was 68%.

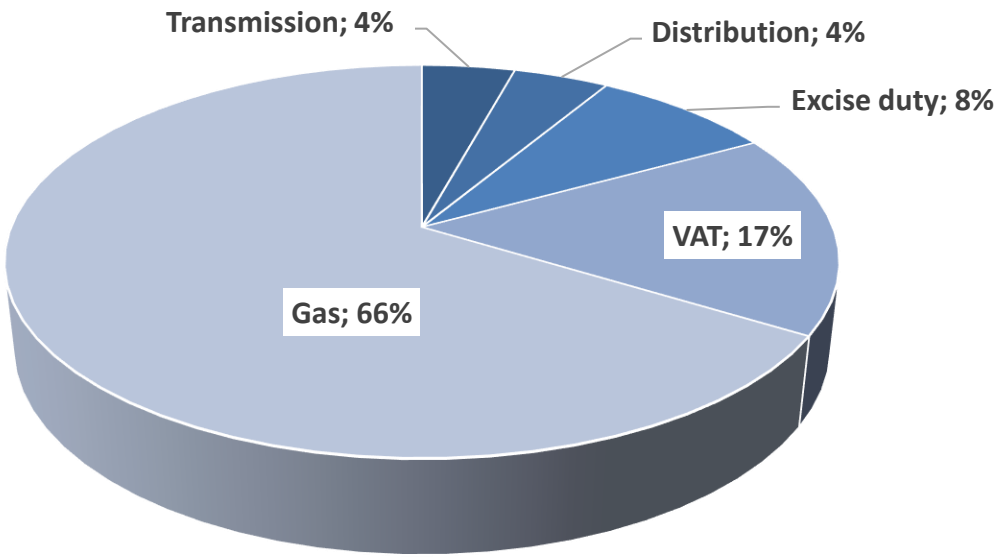

Figure 46. Final consumer price components or households in 2018.

Effective competition on natural gas retail market

8 retail suppliers and 18 network undertakings were active in the market in 2018.

The number of customers in the retail market of gas is 51,8 thousand, 47,7 thousand of them are household consumers. In 2018 2058 customers changed/switched the supplier of gas, 1827 of them were households (in 2017 respective numbers were 3029, 2798 were households). Thus, in 2018 4% of the clients changed the supplier of gas. For the time being 42 undertakings have submitted their notification to the Register of Economic Activity (20 sellers of gas and 22 network operators). By estimates the number of active undertakings in the retail market is 8, as gas traders and 18, as network operators.

The seller of gas must make it possible to terminate the contract for the sale of gas on account of the customer's switching to another seller, within 14 days starting from the presentation of the corresponding request by the customer, provided the obligations arising from the contract to be terminated have been performed. The new contract for the sale of gas takes effect at the turn of the calendar month. By the estimates of the Competition Authority the process of changing sellers is going on consistently.

3.2.3 Enhancement of effective competition in natural gas market
(Articles 41(1)(p) and 41(4)(b) of Directive 2009/73/EC)

Article 41(4)(b) of Directive 2009/73/EC provides that Member States shall ensure that regulatory authorities are granted the powers enabling them to carry out investigations into the functioning of the gas markets, and to decide upon and impose any necessary and proportionate measures to promote effective competition and ensure the proper functioning of the market.

The Natural Gas Act does not grant the regulatory authority (the Competition Authority) the powers pursuant to Article 41(4)(b) of Directive 2009/73/EC, but the Competition Authority can herewith apply the provisions of the Competition Act. However, as the Estonian gas system is supplied with natural gas to a large extent by only one supplier who does not belong to the European Union, then both the wholesale and retail markets' effective development is limited and the regulatory authority has no possibility to give recommendations for the formation of prices pursuant to Article 41(1)(p) of Directive 2009/73/EC.

The Competition Authority is in the position that inspire of the single market dominant market player (Eesti Gaas AS) there is competition in the natural gas market. Eesti Gaas AS has assimilated into the competition situation and maintained a big part of its earlier market, as the largest trader can of a good price in most cases and that is why the customers have no motivation to change their supplier, although the latter has become extremely simple.

As estimated the competitiveness of the Lithuania originating gas has fallen in 2019, but its impact on the Estonian market is unknown, as beginning from 2019 Elering AS in its report on the metering data of border crossing points does not bring out separately the gas quantities supplied from Lithuania.
As Lithuania decided to stay out of the common market of the Baltic countries and Finland in the first place, in the result of analysis of the transmission prices that were under consultations it can be said that when Lithuanian gas is transported to Estonia its price does not cheapen considerably, remaining in-between 0,82 and 1,1 €/MWh.

In connection with the starting up the FinEstLat market region from 1 January 2020 the Competition Authority is expecting enhancement of competition.

Formation of common gas market of Baltic countries and Finland

In order to develop a common gas market (entry-exit area) of the Baltic countries and Finland respective working group has been established within the group of the Baltic and Finnish gas market coordination group.

In 2018 cooperation on the creation of a common gas market (entry-exit area) of the Baltic countries and Finland continued between the regulators of the Baltic states and Finland (the Competition Authority, *Public Utilities Commission* (LV), *National Commission for Energy Control and Prices* (LT) and *Energiavirasto* (FI)).

In cooperation of the regulators of the Baltic States and Finland an international procurement was carried out in 2017 in order to find a consultant to carry out a Study „Creation of pricing model for the natural gas entry-exit points in the Baltic-Finnish region". The procurement was financed in equal parts by the regulatory authorities of the Baltic countries and Finland.

10 consultancy firms participated in the procurement (tendering). The winner was selected and the contract awarded to Baringa Partners LLP (UK). The main contractor was the Finnish regulator and the procurement took place on the basis of the Finnish law. The work was ready in 2018.

The procurement was divided into two phases. In the first phase the Consultant compared the postage stamp reference price model, the reference price model of the distance weighted with

capacity and the matrix reference price model, and made a proposal for the selection of a final method for the region.
On the basis of the data the regulators selected the most suitable model – the postage stamp[12] reference price model.

On the second phase the Consultant developed a price model for the region together with computer tool in MS Excel. In addition, the Consultant developed a comparative model of the postage stamp reference price model, pursuant to Regulation (EU) No 2017/460 with the reference price model of the distance weighted with capacity and a tool for finding relatios for the users of network. The final report on the study can be found on the website www.konkurentsiamet.ee. (Tariff model for natural gas entry-exit system for the common Baltic-Finnish market).

The postage stamp reference price method is simplest to apply and also the most understandable, it needs least of data and has constant tariffs in different entry-exit points. It appeared from the Baringa study that the postage stamp reference price method enables best social welfare, because in case of equal entry prices always the cheapest offered gas gets to the market. Herewith, a common exit price would bring along a very high movement of money flows between the system operators, which considerably increases the risks of system operators and thus, reduces their willingness to participate in such arrangement of the market.
The system operators of the Baltic countries and Finland agreed upon a compromise of the gas market region, which as well follows the requirements of Regulation (EU) No 2017/460 and contains the following market arrangement:

- each state is considered as a separate entry-exit system and for each state an entry-exit price is calculated separately by the regulatory authority with the postage stamp reference price method
- the market zone entry prices are equalised by adaptation, based on a benchmark study of a European Union Member States' average together with an error marginal;
- the connection points between the gas systems of the market zone states are abandoned in the calculation of reference prices (tariffs are not applied), including the connection points of the Inčukalns underground gas storage (LV);
- the money flows between the system operators are minimised with different exit prices of the states.

