ESTONIAN COMPETITION AUTHORITY

ELECTRICITY AND GAS MARKET IN ESTONIA

REPORT

TALLINN 2009

Contents

1. Foreword

In 1 January 2008 the merger of the former Competition Board, the Energy Market Inspectorate and the National Communications Board formed the Estonian Competition Authority (hereinafter referred to as the Authority). Resulting from the merger the new Authority took over all the functions of the Competition Board and the Energy Market Inspectorate, as well as the tasks of the Communications Board related to market regulation. In addition to above, also supervision of the railway infrastructure transfer capacity allocation and railway activity licence issuance were handed over.

In addition to the establishment of the new Authority, the year 2008 can be characterized by record-braking fuel prices. Fuel and energy were important key words for both undertakings and customers. The easiest way to realize this is looking at the rapidly changing gasoline/petrol and diesel fuel prices. However, consumers are used to it for a long time already. In July the oil price broke all times record of even higher than 140 dollars, while by December it fell again down to 40 dollars. It should be noted yet that both electricity and natural gas, as well as district heating sectors are directly or indirectly dependent on the world market price for oil. This does not have a direct impact on electricity consumers in Estonia, as the major portion of electricity is produced from locally mined oil shale. However, consumers of natural gas and district heat supply services are still influenced.

The year 2008 was not a favourable year for district heat and natural gas consumers as well. The steep rise in gas price in return transferred to the major part of heat consumers. As the gas import price is based on an average of the past 6 month's oil price, the gas price reached its peak in November-December, i.e. just at the moment when the oil price in the world market was already in the free fall. Quite naturally, such a gas price raised to a record-high level also the price for district heat in the enterprises in which gas is the main or the only fuel. Contrary, in the first half of 2009 heat prices were falling.

The Authority has quite limited possibilities for influencing the gas price. In fact, it can be done only through network service price regulation. It should be emphasised however that for a typical gas-consuming district heating boiler house the infrastructure cost is below 10% of the sale price. For household customers the same indicator is between 10 and 20%, depending on customer. For comparison, the share of network services in the household electricity consumer price is up to 60%. This illustrates that the Authority shall have a significant role in consumer price formation also in the conditions of an open electricity market.

An important circumstance to consider is that electricity and gas, as well as district heat reaches customers by means of respective network infrastructure, while the charges for using of an infrastructure and the network are completely independent from oil price fluctuations in the world market. As an infrastructure is a natural monopoly, its price regulation is under control of the Estonian Competition Authority. The formation of infrastructure service prices first of all depends on local economic situation, such as investment needs, changes in the prices for goods and services according to national rate of inflation, technical efficiency. Thus, infrastructure

charges are not related to the changes in the world market fuel prices, the prices for those services are stable and as a rule, change at a slower rate than the rate of inflation. According to enforced law, the supplier has to separate on its electricity and gas customer bills the cost for network service or, what is the same, the cost of using infrastructure and the cost for energy or fuel. Thereby customers can follow what their electricity or a gas bill's total is formed of.

The financial crisis that flared in 2008 had its impact on the energy sector as well. Besides the already mentioned record-high oil prices also a decrease in consumption began. As regards electricity the main reason was the decrease in GDP and consequent fall in consumption, while concerning district heat the record-high prices forced consumers to savings. It is said that there is no bad without being good: the recession and high fuel prices and resulting decrease in consumption created an increase of pass-through capacity in electricity networks and gas pipelines, lower peak loads and together with it - higher security of supply.

According to the EU Electricity and Gas Directive, electricity and gas customers should have a non-discriminatory access to the network and should be able to choose their supplier freely and change the supplier, if wished. It can be compared, for instance, with the telecom service market in which customers can change the service provider/operator, while the network owner must give access to his telecom network to all operators. Estonia has a transitional period until 2013 for its electricity market opening, while 35% of the market should be opened by 2009. This means that already then larger industrial customers can themselves choose the preferable supplier or producer of electricity. As regards gas market, there is no transitional period and all customers can choose their seller of gas since 1 July 2007.

A substantial development in 2008 was the continuation of indexation of electricity network charges for both the transmission network operator (OÜ Elering) and the distribution network operator (Eesti Energia Jaotusvõrk OÜ) – both operators' business name changed, it will be explained in chapter 3.2.9 below. Namely, beginning from 2005 the network charges are approved for a three-year period and adjusted annually according to the rate of inflation. Based on the knowledge and experience we have today it can be concluded that the indexation has been successful and the same approaches shall be undertaken also in the future. The new regulation period started in 1 March 2008 and lasts until 1 March 2011.

Important events were also the construction of heat and power cogeneration plants in Tallinn and Tartu. Both plants have 25 MW electrical capacity and are fired with wood and peat fuels, thus contributing to the formation of more stable heat tariffs, as well as improving security of supply. In addition, in 2008 construction of the 39 MW wind turbine farm in Aulepa was started. The wind farm is biggest in the Baltic countries and it increases the share of renewable sources in the energy balance.

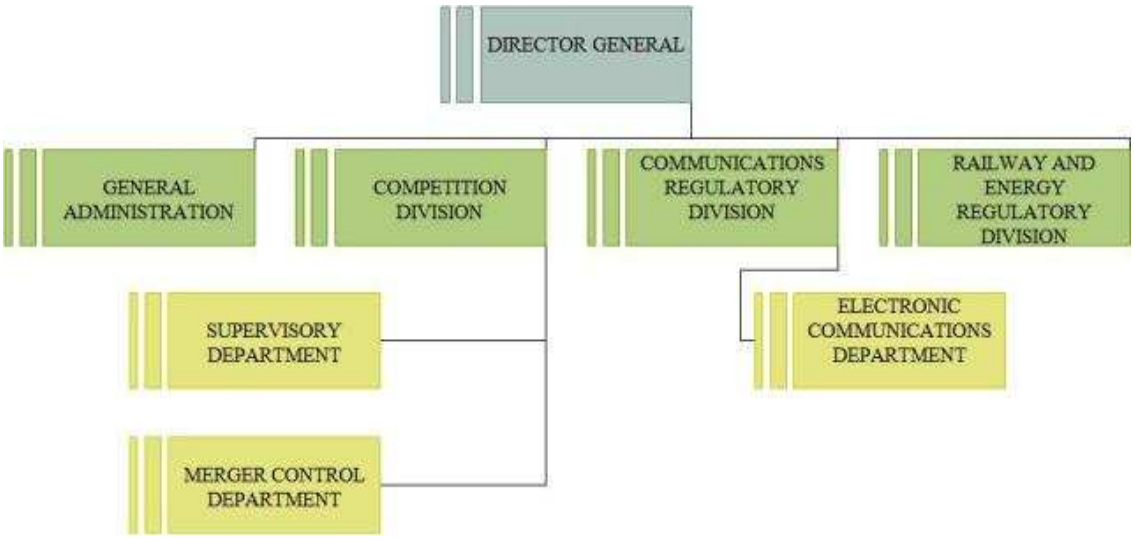
In conclusion, we intend to provide best possible overview of the energy market functioning and of the security of power supply and we hope that through this report the readers can clarify the organisation of market and its regulation as well.

With best wishes,
Märt Ots
Director General of Estonian Competition Authority

2. Energy market regulatory authority review

In 1 January 2008 the merger of the former Competition Board, the Energy Market Inspectorate and the National Communication Board established the Estonian Competition Authority. Resulting from the merger the new Authority took over all the functions of the Competition Board and the Energy Market Inspectorate, as well as the market regulation related tasks of the Communications Board. In addition to above, also the railway infrastructure transfer capacity allocation supervision and railway activity licence issuance were handed over to the new Authority.

According to the Statutes, the Authority comprises three area-specific divisions, which are the Competition, the Railway and Energy Regulatory and the Communications Regulatory Divisions. Besides the divisions, the Authority also includes an administrative unit, i.e. General Administration that is responsible for an effective proceeding of support services (see drawing 2.1). The Authority is directed by the Director General.



Drawing 2.1 Structure of Estonian Competition Authority

The appointment to office of the Director General and all other Authority employees is based on the Public Service Act. The Director General is appointed to office by the Minister of Economic Affairs and Communications on the proposal of the Secretary General of the Ministry. A precondition for appointment is his attestation by the Commission at the State Chancellery. The Director General is appointed without a specified term.

Releasing from office of the Director General is similar to the appointment, based on the Public Service Act and Government of the Republic Act. According to these acts the Director General is released from office by the Minister of Economic Affairs and Communications at the proposal by the Secretary General of the Ministry.

Each division is managed by respective head of division appointed by the Director General. Similarly to the Director General, a precondition for appointment a division head is his/her attestation by the Commission at the State Chancellery.

The **Competition Division** executes tasks that are identical to those of other competition authorities. The main functions are the following: revealing of prohibited agreements and exercising state supervision over activities of the enterprises dominating the market, analysing the competitive situation in various sectors and control of mergers.

The main activities of the **Railway and Energy Regulatory Divisio**n are the following: issuing of activity licences to energy and railway undertakings and revocation of the licences, approval of prices, approval of connection charges and the methods for their calculation, approval of standard terms and conditions of connection contracts, control of security of supply and supply quality monitoring, supervision over railway infrastructure capacity allocation, responding to inquiries and resolving of disputes.

The main activity of the **Communications Regulatory Division** is the regulation of area-specific market; verification of the imposed measures; observation of developments in the electronic communications market; settlement of competition, communication services and electronic communication networks related disputes; regulation of postal service market, regulation and exercising of supervision over the provision of universal service; settlement of inquiries, applications and complaints arising upon the provision of postal and communication service.

The main tasks of the **General Administration** are the following: organisation of the relations between the Authority and the public resolution of issues concerning international relations; ensuring administrative organisation of the Authority; administration of state assets in the possession of the Authority and organising public procurement; ensuring the existence of the tools and inventory; organisation of personnel actions and training; preparation of draft budget and financial monitoring; organisation of customer service, management of documentation and archives.

The Authority is financed from state budget. The budget for 2008 was **30,67 million kroons (1 960 000 €)**. 0,236 million (15 100 €) out of it is the fee for membership in international organisations, while 23,75 million kroons (1 517 600 €) is employee salaries and 6,69 million (427 242 €) are administrative costs.

In accordance with the state budget preparation procedures every springtime the Authority submits a budget application together with the statement of grounds to the Ministry of Economic Affairs and Communications. The final budget is firstly approved by the Government and afterwards, based on the State Budget Act, by the Parliament.

The merger has improved possibilities for hiring highly skilled employees, as the joint organisation has higher budget. The merger has facilitated also to savings in administration cost and as a result – more can be contributed to employing stronger specialists. In 2008 the Authority's average monthly before tax salary level was 20 000 kroons. Such a level can be deemed competitive in Estonia.

Railway and Energy Regulatory Division

One of the core tasks of the Division is securing stable conditions for customers in electricity, district heat and natural gas market. In its activities the Division is guided by the legal acts that regulate the energy and railway sector: Electricity Market, Natural Gas Market, District Heating, Liquid Fuels and Railway Acts. The energy sector market regulatory authority performs the following tasks:

- approves prices for electricity and gas network services prior to entry into force (so-called *ex-ante* price regulation)
- approves methodologies for connecting with electricity and gas networks prior to entry into force
- approves weighted average price for electricity sold to non-eligible customers and the price of gas sold to household customers
- approves district heat prices in case the undertaking's annual consolidated sales is over 50 000 MWh (for undertakings with sales volume of below 50 000 MWh the price is approved by local municipal authorities)
- approves the price for heat produced in the process of heat and power co-generation
- settles disputes between local municipal authorities and undertakings supplying district heat on the limit pricing for heat
- approves standard terms and conditions of contracts for electricity network services, electricity supply for non-eligible customers and gas supply for household customers
- issues and revokes activity licences for undertakings providing network services, for producing and sale of electricity, for providing of gas network services and sale of gas, for producing, distribution and sale of district heat; determines the conditions of the issued activity licences and monitors the fulfilment of the conditions
- monitors the adequacy of prices for the balance energy sold by the transmission system operator (National Grid) and the conditions of balance contract
- supervises following of provisions of law and requirements set out by law-based secondary legal acts by market participants, fulfilment of relevant obligations like separation of accounts, independence of the system operator, disclosure of information, third-party access to the network, etc.
- discloses the approved prices, tariffs and charges on its web site
- monitors the quality of liquid fuels sold in the market and supervises the quality of electricity supply
- settles disputes between market participants in the capacity of pre-court settlement authority
- issues precepts and initiates misdemeanour procedures in the cases of violation of the provisions of law
- cooperates with other Estonian supervisory institutions and regulatory authorities of other countries, as well as performs other functions prescribed by the legislation and by its Statutes

- prepares reports to the EU Commission on electricity and gas market functioning in Estonia

The Authority is an agency independent in its decision making. According to the Administrative Procedure Act and other legal acts applicable within the energy and railway sector (Electricity Market, Natural Gas Market, District Heating, Liquid Fuels and Railway Acts) the Authority issues administrative acts: decisions and precepts. Some examples of those can be as follows. By decisions, for instance, the Authority either grants approval to prices or refuses to. By decisions, market licences to undertakings are issued or refused to, or revoked. In addition, by decisions customer complaints against undertakings' performance or disputes between market participants are settled for. Precepts are issued when provisions of law are violated by undertakings. Law stipulates that the decisions have to be motivated and justified. The purpose, indeed, is to give customers a chance to refer to the Authority instead of court. This way a decision can be received faster, as a rule, because law stipulates that the Authority has to make its decision during 60 days at the latest since receiving of an application.

The Authority's decisions are independent both politically and from energy undertakings, guided exclusively by stipulations of law. The Authority's decision cannot be changed or invalidated neither by the Minister nor by the Government. Respective regulation is prescribed by the Government of the Republic Act. Its paragraph 93 (6) stipulates that the procedure for governmental supervisory control shall not extend to:
1) acts of state supervision and decisions made in the application of enforcement powers of the state
2) pre-court settlement of a complaint or protest made with respect to a legal instrument or act of an agency of executive power or of an official, in the cases prescribed by law

The Authority's decisions and precepts can be challenged with an administrative court in 30 days since receiving of a decision or a precept. Decisions of an administrative court can in return be appealed with a circuit court and the decisions of the circuit court with the Supreme Court. Estonia is the state based on the rule of law and that is why challenging of decisions and precepts shall be deemed a normal process in which for both undertakings and customers their legal protection is guaranteed. In 2008 the Railway and Energy Regulatory Division has made altogether 540 decisions and 2 precepts. The significant increase in the number of decisions was first of all caused by the change of both natural gas and electricity. In 2008 the Division was involved in 12 court trials and only one of them has been lost by court decision. This can be regarded as a good result and as an indicator of the quality of the Authority's work.

The energy market regulator's scope of work can be characterised by the number of decisions and precepts made during the year, by the number of analyses carried out, as well as by the total number of regulated undertakings.
Some key performance figures for 2008 can be outlined as follows:
59 activity licence issuance/revoking decisions and orders
19 decisions on the settlement of market participants' disputes
2 precepts for undertakings
58 decisions on connection fee methodologies and standard conditions
289 decisions on granting price approval or disapproval

125 inquires and requests for information submission

The biggest scope of work is within the price approval process. Therefore, the best indication of the Division's performance is the number of undertakings for which price regulation is applied to. In 2008 the Authority carried out price control for undertakings as follows:

Electricity transmission network	1
Electricity distribution networks	40
Gas transmission network	1
Gas distribution networks	27
District heat suppliers	47
Electricity and heat production, oil shale mining	3

Thus, the number of undertakings to which regular price control is imposed totals 119. In fact, during the last three years the number of regulated enterprises has increased significantly. The reason is the development of gas networks and acquisition of district heat suppliers by larger companies. In such cases, the regulation of price is transferred from local municipal authorities to the Authority, as provided for by the District Heating Act. In the district heat sector the Authority cooperates with local authorities, in order to harmonise regulation and transfer the knowledge in regulation basics.

It can be concluded that the requirement for independence of regulatory authorities stipulated by the EU Electricity and Gas Directive is fulfilled in Estonia. The Authority is independent in decision-making and in management of the organisation. The level of financing can also be considered sufficient.

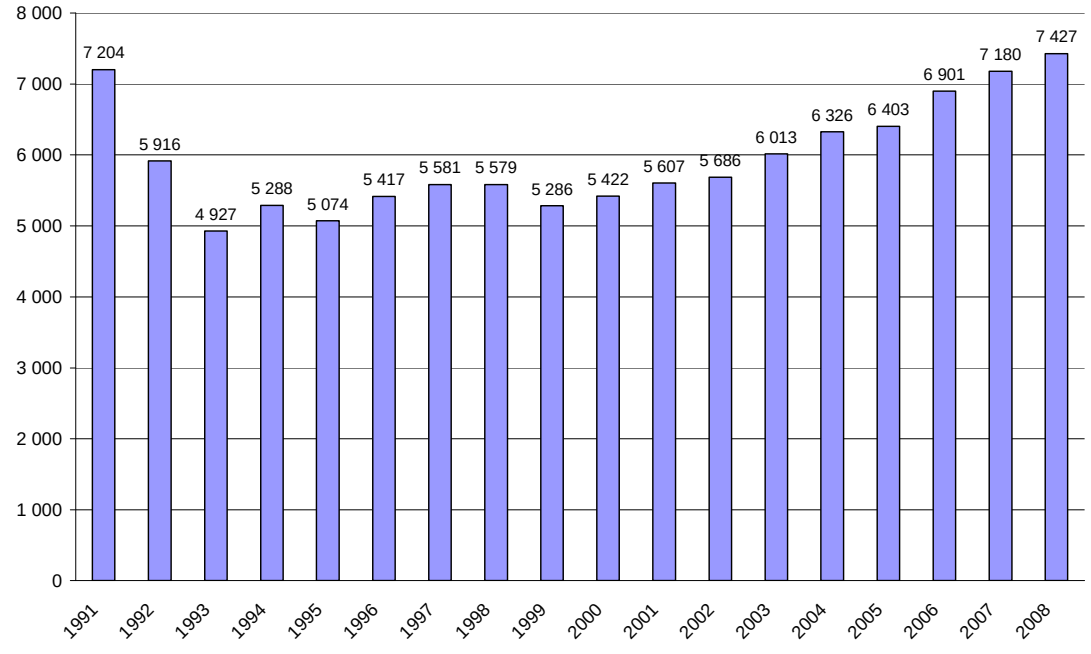
3. Electricity market

3.1. Electricity market review

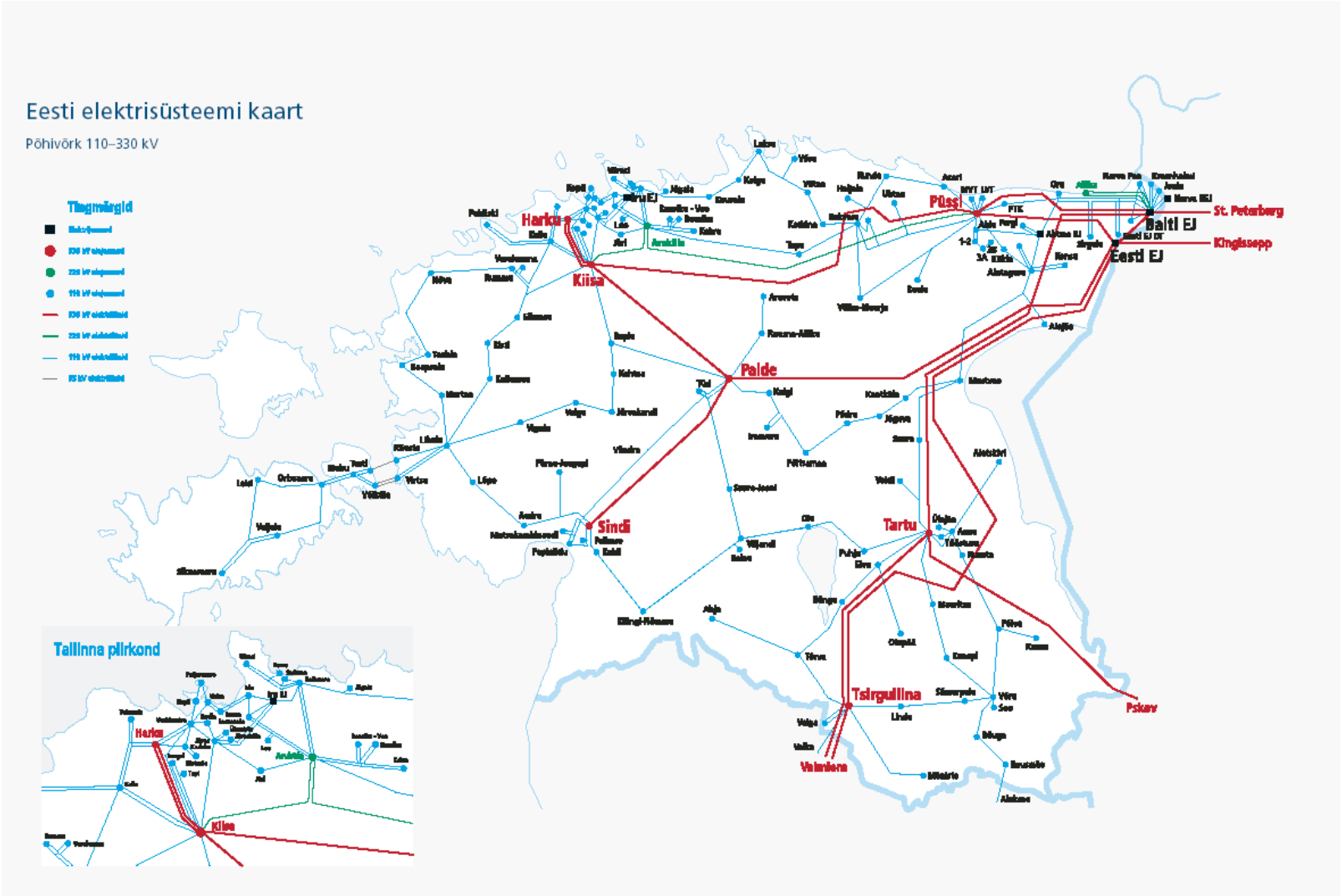
The Estonian electricity system has been built up as part of the northwestern common power system of the former Soviet Union. Estonia is part of the common synchronised system together with Russia, Belarus, Latvia and Lithuania. The map of the Estonian power system is presented in drawing 3.1.2 below.

As seen in the drawing, with neighbouring countries Estonia currently has connections with Russia, Latvia and Finland. With Finland the connection goes through the new 350 MW DC cable that was commissioned in the end of 2006. It should be clarified yet that Finland is part of the Nordic power system Nordel, which is not synchronised with the northwestern Russian system that Estonia belongs to.

In comparison with other EU countries the Estonian electricity market is very small. According to the statistics of 2008 the load peaked at 1525 MW, with an annual production of 10,6 TWh. Out of this 2,3 TWh was exported, while domestic consumption totalled 7,4 TWh. However, from 1999 to 2008 a steady annual growth in electricity consumption has taken place, with an annual average increase of about 4,5% (see diagram 3.1.1). Despite of the economic downfall of 2008 the consumption of electricity continued to grow by 3,4%, while GDP fall by 3,6%. The latter can be explained as a lag between economic growth and the rise in electricity consumption. Such Estonian growth corresponds to generally known statistical assumption that the rise in electricity consumption constitutes at least a half of the rise in GDP. Contrary, for 2009 over 15% economic downfall is anticipated and the latest statistical data indicate also remarkable decrease in electricity consumption.



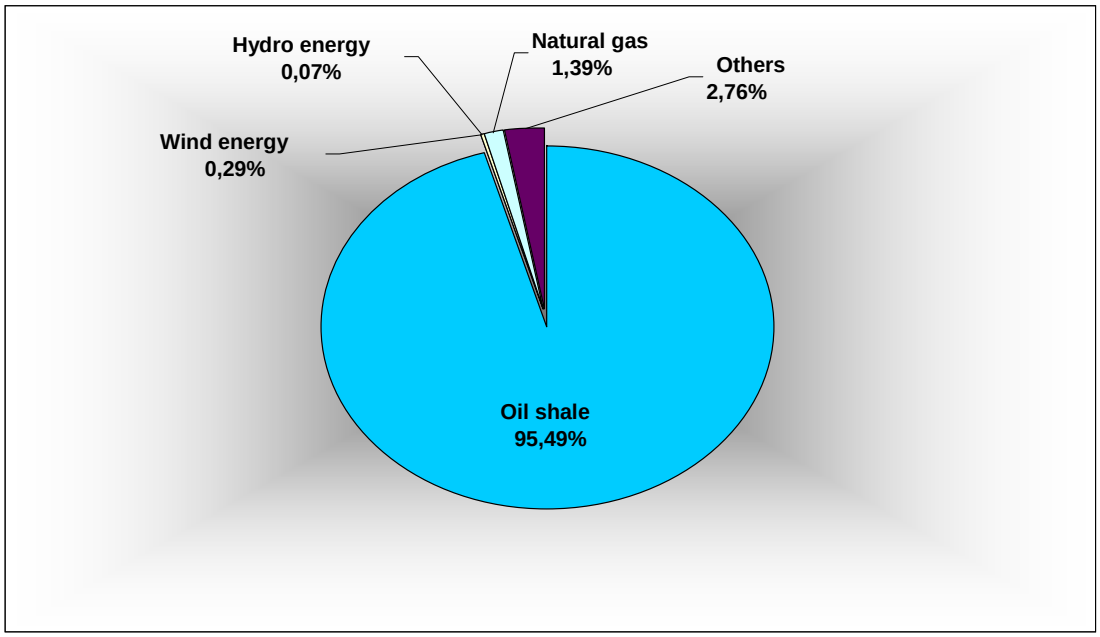
Drawing 3.1.1 Final consumption of electricity in Estonia, GWh (network losses not included). Source: Statistical Office



Drawing 3.1.2 Map of Estonian power system

Another specific of the Estonian electricity market is an extreme concentration and reliance on a single fuel. Namely, as much as 95,49% of electricity is produced with oil shale (by fuel input), the share of other fuels is very modest. Thus, the share of natural gas is only 1,39%, while the share of renewable sources and peat is only 0,36% and for other fuels 2,76% (drawing 3.1.3).

Essentially, all the production is controlled by the largest energy enterprise Eesti Energia AS that possesses 2 184 MW out of the installed 2 363 MW net capacity, which is 92,4%. In 2008 it gave 96,5% of the total Estonian electricity production. It should be noted here that practically all electricity production is based on domestic fuels and thereby, Estonia is independent from fuel imports.



Drawing 3.1.3 Sources of energy used for electricity production
Source: Statistical Office, 2008

A positive side of the power system in all three Baltic countries is the very strong power transmission infrastructure. In fact, Baltic countries are the only EU region in which transmission power deficit and the so-called bottlenecks do not exist. At the same time, poor cross-border connections of Baltic countries with other Member States should be taken into account. The only one is the 350 MW HVDC submarine cable connection between Estonian and Finland. Since the connection with other EU countries is limited, the area can be regarded as Baltic electricity market in which the non-member Russia, and to some extent also Finland, can be involved.

Along with the implementation of supplementary power connections Lithuania-Sweden and Estonia-Finland, an integration of Baltic countries with the Nordic market can be expected. Therewith, according to the plans the Estlink 2 connection shall be commissioned already in 2013, resulting in 1000 MW total transfer capacity between Estonia and Finland.

An extreme concentration features also other Estonian electricity market sectors. Besides the 96,5% of production market also the transmission network OÜ Elering (National Grid) and a distribution network Jaotusvõrk OÜ with its market share of

87,7%[1] belong to the Eesti Energia AS group. Moreover, the largest oil shale producer, the mining industry Eesti Energia Kaevandused (with former business title AS Eesti Põlevkivi) also belongs to Eesti Energia AS group.

Formation of the Estonian electricity market dates back to 1998, when the Energy Act was introduced. Based on the Act four sectors were regulated: electricity, heat, natural gas and liquid fuels. In 2003 the Energy Act was replaced by four separate acts: Electricity Market, Natural Gas, District Heating and Liquid Fuels Acts.

In the 1998 Energy Act the status of an eligible electricity customer was defined as the customer with an annual consumption of over 40 GWh. The Electricity Market Act, which entered into force in 1 July 2003, did not change the determination. In 1 May 2004 Estonia joined the EU. Together with the joining, an exemption in connection with market opening became enforced for Estonia. According to the exemption, 35% of the market shall be opened by 2009, while by 2013 the market shall be opened for all customers. Table 3.1.1 below presents the dynamics of market opening. Since 1 January 2009, a customer with an annual consumption of 2 GWh is qualified as an eligible one.

Table 3.1.1 Market opening timetable in Estonia

Year	Definition of eligible customer by annual consumption in GWh	% of market opening
1995	0	0
1997	0	0
1999	40	10
2001	40	10
2003	40	12
2005	40	12
2006	40	13
2007	40	13
2008	40	13
2009	2	35
2013	all customers	100

According to the Electricity Market Act the non-eligible customers shall buy electricity from their distribution network operator, or from seller designated by the operator, while the energy has to be produced by either oil shale using Narva Power Plants (AS Narva Elektrijaamad), in the process of heat and power cogeneration or by a small producer (of less than 10 MW capacity).

3.1.1 Cross-border interconnections, available transfer capacity and its allocation

As mentioned above, Estonia has electrical power transmission interconnections with Russia and Latvia, and from the end of 2006 also the direct current (sea cable) connection with Finland. Existing connections are shown in drawings 3.1.2 and 3.1.4. From Narva two lines lead to Russia at the voltage level of 330 kV and 220 kV with the total capacity of 1050 MW. From southern part of Estonia one 330 kV line with the capacity of 500 MW connects with Russia. In the opposite Russia-Estonia

[1] The basis for computation of market share is the sale of distribution service to final customers less sale to other distribution undertakings.

direction the same line has a transfer capacity of 400 MW. In the southern part of Estonia there are also 330 kV lines to Latvia with the capacity of 750 MW.

By statistics of 2008, the peak load from Narva to the direction of Russia was 211 MW, while form south Estonia towards Russia it was 158 MW. The peak load towards Latvia was 809 MW. Hence, the technically available transfer capacity was much higher than the actually needed one and a lack of capacity (congestion) has never been experienced. The Authority has not received any complaint about lack of capacity. To the information available to the Authority, the other Baltic regulators have also not recorded any congestion problem. The transmission capacity data are presented in table 3.1.2.

Table 3.1.2 Cross-border transfer capacity ****

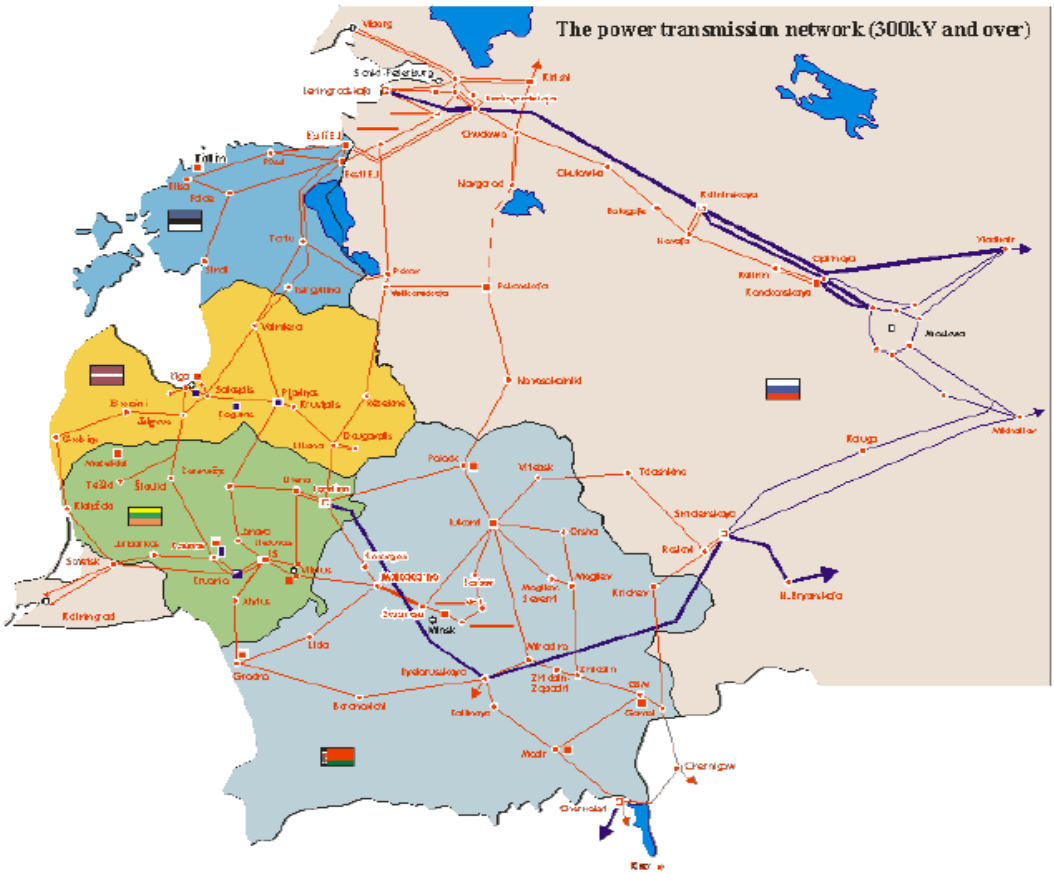
	Technically available transfer capacity MVA ***				Actual peak load MVA			
	Lines from Narva towards Russia	Line from south Estonia towards Russia	Line from south Estonia towards Latvia	Line towards Finland	Lines from Narva towards	Line from south Estonia towards Russia	Line from south Estonia towards Latvia	Line towards Finland
2001	1050/950*	500/400**	750	-	662	321	720	-
2002	1050/950*	500/400**	750	-	698	250	721	-
2003	1050/950*	500/400**	750	-	472	194	663	-
2004	1050/950*	500/400**	750	-	707	194	718	-
2005	1050/950*	500/400**	750	-	450	236	885	-
2006	1050/950*	500/400**	750	-	483	141	658	-
2007	1050/950*	500/400**	750	365	565	204	623	388
2008	1050/950*	500/400**	750	365	211	158	809	385
2009	1050/950*	500/400**	750	365	-	-	-	-
2010	1050/950*	500/400**	750	365	-	-	-	-
2011	1050/950*	500/400**	750	365	-	-	-	-
2012	1050/950*	500/400**	750	365	-	-	-	-
2013	-	-	-	365				
2014	-	-	-	1065				
2015	-	-	-	1065				
2016	-	-	-	1065				

* - in Narva-Petersburg direction available transfer capacity is 1050 MVA, while in Petersburg-Narva direction it is 950 MVA

** - in Tartu-Pihkva direction available transfer capacity is 500 MVA, while in Pihkva-Tartu direction 400 MVA

*** - technically available transfer capacity depends on internal networks of Russia, Latvia, Lithuania and Belarus - exact data about the development of their transmission networks are not currently available

**** - maximum load in normal conditions with 20% reserve



Drawing 3.1.4 Map of power system of Baltic countries and north-western Russia

Since no congestion has been recorded, the EC Regulation No 1288/2003 (Annex amended by EC Decision of 9 November 2006 2006/770/EC chapter 3.2 (g)) has not been implemented in the regional Baltic electricity market. According to the regulation in Baltic countries, the cross-border transfer capacity rights shall be allocated only by means of auctions. In connection with the close down of Ignalina nuclear power plant in Lithuania occurrence of congestion (the so-called "bottle necks") can be foreseen in the regional Baltic electricity market it is very important to undertake the auctions by the end of 2009 at the latest. The Authority has delivered amicus curie to the transmission operator calling attention the EC regulation and its obligatory nature.

The Estlink power connection to Finland is the so-called commercial connection, as only its owners have the right to utilise its available transfer capacity. When a third party access will be facilitated (in 2013 at the latest), a shortage of transfer capacity is foreseen. In connection with that, there will be a need for allocations of existing capacity.

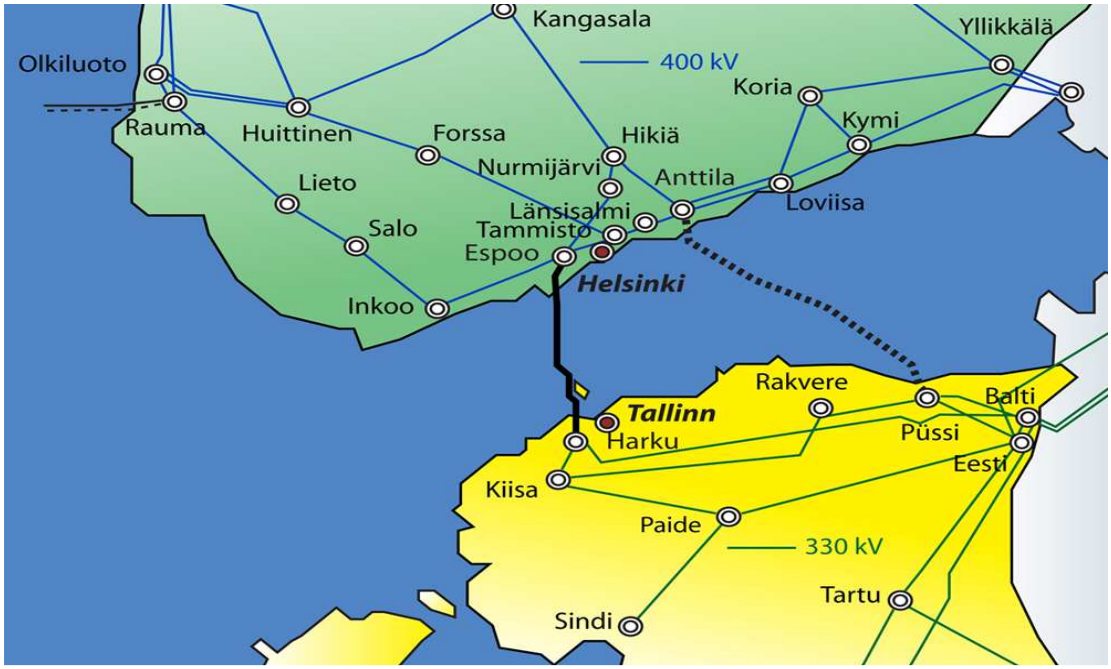
Estlink 1

The Finnish-Estonian connection Estlink 1 started commercial operation in the end of 2006. The connections are presented in drawing 3.1.5 below. The dotted line marks the new planned connection Estlink 2. The owner of Estlink 1 is AS Nordic Energy Link, with its shareholders as follows:

Eesti Energia AS (Estonia) 39,9%,

Lietuvos Energija AB (Lithuania)	25%
VAS Latvenergo (Latvia)	25%
Finestlink (Finland)	10,1%

Both the Finnish energy market regulatory authority and the Estonian Ministry of Economic Affairs and Communications granted an exemption to utilise it as a commercial project, without applying to it the principle of third party access. All the available capacity is allocated between the owners on contractual basis until 2013. If the owners are not utilising their contractual capacity reservations, they are obliged to facilitate third party access to available capacity. The owner of Estlink, AS Nordic Energy Link, is obliged to disclose the information about currently available transfer capacity on its web site. It should be mentioned yet that other shareholders have pre-emptive right to utilise available capacity of one of the owners. Such an arrangement holds back market development. In March 2009 the Authority together with the Finnish energy market regulatory authority EMV formally addressed to the owners with the request to open third party access to the line before the pre-emptive right termination in 2013. An expected third party access time is 1 April 2010, if the owners will make relevant decision.



Drawing 3.1.5 Estlink 1 and Estlink 2 in Gulf of Finland

After termination of the exemption, or upon an owners' decision the acquisition cost will be included in the regulated asset base of the transmission network operator and third party free access shall be validated to Estlink in 2013 at the latest.

Estlink 2 would be owned by the Estonian and Finnish TSOs. The project is designed to be financed by Estonian, Finnish and EU financial means. According to the project time schedule the Estlink 2 connection shall start commercial operation by the end of 2013.

3.1.2 Congestion management

Since no transfer capacity congestion has been recorded between Estonia and Latvia so far, there has been no need for congestion management and capacity allocations. In order to manage limitations in specific cases a method has been proposed - in essence, proportional limitation of contractual deliveries. Currently, the process of approval by the Baltic TSOs is ongoing. Expansion of the Nordic power exchange / *Nord Pool Spot (hereinafter NPS)* into the Baltic countries (dealt with in more detail in chapter 3.3.4) provides for elaboration of a market based mechanism of congestion management according to NPS rules. Presumably, the Baltic price formation area shall be established in 2013.

The Estonian TSO (Elering OÜ) has not disclosed information about actual utilisation of transfer capacity, as until present there have no capacity limitations. According to the explanations by the company, it is planned to disclose the information in the near future. The undertaking will disclose transfer capacity for the next day, next week and next month since 14 August 2009. Elering OÜ uses the computation model PSSE31, which is uniform for all Baltic TSOs. The model determines differences between trading/contractual and physical flows, considering possible circular flows.

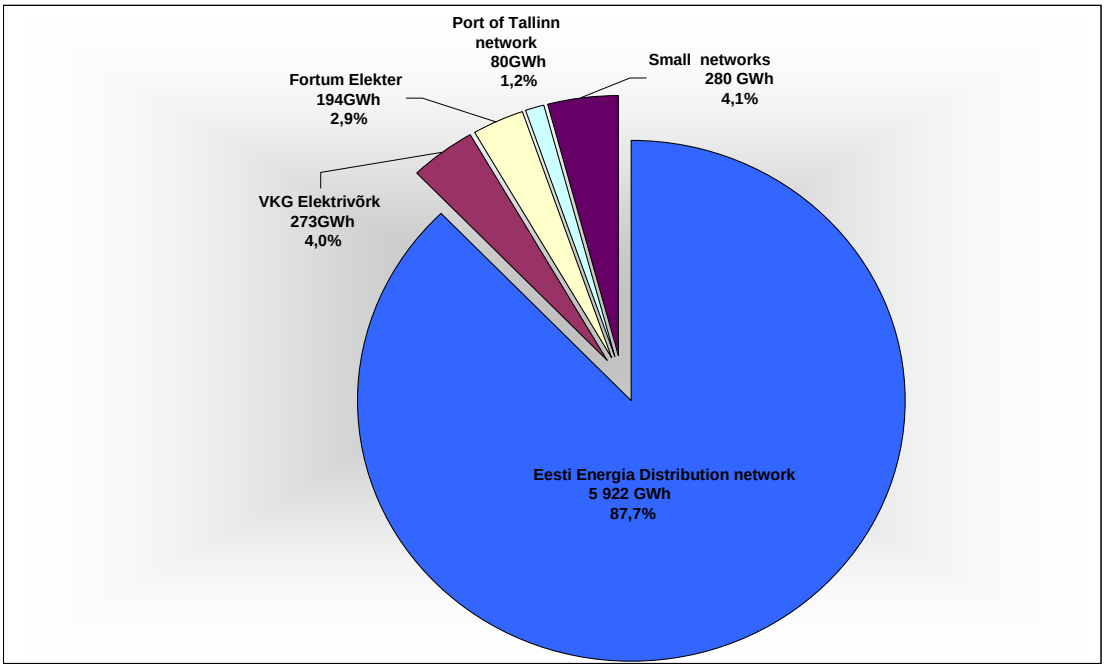
3.2. Electricity networks regulation

In compliance with the currently valid Electricity Market Act for electricity networks the so-called exclusive right principle or, what is the same, the principle of concession is applied to. This means that the transmission system operator (TSO) has an exclusive right to perform power transmission and system services. The same principle is applied to distribution network operators as well, whereas for the operators an individual service area, determined by geographical coordinates, is assigned to. Within the area respective operator has exclusive rights to provide network services. Thereby neither competition between lines nor parallel lines is allowed. The principle of concession minimises business risk for network operators, since the status of a natural monopoly originates not only from the actual situation but also from the provisions of law. Reasoning from the exclusive right network operators have also an obligation of developing their networks in a manner that secures supply to already connected customers and to new connectees as well.

In Estonia the TSO is a separate company Elering OÜ. 100% of its shares belong to Eesti Energia AS. The number of distribution network operators is 40, which due to smallness of Estonia it is a rather big number. Although, the concentration of distribution service market is extremely high. The largest undertaking is OÜ Jaotusvõrk that belongs to Eesti Energia AS and has a market share of 87,7%. Its annual sale in 2008 was 5 922 GWh (together with the sale to other distribution networks 6 457 GWh) and the number of customers was 622 000. The second largest distribution enterprise is VKG Elektrivõrgud OÜ, which belongs to Estonian private capital (the sole holder of shares is the largest Estonian shale oil producer Viru Keemia Grupp AS). It has 35 000 customers and an annual sales of 273 GWh. The third largest network operator is AS Fortum Elekter with sales volume of 194 GWh annually and supplying 23 500 customers. An annual sale of the rest 37 distribution

undertakings is below 500 GWh. The largest among those are OÜ Tallinna Sadama Elektrivõrk (the networks owned by Port of Tallinn), AS Sillamäe SEJ (CHP plant in Sillamäe) and AS Loo Elekter. An annual sale of smallest networks is below 2 GWh.

The market share of distribution undertakings is presented in drawing 3.2.1. Despite of quite marginal market share of an individual small network operator their 12,3% total share is remarkable. That is why also there strong regulation must apply, similarly to the regulation of large ones.
A summary of basic indicators for network operators is presented in table 3.2.1.



Drawing 3.2.1 Market share of distribution operators

Table 3.2.1 Basic indicators of network operators (transmission and distribution service prices in 2008)

	Number of operators	Average tariff for transmission or distribution €/MWh (Estonian cent/kWh)			Quality of supply indicator –an average time in minutes of an interruption caused by faults per customer
		Large industrial customer	Commercial customer	Household customer	
Transmission	1	7,39 (11,57)			4,922
Distribution	40	12,63 (19,77)	27,50 (43,04)	37,20(58,22)	443

Notes:
According to Eurostat definitions:
- large industrial customer, one with an annual consumption of 24 GWh, max capacity 4000 kW
- commercial customer, one with an annual consumption of 50 000 kWh, max capacity 50 kW
- household customer, one with an annual consumption of 3 500 kWh.
Distribution indicators are based on OÜ Jaotusvõrk information.
1 €=15,65 EEK

Law provides for equal price regulation for all network enterprises regardless of their size. This adds an extra workload to the Authority, as the volume of work with price approval primarily depends on the number of undertakings and almost does not depend on the size of an enterprise.

The only exemption in electricity network operator's regulation is the requirement for legal unbundling of network activities in case the number of customers is over 100 000. Due to that, the only operator with legal unbundling is the distribution network belonging to Eesti Energia AS, where since 2004 a separate business entity Eesti Energia Jaotusvõrk OÜ was established. For others law stipulates only separation of accounts and the obligation of auditing.

According to law, the Authority approves separately the following charges and methodologies:

- network charges (for electricity transmission and for using 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 others)
- methodology for calculation of a charge for connecting to the network

The prices for balance energy and the charges for transit of electricity are not approved. However, the Authority is obliged to verify justification of the prices. That means, the so-called *ex-post* regulation is applied to these charges.

3.2.1 Mechanism of compensation between transmission system operators

Regarding cross-border exchange in electricity, the EC regulation No 1228/2003 provides for application of a principle, according to which consumers pay for transmission only to the transmission network operator of their own country and the TSOs determine balances and cost with each other. According to the regulation, the so-called compensation fund is to be established between EU transmission network operators. All transmission operators contribute to the fund and from the fund, costs are compensated for all operators participating in the transit of electricity. Following the requirements of the regulation is obligatory to Estonia. Article 4 (3) of it stipulates that payments to the fund and incomes from the fund shall be taken into account in approval of network charges. For example, a customer in Lithuania that buys electricity from an Estonian producer, has to pay for transmission only to his local TSO. The Lithuanian transmission network operator, in turn, clarifies its payments and receipts with both Latvian and Estonian transmission operators through the compensation fund. Depending on the direction of energy flows, the transmission network operator of respective country may get paid from the fund or has to pay to the compensation fund, and the regulator has to consider this in approving tariffs for the transmission operator. Thus, for instance, if the Estonian transmission operator gets income from the fund, the price paid by customers for network service shall decrease. In opposite case, if the operator has to pay to the fund, the price shall increase.

Above descried principles form grounds for the functioning of the open EU electricity market. Thereby all producers have equal opportunities, as customer paid transmission charge does not depend on in which country the producer, whose electricity is bought, is located. Similar questions, for instance, were raised in discussions in connection with the feasibility of a new nuclear power plant to be erected in Lithuania. It has been claimed that one of the potential risks is the transmission charge to be added to the electricity transported to Estonia. In reality, there is no such risk, as customers located in Estonia are to pay a uniform transmission fee irrespective where the electricity is produced – in Estonia, Latvia,

Lithuania or elsewhere. In other words – consumers are not influenced by the location of producers.

According to the EU regulation, the EU Commission shall establish methodology for computation of payments into the compensation fund and the amounts receivable from it. The methodology is not available yet, but an application of a compensation fund is necessary for regular functioning of electricity market. For this purpose, the EU transmission network operators concluded an agreement in 12 October 2007 (agreement on the compensation mechanism for 2008-2009). Since the Baltic electricity system is not synchronised with the systems of other EU countries, compensation of the Baltic countries is dealt with separately. According to the agreement Elering has to contribute to the fund 0,9768 million EUR. In addition, the Estonian TSO has concluded similar agreement with Latvian and Lithuanian transmission network operators for compensation of electricity exchange flows. According to it 2 955 thousand kroons shall be paid into this Baltic compensation fund. Both sums have been included in the transmission charges.

The Authority accepts the agreements between the EU TSOs, as these are necessary for a compromise and for normal functioning of the market. At the same time, the Authority is in a position that the amount payable to the Baltic compensation fund is not justified, as Estonia mainly provides the transit service and instead of paying, it should receive income from the fund. It is also no justified that, compared to Latvia and Lithuania, Estonia pays significantly more, as all transit flows through Estlink go through Estonia. The above-mentioned agreement does not solve the question of charges for the energy flows coming from Russia – today none of the Baltic countries charges the flows originating from Russia.

3.2.2 Approval of network charges

The Authority elaborates unified methodologies for computation of network charges. They serve as the basis for formation of charges and their approval as well. The methodologies are disclosed at the Authority's web site. The site also includes specially elaborated tables for collection of input data to be filled in for approval process. The tables are relatively comprehensive and include technical data and detailed accounts: profit and loss statement and balance sheet, and data about assets. Enterprises shall also submit a detailed investment plan and separately the expected sale volumes of individual network services. Since the tables are comprehensive, and the price is approved by a formula for a 3-year period, it is required to fill them in for respective regulation period once in three years. In the meantime an updating is not required but the Authority is entitled to request additional information about economic performance and technical indicators.

Submission of input data is an obligation stipulated by law. The Authority can request any information needed for price approval and performing of supervisory proceedings. The Authority employees can also visit the enterprises any time and request data and copies of documents. The practice so far has shown that undertakings do not refuse to submit information.

In the regulation of network prices the Authority has a determining role in the selection of methodologies. Law sets out only the following principle:

- The level of network charges must enable enterprises to fulfil their obligations determined by legal acts and market licence conditions, as well as to have justified return on invested capital.
- The Authority elaborates and discloses unified methodologies for calculation of network charges, which serve as the basis for approval.

Therefore, it is up to the regulatory authority to decide upon the selection of methodologies. In the elaboration of methodologies opinion of enterprises has been considered. In fact, it has been the process of long-lasting disputes and mutual consultations between the Authority and the regulated undertakings. In the regulation of network charges the so-called long-term RPI-x indexation method is applied, by which the charges are approved for a 3-year period and adjusted annually.

The formation of network charges is first of all based on the prognosis of sales revenue for a 3-year period. Below a sample table is presented. It gives an overview of network charge formation and cost components included in charges.

Prognosis of network charges	**2008**	**2009**	**2010**
Sales volume of network service GWh	1 000	1 030	1 061
Losses according to saving obligation	10,0%	9,5%	9,0%
Losses of electrical energy GWh	111	108	105
Electricity tariff EEKc/kWh	40	40	40
Cost of compensation of electricity losses mill kroons	**44,40**	**43,35**	**41,88**
Charge for network services EEKc/kWh	12,00	12,18	12,36
Cost for network charges mill kroons	**133,32**	**138,65**	**144,10**
Fixed cost	**200,00**	**205,00**	**210,13**
RPI change	4,00%	4,00%	4,00%
Fixed cost saving obligation x	1,50%	1,50%	1,50%
Fixed cost factor (RPI-x)	2,50%	2,50%	2,50%
Fixed cost change mill kroons		5,00	5,13
Capital expenditure mill kroons	**31,69**	**32,56**	**33,44**
Justified return (profit) mill kroons	**38,22**	**38,44**	**38,59**
Allowed sales income mill kroons	**447,63**	**458,00**	**468,13**
Correction factor of network charges		**0,9934**	**0,9923**

Note: Abbreviation EEKc means cents of Estonian kroon.

In the following price/tariff computation principles are described in more detail.

Volume of sales of network services

Evaluation of the volumes of sale is extremely important. Fixed cost is dominant in the cost structure of network services. The higher the sales, the lower the charge for the use of network. In the indexation of network services a formula is used, by which the charge changes along with the change of sale volume. In evaluation of the volume of the sale of network services statistical data are used, i.e. the dynamics of sale during the last 5 years. At the same time a general rule is considered – together with an economic growth overall electricity consumption grows as well, and vice versa. A 3% annual increase of the distribution service was anticipated for the regulation period of 2008–2010. The increase of sale volume is fixed for the whole regulation period and no adjustments are made within the period. This means that undertakings bare the risk of sale volume. If the volume is exceeded compared to prognosis, an extra income is earned. Otherwise, income decreases. The Authority is in a position

that the application of such principle follows customer protection interests, as well as leaves for undertakings enough motivation to make efforts for earning extra income through the increase of sale. Besides, through that undertakings are motivated to connect new customers as quickly as possible, as the added customers increase sales volume.

Losses of electrical energy

In Estonia the highest potential for loss reduction lies within distribution networks. For that reason an obligation for power losses reduction is imposed for all operators and during the few past years a significant loss reduction has been achieved. Just recently, in 2001 the Eesti Energia's distribution network with the biggest market share of 86% had losses of about 14%. During the previous regulation period (2005-2007) their losses level was reduced from 10 to 8%. The target for the next 3-year period that began in 2008 has been set out to achieve loss reduction down to 7% by 2010. From that level achieving of further reduction is complicated, as per expert opinions technical loss of 6-7% in distribution networks is an average value. Further loss reduction is achievable only through technical innovations, which require large investments. For the largest distribution network operator, OÜ Jaotusvõrk that belongs to Eesti Energia group, a target of 0,23% annual loss reduction obligation has been set for the regulation period of 2008-2010. If the operator succeeds to achieve the target earlier, it earns extra income. Otherwise, its failure to achieve the target shall be covered at the cost of its profit. In the transmission network the potential for cutting losses is lower. In 2008 the losses totalled 3,33% and the further potential according to expert opinions is not higher than 0,1% annually.

As outlined above, Estonia has a transitional period for electricity market opening until 2013. This means that a network operator has to purchase electrical energy for re-selling to non-eligible customers and for compensation of network losses either from oil shale fired power plants in Narva (AS Narva Elektrijaamad), from heat and power cogeneration plants or, from small producers (with the capacity of below 10 MW). The Authority approves components of the price limit for electricity sold by the power plants in Narva, which serve also as the basis for network charges, as these charges must include electricity for compensation of losses.

Uncontrollable cost

Cost is considered uncontrollable if undertakings cannot influence it by their economic performance and this naturally means that no saving obligation can be imposed on it. The major uncontrollable cost for undertakings is the cost of network services purchased from other network operators. For instance, distribution operator OÜ Jaotusvõrk buys network services from the transmission operator. In turn, small network operators buy services from OÜ Jaotusvõrk.

In addition to services purchased from other operators some other cost components are uncontrollable to undertakings. For example, the state fee (levy) for issuance of activity licences, the level of which depends on the size of an undertaking. Another example of an uncontrollable cost is the so-called obligation to tolerate (technical structures etc.). That means, a network operator has to pay rent to land owners for the structures located on their land, like power lines, transformers and substations.

Fixed cost

Fixed cost is subject to a very deep analysis by the Authority, as this cost component has biggest impact on price formation. Basic methods for evaluation of fixed cost is comparison with similar undertakings (*benchmarking*), analysis of cost dynamics and the analysis of individual cost components. A precondition for using comparison is availability of a sufficient number of undertakings. When it comes to smaller distribution operators, it is successfully possible, as the number of them in Estonia is 40. At the same time, the comparative analysis (*benchmarking*) is problematic when it comes to Eesti Energia AS group, their distribution and transmission operators. Their distribution operator OÜ Jaotusvõrk is the largest network undertaking, being many times larger than other comparable network operators and this makes application of benchmarking complicated. The same is true for the transmission network operator OÜ Elering, which can only be compared with transmission system operators of other countries. The EU energy regulator's association CEER carried out relevant project in 2008, in different regulatory applications were compared in various countries. Estonia took also part of it. The comparison will definitely be helpful in the price regulation of TSOs.

Other substantial methods in the analysis of fixed cost is the dynamics of cost in time and a detailed analysis of individual cost components. In the analysis of dynamics it is assumed that their growth is not steeper than the inflation reflected by consumer price index (RPI). In addition, undertakings shall achieve cost reductions through higher efficiency and productivity. In the analysis of individual cost components justification of them is verified. Basic cost articles of network operators are operation and maintenance, labour expenses, sales cost etc. Among others the Authority verifies in the analysis process whether operators buy services at market price, whether goods, works and services are purchased in compliance with procurement rules, and alike.

For a regulation period the Authority imposes an obligation to reduce fixed cost, which means that fixed cost shall not develop more rapidly than RPI-x. In the practice exercised so far the cost saving obligation or, the value of x has been set to 1,5%, as a rule.

Capital expenditure (depreciation of fixed assets)

For depreciation of fixed assets the Authority uses a regulatory capital expenditure method, which differs from accounting depreciation. The advantages of the regulatory method are its simplicity of computation and transparency for both customers and undertakings and to the regulatory authority as well. The regulatory depreciation method uses only two fixed assets' depreciation rates. Therefore, it is very simple and easily understandable way to monitor the value of regulated assets and verify the accounting of capital cost.

Accounting of the regulatory depreciation uses a principle, where capital cost is included in the network charges based on its technical life span. It is known that the life span of networks may last up to 50-60 years. Due to so long life span a number of assets' re-valuations may have taken place, in Estonia also the entire political system has changed. The oldest currently operational equipment was built already before World War II. However, a real network development began in years 1940-50. The major part of networks was erected in-between 1960-1990. A large-scale

reconstruction and extension of power networks restarted again since 2000. Thus, equipment with a very different age is in operation.

In the regulatory capital expenditure accounting a principle is used in which, from a certain moment in time, fixed assets are divided into two parts, the old ones and the new investments. For power networks for that moment the year 2003 was selected: so to say – the limit year. All assets acquired before the limit year are considered old ones and for them an accelerated rate of depreciation is applied. The Authority has ordered an expert analysis from Tallinn Technical University in which the structure and the technical condition of both transmission and distribution network's assets was analysed. In the result of the analysis an average evaluated residual lifetime for old (acquired before 2003) assets is in the transmission networks 16 years and in the distribution networks 11-14 years. The assets acquired since 2003 are considered new investments and for them a single constant weighted average rate of depreciation is applied, with respect to the structure of assets. Particularly, the evaluated lifetime for new investments of the transmission network is 40 years. The same for distribution networks appeared to be from 30 to 35 years.

Justified rate of return

A component of price/tariff is justified rate of return or operating profit. Since investors have the right to earn profit on the capital invested into fixed assets, it is logical that this component is included in tariffs. However, the profitability should have a reasonable level and be justified, in order to secure a gain for investors. The measure of reasonability is a level, which could be achievable if invested into similar business with a similar risk level. At the same time, earning of super profit with monopolistic service must be avoided.