A prerequisite for the creation of common entry-exit area is agreement of the participating countries' system operators on the allocation of income (*ITC – inter-transmission system operator-compensation*). In further developing of a common market zone of the Baltic countries and Finland some disagreements took place with Lithuanian system operator Amber Grid AB, supported also by the Lithuanian regulator. The source for the disagreement was the wish of Lithuania to get a compensation from other parties through ITC for the investments in the Lithuanian gas infrastructure.

In order to move forward with the creation of a common market Finland, Estonia and Latvia decided to continue the development of a common market (FinEstLat market zone) that would start operation in 2020. To confirm this the Estonian, Finnish and Latvian regulators signed on

[12] Postage stamp reference price method – the method calculates a common entry price and a common exit price for each entry-exit point, which covers the sales income either on the basis of ordered/forecasted capacity or forecasted gas flows.

14 November 2018 the joint protocol of intentions for the creation of FinEstLat market zone of gas.
The key words of the protocol of intentions are:

- the FinEstLat common market zone is launched on 1 January 2020;
- until 2022 the FinEstLat market zone consists of two balance zones (Finnish and Estonian-Latvian balance zone)
- In 2022 Finland will join the Estonian-Latvian zone and a common entry-exit region is established;
- tariffs do not exist in the connection points between the market region states
- in all entry points of the market region the price is equal - 142,77 €/MWh/day per annum;
- the exit price of each country is different and is established in accordance with the national regulation in force.

3.3 Security of natural gas supply

From the security of supply point of view, it is important to know what is the share of natural gas in the final consumption in Estonia. The share of gaseous fuels (natural gas, liquefied petroleum gas (LPG), oil shale gas) was in 2016 (Statistics Estonia has not yet published the 2017 and 2018 data) 6% of the final consumption of energy (Figure 473), majority of this constitutes natural gas. Oil shale gas and petroleum gas cannot be considered as a source of common supply, as they cannot replace natural gas.

Compared to 2015 the share of liquid fuel in 2016 has decreased by 2% and the share of gaseous fuel and electricity has for both increased by 1%. The 2018 data will be published by Statistics Estonia in the end of summer 2020.

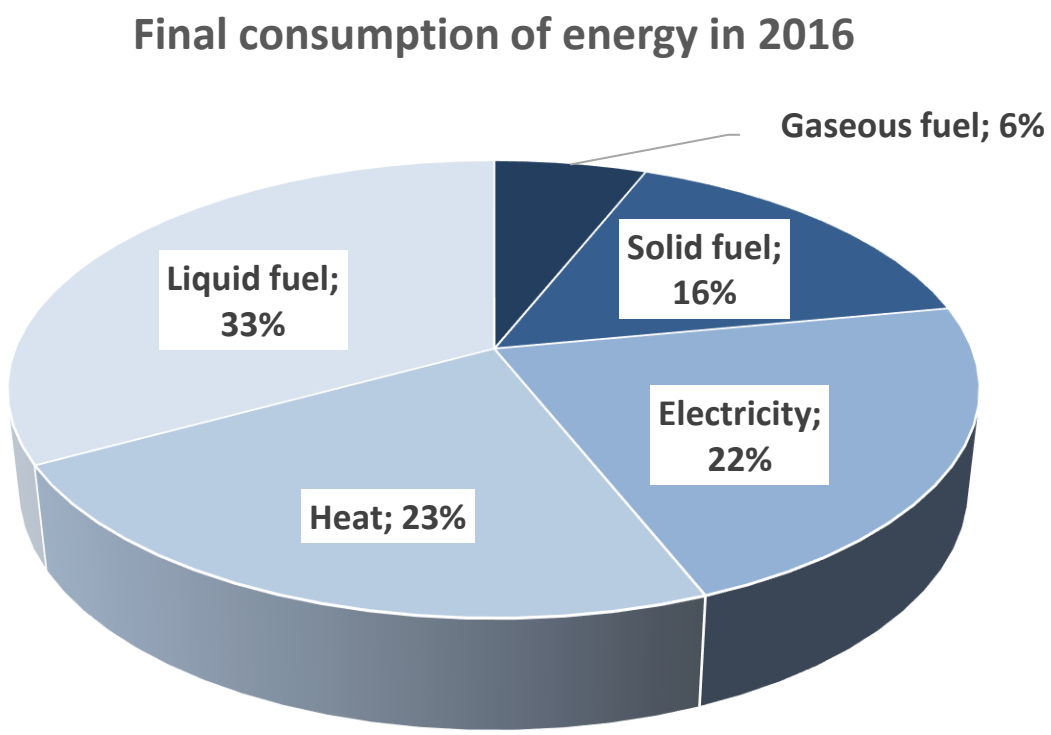

Figure 47. Final consumption of energy. Source: Statistics Estonia KE05

It appears from Figure 48 below that for the production of heat in 2017 most of all wood fuel was used (48%). The share of natural gas was 24% (in 2015 it was 29%). Oil shale has also considerable share in the production of heat (14% together with the oil shale gas).