Similarly to other regulatory authorities a model, in which for calculation of the justified return a weighted average cost of capital (WACC) and regulatory asset base is used. The regulatory asset base is the capital invested into the enterprise. In energy undertakings it is tangible assets and 5% of the (external) turnover. Thus, the justified return is calculated using the following formula:

justified return = WACC × regulatory assets

Where a weighted average cost of capital WACC is described by the following equation:

$$\mathrm{WACC} = \mathrm{C}_{\text{equity capital}} \times \frac{\mathrm{EC}}{\mathrm{DC}+\mathrm{EC}} + \mathrm{C}_{\text{debt capital}} \times \frac{\mathrm{DC}}{\mathrm{DC}+\mathrm{EC}}$$

$c_{\text{equity capital}}$	cost of equity capital;
$c_{\text{debt capital}}$	cost of debt capital;
EQ	the share of equity capital;
DC	the share of debt capital

The cost of equity capital is calculated by the following equation:

$c_{equity\ capital} = k_{risk\ free} + k_{country} + \beta \times r_{risk\ premium,}$

The cost of debt capital is calculated by the following equation:

$c_{debt\ capital} = k_{risk\ free} + k_{country} + k_{company}$

$k_{risk\ free}$	risk free rate of return
$k_{country}$	country risk
ß	beta factor,
$r_{risk\ premium}$	risk premium
k_{debt}	debt risk premium

The basis for calculation of weighted average cost of capital is the risk free rate of return. In Estonia governmental bonds essentially do not exist. For that reason the Authority bases in the determination of risk free return on the German 10-year state bond return in the last 5 years. To this, an Estonian state risk is added. The 5-year historic return is used in order to eliminate market fluctuations in the calculation of a justified return.

WACC for network operators depends on the risks involved in individual undertakings. Transmission network OÜ Elering has the lowest risk level. WACC for distribution networks is determined in the range between 6,65 and 8,1%. Herewith the Authority has evaluated the capital cost for distribution network of Eesti Energia AS group somewhat lower that for other distribution operators, because of its dominant position on the market, hence, having somewhat lower risk level.

Regulatory assets

The basis for determination of both the cost of capital (capital expenditure) and a justified return is a regulatory asset base, for which the Authority applies principles, similar to those used by other regulatory authorities. In accounting of the regulatory assets its continuity is of an extreme importance. The accounting of regulatory assets commences from the year 2003, where to the book value of assets investments are added and a regulatory capital expenditure is subtracted. For an initial value of assets the accounting (book) value is taken. In exceptional cases for smaller undertakings, other values, different from the book one, may be accepted in case the book value is obviously below the actual (market) value. Yet there have been cases where the Authority has not accepted re-valuation of assets by undertakings, as the raised value had been clearly higher than the actual one. For the three largest network operators (Eesti Energia Jaotusvõrk OÜ, Fortum Elekter AS and VKG Elektrivõrgud OÜ) the Authority has ordered an expertise, which show that their assets' value corresponded to the actual one. In the determination of assets' value of smaller undertakings the Authority has used a comparative method, where the value of assets of various undertakings were compared per kilometre of lines, per number of substations and per sale volume. Such method enables identifying undertakings with an obvious over or under valued assets.

3.2.3 Subsidising of renewable sources and cogeneration

In 1 May 2007 amendments the Electricity Market Act were enforced. Based on the amendments a new support scheme was introduced for energy produced from renewable sources, as well for support of heat and power cogeneration (CHP). Besides, the amendments also significantly increased the size of payable subsidies. According to the new scheme producers have two options: either to sell electricity at a fixed tariff in the framework of the purchase obligation or, to receive subsidy and sell electricity at market price. Financing of both the purchase obligation and the subsidy is arranged through the transmission network operator. By the beginning of each calendar year the transmission operator Elering OÜ prepares a prognosis of the needed subsidy in total and allocates it between distribution operators proportionally to their distribution service sales volume. Every distributor includes this in their distribution service bills. For example, in 2008 consumers paid for supporting of renewables 3,03 EEKc/kWh, while in 2009 they have to pay 6,07 EEKc/kWh. Below table 3.2.2 presents the tariffs and subsidies applicable to various producer categories.

Table 3.2.2 Tariffs and subsidies applicable to producers from renewables and for CHP

Kind of energy production	**Purchase obligation tariff EEKc/kWh**	**Subsidy EEKc/kWh**	**Current market price EEKc/kWh**	**Anticipated sale price EEKc/kWh**
Renewable energy sources[1]	115	84	44,56[3]	124,64
Efficient cogeneration[2]	81	50	44,56	94,64

Notes: [1]Subsidy is paid if the plant's net capacity is not higher than 100 MW. Wind energy is subsidised until the total wind energy production does not exceed 400 GWh per annum.
[2]Subsidy is paid if waste, peat or oil shale processing retorting gas is used as the source of energy production. As well, it is paid if CHP plant is erected to replace existing district heat supply boiler plant with the capacity not exceeding 10 MW.
[3]The price for AS Narva Elektrijaamad, as the market price.
The abbreviation EEKc means cents of Estonian kroon.

Considering the production price of Narva Power Plants as the market price (of the market dominant producer with 90% of the total production), the new support scheme creates a very favourable environment for development of renewable sources and cogeneration. Since the beginning of 2007 the prices in the regional electricity wholesale market are determined by *Nord Pool Spot (hereinafter NPS)* or Nordic Power Exchange Helsinki price area fluctuations. Thus, the *NPS* Helsinki price area average in 2007 was 46,96 EEKc/kWh (30,01 EUR/MWh) and in 2008 respectively 79,83 EEKc/kWh (51,02 EUR/MWh). Therefore, the price for electricity produced from renewable sources may develop even to a higher level.

3.2.4 Conditions for connecting new producers

The process of connecting to the grid is regulated by the Electricity Market Act and the Grid Code elaborated on the basis of the Act. The Grid Code sets out requirements for connecting of customer electrical appliance to the distribution network of a network undertaking. For connecting to the transmission network a connection application must be submitted to the TSO (Elering OÜ) and during 90 days an offer for connection shall be issued.

The connection offer shall contain an electrical flow diagram for connecting to the transmission network, parameters, quotation of the connection related cost and an estimation of the charges payable for connection. In case if the customer wants to connect to the network in an area where the transfer capacity is limited by connection offers of other connectees, the network undertaking shall keep chronological order records for implementation of the connection offers. The network undertaking issues the connection offer when the transfer capacity becomes available. Applications are recorded in the waiting list as per the date of their reception. If the data submitted in application are insufficient or do not fulfil the requirements the network undertaking notifies the customer about it in 10 days from the reception of his application.

For connecting customer appliance to the network, or for amending of the consumption or generation conditions, the network undertaking concludes with the connectee the connection contract. The following shall be set in the contract:

- location of connection and measurement points
- charges payable and payment conditions
- conditions for provision of the connection
- amendment of the consumption conditions
- conditions for amending and termination of the connection contract
- commissioning time of the connection
- other conditions

Connection contract is the basis for conclusion of network contract. For selling of transmission service the TSO (Elering) concludes with the customer network contract, in which the following shall be set out:

- electricity supply flow diagram including connection points and ownership boundaries of electrical appliances
- consumption conditions including maximum allowable consumption capacity, maximum durations of planned interruptions and acceptable interruption durations for corrective actions in power supply failures
- list of measurement equipment
- list of relay protection and automatic control equipment, list of secondary devices and their settings important from the security of supply view
- agreement on switching of electrical appliances that sets out responsibility of the parties on giving permission for, managing of and carrying out of switching procedures
- standard conditions

3.2.5 Regulation period 2008 to 2010

Since 1 March 2008 the network charges of Eesti Energia AS group's distribution network OÜ Jaotusvõrk fell by 1% while the inflation rate being 4,2% or, in real values (without considering inflation) by 5,2%. The Elering OÜ transmission network charges rose by 1,6%, but in real values even fell by 2,6 %. The decrease of distribution network's charges was caused by an increase of sale volume, reduction of power losses and savings in fixed cost. The transmission network charges were first of all influenced by the increase of subsidy paid to electricity from renewable energy sources.

Since 1 March 2009 the network charges of Eesti Energia AS group's distribution network rose by 1% while the inflation rate being 10,4% or, in real values (without considering inflation) by 9,4%. The transmission network charges rose by 3,3%, but in real values even fell by 7,1 %.

In the next 3-year period the target is continuation of investments into renovation of networks and thereby reduce network losses, as well as reduce the number of supply interruptions and their duration.

3.2.6 Quality of electricity supply

Quality of supply requirements are based on the Electricity Market Act. According to it, the requirements are established by the Minister of Economic Affairs and Communications. Following of the requirements is obligatory and penalty payments can be imposed by misdemeanour proceedings in case of violation of the requirements. 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 activity. Functions of the Authority are to monitor undertaking's performance in fulfilment of the quality requirements, adequacy of keeping records on quality indicators and in case of violation, to impose sanctions (initiate misdemeanour proceedings). The Authority has elaborated corresponding guidelines and a form for recording of statistics on quality indicators. Disclosure of the indicators on web site is obligatory for all undertakings.

3.2.6.1 Customer service quality requirements

Requirements for the quality of customer service determine maximum acceptable time, during which certain operational procedures have to be accomplished. Below table 3.2.3 presents specific requirements.

Table 3.2.3 Customer service quality requirements for network operators

Operational procedure		Maximum acceptable time for procedure
Within distribution network service area		
Reconnection following lack of payment after bill is paid	If supply interruption in the grid is not needed	5 working days since reception of the payment for reconnection
	If supply interruption in the grid is needed	8 working days since reception of the payment for reconnection
Customer site inspection in connection with metering problems		5 working days since customer complaint
Responding to queries about charges and payments		5 working days since customer inquiry
Deactivation of grid connection at customers request	If supply interruption in the grid is not needed	5 working days since customer request
	If supply interruption in the grid is needed	8 working days since customer request
Meter replacement or change of meter settings at customer request		7 working days since customer request
Customer information about planned supply interruption		At least 2 days prior to planned interruption
Within transmission network service area		
Customer site inspection in connection with metering problems		5 working days since customer complaint
Information of concerned customers about planned works in connection with meter		At least 5 days prior to commencement of works
Coordination of planned supply interruption with customers concerned		Written information by the 15th date of preceding month

Undertakings shall submit to the Authority information (in the format of table 3.2.4) about the extent of compliance with the quality requirements. Based on the 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. In case of failure to comply with the requirements customers have the right to file a complaint with the Authority. The Authority may initiate a misdemeanour proceeding in each specific case and impose a fine (penalty payment) in an amount of up 50 000 kroons (3195 €) for a single violation. Therefore, the level possible punishment can be quite remarkable. The money is to be transferred to the state budget.

Table 3.2.4 Information about customer service quality to be submitted by undertakings

				Year	
	Customer service quality acoording to network service quality requirements	**Maximum acceptable time for procedure**	**Criteria**	Total number of procedures	Accomplishe d in acceptable time
1.	**Within distribution network service area**			times	times
1.1.	Reconnection following lack of payment, after bill is paid and if supply interruption in the grid is not needed	5 days	after reception of payment for reconnecting		
1.2.	Reconnection following lack of payment, after bill is paid and if supply interruption in the grid is needed	8 days	after reception of payment for reconnecting		
1.3.	Customer site inspection in connection with metering problems	5 days	since customer complaint		
1.4.	Responding to queries about charges and payments	5 days	since customer inquiry		
1.5.	Deactivation of grid connection at customers request, if supply interruption in the grid is not needed	5 days	since customer since		
1.6.	Deactivation of grid connection at customers request, if supply interruption in the grid is needed	8 days	since customer requets		
1.7.	Meter replacement or change of meter settings at customer request	7 days	since customer request		
1.8.	Customer information about planned supply interruption	at least 2 days	prior to planned interrruption		
2.	**Within transmission network service area**				
2.1.	Customer site inspection in connection with metering problems	during 5 days	since customer application		
2.2.	Information of concerned customers about planned works in connection with meter	at least 5 days	prior to commencing of works		
2.3.	Coordination of planned supply interruption with customers concerned	Written information by the 15th date of preceding month			

3.2.6.2 Network service quality requirements

Regarding network service quality both supply interruptions caused by faults (not planned) and planned interruptions are regulated. Supply interruptions lasting less than 3 minutes are not considered interruptions. According to quality requirements time limits (maximum acceptable durations) are stipulated, during which customers shall be re-supplied. The time limits are distinguished for summer and winter period (table 3.2.5). Since 1 January 2011 the network service quality requirements will become stricter, i.e. the acceptable durations of interruptions caused by faults will become shorter. However, in Estonia the interruption duration per customer have never exceeded 8 hours during a year.

Table 3.2.5 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 **	
Acceptale annual accumulated interruption duration	200 hours (150)***	
Distribution network		
Acceptable duration of an interruption caused by faults	16 hours (12)	20 hours (16)
Acceptable duration of a planned interruption	10 hours	8 hours
Acceptale annual accumulated interruption duration by faults	100 hours (70)	
Acceptale annual accumulated planned interruption duration	64 hours	

Notes: *Power is supplied through two or more 110 kV transformers or lines
** Power is supplied through single 110 kV transformer or a line
*** In brackets requirements since 1 January 2011 are presented

If undertakings fail to comply with the acceptable time limits they are required to pay compensation to customers. As well the Authority may initiate a misdemeanour procedure in each specific case and impose a fine (penalty payment) in an amount of up 50 000 kroons for a single violation.

The Authority has elaborated a specific form for reporting. Undertakings are required to fill in and to disclose it. In addition, it is required to disclose how many times and in how many grid connection points they failed to comply with the quality requirements. In connection with customer service requirements undertakings shall submit data on how many times they failed to fulfil the service quality requirements. Network operators shall disclose the following network quality (continuity of supply) indicators:

1) average fault caused interruption frequency per consumption point per year (CI; SAIFI)
2) average fault caused interruption time per consumption point per year (SAIDI)
3) average fault caused duration of an interruption (CAIDI)
4) average planned interruption frequency per consumption point per year
5) average planned interruption time per consumption point per year
6) average duration of a planned interruption

All above-mentioned data on network quality are disclosed on the Authority's web site.

Below table 3.2.6 presents the data that undertakings shall submit on quality of electricity supply. Respective tables are also disclosed in the Authority's web site.

Table 3.2.6 Data submitted by undertakings on quality of electricity supply

1.	Interruptions	Maximum time			Unit	Year		
		Transmission	Distribution			Total	not in compliance	in compliance
			April 1- Sept 30	Oct 1 - March 31				
1.1	No of interruptions caused by force major (e.g. natural disasters)	3 days	3 days		pcs			
1.2	No of fault caused interruptions (excl those named in 1.1)	10 hours	16 hours	20 hours	pcs			
1.3	No of consumption points, where annual accumulated fault caused interruption duration exceeded acceptable	200 hours	100 hours		pcs			
1.4	No of planned interruptions	-	10 hours	8 hours	pcs			
1.5	No of consumption points, where annual accumulated planned interruption duration exceeded acceptable	-	64 hours		pcs			

2.	Security of Supply indicators	Unit	Qty
2.1	Total number of customers	pcs	
2.2	Fault caused annual accumulated interruption duration	minutes	
2.3	Planned annual accumulated interruption duration	minutes	
2.4	**Average fault caused interruption frequency per consumption point per year (CI) (SAIFI)**	**pcs**	**0,000**
2.5	**Average interruption time per consumption point per year (SAIDI)**	**minute**	**0,000**
2.6	**Average duration of an interruption (CAIDI)**	**minutes**	**0,000**
2.7	Average planned interruption frequency per consumption point per year	pcs	0,000
2.8	Average planned interruption duration per consumption point per year	minutes	0,000
2.9	Average planned duration of an interruption	minutes	0,000

3.	Distribution network voltage quality	Unit	Qty
3.1	No of connection points with voltage not complying standard EVS-EN 50160:2000 (incl. acceptable deviation +-10%)	pcs	

3.2.6.3 Fulfilment of network service quality requirements by transmission and distribution operators and duration of interruptions

Table 3.2.7 presents transmission (OÜ Elering) and distribution (OÜ Eesti Energia Jaotusvõrk) electricity supply quality indicators for 2007 and 2008. The deterioration of indicators is caused by very heavy snowstorms in Estonia in December 2008. Table 3.2.8 presents duration of re-supply procedures in the transmission network in 2008. The procedures include re-establishing connections between networks and repair works. Data are submitted by OÜ Elering (the TSO) with accuracy of 30 minutes.

Table 3.2.7 Quality of supply indicators in transmission (OÜ Elering) and distribution (OÜ Eesti Energia Jaotusvõrk) networks

Security of supply indicators	Unit	Transmission		Distribution	
		2007	2008	2007	2008
Total no of consumption points	pcs	233	245	615553	633438
Fault caused annual accumulated interruption duration	minute	1740	1200,8	123 898 686	280441590
Planned annual accumulated interruption duration	minute	0	0	133 866 447	132911353
Average fault caused interruption frequency per consumption point per year (CI) (SAIFI)	pcs	0,000	0,160	0,000	2,450
Average interruption time per consumption point per year (SAIDI)	minute	7,468	4,922	201,280	443,000
Average duration of an interruption (CAIDI)	minute	0,000	30,791	0,000	180,000
Average planned interruption frequency per consumption point per year	pcs	0,000	1,000	0,000	1,000
Average planned interruption duration per consumption point per year	minute	0,000	438,000	217,473	210,000
Average planned duration of an interruption	minutes	0,000	438,000	454,297	304,000

Table 3.2.8 Duration of re-supply procedures in transmission network **(OÜ Elering) in 2008**

Line	Interruption duration (hours)
L301 Tartu - Valmiera	285,5
L354 Tsirguliina - Valmiera	278
L358 Tartu - Pihkva	502
L373 Eesti EJ - Kingissepp	271
L374 Balti AJ - Leningradskaja	89
L677 Tsirguliina - Valka	58,5
L683 Ruusmäe - Aluksne	499
Total	**1983**

3.2.7 Balance responsibility

The Electricity Market Act and grid code stipulate regulation of balance responsibility in detail. According to it every market participant is responsible for its balance. The balance period is one full hour and the balance day begins at 00:00. A balance provider shall provide the system operator with a preliminary balance plan for a calendar month, week and day. The final balance plan is provided at 14:00 at the latest in the preceding day.

The market is organised in the principle that the transmission network operator is responsible for the balance of the whole system and there can be many balance providers operating on the market. For providing balance the transmission network operator buys and sells balance energy. The methodology for calculating balance

energy price and standard terms and conditions of balance agreements shall be approved by the Authority. In formation of balancing energy price the transmission network operator is obliged to buy and sell electrical energy at best possible price.

Balance is determined by the means of remote reading devices (*on-line*) in case the customer's electrical connection capacity exceeds 63A. For determination of other customer's balance standard load curves are used. This means that for household customers an *on-line* metering is not necessary.

Until amending of the Electricity Market Act (i.e. until 1 May 2007) wind turbines were exempted from balance responsibility. According to the amendments wind turbines shall also be responsible for their balance since 1 January 2009, similarly to other producers.

As the Estonian electricity market was opened only in a 13% extent until 1 January 2009, and since then it is opened in a 35% extent, a real balancing energy market is missing today and distribution network operators are responsible for non-eligible consumer's balance. The biggest balance provider is Eesti Energia AS and it provides service, in which the sold electricity price includes also balance responsibility service or, it provides the so-called open supply. Inspire of closeness of the market still three independent balance providers have appeared besides Eesti Energia AS. The Authority is in a position that effective balancing energy market can appear only when electricity market will be fully opened in 2013.

3.2.8 Unbundling of activities

An overview of the fulfilment of activity unbundling requirement is presented in below table.

	Transmission of electricity	Distribution of electricity
Separate headquarters (yes/no)	Yes	Yes
Undertakings acting as separate business entities (yes/no)	Yes	Yes
Separate accounts together with guidelines of the regulatory authority (yes/no)	Yes	Yes
Auditing of separation of account (yes/no)	Yes	Yes
Disclosure of separated accounts (yes/no)	Yes	Yes
Separate management board in which board members of other group undertaking's do not participate (yes/no)	Yes	Yes

According to law the transmission and distribution networks shall form separate business entities and shall not operate in other area of activity than provision of network service, system service and provision of balancing energy. A distributing network shall form a separate business entity if the number of customers exceeds 100 000. The latter applies in reality only to the distribution network of Eesti Energia AS group, OÜ Jaotusvõrk, as all other networks have less than 100 000 customers.

These requirements are equally valid for both vertically integrated undertakings and all other undertakings acting on principles of a group. The Electricity Market Act stipulates also the requirements for management of legally separated transmission and distribution network operators. Thus, a member of the management board of a network operator may not at the same time be a member of the management board of another electricity undertaking belonging to the same group. However, it is allowed to be, at the same time, a member of the management board of a network operator and a member of the supervisory board of another electricity undertaking belonging to the same group.
A distribution network operator with the number of customers below 100 000 shall separate its accounts as follows:

- provision of network service
- sale of electrical energy
- secondary (ancillary) activity

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 kept. 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 balance sheet, profit and loss account, management report and other reports provided for in the Accounting Act separately for network services, electricity sales and secondary (ancillary) activities. Respective information shall be submitted in their annual report and disclosed. The separation of accounts shall be audited and auditor's opinion attached.

The Authority has elaborated and disclosed on its web site respective guidelines and a reporting form, which can serve as the basis for separation of activities for undertakings.
In addition to the separation of network services, sale of electricity and secondary activity undertakings shall also separate their accounts by different services (so-called regulatory stipulated activity separation).

The transmission network operator shall separate its accounts as follows:

- sale of network service (*ex-ante* regulation, the Authority approves network charges prior to their entry into force)
- transit of electrical energy (*ex-post* regulation, the Authority has the right to verify justification of prices)
- charges paid by customers for connecting to the network (*ex-ante* regulation, the Authority approves methodology for calculation of connection charges separately for every undertaking)
- sale of balancing energy (*ex-post* regulation, the Authority has the right to verify justification of prices)
- secondary (ancillary) activity

A distribution network operator that is required to form a separate business entity shall also separate its accounts as follows:

- sale of network service (*ex-ante* regulation, the Authority approves network charges prior to their entry into force)

- charges paid by customers for connection to the network (*ex-ante* regulation, the Authority approves methodology for calculation of connection fees separately for every undertaking)
- secondary (ancillary) activity

A distribution network operator that is not required to form a separate business entity shall separate its accounts as follows:

- electricity sale to non-eligible customers (the Authority approves weighted average price)
- electricity wholesale, including to eligible customers (the Authority has the right to verify whether cross-subsidising is avoided in the sale of electricity to eligible and non-eligible customers)
- sale of network service (*ex-ante* regulation, the Authority approves network charges prior to their entry into force)
- customers' paid charges for connecting to the network (*ex-ante* regulation, the Authority approves methodology for calculation of connection charges separately for every undertaking)
- secondary (ancillary) activity

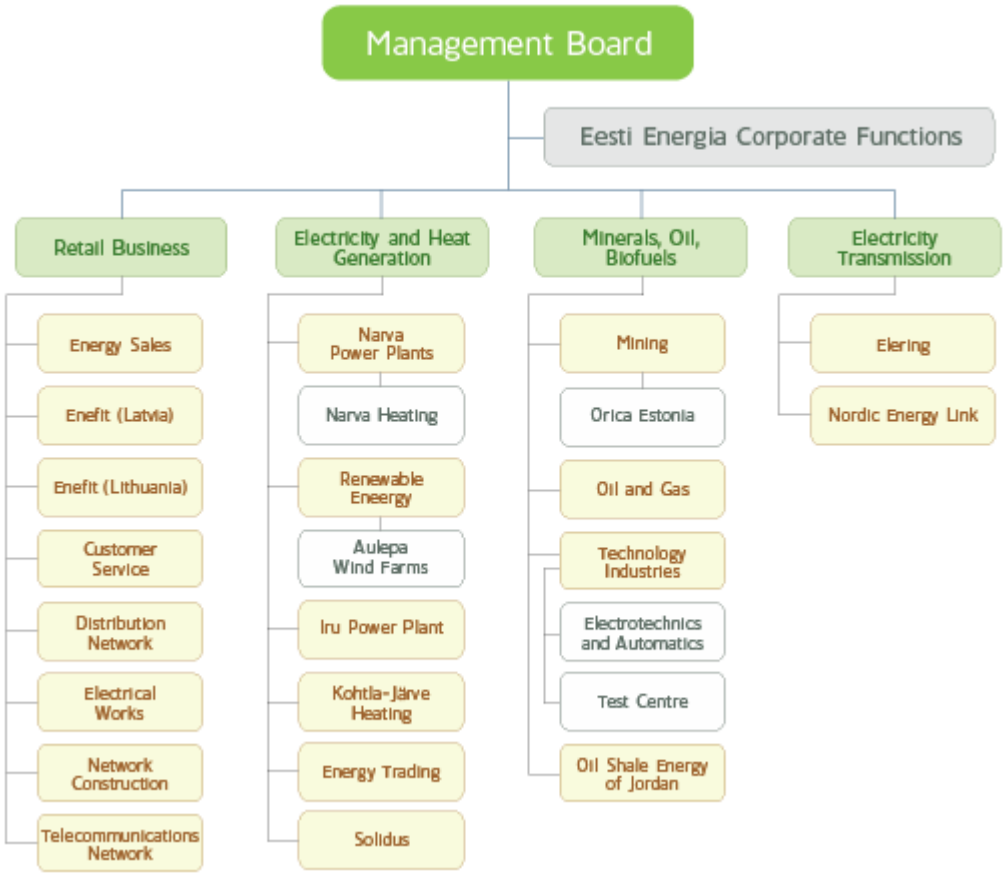
3.2.9 Ensuring of equal treatment

According to the Electricity Market Act all network operators are obliged to elaborate an action plan with the measures for equal treatment of other electricity undertakings and customers, including duties of employees in implementation of these measures. The Authority has elaborated guidelines for the preparation of such plan, which is disclosed on the Authority's web site. According to the guidelines, it is recommended to compile the plan in a 3-year perspective. Annually, a report shall be submitted to the Authority on implementation of the plan. Both the plan and the report are public documents and all interested parties can be acquainted with them.

If the Authority is in an opinion that the plan is not sufficient and does not comply with requirements, a revision of the plan and its changing may be required.

As in Estonia there is only one transmission undertaking (OÜ Elering, formerly named OÜ Põhivõrk), special attention shall be paid to analysis of its equal treatment action plan.

An energy undertaking can be considered as the vertically integrated one in Estonia. This is Eesti Energia AS group. The group possesses oil shale production, electricity generation, transmission network, distribution network, sale undertaking and undertakings dealing with secondary activities. 100% of Eesti Energia's shares belong to the Estonian state. In May 2009 business titles and logos of some undertakings within the group were changed. The transmission system operator (the TSO) OÜ Põhivõrk was renamed to OÜ Elering. The structure of Eesti Energia since May 2009 is presented below.



Most critical issue is securing of independence of the transmission network operator OÜ Elering, as besides provision of network services it is also the transmission system operator (TSO) being responsible for operation of the entire power system and its balance.

OÜ Elering is a separate independent business entity. The management board has three members and according to law, the person in charge may not at the same time be a member of the supervisory board of another electricity undertaking belonging to the same group. The supervisory board of OÜ Elering consists of four members, three of the them are from the group's Mother Company, i.e. from Eesti Energia AS. Their office premises together with dispatch centre is located in a separate building. The new logos for both Eesti Energia AS and OÜ Elering (former OÜ Põhivõrk):

Eesti Energia

elering
ÜHENDAME ENERGIAD

A similar situation is with the distribution network operator Eesti Energia Jaotusvõrk OÜ that belongs to Eesti Energia group. The undertaking's members of the board belong neither to management nor to supervisory boards of other undertakings. It has an office premises separately from the group's Mother Company and its own logo, which is similar to the Mother Company's one.

An extremely important factor from the point of view of network's independence is the management of undertakings. Essentially, the Mother Company's competence should only be limited to investments into productivity of assets, approval of annual budget and the long-term business plan. In the rest the networks should be independent in their decision-making. It should be mentioned in this respect that together with the formation of separate business entities in 2004 their independence has significantly risen.

As regards the transmission network operator OÜ Elering an important issue is the action plan for possible crisis situations, in which limitation of consumption may become unavoidable. The operator has a detailed plan for possible crisis situation, which provides equal treatment of all market participants.

In promotion of networks' independence and their price regulation it is important to supervise the price formation for services purchased from Mother Company and other undertakings belonging to the group. The services bought from Mother Company and other undertakings of Eesti Energia have important share in the cost structure of both the transmission and the distribution network. In the services bought from Mother Company a remarkable share have IT services, rent of office premises (these are owned by Mother Company), as well as security, legal and other services.

The largest part of outsourced services from undertakings of the group is the electricity purchased for compensation of power losses from group's power plants, in which the major portion comes from AS Narva Elektrijaamad (two power plants in Narva). This directly complies with the Electricity Market Act, which stipulates purchase obligation from AS Narva Elektrijaamad. Two other undertakings belonging to Eesti Energia AS group are Televõrk AS that provides telecommunication services, and AS Elektriteenused providing power network construction, repair and maintenance services. From these both the transmission and distribution network operators purchase communication, repair and maintenance services. AS Elektriteenused also takes part in construction/erection of new electricity supply networks.

In connection with the services purchased from Mother Company, the Authority has followed principles that the prices may not exceed the market ones and all procurement rules have to be complied with.

3.2.10 Equal treatment action plan

The action plan for equal treatment prepared by OÜ Elering (transmission network and system operator) has been analysed most thoroughly, it belongs to Eesti Energia group. Independence of the system operator is especially important in free market conditions, where the operator has information about offers of various electricity producers and sellers and possible leakage of this information is similar to stock exchange *insider* phenomenon, which can give advantages for some market participants before others. In February 2009 Eesti Energia's internal auditors submitted their annual report on equal treatment by OÜ Elering. According to the report the internal audit did not reveal violations in 2008.

The Authority has suggested that most of all the attention should be paid to the following aspects:

- separating areas of activity and auditing
- securing independence of the management board
- purchasing services from inside the group
- securing information confidentiality inside the group
- public relations

Below the Authority's assessment of the transmission and system operator's independence is presented.

3.2.10.1 Unbundling of activities in transmission network

Eesti Energia AS, as the Mother Company of the transmission network operator OÜ Elering, fully fulfils the requirements the EU Internal Electricity Market Directive and the Estonian Electricity Market Act. The activities of the operator are limited to provision of network services and sale of balance energy, and since 1 May 2007 also administering of the fund for supporting of producers using renewable energy sources. In addition, the undertaking has separated its accounts their cost components according to the requirements elaborated by the Authority as follows:

- sale of network service (*ex-ante* regulation, the Authority approves network charges prior to their entry into force)
- transit of electrical energy (*ex-post* regulation, the Authority has the right to verify justification of prices)
- charges paid by customers for connecting to the network (*ex-ante* regulation, the Authority approves methodology for calculation of connection charges separately for every undertaking)
- sale of balancing energy (*ex-post* regulation, the Authority has the right to verify justification of prices)
- secondary (ancillary) activity

In conclusion the Authority is in a position that the transmission and system operator OÜ Elering fulfils activity separation requirements of the Directive and the Electricity Market Act and the separation of cost components in their accounts secures transparency of service price formation, as well as avoids cross-subsidising of activities.

3.2.10.2 Management of transmission network operator and securing of its independence

According to the Electricity Market Act a member of board of another enterprise of a group may not be in management board of the transmission undertaking and may not be in charge of the undertaking. However, it is allowed to be, at the same time, a member of management board of a group's enterprise and a member of the supervisory board of a network operator. Currently, the management board has three members, while the supervisory board has four members with the three supervisory board members being also the members of Eesti Energia AS, as the Mother Company, management board.

According to the action plan members of the board are paid for fulfilment of duties. The compensation is fixed by contract and it can be changed only upon agreement between the parties. The board members are paid bonus on the basis of a system ("Compass") of balanced scorecards (metrics). In general, such work arrangement should secure independence of board members in their decision-making. At the same time the Authority sees here a conflict of interests. Namely, Eesti Energia AS group has not formed a legal person for electricity sale and trading. These functions are carried out by Eesti Energia AS itself, as by the sole owner of the transmission network. The Authority's opinion is that it is a conflict of interests. **The Authority has made relevant remarks to Eesti Energia AS during several years and recommended to establish a sales undertaking independent from the group. So far Eesti Energia has failed to fulfil the Authority's requirement.**

Eesti Energia AS sells electricity on domestic market, is active in electricity trade, as well it is the balance provider, i.e. is responsible for the balance between production and consumption. According to the organisation of electricity market the transmission network operator OÜ Elering is responsible for balance of the entire system. Thus, Eesti Energia AS, as the sale company and the balance provider is responsible before the transmission operator and, if needed, is forced to follow orders of the latter. Hence there is an obvious possibility for a conflict of interests, as members of Eesti Energia AS (as the sale company) management board are at the same time also members of the transmission operator's OÜ Elering supervisory board. **Despite the OÜ Elering's supervisory board has a member from outside of Eesti Energia group the Authority is in apposition that the OÜ Elering's supervisory board should be broader, i.e. there should be more members from outside of the group.**

The Authority is in a position that the solution would be establishing of a sale and trade company as a separate legal person. In such case both the transmission (OÜ Elering) and sales would be on the "same level" in relation to the group. That would eliminate the existing conflicting scheme, in which the balance provider is in a higher level in the group than the transmission operator, which supervises the balance provider. The Authority has paid attention to this shortcoming already in its previous reports, but no developments in the matter have taken place.

The Authority is also in a position that Eesti Energia AS group has to deal with the guarantees of the transmission operator's OÜ Elering board members and clarify the procedures according to which (at what kind of conditions) an impeachment of board members is possible. This should avoid situations, where management can make decisions, which may be harmful for the group as for one of electricity sellers, but at the same time necessary for the organisation of a fair market. To a certain extent this problem could also be solved by establishing of a separate sale entity. The problem was also addressed by the Authority in its previous reports, but no developments have taken place.

The action plan clearly defines also the functions to be performed by both the management and supervisory boards of undertaking. Particularly, the supervisory board's competence is to establish daughter companies, approval of budget and business plan, approval of extra budgetary investment programmes, borrowing and lending beyond daily business framework, and others. Daily operations, including

decisions on treatment of market participants, are completely the competence of management board.

Conclusively, the Authority is in a position that Eesti Energia AS group should establish sales company in the form of a separated legal person, in order to avoid possible conflict of interests between sales and transmission operator OÜ Elering. Besides, it is recommendable to elaborate procedures and criteria for impeachment of management board members. It is also recommended to enlarge supervisory board with members outside of Eesti Energia group. Both problems were repeatedly addressed by the Authority in its previous reports, but no developments have taken place in these questions.

3.2.10.3 Equal treatment of market participants

From the point of view of equal treatment of market participants it is extremely important to secure confidentiality of information. As the transmission network operator OÜ Elering is at the same time also the system operator (the TSO - responsible for system balance and security of supply in every time moment) it possesses confidential information about the market participants acting on the market. Similarly to stock exchange the transmission operator OÜElering is like a stockbroker having confidential information, using of which can give advantages to certain traders. As the owner, Eesti Energia AS, is one of the market participants to be treated equally with others, it becomes crucial to secure information. The information system of the transmission operator is connected to the system of Eesti Energia AS group. Bothe systems have common servers that are separated by “firewalls” and administered by same administrators. The action plan describes that according to internal regulations other undertakings of Eesti Energia AS group have no access to the confidential information of the transmission operator. The plan provides for changes in the internal work regulations with respect to the equal treatment and review of the internal documents dealing with equal treatment measures, in order to assure that the requirements of the equal treatment action plan are included in the documents. The Authority is in a position that full independence can be achieved only by an independent IT system outside of the group.

As one of the competences of the transmission operator is securing of supply and balancing of the power system, equal treatment of market participants is extremely important also in respect to this aspect. According to the Electricity Market Act the transmission operator can give orders to consumers, producers, network operators and other market participants for adjusting their consumption-production regime, in order to safe-guard security of supply in the entire system. It is extremely important that both market participants belonging and not belonging to Eesti Energia group are treated equally.

In accordance with the action plan, safeguarding of security of supply is based on respective internal documents established by OÜ Elering, including the Procedures of Operational Control of the Estonian Power System. For improving cooperation with larger clients relevant agreements on technical cooperation on the security of supply are concluded or, are under conclusion. In order to secure cooperation with neighbouring power systems agreements on parallel operation are also concluded.

In emergency situations the guidance is the instructions for liquidation of emergency consequences elaborated by the Ministry of Economic Affairs and Communications, as well as the plan for consumption limitations, which is adjusted annually. The orders issued by the system operator proceed from security of supply needs. In order to follow the requirements OÜ Elering has validated documents that describe actions of the system operator.

OÜ Elering constantly develops the network and takes care of the transfer capacity of transmission lines. In the coming 5-year period no capacity limitations are foreseen, except in Narva-Tallinn direction in connection with the Estonian-Finnish sea cable. OÜ Elering has an agreement with the owner of Estlink 1 according to which in case of a congestion the electrical energy transmitted to Estlink can be limited as well.

If a congestion still appears by a coincidence of several circumstances, then OÜ Elering will limit consumption by distribution networks in accordance with the limitation plan agreed with the network operators in beforehand. Respective plan is adjusted annually. The transmission dispatch centre operator can decide upon actual situation, which consumer to interrupt first, i.e. interruption of who is most efficient in specific situations.

Compared to other EU regions the Estonian situation is less complicated, because the Baltic power system is the only one in which there is currently enough excess transfer capacity and the transmission operator has no need for allocations of “deficiency” service. A shortage is likely to occur in Estlink, but until 2013 it is a commercial connection, in which capacity is shared between the owners on contractual basis.

Connecting of market participants to the transmission network is important from the point of view of equal treatment, first of all in relation to producers, as consuming customers connect to a distribution network, as a rule. That is why equal treatment of producers is especially important, as some of perspective entities, that are planning to connect, belong to Eesti Energia group. During last years the transmission operator has issued specifications for connecting of wind turbine (“windmill”) parks. As regards connecting of producers a situation can appear that the transmission operator OÜ Elering has to allocate “shortage source” or saying it in other words, existing network may have not enough capacity in a specific area/territory for connecting all potential applicants that are willing to connect. The Electricity Market Act provides for refusal, first of all in cases where existing network structure has lack of transmission capacity for network service.

According to the action plan the transmission network operator uses a common form in concluding connecting agreements with all connectees. The form is disclosed on their web site. In order to secure equal treatment for all customers an internal procedure for connecting has been established, following of which is obligatory for all employees dealing with connection issues. The charges/fees for connecting to the network are calculated on principles stipulated in grid code, i.e. on the basis of actual justified cost. The fees include the cost of new equipment and the cost of reconstruction of existing installations in order to connect the new capacity. In the connecting procedures both the undertakings belonging and not belonging to the Eesti Energia group are treated equally. Equal treatment is ensured for all entities willing to

connect through same applicable connection conditions and common (standard) connection contracts. In case of refusal to connect the transmission operator follows principles stipulated in the Electricity Market Act, its paragraph 65. In situations where connecting is related to shortage of transfer capacity the customer can get a connection offer for a maximum possible capacity. If no connection offers can be issued, because needed capacity is unavailable, the connectees are added to a waiting list. Applications in the waiting list are processed, when requested capacity becomes available, on the principle of chronological priority – earliest application in the list gets the connecting offer first.

In conclusion, activities of the transmission network operator (OÜ Elering) related to equal treatment of market participants can be considered satisfactory and the Authority has not observed cases of unequal treatment. The company has internal regulations and rules that regulate actions and decisions to be made when Eesti Energia AS group's undertakings are concerned. Whereas the Authority is in an opinion that the transmission network operator should further develop new energy trading, including balance energy, information system independent from the group. In other words, it is necessary to consider establishing of an information system separated/unbundled from the group.

3.2.10.4 Buying goods and services from undertakings of Eesti Energia group

Buying goods and services from undertakings of Eesti Energia group is important first of all from the point of view of formation of prices. Whereas, all Estonian citizens buy services from the transmission network operator directly or indirectly. Thus, it is the case of highest monopoly level and that is why in all purchases procurement rules have to be strictly followed and goods and services have to be bought at most favourable prices.

Prices of goods and services bought by the transmission network operator are reflected in the tariffs of network services approved by the Authority. That is why the Authority has verified in the approval process whether the prices of goods and services bought by Elering from enterprises of the group are not higher than market prices. Justification of investments, procurement procedures and other investment related aspects were analysed. In the result of the analysis it appeared that the transmission operator has followed good practice in its procurement procedures. Bidders from both inside and outside of the group have equal conditions. As regards buying of other goods and services the Authority has followed the principle that services have to be bought at common market prices. In the approval process a thorough analysis has been carried out on the justification of the prices for services bought from inside the group. If the transmission operator Elering had bought services from inside the group at higher prices than accepted by the Authority, then consumers would have not suffered from, but the difference would have been paid for at the cost of company's profit.

Conclusively, the Authority's position is that purchasing of goods and services is done on equal basis from both undertakings inside and outside of the group.

3.2.10.5 Public relations

In accordance with the Electricity Market and Public Information Acts network operation undertakings are obliged to maintain a web site and to disclose on it information which is important to customers, like charges for network services, standard terms and conditions for network service contracts, price for balancing energy, standard terms and conditions for balance agreements, conditions for establishing a network connection and other important information. The Authority's opinion is that the transmission network operator OÜ Elering fulfils public information requirements derived from relevant legislation and during the last year it has disclosed additional information important to market participants, like system peak load, transmission capacity of the lines, planned network repairs, level of power losses in the network and other relevant information. According to their action plan, beginning from 14 August 2009 Elering starts a full-scale implementation of the public information requirements the EC regulation No 1228/2003. On their web site it is also possible to get information about their economic performance: annual accounts, action plans for equal treatment, etc. In addition the operator has hired a public relation manager, independent from the group. The person is responsible for publishing information, press releases, etc.

The conclusion: the transmission network operator has significantly developed the information disclosed on its web site and the undertaking fulfils conditions stipulated by law.

3.2.11 Equal treatment action plan of distribution operator Jaotusvõrk

In May 2009 the distribution operator's business title has changed to Eesti Energia Jaotusvõrk OÜ. It has the logo that is common with Eesti Energia group. The market share of the distribution network operator Jaotusvõrk is approximately 87,7% and it belongs to Eesti Energia group and that is why the Authority has thoroughly analysed the equal treatment action plan prepared by Jaotusvõrk.

3.2.11.1 Unbundling of activities of distribution operator Jaotusvõrk

In relation to unbundling of activities, Jaotusvõrk completely fulfils the requirements of the EU Internal Electricity Market Directive and the Electricity Market Act. By legal unbundling it is guaranteed that the undertaking is not active in other electrical energy related fields than in so-called supporting services – i.e. all services needed for provision of distribution service and/or operation of the distribution network. The services particularly include carrying out electrical works, provision of operational dispatch services, supervision on behalf of the owner and production of reserve energy.

The only activity of the undertaking is the provision of distribution service. In addition, the undertaking has separated in its accounts all cost based on requirements elaborated by the Authority as follows:

- sale of network service (*ex-ante* regulation, the Authority approves network charges prior to their entry into force)
- charges paid by customers for connecting to the network (*ex-ante* regulation, the Authority approves methodology for calculation of connection charges separately for every undertaking)
- network services that are not to be approved
- secondary (ancillary) activity

Conclusively, the Authority is in a position that the distribution network operator completely fulfils the requirements for unbundling of activities required by law and the cost separation in accounts secures transparency of service prices, as well as avoids cross subsidising of activities.

3.2.11.2 Management of distribution operator Jaotusvõrk

According to the Electricity Market Act a member of the management board of another network operator of the group may not at the same time be a member of the management board of the distribution operator, nor be in charge of it. However, it is allowed to be a member of the management board of an undertaking of the group and at the same time a member of supervisory board of the undertaking. Currently the supervisory board has five members, all of them from Mother Company. The management board has one member.

According to the action plan the competence of the management board is making decisions in the following:

1) investment decisions within the budget and related to daily business
2) utilisation of funds within the budget
3) decision making on charges and prices

Unlike in the transmission network the management board of the distribution network operator consists of a single member. Law does not stipulate the number of members of the board of the distribution operator. Also, the responsibility of the distribution in the functioning of electricity market is significantly lower than that of the transmission network operator Elering OÜ. Nevertheless, the Authority is in a position that enlargement of the board would be a positive development.

The distribution network operator Eesti Energia Jaotusvõrk OÜ fulfils law requirements. The Mother Company's intervention into activities of the operator where a conflict of interests could take place has not been observed. However, enlargement of the board could obviously be a positive step forward towards securing independence of the board.

3.2.11.3 Equal treatment of market participants

For equal treatment of market participants network services are provided in cases stipulated in the Electricity Market Act, while standard conditions for services are approved by the Authority. In other cases certain customer groups are serviced on principles of equal treatment and standard conditions of contracts elaborated by the

undertaking itself. The charges for services are approved by the Authority as well. Charges for the services, which are not to be approved, are calculated by the undertaking using uniform methodology for all market participants. Refusal to provide a network service is allowed only in cases stipulated by law. The operator constantly develops its distribution network. This facilitates to continuous provision of network services in compliance with legal acts and the activity licence conditions in a manner that satisfies justified needs of customers connected to the grid.

According to the action plan Eesti Energia Jaotusvõrk OÜ implements measures upon orders by the transmission operator Elering OÜ. Respective cooperation agreement has been concluded between the two operators in order to secure technical stability of the grid and security of supply as well.

It can be concluded that activities of the distribution network operator aimed at equal treatment of market participants is regarded good and the Authority has not observed cases of unequal treatment.

3.2.11.4 Buying goods and services from undertakings of Eesti Energia group

The transmission network operator Eesti Energia Jaotusvõrk OÜ buys a number of essential goods and services from undertakings of Eesti Energia AS group. This is an important circumstance first of all from the price formation point of view. Prices of goods and services bought by the distribution network operator are reflected in the tariffs of network services approved by the Authority. That is why the Authority has analysed in the approval process the prices of goods and services bought from enterprises of the group, verifying whether they are not higher than market prices. Justification of the price formation for the goods and services of the group's undertakings have also been thoroughly analysed. In the approval of charges for network services of the distribution operator for 2007 their operational costs have been deeply analysed, with a special emphasis on the prices for goods and services purchased from Mother Company's undertakings. The Authority came to a conclusion that those prices are based on market ones and there is no advantages given to Mother Company compared to competitors on the market.

Conclusively, the Authority's position is that purchasing of goods and services is done on equal basis from both undertakings inside and outside of the group.

3.2.11.5 Public relations

In accordance with the Electricity Market and Public Information Acts network operation undertakings are obliged to maintain a web site and to disclose on it information, which is important to customers, like charges for network services, standard terms and conditions for network service contracts, conditions for establishing a network connection, and other essential information. The operator has its own communication personnel that organises communication with media. Press releases related activities of the undertaking are published on behalf of the undertaking. The Authority's opinion is that the distribution network operator Eesti Energia Jaotusvõrk OÜ has some shortcomings in their public relation activities.

Particularly, their web site does have neither equal treatment action plan nor a link to it. The last annual report and performance indicators are for 2005/06, newer information is missing. Links on their web site lead to Eesti Energia group site where the information is actually presented. Such a situation may confuse customers. The Authority's view is that the distribution operator and the group need to have separate web sites.

The conclusion: the distribution network operator has essential shortcomings in public relation activities through their web site. The Authority is an opinion that the operator shall develop its web site towards better customer friendliness in accordance with requirements of legal acts.

3.2.12 Promotion of transmission operator's independence

In connection with the new EU Electricity Market Directive Estonia has decided to separate the ownership of transmission operator's network (National Grid) from Eesti Energia group. The latter principle is set out in the Electricity Sector Development Plan until the year 2018, where the concrete task is set to bring the National Grid into state ownership by 2010. This essentially means that from the three options suggested by the Directive the ownership separation from the group is selected. By this means all problems in connection with provision of independence of the transmission operator shall be solved.

3.3. Competition in electricity market

3.3.1 Wholesale market

The main features of the Estonian electricity market are transitional period until 2013 and an extreme concentration of the market. Until 2009 the market is opened only by 13% and since 2009 until 2013 the openness range is be 35%. Whereas the 35% openness means that the eligible customer qualification criteria assume an annual consumption of at least 2,0 GWh and an estimated number of eligible customers shall total 615. Although four independent electricity sellers have commenced commercial operations, their activities have still been relatively modest. The largest electricity whole seller in Estonia is Eesti Energia AS with an estimated market share of 95%. Since opening of the market in 1 January 2009 29 eligible customers and network operators have changed their balance provider. The export-oriented market has considerable developed, whereas sellers buy electricity from local producers and export it afterwards.

Compared to other EU Member States one more specific of the Estonian market is its little volume. In 2008 electricity sale totalled 8 557 GWh and system peak load 1 637 MW. According to the data presented in table below an annual consumption has been gradually increasing since 2001, but on connection with the economic recession a fall

in consumption is expected. Estonia is a net exporter and fully covers its electricity demand by its own production. Some general indicators of the market are presented in below table 3.3.1.

Table 3.3.1 General indicators of wholesale market. Source: Statistical Office and OÜ Elering

	Electricity consumption GWh[2]	Peak load MW	Installed capacity MW	No of producers with more than 5% market share	Market share of 3 largest producers %	Average market price EEKc/kWh[1]
2001	6 970	1321	2876	1	99	
2002	6 940	1336	2726	1	99	
2003	7 210	1475	2723	1	99	
2004	7 440	1318	2675	1	99	
2005	7 510	1331	2433	1	99	40,95
2006	7 978	1555	2059	1	99	40,95
2007	8 534	1537	2052	1	99	40,95
2008	8557	1637	1960	2	99	44,64

Notes: [1]Narva Elektrijaamad production price
[2]Including network losses

The share of eligible market in 2008 was 1089 GWh, which is 15% of final consumption of electricity. Relevant figures are presented in table 3.3.2 below. The right hand column contains the electricity quantity bought by eligible customers.

Table 3.3.2 Electricity consumption in Estonia

	Total consumption (without network losses) GWh	Sold to eligible customers on bilateral contracts GWh
2002	5 686	670
2003	6 013	760
2004	6 326	880
2005	6 403	850
2006	6 902	875
2007	7 180	985
2008	7427	1089

According to the general organisation of market non-eligible customers may buy electricity only from the serving network operator or from seller designated by the operator. Network operators in turn shall purchase electricity for compensation of power losses or for re-selling to non-eligible customers produced either in AS Narva Elektrijaamad (Narva Power Plants), in cogeneration process or produced by small producers (of below 10 MW capacity). Essentially, the majority of Estonian producers

comply with these criteria and are in equal conditions with the Narva plants. For example, Eesti Energia AS sale undertaking buys electricity from various power plants located in Estonia and re-sells it to other network operators. Other sellers perform similarly. To some extent a market has emerged – from the sale of electricity to network operators. Namely, dealers buy electricity directly from producers independently from AS Eesti Energia and re-sell it to network operators.

Since there is no electricity exchange in Estonia and electricity trade is negligent, there is no market price for electricity as well. In order to compare the Estonian market with other markets in EU countries the Narva Power Plants' (as the dominant producer with a market share of over 90%) production price has been taken as the market one – which was in 2008 44,64 EEKc/kWh. Since 1 January 2009 the price is 49,61 EEKc/kWh.

For adequate evaluation of electricity producers, whole sellers it is rational to evaluate their market share in the regional wholesale market in cooperation with other Baltic electricity market regulators. With Estlink 1 the Baltic electricity system was integrated with Finland. In Lithuania and Latvia the market is opened and with the planned Estlink 2 the Estonian and the whole Baltic will be more and more integrated with the Nordic power exchange – *Nord Pool Spot (hereinafter NPS)* and with Finland. Since the beginning of 2007 the prices in the regional electricity market have been determined by *NPS* Helsinki price area fluctuations. The actual Helsinki area prices were the following: 2007 average was 46,96 EEKc/kWh (30,01 EUR/MWh) and respectively in 2008 79,83 EEKc/kWh (51,02 EUR/MWh).

It can be concluded that there is no effective electricity market in Estonia, first in relation to final consumers. However, competition is developing between producers and traders, although in export of electricity, whereas electricity producers that are independent from Eesti Energia can export electricity itself or through traders. Nevertheless, new producers themselves choose between suitable options for selling (to the TSO, to a trader or to eligible customers) and thereby free competition takes place.

There are very good possibilities for a Baltic electricity market, since unlike in other EU Member States there is enough transmission capacity available between the Baltic countries. Since 1 July 2007 the Latvian and Lithuanian markets were opened in 100% extent and since 1 January 2009 the Estonian market opened by 35% (with an estimated consumption level of 3 033 GWh). In 2009 the Lithuanian Ignalina nuclear power plant will be closed down and this will remarkable change the situation on the market. Through the Estonian/Finnish power cable to some extent also Finland can be considered part of the Baltic market. As the power system of Baltic countries is interconnected with Russia, also Russian electricity acts on the market. As there is well-developed electricity market in Finland along with the Exchange price, it can be foreseen that prices in the Baltic market will be guided by the *NPS* market price.

3.3.2 Impact of CO_2 on electricity price

Since 94% of electricity is produced from oil shale the price for electricity is significantly influenced by CO_2 emission reduction policy. It can be stated that the impact of CO_2 policy to price formation in Estonia is remarkably higher than in other EU countries. This is because production of electricity from oil shale has higher CO_2 emission level: production of 1 MWh of electrical energy is accompanied by approx. 1 ton of CO_2 emissions. Thus, if all needed CO_2 quantity should be bought at market price it would significantly increase electricity price. For example, if the CO_2 ton price is €10 (156,5 EEK), then this adds the same sum to the price, i.e. €10 (156,5 EEK/MWh).

For the previous period (2005 to 2007) for Estonia, including for the possessor of Narva Power Plants Eesti Energia AS, enough CO_2 quota was allocated, which satisfied domestic consumption and export needs. For the current period (2008 to 2012) the European Commission by its decision cut the quota significantly. Estonia has challenged this decision in the court. Based on the decision the Estonian government validated its internal quota allocation plan for 2008-2012. The plan sets out a permissible annual CO_2 quantity of 12,7 million ton, which includes a state reserve of 1,04 million ton. Whereas, an allocation for Eesti Energia AS is 9,2 million ton. Those significant cuts raise a question whether Eesti Energia AS has enough CO_2 quotas for the coming 5-year period for supplying domestic customers or instead, some extra quota has to be purchased. However, purchasing extra quotas influences electricity price. The Authority ordered calculations from Tallinn Technical University of CO_2 quantities emitted by Eesti Energia AS. If to assume that for electricity export and for production of shale oil the quotas will be purchased and if to take into the foreseeable fall in consumption, then Eesti Energia has necessary quotas to cover domestic consumption.

However, there is an uncertainty about the next allocation period that begins in 2013. If then all the necessary CO_2 quota is to be purchased at a market price and included in the price of electricity, then at the current CO_2 prices of about €10 it would result in significant expensiveness of electricity.

3.3.3 Retail market

Similarly the wholesale market the specific of retail market is also determined by the transitional period in market opening. Since non-eligible customers are obliged to buy electricity from the servicing network operator they have no possibility to change the supplier. Also in the retail market the undertaking with the biggest market share is Eesti Energia AS with its actual share of about 88%. The information related to retail market is presented in table 3.3.3 below.

Table 3.3.3 General retail market information

				Market share of three biggest sellers			Change of seller		
	Total consumption GWh	No of undertakings with more than 5% market share	No of independent electricity sellers	Large and very large industries	Medium and small industries	Small undertakings and household customers	Large and very large industries	Medium and small industries	Small undertakings and household customers
2001	5 607	1	0	100	93	93	0	0	0
2002	5 686	1	0	100	93	93	0	0	0
2003	6 013	1	0	100	93	93	1	0	0
2004	6 326	1	0	100	93	93	1	0	0
2005	6 403	1	0	100	93	93	1	0	0
2006	6 902	1	3	100	92	92	1	0	0
2007	7 180	1	3	100	92	92	0	0	0
2008	7 427	1	3	100	92	92	0*	0*	0*

* 2008 data are not confirmed

Data on the formation of prices paid by final customers (network services + electricity) are presented in the following table. Beginning from 1 January 2008, excise tax of 5 EEKc/kWh was added to the electricity price.

Table 3.3.4 Electricity final consumer prices in 2008

Prices EEKc/kWh	Large industrial customer	Commercial customer	Household customer
Network service (without taxes)	19,77	43,04	58,22
Taxes included in network charge	0,00	0,00	0,00
Electricity	40,64	47,00	49,50
Subsidy for renewable energy	3,58	3,58	3,58
Excise tax	5,00	5,00	5,00
VAT 18%	12,42	17,75	20,93
Total (with taxes)	81,41	116,37	137,23

Notes:
According to Eurostat definitions:
- large industrial customer, one with an annual consumption of 24 GWh, max capacity 4000 kW
- commercial customer, one with an annual consumption of 50 000 kWh, max capacity 50 kW
- household customer is one with an annual consumption of 3 500 kWh.

Prices according to Eesti Energia AS and Eesti Energia Jaotusvõrk OÜ (the distributor) price list
1 €=15,65 EEK

3.3.4 Selling obligation and price regulation

General information on regulation of final customer price is presented in following table.

	Eligible customers	Medium size business customers	Small businesses and households
Regulated price (Yes/No)	No	Yes	Yes
Percentage share of customers buying electricity at regulated price	100	100	100
Possibility to switch back from market price to regulated price (Yes/No)	Yes	Yes	Yes
Electricity sellers with obligation to sell at regulated price	Network operator	Network operator	Network operator

As it was already described in subsections 3.3.1 and 3.3.2, until 2009 the market was opened only by about 13%. Beginning fro 2009 the market is opened by 35% and since 1 January 2013 it will opened 100%. Thus, until 2013 the electricity sold to non-eligible customers shall be produced either in Narva power plants (AS Narva Elektrijaamad), in cogeneration process or produced by small producers (with a capacity of below 10 MW). Both AS Narva Power Plants and Iru CHP plant belong to Eesti Energia group, while the market share of Narva Power Plants in production is 95%. Narva plants use oil shale fuel mined in Estonia. Oil shale is mined by AS Eesti Põlevkivi, which is in market dominant position and also belongs to Eesti Energia group. According to the Electricity Market Act, the Authority shall approve prices for the following:

- price for oil shale, which is an important input in formation of production cost of Narva Power Plants (AS Narva Elektrijaamad)
- production price for Narva Power Plants, which is an important input in the formation of the tariffs for electricity sold to non-eligible customers
- tariffs of electricity sold to non-eligible customers under selling obligation

In addition to price/tariff approval the Electricity Market Act also stipulates selling obligation, according to which network operators are obliged to sell electricity to all non-eligible customers connected to their network. If eligible customers connected to the network of a network operator have no economically competitive possibility to purchase electricity from another seller, they also have the right to purchase electricity at a price for non-eligible customers in the framework of the selling obligation. Network operators have obligation to perform the selling obligation themselves or, they have also the right to designate another seller to perform the selling obligation. For example, Eesti Energia Jaotusvõrk OÜ, the largest distribution network operator belonging to Eesti Energia group, has designated Eesti Energia AS, as the seller of electricity.

The principles of both approval of prices for oil shale, for production and for sale by Narva Power Plants are similar to those for the network services. The price is formed of justified costs, capital expenditure (depreciation of fixed assets) and justified return. In the evaluation of justified costs the Authority considers technical efficiency

indicators, cost saving principles and monitors whether a cross subsidising is avoided. The main difference compared to the regulation of network operators is that in production and sale price regulation there is no regulation period and the regulatory authority monitors prices upon undertaking's application, while network charges are approved for a certain fixed regulation period and are indexed by changes of consumer (retail) price index and cost saving obligation (so-called RPI-x regulation). The general principles of price approval were described in detail in sub-section 3.2 "Regulation of electricity networks".

Regarding sale price the Authority approves weighted average limit price and an undertaking has the right to form different tariffs for different customer groups within this weighted average limit. The above-described regulation leaves a flexible possibility for undertakings for formation of different prices within the weighted average. According to the Electricity Market Act the Authority has elaborated and disclosed unified methodology for calculation of a justified weighted average price limit for performing of selling obligation. The methodology determines the tariff period, which is one year. If during the tariff period the actual price appeared higher than the Authority approved weighted average price limit, it shall be compensated for to customers during the next price period. This means the next period tariff shall be decreased. If the actual price appeared lower than the Authority approved weighted average price limit, it is considered as an undertaking's risk and shall not be compensated for by customers.

For AS Eesti Põlevkivi (oil shale mining industry) the approved price limit of 133 kroons (EEK) per ton was valid until 1 April 2008. It has been approved already in 1998, i.e. the company has succeeded to sell at the same price for almost ten years. It can be stated that AS Eesti Põlevkivi has performed effectively from an economic point of view, i.e. their cost has been under control. A circumstance that facilitated to achieving that goal has been the good oil price in the world market, which increased oil shale mining for the purpose of shale oil production. In February 2008 the Authority approved the price limit of 147,69 EEK/ton and in September 2008 165,10 EEK/ton.