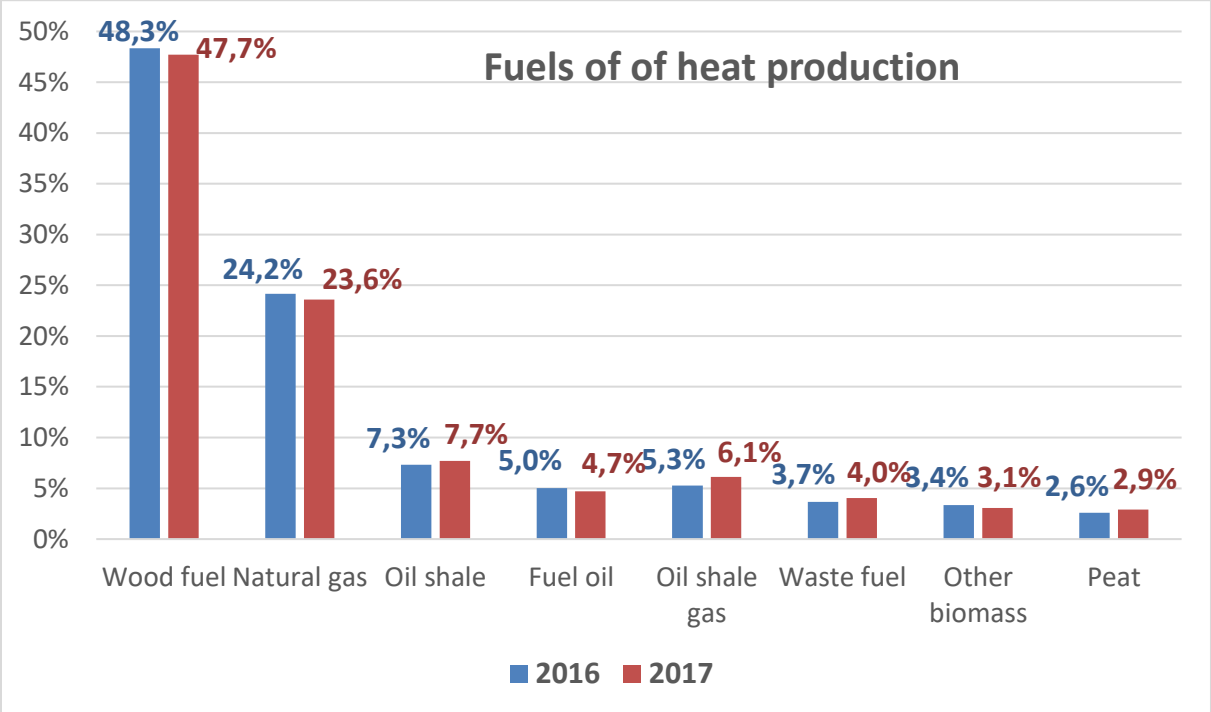

Figure 48. Fuels used for production of heat. Source: Statistics Estonia KE024

3.3.1 Monitoring of balance between supply and demand

The environmental friendliness or, the low carbon emission level compared to other fossil fuels, comfort of use, high efficiency and the latest developments in the global gas market (emerging of liquefied gas market, introduction of usage of unconventional gas reserves, use of bio methane) has made gas an attractive fuel in the world.

Gas may be considered as a fuel which enables replacing of high carbon emission fossil fuels until the mankind will be able to go over to the use of fully climate neutral energy sources.

At the same time Estonia has not been able to support wider use of natural gas due to energy and supply security considerations. In addition, also the subsidising of conversion to wood fuel in heat production contributes to the decrease of gas consumption. This has brought the gas consumption in Estonia to a continuing falling trend. The gas demand history is presented in Figure 49 (without house consumption of Elering AS).

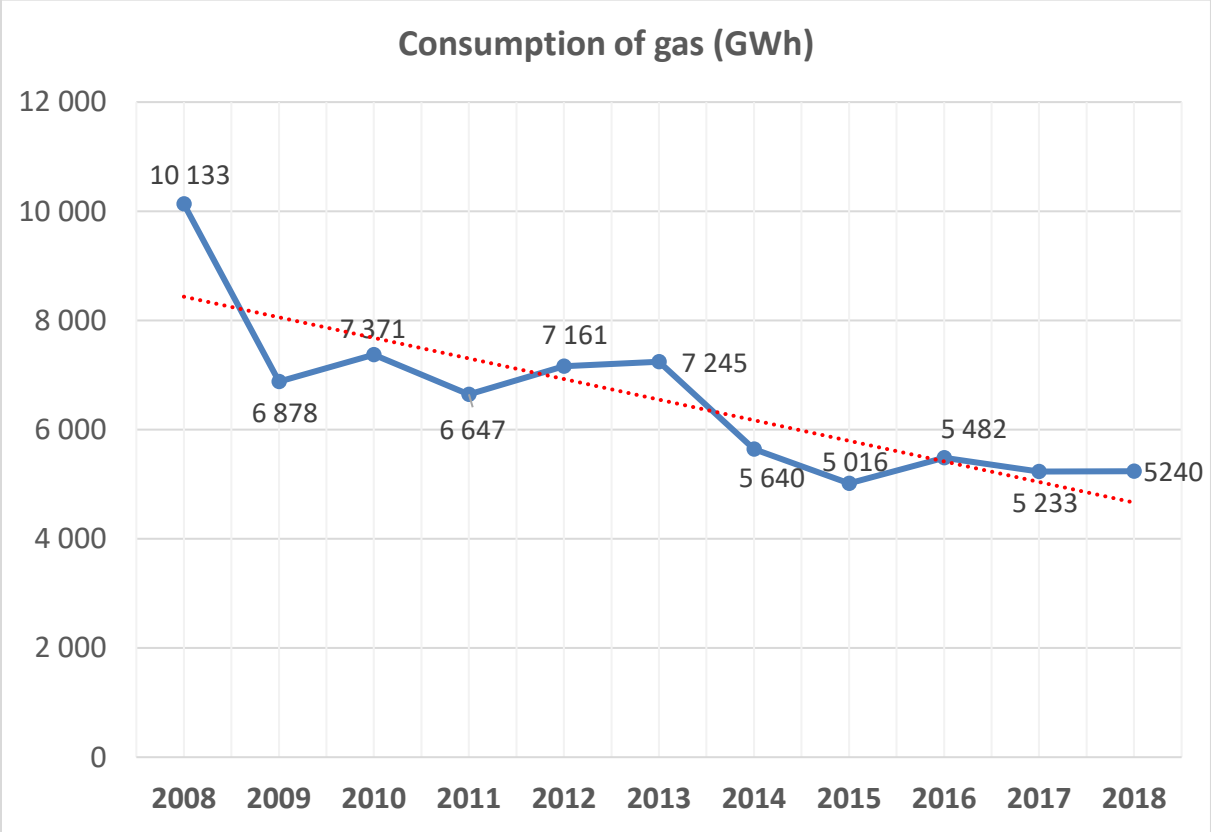

Figure 49. Use of natural gas in Estonia. Sources: Statistics Estonia (KE06) and Elering AS

Possible consumption of gas transported through the transmission network in the next ten years will depend on quite many factors (like energy policy, economic growth, energy efficiency of the housing sector and alike). In the ten years' 2018-2027 development plan by Elering AS the base projection for the next ten years is 5000 GWh annually. By pessimistic scenario the consumption of gas will fell below 4000 GWh per annum by 2027 and by optimistic scenario will grow up to more than 6000 GWh per annum in the same period.

There is no lack of import capacity as the gas network has been built up to satisfy considerably higher demand. The Estonian transmission system transfer capacity at 40 bar incoming pressure is up to 147 GWh per day (24h). The capacities of individual connections are as follows:

- Karksi connection with Latvia 73,5 GWh daily (at the incoming pressure of 40 bar)
- Värska connection with Russia 42,0 GW daily (at the incoming pressure of 40 bar)
- Narva connection with Russia 31,5 GW daily (at the incoming pressure of 22 bar)

From the second half of 2016 the gas flows changed considerably, Värska became the main route of supply and during bigger capacity need the Karksi connection provided support. This change is caused by lower transmission cost, if gas is supplied directly from Russia. In 2018 summer period also the Narva connection was used.
The transit countries' transmission cost, which rise the gas price, is a major obstacle also in the supply of gas from Lithuania. Implementation of the joint entry-exit region of the Baltic countries (according to the action plan from 2020) should ease this problem. Although, at the moment Lithuania will be out of the common region and on the Latvia-Lithuania border a transmission tariff may occur also in 2020. The actual capacity of connections during the last 10 years is presented in Figure 50.
Earlier in the period from May to October the summer time supply of the Estonian gas system took place basically directly from Russia via Värska and Narva connections. From November to April Estonia was supplied from the Inčukalns underground storage via the Karksi connection.