For Narva Power Plants the Authority approved price limit in 2004 and this was valid until April 2008. Their price consisted of two components: a variable part, which was 24,17 EEK cents per kWh and the capacity charge of 784 637 EEK kroons per MW per year. Since it is two-component price, then a weighted average first of all depends on the quantity of sold electricity and on 2004 approvals it resulted in the level of 40,95 EEK cents per kWh. In March 2008 the Authority approved new limit price of 44,46 EEKc/kWh, consisting of two components: a variable component of 30,415 EEKc/kWh and a capacity charge of 784 637 EEK/MWh. Thus it resulted in a limit price of 44,64 EEKc/kWh. In September 2008 the Authority approved new limit price components: the variable charge of 35,38 EEKc/kWh and the capacity charge of 784 637 EEK/MWh, thus forming the limit price of 49,61 EEKc/kWh.

In March 2008 the Authority approved for Eesti Energia AS a weighted average price limit for electrical energy sold to end consumers under the selling obligation of 45,63 EEKc/kWh. Is September 2008 a new price limit was approved of 50,79 EEKc/kWh, which serves as the basis for formation of a new detailed price list.

In the process of approving prices for both Eesti Põlevkivi and Narva Power Plants the Authority revealed a number of opportunities for cost savings and as a result the approved prices came out significantly more favourable, compared to applied prices. The savings for customers total to about half a billion Estonian kroons (EEK).

It can be said that both production and final consumer price regulations are cost-oriented price regulations. The price reflects coverage of justified operational cost, reasonable return (profit) on invested capital. The investments made into new capacity are also included in the price. Thus, the current price regulation prevents from a situation of selling electricity below production cost. For example, for AS Narva Elektrijaamad, as the producer in market dominant position, a return on invested capital (assets) of 8,0% is accepted. Such level should be deemed justified, considering its market dominant position.

The Electricity Market Act prevents also from occurrence of a situation in which in case of sharp rise of production cost it is impossible to transfer it to final consumers. In case of rapid changes in electricity market and if the approved weighted average price limit does not cover all costs the undertaking may, at its own initiative, apply prices exceeding the limit and after that submit a new weighted average price limit for approval to the Authority. If the price appears not justified, the undertaking is obliged to compensate for the difference to customers.

The regulation of sale price to non-eligible customers is both practical and necessary as customers have no alternative possibilities and the seller is in market dominant position in relation to non-eligible customers. The situation with Narva Power Plants production price and oil shale price regulation is similar. As the Narva plants' market share is close to 95% it is obviously in market dominant position. The same is fully true for the mining industry Eesti Põlevkivi with its market share of close to 100% and oil shale price is the determining input for Narva plants' production price. Without their production price and oil shale sale price regulation customers are likely to pay unjustified high price for electricity.

Thus, under the closed market conditions regulation of both production and sale price is necessary and justified, in order to protect customers and avoid earning of unjustified super-profits by market dominating undertakings.

As explained above, according to the current regulation also eligible customers has the right to buy electricity at regulated price. Respective right is stipulated by the Electricity Market Act. Thus, an eligible customer can buy either directly from Narva plants or fro Eesti Energia, which is at the same time the seller designated by the distribution operator Eesti Energia Jaotusvõrk. The Government of the Republic has an intention to amend the Electricity Market Act and set out that beginning from 1 April 2010 eligible customers will no more have the right to buy regulated price electricity neither directly from Narva plants nor from Eesti Energia. This essentially means that only non-eligible customers (65% of the market) can buy electricity at regulated price. Eligible customers can buy electricity either from Power Exchange that is to be established or, through direct contracts with producers or traders.

Namely, the Estlink 1 owners and the Nordic Power Exchange, i.e. *Nord Pool Spot (NPS)* have come an agreement according which beginning from 1 April 2010 50

MW of the transfer capacity will be handed over to *NPS*. This capacity will be used for starting up of the Baltic Power Exchange. Therefore, it can be foreseen that the basis for market price will be the *NPS* price. It is almost impossible to predict the Exchange prices, but with current prices the price for eligible customers is likely to be somewhat higher than the current production price for Narva plants of 49,61 EEKc/kWh (3,17 EURc/kWh). An average price in the Nordpool Power Exchange in the first half of 2009 was 3,62 EURc/kWh (56,64 EEKc/kW).

The Authority is in a position that this is step forward towards open electricity market and therefore very much welcome. However, this would infer emerging and operation of two fully isolated markets. As this takes place, speculations with the regulated price electricity should be avoided, i.e. a situation where a trader temporarily uses advantages of regulated price by re-selling of it in free market with an overcharge. As the Government has undertaken gradual opening of the market, it could consider also faster opening of the rest of market. From the market functioning point of view it would be best to simultaneously open the entire market.

3.4. Competition supervision

The Competition Act provides definitions for undertakings with market dominant position, undertakings having special and exclusive rights and undertakings possessing and controlling essential facility. An undertaking, or several undertakings operating on the same goods market, has dominant position if the position enables it/them to operate in the market to an appreciable extent independently from competitors, suppliers and buyers. Dominant position is presumed if an undertaking or several undertakings operating on the same market account for at least 40% of the turnover in the goods market.

According to the Competition Act, any direct or indirect abuse by an undertaking or several undertakings of the dominant position in the goods market is prohibited, including:

1) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions
2) limiting production, service, goods markets, technical development or investment
3) offering or applying dissimilar conditions to equivalent agreements with other trading parties, thereby placing some of them at a competitive disadvantage
4) making entry into an agreement subject to acceptance by the other parties of supplementary obligations which have no connection with the subject of such agreement
5) forcing an undertaking to concentrate, enter into an agreement, which restricts competition, engage in concerted practices or adopt a decision together with the undertaking or another undertaking
6) unjustified refusal to sell or buy goods

Special or exclusive rights are deemed the rights granted to an undertaking by the state or a local government which enable the undertaking to have a competitive advantage over other undertakings in a goods market or to be the only undertaking in the market. An undertaking is deemed to control essential facilities or to have a

natural monopoly if it owns, possesses or operates a network, infrastructure or any other essential facility which other persons cannot duplicate or for whom it is economically inexpedient to duplicate but without access to which or the existence of which it is impossible to operate in the goods market.

The Competition Act stipulates obligations of undertakings with special or exclusive rights or in control of essential facilities according to which above mentioned undertakings shall:

1) permit other undertakings to gain access to the network, infrastructure or other essential facility under reasonable and non-discriminatory conditions for the purposes of the supply or sale of goods

2) keep clear separation of accounts for different primary and secondary activities (e.g. production, transmission, marketing and other areas of activity) enabling thereby transparency of economic performance

3) maintain separate records on revenue and expenditure related to each product or service based on consistently applied and objectively justified principles of calculation, which shall be clearly specified in the internal rules of the undertaking. The calculation of revenue and expenses must enable to assess whether the price of a product or service is in a reasonable ratio with the value of the product or service.

An undertaking with special or exclusive rights or in control of an essential facility may refuse to grant other undertakings access to the network, infrastructure or other essential facility if the refusal is based on objective reasons, including cases where:

1) the safety and security of the equipment connected with the network, infrastructure or other essential facility or the efficiency and security of the operation of such network, infrastructure or facility are endangered
2) maintenance of the integrity or the inter-operability of the network, infrastructure or other essential facility is endangered
3) equipment to be connected to the network, infrastructure or other essential facility is not in conformity with the established technical standards or rules
4) the undertaking applying for access lacks the technical and financial capability and resources to provide services efficiently and safely to the necessary extent through or with the assistance of the network, infrastructure or other essential facility
5) the undertaking applying for access does not hold the permit prescribed by law for the corresponding activity
6) as a result of such access, data protection provided by law is no longer ensured

On the basis of the Competition Act all network operators are undertakings with special and exclusive rights, as well as the undertakings possessing essential facility. The exclusive right is granted also by the concession principle, as described in section 3.2 above, by which to every distribution network has service area assigned to it and in which only one operator may provide network services. The Electricity Market Act regulates the activities of network operators in detail and assigns the supervisory function as well. That is why supervision of the activities of network operators is regulated primarily by the Electricity Market Act.

Eesti Energia AS has market dominant position both as a producer and as a seller. Based on the Electricity Market Act, the Authority is obliged to approve the price of electricity sold to non-eligible customers and in the framework of this also the production price of Narva power plants. The Authority has also the right to monitor the prices of a market dominant seller and of the electricity sold by a producer.

If a market dominant undertaking or an undertaking in control of an essential facility abuses its position then pursuant to the Competition Act a precept may be issued or a misdemeanour proceedings may be initiated (punishable by a fine/penalty payment of up to 500 000 EEK). Repeated abuse may be subject to punishment by way of criminal procedure.

Since 1 January 2008 the Authority as the authority with new functions has an obligation to supervise market functioning pursuant to both the Electricity Market Act and the Competition Act. The Electricity Market Act regulates in detail electricity network undertakings' activities – their rights and obligations. Although the Competition Act stipulates the obligations of electricity network undertakings as ones in control of an essential facility it is practical to apply in networks regulation the specialised act - the Electricity Market Act.

On the contrary, the activities of producers and traders are regulated in the Electricity Market Act quite broadly speaking. Hence it may be more practical to apply here primarily the Competition Act. In February 2008 Baltic Energy Partners, a trader of electricity, submitted a complaint about Eesti Energia AS owned Narva power plants' activity. According to the complaint the plants refused to sell electricity. In the settlement of the dispute the Authority based on the Competition Act. It was ascertained that Narva power plants are undertakings in market dominant position and the refusal to sell was an abuse of this position. The case revealed advantages of the merged Authority – energy sector problems can be solved pursuant to Competition Act while using the knowledge and experience of the energy market regulatory authority.

3.5. Obligations of market participants and customer protection

3.5.1 General obligations of market participants

The obligations of market participants are stipulated in the Electricity Market Act. In addition to law stipulations the Authority issues an activity licence with conditions set forth in it. An activity licence is required for the following activities:

1) termination the exploitation of a generating installation with a net capacity of over 1 MW
2) generation of electricity, except for generation by one producer using generating installations having a total net capacity of less than 100 kW
3) provision of network services through a distribution network
4) provision of network services through the transmission network
5) transmission of electricity through a direct current line crossing the state border

6) transmission of electricity through a direct line
7) selling of electricity
8) import of electricity, except for the import of electricity by the system operator

An activity licence together with conditions thereon is issued by the Authority. After issuing the licence, the Authority may change the conditions or validate new conditions if this becomes necessary due to amendments of legislation, for maintaining of security of supply or in order to ensure fulfilment of obligations in compliance with the Electricity Market Act or other legal acts.

Most thoroughly the Electricity Market Act regulates activities of network operators, with their main obligations stipulated below. A network operator shall provide the following network services to the customers, producers, line possessors or any other network operators within its service area:

1) on the basis of a corresponding request, connect any electrical installation conforming to the requirements and located in its service area to the network at the connection point
2) on the basis of a corresponding request, amend the consumption or generation conditions
3) enable a network connection to be used at the connection point
4) transmit electricity through its network to the connection point or from the connection point
5) ensure the installation of a metering device conforming to the requirements of legislation to determine the amounts of electricity transmitted through its network
6) ensure the collection and processing of measurement data
7) provide ancillary services directly related to the network services

A network operator shall observe the principle of equal treatment of market participants when providing network services. A network operator has the right to refuse to provide network services if:
1) 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
2) the provision of network services is not possible for any other reason dependent on the user of network services
3) the provision of network services is not possible for reasons independent of the network operator
4) network of the network operator lacks the necessary transmission capacity for provision of network services

A network operator shall provide grounds for any refusal to provide network services. In the reasoning, the legal basis for refusal shall be indicated and the CA shall be notified of refusal to provide network services. A network operator shall develop the network within its service area such that the continued provision of network services is ensured to all customers, producers, line possessors and any other network operators connected to the network, in accordance with their justified needs, legislation and conditions of the activity licence.

In essence the described regulation ensures provision of network services to all market participants and third party free access to the network. Possibilities of refusal to provide network services are extremely limited and in practice no cases of refusal has been recorded.

Compared to network operators the Electricity Market Act sets much less obligations to producers of electricity. According to the Act the generating installations of producers shall conform to the technical requirements established by grid code. Producers' actions shall comply with orders issued by the system operator. A producer shall notify the system operator promptly of any dangerous situations, accidents or other circumstances that endanger or could endanger security of supply or the performance of any contractual obligations.

In addition to law the Authority has set forth an obligation to the market dominant producer AS Narva Elektrijaamad (Narva Power Plants Ltd.) to secure uninterruptible supply of electrical energy to customers. Since AS Narva Elektrijaamad and OÜ Iru Elektrijaam (Iru Power Plant Ltd.) are extremely important for securing of district heat supply to Narva and Tallinn city respectively, the Authority has set forth in their activity licences an obligation of an uninterruptible supply of heat to the cities.

An electricity selling licence is required for both the network operators that sell electricity to the customers connected to their network and for undertakings performing electricity trade.

3.5.2 Rights and obligations of Competition Authority

From a supervisory authority point of view, the Estonian legislative basis can be considered as a solid one and gives for the Authority enough possibilities for market regulation.

The Authority has the right to get necessary information from a market participant and from state and local municipal authorities, right to enter their territory, rooms 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 accounts and price formation practices applied by market dominant producers or sellers, establish development obligations for undertakings through licence conditions. For example, it can impose an obligation for operators to invest into the network which has not secured stable electricity supply for customers in accordance with requirements.

At the same time the Authority is obliged to carry out general supervision of fulfilment of the Electricity Market Act stipulations and to make prescripts in case of violation. In addition, market participants (consumers or undertakings) can record complaints on activities or inactivity of other market participants and the Authority has to re-settle them by its decisions. Both the precepts and decisions are administrative acts that can be challenged with an administrative court, which has the right to invalidate an Authority's decision or a precept.

Additionally the Electricity Market Act also stipulates that in case of certain violations of law the Authority has the right to initiate misdemeanour proceedings. The following violations of law are determined as misdemeanours:

1) violation of the obligation (failure) to provide network services
2) violation of the quality requirements for provision of network services
3) sale of electricity at a price which is not approved or which is higher than the approved price
4) violation of the rules of cross-border electricity trade
5) failure to submit information

The penalty payments that can be imposed in case of violation of the above position 1) is up to 20 000 kroons (EEK), in other cases of up 50 000 kroons

If a market dominant undertaking or an undertaking in control of an essential facility abuses its position then pursuant to the Competition Act a precept may be issued or a misdemeanour proceedings may be initiated (punishable by a fine of up to 500 000 EEK). Repeated abuse may be subject to punishment by way of criminal procedure.

3.5.3 Customer information

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

1) principles of formation of the fees for connecting to the network
2) data reflecting efficiency, quality and profitability of the network operations
3) data on the sale enterprise in case the network operator has designated another undertaking to execute the selling obligation
4) charges for network services
5) standard terms and conditions of customer contracts for provision of network services

Sellers of electricity have to disclose on their web site:

1) tariffs for the electricity sold within the framework of the selling obligation (to non-eligible customers)
2) standard terms and conditions for electricity sale
3) data about environmental impact during previous reporting year: CO_2 and SO_2 emissions, disposed oil shale ash and radioactive waste caused in production of the sold electricity

The network charges and the tariff for electricity sold in the framework of the selling obligation shall be published at least 90 days prior to their entry into force. In addition to web site the tariffs have to be disclosed 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 before becoming valid.

If a network operator sells both network service and electrical energy, it is obliged to separate on customer bills respective prices. All sellers of energy are obliged to

inform customers about the distribution of energy sources used in production. Respective information shall be attached to the customer bill.

In conclusion the Authority is in a position that the customer information in the electricity sector is quite well regulated. The customer pre-information time about price/tariff changes is sufficient and most network operators have good web sites from which their customers can get enough information about network services and electricity sale as well.

3.5.4 Customer contracts, supply limitations and interruptions, extra-judicial proceedings

As regards customer contracts the Authority is in a position that it is a well-regulated field and customer interests are enough protected. According to the Electricity Market Act standard terms and conditions of contacts for provision of network services, for electricity sale to non-eligible customers under the selling obligation and connection to network shall be approved by the Authority. In approval of above mentioned standard contract conditions the Authority follows the principle of proportionality, aiming balance of rights and obligations of both undertakings and customers. An important criterion in approval of standard terms and conditions is also their compliance with the Law of Obligations Act.

The contract entered into with customers for provision of network services may be both with a specified term or term less. As rule, term less contracts are concluded. Both network operators and sellers of electricity may change conditions of contract only if there is an objective reason for that in order to take into account changes of circumstances and only if the Authority has granted approval to a change of standard conditions.

Interruption of network connection is regulated very detailed and the Authority is in a position that 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 interruption 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 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. 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 without authorisation (steals electricity), 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.

Possible cancellation of both network contract and electricity sale contract is precisely regulated by the Electricity Market Act. A network operator may cancel a network contract and disconnect the place of consumption from the network if: the network connection has been interrupted by the network operator due to a breach of the network contract and the interruption has lasted for at least 180 consecutive days and the customer has failed, during that period, to eliminate the circumstances which were the grounds for the interruption or commence the consumption of electricity; and the customer has materially breached obligations arising from the network contract and the breach has not been remedied within a reasonable period of time granted by the network operator meaning that, as a result, the network operator cannot reasonably be expected to continue executing the contract.

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 and the date of termination of the contract.

A seller or a network operator has the right to cancel an electricity contract if: (1) the customer 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 network operator; (2) the network connection through which electricity was sold on the basis of the electricity contract has been interrupted on the grounds that the customer has failed to pay the amount payable; the customer has materially breached an obligation arising from the contract in another manner and the interruption has lasted for at least 60 days; (3) the customer has used electricity or network services without authorisation or has intentionally or due to gross negligence caused damage to the property of the network operator or the seals or verification marks placed on the metering devices by the network operator or the seller. A customer shall be notified of the cancellation of an electricity contract at least 30 days in advance. The notice shall

indicate the grounds for cancellation of the contract and the date of contract termination.

All market participants, both undertakings and customers have the right to refer to the Authority as to an extra-judicial body. A market participant may record a written complaint with the CA against an action or an omission of another market participant that is in conflict with the Electricity Market 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 a decision.

Conclusively, the Authority is in a position that electricity customers are quite well protected. The tariff for electricity sold to non-eligible customers is regulated, the costs forming it is under control of the regulatory authority and for undertakings justified return on invested capital is ensured. If eligible customers fail to purchase electricity at a more favourable price they have the right to buy at the price regulated in the framework of the selling obligation. The currently enforced regulation of market dominant producer and seller is necessary in the situation of gradual market opening and to-days opening level of 13 %. Without regulation a situation is likely to arise in which both producers and sellers attempt earning unjustified super-profit.

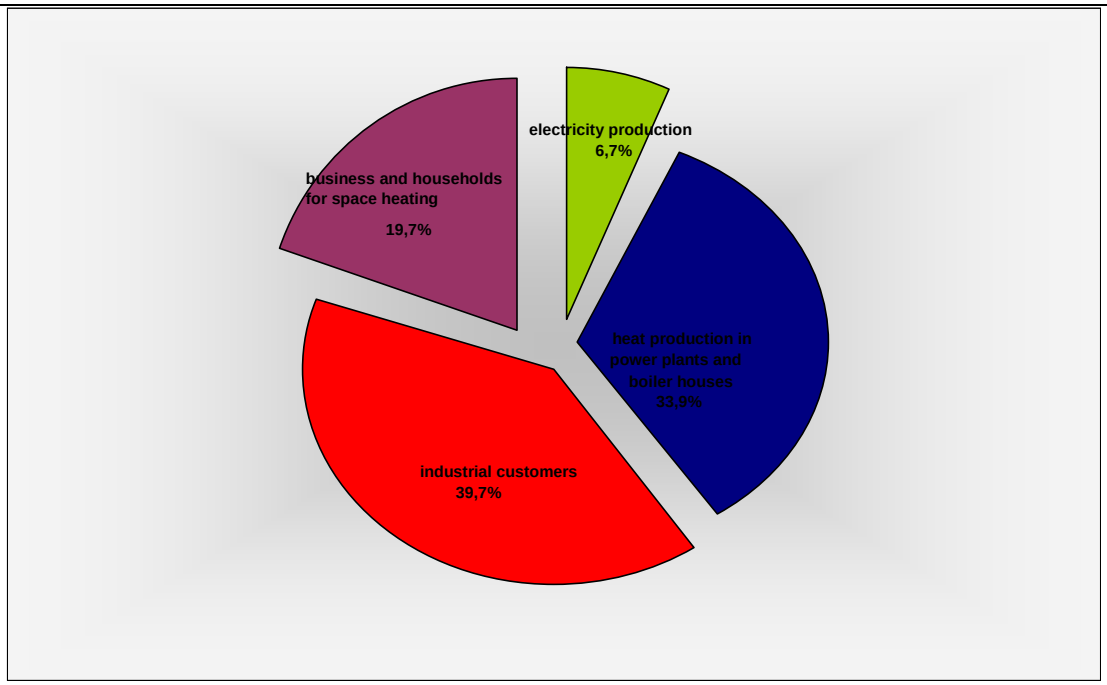
Sufficient information is available to customers about the formation of prices, standard terms and conditions of contracts, energy sources used for production, etc. Most network operators have well shaped web sites that contain sufficient information. The standard terms and conditions of contracts for provision of network services and sale of electricity are to be approved by the Authority and possible interruption of network connection or cancelling of sale contracts are regulated in detail by law.

4. Review of gas market and its regulation

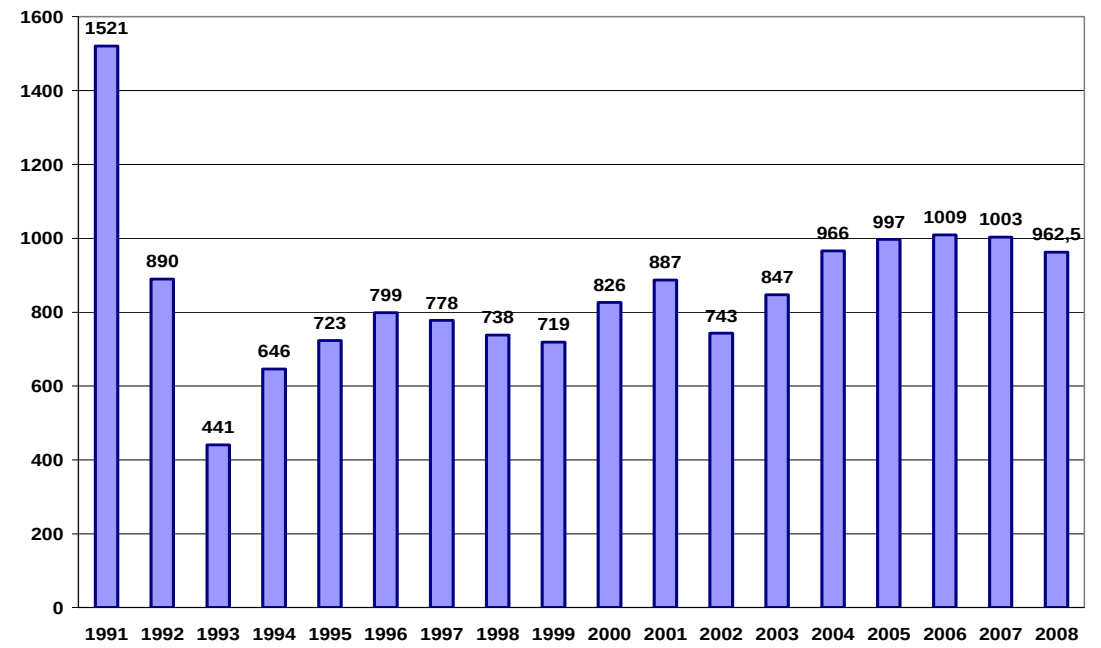
Similarly to electricity system also the gas supply system was built during the former Soviet Union and historically formed part of the Soviet gas supply system. Map of the Estonian gas supply system is presented in drawing 4.1.1 below. Estonia has cross-border connections only with Russia and Latvia. Thus, Estonia is in a situation similar to other Baltic countries and Finland, without connections with other EU member states and the only source of supply is Russia.

Drawing 4.1.1 Natural gas network in Estonia

In 2008 natural gas consumption totalled 962,5 million m^3. 64,8 million out of it was used for electricity generation, 327 mln for heat production in power plants and boiler houses, 190,3 mln by household and business customers primarily for space heating and 383,5 mln m^3 for industrial purpose. Thus, a specific in Estonia is that a large share of gas is used for industrial and space heating purpose and the share used for electricity production is low. Consumption of gas by different customer groups is presented in below diagram 4.1.2



Drawing 4.1.2 Consumption of natural gas by customer groups in 2008 Source: AS Eesti Gaas



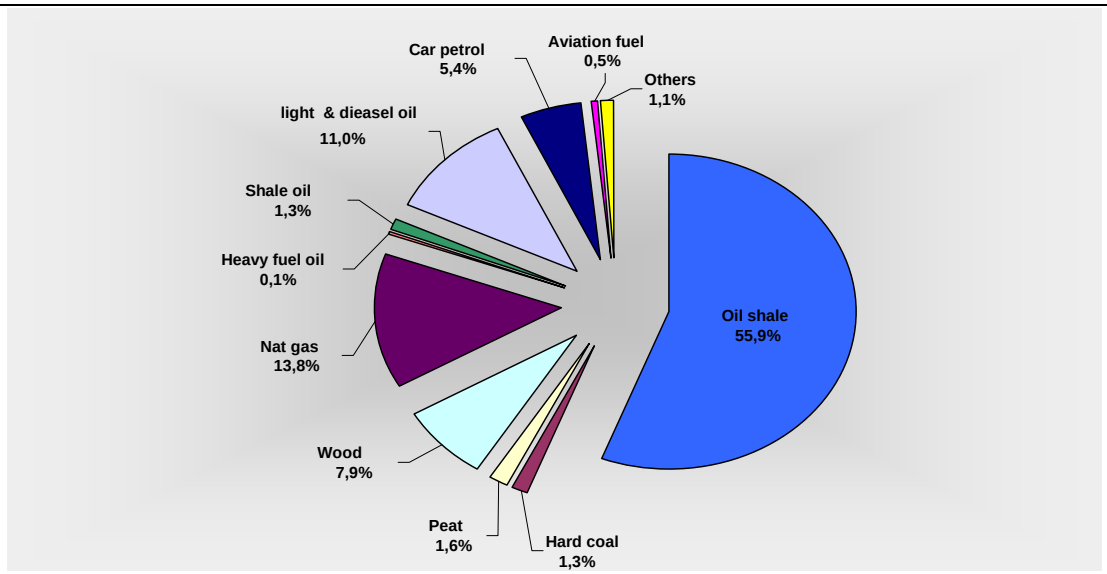
Drawing 4.1.3 Consumption of gas mill m^3 Source: Statistical Office and AS Eesti Gaas

In 2008 a downfall of gas consumption took place. This is related to the economic recession and high gas prices. Estonian GDP fall in 2008 by 3,6% and for 2009 a 15% decrease is anticipated. This may result in further decrease of gas consumption in 2009.

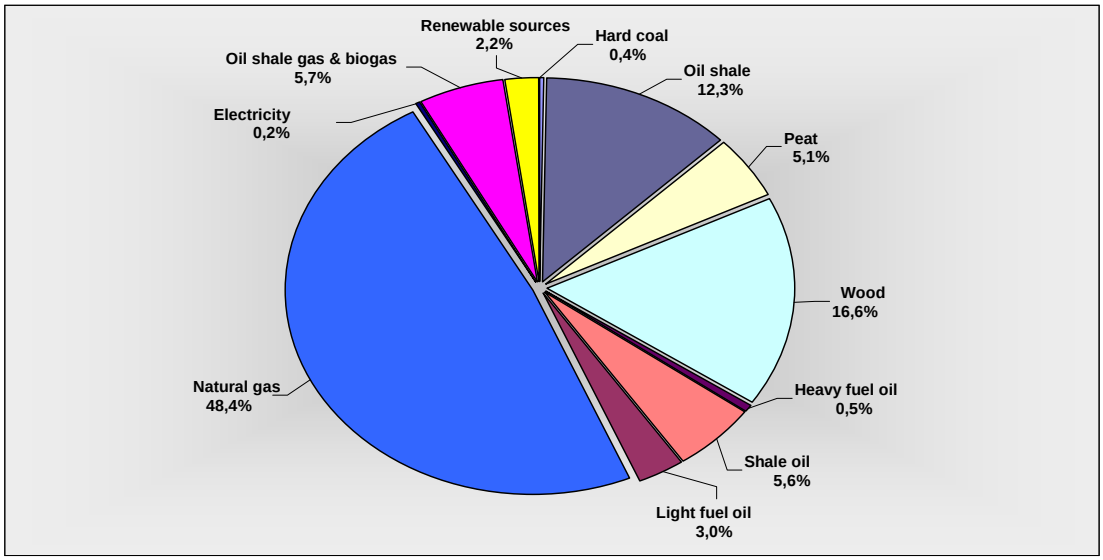
So far almost 20% of the Estonian consumption has been the quantity consumed by AS Nitrofert, the producer of fertilisers. Thus, this consumer largely determines the

future consumption of gas in Estonia. In February 2009 Nitrofert seized its production. Without Nitrofert gas consumption shall fall by 215 million m^3 (22%) and total presumably 750 million m^3. The decrease in gas consumption is facilitated also by the commissioning of two new heat and power cogeneration plants in Tallinn and Tartu. In both of them natural gas was replaced by local wood and peat fuel. In longer run gas consumption will first depend on AS Nitrofert. If it will not resume operation an annual total shall not increase 750 million m^3

The share of natural gas in the Estonian energy balance is 13,8% (drawing 4.1.4), so the share is not very large and as mentioned before, gas is primarily used for industrial purpose and for space heating. Therewith the share of gas in electricity generation is only 2,9%, but in heat production even as high as 48,4% (see drawing 4.1.5).



Drawing 4.1.4 Domestic use of fuels in 2008 Source: Modified from quantity data of Statistical Office: Consumption of fuels



Drawing 4.1.5 Fuels used for heat production. Source: Statistical Office

Besides above the Estonian gas supply is also characterised by the circumstance that in many areas like western part of Estonia including islands and central Estonia is without gas supply. To a large extent, the reason is low population density of the territory. During the last years the network has expanded into Pärnu County, Põltsamaa and the town of Viljandi. The next step is the plan to develop the network to Paldiski. Through Paldiski also possible Estonian-Finnish gas connection would go, if undertaken. Thus, the decision on construction of the line and its dimensioning (pipeline diameter) depends upon the decision of the Estonian-Finnish connection. According to the plans in 2010 the pipeline connection with Ahtme Power Plant will be commissioned.

Similarly to the electricity system it should be emphasised that the transmission infrastructure is strong, there is no cross-border transfer capacity deficit between Baltic countries. At the same time a specific is total dependence on supplies from Russia.

The formation of an Estonian gas market dates back to 1998 when the Energy Act entered into force. By the Act all customers except households were determined as eligible ones. Since1 July 2007 all customers are eligible ones. This means that also household customers are free to choose the seller/trader and the market is opened 100%. Table 4.1.1 presents the dynamics of the gas market opening.

Table 4.1.1 Gas market opening

Year	Annual consumption GWh	Percentage of market opening
1998	All, excl. households	95
1999	All, excl. households	95
2000	All, excl. households	95
2001	All, excl. households	95
2002	All, excl. households	95
2003	1,8	95
2004	1,8	95
2005	1,8	95
2006	All, excl. households	95
2007	All customers	100
2008	All customers	100
2008	All customers	100

4.1.1 Cross-border connections, available transfer capacity and its allocation

Estonia has network connections with Russia and Latvia. Altogether there are three connections: from Narva and Värska to Russia and from Karksi to Latvia (drawing 4.1.1) with the total transfer capacity of 11 000 thousand m^3 daily. As a rule, only the Värska and Karksi connections are operational. The Narva connection is typically closed because of limitations (congestion) in the Russian side network. The transfer capacities of particular connections are the following:

Karksi connection with Latvia 7000 thousand m^3 daily
Värska connection with Russia 4000 thousand m^3 daily

Narva connection with Russia, with a theoretical transfer capacity of 4000 thousand m^3 daily, but the actual transfer capacity is not more than 500 thousand m^3 daily

The 2008 peak load was 5200 thousand m^3 daily, which much lower the available transfer capacity. Natural gas annual peak consumptions are presented in table 4.1.2.

Table 4.1.2 Natural gas peak consumption and transfer capacity of transmission system

	Import Eesti Gaas mill m^3	Import Nitrofert mill m^3	Total consumption mill m^3	Peak load		Available transfer capacity of system	
				1000 m3/daily	MW	1000 m^3/daily	MW
2001	789	76	865	5 400	2 099	7 000	2 721
2002	675	48	724	5 000	1 944	7 100	2 760
2003	732	106	838	5 500	2 138	7 800	3 032
2004	749	213	962	5 100	1 982	8 300	3 226
2005	774	216	991	5 200	2 021	10 400	4 043
2006	794	215	1 008	6 700	2 604	10 500	4 081
2007	796	208	1 004	6 400	2 488	10 700	4 159
2008	**748**	**215**	**963**	**5 200**	**2 021**	**10 900**	**4 237**
2009 progn	650	25	675	4 300	1 671	11 000	4 276
2010 progn	650	50	700	4 300	1 671	11 000	4 276
2011 progn	675	100	775	4 300	1 671	11 000	4 276
2012 progn	700	100	800	4 500	1 749	11 000	4 276
2013 progn	725	150	875	4 500	1 749	11 000	4 276
2014 progn	725	150	875	4 500	1 749	11 000	4 276
2015 progn	750	200	950	5 000	1 944	11 000	4 276
2016 progn	750	200	950	5 000	1 944	11 000	4 276

Therefore, currently there is no lack of transfer capacity. According to a prognosis of the system operator EG Võrguteenus there shall be no capacity deficit until 2016. That is why the regulatory authority has no need for capacity allocations. Currently the technical transfer capacity in Narva direction is 4 000 m^3 daily (1 555 MW), but it cannot be utilised because of some network limitations (congestion) on the Russian side. In addition, EG Võrguteenus plans to gradually increase the transfer capacity that first of all will be achieved by reconstruction of gas distribution stations.

In conclusion: the Estonian gas transmission system today has sufficient transfer capacity and until 2016 there will be no capacity deficit. Moreover, the Estonian side technical transfer capacity is 15 000 m^3 daily, but it cannot be utilised because of the transmission network limitations (congestion) on the Russian side in Narva direction. A precondition for transfer capacity increase is further investing in network on the Russian side.

4.1.2 Gas networks' price regulation

Unlike electricity networks in issuing activity licences the so-called exclusive right principle is not applied for gas networks and according to the Natural Gas Act erection of parallel networks is allowed. In practice so far no case of construction of a parallel network has been recorded.

In issuing activity licences to distribution network operators the Authority determines the service area for an undertaking on map. Network operator is obliged to develop the network in their service area in a manner that ensures gas supply to all already connected customers and to new connectees.

AS EG Võrguteenus possesses both the transmission network and the largest distribution network. Its shares belong to AS Eesti Gaas, which is the largest undertaking in the Estonian gas market. Its major shareholders are Gazprom, Eon-Ruhrgas and Fortum. Together with AS EG Võrguteenus the total number of distribution network operators is 27. This is quite big number, considering the smallness of Estonia. The list of gas distribution operators is given on the Authority's web site.

The market of distribution networks is also extremely concentrated. Thus, AS EG Võrguteenus has a market share of about 91% and the number of its customers is 50 000. Other distribution operators have relatively little sale volume, typically of less than 10 000 thousand m^3 annually and the number of customers below 1000. The market share of small distribution operators today is only 9%. The main summary data of gas networks are presented in below table 4.1.3. The gas transmission service is provided only by AS EG Võrguteenus. The table also presents the company's distribution service tariffs. The tariffs of all undertakings are presented on the Authority's web site.

Table 4.1.3 Summary of gas network operators

Customer	No of regulated undertakings	Network service tariff in 2008 €/MWh (EEK/thu m^3)			Network service tariff in 2009 €/MWh (EEK/thu m^3)		
		Large industry (I4)	Commercial (I1)	Household (D3)	Large industry (I4)	Commercial (I1)	Household (D3)
Transmission	1	0,65 (93)			0,96 (137,5)		
Distribution	27	1,51 (218)	1,51 (218)	5,37 (773)	1,92 (276,3)	1,92 (276,3)	5,76 (829,5)

Notes:
According to Eurostat definitions:
- large industrial customer (I4) with an annual consumption of 116 300 MWh or 12 600 thou m^3
- commercial customer (I1) one with an annual consumption of 116,3 MWh or 12,6 thou m^3
- household customer (D3) one with an annual consumption of 23 260 kWh or 2,53 thou m^3

Prices of network services according to AS EG Võrguteenus (EG Network service) price list.
Since the unit for network service prices is thousand m^3, then in brackets also prices in EEK/thou m^3); calorific heat value of gas is 9,2 MWh/thou m^3
1 €= 15,65 EEK

The tariffs of AS EG Võrguteenus are formed in respect of pressure level. Therewith 3 price categories are applied:

Table 4.1.4 Network service prices according to pressure level

Type of network service	2008	Since 1 July 2009
	Tariff EEK/1000 m^3	
Transmission at pressure above 16 bar	93,70	137,55
Distribution at pressure 0,1 to 16 bar	217,70	276,28
Distribution at pressure below 0,1 bar	772,70	829,47

The prices rose in 2009 because of dramatic decrease in sales at the pressure level above 16 bar. This in turn had an impact to prices in all other categories. It should be emphasised that operational cost of the undertaking did not increase. The tariffs are formed according to actual economic situation and the Authority imposed 5% operational cost reduction obligation.

Customers connected at the higher pressure level from 0,1 to 16 bar are industrial customers, the others are network undertakings/operators, district hating boiler plants and heat and power cogeneration (CHP) plants. Households are connected at the lowest pressure level of below 0,1 bar, as a rule. Few largest customers (AS Nitrofert, Iru Power Plant Ltd.) are connected to the transmission network with the pressure level of above 16 bar.

Network operators that are independent from AS Eesti Gaas have established a single distribution tariff for all customers, as a rule, irrespective of the pressure level and other characteristics of consumption like volume. The tariffs range between 0,41 and 1,27 EEK per 1000 m^3.

According to law price regulation is uniformly applied to all network operators regardless of their size. This adds significant amount of work to the Authority, as first of all the volume of work depends on the number undertakings and not on their size.

The only exemption in regulation of gas network operators is the requirement for the legal unbundling of network activities. According to the Natural Gas Act legal unbundling is required when the number of customers is over 100 000 or, the same undertaking performs both transmission and distribution activities. Due to that the undertaking with legal unbundling from AS Eesti Gaas is its distribution operator. Since 2006 a separate undertaking AS EG Võrguteenus was founded. For other undertakings law stipulates requirement for separation of accounts. As EG Võrguteenus performs both transmission and distribution activities and therefore, a separation of accounts for both services is required.

According to law the Authority approves separately the following network services and methodologies:

- transmission service
- distribution service
- methodology of calculation of the charge for connecting to the network

The price for balancing gas and the charge for gas transit are not approved. For these prices the Authority applies *ex-post* regulation, i.e. supervises the price.

The principles of regulation of gas network operators are the same applied in electricity networks regulation. The Authority elaborates a unified methodology for calculation of network service prices that forms the basis for both the transmission and distribution service regulation and price approval. The methodology is disclosed on the Authority's web site. The site also includes specially elaborated tables for collection of input data to be filled in for approval process. The tables are relatively comprehensive and include technical data and detailed accounts: profit and loss statement, balance sheet, and data about assets. Undertakings shall also submit a

detailed investment plan and separately the expected sale volumes of network services. Since the tables are comprehensive, it is required to fill them in only for price approval purpose. Regular updating of the tables is not required, but the Authority is entitled to request additional information about economic performance and technical indicators and in case of necessity require filling in the tables disclosed on the web site. At the same time undertakings are obliged to separate in their annual accounts network services and sale of gas. The annual accounts are public documents that can be got acquainted by all interested parties.

Submission of input data is an obligation stipulated by law. The Authority can request any information needed for price approval and executing of supervisory proceedings. The Authority employees can also visit enterprises any time and request data and copies of documents. The practice so far has shown that undertakings do not refuse submitting information and the established procedures for data acquisition work problemless.

In the regulation of network charges, the Authority has a decisive role in the selection of methodologies. However, the following is stipulated by law:

- The Authority has to approve all individual network charges and the methodology for calculation of the fees for connection to the network prior to entry into force.

- The prices for network services shall be justified, based on the expenses necessary for the operation and development of the network, reliability and security of supply, metering of the gas distributed through the network, transmitting and computation of meter readings and earning of a justified profit to ensure uninterruptable supply of gas to final customers.

- The tariffs for network services shall be set in a manner which ensures:
  - that necessary operating expenses are covered
  - that investments for operational performance and meeting of development obligations are made
  - compliance with environmental requirements
  - compliance with quality and safety requirements
  - justified profitability

- The Authority elaborates and discloses unified methodologies for calculation of network charges, which serve as the basis for approval.

Therefore, it is up to the regulatory authority to decide upon the selection of methodologies. In the elaboration of methodologies opinion of enterprises has been considered and in fact the methodologies were prepared in the process of mutual consultations between the Authority and the undertakings. In the regulation of network charges a principle is used by which an undertaking submits application for price approval according to necessity and the approved prices are valid until approval of new prices.

In the following the basics of tariff formation is described.

Sale volume of network service

Evaluation of the volumes of sale is of an extreme importance. As regards network services, fixed cost is dominant in the cost structure. The higher the sales, the lower the charge for the use of network. In the evaluation of the sale volume of network services historic statistical dynamics data are used, as well as the comparison of consumption and the number of customers. The latter method is effective first of all in case of household customers since there are some certain established levels of consumption per one customer (m^3 per customer).

Uncontrollable cost

Cost is considered uncontrollable if undertakings cannot influence it by their economic performance and this means that no saving obligation can be imposed on it. Uncontrollable cost is the state fees and the charges paid to other operators for network services. For example, all small operators, which have connected with the network of AS EG Võrguteenus, have to pay for the service.

Fixed cost

Fixed cost is subject to a deep analysis by the Authority. The basic methods for evaluation of fixed cost is comparison with similar undertakings (*benchmarking*), analysis of cost dynamics and the analysis and audit of individual cost components. A precondition for using comparison is an availability of a number of similar undertakings. In the regulation of distribution networks comparison can be successfully used only for regulation of smaller network operators, since there are 27 distribution operators in Estonia, as mentioned above. At the same time it is problematic to apply comparison method for the regulation of the distribution network belonging to AS EG Võrguteenus, as this network is tens of times larger than other networks. This makes using of benchmarking in cost analysis of this undertaking practically impossible. The only chance is comparison with the distribution networks of other countries. Similar problem exists also with the transmission network of AS EG Võrguteenus, where it can be compared only with the transmission networks of other countries.

Other substantial methods for fixed cost analysis are the dynamics of cost and the analysis of individual cost components. In the analysis of dynamics it is assumed that their growth shall not exceed the inflation reflected by consumer price index (RPI). In addition, undertakings shall achieve cost reductions through higher efficiency and productivity. In the analysis of individual cost components justification of them is monitored. Basic cost articles of network operators are operation and maintenance, labour expenses, sales cost etc. Among others the Authority verifies in the analysis process whether an undertaking buys services at a competitive market price, whether goods, works and services are purchased in compliance with procurement rules.

Capital expenditure (depreciation of fixed assets)

Similarly, to the regulation of electricity networks for gas networks the Authority also uses a regulatory capital cost method, which, as a rule, differs from accounting depreciation. Advantages of the regulatory method are its simplicity of calculation and transparency for both customers and undertakings, as well as to the regulatory authority. Since only two fixed assets' depreciation rates are used, the monitoring of accounts of both the regulatory assets and capital expenditure becomes very simple and understandable. Accounting of regulatory depreciation use a principle in which

capital cost is included in network tariffs according to the technical lifespan of fixed assets.

In the regulatory capital cost accounting a principle is used in which, from a certain selected moment in time, the fixed assets are divided into two parts, the old ones and the new investments, and a reference year is fixed. The assets acquired before that are regarded old ones and for them a single constant rate of depreciation is applied, which considers both the structure and the age of assets. A single constant weighted average depreciation rate is applied also to the new investments. The basis for calculation of the rate is the structure of assets.

The majority of the networks of small undertakings have been built during the last five years. Therefore, these are new investments that are considered new assets and in the accounting of capital cost, a single depreciation rate for new fixed assets is used. Contrary, the transmission and distribution networks of AS EG Võrguteenus were dominantly built during the former Soviet Union and for these networks separate old and new fixed assets' depreciation rate is used.

Justified return

Similarly to other regulatory authorities for calculation of the justified return a model is used, which considers a weighted average cost of capital (WACC) and the regulatory assets. Besides other factors, a weighted average cost of capital depends on the risks involved in individual undertakings. Particularly, the WACC value calculated by the Authority for AS EG Võrguteenus is 7,60% and for small network operators 9,35%. A foundation for determination of WACC is a risk free rate of return. In Estonia governmental bonds are essentially missing. For that reason the CA bases in the determination of risk free return on the German 10-year state bond return in the last 5 years. To this an Estonian state risk is added. The 5-year historic return is used in order to eliminate market fluctuations in the calculation of a justified return.

Regulatory assets

The basis for determination of both cost of capital cost (capital expenditure) and a justified return is the regulatory asset base, for which the Authority applies principles similar to those used by other regulatory authorities. In accounting of the regulatory assets its continuity is of an extreme importance. Accounting of the regulatory assets is based on the principle according to which to an initial value of assets the investments are added and a regulatory capital cost is subtracted. As a rule, for initial value the book value is taken. In verification of the value of assets of small undertakings the Authority has used comparative method as well. In this case the asset value of various undertakings is compared with the length of network (in kilometres) and with the volume of consumption. As the investments of smaller network operators have been made mainly after 2000, in the analysis of regulatory assets the Authority has also verified economic feasibility of the investments made.

The investments necessary for construction of gas network are financed from two resources: equity financing of the so-called development investments and using the fees paid by customers for connecting to the network. According to the Natural Gas Act the calculation of the fees should base on the principle that covers justified cost only for the particular connecting, as well as covers the cost of securing environmental, quality and safety requirements. The Act does not stipulate which

portion of the investment should be covered by equity financing and which portion from connecting fees. For example, a completely new network can be erected on principle that all investment cost is covered by consumer paid connection fees/charges. Thus, it is up to the enterprise to decide upon the financing scheme. At the same time it is extremely important for the regulatory asset base: only self-financed investments shall be taken into account. The connection fees paid by customers are already paid once and it cannot be charged twice from them, i.e. this cost is not included in the network charges. Therefore, in case the entire network erection is financed by consumer paid connection fees, the undertaking has no regulatory assets and neither capital expenditure nor profit is included in the tariffs.

4.1.3 Quality of gas supply

Gas supply quality requirements were established by amending the Natural Gas Act in the beginning of 2007. Pursuant to the amendments a fault caused sequential duration of an interruption of gas supply may not last longer than 72 hours and an annual total duration of interruptions may not be longer than 130 hours. Records on duration of interruptions shall be kept by network operators, while the Authority's responsibility is the monitoring of fulfilment of quality requirements.

4.1.4 Balance responsibility

Initial regulation of balance responsibility was stipulated by the Natural Gas Act that entered into force in July 2003. It was amended in the end of 2005. In January 2006, in the very cold period, a shortage of gas supply took place and an insufficient regulation of balance responsibility became apparent. This caused remarkable amending of the Act, specifically its balance responsibility related section. The amendments were enforced in March 2007. According to the amendments every market participant is responsible for its balance. The trading period is one twenty four hour period and for household customers' balance their network operator is responsible for. Balance is determined by the Act as the balance between the quantity of gas agreed upon by sale contract of a market participant and the quantity of gas consumed or re-sold by the market participant. This means essentially that all market participants, excluding households, are responsible to secure that their 24-hour consumption quantity corresponds to the quantity agreed upon by the contract.

Balance responsibility is organised in a principle that the system operator (AS EG Võrguteenus) is responsible for the balance of the whole system and there may be several balance providers on the market. In order to ensure balance the system operator buys or sells balancing gas. If, for instance, a customer consumed more gas than agreed upon by the contract, it has to buy the missing quantity at the price of balancing gas. In an opposite case it has to sell the excess quantity at the price of balancing gas. Presumably, the missing balancing gas price is higher than the contractual and vice versa, the excess balancing gas price is lower that the contractual one. In essence, the situation shall be similar to stock exchange, in which in case of shortage the price rises and in case of excess drops. Whereas, consumers do not have to participate in the "stock exchange games", but they can delegate all the balance responsibility to their seller that secures availability of necessary gas quantities.

A specific of the Estonian gas market is an extreme concentration. Only two undertakings import gas: AS Eesti Gaas and AS Nitrofert. AS Nitrofert is a chemical industry using gas in its technological process and imports gas for its own needs only. Thus, AS Eesti Gaas imports all the gas needed for all other customers, while besides selling of gas to other network operators and customers it is also the balance provider. This means, in doing so the sale tariff also includes balancing service cost.

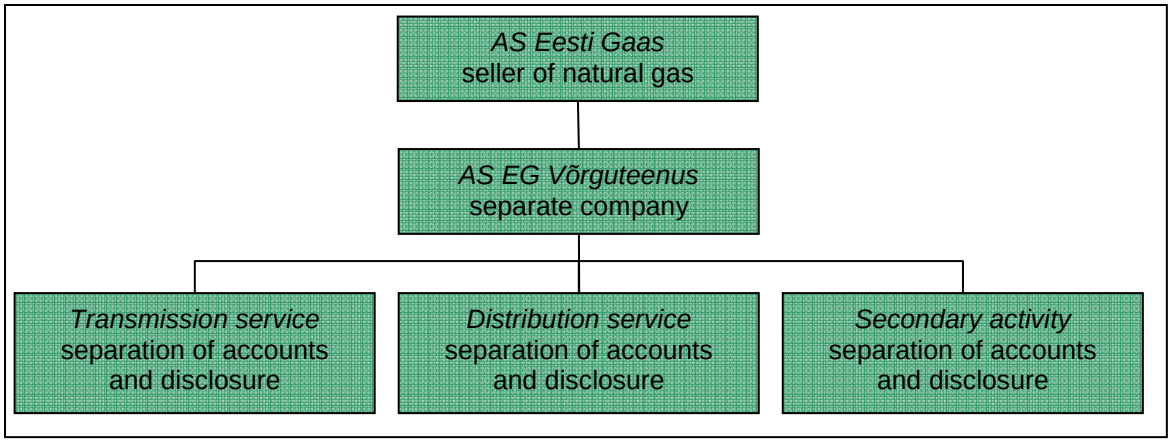
According to the Natural Gas Act §16 sets out that the system operator submits to a balance provider invoices for each balance period for the purchased balance gas and for other legal or contractual charges. The basis for invoicing is the information in connection with the determination of balance.

The price for balance energy shall enable the system operator to:
1) cover justified cost for purchasing balance gas
2) cover other justified cost related to purchasing and selling of balance gas
3) earn justified return

The system operator has to approve its methodology for calculation of balancing gas price with the Authority. In 2008 the Authority approved the methodology and standard conditions of application for AS EG Võrguteenus.

4.1.5 Unbundling of activities

According to the Natural Gas Act the distribution network operator shall form a separate undertaking if the number of customers is over 100 000. In fact, there are no distribution network operators with more than 100 000 customers in Estonia. The transmission network operator shall be legally unbundled. However, it is allowed to establish a business entity that performs both transmission and distribution service provision. AS Eesti Gaas that possesses both the transmission network and the distribution network with the largest market share has established business entity AS EG Võrguteenus that provides both transmission and distribution service. Therefore, it is the so-called combined network operator within which transmission, distribution and secondary (ancillary) activities are separated by accounts and disclosed. In doing so the undertaking is obliged to establish accounting rules for allocation of assets and liabilities, revenue and cost. The annual report shall be supplemented by an auditor's evaluation of justification of the cost allocation. The structure of AS Eesti Gaas is presented in drawing 4.1.6 below.



Drawing 4.1.6 Structure of Eesti Gaas

All other distribution networks besides AS EG Võrguteenus, currently altogether 27 undertakings, as well as the undertakings with less than 100 000 customers shall separate their accounts by areas of activity as follows:

- provision of distribution service
- sale of gas to non-eligible customers
- sale of gas to household customers
- secondary (ancillary) activities

The Authority has elaborated and disclosed on its web site respective guidelines and report forms, which are helpful for undertakings in separation of accounts. In doing so undertakings are obliged to establish accounting rules for allocation of assets, liabilities, revenue and cost. Their annual report shall be supplemented by an auditor's evaluation of justification of the cost allocation.

In addition to account separation for network service, sale of gas and secondary activity undertakings shall separate their accounts also by different services (the so-called regulatory stipulated activity separation).

Combined network operators (AS EG Võrguteenus) are obliged to separate their accounts as follows:

- sale of transmission service (*ex-ante* regulation, the Authority approves network charges prior to their entry into force)
- sale of distribution service (*ex-ante* regulation, the Authority approves network charges prior to their entry into force)
- transit of gas (*ex-post* regulation, the Authority has the right to monitor justification of prices)
- charges paid by customers for connecting to network (*ex-ante* regulation, the Authority approves methodology for calculation of connection fees separately for every undertaking)
- sale of balancing energy (*ex-post* regulation, the Authority has the right to monitor justification of prices)
- secondary (ancillary) activity

A distribution network operator, that is not obliged to form a separate business entity, shall separate its accounts as follows:

- natural gas sale to non-eligible customers (the Authority approves a weighted average price)
- natural gas sale to eligible customers (the Authority has the right to monitor whether cross-subsidising is avoided in the sale to eligible and non-eligible customers)
- sale of distribution service (*ex-ante* regulation, the Authority approves network charges prior to their entry into force)
- customers paid charges for connecting to the network (*ex-ante* regulation, the Authority approves methodology for calculation of connection charges separately for every undertaking)
- secondary (ancillary) activity

Separation of activities of AS EG Võrguteenus is reflected in table 4.1.5 below.

Table 4.1.5 Unbundling of activities in AS EG Võrguteenus

	Gas transmission	Gas distribution
Separate headquarters (yes/no)	Yes	Yes
Undertakings acting as separate business entities (yes/no)	Yes	Yes
Separate accounts together with guidelines of the regulatory authority (yes/no)	Yes	Yes
Auditing of separation of account (yes/no)[1]	Yes	No
Disclosure of separated accounts (yes/no)	Yes	Yes
Separate management board in which board members of other group undertaking's do not participate (yes/no)	Yes	Yes

4.1.6 Action plan

AS EG Võrguteenus is obliged to elaborate an action plan with measures for equal treatment of other gas undertakings and customers including duties of employees in the implementation of these measures. The Authority has prepared guidelines for elaboration of such plan. It is disclosed on the Authority's web site. According to the guidelines it is recommended to compile the plan in a 3-year perspective. Annually, AS EG Võrguteenus shall report to the Authority on the implementation of the plan. Both the plan and the report are public documents and all interested parties can be acquainted with them. If the Authority is in an opinion that the plan is not sufficient and does not comply with requirements, a revision of the plan and its changing may be required.

From the point of view of activity separation, the most important is the separation within AS Eesti Gaas as the group, which has a market dominant position not only in network service provision but also in wholesale and retail. As already explained above AS EG Võrguteenus is a separate business entity with 100% shares belonging to AS Eesti Gaas. Unlike the Electricity Market Act the Natural Gas Act does not stipulate limitations for management and supervisory board. The management board

has two members, while the supervisory board has three members. However, all members are employees of Mother Company AS Eesti Gaas. The company office premises together with dispatch centre locates in a separate building and the logo, which is remarkably different from the Mother Company's logo, is an indicator of wishes to present the company to public as an undertaking different from Mother Company.

An extremely important factor from the point of view of gas network operators' independence is the management of undertakings. Essentially, the Mother Company's competence should only be limited to investments into productivity of assets, annual budget and approval of the long-term business plan. In the rest the networks should be independent. According to the company's action plan daily management of the network operator, incl. the services of system operation, are exceptionally the competence of the management board.

As regards the system operator (the transmission network operator) belonging to AS EG Võrguteenus and an important issue is to have an action plan for possible crisis situation in which limitation of consumption may become unavoidable. In connection with entering into force of the EU Directive 2004/67/EU, which deals with the measures of gas security of supply, amendments to the Natural Gas Act were enforced in March 2007. Among others they regulate system operator's actions in possible crisis situation in which consumption limitations may become necessary. The company has an action plan for possible crisis situations.

In the promotion of networks' independence and their price regulation it is important to supervise the price formation for services purchased from Mother Company and other undertakings belonging to the group. Regarding services purchased from Mother Company the Authority has followed principles that the prices may not exceed competitive market ones and all procurement rules have to be complied with. According to the Public Procurement Act, gas network undertakings as natural monopolies have to fulfil certain requirements in procurement procedures stipulated in the Act.

In conclusion it can be realised that Estonia completely fulfils the EU Gas Directive's requirements for separation of areas of activity. AS Eesti Gaas has less than 100 000 customers and according to that the combined network operator AS EG Võrguteenus that provides both transmission and distribution services has been established. Both the transmission and distribution operators have separate accounts. Other distribution network operators (having less than 100 000 customers) have separate accounts for distribution service and sale.

4.2. Competition in gas market

4.2.1 Wholesale market

Beginning from 1 July 2007 the market is opened in the whole. As explained above Estonia has cross-border connections only with Russia and Latvia, and the only supplier of gas in all three Baltic countries is Russia. Hence there is no a real competition between sellers as in all three Baltic countries gas can be purchased only from Russia. Also in Finland the situation is similar to that in the Baltics, because all natural gas is imported from Russia.

All the gas sold in the wholesale market is imported by AS Eesti Gaas as there is no other competitive whole sellers. In addition the chemical industry AS Nitrofert also imports gas, but exclusively for its own technological needs. Law allows import of gas for all market participants. However, the Natural Gas Act provides for an activity licence if gas is imported from outside the EU, but the application of it is simple, just limited to fulfilment of some formal requirements.

Besides the network undertaking that belongs to AS Eesti Gaas group there are also 26 smaller network operators that provide network services and sell natural gas to their customers. The small operators buy gas exceptionally from AS Eesti Gaas and the big majority of their customers are households.

General indicators of the wholesale market are presented in table 4.2.1 below. As seen from the table the Estonian gas market is essentially under control of the single undertaking - AS Eesti Gaas.

Table 4.2.1 Gas wholesale market overview

Year	Gas consumption	Incl import	Consumption peak		Transmission system transfer capacity		No of companies importing gas	Market share of three largest whole sellers
	mln m^3/year	mln m^3/year	thousand m^3/daily	MW	thousand m^3/daily	MW		%
2001	865,2	865,2	5 400	2 099	7 000	2 721	2	100
2002	723,8	723,8	5 000	1 944	7 100	2 760	2	100
2003	838,4	838,4	5 500	2 138	7 800	3 032	2	100
2004	961,8	961,8	5 100	1 983	8 300	3 227	2	100
2005	990,8	990,8	5 200	2 022	10 400	4 043	2	100
2006	1 008,0	1 008,0	6 700	2 605	10 500	4 082	2	100
2007	1 003,4	1003,4	6 350	2 468	10 700	4 160	2	100
2008	962,5	962,5	5 200	2 022	10 900	4 237	2[1]	100

Note: [1]The real gas importer is only AS Eesti Gaas, as another importer AS Nitrofert imports gas only for its own needs.

Price regulation is applied neither in case of wholesale nor in case of sale to eligible customers. AS Eesti Gaas, as the only wholesaler, sells gas at negotiated price to eligible customers connected to its network, as well as re-sells gas to other network operators. The amendments to the Natural Gas Act that were enforced in March 2007 specified the obligations of market dominant gas sellers. According to the

amendments a market dominant gas undertaking has to disclose conditions of gas sale and the principles of gas price formation, as well as be guided in elaboration of them from the equal treatment and transparency principles. The sale price of gas shall ensure coverage of operational cost, needed investments and justified return. In essence the amendments mean that AS Eesti Gaas as market dominant undertaking has to sell gas at equal price and conditions to all eligible customers, and to all network operators as well. The regulatory authority has the legal obligation to supervise the activities of AS Eesti Gaas. In case of incompliance with above described conditions the Authority is entitled to require action in order to ensure compliance.

The Authority is in an opinion that the described amendments were necessary and by no way hold back functioning of the market, as well as does not place AS Eesti Gaas into unfair conditions. The real Estonian situation is so that alternative gas sellers do not exist and it is unlikely that a real competition can appear in the wholesale market in the near future. Besides Russia gas can be imported from Latvia, but the situation there is similar – the majority shareholder of the market dominant gas seller is the exporter of gas Gazprom. Therefore, potential gas importers have no real opportunities to purchase gas at more favourable conditions.