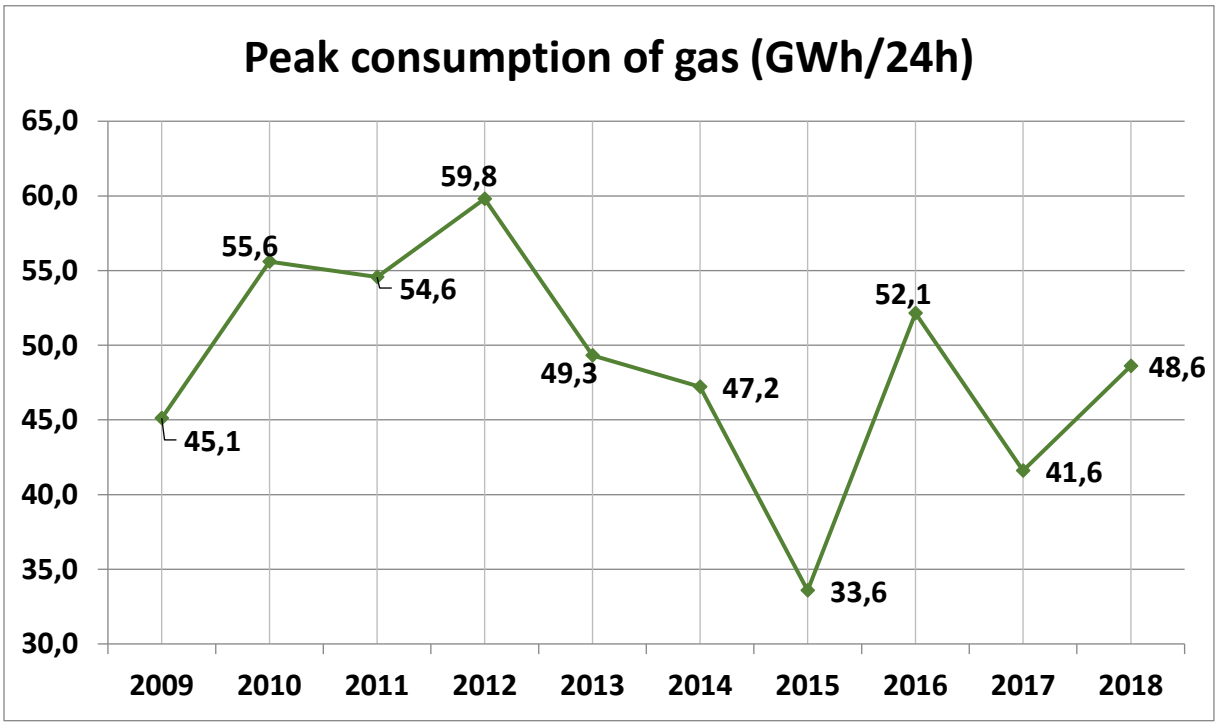

Figure 50. Used peak capacities of cross-border natural gas connections. Source: Elering AS

The highest daily consumption of the last 10 years was in February 2012, which constituted 40% of the technical transmission capacity. Thus, so far there have not been problems with natural gas supply to satisfy the Estonian gas demand.

Conclusion: in Estonia the consumption of gas has been in balance with the supply. Considering the capacity of the connections of the Estonian transmission system it is

possible to import gas in considerably larger volumes, but due to the competitive positions of gas the consumption projection for the future is decreasing.

3.3.2 Anticipated future demand and available free capacity together with planned additional volumes

The biggest gas demand in the last 20 years was in 2006, when the annual gas consumption was 10 595 GWh. Compared to 2006 the consumption in 2018 almost 51% lower.

The general decrease in the Estonian gas consumption projection is first of all related to the falling production volumes of industries and the termination of operations, as well as to the changes in the structure of the consumption of fuels (expansion in the use of renewables). The current national energy sector development plan does not support investments in gas using installations and in connection with that it is estimated that also in the future the gas consumption trend in Estonia will be falling.

Most of the gas in Estonia is used for heat production. Further decrease in sale of gas from the network is foreseeable also in the coming years. This is related to the conversion of district heat supply undertakings to the use of renewable fuels and more efficient energy use by the consumers of heat. This trend cannot be balanced with the expected growth in the use of gas in the transport sector.

In 2017 Väo 2 co-generation plant, which supplies heat to the Tallinn district heating network, started its full capacity operation (heat production up to 400 GWh).

In 2019-2020 Mustamäe cogeneration plant will be commissioned (with electrical capacity of 10 MW and thermal capacity of 47 MW)
By the estimates of Elering AS in average 5 MW of heat production capacity fuel is replaced with indigenous fuels until 2020 (an indicative annual production of 30 GWh and respective reduction of natural gas consumption by approx. 32 GWh). After that the replacement will be at the rate of 2 MW per annum (an indicative annual production of 12 GWh and respective reduction of natural gas consumption by approx. 12 GWh).

Arising from all these circumstances the Competition Authority estimates continuing decrease in gas consumption, for what reason the Estonian annual consumed volume of gas in the coming years will be 5 000 to 5 200 GWh per annum, depending on weather conditions.

In order to stop the decrease in gas consumption and to support of new importers' coming to the market it is necessary to undertake parallel thoroughly weighted steps both to find new spheres of using for gas, as well as the development of new supply chains. For the use of natural gas as the transportation fuel Eesti Gaas AS has 11 compressed gas filling stations and Alexela Energia AS has 4 stations as of the end of 2018. In 2018 Eesti Gaas AS sold 85,7 GWh compressed gas (in 2017 68 GWh), 37,8 GWh out of this was domestic green gas (biomethane).

The market of natural gas can develop only through new gas consumers coming to the market and the merger of markets, as the steadily decreasing Estonian market, if taken separately, is too small to attract serious investors. A solution could be interconnecting of the Finnish and Baltic countries' markets into a joint region.

In addition to erecting new cross-border connections and enlargement of existing ones Estonia and its neighbours have to create possibilities for access to the market of new gas sellers (importers), alternative to OAO Gazprom. One of such solutions is the operation of liquefied natural gas (LNG) terminal in Lithuania and widening of GET Baltic gas exchange services. In addition, it is necessary to create new interconnections with other European countries (Lithuania - Poland connection GIPL, Estonia - Finland connection Balticconnector) and erection of a regional LNG terminal.

The supply of gas that corresponds to the demand in Estonia is ensured in the coming years. The key question of the Estonian gas market development is investing in infrastructure to facilitate coming of new suppliers to the market and suspending of the downward trend in gas consumption.
As in the development of the district heat supply sector the tendencies of converting to indigenous renewable fuels and reduction of the district heating areas is visible, one of the serious factors for creating demand for gas could be the development of natural gas based local heating systems. In addition, using natural gas as the transport fuel should be more widely developed.

3.3.3 Measures to cover peak demand or supply deficit
(Article 41(1)(t) of Directive 2009/73/EC)

The measures to cover peak demand or shortage in supply can be related either to the infrastructure or to the supply chain.

Infrastructure related measures to cover peak demand or supply deficit

The peak consumption of gas is characterised by Figure 22. The maximum transmission network capacity is 147 GWh per day (24h).

Regulation (EU) 2017/1938 stiulates that risk analyses shal be conducted at national, regional and Union level. Herewith the results of the Union levele risk analyses shall be take into account at regional level and the results of the regional risk analysis at member state level.
Regulation (EU) 2017/1938 places Estonia in the Belorussian risk group and Nord-Eastern region's risk group.

In 2018 the Competition Authority submitted the updated national risk assessment of the Estonian gas system to the Ministry of Economic Affairs and Communications.

Aforesaid Regulation provides that the competent authority of each Member State shall ensure that the necessary measures are taken so that in the event of a disruption of the single largest gas infrastructure, the technical capacity of the remaining infrastructure, determined in accordance with the N – 1 formula is able to satisfy total gas demand of the calculated area during a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years. This shall be done taking into account gas consumption trends, the long-term impact of energy efficiency measures and the utilisation rates of existing infrastructure.

Under the N-1 criterion an evaluation of the situation of disruption of the single largest gas infrastructure is considered. The N-1 criterion is fulfilled if in the event of disruption, the supply of gas can be re-arranged so that supply disturbances are avoided.

The N-1 criterion, expressed as percentage shall be equal or higher than 100%. In such case the infrastructure corresponds to the security of supply requirements.
Article 7(4)(f) of Regulation 201/1938 clarifies that in the evaluation of the security of gas supply the maximal interconnection capacity of each border entry and exit point shall be taken into account.

Thus, the Estonian infrastructure norm N-1 can be found on the basis of the following calculation:

$$N-1 = \frac{EP_m + P_m + S_m + LNG_m - I_m}{D_{max}} \times 100 = \frac{14 + 0 + 0 + 0 - 7}{6{,}7} \times 100 = 104{,}5\ \%$$

where

EP_m - Karksi connection with Latvia 60,0 GWh/24h + Värska connection with Russia 39,0 GWh/24h + Narva connection with Russia 24,0 GWh/24h = 131 GWh/24h;
P_m - GWh/24h;
S_m - As the gas storage is located outside Estonia and the limiting factor is the capacity of the interconnecting pipelines, then the for the purpose of N-1 criterion the gas from the Latvian storage or reserved gas cannot be taken into account: 0 GWh/24h;
LNG_m - GWh/24h;
I_m - Karksi connection with Latvia 68,0 GWh/24h;
D_{max} - Maximum consumption of gas in the last 20 years was on 19 January 2006 with the peal load of 70,3 GWh (6,7 million m^3/24h).

However, taking into account the gas consumption trends (close down of the fertiliser production in AS Nitrofert, conversion to the use of wood chips by many large heat producers) the peak demand is better characterised by the daily consumption in February 2012 of 59,85 GWh/d (5,7 million m^3/d). One day of exceptionally high demand, occurring with a statistical probability of once in 20 years, was considered in the risk analysis.

Conclusion: as in Estonia the N-1 is higher than 100%, the regulatory infrastructure norm is met.

Supply related measures to cover peak demand or supply deficit

As the Estonian gas system is supplied with natural gas mainly by one supplier, which does not belong to the European Union (Russia), in the event of supply problems of that supplier Estonia has no possibility to compensate the deficit from alternative suppliers.

The European Network of Transmission System Operators for Gas (ENTSOG) carried out a union-wide simulation of gas supply and infrastructure disruption scenarios. In the simulation ENTSOG considered 3 different gas supply cases in all scenarios:

- high demand in winter during two months (January –February);
- a period of 2 weeks of exceptionally high demand, occurring with a statistical probability of once in 20 years;

- one day (Peak Day) of exceptionally high demand, occurring with a statistical probability of once in 20 years.

According to ENTSOG in usual conditions in case of disruption of supply from Russia in two months (January - February) there will be no demand limitations. The deficiency gas volume will be compensated with increased gas out from the Latvian gas storage and Klaipeda LNG terminal.

During two-week cold period (as it is likely once in 20 years) in case of disruption of supply from Russia the deficit in Estonia will be less than 2% of the demand (due to limited infrastructure).

In one cold day (as it is likely once in 20 years) in case of disruption of supply from Russia the deficit in Estonia will be less than 14% of the demand (due to limited infrastructure).

In case of shortage the regulation laid down in the Natural Gas Act shall be applied. Section 26^2(1) of the Act provides that if the system operator has reliable information that an event may take place which could to a significant extent adversely affect the supply situation, the system operator shall notify the Ministry of Economic Affairs and Communications and the Competition Authority of the event or the disruption and of the market measures implemented by the operator.

The Ministry of Economic Affairs and Communications shall analyse together with the Competition Authority the received information and the market measures implemented by the system operator. If the analysis reveals that for the purpose of ensuring security of supply it is necessary to implement any of the measures of compulsory reduction of gas demand, the Ministry shall communicate this to the crisis committee of the Government of the Republic and then make a proposal to the Government to allow the implementation of the measures of compulsory reduction of gas demand named in the plan of measures required to eliminate the supply disruption or to alleviate the effects of such disruption.

Pursuant to the Natural Gas Act the following measures, amongst others, can be implemented:

- reduction of the supply of gas to persons who use gas for purposes other than production of heat;
- authorisation of reduction of the supply of gas to undertakings producing heat;
- authorisation of a reduction in the temperature of the water released for the heating of residential buildings;
- obligating the undertakings producing heat to use back-up (reserve) fuel.

Conclusion: security of supply in the region is improved by the Klaipeda LNG terminal and by the Balticconnector that is to be commissioned in 2020. In an event of supply disruptions Estonia could apply non market measures only when considerable alternative natural gas suppliers do not exist in the market. However, considering gas market development (common region with Finland and other Baltic states) the probability of application of possible non market measures is in the future is essentially zero.

4. Consumer protection and resolution of disputes in electricity and natural gas sectors

4.1 Consumer protection

4.1.1 In electricity sector
(Directive 2009/72/EC, Annex 1, implementation of consumer protection measures)

According to the Electricity Market Act the protection of household consumer rights is shared between the Competition Authority and the Consumer Protection Board (from 1 January 2019 Consumer Protection and Technical Regulatory Authority). The Act provides that supervision over the provision of network services, offer or sales of electricity or making electricity available in the market in another manner shall be exercised by the Consumer Protection Board to the extent of the authority granted to it by the Consumer Protection Act. In the case of a dispute which has arisen in relation to a connection contract, network contract or electricity contract, and which the parties have been unable to settle, the consumer is entitled to file a complaint with the Consumer Disputes Commission or another person or body or court which deals with similar complaints. As previously, the Competition Authority shall resolve complaints of one market participant about activity or inactivity of other market participant which contradicts the Electricity Market Act or other legislation enacted on its basis. Both the contract and the invoices shall include information on the consumer rights and resettlement of disputes.

Customer contracts

In the evaluation of the Competition Authority the field of customer contracts is a well-regulated and customer interests are sufficiently protected. Pursuant to the Electricity Market Act standard terms and conditions of contacts for the provision of network services, for connecting to the network and for universal service are subject to approval by the Competition Authority. In the approval of standard conditions the Competition Authority follows the principle of proportionality of contract conditions, aiming at balance of rights and obligations of both undertakings and customers. An important criterion in the approval of standard terms and conditions is also their compliance with the Law of Obligations Act.