In addition AS Eesti Gaas as the market dominant enterprise with 100% wholesale market share shall fulfil requirements derived from the Competition Act. The Act prohibits from any direct or indirect abuse of the dominant position on a goods market, including offering or applying dissimilar conditions to equivalent agreements with other trading parties, thereby placing some of them at a competitive disadvantage. The regulation pursuant to the Competition Act is in more detail explained in section 4.3.

Thus, in compliance also with the Competition Act Eesti Gaas has to follow in its sale activity that their expenses and return are justified and reasonable, and that gas is sold to all customers at equal conditions. The Authority has constantly monitored the situation on market and the major problem has just been the selling at different prices to customers being in similar conditions. The Authority is in a position that all gas customers at similar conditions must have the right to purchase gas at equal conditions and price, irrespective whether gas is purchased for own needs or for re-selling (for trading).

As the Authority regulates prices of major part of district heat supply undertakings and the price for gas sold to households by all independent gas sellers (network operators, as a rule) then there is a good overview of the prices applied by Eesti Gaas for various customers. In 2008 the Authority commenced a study of market situation and found breaches of the Competition Act by Eesti Gaas, which sold gas to similar customers at different prices. As a result, proceedings were initiated, based on the Act. By the end of 2008 the situation was improved as Eesti Gaas changed their consumer contracts. In 2009 the Authority will continue monitoring of the market and consequently will decide whether the proceeding can be terminated.

4.2.2 Retail market

AS Eesti Gaas is in market dominant position also in the retail market. Its retail market share 2008 was 93% and also the rest 9% of retail sold gas is also purchased from Eesti Gaas. Its retail sales total about 677 thousand m^3 per annum, while the second largest undertaking has its retail quantity of only 10 thousand m^3. This expressively shows how large in fact is the Eesti Gaas' share on the market. As it was described in the previous chapter, besides AS Eesti Gaas there are 26 smaller network operators that sell both network service and gas to customers connected to their network. There are no sellers, which are independent from gas network operators. Table 4.2.2 below presents a retail market overview, which, similarly to the wholesale market, is characterised by an extreme concentration.

Table 4.2.2 Overview of natural gas retail market

				Market share of three largest undertakings				
Year	Retail market consumption mln m^3	No of undertakings with market share of over 5%	No of sellers independent from network operators	Power plants	Large industries	Medium industries	Small business and households	No of customers that changed supplier
2001	789	1	0	100	100	100	100%	0
2002	675,4	1	0	100	100	100	99%	0
2003	732,4	1	0	100	100	100	99%	0
2004	748,9	1	0	100	100	100	98%	0
2005	774,4	1	0	100	100	100	97%	0
2006	793,5	1	0	100	100	100	97%	0
2007	796,0	1	0	100	100	100	93%	28
2008	747,5	1	0	100	100	100	93%	1109

As all customers can change the supplier they are choosing AS Eesti Gaas as their new supplier, as a rule. Next table 4.2.3 reflects the changes of supplier during 2008.

Table 4.2.3 Change of natural gas supplier

Natural Gas Act § 6 (3), for eligible customers § 5 (2)

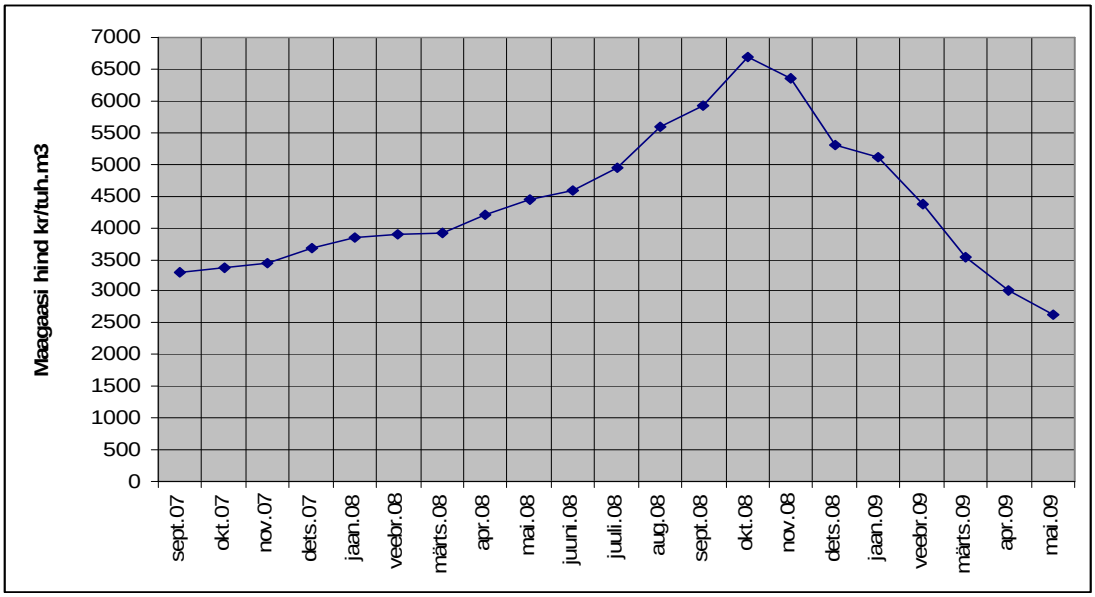
	2007	
	pcs	**Sales volume, 1000 m3**
Household customers	1098	1326,694
Eligible customers	11	2401,389
Total no. of customers	**1109**	**3728,083**

Thus, after the market opening a number of customers have changed their supplier. In the process of approval of standard conditions for network services and sales the Authority has imposed the requirement to undertakings that process of change of sellers has to be simple, take no longer than a month and should not impose unnecessary obligations on customers.

In 2008 the Authority carried out an analysis of economic performance of Eesti Gaas. The analysis followed two major objectives: firstly processing of the application for household gas price change and secondly, verification of the prices for gas sold to eligible customers. In the analyse process the Authority concluded that the undertaking has possibilities for cost savings. Consequently, the approved price resulted in a lower level compared to the applied for one. It should be noted yet that in the household gas price approved in June 2008 the share of the gas purchased from Russia constituted as much as 88% and respectively, the share that Eesti Gaas added for their sale cost and profit only 12%. Hence the Authority has very limited possibilities to influence final consumer price formation.

Data about gas price dynamics are presented in drawing 4.1.7 and an average end consumer price in table 4.2.4 below. For both industrial and household customers a steep price increase took place in 2008 caused by the rise of imported gas price. It can be realised that. In addition, since 1 January 2008 excise tax in the level of 157 EEK/1000 m3 was introduced on the price.

AS Eesti Gaas imports gas from Russia at conditions and price similarly to other EU Member States. The import price is formed on the basis of last 6 months heavy and light fuel oil average prices in USD and exchange rate USD/EUR is also taken into account by a formula. Thus the gas price formation is always delayed in time to certain extent compared to oil price. For example, in July 2008 the oil price rose to 140 USD/barrel, but the gas import price peaked in October, when the oil price trend was already falling (see drawing 4.1.7).



Drawing 4.1.7 Trend of imported gas price EEK/1000 m^3
Source: Competition Authority

Table 4.2.4 Natural gas final consumer price in 2008

	Unit	I4	I1	D3
Network service	EEK/1000 m3	217,70	217,70	772,70
	€/MWh	1,51	1,51	5,37
Taxes in network charges		0	0	0
Nat gas price without network service	EEK/1000 m3	4625,00	4790,00	4165,00
	€/MWh	32,12	33,27	28,93
Excise tax (since 2008)	EEK/1000 m3	157,00	157,00	157,00
	€/MWh	1,09	1,09	1,09
VAT 18%	EEK/1000 m3	899,95	929,65	917,05
	€/MWh	6,25	6,46	6,37
Final consumer price incl VAT	EEK/1000 m3	5899,65	6094,35	6011,75
	€/MWh	40,98	42,33	41,75

Notes:
According to Eurostat definitions:
- large industrial customer (I4) with an annual consumption of 116 300 MWh or 12 600 thou m^3
- commercial customer (I1) one with an annual consumption of 116,3 MWh or 12,6 thou m^3
- household customer (D3) one with an annual consumption of 23 260 kWh or 2,53 thou m^3

Prices of network services according to AS EG Võrguteenus (Network Service) price list.
Since the unit for network service prices is thousand m^3, then in brackets also prices in EEK/thou m^3); calorific heat value of gas is 9,2 MWh/thou m^3
1 €= 15,65 EEK

4.2.3 Selling obligation and price regulation

General data on final consumer gas price regulation on the retail market are presented in table 4.2.5 below.

Table 4.2.5 Final consumer price regulation

	Large customers	Middle and small business customers	Household customers
Regulated price (Yes / No)	No	No	Yes
Percentage of customers that buy gas at regulated price	0	0	100
Possibility to change from market price back to regulated price (Yes / No)	No	No	Yes
Gas sellers which are obliged to sell at regulated price	0	0	All network operators to households

The Natural Gas Act stipulates direct selling obligation to all network undertakings in respect of household customers. According to the 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. Whereas the Act provides for a general sale obligation principle in the formulation, according to which a gas undertaking shall secure gas supply to all customers in accordance with the Act, conditions of licence and contracts entered into. In the activity licence the Authority has set forth a condition to Eesti Gaas that requires selling to all network operators, customers and other sellers within the technical limits of the network. Activities of Eesti Gaas are

regulated also by the Competition Act, as it gas dominant position on gas market. The Act particularly stipulates that the market dominant undertaking cannot refuse selling goods without reason (regulation pursuant to the Competition Act is descried in more detail in subsection 4.3).

Thus, pursuant to law and to the issued activity licence it can be concluded that AS Eesti Gaas as the market dominant undertaking has the selling obligation in respect of all market participants.

The Natural Gas Act stipulates the regulation of price for household customers, which, according to the Act shall be applicable also after full opening of the market in 1 July 2007. Principles of approval of the price of gas sold to households are similar to those of the network price regulation. The price implies three main components: justified costs, expenditure of capital (depreciation of fixed assets) and justified profitability (return). The Authority elaborates and discloses the unified methodology for calculating of the price limits for household customers, which forms the basis for approval. Respective methodology is disclosed on the Authority's website. In the evaluation of justified cost the Authority first of all considers the principle of cost savings and monitors whether cross subsidising of areas of activity is avoided. The prices are not indexed and instead, approved only upon applications from undertakings.

Unlike electricity sale price for natural gas no weighted average price is approved. Instead, if undertakings sell gas to various customer groups at different prices, the Authority approves individually all the price limits. AS Eesti Gaas has formed different limit prices depending on the volume of annual consumption. Most of smaller network operators have established a single limit price for all households irrespective of their annual consumption volume.

In July 2009 amendments to the Natural Gas Act were enforced, which makes regulation more liberal. In the regulation of household gas price regulation the following was amended:

- The price of gas sold to households is to be approved only for market dominant undertakings, i.e. for Eesti Gaas. Small sellers are now exempted from approval requirement, when it comes to household gas.
- The Authority approves the sales marginal which is added to import price.
- An undertaking itself forms sale price on the basis of import price.
- In the beginning of every calendar year an undertaking makes netting.
- Customers have to be informed 1 month in advance about changes in price (formerly it was 3 months).

The Authority is in a position that the new regulation more adequately links sale prices to the import price, thus also better corresponding to the cost and protecting customers' interests. The amendment of law facilitates to development of competition. Smaller gas traders have better possibilities to compete on the market, as approval of limit prices as a competition-restricting factor is eliminated.

4.3. Competition supervision

When it comes to whole and retail sale of gas, Eesti Gaas is indisputably in market dominating position, as it is essentially the only gas importer and re-seller (AS Nitrofert has so far imported gas merely for its own needs and has never acted as a re-seller of gas). As since 1 July 2007 the gas market is opened for all customers the whole retail market can be considered a common market and here Eesti Gaas has a market share of 91%. As a market dominant undertaking, Eesti Gaas has to fulfil the requirements of the Competition Act according to which any direct or indirect abuse by an undertaking or several undertakings of the dominant position on a goods market is prohibited, including:

1) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions
2) limiting production, service, goods markets, technical development or investment
3) offering or applying dissimilar conditions to equivalent agreements with other trading parties, thereby placing some of them at a competitive disadvantage
4) making entry into an agreement subject to acceptance by the other parties of supplementary obligations which have no connection with the subject of such agreement
5) forcing an undertaking to concentrate, enter into an agreement which restricts competition, engage in concerted practices or adopt a decision together with the undertaking or another undertaking
6) unjustified refusal to sell or buy goods

The Competition Act stipulates obligations for undertakings with special or exclusive rights or in control of essential facilities. All gas network undertakings are in control of essential facility and according to the Act they are obliged to:

1) permit other undertakings to gain access to the network, infrastructure or other essential facility under reasonable and non-discriminatory conditions for the purposes of the supply or sale of goods
2) keep clear separation of accounts for different primary and secondary activities (e.g. production, transmission, marketing and other areas of activity) enabling thereby transparency of economic performance
3) maintain separate records on revenue and expenditure related to each product or service on the basis of consistently applied and objectively justified principles of calculation which shall be clearly specified in the internal rules of the undertaking; the calculation of revenue and expenses must enable to assess whether the price of a product or service is in a reasonable ratio with the value of the product or service

An undertaking with special or exclusive rights or in control of an essential facility may refuse to grant other undertakings access to the network, infrastructure or other essential facility if the refusal is based on objective reasons, including cases where:

1) the safety and security of the equipment connected with the network, infrastructure or other essential facility or the efficiency and security of the operation of such network, infrastructure or facility are endangered
2) maintenance of the integrity or the inter-operability of the network, infrastructure or other essential facility is endangered
3) equipment to be connected to the network, infrastructure or other essential facility is not in conformity with the established technical standards or rules

4) the undertaking applying for access lacks the technical and financial capability and resources to provide services efficiently and safely to the necessary extent through or with the assistance of the network, infrastructure or other essential facility
5) the undertaking applying for access does not hold the permit prescribed by law for the corresponding activity
6) as a result of such access, data protection provided by law is no longer ensured

Since 1 January 2008 the Authority as a merged agency has an obligation to supervise the functioning of gas market based on both the Natural Gas Act and the Competition Act. The Natural Gas Act regulates in detail the activities of network undertakings – their rights and obligations. Although, the Competition Act also stipulates obligations to networks as to undertakings in control of essential facility, it is practical to apply special law, i.e. the Natural Gas Act.

In the contrary, for sale of gas it may be rational to apply regulation based on the Competition Act. In March 2008 the Authority found that Eesti Gaas breaches the Competition Act by selling gas to similar customers at unequal prices and initiated proceedings based on the Act. By the end of 2008 the situation was improved as Eesti Gaas changed their consumer contracts. In 2009 the Authority will continue monitoring of the market and consequently will decide whether the proceeding can be terminated.

In conclusion it should be realised that in spite of good legislative base there is no operational gas market in Estonia. Moreover, appearance of an operational gas market is unrealistic also in the future as all three Baltic countries are supplied with gas from Russia.

As the only gas importer is Eesti Gaas there are practically no preconditions for appearing of competition on the wholesale market. Competition may develop on the retail market where various traders buy gas fro Eesti Gaas and competing on the re-selling it on the market. Eesti Gaas can also compete by selling gas to the customers of other network undertakings. An example of the activation of retail market is the fact that in 1 100 cases during 2008 customers changed their supplier.

4.4. Obligations of market participants and customer protection

4.4.1 General obligations of market participants

Obligations of market participants are stipulated in the Natural Gas Act. Besides obligations stipulated by the Act the Authority issues activity licences that include also some specific conditions. An activity licence is required for the following activities:

1) import of gas (from outside the EU)
2) sale of gas

3) provision of gas transmission service
4) provision of gas distribution service

In most detail the Natural Gas Act regulates activities of network operators. Their main stipulated obligations are described as follows:

1) a network operator is required to ensure that persons who have a network connection are supplied with gas in accordance with this Act, the conditions of the activity licence and contracts entered into
2) a network operator is required to enable third party access to the network, which for the purpose of the Act means the right of market participants to connect with the network or to use network services
3) a network operator is responsible for the functioning and maintenance of the network which it owns or possesses
4) a network operator is required to develop the network in a manner which ensures that all consumer installations located within its network area are connected to the network
5) a network operator shall organise the metering of gas consumed from the network and maintain corresponding records, unless agreed otherwise
6) a network operator is required to provide other network operators with all the necessary information to ensure the distribution and sale of gas in a manner which enables interconnected networks to be used securely and effectively
7) a network operator may not disclose the information gained in connection with performing of its duties and obligations to third parties, except if disclosure is provided for by law or, information shall be submitted for carrying out of duties and obligations provider for by this Act
8) a network operator may terminate its activities only if it transfers its obligations arising from this section to another network operator
9) a network operator shall give the Authority at least 12 months' advance written notice of the termination of its activities, specifying the date and schedule for termination, and provide a sufficiently detailed overview of the circumstances which ensure that the requirements provided for shall be met
10) a network operator is obliged to follow the principle of equal treatment of market participants in provision of network services

In essence the described regulation ensures the provision of network services to all market participants and a third party free access to the network. Possibilities of refusal to provide network services are extremely limited.

For gas sale undertakings law stipulates the following obligations:
1) a gas undertaking shall ensure that final customers are supplied with gas in compliance with the Natural Gas Act, the conditions of the activity licence and contracts entered into
2) a gas undertaking that performs both provision of network services and sale of gas shall keep separate accounts for the activities

4.4.2 Rights and obligations of Authority

From a supervisory authority point of view the Estonian legislative basis can be considered as a solid one, as it gives the Authority enough possibilities for performing market regulation.

The Authority has the right to get necessary information from a market participant, as well as 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 prices practices applied by gas undertakings and obtain necessary information concerning their economic activities. The 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 obligations for undertakings through licence conditions. For example, it can impose an obligation to invest for gas network operators in case their performance has not secured stable gas supply for customers in accordance with requirements.

At the same time the Authority is obliged to supervise the fulfilment of the Natural Gas Act and to make precepts in case of violation. In addition, market participants (consumers or undertakings) can record complaints on activities or inactivity of other market participants and the Authority has to re-settle them by its decisions. Both the precepts and decisions are administrative acts that can be challenged with an administrative court, which has the right to invalidate a decision or a precept.

The Natural Gas Act also stipulates that in case of certain violations of law the Authority has the right to initiate misdemeanour proceedings. The following violations of law are determined as misdemeanours:

1) failure to give notice to the Authority about changes in data required by law
2) failure to comply with conditions of activity licence
3) sale of gas or provision of network services at unapproved maximum prices or at prices exceeding approved maximum prices
4) violation of obligation to connect to network and collection of unjustified connection fees
5) failure to provide third party access to the network

The penalty payment (fine) that can be imposed in case of violation of the position 1) is up to 30 000 kroons (EEK), in other cases of up 50 000 kroons. In the Authority's practice an initiation of misdemeanour procedures is rather rare. As of the beginning of 2007 two misdemeanour proceedings were initiated: gas and network service provision at a price exceeding approved limit price.

If the market dominant undertaking or an undertaking in control of an essential facility abuses its position then pursuant to the Competition Act a precept may be issued or a misdemeanour proceedings may be initiated (punishable by a fine of up to 500 000 EEK). Repeated abuse may be subject to punishment by way of criminal procedure.

4.4.3 Customer information

Both gas network operators and gas sellers are obliged to maintain a web site and disclose as a minimum the following information on it:

1) charges for network services
2) maximum (limit) prices for gas
3) method of calculating the charge for connecting to the network
4) standard terms and conditions of contracts

The charges for network services and household customer gas prices 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. Besides undertakings also the regulatory authority shall disclose all the approved prices on its own web site. If a gas undertaking sells both network services and gas, it is obliged to separate in customer bills the price for the network service and for the gas.

4.4.4 Customer contracts, suspension and limitation of gas supply and extra-judicial proceedings

In March 2007 amendments to the Natural Gas Act were enforced. The amendments pay more attention to customer protection. In addition to the standard terms and conditions for selling gas to household customers now also similar standard conditions have to be approved also for provision of network services. Pursuant to the Act the standard conditions of selling to household customers besides others shall include:

1) sellers' name and address
2) service provided
3) requirements for the quality level of provided service
4) customer information about the tariffs and prices
5) contract duration, conditions of updating and termination of the contract
6) possibility of change of supplier for free
7) possibilities of payment for the service
8) possible compensations and pay-back procedures
9) settlement of complaints

The contract on selling gas to household customers may also include stipulations from the network contract that deal with the provision of network services necessary for distribution of sold gas.

As mentioned above, standard conditions have to be approved also for provision of network services. In doing so the Authority has to monitor whether network service user's rights and obligations are balanced in the contract, as this form a basis for the approval of prices for network services.

Standard terms and conditions for sale of gas to eligible customers are not approved by the Authority. However, according to the Natural Gas Act and the Competition Act

the market dominant seller (AS Eesti Gaas) shall ensure equal treatment of all market participants.

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 (stealing) of gas. Besides, a network operator has the right to suspend gas supply, giving at least 7 days' advance notice, if:

1) the consumer installation is adversely affecting the supply of gas to another final customer or damaging the technical parameters of the network
2) 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
3) any conditions provided in the contract for the purchase and sale of gas or stipulated conditions are violated.

A new customer protective aspect in the amendments is the clause related to household customers that fail to pay in time and a network operator intends to suspend gas supply to them. In such case, if a customer has a permanent residential space, which is heated by gas, supply may suspended during the period from 1 October to 1 May, only when at least 60 days have passed since the notice.

Before the gas supply is suspended in cases 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.

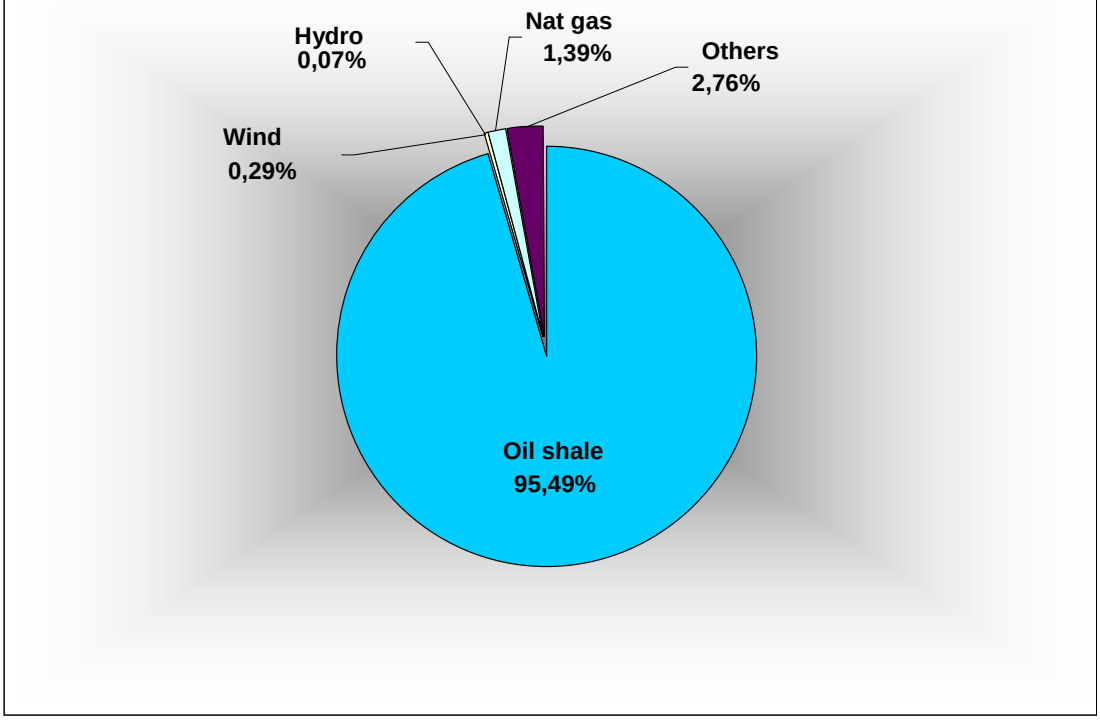
All market participants, both undertakings and customers have the right to refer to the Authority as to the extra-judicial body. A market participant may record a written complaint against an action or omission of another market participant that is in conflict with the Electricity Market Act or legislation 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 a decision.

Conclusively, the Authority’s opinion is that in connection with the selling obligation customers are reasonably well protected. Network operators have the obligation to sell gas to all customers connected to the network and the market dominant gas seller is obliged to supply all customers.

5. Security of supply

5.1. Electricity

For electricity production the fundamental fuel in Estonia is oil shale. In 2008 95,5% of electricity was produced from it, 1,4% from natural gas and the rest 3,1% from other energy sources. Thus, Estonia is independent from import of fuels and in electricity production, as all national electricity demand can be covered using domestic fuels and energy sources. Drawing 5.1.1 presents the structure of fuels used for electricity generation.



Drawing 5.1.1 Structure of energy sources used for electricity production
Source: Statistical Office

As regards installed electrical capacity the biggest share also belongs to oil shale fired power plants. Below table 5.1.1 presents data on installed capacity.

Table 5.1.1 Installed electrical capacity in 2008. Source: OÜ Elering

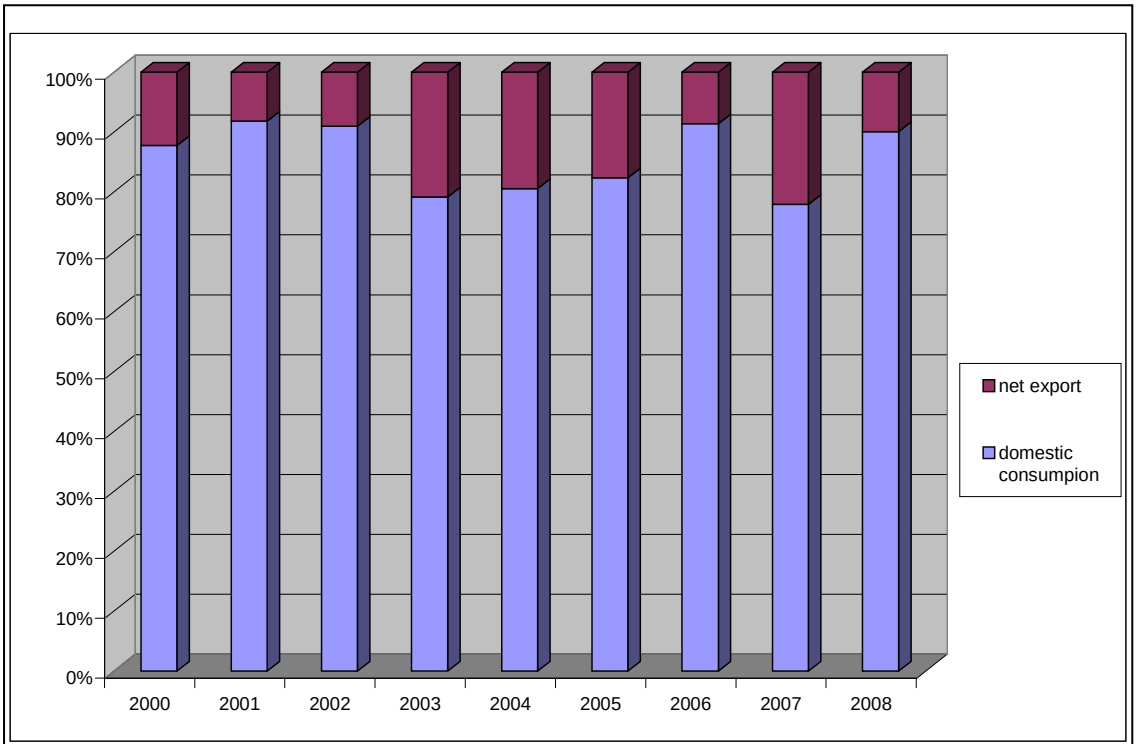
	Capacity MW	Fuel	Owner
Narva Power Plants	2 000	oil shale	Eesti Energia
Iru Power Plant	176	natural gas	Eesti Energia
Ahtme cogeneration plant	24	oil shale	Eesti Energia
VKG power plants	44	oil shale	Private capital
Renewables, total	70	Wind, hydro, biogas	Private capital
Cogeneration, others	48	Oil shale, peat, natural gas	Private capital
Total	**2 362**		

In the present security of supply analysis the Authority has dealt with coverage of consumption capacity (load) until year 2016. In the evaluation of coverage two important factors shall be considered: firstly, Estonia is net exporter and secondly, installed capacities exceed peak load today.

Table 5.1.2 presents electricity balance from 2000 to 2008. Drawing 5.1.2 shows graphically the share of net export and domestic consumption of electricity. As seen, the share of net export since 2000 has been 10-25% of the annual production. The highest export share was in 2007.

Table 5.1.2 Estonian power balance GWh. Source: Statistical Office 2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
production	7 591	7 590	7 634	9 101	9 232	9 114	8 728	10 954	9 498
final consumption	5 422	5 607	5 686	6 013	6 326	6 403	6 901	7 180	7 427
network losses	1 240	1 361	1 258	1 192	1 112	1 103	1 077	1 354	1 130
net export	929	622	690	1 896	1 794	1 608	750	2 420	941



Drawing 5.1.2 Share of domestic consumption and export of electricity GWh Source: Statistical Office 2008

Available reserve capacity and the system's peak loads are presented in following table 5.1.3.

Table 5.1.3 Available reserve capacity and system peak load. Source: OÜ Elering

Calendar year	Domestic electricity consumption (incl power losses) GWh*	System peak load MW*	Installed capacity MW**
2007	8231	1537	2052
2008	8036	1525	1960
2009 prognosis	7904	1505	1665
2010 prognosis	8045	1524	1718
2011 prognosis	8188	1544	1992
2012 prognosis	8333	1564	2024
2013 prognosis	8481	1585	2134
2014 prognosis	8632	1605	1971
2015 prognosis	8785	1626	1971
2016 prognosis	8925	1645	1970

Adjusted prognosis according to data presented by Elering (the TSO) in July 2009
The 10% production reserve required by law is ignored

According to the previous prognosis by the TSO in the worst scenario it was foreseen a capacity deficit in 2016 of 1 100 MW. Considering the current falling consumption volumes that was an over-estimation. Based on an adjusted estimation of peak loads and installed capacities it can be anticipated that there will be no capacity deficit until 2016.