Network contracts shall be made in writing, electricity contracts may be made by oral agreement, if both parties agree to do so. Network contract shall include the following information:

- the name, registration number in the Commercial Register, address and other contact details of the network operator;
- a description of the services;
- the principal parameters of the quality of the services provided or a reference to a document which is accessible and which sets out such parameters;
- the time of initial connection to the network pursuant to a connection contract entered into for connection to the network or for amendment of the consumption or generation conditions;
- a description of the maintenance services provided;
- the manner of obtaining relevant information concerning the charges payable on the basis of the contract;

- in the case that the delivery of an invoice submitted on the basis of a contract is delayed, or where an incorrect invoice is submitted due to an error of the network operator, or in the case of an advance payment by the consumer, information concerning the way in which the consumer may obtain a refund, set-off or compensation in the manner of a payment or any other manner;
- if the quality of services provided on the basis of a network do not conform to the terms and conditions of the contract, information concerning the way in which the consumer may obtain a refund or compensation in the manner of a payment or any other manner;
- at least two different payment options in the case of charges payable under a contract;
- information concerning the procedure for dealing with complaints;
- the term of the contract.

The following data shall be presented in an electricity contract:

- the name, registration number in the Commercial Register, address and other contact details of the seller;
- main parameters of the electrical energy;
- the manner of obtaining relevant information concerning the charges payable on the basis of the contract;
- in the case that the delivery of an invoice submitted on the basis of a contract is delayed, or where an incorrect invoice is submitted due to an error of the network operator, or in the case of an advance payment by the consumer, information concerning the way in which the consumer may obtain a refund, set-off or compensation in the manner of a payment or any other manner;
- at least two different payment options in the case of charges payable under a contract;
- information concerning the procedure for dealing with complaints;
- the term of the contract.

A network contract or an electricity contract may be made for an unspecified term or for a specified term. As a rule, contracts for an unspecified term are concluded. The network operator may amend the conditions of contract only if such amendments are objectively justified and necessary in order to take into account a change in the circumstances and provided the amendments have been approved by the Competition Authority. A network operator shall give notice of the cancellation of a network contract at least 30 days in advance. The notice shall set out the grounds for cancellation of the contract and the date of termination of the contract.

An electricity contract which is made for an unspecified term shall terminate upon termination of the network contract entered into in respect of the network connection through which electricity was sold on the basis of the electricity contract. An electricity contract may be entered into by a market participant who holds a valid network contract in respect of the metering point of his place of consumption.

A network operator may cancel a network contract and disconnect the place of consumption from the network if the network connection has been interrupted due to a breach of the network contract and the interruption has lasted at least 180 consecutive days and the customer has failed, during that period, to eliminate the circumstances which served as grounds for the interruption. Similarly, or if the customer has materially breached the obligations arising from the network contract and has failed to remedy the breach within a reasonable period of time granted by the network operator, in view of which the network operator cannot reasonably be

expected to continue performing the contract. A network operator is entitled to cancel a network contract also due to failure to pay an amount payable according to the contract.

A network operator shall give a notice of the cancellation of a network contract at least 30 days in advance. The notice shall set out the grounds for cancellation of the contract and the date of termination of the contract.

A seller shall be entitled to cancel an electricity contract if the consumer has materially breached obligations arising from the contract and has not remedied the breach within a reasonable period of time granted by the seller, or if the consumer has used electricity illegally or has intentionally or due to gross negligence damaged the seals or verification marks placed on the metering devices.

A consumer shall be notified of the cancellation of an electricity contract at least 30 days in advance. The notice shall state the grounds for cancellation of the contract and the date of termination of the contract.

A supplier may cancel an electricity contract before the agreed due date, if the place of consumption stipulated in the contract has been the subject of a transfer of property and there is no legal basis for the consumer to use that place.

Customer information

Network undertakings are obliged to maintain a web site and disclose on it the following information:

- principles of the calculation of connection charges;
- data reflecting efficiency, quality and profitability of the network activity;
- charges for network services;
- standard conditions for the provision of network service;
- standard conditions for the provision of universal service.

The network charges shall be disclosed at least 90 days prior to their entry into force. In addition to web site the tariffs have to be published also in at least one daily national newspaper. The standard terms and conditions for provision of network services and for the selling of electricity shall be disclosed at least 30 days prior to their entry into force.

All electricity sellers shall submit an invoice for the electricity consumed to the customer once a month, unless agreed otherwise with the customer. The following information shall be presented together with the invoice:

- the distribution of energy sources which were used for the generation of electricity by the producer or which were purchased from the producer during the financial year preceding the period of the sale;
- the proportion of electricity purchased from a power exchange in the financial year preceding the period of the sale;
- a reference to a website which sets out information concerning the environmental impact caused by emissions of CO2 and SO2, the oil shale ash that must be deposited, and radioactive waste, which were released in the course of producing the electricity supplied by the seller during the financial year preceding the period of the sale;

- information concerning the customer's rights and the options for resolution of disputes;
- starting 1 April, the volume of electricity which was supplied in the previous calendar year and whose origin was certified by means of guarantees of origin;
- the volume of supplied electricity whose origin is not certified by means of guarantees of origin, using the residual mix value published by the transmission network operator.

In the case of a change of seller, the seller presents its final invoice to the customer within six weeks as of the termination of the contract for the sale of electricity. If, after the final invoice has been submitted, a fault of the metering system is discovered or the submitted data differs from the actual consumption, the consumer's metering data are rectified on the information exchange platform and the seller presents an invoice to rectify the final invoice.

No additional fee is charged for presenting the invoice.

Ensuring of access to customer data

Access to the consumer data is ensured through a digital environment – the data exchange platform (Data Store), which was developed by the system operator Elering AS. Via the Data Store information exchange on the electricity market takes place in order to change the open supplier, transmit the metering data and fulfilling the legal obligations imposed on the market participants (consumer, network undertaking, seller) and ensuring their rights.

The Data Store integrates data of all the contracts related to the sale of electricity and network services, as well as the metering data in electricity consumption. A customer has the right to get the following information by means the Data Store:

- name of the network undertaking with whom the consumer has entered into network contract and validity period of the contract;
- name of the seller with whom the consumer has entered into open supply contract for a connection point(s) and validity period of the contract;
- name of the network undertaking or the seller, who holds activity licence, designated by the network undertaking for the provision of universal service;
- electricity quantities measured at consumer related metering points, with the possibility to observe historical consumption data;
- names of those sellers to whom the consumer has given the authorisation to see its consumption data and who have inquired for the data.

Definition of vulnerable customer and interruption of electricity supply

Interruption of electricity supply is regulated in very detail. In the evaluation of the Competition Authority the protection of socially vulnerable customers in possible case of failure to pay in time is sufficient. A network operator may interrupt the connection of a customer to the network if the customer has failed to pay the amount payable on the basis of the contract entered into with the network operator or seller or, has in another manner materially breached an obligation arising from the contract. Before interrupting of a network connection a notice concerning the planned interruption of the network connection shall be sent to the customer. The notice shall set out the grounds for interrupting the network connection and the planned time of the interruption. The network connection of a customer may be interrupted after at least 15 days

have passed since the notice was sent and if, during that period, the customer has failed to eliminate the circumstances which were the grounds for interruption of the network connection and has not notified the network operator or seller, as appropriate, thereof.

If a network connection is interrupted on the grounds that a customer, who is a natural person, has failed to pay an amount payable according to the contract due to the temporary insolvency of the customer because of his or her serious illness or unemployment, the customer may notify the network operator or seller thereof in writing. Evidence of those circumstances shall be annexed to the notice. On receiving the notice and the evidence, a network operator may interrupt the network connection of a customer, who is a natural person, after at least 30 days have passed since the notice was sent and if, during that period, the customer has failed to eliminate the circumstances which were the grounds for interruption of the network connection and has not notified the network operator or seller, as appropriate, thereof.

If a network connection is interrupted on the grounds that the amount due has not been paid, the connection may be interrupted during the period from 1 October to 30 April in a building or a part thereof which is residential space, used as a permanent residence and heated in full or primarily by electricity only when at least 90 days have passed since the notice and if, during that period, the customer fails to remove the circumstances which were the grounds for the interruption and has not notified the network operator or seller, as appropriate, thereof. A network operator may also limit the capacity of the network connection of a customer, if a customer has failed to pay for the consumed electricity in due time. The customer shall be notified of such limitation at least 15 days in advance.

A network operator may promptly interrupt the network connection of a customer if the customer increases, without authorisation, the limited capacity, uses electricity or network service without authorisation, uses electrical installations which do not meet technical requirements, are dangerous or interfere with the operation of the network as a whole or prejudice security of supply.

Regulation of universal service

Universal service is intended for household consumers, apartment associations, communities of apartment owners and such commercial consumers (small consumers) whose electrical installation is connected to the network by using low voltage and through a main fuse rating of up to 63 A, in the case if they do not choose any electricity seller for themselves. Universal service shall ensure a price for consumers, which corresponds to the market price and avoids earning of unreasonably high income.

Universal service is the selling of electricity to household or small consumers by the network operator or by the seller designated by him on the basis of the standard conditions for universal service approved by the Competition Authority. The price for universal service is formed according to the market or power exchange price, to which justified cost and reasonable profit may be added by the seller. The Competition Authority is obliged to verify justification of the latter. The seller is required to publish the basis for price formation together with the calculation by the ninth day of the following month.

Smart metering systems

The Grid Code lays down requirements for metering and provides that from **1 January 2017** all consumers shall have remote reading devices (including households). The Grid Code also prescribes that from 1 January 2013 a remote reading device shall enable at least once every 24 hours to forward to the network operator through the data communication network the measurement data registered during each trading period and ensure access of a person agreed between the market participant and the network operator to above said measurement data.

The Competition Authority is in the position that the "Measures on Consumer Protection" of Annex I referred to in Article 37(1)(n, p) of the electricity Directive 2009/72/EC are ensured by the Estonian legislation.

The Competition Authority is in the opinion that electricity consumers are well protected and the obligations of market participants are precisely prescribed. Sufficient information is available to consumers both related to the standard terms and conditions of contracts, typical load curves, energy sources used for production and others. The network undertakings maintain well shaped and sufficiently informative web sites.

4.1.2 In natural gas sector
(Directive 2009/73/EC, Annex 1. implementation of customer protection measures)

Customer contracts

In the estimation of the Competition Authority the field of customer contracts is a well-regulated field and customer interests are sufficiently protected. According to the Natural Gas Act both the standard terms and conditions for selling gas to household customers and standard conditions for the provision of network services are to be approved with the Authority. The Authority has to monitor whether network service user's rights and obligations are balanced in the contract, as this forms the basis for the approval of prices for network services. An important criterion in the approval of standard terms and conditions is also their compliance with the Law of Obligations Act.

A connection contract, network contract or a contract for the sale of gas that is executed in a written or electronic form or a form that allows written reproduction or in any other form subject to stricter formal requirements, or the standard terms and conditions of such a contract, shall set out the following information:

- in the case of a network or connection contract, the name of the network operator, in the case of a contract for the sale of gas, the name and registration number in the Commercial Register of the network operator or the seller, as well as the address and other contact details of the network operator or the seller;
- a description of the services provided on the basis of the network or connection contract and the date on which the provision of services commences or the principal parameters of the natural gas sold under the contract for the sale of gas;

- main quality indicators of the service provided on the basis of the network or connection contract, or a reference to the available document in which these main indicators are presented;
- the time of initial connection to the network in accordance with the connection contract entered into for connection to the network or for amendment of the consumption or production conditions;
- a description of the maintenance services provided;
- the manner of obtaining relevant information concerning the charges payable under the contract;
- the conditions for amendment of the contract and the conditions for cancellation of the contract, including cancellation without charge;
- information concerning the conditions under which the consumer may obtain a refund or a money or other compensation if the quality of services provided under the network contract, sales contract or connection contract do not conform to the terms and conditions of the corresponding contract;
- information on the procedure of resolution of complaints;
- in the case of a network contract or a sales contract, the term of the contract and the conditions for renewal and termination of the contract;
- the procedure for estimating the amount of consumption by the network operator in the case that the customer has not provided that information;
- the options of payment for the service.

The standard terms and conditions of the contracts for the sale of gas shall, amongst other things, set out the following:

- the name, registration number in the Commercial Register, address and other contact details of the seller;
- a description of the services provided;
- the principal quality parameters of the services provided or a reference to a document which is accessible and which sets out such parameters;
- the procedure for notification of customers of the charges applied;
- the term of the contract, conditions for renewal, amendment and termination of the contract;
- conditions for cancellation of the contract without charge;
- the options of payment for the service.

Besides aforesaid the contract for the sale of gas shall set out the category of supply.

A contract for the sale of gas to a household customer may also include provisions of the contract for network services which deal with the provision of the network services necessary for the distribution of the gas to be sold.

With the amendment of the Natural Gas Act in 2017 it was established that, the seller of gas has to allow the termination of a contract for the sale of gas in the case of the customer's switching to another seller within 14 days of submission of the corresponding application by the customer.

According to the Natural Gas Act the network operator or the seller shall transmit to the customer a corresponding notice at least 30 days prior to amending the terms and conditions of a contract, including prices and tariffs. The notice shall set out the envisaged amendments, the basis for the envisaged amendments and the date on which they are intended to take effect, as well as information concerning the fact that the consumer is entitled to cancel the contract if he does not agree to the amendments.

Customer information

Both the gas network undertakings and the sellers of gas are obliged to maintain a web site and disclose on it the following information:

- charges for network services;
- maximum prices for gas;
- method for the calculation of connection fees;
- standard terms and conditions for contracts.

The network charges shall be disclosed at least 90 days and the prices for the gas for household consumers at least 30 days prior to their entry into force. In addition to the web site the tariffs have to be published also in at least one daily national newspaper. Besides the undertakings also the regulator is obliged to disclose all approved network service prices on its web site.

All gas undertakings are obliged to submit an invoice to a consumer for the consumed gas and network service at least once a month, unless otherwise agreed upon with the consumer. No additional fee shall be charged for the submission of the invoice.

In case of a customer's switch to another seller, the former seller submits to the consumer final settlement invoice in six weeks after the termination of sales contract.

Ensuring access to customer data

For efficient functioning of the gas market, facilitation competition between traders and change/switch of open supplier the system operator has developed the digital environment – the data exchange platform (the Data Store). The task of the Data Store is ensuring efficient data exchange processes in fully opened market considering equal treatment principles. The Data Store integrates data of all the contracts related to the sale of natural gas and network services, as well as the metering data on the consumption of natural gas.