Beginning from 2016 Eesti Energia's Narva Power Plants shall comply with the SO_2 and NO_x emission limitations stipulated by the Directive on large combustion plants. The problem is that the old energy blocks do not comply with the requirements of the Directive. It should be mentioned that the emission limitations does not necessarily mean immediate closing down the blocks. Modern technologies may offer opportunities for modernisation of old block and thereby bringing them into compliance with the requirements of the Directive.

Especially important are Eesti Energia's, as the market participant with the biggest share, plans in connection with Narva Power Plants (AS Narva Elektrijaamad) and also with Iru and Ahtme Power Plant. According to the presented information, the capacity developments are presented in table 5.1.4 while potential investment projects of Eesti Energia are given in table 5.1.5.

Table 5.1.4 Production capacities of Eesti Energia

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Narva Power Plants	2 000	2 000	2 000	2 000	1 538	1 538	1 538	1 538	1 052
incl. old blocks*	1 614	1 614	1 614	1 614	1 152	1 152	1 152	1 152	666
incl. new blocks	386	386	386	386	386	386	386	386	386
Iru Power Plant*	156	156	156	156	156	156	156	156	156
Ahtme Power Plant	24,4	24,4	24,4	0	0	0	0	0	0
Kohtla-Järve Power Plant	0	0	0	0	0	0	0	0	0
Others:	3,5	43,6	43,6	43,6	43,6	43,6	43,6	43,6	43,6
* incl. capacities under conservation	364	364	364	364	62	62	62	62	62
Old blocks of Narva Power Plants	302	302	302	302					
Iru Power Plant, block no.1	62	62	62	62	62	62	62	62	62
TOTAL	**2 184**	**2 224**	**2 224**	**2 200**	**1 738**	**1 738**	**1 738**	**1 738**	**1 252**

Table 5.1.5 Potential investments into production capacity of Eesti Energia

Year	2010	2011	2012	2013	2014	2015	2016
Narva Power Plants, new oil shale block						272	272
TSO's emergency reserve gas turbine station			120	120	120	120	120
Ahtme biomass CHP block		22,5	22,5	22,5	22,5	22,5	22,5
Iru municipal waste block		17	17	17	17	17	17
Narva windmill park	50	50	50	50	50	50	50
Aulepa windmill park no 2		8	8	8	8	8	8
Põltsamaa hydro plant	0,2	0,2	0,2	0,2	0,2	0,2	0,2
Ekseko biogas CHP					1,7	1,7	1,7
Paldiski windmill park			25	25	25	25	25
TOTAL	**50,2**	**97,7**	**242,7**	**242,7**	**244,4**	**516,4**	**516,4**

Conclusion: currently Estonia has no security of supply problems, but vice versa – installed capacities surpass domestic peak load consumption making export of electricity possible. Nevertheless, the decisions must be made already today. Because, if no new capacities will be installed nor no renovations of Narva Power Plants' existing old blocks will be carried out then electrical capacity deficit is likely to take place in 2016.

5.1.1 Security of supply analysis made by TSO

According to the amendments to the Electricity Market Act enforced in 1 May 2007 the transmission system operator (OÜ Elering) is obliged to prepare a report, which presents: a prognosis of offer and demand of electricity in next five years, existing supply possibilities; perspective installations and those under construction; quality of networks and their maintenance level; measures of securing maximum (peak) demand and measures undertaken in situation of capacity deficit; security of supply of network; foreseeable electricity security of supply in the period of 5-15 years and investment plans of the transmission network operator and respective ones in neighbouring countries known to him for a five-year period for erection of cross-border connections. The report in question is presented to the EU Commission, to the Ministry of Economic Affairs and Communications and to the Authority. Thus, one of the parts of the report shall present an evaluation of the need of investments into production capacity. Based on the prognosis of the transmission network operator the Authority may oblige the TSO to arrange a tendering for new capacity installations.

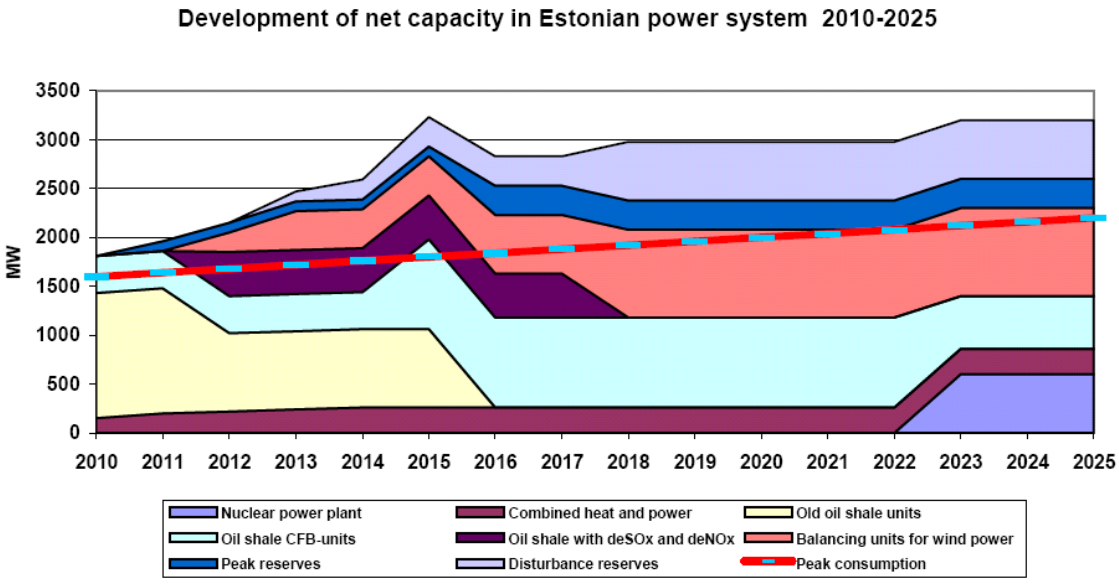
OÜ Elering has thoroughly handled all above-mentioned topics in its security of supply report. It is stated in the report that already in 2009 a production capacity deficit of 140 MW may take place, if two blocks of the Narva Power Plants will be put stand-by under preventive conservation. Those blocks will be put in operation again in autumn 2010. The Authority estimates that considering the falling consumption trend a deficit of production capacity in 2009 is unlikely. In the period 2011 to 2016 the necessary production reserve will be available provided that it is possible to operate all existing production equipment and new will be built (300 MW gas turbine plant possessed by TSO). The transmission operator is also in opinion that most critical year for the energy sector is 2016, when all the electricity production has to be harmonised with EU requirements. Thus, by 2016 new production capacity has to be erected, or renovations carried out on existing installations, in order to comply

with the EU norms. According to data by OÜ Elering the needed production capacity will be available after 2016 if in addition the new Väo and Tartu cogeneration plants and to the planned Pärnu cogeneration plant also a new gas turbine plant, as well as two extra blocks of 300-400 MW will be erected in Narva. Moreover, OÜ Elering declares that if necessary investments will not be undertaken the capacity lack in 2016 will be 1100 MW. Due to the cross-border transfer capacity limitations import in such a level is impossible.

Upon a request by the Authority the TSO Elering updated in its report the production and consumption prognosis in connection with the changed economic situation in Estonia and all over the world (as it was reflected in table 5.1.3 above). In comparison of the new consumption and pessimistic production capacity prognosis it can be estimated that in 2016 the capacity deficit may be 623 MW, as a maximum.

5.1.2 Electricity sector development plan

The Ministry of Economic Affairs and Communications introduced a draft plan for development of the Estonian electricity sector until 2018, in which it deals with various security of supply scenarios. The scenario, which is deemed most likely and useful for Estonia is presented in drawing 5.1.3.



Drawing 5.1.3 Development scenario of Estonian power production net capacity 2010-2025. Source: Ministry of Economic Affairs and Communications, Development Plan of the Estonian Electricity Sector until 2018 (draft)

Thus, according to the Ministry's estimations the following shall be undertaken:

- capacity of cogeneration plants increased up to 300 MW (net capacity during peak of 260 MW) by 2014
- 2x300 MW (net capacity 270 MW) new oil shale fluidised bed blocks erected by the end of 2015
- SOx and NOx capture equipment installed to four old 200 MW (net 4x150 MW) oil shale blocks by 2012
- capacity of land-based wind turbines increased up to 400 MW by 2013

Investment decisions for all the listed capacities shall be made before the end of 2010.

The Ministry suggests that for further increase of wind turbine parks offshore locations are rational. Besides, production capacities equal to the total of wind generators' capacity shall be erected. After implementation of shale oil using gas turbines, assumable since 2018, it becomes possible to consider closing down some of the block with cleaning installations in Narva Power Plants. The need for increasing emergency reserve power plants in 2016 is related to commissioning of Estlink 2 submarine cable with an anticipated capacity of 600 MW. These plants can also serve as a reserve for possible nuclear plant. The Ministry foresees that the gas turbine plants shall be able to burn at least two fuels, preferable domestic ones.

Table 5.1.6 presents the Ministry's prognosis for net capacity development in the form of a table. It can be concluded that in 2016 the system load peaks at 1646 MW and for it there will be enough production capacity and no capacity deficit is expected.

Table 5.1.6 Development of net capacity in Estonian power system 2010-2025
Source: Development Plan of the Estonian Electricity Sector until 2018 , draft

	2010	2011	2012	2013	2014	2015	2016
Cogeneration plants	150	200	220	240	260	260	260
Oil shale plants	1660	1660	1630	1630	1630	2170	1520
- old	1280	1280	640	640	640	640	
- fluidised bed	380	380	380	380	380	920	920
- with purification equipment			600	600	600	600	600
On-shore wind farms*	150	200	200	400	400	400	400
Off-shore wind farms*							200
Balancing units for wind power			200	400	400	400	600
- including gas turbines based on shale oil							200
Peak reserves**		100	100	100	100	100	300
Disturbance reserves**				100	200	300	300
Nuclear power plant							
Total guaranteed production capacity	**1810**	**1960**	**2150**	**2470**	**2590**	**3230**	**2980**
Taking account of criterion n-1	1620	1800	1990	2310	2430	3070	2710
Taking account of criterion n-2	1430	1580	1830	2150	2270	2910	2440

* - The capacities are not taken into account in the total guaranteed production capacity.
** - Unit capacities of up to 100 MW

5.1.3 Estlink 1, Estlink 2 and other connections

Most important new infrastructure project is the Estlink, under which a HVDC submarine cable connection with a capacity of 350 MW was erected between Estonia and Finland. It was commissioned and started commercial operation in December 2006.

Regarding other infrastructure projects the transmission network operator Elering plans to install another 650 MW sub-marine cable (Estlink 2) in addition to the 350 MW one by the year 2013. In 2011 it is planned to build new high transmission lines 2x 330 kV + 110 kV in order to improve security of supply for Pärnu and Viljandi towns.

5.1.4 Investments in Narva Power Plants and Aulepa wind farm

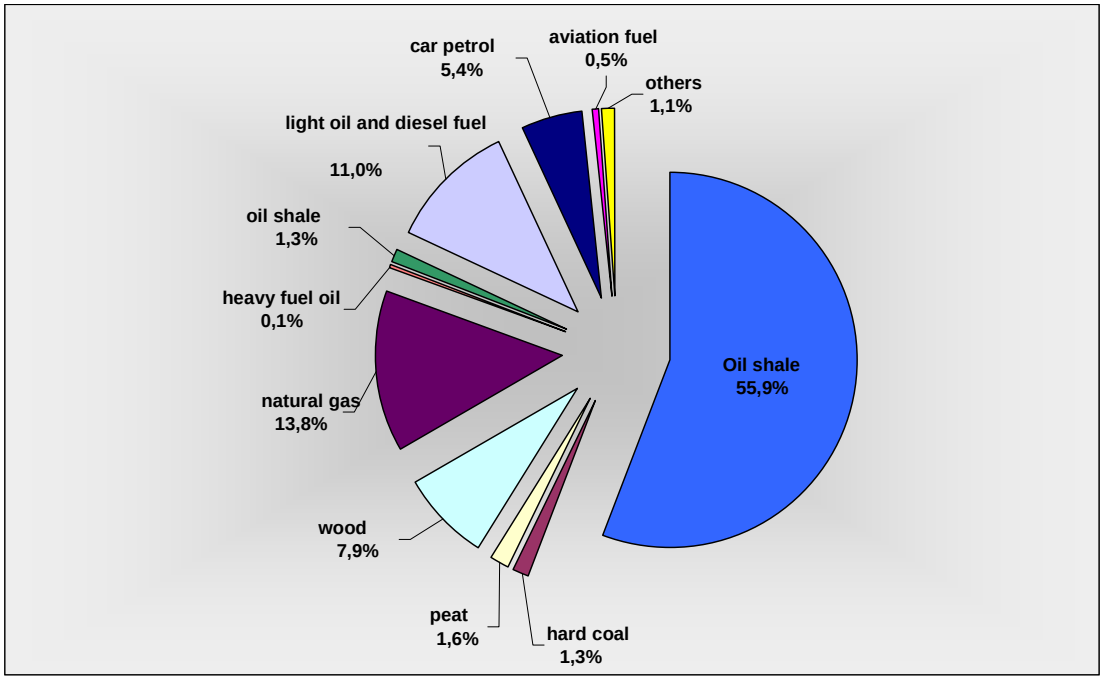
The most important events in the first quarter of 2009/10 business year for Eesti Energia were the decision to build a new shale oil factory that will use an updated efficient technology and to arrange procurement of two new oil shale fired power production blocks. The decision is crucial and closely related to the EU CO_2 policy after 2013. In the current allocation period from 2008 to 2012 Eesti Energia group has enough quota for domestic production, while the next period beginning in 2013 the quota allocations are uncertain to a large extent. As production of electricity from oil shale creates high CO_2 emission (production of 1 MWh of electrical energy results in approx. 1 ton CO_2 emission), the future CO_2 policy is crucial in investment decision-making process. Should Eesti Energia buy all its needed CO_2 at market price the produced electricity price may appear non-competitive. That is why an appropriate solution shall be worked out, especially in connection with security of supply. This means, a solution that provides both competitiveness of oil shale based electricity and through that also security of supply. In doing so the Authority is in a position that the decision on erection of two new oil shale fired power blocks is of an utmost importance from security of supply point of view.

In June 2009 Eesti Energia commissioned the new Aulepa wind turbine farm, which is biggest in the Baltic countries. The farm is Eesti Energia's first large investment in the development of renewable energy. The investment cost was close to 900 million EEK and it was covered by the group's equity financing. The farm's installed capacity totals 39 MW with an expected annual production of 100 GWh constituting 1,3% of the final electricity consumption in Estonia.

Conclusion: Currently Estonia has no security of supply problems. Nevertheless, unless investing into new capacity or renovating existing one by 2016 there is likely to occur a capacity deficit. The Ministry has worked out in-depth development plan until 2018 in order to secure sustainability of the Estonian electricity sector. The Authority is in an opinion that Estonia must cover its load with domestically installed capacity. Eesti Energia has made the decision to continue with investments in new oil shale fired power blocks in Narva Power Plants, which is an important step towards securing of power supply in Estonia.

5.2. Natural gas

In the Estonian primary energy supply balance the share of gas is 13,8% (see drawing 5.2.1), while among fuels used for electricity production its share is only 2,9%. Estonia is net exporter of electrical energy, hence it is possible to cover all national demand without gas.



Drawing 5.2.1 Estonian domestic consumption of fuels in 2008

From security of supply point of view natural gas is very important in the production of heat in district heat supply facilities where its share is up to 48,4%. In bigger towns like Rakvere, Jõgeva, Rapla, Põlva and some others district heat supply bases 100% on natural gas. The share of gas is high also in Tallinn, Tartu, Viljandi, Sillamäe and several other towns' district heat supply. In 2006 also Pärnu and Rapla towns were connected with the natural gas supply network. Thereby, in the supply of Rapla 100% will base on gas, while in Pärnu an important share will still remain with solid fuels (peat and wood). Thus, when it comes to security of supply, natural gas has the highest importance in the district heat supply sector. Whereas, a specific of Estonia is that 39% is consumed for industrial purpose, while the consumption of the biggest customer – AS Nitrofert – constitute 22% of the total Estonian gas consumption.

Compared to Western Europe local gas heating is relatively little spread in Estonia. The development of smaller gas networks is more intense in real estate development areas. The share of natural gas in household consumption in 2008 was still about 5,3% from the total gas consumption.

Thus, the share of gas in electricity production is very little and Estonia has sufficient reserve capacity for covering electricity demand. Hence, from the security of supply view, gas has no significant importance in electricity generation. At the same time,

gas is extremely important from security of district heat supply point of view. While in most district heating systems besides gas also alternative fuels can be used, in local gas heating such possibilities do not exist and in possible gas supply interruption situations the customers would simply be left unheated.

Table 5.2.1 presents general gas supply and consumption figures, while table 5.2.2 gives gas utilisation figures by various sectors.

Table 5.2.1 General information on gas supply

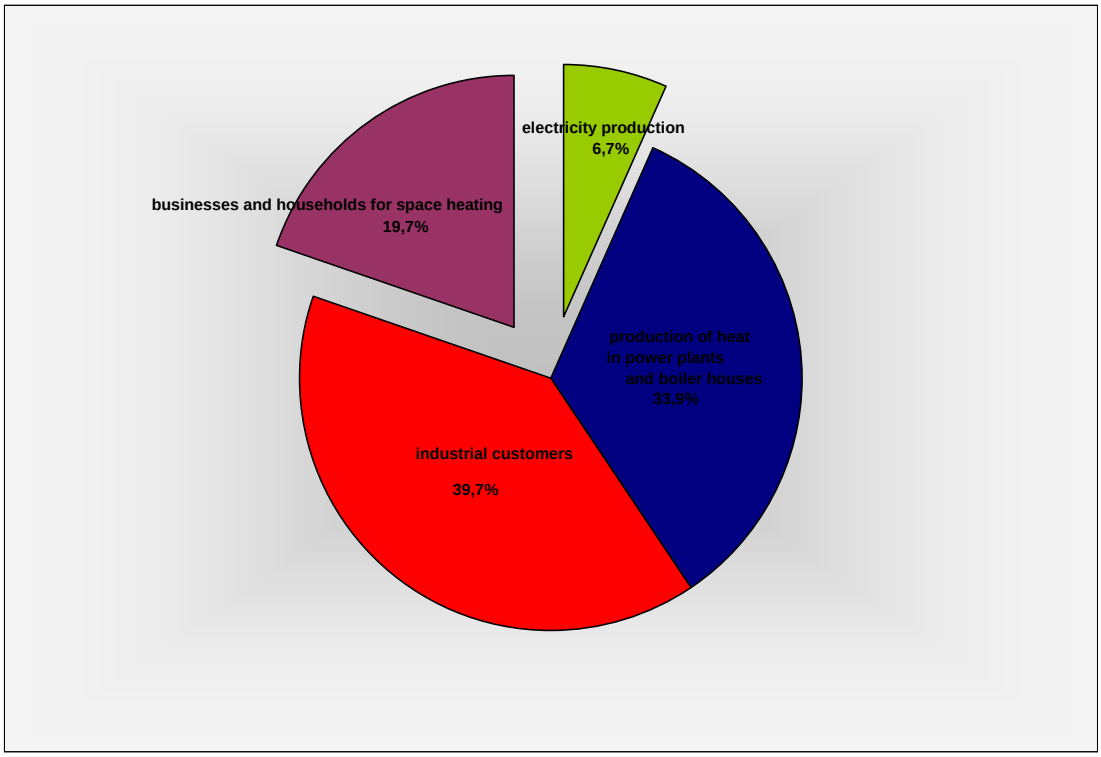
	Import Eesti Gaas mill m^3	Import Nitrofert mill m^3	Total consumption mill m^3	Peak load		System max transfer capacity	
				1000 m3/day	MW	1000 m^3/ööpäevas	MW
2001	789	76	865	5 400	2 099	7 000	2 721
2002	675	48	724	5 000	1 944	7 100	2 760
2003	732	106	838	5 500	2 138	7 800	3 032
2004	749	213	962	5 100	1 982	8 300	3 226
2005	774	216	991	5 200	2 021	10 400	4 043
2006	794	215	1 008	6 700	2 604	10 500	4 081
2007	796	208	1 004	6 400	2 488	10 700	4 159
2008	**748**	**215**	**963**	**5 200**	**2 021**	**10 900**	4 237
2009 progn	650	25	675	4 300	1 671	11 000	4 276
2010 progn	650	50	700	4 300	1 671	11 000	4 276
2011 progn	675	100	775	4 300	1 671	11 000	4 276
2012 progn	700	100	800	4 500	1 749	11 000	4 276
2013 progn	725	150	875	4 500	1 749	11 000	4 276
2014 progn	725	150	875	4 500	1 749	11 000	4 276
2015 progn	750	200	950	5 000	1 944	11 000	4 276
2016 progn	750	200	950	5 000	1 944	11 000	4 276

Note: EG Võrguteenus prognosis in July 2009

Table 5.2.1 gives separately the quantity of gas imported to Estonia and consumed by AS Nitrofert. In 2008, for instance, it constituted as much as 22% of the Estonia total consumption. Due to complicated economic situation Nitrofert has suspended its operation and the Authority gas no information on possible resuming of operation. In table 5.2.1 the prognosis of import quantities is made by Nitrofert and gas network operator EG Võrguteenus.

Table 5.2.2 Use of gas by various sectors in 2007 and 2008

	2007		**2008**	
	Gas consumption thousand m^3	Share	Gas consumption thousand m^3	Share
Production of electricity	57 656	5,7%	64 545	6,7%
Production of heat in power plants and boiler houses	362 370	36,1%	326 982	33,9%
Industrial customers	385 757	38,4%	383 517	39,7%
Business and households for heating	197 639	19,7%	190 316	19,7%
Total	**1 003 422**	**100,0%**	**965 360**	**100,0%**



Drawing 5.2.2 Consumption of natural gas by customer groups in 2008
Source: AS Eesti Gaas

The economic situation in 2008 and especially in the beginning of 2009 changed dramatically gas consumption in Estonia. The steep rise in import prices resulted in record high prices for customers. Compared to 2007 consumption fell by 4%, from 1003 million m3 to 963. The biggest gas consumer AS Nitrofert suspended its production indefinitely. This reduces consumption by 200 million m^3 per annum. New peat and wood fired cogeneration plants were commissioned in Tallinn and Tartu towns, which also reduces consumption of gas.

As regards security of gas supply Estonia completely depends on the Russian gas supplies. Estonia has two cross-border transmission connections with Russia: one in Narva (east) direction and the other in Värska (southeast) direction and one connection with Latvia in Karksi. In normal situation only two of these connections are operational: the Latvian connection and the Russian connection in Värska. The Narva connection transfer capacity is limited because of some network limitations on the Russian side and it is opened only in emergency situations. As it was already described in the gas market review chapter Estonia has no problems with exhaustion of pass-through capacity, but problems may arise only in extreme peak load conditions.

Concerning new connections possible Estonian-Finnish gas connection is in question. Currently it is under pre-feasibility study phase. The routing selection and an environmental impact assessment have also been commenced. However, according to an evaluation by AS Eesti Gaas the construction of the gas connection cannot be commenced before 2013.

Gas is imported to Estonia by AS Eesti Gaas and the chemical industry AS Nitrofert. In fact, Nitrofert is not involved in selling of gas but imports it exclusively for its own technological needs. In winter period from November to April Eesti Gaas covers the gas consumption only with the gas from the Latvia located Inčukalns gas storage, while Nitrofert imports it directly from Russia. Actually, in winter both Estonia and Latvia, and partly also Russia and Lithuania are primarily supplied with the gas from the Inčukalns storage, which has an active volume of 2 300 million m^3.

Until spring 2008 Eesti Gaas rented in the Inčukalns gas storage a volume of 500-600 million m^3. Filling up of the storage takes place through the pipeline that comes from Russia through the Estonian territory. The process of filling up of the storage takes place in the period from April to October and it is observable by Eesti Gaas. A stoppage of the filling up process would indicate on possible risks in gas supply and Eesti Gaas could take measures in advance in order to mitigate the risks and be ready for supply disturbances. The mentioned quantity of 500-600 million m^3 is a sufficient for securing a strategic reserve for Estonia. An important circumstance to emphasise that the stored gas a property of Eesti Gaas and storing takes place on the territory of an EU Member State.

According to the storage agreement the Estonian and Latvian gas companies Estonia can consume daily 5 000 thousand m^3 from the Latvian storage to cover its needs. The analysis of consumption peak loads in years 2001 to 2007 shows that the volume has been sufficient to cover Estonian peak load. The consumption peak of Nitrofert is about 700 thousand m^3 daily. This has to be subtracted from the Estonian totals as Nitrofert buys gas directly from Russia and is not using Inčukalns gas storage.

Beginning from 2008 the situation in gas supply changed to some extent. Eesti Gaas has quit from the storing in the Latvian storage and buys gas directly from Gazprom. This means that Gazprom itself stores gas in the storage and is the owner of gas until it is handed over on the Estonian-Latvian border. Therefore, the technical solution of storing has not changed as in winter period Estonia is still supplied from the Latvian storage. However, there in an essential difference – earlier the gas in the storage belonged to Estonia, while now its owner is Gazprom. Eesti Gaas explains that the change of supply scheme is justified from financial and economical point of view. Namely that it is more favourable for the undertaking as now there is no need for storing large gas reserves. The Authority is in a position that the new arrangement reduces security of supply. The weakest point is that, as mentioned, now the owner of gas is Gazprom and the latter can now decide where to sell the gas in possible shortage situation.

In January 2006 between dates of 19 to 22, when weather conditions were extremely cold both in Russia and in Estonia some disturbances occurred in supply. The Authority has initiated a supervisory proceeding in which also employees of the Ministry of Economic Affairs and Communications were involved. The proceedings identified that the legislation related to security of supply should have to be amended remarkably.

With respect to the EU Directive 2004/67, which stipulates measures for securing gas supplies and considering the results of above mentioned analysis the Ministry of Economic Affairs and Communications elaborated proposals for amending the

Natural Gas Act with measures ensuring security of supply of gas. The amendments were approved by Riigikogu (the Parliament) in March 2007. For securing of gas supplies the following measures are set out.

In the period from 1 October to 1 May the household customer's supply with gas may not be interrupted nor limited. In the same period, gas supply may not be interrupted nor limited to an undertaking supplying residential space heating and which has no possibility to use fuel other than gas. Gas supply may be interrupted if there is a danger for people's life, health, property or environment is endangered, as well as upon an agreement between parties. A heat supply undertaking with an annual estimated production volume over 500 000 MWh per network area is required to facilitate a possibility of using a reserve fuel since July 2008, in order to secure heat supply during 3 days.

In case of occurrence of circumstances that can jeopardise security of supply, endanger people's life and health or the integrity of network, the system operator shall inform the Ministry of Economic Affairs and Communications and the Authority, that makes proposal for implementation of measures which can ensure security of supply. The Ministry in cooperation with the Authority shall analyse the proposal received from the system operator and if necessary, make proposal to the Government of the Republic for implementation of the following measures for ensuring security of supply:

1) limitation of gas supply to the persons which use gas other than for heating purpose
2) allowing gas supply limitations to the undertakings that produce heat
3) allowing lowering the temperature of water supplied for space heating
4) oblige heat supply undertakings to using of a reserve fuel

Since in Estonia most important is to ensure natural gas supply for heat supply undertakings and households, it is intended to impose supply limitations of supply first of all to heat producers in Tallinn and Narva. In essence, the amendments stipulate a requirement for Tallinn and Narva district heat supply undertakings on facilitation of a possibility of using a reserve fuel and in case of gas supply disturbances switch over to the reserve fuel. In case of Iru Power Plant it is possible to run the plant in heat only mode instead of cogeneration mode, in order to reduce gas consumption. In Estonia it is acceptable, as the share of gas in electricity generation is very modest. The power plants fired with gas constitute less than 10 per cent of the installed capacity and the electrical load can be covered with oil shale fired boilers of Narva Power Plants.

According to the enforced amendments the system operator (EG Võrguteenus) is required to prepare a description of emergency situations which can jeopardise normal operation of the gas system, as well as a plan for resolving of the emergencies. The plan shall be submitted to the Ministry of Economic Affairs and Communications. The plan is to be applied in situations when the balance provider fails to ensure gas balance and limitation of consumption by certain customer groups becomes unavoidable.

In conclusion, it can be said that Estonia has no shortage of network transfer capacity. Based on the consumption and transmission capacity prognosis submitted by Eesti Gaas there shall be no transmission capacity shortage until 2016 and very likely not after that time as well. Nevertheless, problems may arise in connection with security of supply and this in turn can jeopardise heat supplies which are highly dependent on gas supplies. As in the European part of Russia an overall increase of gas consumption takes place, the Estonian peak load in winter period can be primarily covered with the gas from the Latvian gas storage. In recent years the gas consumption peak has been on the level of 5 000 to 6 700 thousand m^3/daily (the record high consumption was in the extremely cold winter of 2006). Considering the fallen load in both consumption volumes and of the peak and the fact that Nitrofert will cover its daily consumption of 700 thousand m^3 itself. This means that in addition to the current Latvian gas storage supply of 5 000 thousand m^3 daily an extra supply of 1 000 to 1 300 thousand m^3 daily is needed, 100% of the Estonian load can be covered from the Latvian storage.

Along with the start of commercial operations by the new Tartu and Väo (Tallinn heat supply) cogeneration plants, the security of supply dependence in gas in the biggest towns has deceased. Thus, in Tallinn district heat supply the share of gas is about 76% and in Tartu only 17% (in total for the two district heat areas), while in the plants belonging to AS Fortum Tartu as low as 6%.

From technical point of view security of supply shall certainly be improved by the planned Estonian-Finnish gas pipeline connection. The project does not have final approval yet. Environmental impact assessment and selection between various technical solutions is currently ongoing in the Baltic countries and Finland.

The Authority shares the position of Eesti Gaas that possible new connections shall improve supply security from technical point of view, whereas 100% dependence on Russian supplies will still be the fact for both the Baltic countries and Finland. The latter risk could be mitigated by erection of liquefied gas terminal, which could be common for both Baltic States and Finland.

In conclusion the Authority is in a position that gas supply risks are related to the supply from a single source - Russia. However, in possible crisis situation the consumption of gas can be significantly reduced (cease of electricity production in Tallinn and Narva and other district heating systems, switching over to using of reserve fuels). The reduction of gas consumption makes it possible to supply Estonia fully from the Latvian gas storage and thereby reduce supply risks.