Similarly to a consumer of electricity a consumer of gas has the right to get the following information by means the Data Store:

- name of the network undertaking with whom the consumer has entered into network contract and validity period of the contract;
- name of the seller with whom the consumer has entered into open supply contract for a connection point(s) and validity period of the contract;
- natural gas quantities measured at consumer related metering points, with the possibility to observe historical consumption data;
- names of those sellers to whom the consumer has given the authorisation to see its consumption data and who have inquired for the data.

Definition of protected customer and disruption of gas supply

From 10 April 2014 the Natural Gas Act provides that the *vulnerable custom*er is a household customer to whom subsistence benefit has been awarded pursuant to section 22(1) of the Social Welfare Act.

The Natural Gas Act provides for suspension of gas supply. According to it network operators have the right to suspend a network connection without giving advance notice thereof to the final customer if there is a danger to the life, health or property of persons or to the environment. A network operator has the right to suspend a network connection immediately after it is established if there has been an unauthorised consumption of gas. Besides aforesaid, a network operator has the right to suspend gas supply, giving at least 7 days' advance notice, if:

- the consumer installation is adversely affecting the supply of gas to another final customer or damaging the technical parameters of the network;
- the network operator is prevented from accessing a metering system located within territory owned or possessed by a final customer in order to inspect or replace the system or to perform necessary work for the gas installation to operate;
- breach of the contract entered into on the basis of the Natural Gas Act or violation of the stipulated conditions.

If a household customer fails to pay the contractual charge in time and if the customer has a permanent residential space heated by gas, supply may be suspended during the period from 1 October to 1 May only when at least 90 days have passed since relevant notice.

Before the gas supply is suspended in events as described above, the network operator shall give the final customer a reasonable term to eliminate the deficiencies and shall notify the final customer of the pending suspension in writing. The notice shall set out the grounds for suspension of gas supply, the term for elimination of the deficiencies. A network connection or gas supply that has been suspended for the reasons explained above shall be restored after the customer has paid for the justified costs of suspension and reconnection, unless the contract has been terminated.

Selling obligation and final consumer price regulation

According to the Natural Gas Act a seller of gas possessing the biggest market share within its network area is required to sell gas, within the technical limits of the network, to all household customers who have a network connection and are willing to buy. In addition to above the Act provides that a market dominant producers applies a principle in setting up prices for the gas sold to household consumers that a weighted average price for gas contains the import price and a sales margin added to it.

In the purchasing of gas an undertaking shall base on good business practice and buy gas at most favourable price and the sales margin added to the purchase price is subject to approval by the Competition Authority.

The ceiling rate of the sales margin must cover the costs incurred in the sale of gas and ensure justified profitability. The Authority has developed and disclosed in its web site a unified methodology for the calculation of the ceiling rate of the sales margin and relies on it in the approval process. According to section 6.3 of the methodology the sales margin consists of the

sum of non-controllable costs, operating costs, capital expenditure and a justified return, which is divided by the sales volume.

The Authority applies *ex-post* regulation to the gas sold to households and this is first of all in relation to the market dominant seller of gas. If during a calendar year a weighted average price for sold gas differs from the weighted average purchase price with the added sales margin for the same period, then at the end of each calendar year the undertaking makes a settlement of accounts (equalization) with its consumers during three months' period and submits a relevant report to the Authority each year by 1 May at the latest. The equalization shall be reflected on a separate line of the sales invoice. Small gas sellers (which are not in market dominant position) have no obligation to approve with the Competition Authority the sales margin as a component of the price of gas sold to household consumers.

Smart metering systems

With the amendment of the Natural Gas Act in 2017 it was established that the network undertaking has to ensure from 1 January 2020, that all metering points, through which at least 750 cubic metres of gas from the network operator's network is consumer per year, are equipped with metering system which takes into account the temperature of gas in the metering system when measuring the quantity of gas and facilitates the function of a remote reading of the metering data. If the gas is consumed at pressure of over 20 millibar, the metering system shall take into account the pressure and temperature and facilitates the function of a remote reading of the metering data.

The Competition Authority is in the opinion that natural gas consumers are well protected and the obligations of market participants are precisely prescribed. Sufficient information is available to consumers both related to the standard conditions of contracts and the rights to switch the seller. Also, the Competition Authority has good possibilities to exercise supervision over the market.

4.2 Resolution of disputes

4.2.1 In electricity sector
(Articles 37(11), (5)(c) and (4)(e) of Directive 2009/72/EC)

Estonian law gives to the Competition Authority sufficient possibilities to perform regulation.

The Competition Authority has the right to get necessary information from a market participant and from state and local municipal authorities, right to enter their territory, premises and facilities for the purpose of on-site inspection, examine the documents necessary for supervisory activities and other information and circumstances and make extracts, transcripts and copies thereof. The Authority can also inspect the price formation practices applied by market dominant producers or sellers. The regulator can establish development obligation for an undertaking through the conditions of activity licence. For example, an obligation to invest in the electricity network can be imposed if the operator's former performance has not secured the supply of electricity to customers in accordance with requirements.

All market participants have the right to refer to the Competition Authority as to an extra-judicial body. A market participant may file a written complaint with the Authority against an action or an omission of another market participant, which is in conflict with the Electricity Market Act or legislation enacted on its basis. The Authority reviews the complaint and makes a decision thereon within 30 days as of the receipt of the complaint. If the Authority requests information necessary for resolving the complaint, the passage of the term shall be suspended, but not for longer than 60 days. The Authority's decisions can be challenged with an administrative court in 30 days since receiving of the decision.

In 2018 the number of consumer references to the Competition Authority was 70 (both complaints and inquiries), in order to establish violation of law by electricity undertakings or to get other electricity market related information. The consumer references were caused by questions related to problems with both connecting to the grid and amending conditions of consumption and connection (price and conditions), as well as billing. A number references to the Authority in 2018 were related to the new network charges of Elektrilevi OÜ (250 kWh).

4.2.2 In natural gas sector
(Articles 41(11) and (4)(e) of Directive 2009/73/EC)

The Estonian legislative basis can be considered a good one, which gives the Competition Authority sufficient possibilities for exercising market regulation.

The Competition Authority has the right to get necessary information from a market participant and from state and local municipal authorities, the right to enter their territory, premises and facilities for the purpose of on-site inspection, examine the documents necessary for supervisory activities and other information and circumstances and make extract, transcripts and copies thereof. The Authority can also inspect the accounts and price practices applied by gas undertakings and obtain necessary information concerning their economic activities. The Competition Authority can establish temporary prices for the transmission and distribution of gas for no longer than two months in situations where those prices are not justified or the gas undertaking fails to follow a precept issued by the Authority. The Authority can establish development obligation for an undertaking through the conditions of activity licence. For example, an obligation to invest in gas network can be imposed if the operator's former performance has not secured stable gas supply to customers in accordance with requirements.

All market participants have the right to refer to the Competition Authority as to an extra-judicial body. A market participant may record a written complaint with the Authority against an action or an omission of another market participant which is in conflict with the Natural Gas Act or legislation established on the basis thereof. The Authority reviews the complaint and makes a decision thereon within 30 days as of the receipt of the complaint. If the Authority requests information necessary for resolving the complaint, the passage of the term shall be suspended, but not for longer than 60 days. The Authority's decisions can be challenged with an administrative court in 30 days since receiving of the decision.

There were 8 natural gas related inquiries in total in 2018. The main issues were about contracts and pricing. were contractual and pricing issues.